Study on the operation of the system of access to vehicle repair and maintenance information

Final Report

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EXECUTIVE SUMMARY

Overview and objectives of the study

It is generally recognised that there is fierce competition between vehicle manufacturers in the market for new car sales. However, once a vehicle has been purchased, competition on the markets for repair and maintenance is less intense. Thus, independent operators are needed to increase consumer choice and provide competition for vehicle manufacturer networks in the aftermarket. This is expected to lead to lower costs to consumers for repair and maintenance, which are thought to represent a significant share of total consumer expenditure on motor vehicles.

In order to compete in the vehicle repair market, independent operators must be able to access vehicle repair and maintenance information (RMI). Vehicle RMI is required to carry out a very broad range of operations related to maintaining a car throughout its lifetime. This technical information is increasingly important due to the greater complexity of vehicles, growing number of parts and more use of on-board electronics.

Vehicle manufacturers are required under European legislation to ensure that independent operators have easy, restriction-free and standardised access to vehicle RMI under **Regulation 715/2007** (the "Euro 5" Regulation) and related implementing and amending acts.

This study aims to assess the operation of the system of access to vehicle RMI in the European Union, as well as its effects on competition, the internal market, environment and safety. Ultimately the Regulation on access to RMI aims to protect consumer choice, allowing an owner to take their vehicle to whichever outlet they choose. For example, consumers may prefer a garage due to its proximity, long-standing relationship, turn-around times and numerous other factors that may vary between authorised and independent repairers. Nevertheless, this freedom of choice should not come at the cost of vehicle performance or safety.

Main findings and conclusions of the study

Compliance with specific obligations

The implementation and levels of compliance with the Regulations were assessed for major OEMs across Europe. In general, it appears that levels of compliance are high, and it is important to recognise that the situation has improved over the past few years. OEMs have invested significant effort into their systems to ensure that the required information is provided in compliance with the Regulations.

The main difficulties appear to relate to several specific areas, which hinder the overall functioning of the system of access to RMI. Several of these have already been recognised and are being addressed by standards as follows:

- **Wide variation in user interfaces and software compatibility for OEM websites:** This can cause users great inconvenience, particularly occasional users or repairers that service many different brands.
    - Many of these issues are expected to be helped by the introduction of the **CEN/ISO standards**, which introduce a more standardised format for RMI delivered via OEM's websites.
- **Access to security/safety data**: Although OEMs have a legal right to limit data relating to vehicle safety and security, there still appears to be a need for further clarification and guidance as it relates to the technical regulations of Euro 5.
    - The **SERMI scheme (security related repair and service information)** aims to create a European-wide process for accreditation, approval and

authorisation to access security-related RMI, which should streamline the current patchwork of systems.

Other issues have not been explicitly targeted by ongoing efforts – independent operators have reported significant difficulties in accessing RMI in terms of incompleteness, delays to the availability & usability of information, contractual restrictions, and the prices of the data made available to them.

Only a case-by-case analysis can determine the precise reasons for the issues encountered, but it appears that the main reasons for this disconnect are issues that are very difficult to resolve given the different business models of the actors concerned.

Impact on competitiveness and the internal market

Repairers

The investments in tools and training required to meet the demands of more complex modern vehicles are significant, and it is rarely economically viable for repairers to purchase single-brand solutions. Independent repairers therefore rely on access to this information mainly through other third-party providers (included under the broader definition of "independent operators"), including:

- Spare parts information via multi-brand catalogues – provided by parts wholesalers and distributors;
- Multi-brand diagnostic tools – provided by manufacturers of diagnostic and repair tools;
- Multi-brand repair and maintenance information – provided by publishers of technical information; and
- Third-party training providers.

All of these actors provide the main source of technical information to independent repairers and so are especially important for the independent repair sector, but also affect authorised repairers who are increasingly becoming multi-brand.

SMEs are socially and economically important, yet they tend to struggle with the costs of the tools and training required to service modern vehicles, and with aggressive promotional pricing strategies for standardised products. The traditional standalone repairers are expected to be significantly affected - reflected in the increasing number of independent garages joining franchise networks. One of the principal reasons for joining is to obtain access to technical information from vehicle manufacturers, alongside access to training and marketing.

Parts distributors and wholesalers

The major issue concerning parts distributors and wholesalers is access to unequivocal parts identification information. It is clear that this is a complex topic, and litigation on this aspect has been ongoing for several years. Notwithstanding the issues related to how the Regulations should be interpreted, parts wholesalers report that the lack of unequivocal access to parts information typically leads to two or three parts being identified as relevant. Where repairers are unable to identify a single part, they usually order multiple parts and return those that are not needed.

This leads to increases in overall costs (estimated at 10-15%), arising from additional expenditures on logistics and administration, which may ultimately lead to higher parts prices for consumers. Furthermore, as vehicle complexity increases, the issues are expected to become more prevalent.

Tool manufacturers

Even though they are aware of their rights under the Euro 5 Regulation, tool manufacturers continue to prefer reverse engineering over directly accessing the technical information they require from OEMs. This is despite the drawbacks of reverse engineering – namely, that it entails considerable time, effort, cost and does not produce complete information.

In some cases there are fundamental issues that either limit tool manufacturer's access to technical information directly from OEMs, either in terms of being discouraged by informal barriers (such as delays and formatting), or by contractual clauses that limit its value. Ultimately, this is likely to affect the competitiveness of independent repairers, as multi-brand tool manufacturers are unable to place products on the market at the same time as the OEM-branded tools.

Publishers of technical information

Direct access to OEM data is the only way that data republishers can obtain all of the relevant information they need. Currently there is great diversity in the fee structures used by different OEMs, and republishers must negotiate with each OEM individually. Additional guidance may be helpful to allow organisations to better understand what might be considered reasonable.

General observations based on price quotations provided to the study team were that contracts were generally rejected in cases where there was a large initial access fee and/or if the fee was considered to be too high relative to the OEM's market share. Based on this, we calculated approximate ranges of the price per 1,000 vehicles from different OEMs and noted that:

- The range of equivalent annual fees was between **€0.35 and €85 per 1,000 vehicles on the road**.
- Where contracts had been agreed, the range of equivalent annual fees reduces significantly to between **€0.35 and €7.20 per 1,000 vehicles on the road**.

This suggests that in principle there is a range of mutually acceptable prices for data republishing licences. There is also some evidence that data republishers take the format of the information (including whether VIN data is available) into account when deciding whether to accept a contract.

Any issues involving the transfer of information from OEMs to republishers in the first stage (e.g. delays in obtaining contracts, incompleteness/inaccuracy of the data etc.) tend to propagate through to the end users. Several issues appear to be important in this respect:

- **The time taken to obtain a contract for republishing rights is considered to be too long by data republishers -** these delays restrict the information that can be published.
- **Some republishers feel that certain contractual clauses imposed by OEMs would make their products unviable**: Mostly commonly these include cancellation clauses and territorial restrictions. Although anecdotal evidence suggests that some OEMs are demonstrating more flexibility in these areas, numerous problems are still reported.
- **Issues with the format of the data (electronic processability), completeness and visibility of updates affect the speed at which republishers can incorporate the latest information into their products:** These issues also typically increase the costs associated with processing the data.

Impact on safety and the environment

Access to RMI may in some cases be useful to identify certain malfunctions resulting in additional vehicle emissions. This is especially the case for OEM-specific malfunction codes. As a result, repairs may possibly be performed quicker and therefore at lower costs. However, the effects of access to RMI on overall emissions are expected to be very limited as (almost) all malfunctions related to emission control are signalled by the OBD system.

Safety-related defects are more common on older vehicles, so currently there is little experience in the sector of handling these issues. Initial suggestions are that it may be challenging to access required RMI, with unequivocal parts identification being highlighted as an issue for certain components. However, the study team believe that OEMs would be anxious to remedy any safety-related issues, since consumer safety is of critical importance to their organisations.

However, a direct link between access to RMI and improvements in environment and safety issues is difficult to quantify due to a paucity of independent data, and the real-world impact will not be evident for several years.

Recommendations

Provide additional guidelines to clarify specific aspects of the Regulations

Even with the introduction of the CEN/ISO standards, there appears to be a need for **greater technical assistance** to be provided to independent repairers. In particular, the following actions are recommended:

- **Definition of "reasonable" fee levels**:
  - Appropriate metrics that may be included in their calculations of charges for access to information for all users[1], taking into account the needs of both OEMs and independent operators.
  - Charges for technical support, where prices have been found to vary substantially.
  - Fees for registration/verification checks under the security certification scheme SERMI.
- **Information that may be categorised as safety- or security-related**. There is a legitimate need to restrict access to such information, but without a common understanding disputes are likely to continue. A primary concern for OEMs is the need to protect their intellectual property, as well as their competitiveness (where divergent approaches between OEMs could lead to competitive distortion). In this respect, a first step would be to convene technical discussions about the content and boundaries of such information between OEMs and the European Commission in order to develop a more consistent approach and a level playing field.
- **Requirements related to Reg. 692/2008, Article 2.1(2) covering access to information on bulk data on parts, as identified by VIN:** Currently there is litigation on this topic that remains unresolved due to different interpretations of the requirements.

[1] Including specialist intermediaries such as data republishers and tool manufacturers.

- **Certain requirements relating to "non-discriminatory access":** areas that were highlighted as being unclear included in particular the provision of information in different languages, which entail costly translation fees.

Provide "best practice" guidelines on for contracting between OEMs and specialist intermediaries

Currently there are a wide range of different practices, which are not transparent. Yet the research clearly showed that at least some organisations have managed to reach agreements that are acceptable to both parties. Rather than expecting all contracts to be based on identical criteria, guidance is required to help both OEMs and independent operators establish appropriate negotiating positions in a variety of contexts.

- **Best practice for timescales required to negotiate contracts and reach agreements:** stakeholders suggest some OEMs are considered to have more sophisticated systems in place for dealing with individual contract requests and are able to reach agreements in a matter of months.
- **Guidance on practical and mutually acceptable contract negotiation practices** that ensure the proper use of the data without making their products unviable, including:
    - Examination of cancellation and territorial clauses. Acceptable terms will vary depending on the context of the agreement, the intended use of the data, the market situation of the OEM etc.
    - Appropriate fees that can be charged, including the level of any initial fees, licensing fees, renewal fees etc.
    - Appropriate metrics on which to base fees, including factors such as market share (of OEM and/or third-party), format of the data, coverage of the data.
- **Standardised processes for formatting and transmitting the required data (including updates to the data)**: The CEN/ISO standards currently focus on the format of the information provided, but similar standards may be required for the formatting and transmission of other types of technical data**, including data that is wirelessly transferred**. In general, independent operators felt that as long as data could be electronically processed, the precise format was less important (the current main challenge is the manual scanning of data); therefore the requirements do not necessarily need to be as detailed as the current CEN/ISO standards for RMI websites.
- **Quality standards** for the different types of information that must be provided, including reliability, completeness, timeliness and functionality.

While clearer guidelines in these areas are expected to be beneficial for both OEMs and independent operators, the study team recognises that reaching agreement on the precise content and boundaries has the potential to be contentious.

Introduction of derogations or alternative means of providing RMI for very small volume, niche and special purpose vehicles

The requirements of the Regulation may be considered too onerous for small volume manufacturers or niche vehicle manufacturers. Derogations for such manufacturers could be considered in future amendments to the Regulations.

Harmonisation of fines/penalties for non-compliance and greater enforcement

The current system is not well-equipped to deal with occasional incidents such as missing data and other deficiencies. Revisions to the Regulations could consider some of the aspects suggested above to help improve the situation.

- **Implementation and harmonisation of fines/penalties across Member States:** This appears to be important in order to avoid a patchwork of different penalties that may cause distortion between the administrative burdens and/or potential business viability of national Type Approval Authorities.
- **Considering nominating a separate verification body in place of requiring type approval authorities to enforce the Regulation:** A separate body may be more suitable to address the mandatory requirements of the Regulations in order to allow pooling of administrative costs. This verification body should have the necessary specialist technical knowledge and resources, particularly when verifying the following aspects:
    - Compliance with the detailed requirements set out in the CEN/ISO standards, where very specific requirements are set out.
    - Monitoring of technical compatibility (e.g. for online diagnostics) and the conditions under which technical information is transmitted to specialist intermediaries.
- **Introduce a consistent administrative procedure for complaints:** this would help to address issues that are occasional or not systematic in nature. This could be linked to a separate verification body, as currently it is not clear how type approval authorities deal with cross-country complaints.

Monitoring of progress

The implementation and effectiveness of the **SERMI scheme** should be monitored after its introduction to ensure that it is indeed tackling the problems it aims to resolve.

This may be particularly relevant regarding **new advanced technologies** - while there is an increasing need for safety-related training to ensure that independent repairers are able to properly perform jobs on advanced technologies, it would be beneficial to consider how to recognise multi-brand training in certification for access to information restricted for safety reasons.

The issue of **telematics** appears to be an emerging challenge, and harmonisation with relevant international standards and other European legislation is crucial.

Contents

1. INTRODUCTION

1.1. Study objectives

It is generally recognised that there is fierce competition between vehicle manufacturers in the market for new car sales. However, once a vehicle has been purchased, competition on the markets for repair and maintenance services and for spare parts is less intense (European Commission, 2008). In other words, since spare parts and technical knowledge are often specific to a brand or model, there is a risk that consumers may be harmed by anti-competitive practices that push up repair costs (European Commission, 2008). Hence, independent operators are needed to increase consumer choice and provide competition for vehicle manufacturer networks in the aftermarket.

Greater competition between vehicle manufacturer networks and independent operators is expected to lead to lower costs to consumers for repair and maintenance. These costs are thought to represent a significant share of total consumer expenditure on motor vehicles; therefore high costs may have an impact on public health and safety if they deter consumers from undertaking regular maintenance work. Vehicles that are not properly maintained are likely to have higher emissions and could lead to both safety and environmental concerns.

In order to compete in the vehicle repair market, independent operators must be able to access vehicle repair and maintenance information (RMI). Vehicle RMI is required to carry out a very broad range of operations related to maintaining a car throughout its lifetime, including diagnosis of malfunctions, repair services and spare part identification.

To this end, manufacturers are required under European legislation to ensure that independent operators have easy, restriction-free and standardised access to vehicle RMI. This study aims to assess the operation of the system of access to vehicle RMI in the European Union. The study also aims to assess the wider effects of the system of access to RMI in terms of the impacts on:

- Competition;
- The internal market; and
- Environment and safety.

The aims are to better understand:

- Areas that are causing difficulties with compliance / enforcement and possible solutions;
- Areas that could be affecting suitable access for different parts of the automotive aftermarket;
- The costs and benefits to different stakeholders; and
- The likely market developments and future direction of the industry, and how these aspects may affect the effectiveness of the current legislative framework.

1.2. Policy context

Regulation 715/2007 (the "Euro 5" Regulation) is one of the separate regulatory acts in the context of the vehicle type-approval procedure under Directive 70/156/EEC. A key objective of the Euro 5 Regulation is to ensure full and non-discriminatory access to vehicle

on-board diagnostic (OBD) and repair and maintenance information[2] (RMI) for independent operators. The requirements became mandatory for new type approvals from 1st September 2009 for cars and from 1st September 2010 in the case of category N1 class II and III and category N2 vehicles (i.e. light commercial vehicles).

The Euro 5 Regulation has been accompanied by several related Regulations:

- **Implementing Regulation 692/2008:** sets technical requirements in accordance with Regulation 715/2007 to ensure that vehicle RMI is readily accessible to independent operators. In order to gain type approval, manufacturers must demonstrate compliance by providing a Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information.
- **Regulation 566/2011 (amending Regulation 715/2007):** introduced several amendments. These requirements entered into force on 19 June 2011. It also clarified that the scope of the Regulation includes information that needs to be provided to all independent operators, not just repairers.

Since the Euro 5 Regulation only applies to new type approvals, the competition rules of the block exemption are relevant to ensure equivalent access conditions for technical RMI in the existing pre-Euro 5 fleet, including[3]:

- **Regulation 1400/2002, now replaced by Regulation 461/2010 ("Motor Vehicle Block Exemption"):** contains particular competition rules applicable to the motor vehicle aftermarket, including provisions on access to technical information.
- **The Commission Guidelines accompanying Regulation 461/2010:** The Guidelines note that refusal to provide information to independent operators may be covered by Article 101(1) of the Treaty for lack of anti-competitive effects. They specify that the Commission will take account of Regulation 715/2007 and its' implementing Regulation when assessing cases of suspected withholding of technical repair and maintenance information.

1.3. Approach to the study

The research methods for this study included a combination of desk research, database analysis, stakeholder engagement and field research.

Desk research

Desk research included a review of relevant literature and data, and assessment of the content of selected vehicle manufacturer (Original Equipment Manufacturer - OEM[4]) official RMI websites.

The assessment of OEM RMI websites covers the websites for which the study team were able to obtain registration details and review the content of the site first-hand. In total, 19 OEMs were included in the review, representing over 90% of new motor vehicle registrations in Europe in 2013.

The RMI website review included confirmation of registration processes, software/hardware requirements, whether access to the information required under the Regulations was

[2] "Vehicle repair and maintenance information" means all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming or re-initialising of the vehicle and which the manufacturers provide for their authorised dealers and repairers, including all subsequent amendments and supplements to such information. This information includes all information required for fitting parts or equipment on vehicles;

[3] Further details are provided in Annex 1

[4] Vehicle manufacturers are often referred to as Original Equipment Manufacturers (OEMs)

possible, fee structures, search criteria supported etc. The study team also independently verified the possibility of accessing and amending digital service records[5] in selected cases.

The investigation of manufacturer's websites was carried out between January and July 2014, and so it was not possible to verify independently the conditions during other time periods.

Meetings

The stakeholder consultation also included a number of face-to-face meetings and workshops with various associations, including:

- ACEA (European Automobile Manufacturers Association) – including representatives of their members and Boston Consulting Group (BCG), a consultancy they had commissioned to produce a study of the European aftermarket;
- FIGIEGA (International Federation of Automotive Aftermarket Distributors) - including representatives from their member organisations;
- CECRA (European Council for Motor Trades and Repairers) - including representatives from their member organisations;
- PIM (Polish Chamber of Automotive Industry);
- RMIF (Retail Motor Industry Federation (UK)) and IGA (Independent Garage Association (UK)); and
- TAAM (Type Approval Authority Meetings) – including representatives of national Type Approval Authorities across Europe.

