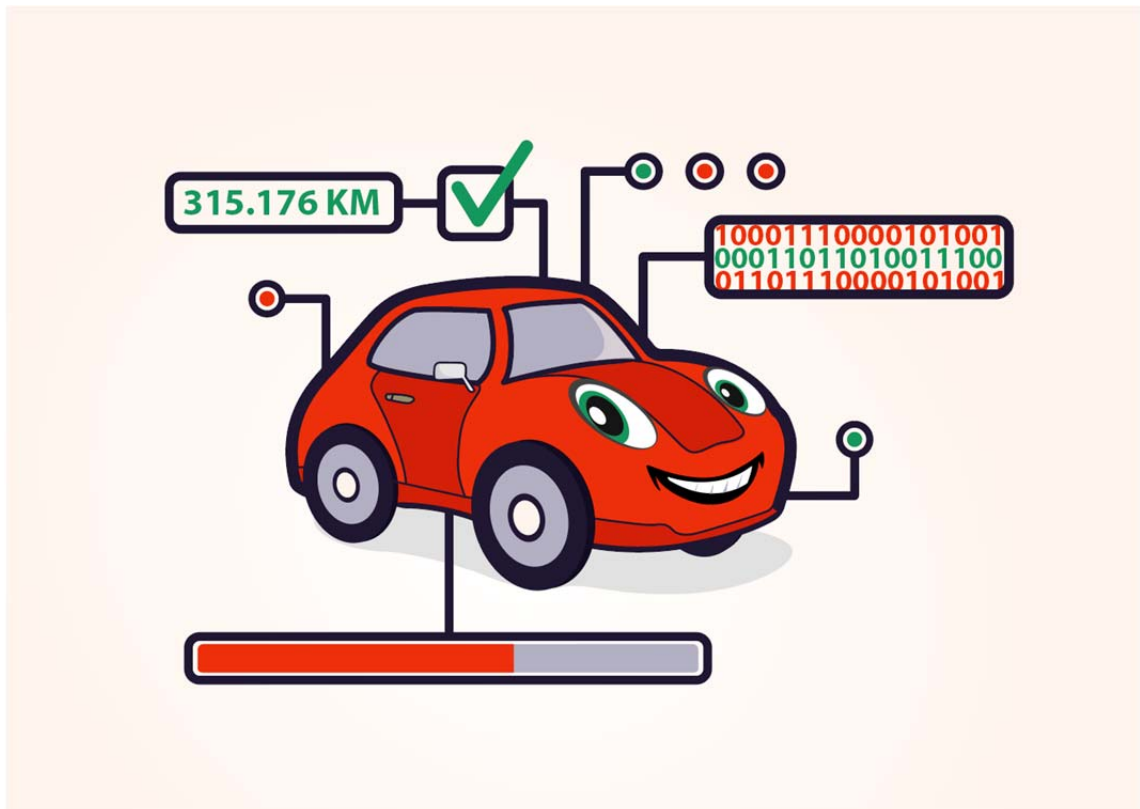


Data in a vehicle's life cycle

Research study into the current practice and regulations for the registration and exchange of vehicle data in the European Union





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1 Summary

This is a study into the registration and exchange of data during the lifespan of a vehicle, in a European perspective. The study covers all the events in the 'life' of a passenger vehicle – from its design to its demolition – such as accidents, traffic and parking fines and PTI inspections. The author of this study is RDW, the Netherlands Vehicle Authority. As a Government organisation, RDW is charged with tasks across the entire vehicle chain. Most of these tasks are based on European legislation and are related to vehicle data.

We have ascertained that legislation in the vehicle domain is developed on the basis of individual events. That means that legislation tends to be formulated with a limited objective and scope, and with different stakeholders and decision-makers for each event. The result is that the registration and cross-border exchange of vehicle data has not always been regulated efficiently, whereas vehicle data is becoming more and more important to perform statutory tasks. In fact, data registration and exchange is often a tailpiece in the legislation or not regulated at all.

We believe that smarter legislation is possible in this area by a change of the perspective. Amongst other things, we propose treating the vehicle chain as a whole rather than as individual events and making the registration and exchange of data the centre of focus.

This has a number of advantages:

- It reduces the administrative burden for citizens and companies
- It improves the efficiency of government organisations

As a consequence our approach:

- Contributes to the free movement of people, goods and data
- Increases the sustainability and safety of vehicles and data
- Makes us better prepared for future digital developments (such as ITS)

Based on our analysis, we have identified a number of possible improvements, which, when added up, might form the basis for a future-proof and consistent approach to the registration and exchange of vehicle data:

1. Improvements in ongoing or current European developments: this involves resolving bottlenecks in legislation that can be resolved in the short term because the intention and the basis already exist. Examples include the registration and exchange of mileage and the digital delivery of Certificates of Conformity.
2. The introduction of greater consistency when regulating the various events in the lifespan of a vehicle: the European Union is developing different vehicle regulations, based on climate, road safety, mobility, industry, consumer policy. This is giving rise to unwanted compartmentalisation. It is especially noticeable with data exchange. If we

take the chain of events in a vehicle's lifespan into account during every event, we can develop a much smarter approach. After all, roughly the same data has to be registered or provided in many different events.

This consistency can also be stimulated through the systematic use of a number of principles, such as the re-use of data and systems and the linking of (sub)national registers.

3. Lastly, a cohesive and consistent European approach towards vehicle registration and information should be formulated in the longer term. This would make it legally possible to view the current recorded status of a vehicle and its registration at any given time. With this type of legislation, the standards and conditions for registration and exchange only need to be regulated once. It also means that the data required to implement the public tasks in the vehicle domain only needs to be defined and classified once, as open data or as privacy-sensitive, fraud-sensitive or company-sensitive data. At the same time, it can also be regulated how and under which conditions the data in question may be exchanged internationally. That also creates the necessary basis for a similar approach in the future in the context of ITS.

All of these possible improvements involve European legislation. There is currently no appetite for more European legislation. However, this is more about tackling existing legislation in a smarter way and taking a fresh look at certain parts of those regulations. In other words, better, smarter regulation in the mobility domain, which is exactly what the European institutions are aiming for.

We think that it is only through the efficient and reliable exchange of data that we can ensure that vehicles drive safely and sustainably on our roads, now and in the future, and that citizens are not inconvenienced by the administrative red tape caused by national borders. On the basis of this study, we challenge the European Commission, our fellow-government organisations and private parties, to view legislation in a different way, to take vehicles and their use as the point of departure and to start treating vehicle data as a constant factor in the vehicle chain.

2 Introduction

2.1 Context and background

Mobility is precisely the type of domain in which European cooperation can provide added value. Vehicles are constantly crossing borders. Mobility reflects two important European core values: the free movement of people and the free movement of goods. Free movement in the European Union has led to an increase in the number of cross-border vehicle movements. In order to facilitate the free movement of people and goods in vehicles, there is another important ‘freedom’. This is the ‘free flow of data’. The importance of data in society is increasing all the time; and here, too, there are no national borders.

There are a number of European developments in which vehicle data has an important role to play – for example, safety standards, PTI inspections, the transfer of vehicles, the registration of mileage, traffic violations, and so on. As a vehicle authority, RDW is involved in all of these developments. Besides being a Type Approval Authority, we also supervise the PTI inspections in the Netherlands and act as the Registration Authority for vehicle data. In terms of practical implementation, we have discovered that the cross-border registration and exchange of vehicle data has not always been regulated efficiently. In this study, we would therefore like to analyse the situation and make suggestions for better European legislation for the registration and exchange of vehicle data.

Every event in the vehicle chain has its own stakeholders with a wide range of public and private interests. Legislation is therefore drawn up on the basis of a limited objective and scope, where, depending on the subject, different parties are involved on a national, European or even a global level. This is causing unwanted compartmentalisation and there are overlaps, incompatibilities and gaps in those regulations. It is only through the efficient and reliable exchange of data that we can ensure that vehicles drive safely and sustainably on the roads, now and in the future, and that citizens are not inconvenienced by the administrative red tape caused by national borders.

Furthermore, the developments related to Intelligent Transport Systems (ITS) mean that it is even more important to examine this area closely. These developments will provide government organisations and the business sector with new opportunities in relation to data about the use of vehicles. That data is stored in the electronic systems of vehicles and can be used, for example, to evaluate the technical condition of the vehicles for accident analysis, toll collection or fraud detection. To achieve this, however, a number of factors must be regulated, such as the quality and ownership of the data. That is a complex task that involves a large number of parties. We believe that the logical first step is to regulate the registration and exchange of static vehicle data more efficiently. This study is about that static data – that is, the

data that describes the technical aspects, the condition and the ownership of the vehicle. We are convinced that this can serve as the basis for the legislation for ITS.

The Dutch Government intends to improve the digital services that it provides to citizens and companies. As part of the 'system of basic registrations' in the Netherlands, important data that helps society function is stored at one location, managed by a designated body and made available to all other national authorities. Because we have a single source for each type of data, the quality of the data is guaranteed and the data is used – without need for further investigation – by all Government institutions in order to implement their public tasks. Dutch law makes no distinction between the supply of data to national and international authorities. This type of system and the principles that drive it can serve as inspiration for European initiatives around data in the mobility domain that does justice to the differences between the Member States.

We therefore believe that there are plenty of opportunities in the vehicle domain for very concrete 'improved legislation' that citizens, the business sector and government organisations can benefit from directly. This is an example of 'smart regulation', which involves taking a horizontal approach, finding cross-connections and making the most of the new digital capabilities of our time. The idea is to start thinking in a more generic way, based on the vehicle and its data. Because even though if different authorities and actors are involved, all the events to be regulated still concerns the same vehicle.

2.2 The aim of this document

Our aim is, by means of a study, to offer inspiration and solutions to help improve and standardise registration and international exchange of data in the vehicle chain. This is a concrete and viable opportunity to achieve better legislation on a European level that directly benefits citizens, companies and government organisations.

The registration and (international) exchange of vehicle data is currently not regulated on a pan-European basis. Or it is only partly regulated, but then always with a limited scope.

That produces a number of problems and issues:

- No harmonised or standardised registration.
The EU countries register the vehicle data in different ways. Certain data is registered in some countries but not in others; some data is only registered and used nationally, while the exchange of some data is voluntary and for other data mandatory. The rationale behind this is not always clear.
- Compartmentalisation
In the various events in the 'life' of a vehicle and the associated legislation, the data aspect is approached from a different perspective, and that means reinventing the

wheel every time. The legislation is based on individual events rather than the total lifespan of a vehicle, which is made up of a succession of those events. The focus on individual events results in different actors and stakeholders being involved. This affects the choices of the European Commission, the Council and the European Parliament. The legislation is designed by various DGs at the European Commission and then processed in various Working Groups and European Parliament committees, all working within a limited scope.

- Fear of digital solutions

We assume that there is a general feeling that ICT applications are difficult to realise and that they involve enormous costs for the organisations that must implement the legislation. As a result we see that the data aspect in the vehicle regulations is often the tailpiece, whereas for (cross-border) admission, transfer and enforcement the capacity to view, transfer and use vehicle data is essential and is becoming increasingly important. The way data must be registered and exchanged is often only half described, contains a lot of optional elements or is even avoided. This means that sometimes manual procedures have to be developed or systems must be created that are not effective enough or incompatible.

- Confusion about the ownership of the data, use and costs

Which data belongs to whom? Who is responsible for the correctness, actuality and completeness of the vehicle data? Manufacturers, citizens and companies (vehicle owners) and government organisations all want to use the data. Which data must be treated as 'sensitive'? And which data should government organisations make available as open data after registration? What are the conditions for making vehicle data available to government organisations so that they can perform their public task? Who must bear the related costs? The lack of unambiguous answers to these questions means that every country has its own interpretations and that the vehicle industry, which usually operates across borders, comes up with answers that may not always appeal to citizens and government organisations.

If the registration and exchange methods would be regulated and implemented more generically, with all the necessary legal guarantees, the data aspect of European legislation for the various events in the vehicle chain could be limited to a reference to those generic regulations and would only need to specify who has access to which part of the data and when. Then, subjects such as semantics, exchange mechanisms, quality and security, classification of data and privacy guarantees and the costs of the exchange would already have been regulated, which means it would not be necessary to reinvent the wheel from yet another perspective.

We fully realise that many of the vehicle events in other EU countries are regulated differently than in the Netherlands. With different public and private parties and a different mix of tasks and authorisations. This is precisely what we want to include in a generic solution. We want to

link local national registers so that the domestic responsibilities and procedures do not have to be changed, while the data exchange can be harmonised.

We are challenging all actors in Europe; the European Commission, our fellow-government organisations and private parties, to view legislation in a different way, to take vehicles and their use as the point of departure and to treat vehicle data as be a constant factor in the vehicle chain. Vehicle data is becoming more and more important to perform statutory tasks and to fulfil the expectations of citizens and companies. If we regulate the basis properly, the vehicle sector will also be better prepared for future developments, such as ITS applications.

2.3 The approach

In this study, we limit ourselves to events in the vehicle chain with a cross-border component, and for the sake of simplicity, we use a passenger vehicle as an example. We have examined what this vehicle experiences during its lifespan. A vehicle that is used on the road, in (partly international) traffic. We will assume that the vehicle has a change of owner, is involved in an accident, must pay a number of fines and is stolen. For these events, we have examined which organisations have a task or a role to play in producing, recording, supplying or accessing the vehicle data. And for each event we analyse which European legislation applies (or is lacking) and what those regulations stipulate about data exchange.

In Chapters 3 and 4, we describe the existing situation, based on the current legislation, for each event and for data in the vehicle chain as a whole. We include a number of concrete proposals for additional legislation. Lastly, in Chapter 5 we make a number of short-term and long-term concrete recommendations. In doing this, we apply a number of principles that could make the legislation more consistent, which we explain in section 5.3.

3 The diagram of events, stakeholders, data sets and legislation

3.1 Introduction to the diagram

We compiled an overview of the main events during a vehicle's life cycle and of the parties (stakeholders) that perform a task related to the use or recording of data. Our aim is to create a true reflection of the current situation, but then with the focus on the future. To do this, we try to provide a complete overview of all the events and stakeholders and all the data that is exchanged. For each 'event', we analyse which European legislation applies (or whether there is a lack of European regulation in this area) and what those regulations stipulate about data exchange. The relevant data sets are globally described. In this way, we want to find possible gaps and overlaps in the legislation so that we can make suggestions for a future approach to the regulations. This overview is presented in a diagram and is displayed on page 15.

3.2 Horizontal axis: the life cycle of a vehicle

The lifespan of a vehicle starts with its design and production, and then its registration and allocation to an owner. This is followed by the utilisation phase, when the owner drives the vehicle on the public roads and regularly uses certain facilities that must be paid for in many countries (parking, tolls). Sometimes, the owner also commits offences with the vehicle. The vehicle must be maintained; some vehicles will be modified (for example, installing a gas tank) and the vehicle will undergo periodic or ad hoc inspections with a certain regularity. In addition, the mileage will increase and the vehicle may become involved in a serious accident. Eventually, the registration will be ended when the vehicle is exported or scrapped, or occasionally because the vehicle is stolen and disappears.

We take as a starting point the main events in the life of a vehicle, in which vehicle-related data plays a role. We have limited ourselves to events related to a passenger vehicle. The events are being described in detail in chapter 4.