Stakeholder surveys and interviews

The stakeholder engagement was particularly important for this study because of the interconnected nature of the automotive aftermarket and the need to gain insight into the true workings of the system on access to vehicle RMI. The key stakeholders therefore included organisations and groups that have responsibilities for and/or are affected directly or indirectly by the system of RMI, allowing the project team to compare the views of different stakeholders. The groups of stakeholders consulted throughout the study included the following:

- Vehicle manufacturers (OEMs);
- Repairers;
- Tool and equipment manufacturers;
- Parts suppliers and parts wholesalers;
- Data publishers;
- Type Approval Authorities;
- Associations;
- Remanufacturers;
- National authorities responsible for vehicle periodic technical inspections;
- EC officials.

[5] Digital records of repair and maintenance services carried out on a particular vehicle – often used to provide evidence in the case of insurance and/or warranty claims.

Online surveys were developed by the study team, with suggestions received from relevant stakeholders, including OEMs and associations representing the target audiences. Each online survey was pilot tested with individuals from the vehicle aftermarket before wider release to each stakeholder group.

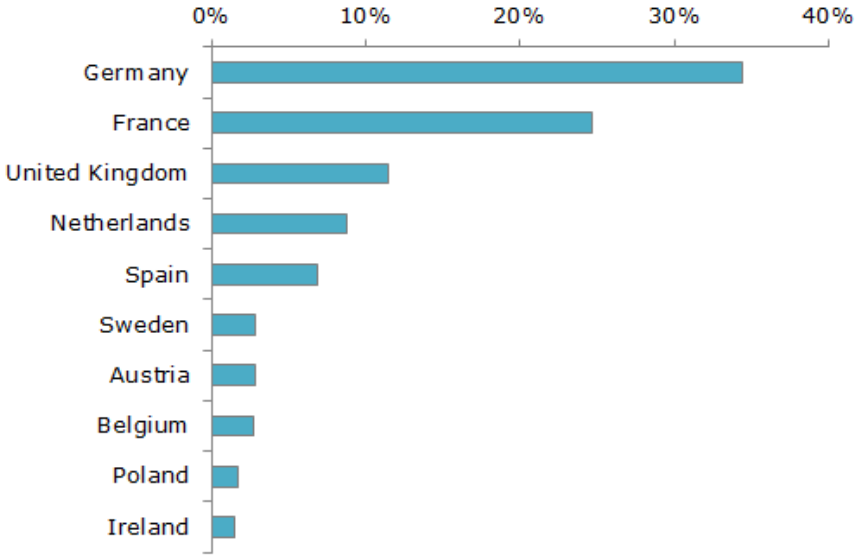
Online surveys were produced for parts suppliers, distributors and wholesalers (in English and German), and for tool and equipment manufacturers, data publishers and independent operators carrying out data publishing activities (in English).

Online surveys for repairers were released in six languages to cover the national languages of major European markets – English, French, German, Spanish, Polish and Dutch. These were chosen based on the corresponding national markets:

- Having a relatively high level of new vehicle sales since 2011, to ensure that a sufficient number of Euro 5/6 vehicles are present in the fleet;
- Reflecting a range of different market structures; and
- Including a spread of European regions.

Germany, UK, France, Spain, Poland and the Netherlands together represent around two thirds of the total European aftermarket value in 2012 (Datamonitor, 2014). The surveys were also open to respondents from other Member States to answer in any of the languages provided. The surveys were distributed via various aftermarket associations at the EU and national level to their members and interested contacts. A breakdown of responses by county is shown in Figure 1-1.

Figure 1-1: Breakdown of repairer responses by country



Notes: Responses to repairers survey only – other stakeholders typically operate internationally

In addition to the online surveys, a number of interviews with targeted questions were undertaken based on the issues identified. The total number of survey responses and interviews conducted for each stakeholder group is outlined in Table 1-1.

Table 1-1: Overview of stakeholder engagement responses

Stakeholder group	Number of survey responses	Number of interviews
OEMs	N/A	**19**
Authorised repairers	**357**	**8**
Authorised single-brand repair shop	*101*	-
Authorised multi-brand repair shop	*256*	-
Independent repairers	**1,640**	**19**
Independent workshop/garage (individual)	*962*	-
Independent garage as part of a chain	*570*	-
Independent workshop in combination with one or more vehicle manufacturer-service contracts	*108*	-
Road patrol	**21**	N/A
Trade associations	**8**	**3**
Tool and equipment manufacturers	**24**	**6**
Parts suppliers and parts wholesalers	**306**	**6**
Data publishers	**17**	**7**
Independent operators with data publishing activities	**6**	N/A
Type approval authorities	N/A	**6**
Remanufacturers	N/A	**1**
Other independent operators (including crash repair shops, fleets, roadworthiness test centres, training facilities)	**88**	**3**
EC officials	N/A	**2**
Total	**2,467**	**80**

Notes: Number of responses to online surveys indicates the number of responses after quality checks and screening for relevance.

Field tests

Problem clusters identified through interviews and surveys were further verified through field tests. The main aim of these visits was to identify whether or not there are problems faced by independent operators in gaining access to RMI that unfairly affects their business activities compared to authorised dealers/repairers.

In total, three field tests were undertaken by the study team in different European countries. All field tests were carried out in the national language by a native-speaking member of the study team.

The field tests included the following:

- ***Visit to a major parts wholesaler*** (Germany) – The parts wholesaler demonstrated the structure of their online parts catalogue, the various sources used to create it, the steps that their clients would take to identify a part and the possible consequences of incorrect parts identification. The aim was to see first-hand the structure of different information sources and the potential causes of errors in parts identification – whether due to incomplete information or operator errors.

- ***Visit to a training provider*** (UK) – Three members of the study team undertook a Euro 5 "pass-through"[6] training course alongside around 20 independent repairers in order to better understand the underlying reasons for any issues faced by repairers when carrying out programming operations. The aim was to understand, in an unbiased and ideal environment, what is technically possible for independent repairers versus what is practically difficult due to other reasons (such as inexperience or software incompatibility).
- ***Visit to authorised and independent repairers*** (Poland) – Visit and discussion with several repairers (two independent and four authorised). The aim was to gain further insight into the market situation in Poland and how it may differ from Western European markets due to the relatively low level of responses to the survey of repairers from Poland.

Limitations

The survey results are subject to well-understood limitations that affect all surveys of this nature, namely that a relatively small sample was collected for some stakeholder groups, that responses were entirely voluntary and that the opinions are subjective.

As such, where numerical results from the stakeholder engagement activities have been included in the main report, the source is clearly indicated. The findings should be interpreted as opinions to support other evidence, rather than as concrete facts.

While significant effort was invested to ensure that the stakeholder engagement activities were as inclusive and representative as possible, the time and budget limitations of the study meant that it was not possible to be exhaustive.

Non-response bias[7] is almost impossible to completely eliminate, and cannot be resolved by increasing the sample size. We did not have access to a sampling frame due to data protection laws and therefore it was not possible to conduct random sampling. In an effort to reduce the possibility of conditioning responses, answers were generally sought in terms of estimated ranges and did not include extreme values (i.e. in some cases options for "never" and "all the time" were incorporated into broader ranges when recalling how often an issue had been previously experienced).

In addition, some stakeholders represent large organisations and coordinated responses from multiple parts of their company, whereas others submitted responses based on their individual opinions. We do not attempt to weight the responses to account for this.

With these limitations in mind, the study team has used the responses in the following ways:

- **To gain a deeper understanding of different points of view**: The distribution of responses to each question was examined to ascertain the level of agreement between stakeholders. The responses from different stakeholder groups (by region, by stakeholder type, by firm size, by experience level etc.) were compared to see if any differences emerged. It should be noted that splitting responses into subgroups further reduces the sample size, and therefore the results were interpreted as an indication only.
- **To provide guidance for field tests and interview topics**: The study team used the responses to provide guidance for additional research and further explored some areas in interviews and field tests.

[6] Pass-through allows the reprogramming of vehicle control modules to be carried out using a pass-through-enabled tool in conjunction with a computer.

[7] Non-response bias occurs when respondents in the target population do not participate, leading to variations in the survey findings from the true population

1.4. Overview of the report structure

Regulation No. 715/2007, as amended by Regulation No. 566/2011, includes specific provisions in Chapter III on access to vehicle repair and maintenance information.

The analysis of the operation of system of access to vehicle RMI has been split into three Sections:

- **Section 2:** Analysis of manufacturers' obligations (Article 6);
- **Section 3:** Analysis of fees for access to vehicle repair and maintenance information (Article 7); and
- **Section 4:** Analysis of issues encountered with respect to compliance and enforcement regarding the legislation on access to RMI.

To assess how the operation of the system of access to RMI is affecting businesses in Europe, further analysis has been carried out to cover:

- **Section 5:** Impacts on competition;
- **Section 6:** Impacts on the functioning of the internal market; and
- **Section 7:** Impacts on the environment and safety.

Finally, **Section 8** provides overall conclusions and recommendations.

2. ANALYSIS OF MANUFACTURERS' OBLIGATIONS UNDER THE REGULATIONS

Overview:

The analysis presented in this section focusses on the fulfilment of vehicle manufacturers' obligations as described in Article 6 of Regulation No. 715/2007, as amended by Regulation No. 566/2011.

This chapter provides an evaluation of the following obligations:

- Unrestricted and standardised access to vehicle RMI to independent operators through websites in a standardised format, and in a readily accessible and prompt manner;
- Availability of training materials from manufacturers for independent operators and authorised dealers and repairers;
- Unrestricted and standardised access to specified repair and maintenance information;
- Permanent availability of vehicle RMI;
- Provision of relevant on-board diagnostics (OBD) and vehicle repair and maintenance information;
- Making amendments and supplements to vehicle RMI available on their websites at the same time they are made available to authorised repairers;
- Timely provision of proof of compliance with Regulation 715/2007 to Type Approval Authorities; and
- Vehicle repair and maintenance records.

This section focusses primarily on the functioning of the system via RMI websites, as it relates to the ability for independent repairers to access and use the information they require. The situation for intermediaries (such as republishers, parts wholesalers and tool manufacturers) is briefly assessed where appropriate, whereas a more detailed analysis is conducted in **Section 4** and **Section 5.**

2.1. Unrestricted and standardised access to vehicle RMI by independent operators through websites in a standardised format, readily accessible and prompt manner

The formal requirements of the Regulations encompass several distinct elements that have been assessed separately in the following sections.

Obligations under the Regulations:

Repair and Maintenance Information shall be provided by manufacturers to independent operators "*through websites using a standardised format in a readily accessible and prompt manner, and in a manner that is non-discriminatory compared to the provision given or access granted to authorised dealers and repairers.*"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

2.1.1. Provision of repair and maintenance information via a website

All of the OEMs (including sub-brands) reviewed for this study currently make RMI available through a website.

As such, the study team reviewed the availability of the websites independently for this study. Of the OEMs that were reviewed, all provided a website for RMI, as shown in Table 2-1.

Table 2-1: OEM/brand RMI websites (reviewed independently for this study)

OEM	Other brands	Website(s)
Aston Martin	-	https://www.astonmartintechinfo.com/login.aspx
BMW	Mini and Rolls Royce	https://Oss.bmw.de/index.jsp
Daimler	Mercedes-Benz and Smart	https://aftersales.i.daimler.com http://service-parts.mercedes-benz.com/dcagportal/DCAGPortal/menu.action?pageId=11
Fiat	Alfa Romeo, Lancia and Abarth	https://www.technicalinformation.fiat.com/tech-info-web/web/index.do
Ford	-	http://www.etis.ford.com
GM	Opel, Vauxhall, Chevrolet	www.gme-infotech.com
Honda	-	www.technoinfo.honda-eu.com
Hyundai	-	https://service.hyundai-motor.com
Jaguar Land Rover	-	http://topix.landrover.jlrext.com/topix/i18n/index
Mazda	-	https://portal.mazdaeur.com/io/
Mitsubishi	-	http://www.mitsubishitechinfo.eu/
Nissan	-	https://eu.nissan.biz
PSA	Peugeot Citroën	http://public.servicebox.peugeot.com http://service.citroen.com
Renault	Dacia	www.infotech.renault.com
Tesla	-	https://service.teslamotors.com/
Toyota	Lexus	http://www.toyota-tech.eu/
Volkswagen	Audi, SEAT and Skoda Lamborghini	https://erwin.volkswagen.de/erwin https://erwin.lamborghini.com/erwin/showTermsOfBusiness.do
Volvo	-	http://tis.volvocars.biz/tis/main.do http://workshopsupportguide.volvocars.biz/home.aspx

Notes: Website addresses verified and correct as of Jan-July 2014 – access to some websites may depend on browser compatibility and/or firewall restrictions.
Source: OEM website and interviews.

During interviews with independent operators, several stated that they had experienced issues in identifying the login pages for various RMI websites. This is consistent with a previous study conducted by BOVAG in the Netherlands, where access to RMI websites was considered for 13 vehicle brands and locating the website required assistance from a service desk for four of these brands (BOVAG, 2013).

However, we believe that during the course of this study the websites have become easier to locate. For example, the European Automobile Manufacturers' Association (ACEA) now

provide links to each of the available RMI websites via their website, which includes the websites of several additional brands that were not included in the scope of this study[8].

2.1.2. Use of a standardised format

Current OEM RMI websites vary widely in their design, as well as the methods of searching for and displaying the required information.

The study team acquired accounts for the repair and maintenance websites of 19 major OEMs operating in Europe. These websites differ significantly in terms of the user interface and layout of the information, since they have evolved from different starting points over the last decade. Some have been developed by adapting existing systems used for international markets (e.g. in the USA), others from systems introduced under the Motor Vehicle Block Exemption, or from systems originally provided to their authorised networks. As a result, the structure of information and methods of access differs substantially between OEMs.

Considering that a typical independent repairer will not use these websites frequently and hence will not be familiar with the interfaces (as discussed further in Section 5.1), it is not surprising that they find it can take longer to retrieve the information from the official vehicle manufacturer portals.

Importantly, there does not appear to be any consistency in the brands reported by repairers in the survey conducted for this study as having "easy-to-use" versus "difficult-to-use" websites – with the same brands being rated at opposite ends of the spectrum by different repairers. Having accessed the websites first-hand, the study team surmises that the main factor is likely to be the level of familiarity rather than any intrinsic design issues.

Locating the required information can therefore be challenging for inexperienced users, despite significant efforts by many OEMs to improve user experience. However, the development of CEN/ISO RMI standards is expected to alleviate some of these issues, as discussed below.

Most of the interviewed OEMs confirmed that they would work towards meeting the requirements of the CEN/ISO Standards for RMI when finalised.

According to Recital 8 of Regulation 715/2007, it is appropriate to initially require the use of the technical specifications of the OASIS[9] format and to request CEN/ISO to further develop this format into a standard - with a view to replacing the OASIS format in due course. Through meeting the requirement of the CEN/ISO standard, OEM RMI websites are likely to become more standardised in the way information is delivered.

These CEN/ISO standards were at the draft final stage at the time of writing. Currently, the standards, only relate to light passenger and commercial vehicles. The suite of standards includes:

- ISO 18542-2, Road vehicles – Standardized repair and maintenance information (RMI) terminology – Part 2: Standardized process implementation requirements, Registration Authority,

[8] RMI service information for ACEA members: http://www.acea.be/news/article/rmi-service-information

[9] OASIS (Organisation for the Advancement of Structured Information Standards) Document SC2-D5, Format of Automotive Repair Information, version 1.0, 28 May 2003

- ISO 18541-1: Road vehicles - Standardized access to automotive repair and maintenance information (RMI) - Part 1: General information and use case definition (ISO/DIS 18541-1:2012)
- ISO 18541-2: Road vehicles - Standardized access to automotive repair and maintenance information (RMI) - Part 2: Technical requirements
- ISO 18541-3: Road vehicles - Standardized access to automotive repair and maintenance information (RMI) - Part 3: Functional user interface requirements
- ISO 18541-4: Road vehicles – Standardized access to automotive repair and maintenance information (RMI) - Part 4: Conformance test

Thirteen of the OEMs interviewed stated that they planned to ensure their websites were compliant with the CEN/ISO Standards once they have been finalised – with estimates for the implementation time required of around three years.

The benefits to independent repairers due to the CEN/ISO specifications will primarily be due to greater standardisation of the information, although the impacts are currently difficult to predict and only likely to materialise in the longer term.

In the view of the study team, changes made to comply with the CEN/ISO standards may disrupt the experience of the current user base in the short term, both for authorised and independent repairers. In the longer term, a more standardised format is likely to be beneficial for all multi-brand repairers in terms of their ability to find the information they require from OEM websites.

As noted in the draft CEN/ISO standards, OEMs may benefit from improved sales of RMI to independent operators. Currently, the vast majority of independent repairers rely primarily on information from data publishers (see **Section 5.1**), and the extent to which they might be incentivised to change their main provider is likely to be influenced by pricing strategies, as well as the level of competition from third-party data republishers.

Eight OEMs provided confidential estimates of the compliance costs (for CEN/ISO specifically). These ranged from €100,000 to €1 million, with most estimates clustered towards the lower end of this range. Future benefits to OEMs may be realised through simplification of any subsequent RMI system development (hence lower costs). The study team believe the wide variation in these estimates is in part due to the fact that the CEN/ISO standards are still in draft format, and also due to differences in the current setup of the systems. However, it should be recognised that the costs of compliance may be significant for OEMs, with no assurance that these could be recouped through user fees. Indeed, many OEMs expressed doubts as to whether greater standardisation would increase traffic to their websites, while smaller OEMs felt the burdens on them to achieve compliance were disproportionate.

2.1.3. Making information readily accessible and in a prompt manner

These terms have been interpreted in the context of the registration processes required for access to RMI, as well as the compatibility with computer operating systems.

2.1.3.1. Registration procedures

The registration processes for the general RMI websites are reported by most OEMs as being quick (less than 30 minutes), enabling prompt access to the information.

All OEM websites reviewed require the user to register to create an account. There are often two different registration profiles – one to access general RMI, and one to access the programming and diagnostic environment. Whilst the majority of the OEMs do not currently

undertake user validation checks for access to the general RMI website, they may reject users at a later point if a valid VAT number is not provided when making payment for various items, or if they subsequently make checks on company names/phone numbers/email addresses.