3.3 Vertical axis: the stakeholders

In the context of an event in the vehicle life cycle, different organisations perform tasks related to vehicle data. These organisations are called 'stakeholders' (they can be both public and private actors). The data-related activities of stakeholders lead to a result, such as the issue of a vehicle certificate or maintenance of the vehicle.

Stakeholders perform a statutory task (in Europe or nationally) during one or more vehicle events, in which the registration or transfer of vehicle related data plays a role. In a number of cases, the data-related tasks of stakeholders are recorded in the various European directives and regulations that have a bearing on the events.

For the sake of clarity, only authorities and market parties – and not private individuals and companies (vehicle owners) – are included.

3.4 The cells: Data sets and activities

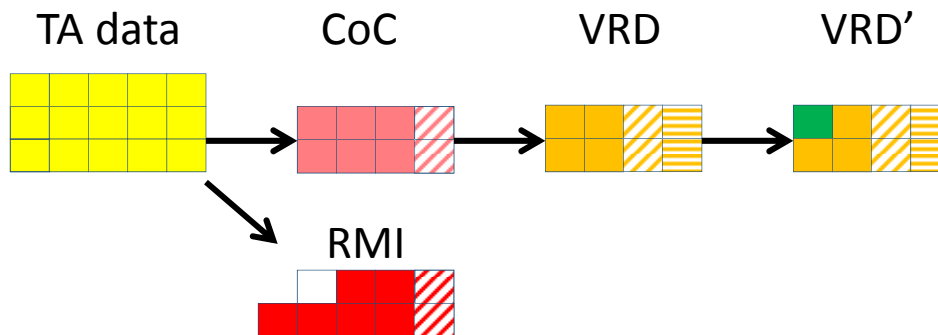
In the cells in the diagram contain colours and verbs. The colours relate to the different types of data, the verbs relate to data-related activities carried out by the stakeholder in question. We clustered the data in a number of data groups, which we will explain in this section. But first of all it is important to clearly define what we mean by vehicle data.

Data is the essence of the overview; something happens with the data in the various events during the life cycle of a vehicle. We have clustered the data in a number of categories, which are displayed in different colours. We make a distinction, for example, between vehicle data, holder data and data related to the condition (status) of the vehicle. A status can be a determining factor for admission to the public roads and the obligations of the vehicle owner. Some data sets are used only by a limited number of stakeholders, but the vehicle registration data in particular plays a role in almost all events and affects almost all stakeholders. We want to highlight the data sets for which there is no European legislation and show where regulations overlap.

The vehicle data that we deal with in our study has a number of different formats. This study only focuses on data that describes the particular aspects of the vehicle itself. This vehicle data is more or less static and is only modified occasionally – for example, if a gas tank is installed, or in the case of a colour change, a different owner or termination of the vehicle registration. Data that relates to the use of the vehicle, such as the average speed and the GPS information about the latest journey, are outside the scope of this study.

We will explain the flow of data with a figure. To begin with, vehicle data is described and supplied by the vehicle manufacturers to the Type Approval Authority as type approval data (TA data). Part of that data is later included in the Certificate of Conformity (CoC) when a vehicle is delivered, supplemented with a number of data items specifically related to the individual vehicle in question (shaded). Based on that CoC, part of the data is recorded in the national vehicle register (Vehicle Registration Data; VRD), supplemented with registration data (horizontally shaded). That vehicle data can be altered when the vehicle is modified (VRD'). In the figure, this is illustrated by the green block.

In addition to this data flow, part of the type approval data is also supplied by the manufacturers as 'repair and maintenance information' (RMI).



In addition to the 'static' vehicle data, there is also a large amount of data, of course, that is related to the use of the vehicle and that is recorded in the vehicle's electronic systems (GPS coordinates, driving speed, revolutions per minute, malfunction indicators, etc.). This type of dynamic user data is not included in the overview and is outside the scope of this study. In some cases, user data is necessary in order to perform a legal task – for example, mileage. However, this is just a snapshot of the data item, which is recorded in a register and remains valid until it acquires a new status.

The following data groups are included in the overview:

Type approval (TA) data (yellow)

Type approval data: all data about a particular type of vehicle that is presented as part of the type approval to the approving authority (using the "information form"). This involves hundreds of data items that become available after the relevant vehicle type has been developed and tested but before the first vehicles of this model are produced.

Certificate of Conformity (CoC) data (pink)

Data specified on the Certificate of Conformity that must be supplied by the vehicle manufacturer prior to the initial registration of a vehicle. This data relates to one individual vehicle. CoC data involves a subset of the data on the information form, supplemented with a number of data items that are specific to one particular vehicle, such as the VIN and colour of the vehicle, which are (obviously) not included in the information form. In addition, if a data element is included in the information form as a value range, the exact value for the specific vehicle is entered in the CoC (weights, emissions).

Vehicle Registration (VRD) data (orange)

Vehicle Registration Data is a subset of the data in the CoC, which is recorded when the vehicle is first registered in the national vehicle register. The data is supplemented with a number

of national data items supplied by the importer during the registration process, such as the permitted maximum vehicle mass (vehicle plus cargo), which is registration-related and is not (exclusively) determined by the vehicle's technical capabilities but is indicated by the future owner (for tax-related reasons).

In some countries, including the Netherlands, vehicles may be modified after registration. Examples include modification of the vehicle structure, the installation of a gas tank, a colour change or different tyres. After a modification, a licensing inspection is sometimes necessary. Modifications are not always registered, and each part of the procedure is different. In the Netherlands, a gas tank must be installed by a certified company, a colour change may be reported by the owner, and the fitting of different tyres does not have to be registered.

Repair and Maintenance (RMI) data and Periodic Technical Inspections (PTI) data (red)

Technological vehicle data used to support maintenance and vehicle inspections in the context of the PTI (and RSI); this involves a set of data which must be presented by the manufacturers to the inspection organisations responsible for the PTI.

Holder data (green)

This data relates to the holder of the registration certificate: name, date and place of birth, ID, (current) address. The data is needed to verify a number of obligations (tax liability, insurance obligation), traffic enforcement and the collection of traffic fines, unpaid tolls and parking fines.

Vehicle status data (brown)

Multiple statuses relating to a particular vehicle or the registration of that vehicle are kept up-to-date in the European vehicle registers. Examples include: vehicle stolen, licence plate stolen, vehicle scrapped, registration terminated, admission to the road suspended until further inspection, vehicle exported. These statuses are relevant for the re-registration of the vehicle and for traffic enforcement.

Inspection results and mileage (blue)

The PTI authority registers the results of a vehicle inspection for a number of test clusters related to the vehicle identification, braking system, steering equipment, windows and mirrors, lights, axles-wheels-tyres, chassis, equipment (safety belts, airbags, etc.), noise and emission values, and other aspects.

3.5 Existing legislation for vehicles

The events are currently regulated by a multitude of European decrees, regulations and directives. We list these legislation in this section and indicate which type of data it regulates or should regulate. The main legislation is displayed in the diagram on page 15.

Directive 1999/37/EC: VRD

concerning the registration certificates of vehicles

Directive 1999/62/EC: Holder data

concerning the charging of heavy goods vehicles for the use of certain infrastructures

Directive 2000/53/EC: vehicle status data

concerning end-of-life vehicles and recycling

Directive 2001/95/EC: VRD

concerning general product safety. This is the basis for the recall of dangerous goods (among which vehicles).

Directive 2004/52/EC: Holder data

concerning the interoperability of electronic road toll systems in the Union

Directive 2007/46/EU: TA and CoC

the framework for the (type) approval of motor vehicles; this framework directive includes a large number of regulations that regulate the specific requirements for vehicles and parts. This framework directive also regulates matters such as Conformity of Production inspections, the Certificate of Conformity and recalls.