When accessing RMI, the registration process was reported to take under 30 minutes for the majority (17) of the websites of the OEMs that were reviewed. Those with registration processes that took longer reported that it was typically due to VAT checks, with the time required varying from 1-3 business days depending on where the applicant was based. This confirms the findings of a previous review of account creation/registration undertaken by BOVAG (2013), whereby they found that of 13 vehicle brands, registration was successful immediately for all but one website (where it took a little longer but was ultimately successful). Overall, there do not appear to be significant delays for users when registering for the general RMI website.

Multiple payment options are offered by most OEMs for purchasing access to RMI via their websites.

All but one of the OEMs reviewed accepted payment by credit card (primarily Visa and Mastercard) and many (12) also accepted debit cards. A smaller number (9) accepted bank transfers and/or credit on accounts, or alternatives such as PayPal (3). OEMs were typically of the view that credit cards should be a convenient option for their users and noted that they had not received a large number of requests for alternatives. In contrast, BOVAG (2013) suggested that being restricted to credit card payments can cause issues for some operators. A small number of repairers (57 in total) reported that they "frequently" experienced issues with payment on the website of the OEM they used most often. Reviewing the responses showed that SMEs (employing fewer than 10 people) were the most likely to experience problems, with organisations employing fewer than ten people accounting for 80% of the responses.

Since introducing additional payment methods is associated with an additional cost to OEMs, the majority (12) stated that they did not have plans to change their systems. However, three OEMs reported that they were looking into introducing additional payment methods. Two OEMs suggested that they would review the situation if there was sufficient demand and seven OEMs indicated that they could offer flexibility in exceptional circumstances.

Overall, the study team is of the view that payment methods should not present a problem in most cases, but there may be specialised user groups and/or SMEs who do not have access to credit cards – training institutions and other technical authorities in particular. However, the study team believes that OEMs generally have an incentive to respond to requests in this area.

Access to the programming environment can take longer – from two days to two weeks – due to additional security checks.

Registration for access to the programming environment can range from around two days to two weeks. This additional time is needed to allow the OEMs to verify that it is a genuine business/company attempting to access the information. Additional checks on the user may include verification of information such as VAT number, company website, phone number etc. OEMs explained that this was to ensure private individuals are not registering for access due to concerns regarding safety/product liability.

From the perspective of repairers, such delays can inconvenience their customers, at least when initially registering with a website. It should also be noted that registration processes and certification for access to security-related RMI are covered in the CEN/ISO RMI standards.

2.1.3.2. Technical specifications

RMI websites are typically fully compatible with more than one browser (all are compatible with at least one version of Microsoft Internet Explorer).

The requirements for accessibility of vehicle repair and maintenance information refer to "*using only open text and graphic formats or formats which can be viewed and printed using only standard software plug-ins that are freely available, easy to install, and which run under computer operating systems commonly in use*". These requirements are more precisely defined in the draft CEN/ISO standards – for example, a "major" browser is considered to be one with more than 15% market share. In Europe these are currently Microsoft Internet Explorer (IE), Google Chrome and Mozilla Firefox.

Currently, most OEMs' RMI websites are fully compatible with multiple browsers. The impact on users accessing websites from non-optimised browsers may vary – in some cases this may only affect diagrams and formatting. That is, the display of information has not been fully tested for non-optimised browser compatibility, but users are not necessarily prevented from accessing the information. A comparison is provided in Table 2-2, which shows the optimisation for different browsers as well as the version of each browser where this information was available.

Table 2-2: OEM RMI website browser optimisation

✓ = fully compatible; × = non-optimised

	Internet explorer	Safari	Chrome	Other browser
Aston Martin	✓ -IE v6.0	✓ - Safari 4.0	✓	✓ Firefox
BMW	✓	×	✓	✓ Firefox
Citroen	✓ - IE v8.0	×	×	×
Daimler	✓ - IE v8.0	×	×	×
Fiat Group	✓	✓	✓	✓ Firefox
Ford	✓	×	×	✓ Firefox
GM/Opel	✓ - not specified	×	×	×
Honda	✓ - IE v6.0	×	×	×
Hyundai	✓ - IE v8.0	✓	✓	✓
JLR	✓ - IE v8.0	✓ - Safari 4.0	✓ - Chrome 2.0	✓ Firefox 3.0
Mazda	✓	×	✓	✓ Firefox
Mitsubishi	✓	×	×	×
Nissan	✓ - IE v7.0	×	×	✓ Netscape v4.7
Peugeot	✓ - IE v8.0	×	×	×
Renault	✓ - IE v6.0	✓	✓ - Chrome 1.5	✓ Firefox
Tesla	✓ - IE v6.0	✓	✓	×
Toyota	✓ - IE v8.0	×	✓	✓ Firefox
Volkswagen	✓ - IE v8.0	×	×	×
Volvo	✓	×	×	×

Notes: Where RMI websites are not optimised, users may still be able to use the websites – this only indicates that the OEM has not fully tested compatibility.
Source: OEM website and interviews. Correct as of Jan-July 2014

Technical specifications are generally more stringent for the programming and diagnostic environment. Software requirements for diagnostics information (where available) is typically only compatible with Internet Explorer (IE), but generally OEMs recommend that their 'in house' tool/interface is used.

In these cases minimum specifications for aspects such as CPU, RAM memory and monitor resolution are specified. Generally, the programming software can be downloaded online and then the user will need the vehicle communication interface (VCI) which is usually provided by the manufacturer, to carry out reprogramming tasks. Four OEMs provide programming information only via DVD, which can be obtained by authorised dealers or independent operators. This confirmed findings of a previous study on access to RMI via OEM website undertaken by BOVAG (2013). The study found that the majority of vehicle manufacturers offered the software as a download, but with some (six) still supplying via a DVD or CD, which took some time to obtain, and resulted in a delay in accessing the required data and maintenance capabilities. During interviews, only two OEMs indicated any plans to make changes to the current requirements to make access the programming environment easier and/or faster.

Technical requirements for accessing the websites typically recommend the use of a high-speed internet connection when attempting to access information via the websites.

Some OEMs noted the difficulty in providing diagnostic and programming capabilities without high speed internet connections, since new vehicles have many control modules that require huge amounts of data to be transferred. As a result, the programming period when using a pass-through tool may vary between two minutes up to 75 minutes per control unit (AutoIntelligence, 2009), and in some cases multiple control units must be updated simultaneously (some OEMs require that all modules are reprogrammed as an integrated software package).

As vehicle software becomes more complex, it can be expected that the data file sizes will also increase. Several OEMs recommend the use of a high-speed internet connection when accessing online information - particularly for diagnostic and reprogramming operations. A connection failure when carrying out reprogramming can result in the permanent loss of data and leave the vehicle in an inoperable condition, therefore wireless connections are not recommended (AutoIntelligence, 2009). During interviews, several OEMs recognised that operations such as diagnostics may take longer for independent repairers due to technical restrictions of their internet connections.

The majority of OEM websites use graphic plugins such as Adobe, SVG viewer or Java platform which are supported by IE – however, cross-compatibility issues between the requirements from different OEMs are common.

Issues with compatibility between different versions of Java were frequently mentioned as problematic by independent operators, especially as different versions of software required by certain OEMs are incompatible with each other. Several examples of direct incompatibilities were provided by independent repairers and verified by the study team.

These incompatibilities undoubtedly cause inconvenience and delays for repairers – particularly if they do not understand what the underlying issue is. Anecdotally, several repairers have noted that they use different laptops for different brands in order to avoid having to uninstall/reinstall various software packages.

On the other hand, there is not any explicit requirement in the Regulations for the OEMs to maintain a level of cross-compatibility. Through interviews with repairers, we have found that some are aware of the problems and have found ways to work around them. Trade associations may also provide additional guidance in this area. Even so, further proliferation of different levels of plugin compatibility would be undesirable. Some

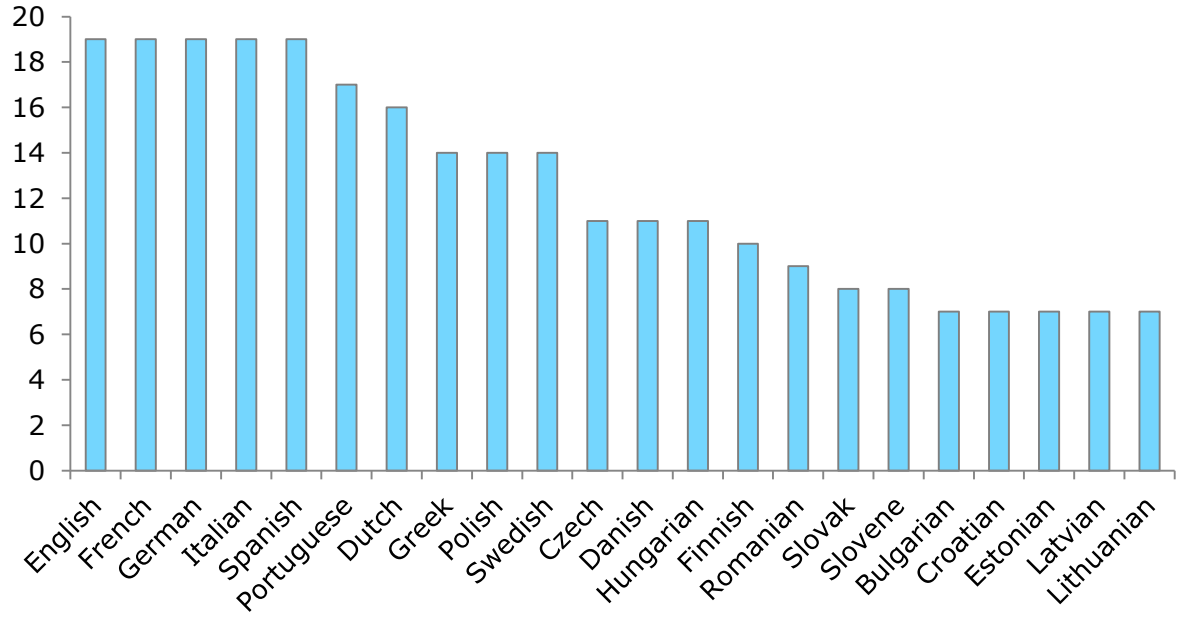
technical specifications for minimal software requirements are being incorporated into the CEN/ISO standards, which may help to mitigate this issue.

2.1.3.3. Accessibility in different languages

OEMs provide websites and RMI in a number of languages. In terms of providing non-discriminatory access, the interviewed OEMs confirmed that they used the same languages for both the independent and authorised networks.

The majority of OEMs reported that they choose which languages to provide information in based on business needs and the location of their core markets. All OEMs reviewed make information available in at least English French, German[10], Italian and Spanish. Seven of the OEMs provide (at least partial) website information and RMI in 20 or more of the official EU languages – see Figure 2-1.

Figure 2-1: Languages RMI websites/information provided in (count – 19 OEM websites – Official EU languages)



Notes: The extent of the language coverage was not always complete – in some cases only user manuals and bulletins were translated.
Source: OEM website and interviews. Figures correct as of Jan-July 2014

Even so, the Regulations do not specify which or how many languages the websites or information should be provided in to be considered 'accessible', and OEMs have agreed that there is no clear understanding on this issue in terms of what is expected of them.

It is important to recognise the considerable cost associated with translation and the question of who should bear this burden is unclear. Confidential estimates of the translation costs per language ranged from €100,000 to €1million for the initial translation (depending on the extent of the translation and the language), after which information would need to be updated and maintained. It was felt that these costs were unlikely to be fully met by the subscription fees.

In a related area, BOVAG (2013) also noted some RMI websites that were reviewed in the course of their study used abbreviations that are not fully explained, potentially causing problems when consulting the technical information. Following the EC mandate M/421 from

[10] English, French and German are core languages of the European Union.

21 January 2008 according to the Euro 5 Regulation, CEN/ISO are developing standards on RMI terminology (ISO 18542), which are currently at an advanced stage. This standard sets out requirements for the provision and publication of a set of standardised terms to be used for searching the OEM's RMI websites, wherein the OEMs will map their own terminology to the standardised terms. This is expected to improve accessibility for independent operators.

Few repairers participating in the survey for this study reported language issues as being a primary barrier when accessing information directly from manufacturer websites, although the surveys were concentrated on the largest markets for which information was typically available in the native language (i.e. German, English, French, and Spanish etc.). Almost half of Polish respondents noted that language barriers were an issue more often than not (i.e. more than half the time), suggesting that Eastern European languages could become a bigger issue in future. The role of independent data publishers is likely to be important in this respect, particularly when ensuring access for independent repairers in which OEMs do not have large established authorised networks.

2.1.4. Provision of information in a non-discriminatory manner

In the majority of cases, the OEMs interviewed stated that there were no differences in the RMI that is provided to independent and authorised repairers/operators, in terms of either content or timing.

The Regulation states that the RMI must be provided by OEMs "*in a manner that is non-discriminatory compared to the provision given or access granted to authorised dealers and repairers*".

The high level of mechanical and electronic complexity of modern vehicles means that both authorised repairers and independent operators need access to detailed technical manuals, wiring diagrams, spare parts information and other detailed support materials in order to be able to resolve faults that may arise. All of the OEMs interviewed confirmed that there were no differences in the information provided via their RMI websites for both independent and authorised repairers/operators in terms of the following aspects - including specific data required in Paragraph 2, Article 6 of the amended regulations (Regulation 566/2011):

- Search criteria supported;
- Time taken to access information;
- Display of search results;
- Vehicle identification information;
- Technical manuals;
- Wiring diagrams;
- Standard work units or job times;
- Maintenance and service information;
- Test and diagnosis information;
- Spare parts information;
- Special tools information; and
- Any other technical information.

All of the interviewed OEMs except one also reported that diagnostic trouble codes were provided in the same way to both independent and authorised repairers.

All new vehicles are now fitted with OBD equipment that allows the repair technician to assess the status of the various vehicle sub-systems. Modern OBD implementations use a standardised digital communications port to provide real-time data in addition to a standardised series of diagnostic trouble codes (DTCs), which allow rapid identification of malfunctions within the vehicle.

Only one of the OEMs interviewed reported that they do not currently make diagnostic trouble codes available. This was a small-volume manufacturer, who also stated that they were working on a system to improve this, but intellectual property restrictions needed to be addressed first.

All OEMs that were interviewed claimed that they make their RMI information available either as the vehicle goes on sale or earlier.

OEMs generally indicated that they aim to get this information ready and available prior to a vehicle launch, but some more complex features may take longer. However, they all emphasised that information is available at the same time for both the authorised networks and independent repairers.

However, some independent operators disagree with the claims from OEMs that the data is identical and provided at the same time.

On the other hand, independent repairers have noted a number of difficulties in obtaining the same information as for authorised repairers, claiming that there can be significant delays before information is made available, as well as issues of information being incomplete and facing difficulties in spare part references (Autorité de la concurrence, 2012).

Additionally, some specialist intermediaries (such as data publishers and tool manufacturers) have claimed that they experience significant delays and/or difficulties in gaining access to this information for newer vehicles. These aspects are examined in more detail in **Section 5.**

It was not possible for the study team to independently review and compare all of the information to ensure that it was indeed available to both authorised and independent repairers. In the survey, authorised repairers generally rated the quality and availability of all types of information more highly compared to the ratings given by independent repairers (especially for diagnostic information and updating/replacing ECUs).

Possible explanations for the conflict of views could include:

- **Lack of repairer's experience using OEM RMI websites**, meaning they cannot locate the information even though it is provided. This possibility has been acknowledged by several independent operators, as well as in previous studies (e.g. BOVAG, 2011).
- **Vehicles in question predate the Euro 5 Regulations**. Pre-Euro 5 vehicles are covered under the Motor Vehicle Block Exemption, which provide for slightly different levels of RMI access. In addition, some manufacturers have chosen to provide information for older vehicles while others have chosen to provide it only for Euro 5/6 type-approved vehicles, which may lead to some confusion over which vehicles should have information available.
- Data being accessed through third party publishers/tools rather than directly from OEMs. Although repairers were asked explicitly about information being accessed directly from the OEM websites, it is possible that some misinterpreted the question.

- Browser/software incompatibility issues – for example, several repairers reported that wiring diagrams were not available from OEMs; however, in some cases this could be due to the use of a non-optimised browser, which may allow access to most of the RMI website but the display of images is affected.
- Lack of clarity in the Regulatory requirements leading to different interpretations of the scope/detail of information to be provided.

It is also possible that improvements in provision of RMI have been made more recently, while independent operators are recalling incidents from longer ago. As noted in the introduction, the study was conducted in early 2014 and we are therefore not able to verify practices before this period. For example, reviews of manufacturer websites conducted by BOVAG in 2011, and again in 2013, suggest that there have indeed been improvements over time.

The precise situation will also vary depending on the manufacturer, model and repairer – it is likely that the underlying explanation will also vary; therefore an extensive analysis of the specific underlying reasons for individual discrepancies is not possible.

The objective of the study was not to identify any/all specific cases of non-compliance, but rather to assess the functioning of the system overall. In this respect, the above conflicts of opinions appear to suggest a need for greater technical assistance to be provided in these cases, as well as a role for greater technical verification/enforcement. This will help to ensure that independent repairers are better able to access the information they need, and also that OEMs are not unfairly accused of discrimination or non-compliance when they are indeed providing the required RMI.

Several OEMs acknowledged differences in information provided to authorised and independent repairers in two main areas: warranty/recall information and access to non-mandatory security data.

In the instances where differences were identified, this primarily included:

- Access to/provision of warranty information and recall campaigns (4 OEMs).
- Differences in access levels to non-mandatory security and safety data (2 OEMs).

Recall/warranty data were considered by the OEMs to be relevant only to their authorised network, since the work is funded by the OEMs and can only be carried out by their authorised networks. Other OEMs provide the warranty/recall information to both networks. The CEN/ISO standards related to "use case definitions" are expected to help standardise practices in this area. The draft final standards indicate that recall information should be provided to identify if a recall is required on a vehicle, along with an indication for independent operators that the OEM would provide a repair free-of-charge through their authorised network.

Access to security/safety data was frequently identified as a problem in the survey of repairers, with around one quarter of those surveyed claiming it was a problem at least 50% of the time for the manufacturer's website they used most often. However, it was not possible to directly review these cases in order to determine whether or not the information was legitimately withheld, and therefore the study team do not make any judgements on this aspect.

The possibility to limit data relating to vehicle safety and security was originally introduced in the Motor Vehicle Block Exemption (Regulation 1400/2002) and maintained in Euro 5 Regulations. Further clarifications were outlined for electronic system security and for access to vehicle OBD information respectively in Annex I and Annex XIV of Regulation 566/2011.