Regulations 715/2007 + 692/2008 + 566/2011: RMI

concerning type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and access to repair and maintenance information (RMI). The implementation of this directive is regulated in regulation 692/2008, and is amended in regulation 566/2011

Decisions 2008/615/JHA and 2008/616/JHA: VRD; owner/holder data; vehicle status data

concerning the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border criminality; police cooperation, building upon the Prüm Treaty, in which the exchange of DNA, fingerprints and vehicle data is regulated.

Directive 2010/24/EC: VRD; Holder data

concerning mutual assistance for the recovery of claims relating to taxes, duties and other measures

Directive 2010/40/EU and regulation 305/2013: VRD

concerning the framework for the deployment of ITS and the regulation to supplement for the harmonised provision for an interoperable EU wide eCall

Directive 2011/16/EC: VRD; Holder data

concerning administrative cooperation in the field of taxation

Directive 2014/45/EU: PTI and RMI data; Inspection results and mileage

concerning periodic roadworthiness tests for motor vehicles and their trailers

Directive 2014/47/EU: PTI and RMI data; Inspection results and mileage

concerning the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union

Directive 2015/413/EU: VRD; Holder data

facilitating the cross-border exchange of information about road safety-related traffic offences (also known as the CBE directive)

In the diagram on the following page, the regulations that apply to each particular event are highlighted. The point of the text block always refers to the activities that stakeholders must perform in relation to the data. This diagram is not complete, but it does reflect the current fragmentation of the landscape and the limited legislation in relation to the data.

Event =>	Design	Production	First Registration	Import	Paid Parking	Toll road use	Traffic infringement	Repair and Maintenance	PTI	Vehicle modification	Recall	Serious accident	Vehicle crime	Export	End of life
Manufact.	Provide	Provide						Provide	Provide	Notify	Provide				
	Develop	Prod. Veh.								Upgrade software	Notify				
Vehicle Profess. (branch)								Retrieve		Notify	Retrieve				Notify
								Notify			Notify	Notify			Issue cert.
(Type) Approval Authority	Register	Retrieve						Repair		Modify	Repair	Repair			De-registration
	Issue cert.	Check CoP	Provide	Admit						Retrieve		Admit			
			Retrieve	Retrieve						Admit		Admit			
Vehicle RA			Register	Register	Provide	Provide	Provide	Provide	Provide	Register	Register	Register		Provide	
			Register	Register	Provide	Provide	Provide				Provide				
			Retrieve								Reg. defect	Withdraw	Register	Provide	De-register
				Notify re-reg	Provide	Provide	Provide		Provide		Reg. repair	End withdr	Suspend	De-register	Notify
				Retrieve											
				Register				Register	Register					Provide	
			Issue cert.	Issue cert.						Issue cert.					
Inspection Authority								Retrieve							
								Retrieve							
								Retrieve							
								Retrieve							
								Notify							
								Supervision							
								Issue cert.							
Enforc. Authority (Police, Justice)					Retrieve	Retrieve	Retrieve					Retrieve	Retrieve		
					Retrieve	Retrieve	Retrieve					Retrieve	Retrieve		
					Retrieve	Retrieve	Retrieve					Notify	Notify		
					Sanction	Sanction	Sanction								
Insurance Comp.			Retrieve ?	Retrieve ?								Retrieve	Retrieve		
												Retrieve	Retrieve		
			Provide ins.	Provide ins.								Notify	Notify		
												Proc. Claims			
Tax + Admin. Auth.			Retrieve	Retrieve	Retrieve	Retrieve	Retrieve								
			Retrieve	Retrieve	Retrieve	Retrieve	Retrieve								
			Collect Tax	Collect Tax	Collect fee	Collect tolls	Collect fine								
Other Countries				Provide	Provide	Provide	Provide					Provide	Provide		
				Provide	Provide	Provide	Provide					Provide	Provide		
				De-register	Provide	Provide	Provide					Notify	Provide		
				Provide										Notify	Notify
Event =>	Design	Production	First Registration	Import	Paid Parking	Toll road use	Traffic infringement	Repair and Maintenance	PTI	Vehicle modification	Recall	Serious accident	Vehicle stolen	Export	End of life
		TA data (TVV)					VRD			RMI and PTI data					
		Holder data					Insp results + mileage								

4 Events in the vehicle life cycle

For each event, we first give a brief description and indicate which data flow is taking place or should take place for a balanced process. Then we provide a short analysis and make suggestions for possible improvement.

4.1 Design and type approval

Relevant legislation	Directive 2007/46/EC, + underlying legislation
DG involved	GROW
Status	Review under preparation; proposal by the European Commission published and being discussed in the European Council and the European Parliament. Expected result in 2017.
Data sets involved	TA data

The manufacturer bases the design of a new vehicle model on a series of requirements and standards imposed by the EU. After the development of a prototype and test models, the new model is tested by one or more technical services (testing centres). The manufacturer supplies the test reports and a detailed description of the model to the Type Approval Authority in one of the EU countries. After an examination of this information, the Type Approval Authority issues a certificate for the concerned vehicle type. It is then admitted to the entire EU market.

The basis for the type approval for passenger vehicles is laid down in the Framework Directive for vehicle type approvals 2007/46/EC. The information document for the purpose of EC type-approval of vehicles is described in annex III. The vehicle information may be supplied electronically, but this is not a requirement. The information is usually supplied by the relevant technical service.

The current European type approval legislation assumes paper information. The regulations refer to 'pages', 'watermark' and 'forms', but not to data. The information, including the purely numerical data, is usually supplied in PDF format. It is difficult if to process and search for that data in an automated way. This makes inspections, comparisons and statistical analyses difficult and inefficient. Member States must send each other copies of approval certificates and notify each other about rejections, cancellations and modifications. The methods used to do this are not regulated. There is little with other Member States about cancellations and rejections, making room for manufacturers to 'shop' between Type Approval Authorities.

The ETAES system is used by the Member States on a voluntary basis for the issue and modification of approvals. The information exchange is based on PDF. The secretariat and

management of ETAES is currently the task of KBA, the German Type Approval Authority. On VN-ECE level, a comparable system is currently being set up, called DETA. This system will also be used to exchange documents in PDF; here too, however, there is no structured exchange and storage of data. The current proposals for a review of Directive 2007/46/EC seem to be suggesting the electronic exchange of documents but not as yet of structured data. In our opinion such an exchange of structured data is needed and feasible.

4.2 Vehicle production

Relevant legislation	Directive 2007/46/EC
DG involved	GROW
Status	Review under preparation; proposal by the European Commission published and being discussed in the European Council and the European Parliament. Expected result in 2017.
Data sets involved	CoC data

At the production of an individual vehicle, a vehicle manufacturer creates CoC information based on the type approval information and supplemented with data specific to the relevant vehicle (for example, the VIN, the colour, particular weights for which a value range is included in the type approval data). The manufacturer includes this information when sending the vehicle to the purchaser.

The CoC data enables the Registration Authority to verify whether a vehicle has a valid type approval and facilitates the initial registration of the vehicle. The data plays a role in the initial registration of a vehicle. The CoC is regulated in Framework Directive 2007/46/EC, art.18 and annex IX. A paper CoC is mandatory; a digital CoC may also be supplied. The format and delivery mechanism for digital supply are currently not regulated; each vehicle category has a different data set.

It is essential that the CoC information is reported not only to the Registration Authorities but also to the relevant Type Approval Authority so that errors can easily be corrected and the data can be used in the Conformity of Production (CoP) inspections.

Many European countries base their vehicle registration now on the CoC and arranged for vehicle manufacturers to deliver the information electronically on an individual basis. To prevent a proliferation of different national formats, EReg (The Association of European Registration Authorities), together with TAAM (Type Approval Authorities Meeting) and ACEA/ACEM (Association of Vehicle Manufacturers) have taken initiatives to introduce a harmonised CoC format. The review of the 2007/46/EC type approval directive is a golden opportunity to frame this initiative in a legal context and to regulate the format and delivery of digital CoCs.

4.3 Initial registration

Relevant legislation	Directive 1999/37/EC, article 5 and article 9
DG involved	DG MOVE, DG GROW
Status	No legislation being prepared
Data sets involved	CoC; VRD; Holder data

The vehicle manufacturer or the Type Approval Authority provides the CoC data to the Registration Authority for the initial registration of a vehicle. The vehicle is registered on the name of the natural or legal person who applies for the registration. At least the mandatory data on the registration certificate according to 1999/37/EC must be recorded in the register. After it has been verified whether the (financial) obligations have been complied with, a registration certificate is created and issued.

The essential initial registration of a vehicle can differ in each Member State. The origin of the data varies from the transfer of data from a paper CoC, to the registration of digital data from the manufacturer or the importer or to deducing the data from a type approval register.

This is because there are no European regulations pertaining to which data must be recorded and made available when a vehicle is registered. Directive 1999/37/EC only lists the data that must or may be presented on the registration certificate. Therefore there are also no quality requirements for the completeness, correctness and actuality of the data. There is no agreement about which data is or is not sensitive. Neither there are regulations to determine in which country a vehicle must be registered, according to which criteria.

In the area of initial registration, or better still, in the area of registration in general, there is room for valuable additions to European legislation.

4.4 Import

Relevant legislation	Directive 1999/37/EC; EUCARIS Treaty
DG involved	GROW
Status	Negotiations on Directive 'Transfer of vehicles'
Data sets involved	VRD; Vehicle status data

When a vehicle is being imported into a country, a number of processes are carried out. Firstly, the new Member State checks whether there are any obstacles to registering the vehicle. Secondly, the new country retrieves digitally the vehicle registration data from the country of origin or manually transfers the data from the old registration certificate and then issues a new



registration certificate. Lastly, in accordance with Directive 1999/37/EC, a notification must be sent to the country of origin after a vehicle has been registered.

When a vehicle is imported to another Member State, a lot of information about that vehicle is already known. The basic principle should be that the administrative burden for the applicant is minimal; the process should be automated as much as possible, and that the applicant should not be asked for information already known in the registers of other Member States. At present, though, the EU legislation does not yet stipulate which data must be supplied in which way. A proposal for a 'Transfer of vehicles' directive is being prepared, for which negotiations have been ongoing for several years.

In many countries, the authorities check the validity of the PTI, any modifications that were made, and a number of statuses such as 'detected serious damage' and 'vehicle stolen'. This is not yet mandatory, however. One of the things that should be checked during re-registration is the current mileage; by comparing the mileage on the odometer with the last known value in the country of origin. That will prevent widespread fraud with mileage in cross-border transfer.

When one of these data shows that something is wrong, the Member State can decide to perform a further analysis and, if necessary, decide not to permit the registration of that vehicle in its country. The availability these data items is not yet regulated in a European context. Administrative registration (without checking the vehicle) is therefore not yet possible in practice.

The notification of re-registration is stipulated in Directive 1999/37/EC. This is necessary in order to prevent fraud and double registration of vehicles. The method to do this is currently not clearly regulated; it is sent in some countries by regular mail and in other countries by email, periodically. Countries affiliated to EUCARIS are supplying the necessary vehicle data and vehicle statuses digitally, on a voluntary basis.

EU legislation in this area, preferably extended to vehicle registration in general, which clearly states in which country a vehicle must be registered, with which data and status checks, is highly desirable and will give an EU basis to existing data exchange practices.

4.5 Paid parking

Relevant legislation	Directive 2010/24/EU; Directive 2011/16/EU
DG involved	TAXUD
Status	DG TAXUD is preparing a proposal
Data sets involved	Holder data

In many European cities, parking must be paid. In case of failure to pay, the enforcement authority needs the holder details of both domestic and foreign vehicles.



Parking is considered a national matter. The Commission does not intend to draft Community legislation in this area (source: written question E-538/95). As a result, no account is taken of the cross-border dimension, and European citizens are treated unequally. If a holder of a foreign vehicle fails to pay for a parking space, European legislation does not provide the possibility to trace his data in order to pay the parking fine.

In some countries, payment of parking is covered by local taxes. It is being studied whether the exchange of information is possible under tax regulations. Directive 2010/24/EC and possibly Directive 2011/16/EC may provide a basis for this. Tax-related queries are currently conducted on an individual basis via a specific tax network and are not yet equipped for bulk search, which would be required for paid parking. It is therefore contemplated to set up bulk information exchange using EUCARIS, analogous to the exchange of holder data for cross border enforcement (see 4.7). However, Member States do not yet fully agree on whether parking taxes are covered by the objective of the Directive 2010/24/EU on 'Mutual assistance for the recovery of claims relating to taxes'.

It would be preferable to have generic European legislation on the exchange of holder data for a variety of purposes: parking, tolls, traffic violations, tax questions, etc. This would provide a generic legal basis for the already existing generic exchange mechanism.

4.6 Toll

Relevant regulations	Directive 2004/52/EC and Directive 1999/62/EC
DG involved	MOVE
Status	Further European legislation in preparation
Data sets involved	Holder data

In many European countries, toll must be paid for the use of certain roads or bridges. In case of failure to pay, the enforcement authority needs the details of the holder.

Directive 2004/52/EC ensures that toll systems are interoperable within the European Union. The directive focuses on on-board units, which register the use of certain facilities to guarantee payment. It applies to the electronic collection of all types of tolls on the entire road network. The European electronic toll service should monitor this as well as the application of the privacy directive. The directive does not regulate the information exchange.

Directive 1999/62/EC relates to charging heavy goods vehicles for the use of certain infrastructures. It regulates the height of the fees and other aspects, but not the exchange of information and is at the moment not applicable for passenger vehicles.



European legislation is now limited to the harmonisation of electronic toll systems and heavy freight transport. In our opinion, there is a need to regulate the exchange of information, including information on the holders of passenger cars. Again, the ideal would be through generic European legislation for the exchange of holder data.

4.7 Traffic violations

Relevant legislation	Directive 2015/413/EU (CBE) (indirectly: Prüm Treaty; elaborated in Decision 2008/615/JHA and 2008/616/JHA)
DG involved	MOVE, HOME
Status	The directive is under evaluation
Data sets involved	Limited set of holder data and limited set of VRD

In the case of eight specified traffic violations, the Registration Authority provides vehicle information and holder information to the enforcement authority, after which a penalty can be imposed on the holder of the vehicle.

The CBE-directive establishes that the exchange should take place through existing software applications as described in 2008/615/JHA and 2008/616/JHA (EUCARIS). The data set contains a limited number of holder data and vehicle data. The specified traffic violations are: 1. speeding; 2. failing to wear a seatbelt; 3. failing to stop at a stop signal; 4. driving under the influence of alcohol; 5. driving under the influence of drugs; 6. failing to wear a safety helmet; 7. using a forbidden traffic lane; 8. illegally using a cell phone while driving.

No data can be exchanged for violations other than these eight. Expanding the list of specified traffic violations seems to be an interesting option. The directive also needs support in the form of the regulation of the collection process, including the corresponding exchange of data.

4.8 Maintenance

Relevant legislation	Directive 2007/46/EC; Regulations 715/2007; 692/2008 and 566/2011;
DG involved	GROW
Status	Currently under review as part of the new type approval Regulation.
Data sets involved	Repair and Maintenance Information (RMI)

For the maintenance of vehicles, the manufacturer provides, if necessary, (independent) garages with repair and maintenance information.



Maintenance of vehicles is usually performed periodically, and is the responsibility of the owner of the vehicle. The legislation on access to RMI is currently kind of 'hidden' in regulations on vehicle emissions (715/2007), despite the fact that this information is about more than emissions.