Under the Regulations: *"access to vehicle security features used by authorised dealers and repair shops shall be made available to independent operators under protection of security*

technology… The independent operator shall be approved and authorised for this purpose on the basis of documents demonstrating that they pursue a legitimate business activity and have not been convicted of relevant criminal activity."

Although a greater level of clarity on the reasonable scope of security- and safety-related information has emerged over time, there still appears to be a need for further clarification and guidance as it relates to the technical regulations of Euro 5.

These issues have been examined previously by the Commission, who has highlighted that vehicle manufacturers should not obstruct access to safety and security-related information to independent operators in their guidelines on the application of EU antitrust rules in the motor vehicle sector (European Commission, 2012a):

- "*Assuming that a vehicle manufacturer is likely to be the only source for the full range of technical information relating to vehicles of its brands […] in such a case involving a (near) monopoly position, flat refusals to grant technical information for supposed reasons of security or safety will usually not be compatible with EU competition rules*"
- **The scope of the information involved:** "*Independent garages are generally familiar with systems with safety implications, including tyres, steering, brakes and shock absorbers, and indeed have historically worked on them without demonstrable negative consequences for safety. Imposing restrictions that affect the provision of parts for such systems on the grounds that they are safety-related would be unlikely to be deemed as justified*"
- **When the information concerns the safety of workers**, "*where there is a need to restrict access to a safety-related part with which independent repairers are likely to be unfamiliar, such as a high-voltage electrical system that is specific to a particular model, or a technique for replacing carbon composite body panels, the vehicle manufacturer should adopt the least-restrictive means of achieving the desired result. One example might be to require independent repairers to attend training on the particular system or technique. Where the vehicle manufacturer or an undertaking acting on its behalf provides such training, the independent repairer should not be required to follow more training than it needs to work on the system or master the technique in respect of which the exception is invoked*".
- **Security**: *"As regards security-related information, a criminal records check can often be seen as an appropriate, less restrictive means of ensuring protection."*

The SERMI scheme (security related repair and service information) aims to integrate a process for accreditation, approval and authorisation to access security-related repair and maintenance information into EU legislation. The scheme is still a work in progress, but aims to create a European-wide process for accreditation – currently there is no common procedure and OEMs have different approaches, which places administrative burdens on them to carry out verification, while also causing delays for the repairers.

2.2. Availability of training materials from manufacturers for independent operators and authorised dealers and repairers

Obligations under the Regulations:

"*Manufacturers shall also make training material available to independent operators and authorised dealers and repairers*"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

The majority of OEMs reported that they offer training to independent repairers on the same basis as for their authorised network.

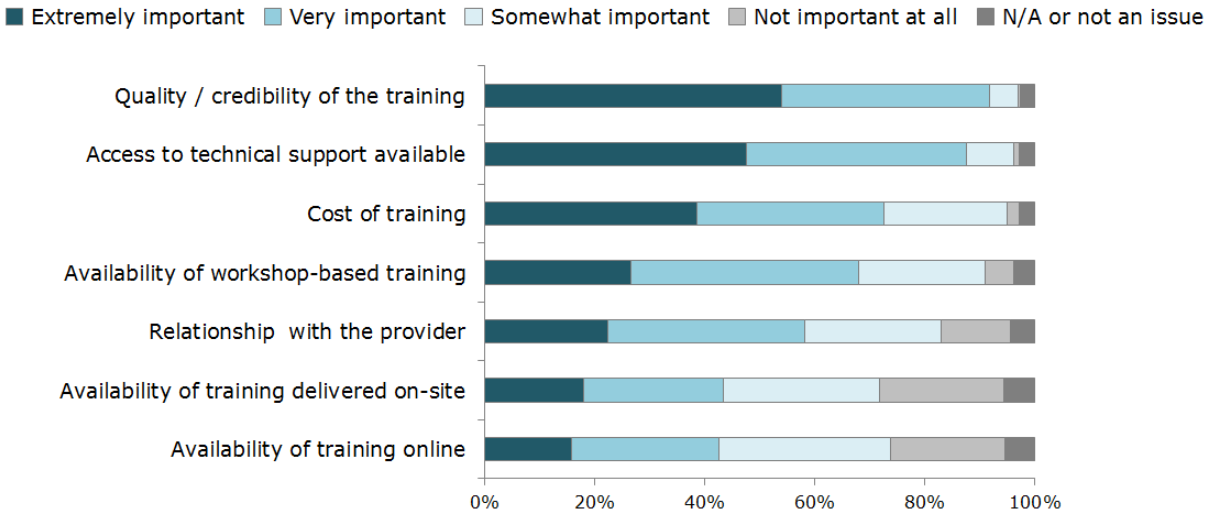
The majority of OEMs reviewed (16) provide workshop-based training courses and/or online training courses, with six also providing training courses that are delivered on-site (i.e. at dealerships by approved trainers). Two of the OEMs stated that they did not directly provide training courses, but did provide "train the trainer" courses, which enable trainers to deliver appropriate courses to both the authorised and independent networks. One OEM does not offer training to independent operators– except for training for emergency first responders. The OEMs interviewed also claimed that the fee for attending any of the OEM-led training courses is the same for the authorised network and independent operators. None of the OEMs interviewed are currently planning to change the training that they offer.

However, the level of attendance by independent operators at OEM-provided courses is very low.

Estimates of the attendance rate were provided by six OEMs, all of which revealed that the majority of attendees of their training courses are from the authorised network/dealers (95% or more). OEMs speculated that the low attendance rate was due to the fact that many independent repairers/operators attended training delivered by independent providers. The results from the survey of repairers are aligned with this viewpoint, as there appeared to be a much higher preference for independent repairers (individual or belonging to a chain) to choose independent training providers.

The most important factors that determined a repairers' choice to take up training were cited as being the quality/credibility of the training, access to technical support and the cost of training. Aspects such as availability of training online or delivered on site were rated as far less important (see Figure 2-2).

Figure 2-2: Responses to survey of repairers: "*What are the most important factors that determine your choice to take up training?*"



Notes: N=1,736
Source: Survey of repairers carried out for this study carried out April-July 2014

These preference orderings were rated similarly for independent and authorised repairers – however independent repairers typically attend training courses provided by third parties.

2.3. Ensuring unequivocal vehicle identification through RMI websites

2.3.1. Information required for vehicle identification

Obligations under the Regulations:

"Information provided shall **include:** ***an unequivocal vehicle identification"***

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

All but one of the OEMs reported that they ensure unequivocal vehicle identification through Vehicle Identification Number (VIN).

All but one of the OEMs reviewed reported that they ensure unambiguous vehicle identification through Vehicle Identification Number (VIN)[11]. The majority (16) also provided search functionality using a selective list, including make, model variant, model year, engine code etc. The OEM that does not provide a VIN search facility has very few different vehicle models available on the market, and offers a search function by selective list instead. "Other" methods were different for each OEM, and included: by bulletin number, through vehicle diagnosis system, by vehicle registration number and by component search.

Also, in the majority of cases (18), the OEMs claimed that the identification "*clearly identifies all original equipment including respective part numbers"* – see Table 2-3. This was related to the search methods by VIN in each case, as OEMs noted this was the only way to ensure unequivocal vehicle identification, since searching by model/variant may provide more than one result.

[11] The VIN is a standardised code assigned to every vehicle to allow its unique identification

Table 2-3: Ensuring unequivocal vehicle identification through RMI websites

	Search methods offered			Ensuring the identification clearly identifies all original equipment, including respective part numbers
	VIN	Selective list	Other	
Number of OEM websites (out of a total of 19)	18	16	4	18

Notes: VIN = Vehicle Identification Number; Selective list includes e.g. make, model, variant, model year, engine code.
Source: OEM website and interviews. Figures correct as of Jan-July 2014

These results show an improvement over the findings obtained from an earlier study conducted by BOVAG (2011), which found that 9 out of 17 OEM RMI websites provided vehicle identification by VIN (compared to 18 out of 19 in this study).

2.3.2. Information required for identification of parts

Obligations under the Regulations:

"Information on all parts of the vehicle, with which the vehicle, as identified by the vehicle identification number (VIN) and any additional criteria such as wheelbase, engine output, trim level or options, is equipped by the vehicle manufacturer and which can be replaced by spare parts offered by the vehicle manufacturer to its authorised repairers or dealers or third parties by means of reference to original equipment (OE) parts number, shall be made available in a database easily accessible to independent operators. This database shall comprise the VIN, OE parts numbers, OE naming of the parts, validity attributes (valid-from and valid-to dates), fitting attributes and where applicable structuring characteristics"

[Reg. 692/2008, Article 2.1(2)]

Eleven OEMs (out of the 19 interviewed for this study) stated that Independent Aftermarket Operators (IAMs) have access to their bulk, or 'raw', data, including VIN. Fifteen OEMs have been approached by IAMs for contracts to access this data in the last three years – only six have reached a positive agreement to provide this information so far.

In the process of manufacturing a vehicle, OEMs keep records of all parts in its original equipment condition (also known as "installation data"). In this scenario, the VIN is sufficient to obtain precise identification data from spare parts catalogues created by manufacturers (to which independent repairers also have access) and to allocate a specific *original* spare part in a vehicle. Thus, the VIN gives an accurate and unequivocal result for original parts.

The study team enquired as to whether independent operators are able to access relevant information in bulk, or 'raw', format, including VIN, through interviews with OEMs. Eleven of the 19 OEMs interviewed stated that such independent operators, including publishers and spare parts manufacturers etc., are currently able to access this information. They stated that this bulk information was able to be provided in a variety of formats, often depending on what is being requested, including html, XML, PDF, CSV, Excel or databases.

Fifteen of the 19 OEMs stated that they had been had been approached for a contract by independent operators (sometimes by multiple parties) in order to access bulk data in the last three years. Of these 15 OEMs, only six stated they had reached any positive

agreements with IAMs to provide this information in this time period - a further three OEMs had negotiations with IAMs that were pending at time of assessment.

Those OEMs who stated that IAMs did not have access to this data in the required format provided the following reasons:

- Concerns over version control of the data / ensuring IAMs had the most up to date data;
- They do not believe it is a requirement to provide the data under the Regulations (based on previous decisions made by Type Approval Authorities – see **Section 4**). Currently, they provide data online in html format via RMI websites and bulk/raw format has not been requested by existing licensors.
- Information is developed for use within specific regions (e.g. Europe). Though OEMs recognise that the information may be used outside of specified regions, they are unable to provide assurances that the data are applicable elsewhere.
- Information provided by the OEM via the RMI website is the same for authorised and independent operators – the OEM believes this to be sufficient for all independent operators. Authorised dealers/service partners do not have access to this data.
- The OEM does not have a system that would enable them to provide access to raw data (focus is on enabling repairers to gain access to repair information).

A lack of clarity in the Regulations has led to some disputes over what commitments this should precisely cover, and legislative actions are still ongoing in this respect.

Independent Aftermarket associations have stated that the Euro 5/6 Regulations require parts identification data to be made available electronically as sets of data and not only by means of single databases queries that do not offer the possibility of data extraction for processing. Where VIN data are not available, searches are conducted manually using a "search tree", with general queries such as model, year of manufacture, engine size, etc. This manual "scanning" does not always lead to precise results.

The issue of access to bulk VIN data is highly complex, and it is noted that all OEMs interviewed considered that they comply with their obligations, either by:

- Entering into "VIN contracts" that allow automated processing of queries sent to the vehicle manufacturers' websites as a "web service", or
- Providing independent repairers with VIN-based searches and manual access to their catalogue on their RMI website.

Nevertheless, this issue is still proving to be extremely complex due to the different interpretations of what precise data and information structures the Regulatory obligations entail. Although the Euro 5 Regulations contain several provisions relating to this aspect, these have been interpreted differently by OEMs and IAMs and there is currently ongoing litigation related to this issue, which is discussed in more detail in **Section 4**.

2.4. Permanent availability of vehicle RMI

Obligations under the Regulations:

"The vehicle repair and maintenance information shall always be available, except as required for maintenance purposes of the information system"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

All OEM websites were available when they were reviewed. Websites will occasionally be unavailable due to routine maintenance, although OEMs can often undertake maintenance without taking all of the information offline, ensuring at least part continues to be accessible.

All of the RMI websites were accessed a number of times by the study team during the early 2014 in order to review their content. We did not experience instances of website unavailability during this period – but equally, we were not accessing the websites as intensively as, say, a repairer carrying out work on a vehicle. During interviews, OEMs mentioned that some routine maintenance activities can be undertaken without making the websites completely unavailable to users.

Where faults are identified by users and reported to the OEMs, the OEMs have stated that they endeavour to rectify them as quickly as possible.

Some of the OEMs stated that they rely on users reporting a fault with the website, which they will subsequently fix. During our review of the OEM RMI websites, a small number of accessibility issues were identified, although they did not make the websites totally inaccessible (e.g. errors relating to accessing certain types of documents etc. from the website, firewall restrictions etc.). Each of these faults was rectified quickly after notifying the OEM responsible for the website.

The survey of repairers did not highlight any significant causes for concern – a relatively small proportion of respondents (around 4% to 8% depending on type) felt that the OEM website they used most often was unavailable more than 75% of the time. More in-depth analysis of the responses did not show any systematic issues associated with users from particular countries, types of user, experience levels or the OEMs concerned. We therefore assume that these were relatively isolated incidents.

2.5. Provision of the relevant OBD and vehicle repair and maintenance information

Obligations under the Regulations:

"For the purposes of manufacturing and servicing of OBD-compatible replacement or service parts and diagnostic tools and test equipment, manufacturers shall provide the relevant OBD and vehicle repair and maintenance information on a non-discriminatory basis to any interested component, diagnostic tools or equipment manufacturer or repairer"

"For the purposes of the design or manufacture of automotive equipment for alternative fuel vehicles, manufacturers shall provide the relevant OBD and vehicle repair and maintenance information on a non-discriminatory basis to any interested manufacturer, installer or repairer of equipment for alternative fuel vehicles"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

The majority of the OEMs believe that independent repairers should be able to conduct diagnostic and programming tasks.

The OEMs that do not offer re-mobilisation (resetting the security system) state that only authorised users currently have access to security modules and codes, pending the security certification (SERMI) agreement (see Section 2.1.4).

In some cases, procedures are only possible using the OEM branded diagnostic tool, which can be purchased by independent repairers – see Table 2-4. Some OEMs explained that

certain actions cannot be carried out by authorised dealerships and are therefore not available to independent repairers either.

Table 2-4: Operations that independent repairers can undertake based on information provided by OEMs via RMI websites

	Flash software updates / carry out re-programming	Variant coding	Initialisation or re-initialisation	Pass-through	Re-mobilisation
Number of OEM websites (out of a total of 19)	*18*	*15*	*18*	*15*	*11*

Notes: Pass-through is an element of the Euro 5 Regulation that sets out requirements for programming functions via a vehicles' OBD socket using a pass-through equipped tool.
Source: OEM website and interviews. Figures correct as of Jan-July 2014

Responses to the survey of repairers revealed that a large proportion of participants did not undertake reprogramming operations.

Around 40-50% (depending on the type of operation) of respondents to the repairer survey do not undertake reprogramming. The main reasons stated for the lack of uptake among independent operators appear to be:

- Lack of awareness of the ability and scope to carry out pass-through reprogramming.
- Initial barriers in setting up the systems.

Lack of awareness

It is important to understand whether the low uptake of pass-through reprogramming is mainly due to lack of awareness or whether it is due to other factors. The main contributing factors to the general low levels of awareness are:

- **Few Euro 5/6 vehicles currently seen in independent workshops** – most are still under warranty and thus mainly seen by authorised repairers. This situation is likely to change dramatically over the next few years as more Euro 5 vehicles come out of warranty and/or are sold to second users (see also **Section 5.1)**.
- **The Regulations are relatively new**. Many independent repairers are therefore unaware of the details and how their work may be affected.
- **Lack of a common information sources related to legislative changes** – independent repairers were asked how they would expect to receive information on legislative changes that affected their access to RMI. Responses included governments/legislators, training organisations, informal networks etc., while many stated that they did not expect to receive information from any source. Overall, there was no consensus on where to obtain information or how to ensure they had up-to-date knowledge.

The difference in approaches taken by manufacturers may also be leading to some confusion (see Table 2-4). Overall, there appears to be a strong consensus that independent workshops will need to increase their understanding of pass-through capabilities, as well as investing in appropriate tools and training.

Thus, over time problem related to lack of awareness are expected to diminish, but this process could be accelerated through awareness-raising activities.

Initial barriers in setting up the systems

Three members of the study team undertook a Euro 5 pass-through training course alongside around 20 independent repairers in order to better understand whether there are any underlying technical issues. Although clearly it was not possible to extensively test the compliance of every manufacturer, this hands-on experience suggested that many of the problems experienced were linked to accessing individual websites and setting up the process properly.

The major bottlenecks can be attributed to the following issues:

- **Browser software compatibility:** These issues are the same as those encountered when accessing the general websites for repair and maintenance information, as discussed in **Section 2.1.3**. Often, finding and accessing the programming environment correctly is very challenging, particularly for first-time users.
- **Security registration**: There can be significant delays in registering for security clearance and access to security-related information - see **Section 2.1.4**
- **Training requirements**: Additional training may be required so that repairers may carry out programming operations and use tools correctly.

There is currently a relatively poor level of self-reported success rates in carrying out reprogramming operations among independent repairers compared to authorised repairers.

Of the repairers that did carry out reprogramming, there was a markedly higher level of (self-reported) success among authorised dealers using a manufacturer tool compared to other situations. Around 45% of authorised repairers claimed they were successful most of the time when using a manufacturer tool through a direct OBD connection, and over 30% when using a manufacturer tool combined with a pass-through connection. For third party tools, this proportion fell to around 10-15%, while independent repairers claimed a similar level of success regardless of whether they used a manufacturer or third party tool. This must also be taken in context with the lower level of reprogramming carried out by independent repairers in general – according to one estimate, in 2011 authorised repairers in one network carried out 50,000 to 60,000 reprogramming operations, whereas independent repairers carried out just 10 to 20 reprogramming operations using the same vehicle manufacturer's RMI website (Autorité de la concurrence, 2012).

Independent repairers may be at a disadvantage due to their lack of awareness, the need to cover a wider range of brands and a lower level of access to technical support. After these aspects have been dealt with, other factors that affect the time taken to update an ECU are the vehicle wiring architecture, the performance of the computer used, and the volume of data to be programmed (which can vary from a few kilobytes to several megabytes). These are expected to be largely similar for authorised and independent repairers.

Almost all of the interviewed OEMs reported that they were not aware of any issues that independent repairers might face, although one suggested that a common issue was repairers attempting to reprogram vehicles that predated the Euro 5 Regulations.

Tool manufacturers do not typically rely on OBD data from OEMs, but in cases where this does occur the process is negotiated through direct contracts.

Given the widespread use of OBD in modern vehicles, and the fact that OBD diagnostic tools and OBD-compatible replacement parts are often required in order to resolve vehicle faults, there is a need for independent operators (such as parts suppliers and diagnostic equipment manufacturers) to be able to access full details of OBD information in order to produce and supply their products.

Under the Regulations, provision of relevant data to specialist intermediaries is subject to individual contractual agreements. However, most tool manufacturers prefer to use reverse engineering – see **Section 5.3.**

2.6. Making amendments and supplements to vehicle RMI available on their websites at the same time they are made available to authorised repairers

Obligations under the Regulations:

"The manufacturer shall make subsequent amendments and supplements to vehicle repair and maintenance information available on its websites at the same time they are made available to authorised repairers"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

All of the OEMs interviewed reported that there is no difference in the frequency and/or timing of technical bulletins and other updates provided to authorised and independent operators.

Once a vehicle goes into production, there are often changes made to components or servicing routines in order to correct faults with specific components or improve the effectiveness and efficiency of maintenance procedures. To ensure a fair playing field, it is important that independent repairers have access to updates of this nature at the same time as authorised repairers.

The OEMs interviewed also reported that the information on common faults, Technical Service Bulletins (TSBs), modified parts, updated spare parts numbers, software updates and other information in technical bulletins was the same regardless of whether it was provided to authorised or independent operators. This was with the exception of recall and warranty information (discussed further below).

Most OEMs provide some notification via their websites in a separate TSB; however, five OEMs make amendments to technical information directly on their respective RMI websites (i.e., the website is the "master version") without necessarily giving explicit notifications.

Due to the number of updates that are made daily to RMI provided via OEM websites, push notifications are not usually sent out – independent operators are generally advised to consult the RMI websites to ensure the most up-to-date information is being used. Where notifications are made regarding amendments, these are largely in the form of Technical Service Bulletins (TSBs).

The majority of OEMs use technical service bulletins (TSBs) posted on their RMI websites to inform users of updates (see Table 2-5). A number of OEMs stressed that hundreds of amendments were being made daily to the information available on their websites, so it was not practical to either email or post a TSB - instead, they stipulate that the RMI website should be consulted regularly to ensure the most up-to-date information is used.

Table 2-5: Methods of notification – Amendments to RMI

	Email notifications		Technical bulletin posted on website	
	Authorised	Independent	Authorised	Independent
Number of OEM websites (out of a total of 19)	3	2	12	14

Source: OEM website and interviews. Figures correct as of Jan-July 2014

These results were generally supported by the responses from the survey of repairers, where we did not find any significant causes for concern in this respect. Very few respondents (<7%) felt that the information on the OEM's RMI website they used most frequently was often out of date.

The visibility of updates made to intermediaries such as data republishers may present more of an issue, especially where republishers must scan the entire website to pick up changes – this aspect is examined in more detail in **Section 5.**

2.7. Timely provision of proof of compliance with Regulation 715/2007 to Type Approval Authorities (TAAs) and performance of TAAs to ensure compliance by manufacturers

Obligations under the Regulations:

"When applying for EC Type Approval or national type approval, the manufacturer shall provide the type approval authority with proof of compliance with this Regulation …. In the event that such information is not yet available, or does not yet conform to this Regulation and its implementing measures at that point in time, the manufacturer shall provide it within six months from the date of type approval. If such proof of compliance is not provided within that period, the approval authority shall take appropriate measures to ensure compliance".

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

No major OEMs have been found to be non-compliant with the requirement to provide a certificate of compliance at the six month stage by TAAs to-date.

The legislation requires that when making an application for type approval, OEMs must provide a Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance information. During the regular conformity assessment, this only requires self-certification that states conformity- or an intention to conform within six months - with vehicle RMI requirements.

One of the Type Approval Authorities (TAAs) interviewed discovered that during a six-month post approval check, a manufacturer had not set up a sufficient RMI website. However, the OEM concerned subsequently provided a website to ensure that type approval was not revoked.

Three of the TAAs interviewed have received complaints from independent operators in relation to access to vehicle RMI.

Of the three TAAs who have received at least one complaint, all have conducted more detailed investigations – some of which are still ongoing (see **Section 4** for more detailed analysis of compliance and enforcement issues). None of the TAAs interviewed has ever

revoked type-approval on the grounds of lack of access to RMI. It is also worth noting that during more detailed investigations, the TAAs involved reported that the OEMs had been cooperative in the investigation.

Several TAAs were concerned that very small volume manufacturers, special purpose vehicles or Multi-Stage manufacturers are likely to face greater issues with compliance.

Two TAAs stated that they are aware that certain multi-stage vehicles producers and very small volume manufacturers do not comply fully with the requirements of access to RMI due to financial constraints. In this instance, both TAAs stated that they take steps to confirm that the manufacturer is willing to provide information and has a means for doing so (for example; a telephone helpline that will enable the end-user to access technical help).

However, no complaints have been submitted due to the low demand for these specialised vehicles. In this respect, there appears to be general support among TAAs for a formal consideration given to small volume manufacturer and multi-stage manufacturers within the Regulations – in the form of derogation or alternative acceptable methods of providing access to vehicle RMI.

2.8. Vehicle repair and maintenance records

Obligations under the Regulations:

"Where vehicle repair and maintenance records are kept in a central data base of the vehicle manufacturer or on its behalf, independent repairers, approved and authorised as required in point 2.2 of Annex XIV to Commission Regulation (EC) No 692/2008, shall have access to such records free of charge and under the same conditions as authorised dealers or repairers in order to record information on repair and maintenance performed".

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

The Regulation states that the RMI to be provided by OEMs via websites should include "*service handbooks, including repair and maintenance records*". An incomplete service and repair record would be likely to reduce the residual value of the vehicle and make it difficult to prove that warranty terms had been complied with.

Service handbooks are physical documents provided and kept with the vehicle by the vehicle's owner and include service history details. Owners can provide these to independent repairs to maintain a statement of all work carried out; however, records are increasingly kept in central databases (i.e. digital service records).

In order to ensure owners could continue to have access to a single complete record of such works on their vehicles, it was decided to ensure that independent repairers could also freely access these databases where OEMs have introduced such systems and, with the consent of the customer, record the repair and maintenance work carried out.

The following OEMs have introduced digital service records (DSR):

- BMW (2012)
- Daimler (2008)
- Ford (2013 – selected countries)
- Jaguar Land Rover (2013)
- Mazda (2005)

All of the OEMs who stated that they provide DSRs confirmed that access was free of charge, and available to both authorised and independent repairers. A further five OEMs reported that they planned to introduce DSR in the future.

Although the procedures to view and modify DSRs vary depending on the OEM (since access is generally provided via their technical portals) it was possible to view and modify DSRs for the selected brands that were checked.

The study team verified the conditions of access to selected DSRs independently. These checks were carried out in the UK in early 2014; however, country coverage varies by OEM/brand:

- Daimler (Mercedes) - referred to as DSB – Digital Service Booklet:
  - Access is a two-stage process that first requires registration to the technical portal, and then additionally registration for the DSB. In order to access DSB the user needs to hold a Parts account
  - Vehicles may be searched by VIN (rather than registration number) to display the vehicle history.
  - The DSB can be modified, saved and printed for the customer
  - *At the time of testing, the Mercedes portal will not work with Java versions higher than "Update 45"*
- BMW – referred to as Electronic Service History:
  - The Electronic Service History for a BMW vehicle is only available, if relevant combined braking system services (e.g. engine oil, brake fluid, front/ rear brakes…) have been fulfilled and uploaded to the central BMW database.
  - A service history record and printout can be generated with the consent of the customer.
- Audi – referred to as Digital Service Schedules:
  - *Access is possible if the user has paid for access to the general RMI system (erWin).*
  - *At the time of the checks, the erWin system will only work with computers running Windows 7 and Internet Explorer 8 or earlier. Vehicles are selected by VIN*.
  - A service record can be added.
- Mazda – Digital Service Records:
  - Access is possible by first registering for the Mazda European technical portal and then additionally calling Mazda UK for access. *If users do not telephone Mazda, the DSR will not be visible to their login.*
  - Search by VIN or registration is possible
  - It is possible to add records through the application.

All OEMs who provide (or plan to provide) details of scheduled servicing carried out on the vehicle, include dates and activities performed within their DSRs (see Table 2-6). Provision is more varied for details on non-scheduled repairs and the replacement of parts fitted to the vehicle, with less than half of the OEMs providing this information. None of the OEMs currently provide details of the costs associated with servicing and maintenance activities, and only Fiat intends to. OEMs were unaware of any issues that may have been experienced by independent operators in the absence of DSRs, but anticipate that there may be some benefits for customers.

Table 2-6: Information provided (or planned) in DSRs

Information	Currently provided (out of five)	Planned (out of five)
Details of scheduled servicing carried out on the vehicle (dates and activities performed)	5	5
Details on non-scheduled repairs and maintenance (dates and activities performed)	3	1
Details of replacement parts fitted to the vehicle	1	3
Details of the costs of all servicing and maintenance activities	0	1

Source: OEM website and interviews. Figures correct as of Jan-July 2014

2.9. Conclusions and recommendations

Information provision via OEM RMI websites has improved compared to previous situations.

In general, it appears that OEMs have invested significant effort into their RMI websites and compliance with most of the requirements in this respect is high - comparisons with previous studies carried out by BOVAG in 2011 and 2013 suggest that the situation has improved on many accounts, including provision of RMI websites, ease of locating these websites and the time taken for initial registration.

With respect to payment methods, four OEMs accepted credit cards as the only means of payment. While this is not likely to be an issue for many users, it may cause difficulties for certain groups (e.g. teaching institutes) and/or SMEs who do not have access to credit cards. However, the study team believes that OEMs generally have an incentive to respond to requests in this area.

However, there are key issues that present challenges for repairers when accessing RMI directly from OEM websites - namely, the wide variation in user interfaces and software incompatibilities can cause users great inconvenience, particularly occasional users or repairers that service many different brands.

In some cases users are not able to access the information they need from OEM websites due to these problems, even if the information is available to them in theory.

The same key problems – i.e. the variation in layout/interface and software incompatibility - also affect independent repairs' ability to access other functionalities that are provided through technical portals. As verified in field tests carried out by the study team, some of the main difficulties in carrying out **reprogramming/pass-through** and **updating digital service records** are due to these underlying issues rather than the lack of functionality itself.

Many of these issues are expected to be helped by the introduction of the **CEN/ISO standards** on RMI. A more standardised format is likely to be beneficial for all multi-brand repairers in terms of their ability to find the information they require from OEM websites.

Of the 19 OEMs interviews, 13 confirmed their intentions to comply with the standards once introduced. Confidential estimates of compliance costs varied widely from €100,000 to €1 million (specifically for CEN/ISO compliance). Although the text of the draft CEN/ISO standards suggests that OEMs may benefit from improved sales of RMI to independent

operators and simplification of future RMI system development; however, the potential to recoup these costs is uncertain.

Additional guidelines and technical verification/enforcement are needed so that compliance with RMI requirements can be assessed and confirmed more easily.

Even with the introduction of the CEN/ISO standards, there appears to be a need for greater technical assistance to be provided to independent repairers.

While OEMs reported that they provided the same information at the same time to both their authorised network and independent repairers, several independent operators have suggested this is not always the case. There could be a number of reasons for this apparent discrepancy, and the situation is likely to vary depending on the OEM/brand/model and type of information.

The objective of the study was not to identify any/all specific cases of non-compliance, but rather to assess the functioning of the system overall. From this perspective, it therefore appears that there is a need for more in-depth technical verification/enforcement of the RMI. This will help to ensure that independent repairers have access to the information they need and that OEMs are not unfairly accused of discrimination in cases where the information is in fact available.

In particular, the level of detail required under the Regulation for different aspects of RMI is considered unclear (e.g. those aspects considered in Section 2: that RMI should be provided in a "standardised format", in a "readily accessible, prompt manner", elements related to provision of training materials; unequivocal vehicle identification; relevant OBD/vehicle RMI information etc.) , and Type Approval Authorities have called for additional guidance to help them verify whether compliance has been achieved (see also **Section 3**).

Provision of safety- and security- related information is currently identified as a problem for repairers, although introduction of a standardised certification scheme is expected to help improve access.

Access to security/safety data was an area frequently identified as a problem in the survey of repairers. Although OEMs have a legal right to limit data relating to vehicle safety and security, there still appears to be a need for further clarification and guidance as it relates to the technical regulations of Euro 5.

The SERMI scheme (security related repair and service information) aims to create a European-wide process for accreditation, approval and authorisation to access security-related RMI, which should streamline the current patchwork of systems.

The implementation and effectiveness of the SERMI scheme should be monitored after its introduction to ensure that it is indeed tackling the problems it aims to resolve.

Regarding provision of RMI to intermediaries such as data publishers and tool manufacturers, several issues have been identified, mainly around difficulties in reaching commercial agreement.

The specific challenges relevant to each of these independent operators is explored in more detail in **Section 5.**

3. ANALYSIS OF FEES FOR ACCESS TO VEHICLE RMI

Overview:

This section reviews the fees for accessing RMI through OEM websites, with a focus on the standard time-based and transaction-based fees charged to repairers and other individual users.

The prices charged to businesses/intermediaries such as data publishers and tool manufacturers are subject to contractual agreements and not directly comparable. The situation for these other independent operators is more complex, since the prices are not made public and vary depending on the businesses involved, the intended use of the data and the OEMs. **Contractual agreements** are assessed in more detail in **Section 5** for different independent operators, including an analysis of the prices, terms and conditions and impacts on competition.

3.1. Providing access to information on a time- or transaction- basis

Obligations under the Regulations:

"Manufacturers shall make available vehicle repair and maintenance information, including transactional services such as reprogramming or technical assistance on an hourly, daily, monthly, and yearly basis, with fees for access to such information varying in accordance with the respective periods of time for which access is granted. In addition to time-based access, manufacturers may offer transaction-based access, for which fees are charged per transaction and not based on the time for which access is granted. Where both access systems are offered by manufacturers, independent repairers shall choose a preferred access system, either time-based or transaction-based. "

[Reg. 715/2007 as amended by Reg. 566/2011, Article 7]

The majority of OEMs are in compliance with the requirement to make information available on an "hourly, daily, monthly and yearly basis". A number of niche/small volume manufacturers provide annual subscriptions only.

Data on fees for access to vehicle repair and maintenance information (RMI) have been gathered from interviews, surveys and websites and are reported in Table 3-1 – only a few manufacturers do not offer fees in all of the required time periods. In addition, the majority of OEMs also offer also a weekly fee, which is not explicitly required.

Table 3-1: Fees for access to vehicle repair and maintenance information (€)

OEM	Hourly	Daily	Monthly	Annual
Aston Martin	x[A]	70	200	1,800
Audi	5	25	310	2,850
BMW Group	6	32	400	4,100
Citroen	5.2	23	319	2,395
Ford	8	15	250	2,600
Fiat Group	6 [B]	28 [C]	390 [C]	3,630 [B]
Honda	10	30	350	3,500
Hyundai	5	15	150	900
JLR	25	47	275	1,440

OEM	Hourly	Daily	Monthly	Annual
Kia	5	15	150	900
Lamborghini	×	120	720	5,040
Mazda	5	30	276	1,660
Mercedes Benz (Daimler)	8	34	312	1,429
Mitsubishi	6	16	160	1,600
Nissan	16	180	364	3,110
Opel + Vauxhall	8	40	350	3,650
Peugeot	5.2	23	319	2,395
Porsche	×	×	×	5,000
Renault	8	22	326	3,192
Seat	5	25	310	2,850
Skoda	5	20	210	1,945
Smart (Daimler)	5	20	187	1,031
Subaru	3	10	100	1,000
Suzuki	5	15	55	720
Tesla	×	100	300	2,700
Toyota	3	16	240	2,400
Volkswagen	5	25	310	2,850
Volvo	18	21	116.5	1,289

Notes: A – charge planned; B – all brands; C – single brand
Source: OEM website and interviews. Figures correct as of Jan-July 2014, but may vary depending on the options selected. Prices indicate the standard packages available on manufacturers' websites. Where multiple options are offered with varying levels of technical support, the annual subscription for all models has been considered.

Nevertheless, there are a few exceptions - for example, Lamborghini, Tesla and Aston Martin do not offer an hourly subscription (although Aston Martin stated in interviews that they planned to introduce an hourly charge), while Porsche only offer an annual fee (a representative was not available to comment on this aspect).

In the case of these niche and small volume manufacturers, the relevant vehicles are typically sold in low volumes; hence demand for repair/maintenance information is likely to be relatively low. Nevertheless there are no official derogations in the Regulations for these manufacturer types and in theory they should be in compliance with the requirements.

Only a small number of OEMs currently offer payment on a transaction basis.

The amendments in Regulation 566/2011 clarified the possibility of offering fees for access to technical information on a transactional basis rather than on a time basis. To date, this option has been taken up to a limited extent.

For example, some OEMs were found to offer transaction based fees for specific operations with fees differing depending on the OEM. These include, for example immobiliser codes (€1.50 to €20 per code), and radio codes (€0.50 to €20 per code). One OEM operates a token-based system with prices per token ranging from €9 to €15 depending on the volume purchased, with one token allowing one reprogramming operation. Another OEM uses a token system (€30 per token) that allows access to the manufacturer's electronic

diagnostic and repair tool and to view the diagnostic procedures for one vehicle for one week.

In general, other OEMs offer subscriptions to diagnostic information on a time basis (hourly, daily etc.), which is considered by OEMs to be sufficient to allow independent repairers flexibility in the way they access diagnostic and reprogramming information. In terms of the level of the fees, direct comparisons are very difficult to carry out when assessing what might be considered reasonable, but it should be noted that transaction-based fees are typically set at a similar level to, or lower than, the typical daily charge for access to diagnostic information.

Availability of diagnostic information for periods shorter than one year was more limited, although most major OEMs still comply.