In the proposal for a new regulation on type-approvals, access to RMI is regulated much broader. This is a good development. An important aspect should be that manufacturers make information readily available to independent operators, with no additional costs, in order to ensure that vehicles are repaired and maintained in a fully competitive market.

4.9 PTI

Relevant legislation	Directive 2014/45/EU; Directive 2014/47/EU and Transfer of vehicles (in preparation)
Relevant DG	MOVE
Status	To be implemented
Data sets involved	RMI, inspection results; mileage

For a PTI, the manufacturer provides the RMI information while the Registration Authority provides the vehicle registration data and, ideally, the status data of the vehicle. After the inspection, the Inspection Authority provides the Registration Authority with the result, and the fact that the vehicle has a valid PTI is registered.

The PTI Directive, in force since 2014, mentions digital information in different places. According to the directive, the sharing of information from national electronic databases and vehicle manufacturers contributes to improved efficiency, lower costs and a reduction in administrative burdens. The Commission only has the mandate to undertake a feasibility study for the costs and benefits of an electronic vehicle information platform. No decision has yet been taken on its concrete implementation. Member States are not yet obliged to share information.

The implementation of a PTI requires supporting technical information. Manufacturers are required to make this information available to inspection centres via RMI. In addition to the RMI data, registration data is also required for the PTI, such as the date of first admission and, where applicable, updated data after a vehicle modification. In an ideal situation, the technical vehicle data that are needed for the PTI at the individual vehicle level should be included in the CoC delivered by the manufacturer at first registration of the vehicle. These data should be included in the vehicle registration and be made available to the inspection centres at the PTI.

One of the optional results of a vehicle inspection is the mileage reading. The registration of the mileage in the roadworthiness certificate and the access of inspectors to this information



should make it easier to detect tampering or manipulation of the odometer, but it is not mandatory in the PTI legislation.

The results of the technical inspections will also need to be registered, including mileage and defects of the 'main safety-related components'. Which data should be registered (the level of detail) is (still) not regulated, nor is the international exchange of the PTI certificate.

The exchange of PTI information is be valuable for roadside inspections (regulated by 2014/47/EU), re-registration after import and for the future full mutual recognition by EU countries of PTI inspections carried out abroad. The registration and exchange of mileage information is preventing fraud. Since the PTI-directive is not obliging Member States to share information, we fear that the solutions found in the Roadworthiness Technical Working Group might be on a voluntary basis. We see room for improvement in the registration and exchange of PTI information, to make the free flow of people and goods work.

4.10 Vehicle modification

Relevant legislation	none
DG involved	DG GROW, DG MOVE
Status	The new Type-Approval Directive regulates many aspects of market surveillance, including after-market products
Data sets involved	VRD

After a major modification to a vehicle, the vehicle registration data should be updated in the register. The company or person that made the modification provides the data to the Registration Authority. If necessary, the vehicle will be re-inspected for admission on the road.

Current European legislation does not regulate the modification of vehicles. EU Member States apply their own rules and procedures. There is no harmonisation. Therefore, we can only describe a number of issues we think should be regulated.

1. Major structural modifications to the vehicle

This could include major modifications to the structure (bodywork) of the vehicle, the brake system or the installation of a gas tank. This type of modifications has potential implications for the ability of the vehicle to circulate on public roads (environmental requirements, road safety). The vehicle no longer matches the type approval . An approval inspection should therefore be required.

In the Netherlands, a new vehicle registration certificate is issued if the vehicle no longer matches the original documentation. In other countries, a completely new vehicle registration is made, which may include a new registration plate.

2. Modifications with a limited impact

Examples include a colour change or different tyres. The impact is limited, and generally no approval inspection is required. We give the following examples: In the Netherlands, a colour change is reported by the owner of the vehicle. However, no structural enforcement takes place. In Belgium, the colour of a vehicle is therefore considered untrustworthy and not registered. Tyres are not registered at all in the Netherlands. Tyres require a type approval, and the proposals for the new type approval directive provide for supervision on what is introduced on the domestic market. Furthermore, tyres must be inspected during the PTI. However, the procedure for when the original tyres have been replaced is unclear.

3. Software update

If the manufacturer of a vehicle develops a software update that changes the technical performance and handling characteristics of a vehicle, this update should be approved by the type-approval authority before the new software may be installed in vehicles that circulate on public roads. Many software updates are implemented by or on behalf of the vehicle owner, for example, to increase the engine power. This obviously affects the handling characteristics and emissions of the vehicle. Making sure this is respected is a major problem.

Modifications that are not registered lead to outdated and incorrectly registered vehicle data. This has consequences for tax contributions, insurance, and possibly even for the approval of a vehicle to use public roads. In the case of export and the subsequent re-registration, 'outdated' data are exchanged.

It seems obvious to us that European legislation in the field of modifications is urgently needed: which modifications should result in an approval inspection, what data should be kept up to date by the Member States and how should modifications be dealt with during the PTI.

4.11 Recall

Relevant legislation	Directive 2007/46/EC, Directive 2001/95/EC
Relevant DG	GROW
Status	2007/46/EC is currently under revision
Data sets involved	Holder data

In special cases, vehicles are recalled by the manufacturer for the repair of a dangerous defect or the replacement of a part. Authorities are required to monitor this process. Vehicle manufacturers request holder data from the registration authorities to enable a recall of all vehicles of a particular model in which a potentially dangerous or environmentally harmful defect was detected. The manufacturer shall consult with the Type Approval Authority of the respective vehicle model whether a recall is desirable or necessary. If this is the case, the manufacturer



will request the European registration authorities to provide the keeper data of the vehicles concerned, based on lists of VINs provided by the manufacturer (based on the original distribution of the vehicles). This allows the vehicle owners to be summoned for a recovery action. The manufacturers periodically report which vehicles have been repaired.

Directive 2007/46/EC states that the authorities have an obligation to monitor the recall process. There are no regulations with regard to the registration of outstanding recalls and/or performed repairs, nor, obviously, on the enforcement of recalls. It only mentions 'notifying' and 'communicating', and not the provision of information. In the Netherlands, no enforcement takes place based on these reports, the outstanding recalls, however, are published.

The Netherlands is in the process of switching to a different system, in which the manufacturer provides the VINs of all vehicles that require a repair. RDW will then determine which of them are located in the Netherlands. This solves the problem of imported and exported vehicles.

With regard to recalls, we think a more generic approach would be appropriate. A regulation on the registration of vehicle data should also include information about the 'roadworthiness' of the vehicle. This should not only include the results of the latest PTI, but also the results of roadside checks, indications of serious accidents and recall information, in short, the full technical status of the vehicle. It should be possible to use all this information at the re-registration of the vehicle after export. Next to that, for road safety reasons, we think that a check on outstanding recalls should be performed during the next PTI.

4.12 Serious accident

Relevant legislation	Directive 2014/45/EU, Directive 2010/40/EU, (EU)305/2013
DG involved	MOVE (damage, cause analysis); CNECT (eCall)
Status	Is being implemented;
Data sets involved	Vehicle Status Data

In case of accidents involving a vehicle that has an eCall device, a message will be sent automatically to the local 112-center, specifying the coordinates of the location, the direction of travel and the identifying information of the vehicle concerned. This allows for the quick retrieval of a set of vehicle data from the national or foreign vehicle Registration Authority, to support the rescue team (e.g. information on how a vehicle should be cut open). Police and insurance companies sometimes indicate to the national Registration Authority that the vehicle is seriously damaged and must be inspected before it can be allowed back on the public road.

Directive 2010/40/EU provides a limited European regulation on the exchange of vehicle information for eCall. There is no obligation to make vehicle data internationally available to 112-centres.



According to Directive 2014/45/EU, the Commission shall examine the feasibility, costs and benefits of the registration of information available from the electronic systems of vehicles that have been involved in serious accidents, in order to be able to analyse the cause. However, for the time being, there are no plans to implement the collection of information after accidents.

There is no European legislation which states in which cases and how it should be registered that a vehicle has been seriously damaged and when a vehicle should be inspected in order to be allowed back on the road.

Dutch legislation establishes that both insurers and the police should provide RDW with information that allows RDW to assess whether the vehicle should be given the qualification 'damaged vehicle'. A number of other European countries do currently register that a vehicle requires an inspection after an accident or for any other reason. There is no harmonised definition for 'serious damage'. This harmonisation is actually being sought on an informal level. European regulation seems appropriate in this case.

4.13 Vehicle crime

Relevant legislation	Prüm Treaty; Decision 2008/615/JHA and 2008/616/JHA EUCARIS Treaty; Proposed directive on Transfer of vehicles
DG involved	HOME
Status	The directive on Transfer of vehicles is in preparation
Data sets involved	Vehicle status data. VRD, Holder data

As part of the fight against various forms of crime, vehicle and holder information is exchanged between the European Registration Authorities and the European police organisations. This includes various types of crime.

The following types of crime can be distinguished:

1. Theft of the vehicle; consultation on registration number by enforcement authorities based on the Prüm Treaty. Further control by consultation on VIN in all EU countries in case of re-registration after import on the basis of the EUCARIS Treaty.
2. Theft of the registration plate; takes place to avoid fines and obligations as well as to commit vehicle crime and fraud whereby the identity of the vehicle is forged and the vehicle is 'laundered'.
3. Theft of the registration certificate; takes place to commit fraud whereby the identity of the vehicle is forged.

4. Theft of vehicle parts; this requires the ability to read parts with a digital VIN number to check whether the parts belong to the vehicle or possibly come from another (stolen) vehicle.
5. Other crime: investigations to fight terrorism, cross-border crime and illegal migration, as described in the Prüm Treaty and further elaborated in Decision 2008/615/JHA and 2008/616/JHA.

It seems that in the case of crime, the exchange of vehicle information is running quite smoothly already. There is no need for further EU legislation. On the other hand, the general registration and exchange of vehicle data legislation, which we proposed earlier, will allow for better enforcement by the authorities and prevent crime and fraud.

4.14 Export

Relevant legislation	Directive 1999/37/EC
Status	Negotiations about the Directive 'Transfer of Vehicles'
DG involved	GROW, MOVE
Data sets involved	VRD; Vehicle Status Data

For the re-registration of a vehicle in a different country (export), the Registration Authority of the country where the vehicle originates from provides the information to the Registration Authority of the new country.

Directive 1999/37, Article 5 states that the authority registering the vehicle must inform the Registration Authority in the country of origin thereof within two months. How to proceed with this notification is not described. In some countries, it is explicitly registered that a vehicle was exported and where to, in other countries, the vehicle is only de-registered.

De-registered vehicles are not allowed on public roads and should be stopped by enforcement officers. Information about these vehicles is not exchanged internationally within the framework of the CBE Directive (registration outdated).

4.15 End of life

Relevant legislation	Directive 2000/53/EC
DG involved	ENV
Status	Just underwent a limited review as part of the Circular Economy Package
Data sets involved	Vehicle Status Data



The relevant directive is aimed at the responsible dismantling of vehicles and recycling of materials. The directive contains no provisions regarding the vehicle registration. In some countries, the registration of the vehicle will only be de-registered for scrapping after notification of an approved recycling centre. In other countries, this process is less regulated and a vehicle is registered as scrapped at the behest of the owner.

De-registered vehicles are not allowed on public roads and should be stopped by enforcement officers. However, this information is not internationally available to enforcement officers.

Information about scrapped or de-registered vehicles is not exchanged internationally within the framework of the CBE Directive (registration outdated).

5 Conclusions

5.1 Smart legislation in three steps

By studying the digital exchange of vehicle data throughout the life cycle of the vehicle, a number of things have become clear to us. Three types of improvements can be distinguished in the area of European legislation. It is not our intention to ask for more European legislation. However, this is more about tackling existing regulations in a smarter way and taking a fresh look at certain parts of those regulations. That could make them examples of better, smarter regulation, as intended by the European institutions.

1. Firstly, we see a concrete need for improvements in current European developments, such as the registration of odometer readings and the digital delivery of individual vehicle data.
2. Secondly, the coherence of regulations concerning the various events during the life cycle of a vehicle has to be improved. This coherence could be stimulated by applying a number of principles. We believe that greater coherence significantly increases the efficiency of public authorities and reduces the implementation costs. Moreover, the administrative burdens for citizens, businesses and governments will decrease.
3. Finally, it would be desirable to establish a European regulation on vehicle information and registration. We would like the European Commission to further investigate the possibilities based on this study. We will provide a more detailed explanation on the three types of improvement in the following sections.

5.2 Approach 1: Solving concrete problems

The previous chapter specified a number of problems which can be regulated at the European level in the short term. We will list these concrete solutions here. On page 32, we have visualised this in the included diagram.

1. The legislation for the digital delivery of CoCs is inadequate. The digital delivery of CoCs is a prerequisite for an efficient vehicle registration. Although included in the type-approval directives (among others, 2007/46/EU) that digital delivery is optionally allowed, the format and the manner of delivery are not harmonised. Several EU countries currently have their own arrangements with vehicle manufacturers, which constitutes a threshold for the manufacturers to start digital deliveries voluntarily. Currently, the type-approval framework for four-wheelers, trailers and parts is being negotiated. There is now a concrete possibility to properly regulate the digital format, delivery and exchange method.
2. Odometer readings are another example. Legislation does exist, however, it is not efficient enough for the implementing government organisations. The new PTI Directive (2014/45/EU) rightly recognises that odometer fraud (rolling back) may result in nec-

essary maintenance not to be carried out or to be carried out too late, which may have implications for road safety. It states that rolling back the odometer should be criminalised. The odometer reading is mentioned as a possible criterion for determining when a PTI must be carried out and the data should also be displayed on the PTI certificate. The registration method of the odometer reading, however, is not regulated and neither is the international exchange of this information. Furthermore, when a vehicle is registered in another Member State, there is no legislation to regulate that the odometer reading can be verified, even though the manipulation of odometer readings is a recognised problem on the European used car market (see, for instance, the 2015 study into second hand cars by DG Sanco). In the negotiations on the directive on the Transfer of Vehicles, both the Council and the European Parliament included so far the element of odometer readings as data to be exchanged during the registration in another Member State. However, this is labelled optional. The way odometer readings are recorded and exchanged internationally, at what times and under what conditions, therefore offer a real possibility to improve European legislation.

3. There is hardly any legislation available with regard to modifications to the vehicle. It is unclear which modifications are allowed, which should lead to a re-inspection and re-approval of the vehicle and which should be registered. Nor is it clear which modifications should be monitored and by whom. Colour changes, for instance, are not registered in some countries and in other countries, they are registered by notification of the vehicle owner, without any control. Many after-market products are installed by the vehicle industry without this being known to the authorities. This may complicate the PTI process.

Software modifications can be installed (remotely), sometimes even without the owner of the vehicle being aware of this. It is conceivable that the vehicle no longer complies with the type-approval due to such a modification, thus compromising road safety.

In extreme cases, recalls lead to a situation in which the vehicle would no longer be allowed on the public road. In some cases, the repairs following the recall should, in our opinion, be registered as modifications and should in any case be notified to the national authorities so the issue can be included in the next PTI.

We could start by removing this uncertainty in the revision of the framework Regulation for type-approval by establishing definitions of modifications and making a liaison with the PTI legislation.