The majority of the major OEMs offer monthly, weekly and daily fees for the diagnostic and software environment service, and a smaller number offered diagnostic/reprogramming on a transaction basis. Others noted that they have not had demand for this information yet.

3.2. Providing "reasonable and proportionate" fees

Obligations under the Regulations:

"Manufacturers may charge reasonable and proportionate fees for access to repair and maintenance information covered by this Regulation; a fee is not reasonable or proportionate if it discourages access by failing to take into account the extent to which the independent operator uses it"

[Reg. 715/2007 as amended by Reg. 566/2011, Article 6]

3.2.1. Fees for access to RMI websites

Most of the OEMs have interpreted a "reasonable and proportionate" fee as being a level equal to that paid by an authorised dealer for access to the same level of information.

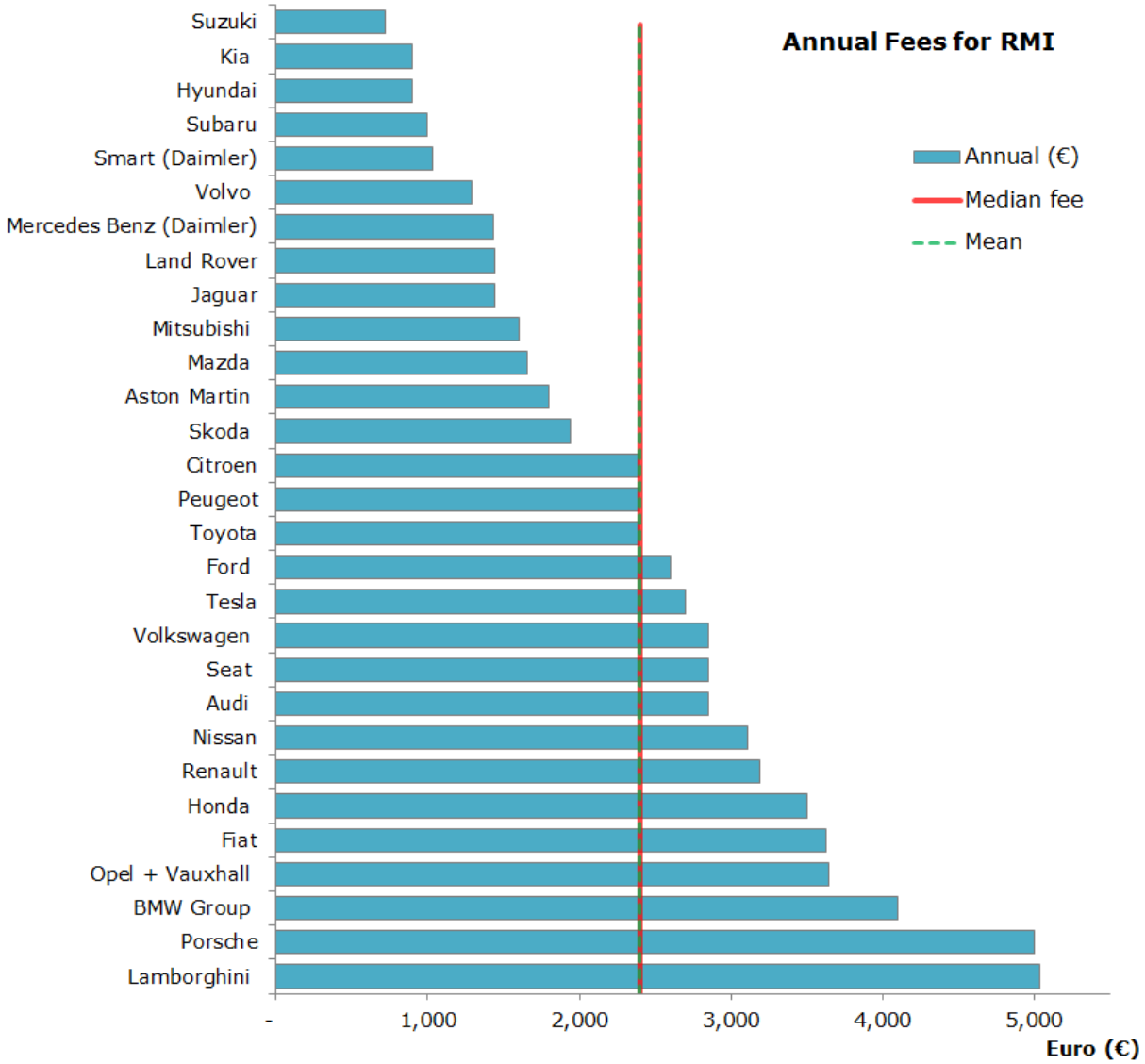
The Regulation leaves what constitutes a "reasonable level of fees" open to a level of interpretation. Most of the OEMs have chosen to base the annual fees charged to independent repairers on the fees that were charged to authorised dealers for the same level of information before the Regulation was approved. The majority of OEMs were found to charge the same annual fee both to authorised dealers and independent operators. Other OEMs confirmed during interviews that the fees for independent operator were worked out based on what a typical authorised dealer would pay, although a direct comparison was not possible due to the more complex fee structure used for authorised repairers. A key difference is that authorised dealers only have the opportunity to purchase annual subscriptions.

The authorised dealer fees (which are used as a starting point for the independent operators' fees), are typically developed based on various factors, including: market share, total number of vehicles in Europe and average revenue for an authorised dealer.

This is broadly reflected in the figures retrieved. Figure 3-1 shows the annual fees for access to RMI for major OEMs. In addition to the market factors, part of the variation is also due to the different levels of support offered. For example, some manufacturers

include the diagnostic and programming environment in the annual fees, which otherwise has to be purchased separately.

Figure 3-1: Annual Fees for access to RMI



Notes: The red solid line and green dashed lines represent the median and mean fee value respectively (almost equal in this case). Prices indicate the standard packages available on manufacturers' websites. Where multiple options are offered with varying levels of technical support, the annual subscription for all models has been considered.
Source: OEM website and interviews. Figures correct as of Jan-April 2014

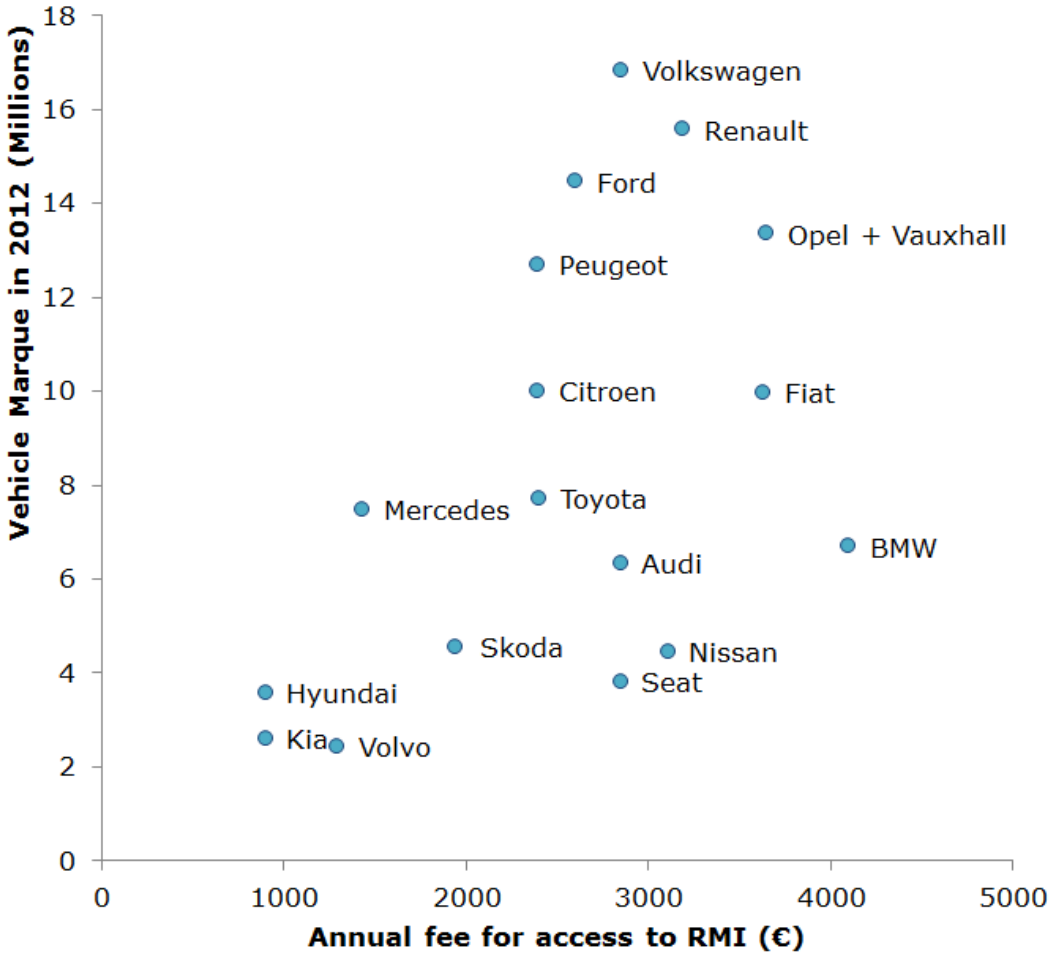
It appears that some manufacturers of supercars or luxury cars (e.g. Lamborghini and Porsche) charge the highest subscription fees, which were 116% higher than the average. Other manufacturers of luxury cars did not charge such high fees – notably Aston Martin (in this case, the RMI system was the same as the USA system, which may have contributed to lower implementation costs and reflected in lower fees). Nevertheless, it is highly likely that owners of these niche vehicles will be very price insensitive and more inclined to take their vehicles to authorised repairers for specialist attention. BMW Group, Opel/Vauxhall and Fiat Group charge annual fees that are around 64% higher than the average. It should be noted that the fee is inclusive of several brands:

- The fee for BMW covers all models (as supported for authorised dealer) for BMW, Mini and Rolls Royce – including non-Euro 5/6 vehicles;

- The fee for Fiat Group includes all the models for Fiat, Alfa Romeo, Lancia, Abarth and Chrysler. On the other hand, Fiat offers cheaper subscriptions for the single brands separately.

In this respect, it can be seen that annual fees also tend to broadly correlate with market share for the mainstream European manufacturers, as shown in Figure 3-2.

Figure 3-2: Annual fee compared to vehicle marque

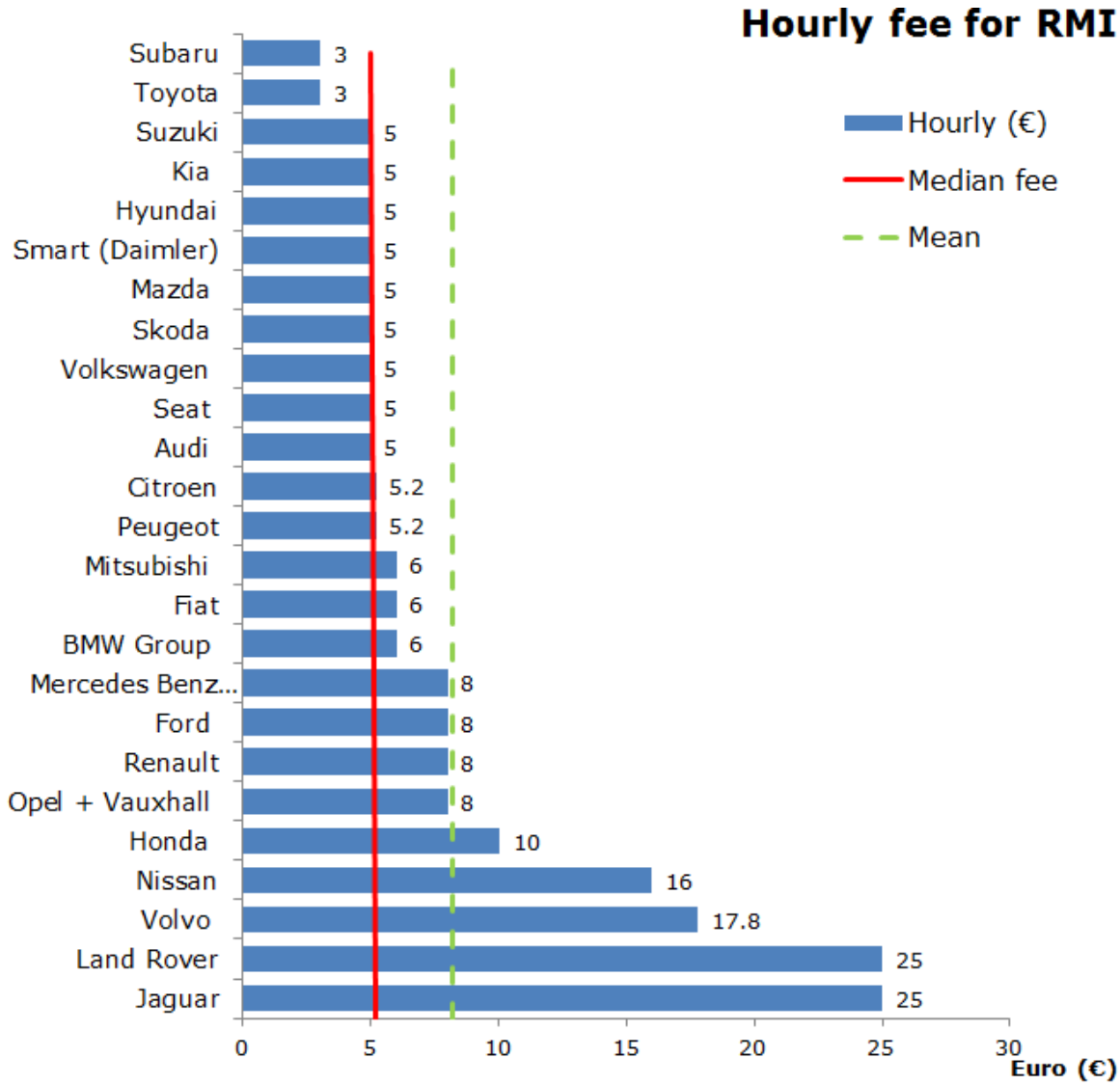


Source: Annual fees from stakeholder engagement; vehicle marque per manufacturer from Datamonitor (2014) – data for 2012 and covers all of Europe

In the case of fees for time periods shorter than annual subscriptions, there is no comparative benchmark in the authorised sector – therefore different approaches to set fees have been adopted by OEMs. There is a high degree of convergence for hourly fees, but monthly fees vary more widely depending on the calculation approach taken.

Since the relatively high annual tariff could be seen as a disincentive for independent operators, the Regulations require that monthly, daily and hourly access is also provided. The hourly subscriptions are by far the most popular, and fee levels show a high level of similarity across the OEMs – see Figure 3-3. When asked about how they typically set hourly fees, several OEMs mentioned that they used competitor benchmarking to help set their fees (both carried out internally and by external organisations).

Figure 3-3: Hourly fees for access to vehicle RMI

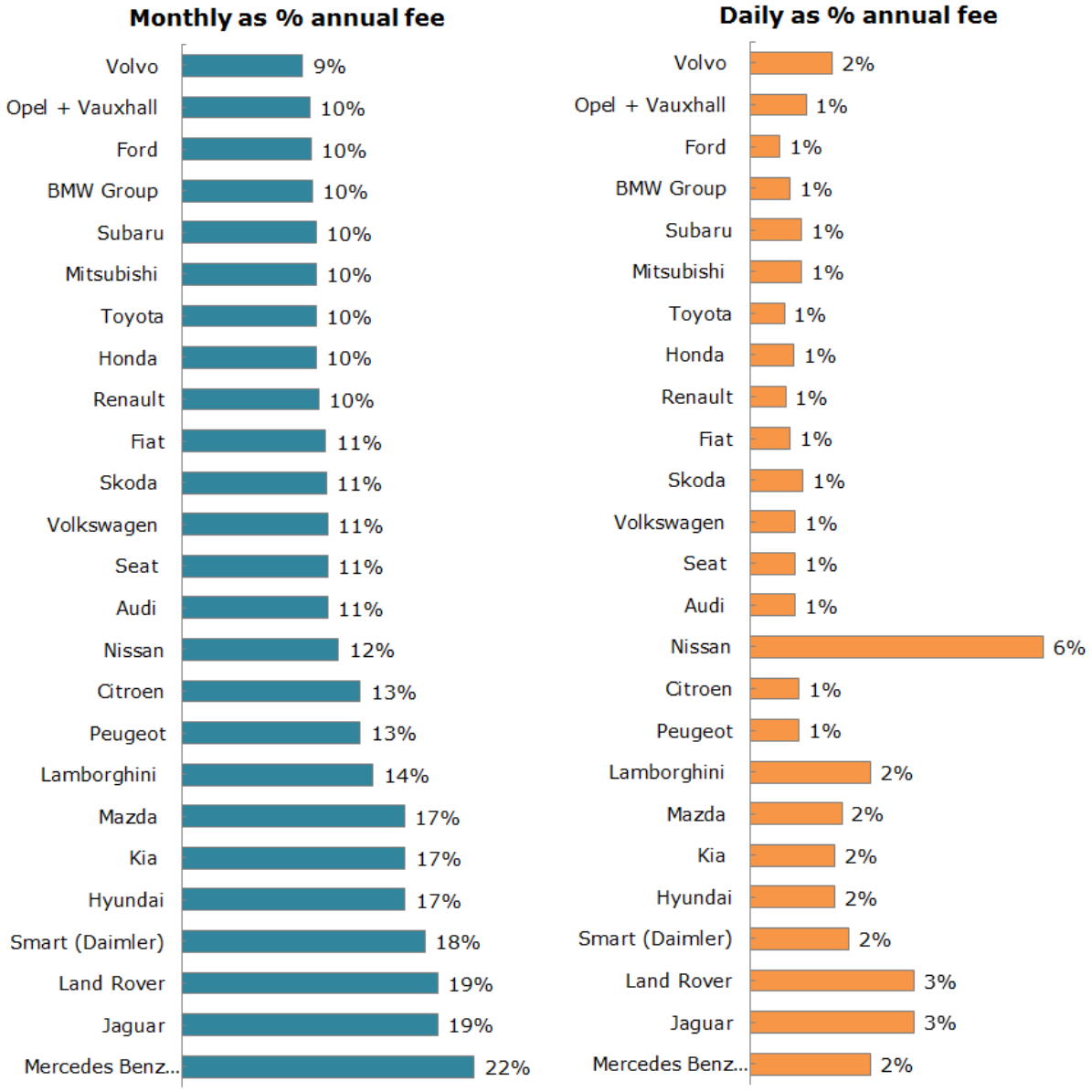


Notes: The red solid line and green dashed lines represent the median and mean fee value respectively
Source: OEM website and interviews. Figures correct as of Jan-April 2014

Figure 3-4 shows the daily and monthly fees as a proportion of the annual fees. Rates are typically charged in proportion to the length of time in question, but also recognise the administrative cost of short subscriptions is proportionately higher compared to longer subscriptions. In addition, repairers are unlikely to work every day of the year. As a result, the actual fees charged are usually substantially higher than a simple calculation based on dividing the annual fee into monthly and daily equivalents (i.e. respectively 8% and 0.3% of the annual fee[12]).