4. In most countries, the vehicle registration includes a status of the vehicle and the registration; an indication that determines whether the vehicle is allowed on the public road, and if it may be registered in another country after export. Currently, these statuses are not harmonised. Examples of these vehicle statuses are 'vehicle scrapped', 'vehicle exported', 'stolen', 'pending inspection' (after an accident), 'registration suspended', 'de-registered'. These statuses may be important for traffic enforcement and crime prevention and are therefore explicitly mentioned in 2008/616/JHA, however,



without further elaboration or definition. The data set of the proposal for the Transfer of Vehicles directive also includes vehicle statuses, again, without detailed definition. Currently, the European countries have taken the initiative to come to a harmonisation and a clear definition of vehicle statuses (within the framework of EUCARIS).

This represents a valuable basis, especially when supported by European legislation.

5. We also see points for improvement around the personal data of the holder of the registration certificate. We note that the international exchange of this owner or holder data is regulated by a number of European directives: 2010/24/EU and 2011/16/EC for tax purposes, and 2015/413/EU for a limited set of traffic violations and the 2008/615/JBZ and 2008/616/JBZ decrees for police cooperation in fighting crime and terrorism.

But we also note that for a number of cross-border events there is no basis for exchange for this kind of information. For example for violations outside the scope of the CBE directive, as well as unpaid parking fines and tolls. A short term solution can be found in expanding the CBE Directive (which is currently under evaluation), including keeper data in the legislation governing the enforcement of taxes, parking and tolls. However, we think that the smartest solution is a generic framework. We will come back to this at the end of this chapter.

6. Only a few aspects of the registration of vehicle data are regulated. Directive 1999/37/EC describes which data must and which data may be indicated on the registration certificate, but it does not specify which data must be registered for other legal purposes (such as enforcement and taxes). As a result, each country applies its own rules.

The proposals for new legislation on the Transfer of Vehicles establish which data, if available, must be exchanged. However, there is no obligation to register certain data, so in some cases, these will have to be provided by the owner or the importer of the vehicle. Since these proposals are still being negotiated, there is a possibility to achieve short term improvements. Here too we see opportunities for a more structural long-term solution, which will be addressed at the end of this chapter.

5.3 Approach 2: Coherence between events by applying some principles

In the previous section, we addressed actions in the short term, which can be incorporated into ongoing or upcoming European regulatory processes. These can be tackled in an even smarter manner if the chain of events during the life cycle of a vehicle is taken into account at each development. After all, the same data often plays a role in different events.

In the course of studying the gaps and overlap of European legislation, we used a series of principles during our analysis. These principles derive in part from the Dutch system of basic register systems, partly from the European Digital Agenda, or they can be derived from the Treaty on the Functioning of the European Union. As far as we know, they have not previously been described or been applied in a consistent and coherent manner within the mobility domain. Therefore, they are still open to discussion and improvements. We propose them as a guideline for improved legislation. Below is a list of principles as we see them:

1. Coherence in legislation

When regulations are drawn up relating to vehicles, the totality of vehicle events should always be considered, especially in terms of registration and (international) exchange of data. Vehicle legislation is developed in many places: from the perspective of the climate, road safety, mobility, industry, consumer policies, etc.

2. Digitally where possible

All services that can, should be delivered digitally. This will allow all parties involved to embrace the digital possibilities of the 21st century and to reduce the burden of citizens, businesses and government authorities.

3. Data exchange as essential element

The future of mobility is digital and revolves around data and its exchange. This should be recognised in the European legislation and given the central attention it deserves.

4. Subsidiarity and (data) sovereignty

At present, vehicle data are registered and managed by the Member States. The information is required for the performance of various public functions that are regulated by national legislation, including enforcement, and taxes. The registration of vehicle data is a task which has already been implemented by all EU Member States and this should remain this way.

5. Linking of national (and local) registers

The European added value in terms of data exchange in the vehicle chain lies in determining the conditions and the way data are shared; e.g. harmonisation and standardisation. The first priority should always be integration, in which a network of national (and local) registers is preferable to a central European register. A network of interconnected national registers can be regarded as a virtual European register. Current ICT makes this possible.

6. One-time data registration and consultation at the source

Where possible, data should be registered once to ensure that a single authority is responsible for the registration. To the extent possible, data should be consulted at the source, although



for technical reasons, duplication is sometimes inevitable. Different types of data can each have their own source. Technical vehicle data and holder data, for instance, may be managed by different authorities. However, for all data it should at all times be clear what the authentic source is.

7. Transparency in data quality

Quality is defined as correct, complete, up to date and reliable. In the case of cross-border data exchange, it is essential to trust each other's data. Authorities must be able to rely on the fact that the data they receive are of the same quality as the data from their own registers and where that is not the case, this should be clearly stated. This requires incorporating assurances and guarantees into the relevant legislation.

8. No charge for data required for public functions

Data required for the performance of statutory tasks, such as admission on the road, inspections, monitoring and enforcement, should be available at no cost to the relevant authority. The market party or authority that provides the data should do so promptly and free of charge.

9. Open data where possible

Data that are not privacy, fraud, or competition sensitive, are open data and should be made available as such by public authorities. This requires clear agreements within the EU about which data within the vehicle chain are sensitive.

10. Standardisation and harmonisation

Great added value for European legislation on the vehicle chain lies in agreeing on standards and harmonisation of who exchanges what, when and how. Open standards and formats should be used and implemented consistently. To the extent possible, a single digital language should be spoken in Europe.

11. Reuse of data (sets) and systems

Data sets and systems for the exchange of data between domestic and foreign authorities should be reused as much as possible, unless they are unsuitable for the intended purpose. If data are exchanged between authorities in different sectors (e.g. a vehicle Registration Authority and a police organisation), the semantic definitions and the exchange method of the supplying party should be leading.

12. Owner determines what happens with the data

The owner determines what happens to his or her data, so essentially, it has to be determined who owns the different data within the vehicle chain. As a starting point, we assume that the person who purchases a vehicle also becomes the owner of all data related to the vehicle and / or its use. If EU or national legislation establishes that certain data are required for the performance of certain public functions, the owner is required to make these data available.

5.4 Approach 3: General legislation on the registration and exchange of vehicle data

Modifying and supplementing current legislation and increasing the coherence between events during the life cycle of a vehicle, combined with the application of a number of principles will help to significantly improve the practical implementation in the short term.



In our opinion, ensuring an efficient exchange of vehicle data in the long term requires a different measure. On the one hand, it will be far-reaching, and elementary on the other hand, and it may prevent a lot of regulatory pressure. We think that a general European legislation on the registration and exchange of data in the vehicle chain is necessary and possible.

A regulation on the registration of vehicle data should include the complete information about the 'roadworthiness' of the vehicle. This should not only include the results of the latest PTI, but also the results of roadside checks, indications of serious accidents and recall information, in short, the full technical status of the vehicle. It should be possible to use all this information at the re-registration of the vehicle after export. Besides this full technical status of a vehicle, the data of the vehicle holder should be recorded once, regardless of the event in connection with which the data are registered or modified.

This ensures up to date, complete and correct data of the vehicle and the holder at all times. These data should be made available from the different national and local registers, whereby the responsibility of the national authorities and bodies is determined by the Member States. Such legislation will firmly establish the format, semantics and further conditions for the exchange (such as the structure of the address of the registered owner) and clearly define the data sets that are necessary for the implementation of public functions. This legislation should also establish how and under which conditions these data may be exchanged internationally. The regulations relating to a specific event (for instance, toll), can then refer to this generic legislation and determine who has access to the data and under which conditions.

To achieve such generic legislation requires that the different parties in the EU work together and with a wider view than would be common for more specific legislation. We understand that this implies a shift in the normal perspective and requires a complex approach. However, we are convinced that such an approach is in line with the implementation of smarter legislation and will pay dividends in future developments and projects.