[12] 1/12th for monthly equivalent, and 1/365 for daily equivalent

Figure 3-4: Monthly and daily fees as a % of annual fees for access to RMI



Source: OEM website and interviews. Figures correct as of Jan-April 2014

The study team consider that reflecting the additional administrative burden inccured for shorter time periods is an appropriate basis on which to set proportionate fees. While different OEMs will have different administrative overheads (e.g. due to variations in payment methods accepted), guidance on an appropriate range may be beneficial to help demonstrate compliance with this requirement. Since the annual fee charged to authorised dealers is the starting basis for such calculations, suggested benchmarks could be based on this value. The analysis of available fees shows that the fees are typically:

- Monthly fees of **11% (median) to 13% (mean)** of the annual charge set for authorised dealers;
- Daily fees of to **1% (median) to 2% (mean**) of of the annual charge set for authorised dealers.

The majority of OEMs set their fees relatively close to these levels.

Additional flexibility is offered by a number of manufacturers to selectively purchase information.

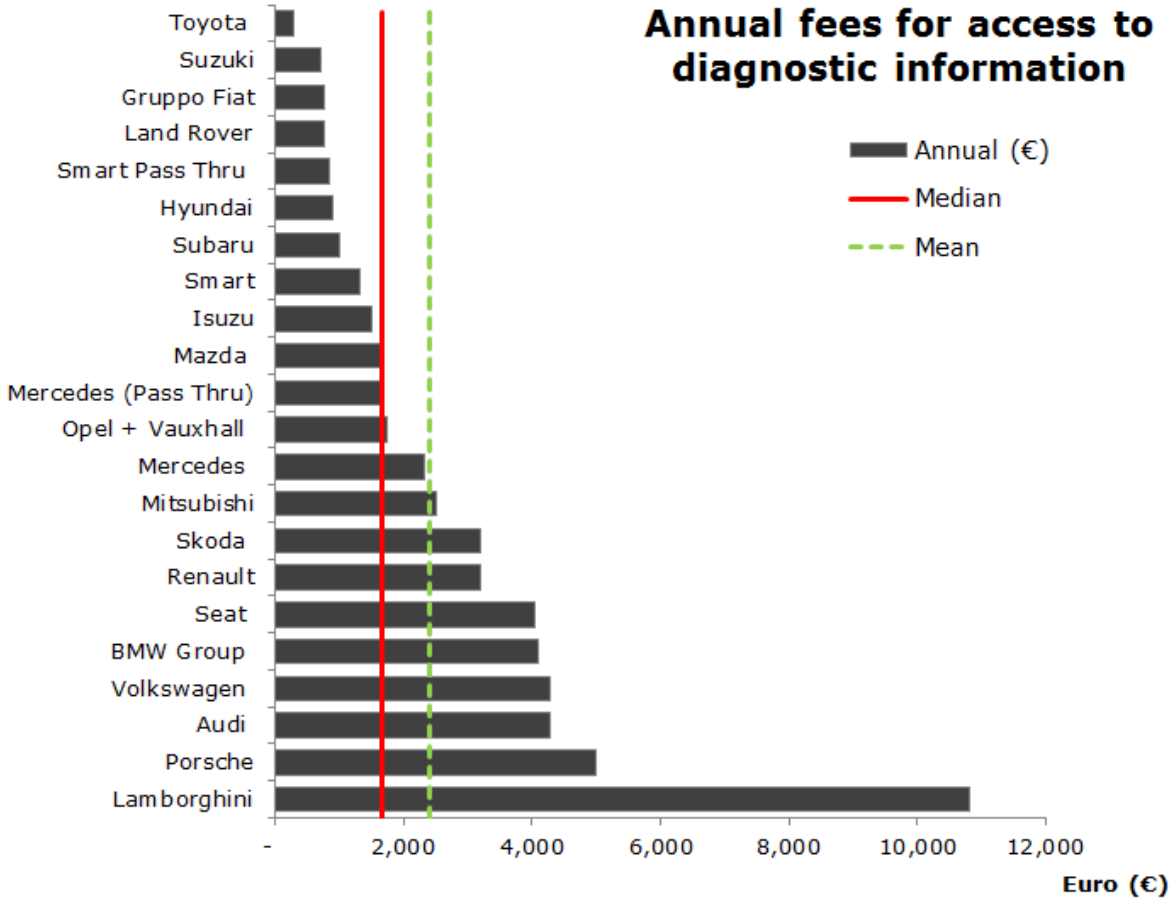
Some manufacturers offer additional flexibility to independent operators. For example, Fiat Group and Jaguar Land Rover (JLR) have various packages that allow users to select the most convenient option. Fiat offers the possibility to buy access to RMI for all the brands within the Fiat Group with one single annual subscription purchase, but at the same time also makes it possible to purchase the information only for a single brand. JLR offers hourly, daily, monthly and annual fees for a specific vehicle model (rather than general access). The hourly and daily subscriptions for a specific model and model year are respectively 42% and 36% cheaper than the same subscription including all models and years. This could be an advantageous option for independent operators that do not specialise in repairing specific brands and are only interested in information for a particular car that entered their garage for a service.

3.2.2. Fees for access to diagnostic information

The fees for access to vehicle diagnostic and software environments show a very similar pattern compared to access to the RMI websites, with the same OEMs offering fees at the higher end.

Figure 3-5 shows the annual fees for access to diagnostic and software information from OEMs, retrieved from their websites and during interviews. Not all of the OEMs that were reviewed provide access to the reprogramming environment through their websites.

Figure 3-5: Annual fees for access to diagnostic and software environment



Notes: The red solid line and green dashed lines represent the median and mean fee value respectively
Source: OEM website and interviews. Figures correct as of Jan-April 2014

Several stakeholders in the independent sector mentioned the availability of such information in the USA. The annual fees charged by OEMs in the USA are typically much lower – on average around half the price, although there are examples of manufacturers who charge more in the USA as well as those who charge less (NASTF, 2014). However, a direct comparison may not necessarily be appropriate due to differences in, for example, market share and the range of procedures.

3.2.3. Other fees

There are a number of additional fees that might be incurred during the normal use of OEM information sources. The most regularly encountered fees are outlined below – in general there is much more variation between OEMs for these different types of charges, and comparability is also more difficult.

Specific provisions for registration fees are not described in the Regulations, and so OEMs have made their own decisions on this aspect. Most OEMs do not require upfront payments.

The review of OEM websites showed that the majority do not charge any initial registration fees to independent operators. A small number charged a one-off registration fee for the site – ranging from €15 to €50 depending on the brand. A small number OEMs require additional verification for access to the software/programming environment due to the security-related verification requirements, although others offer this for free.

Given the low level of registrations from independent operators as a whole, it is difficult to conclude on whether this level of fee is dissuasive; however, since the fee is of the order of the cost of a daily subscription it may be considered reasonable as a deterrent to users who are not genuine.

Furthermore, some OEMs suggested that a registration fee would need to be introduced in future to cover verification checks under the security certification agreement (SERMI – see **Section 2**). Further guidance on what would be considered fair and appropriate for this fee should be considered.

Although technical support was offered by most OEMs and clearly visible, there was a wide range in the prices set.

A possible issue raised in a previous study was the availability of technical support - see e.g. (BOVAG, 2011). The study team reviewed the situation again in the current report. Email-based support was widely offered, although it was not possible for the study team to assess the level of service provided. From interviews, it appears that repairers typically prefer telephone assistance as it allows them to work in real time rather than waiting for an email response.

While OEMs typically offer technical support by phone, the fees for this vary widely:

- Some offer a per-minute hotline service, with prices found to range from €1 to €2.50 per minute.
- Others charge per query, with prices ranging from €25 to €65 per question.
- One OEM offers free-of-charge telephone helpline services across the EU (the same service as for authorised dealers).

The effectiveness of the different services in terms of how helpful they were to repairers could not be directly assessed by the study team. To gain a very high level overview, repairers were asked to rate the quality of technical support/hotlines of the OEM website they used most frequently. Results analysed by the type of repairer indicate that

authorised single-brand repairers generally rate the level of service more favourably compared to other repairer types, whereas independent (individual workshops and those that are part of a chain) are more likely to rate the level of service poorly. The responses were not considered in more detail due to the incomparability of other factors such as the frequency or complexity of the requests; therefore it is only possible to comment specifically on the prices, noting that these differ substantially. In addition, the volume of calls experienced by OEMs is typically low – in line with the generally low activity from independent operators.

The CEN/ISO standards supply limited guidance on this aspect – requiring only that the OEM provide contact information to registered users of their websites; however the level of service and the mechanisms (telephone, email, payment etc.) are required only to be "non-discriminatory".

The study team investigated the possibility of obtaining support and refunds when problems were experienced – in most cases OEMs offered assistance to resolve the issue and/or offered refunds as needed, but stated that such requests were relatively infrequent.

During interviews, OEMs were asked about their policies regarding dispute resolution following technical problems such as disconnections during software downloads.

- The majority of OEMs stated that they offered additional time or technical support to enable the user to obtain the information that they require.
- Most OEMs stated that they would consider offering refunds (on a case-by-case basis) if it can be confirmed that problems experienced were not the fault of the user attempting to access the information.

Several OEMs noted that they do not often receive requests for refunds, and they tend not to get any from annual subscribers, who are familiar with using the websites.

3.3. Conclusions and recommendations

In the vast majority of cases reviewed by the study team, it was found that OEMs comply with the requirement to offer information subscriptions on an hourly, daily, monthly and annual basis on their RMI websites.

Cases of non-compliance were found among some small-volume manufacturers; however, representatives of these OEMs that the study team was able to contact stated that they planned to amend their fee structures in the near future to include hourly rates. For other small-volume manufacturers, it is only possible to speculate that demand for such information from independent operators has been relatively low and thus complaints have not been followed up. The study team consider that overall compliance on this aspect is high.

The major OEMs were generally found to supply diagnostic information on a similar hourly/daily/monthly/annual basis. Availability of diagnostic information was more difficult to verify for manufacturers with lower market share, and several noted that they had not experienced demand for this information, especially where it is linked to their tools.

Provision of transaction-based fees is less common, with most OEMs considering that access to information in hourly and/or daily increments is sufficient.

Of the few OEMs choosing the offer transaction-based pricing, a wide range of fees was observed, suggesting that manufacturers have less experience in benchmarking their prices in this area. It was not possible to assess the level of demand for these services, as the relevant OEMs were not able to provide statistics on their users. The study team is

of the view that the option to offer transaction-based pricing may offer useful flexibility in some cases. In particular, the provision of transaction-based charges may become more important as independent repairers become more experienced with reprogramming operations and as the file sizes increase. Transaction-based fees would avoid repairers being charged arbitrarily based on factors outside of the OEM's control, such as varying download speeds depending on the local internet connection.

Other fees (e.g. registration fees and technical support) were relatively small when considered in isolation, but will disproportionately affect occasional users. Additional guidance on what is considered "reasonable and proportionate" for these types of fees may be required.

The Regulation does not set any strict requirements on other fees, and the wide variation in fees between different manufacturers suggests that there is no common basis for calculating the level of charges. For example, technical support provided by telephone varies from free-of-charge, to charges of several Euros per minute or a set charge per query.

Given the relatively low volume of demand for these services, the importance of these issues for repairers is difficult to quantify – on the one hand some level of charge may be considered reasonable to deter non-genuine users, while on the other hand repairers may view such charges as additional barriers to using OEM websites compared to other sources. Additional guidance on these issues may be beneficial, particularly in the areas of:

- Reasonable charges for technical support, where prices vary substantially.
- Reasonable fees for registration/verification checks under the security certification scheme SERMI.

Overall, with respect to setting "reasonable and proportionate" fees for access to RMI websites and diagnostic information, the study team have not found evidence that OEMs discriminate pricing for independent and authorised repairers.

It was found that OEMs typically set annual fees at the same level for both independent and authorised repairers. Fees for monthly, daily and hourly access were then calculated as a proportion of the annual charge, and/or through benchmarking. The study team consider both these approaches to be reasonable given the definitions in the legislation.

In terms of adjustments to fees over time, prices have typically remained stable or inflation-adjusted and there is no evidence that OEMs have raised prices for access to information following the introduction of the Regulations.

Although several independent operators made reference to lower prices for diagnostic information offered in the USA (as is indeed the case for some – but not all - OEMs), the condition of fair access has been assessed on the basis of equality with the fees charged to the authorised network in Europe, rather than international prices. It can be expected that international prices will vary for legitimate reasons, such as differences in market share or model coverage, as well as the range of procedures possible; however the study team were not able to undertake a full assessment of these aspects.

Finally, several independent repairers have expressed the view that the prices set by OEMs are too high. It appears that their basis for comparison are the prices charged by data republishers, who typically offer greater breadth of coverage for similar or lower annual charges. On this basis it is clear that multi-brand repairers could easily end up having higher costs for access to technical information across several brands, compared to an authorised dealer specialising in one brand.

Nevertheless, the study team consider it to be a business decision for OEMs as to whether to reduce the prices for direct access to their RMI. This would not be a straightforward

decision. Reducing fees for independent repairers must also take into account the possible need to reduce fees to an OEM's authorised repairers as well, in order to avoid disadvantaging their own networks. Since authorised repairers currently represent the vast majority of subscriptions/revenues for an OEM's RMI information, a substantial increase in overall website traffic would be needed to offset this loss. Given the reliance of independent repairers on data republishers rather than OEM websites, a significant shift appears unlikely, at least in the short term.

More broadly, the continued access to information via data republishers is clearly important to keeping the costs of access to RMI across multiple brands in check so that independent and multi-brand repairers are able to compete effectively. An analysis of the situation and contractual arrangements between OEMs and republishers is analysed further in **Section 5**.

4. COMPLIANCE AND ENFORCEMENT ISSUES

Overview:

This section explores and summarises the compliance and enforcement issues that have been identified with regards to the operation of the system of access to repair and maintenance information. In particular it considers:

- Existing difficulties for compliance with and enforcement of RMI legislation;
  - Compliance with the Regulations – OEMs.
  - Role of Type Approval Authorities in enforcement.
- Formal complaints and existing litigation concerning compliance with aspects of the Regulations

4.1. Existing difficulties for compliance with and enforcement of RMI legislation

Many OEMS have stated that they have experienced a number of problems in complying with Regulation 715/2007 – particularly with respect to diagnostics information.

Through interviews with 19 OEMs, the "ease" of complying with the Regulations was discussed. Although many OEMs considered that compliance had been relatively straightforward (eight OEMs), several felt they had encountered some difficulties (seven OEMs) while four indicated that they had faced significant difficulties.

Where OEMs had an existing system for their authorised network that they were able to adapt, it appears that they generally found compliance less problematic. OEMs that had to develop new structures (because their existing systems were very different to the requirements) found it more challenging to meet the requirements of the Regulations. Some of the non-European OEMs recognised that their systems were not initially developed specifically to take into account the European data structures. They have therefore incurred many costs in order to ensure that the structure of the information is suitable to meet Regulation requirements.

The most challenging aspects were generally considered to be:

- **Diagnostics and programming;**
- **Developing new tools that work on any computer rather than "in-house" systems (as previously the case when providing information for authorised network);**
- **Developing VIN-based searches**: Many OEMs had existing systems that were searchable by make/model of vehicle, but needed to add functionality to allow VIN-based searches. Difficulties have also been experienced with respect to supplying VIN data to other independent operators, as discussed in more detail in **Section 4.3**.
- **IT security when integrating different systems and allowing access.**

Establishing agreements with specialist intermediaries to provide access to data other than that provided via the standard RMI websites is considered to be more challenging.

Both OEMs and independent operators (e.g. data publishers, tool and equipment manufacturers, parts suppliers and wholesalers etc.) mentioned that establishing agreements can be complex. Additional agreements/contracts are required with these aftermarket independent operators, and the provisions in the Regulations are unclear on how to ensure compliance, as discussed further in **Section 5**.

The cost of compliance has been raised as a concern by OEMs – particularly in relation to the reported number of active users (independent operators) of their RMI websites.

In terms of the costs to OEMs of setting up and operating the websites/portals, estimated values were provided by 17 OEMs and summarised in Table 4-1.

Table 4-1: Estimated development and running costs of OEM RMI websites

Cost estimate	Range	Mean	Median
Initial investment costs	€150,000 to €10 million	€2.3 million	€2 million
Annual administrative costs	€30,000 to €1 million	€152,000	€200,000
Technical support to users	€14,000 and €500,000	€168,000	€63,000

Source: OEM interviews

The study team examined the estimates provided and found no correlation between the investment and other factors such as market share, user base, revenue or the perceived difficulty in complying with the Regulations. A possible explanation is the different structures in place prior to the Regulation, as well as differences in decisions on how to implement the requirements in terms of structure, payment systems, security levels etc.

Estimates of staff time required in administering the system also showed wide variation with no obvious correlation to factors that might be expected to increase costs. Other costs incurred relate to further development that is required in terms of providing the required information, credit card/bank charges, translation services and website maintenance costs.

The requirements of the Regulation may be considered too onerous for small volume manufacturers or niche vehicle manufacturers. Derogations for such manufacturers could be considered in future amendments to the Regulations.

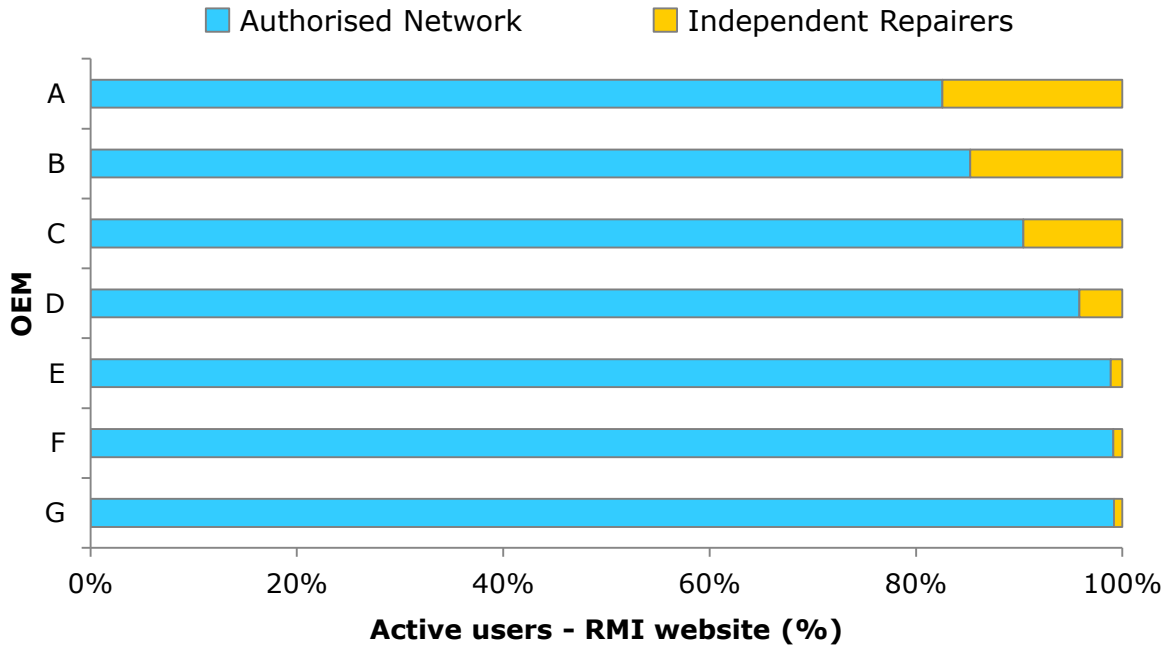
Small volume and niche vehicle manufacturers tended to have the lowest number of independent operator users of their websites – some consider the current Regulations to be disproportionate to the size of their operations. Implementing any future standards/requirements (e.g. under CEN/ISO) will also require further investment.

There are no derogations for small volume or niche vehicle manufacturers in the current regulations and this has also been emphasised by Type Approval Authorities as cause for concern. However, similar regulations such as Regulation No. 168/2013 (Approval and market surveillance of two-or three- wheel vehicles and quadricycles) and Regulation 44/2014 (supplementing Regulation 168/2013) do provide some exceptions for small volume manufacturers regarding the access to RMI information.

While the proportion of independent repairers compared to authorised dealers is typically low, the impact this has had in terms of OEMs being able to recover their investment costs have varied.

One issue that was often mentioned in relation to the costs of compliance for OEMs is that it has been disproportionate compared to the number of independent operators using their systems. Although there may be many registrations, the number of *active* users is reported to be low compared to users from the authorised networks. Of those OEMs who regularly monitored website use and were able to divulge usage information, independent repairers typically represent the minority of users when comparing active access to the RMI information with authorised repairers/network (all reported to be less than 20%, with the majority less than 10% - see Figure 4-1).

Figure 4-1: RMI website users (authorised versus independent) – estimates provided by OEMs



Notes: Other independent operators constituted a negligible proportion of overall users (<0.3%). Several OEMs reported that they did not monitor activity of different users on their systems
Source: OEM interviews. Correct as of Jan-July 2014

Some OEMs suggested that the lack of independent repairers using their websites showed that there was no market for their products. However, it is well-known that independent repairers use data republishers as their primary source of technical information, for a number of reasons – further discussion of this aspect is provided in **Section 5**. Moreover, the situation may change significantly over the next few years as the number of Euro 5 vehicles serviced by independent repairers increases. Currently, levels of experience with Euro 5 vehicles in the independent network are relatively low due to such vehicles still being in warranty, as well as a low level of awareness – see Section 5.1.

The majority of OEMs reported that they do not expect to (or intend to) recover their investment costs through subscription fees, although they still planned to comply with the Regulation.

However, three OEMs were exceptions:

- Two OEMs claimed that subscription fees allowed them to recover their investment costs,
- One OEM estimated that around 70% of their costs were covered.

The estimated investment costs provided by these three OEMs were in the mid-low range of those received, and their subscription costs were all below the average of the OEMs reviewed (see **Section 3**).

4.2. Role of Type Approval Authorities (TAA) in enforcement

4.2.1. Compliance and enforcement procedures in place

Interviews with six TAAs revealed a range of different practices are in place across Europe for verification.

TAAs are not required to independently check the compliance of manufacturers during the application for type approval. Under the Regulations, "*The approval authority may presume that the manufacturer has put in place satisfactory arrangements and procedures with regard to access to vehicle OBD and vehicle repair and maintenance information, on the basis of a completed Certificate on Access to Vehicle OBD and Vehicle Repair and Maintenance Information, providing that no complaint has been made*" (emphasis added).

Six TAAs were interviewed and asked about the procedures they had in place at three key milestones, as well as spot checks:

- **During the regular conformity assessment:** Three of the TAAs confirmed that they always conduct a brief check, while a further two conduct checks relatively infrequently (<20% of the time). However, the processes in place are relatively brief, since a detailed check of vehicle RMI at this stage would be incredibly time consuming.
- **After six months:** Four of the TAAs interviewed reported that they always check that the website is available. At this stage, all four TAAs stated that they carry out basic checks – with one describing the check as a 'walk-through' of the website.
- **After a complaint has been made:** All of the TAAs interviewed indicated a more detailed assessment of the vehicle RMI website would be conducted in the event that a complaint is raised against a manufacturer.
- **Spot checks:** Four of the TAAs stated that they never carried out any spot checks independently of complaints being made. This is due to the requirement to audit type approved equipment on a three year cycle as part of the conformity of production (CoP) processes, during which the vehicle RMI website would be checked/ verified as part of this process. One TAA did state that they are increasingly conducting spot checks – particularly for the larger scale vehicle manufacturers; however they do not have a formalised process for doing so.

The basic administrative burdens have been relatively low due to the minimal level of verification currently performed – but the burdens increase dramatically in cases where detailed investigations are required.

With regard to the additional burden of time placed on TAAs due to the Regulations, the effort involved varied considerably depending on whether non-compliances were discovered and whether a complaint had been made.

- Basic verification checks have been estimated to take 1-2 hours.

- More detailed checks (generally undertaken after the six month grace period) were estimated to take up to half a day.
- In the event of a complaint having been made, or a non-compliance discovered during basic checks, TAAs found they needed to dedicate days to weeks of personnel time to the investigations – and in some cases involve legal teams in the discussions.

The existing type approval procedures were designed to ensure 100% compliance prior to granting type approval – whereas the vehicle RMI regulations allows a six-month grace period for the vehicle RMI website to be fully accessible. While most of the TAAs interviewed stated that integrating the RMI requirements into their existing processes was reasonably straightforward, the requirement for a six-month follow-up period did create some operational difficulties for some.

4.2.2. Issues encountered by TAAs with respect to ensuring compliance

Clearer guidance on the roles and responsibilities of TAAs at a national level is needed.

System Type approval is based on vehicle emissions (e.g. Euro 5/6) whereas vehicle RMI relates to the whole vehicle. As a result, TAAs feel their responsibilities are unclear and additional guidance would be beneficial. One authority suggested that Article 14 of EC 692/2008 should be expanded to give more detail about the expected procedures around type approval withdrawal, fines etc.

It is also unclear how TAAs should act to ensure follow-up in situations where one authority could grant system type approval or the whole vehicle type approval - but an authority in a different country receives a complaint that vehicle RMI does not meet requirements.

In order to improve enforcement practices and powers, the penalties for infringement need to be better defined and harmonised across Europe.

TAAs interviewed felt that they had limited – or no - powers to enforce the requirements of the Regulation, and also expressed the view that they are not well positioned to do so. In particular, revoking type approval is considered to be an extreme option, and several interviewees felt that this would be a highly unlikely occurrence. Revoking type approval is a very formal and expensive procedure that would involve recalling the vehicles already on the market. Only one of the TAAs interviewed stated that the vehicle RMI requirements had been incorporated into national law to such an extent that they were able to issue fines in the event of non-compliance with mandatory requirements.

Currently, fines/penalties (other than revoking type approval) haven't been set at EU level, and national authorities may introduce their own system of penalties (as provided for in the Regulations). Although fines have not been widely introduced, a lack of harmonisation could lead to different penalties being set across Europe. As a result, OEMs could opt to have their models type approved in countries with less stringent penalties – leading to potential loss of custom for TAAs in countries with the greatest penalties. Although TAAs maintain that they are independent authorities, the loss of commercial relationships with OEMs may create a conflict of interests, particularly if the penalties for enforcement end up being very diverse.

4.2.3. Small volume manufacturers, multi-stage vehicles and special purpose vehicles

Two TAAs also claimed to be aware that certain multi-stage vehicles producers and very small manufacturers do not comply with the strict requirements of access to RMI.

In this instance, both TAAs confirmed that the manufacturers concerned are willing to provide information and have the means for doing so (for example; a telephone helpline that will enable the end-user to access technical help). However, no complaints have been submitted due to the low demand for RMI for these vehicles. In this respect, the TAAs concerned believed that there should be some sort of formal consideration given to small volume manufacturer and multi-stage manufacturers within the regulations – in the form of a derogation or suggested alternative acceptable methods of providing access to vehicle RMI – due to the financial implications of imposing the full standards on these firms.

Similar concerns were expressed regarding manufacturers of "special purpose vehicles". Directive 2007/46/EC (Framework Directive on Type Approval) specifies that this group includes vehicles "*intended to perform a function which requires special body arrangements and/or equipment*". Examples include caravans, ambulances, wheelchair-accessible vehicles and disabled person's vehicles.

Since 29th April 2012, all new special purpose M1[13] vehicles must have proof of EC Whole Vehicle Type Approval, and as such, a special purpose vehicle must meet with all of the separate regulations listed in Annex XI of 2007/46/EC. Since the provision of RMI is an essential condition for type approval, converters of vehicles are required to comply with the RMI provisions concerning any changes they have introduced in the mass-produced vehicle. In almost all cases, special purpose M1 vehicles are adapted from conventional vehicles that already have type approval (although converters must ensure that modifications carried out are in line with the base vehicle manufacturer's guidelines where applicable). Therefore, only the modifications carried out to the original vehicle need to be examined by the approval authority and approvals for the unaltered aspects of the vehicle will remain valid.

The study team interviewed a very small volume manufacturer/converter to understand current practices in more detail. This particular specialist manufacturer takes a mass-produced vehicle model and converts it to allow wheelchair access (around 3,000 such conversions per year). For the purposes of type approval, this manufacturer reported that they reference the main OEM website address and provide a supplemental user guide with every vehicle sold that includes information on the parts modified. Each guide contains contact details for their technical support department. This approach had been accepted by TAAs. However, they were concerned about the administrative burdens of complying with the full requirements of RMI provisions. TAAs also agreed in general that these manufacturers may find the full requirements of RMI provisions prohibitively expensive due to the limited quantities of vehicles they produce.

4.3. Existing litigation between different actors of the system of RMI

This section provides an overview of the existing litigation between different actors of the system of RMI as identified by the study team. This includes:

[13] Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat.

- Complaints from independent repairers relating to failure by manufacturers to provide access to "raw data";
- Formal complaints before the European Commission;
- Complaints before the TAAs; and
- Litigation – Proceedings against Kia.

4.3.1. Complaints from independent repairers relating to failure by manufacturers to provide access to "raw data"

The issues concerning access to bulk or "raw" data referred to in this section are also discussed in more detail in **Section 5.2.**

Collective actions

Two collective formal requests have been made to vehicle manufacturers in order to access parts identification data in electronic format (2009) and digital "raw" format (2011). In both cases, none of the 72 companies addressed granted access to the data.

Two collective formal requests have been made to vehicle manufacturers over the last five years. Fifty Independent Aftermarket (IAM) operators in Germany (spare part manufacturers, trading companies and publishers of databases) addressed 72 vehicle companies[14] in order to have access to parts identification data in electronic format in the first collective action in October 2009. The request was based on the Treaty of the Functioning of the European Union (TFEU), Article 102. According to the complainants the retention of such data could be considered an abuse of the manufacturers' dominant position in the relevant market.

The IAM operators also indicated that refusal to grant access to parts identification data as requested could constitute an infringement of Article 101 TFEU and Article 4 (2) of the

[14] The addressed companies were the following: Audi AG, BMW AG, Cadillac Corvette HUMMER Deutschand GmbH, Chevrolet Deutschland GmbH,Chrysler Deutschland GmbH, Chrysler Group LLC, Citroen Deutschland AG, DAEWOO Automobile (Deutschland) GmbH, DAF Trucks Deutschland GmbH, DAF Trucks N.V., Daihatsu Deutschland GmbH, Daihatsu Head Office, Daimler AG, Dodge Deutschland GmbH, EvoBus GmbH, Ferrari Deutschland GmbH, Ferrari S.p.A, Fiat Group Automobiles Deutschland AG, First Group Automobiles S.p.A, Fiat Group Automobiles S.p.A, Fiat/Iveci-Magirus AG, Ford Motor Company, Ford Werke AG, Fuji Heavy Industries Ltd., General Motors Corporation, Hyundai Motor Company, Headquarter, Hyundai Motor Deutschland GmbH, infiniti Europe Nissan International SA, Isuszu Motors Limited, Isuzu Sales Deutschland GmbH, Iveco S.p.A socio unico, Jaguar Cars Ltd., Jaguar Deutschland GmbH, KIA MOTORS Deutschland GmbH, LADA Automobile GmbH, Lamborghini Holding SpA, Lamborghini Stuttgart, Excalibur Deutschland Vertriebsgesellschaft mbH42, Land Rover, Land Rover Deutschland GmbH, MAN Truck & Bus AG, Maserati Deutschland GmbH, Maserati S.p.A., Mazda Motor Corporation, Mazda Motors (Europe) GmbH, MG Rover Deutschland GmbH, Mitsubishi Motors Corporation, MITSUBISHI MOTORS Corporation, Neoplan Bus GmbH, NISSAN Center Europe GmbH, Nissans Motor Company, Opel GmbH, PEUGEOT Deutschland GmbH, Porsche AG, PSA Peugeot Citroen, Renault Deutschland AG, Renault S.A., Renault Trucks, Saab Automobile AB, Saab Deutschland GmbH, Scania Deutschland GmbH, Scania CV AB, SEAT Deutschland GmbH, Skoda Auto Deutschland GmbH, SsangYong Motor Company (Head Office), SUBARU Deutschland GmbH, SUZUKI INTERNATIONAL EUROPE GMBH, Toyota Deutschland GmbH, Toyota Motor Corporation, Volkswagen AG, Volvo Car Corporation, Volvo Car Deutschland GmbH, Volvo Trucks Region Central Europe GmbH.

European Commission Regulation 1400/2002 on vertical agreements for the purchase, sale or resale of new motor vehicles[15].

Within the framework of the abovementioned requests, republishers formulated an additional claim based on Article 102 TFEU to ten vehicle manufacturers. In particular, republishers argued that these vehicle manufacturers had granted a company the exclusive right to use electronic information related to raw data in order to sell original spare parts via the website www.partslink24.com. This website has been established by several manufacturers as an internet-based parts identification database and an ordering platform for original spare parts where repairers may identify and order suitable spare parts by merely introducing the VIN.

The IAM operators claimed to have offered the vehicle manufacturers the payment of an adequate fee for the provision of digital raw data. Overall, the answers to the request were as follows:

- None of the companies granted the requested access to digital raw data.
- 38 companies either did not provide an answer or promised to answer at a later date but never proceeded to do so.
- 9 companies argued that the IAM's claim could not be substantiated on Competition Law.
- 5 companies argued that access to their own VIN-based electronic parts catalogues would be sufficient.
- 1 company answered that neither Regulation 715/2007 nor Regulation 692/2008 entitled independent operators to such a request.
- 1 company replied that access to such raw data could not be considered technical information since this would have no direct use to the repair of vehicles.
- 1 company answered that electronic raw data would not be available as the data would be "buried" in their spare parts catalogue structure in a format that made it technically impossible to be extracted.

In October 2011, 29 independent operators requested again the above referenced 72 companies[16] provided access to digital raw data. This request was based on the revised Euro 5/6 Regulations. In terms of the basis for requesting such access, Annex XIV of Regulation 692/2008 (as amended by Regulation 566/2011) states (emphasis added):

> ***"Information on all parts** of the vehicle, **with which the vehicle, as identified by the** vehicle identification number (**VIN**) **and any additional criteria** such as wheelbase, engine output, trim level or options, **is equipped by the vehicle manufacturer and which can be replaced by spare parts offered by the vehicle manufacturer** to its authorised repairers or dealers or third parties by means of reference to original equipment (OE) parts number, **shall be made available in a database easily accessible to independent operators.***

[15] Commission Regulation 1400/2002 on vertical agreements for the purchase, sale or resale of new motor vehicles was partially repealed by Commission Regulation 461/2010 on the application of Article 101(3) of the TFEU to categories of vertical agreements and concerted practices in the motor vehicle sector (OJ L 129, 28.5.2010, p. 52–57). Certain provisions of Regulation 1400/2002 still applied until 31 May 2013, when this was, in fine, repealed by the current general block exemption regulation, Commission Regulation 330/2010 of 20 April 2010 on the application of Article 101(3) of the TFEU to categories of vertical agreements and concerted practices (OJ L 102, 23.4.2010, p.1-7).

[16] *Supra* footnote 14.

This database shall comprise the VIN, OE parts numbers, OE naming of the parts, validity attributes (valid-from and valid-to dates), fitting attributes and where applicable structuring characteristics.

The information on the database shall be regularly updated. The updates shall include in particular all modifications to individual vehicles after their production if this information is available to authorised dealers".

In addition, IAM operators stressed that both the speeches made by the European Commission's Automotive Industry Unit at DG ENTR (CLEPA Aftermarket Conference, 2011) and recital 12 of Regulation 566/2011[17] could be invoked in order for them to request access to such information. Finally, they also indicated that access to this information for vehicles which were type approved prior to the entry into force of the Euro 5/6 regime was equally sustained on the basis of Competition Law rules. IAM operators claimed to enter into negotiations for the licence of direct access to technical information in their database allowing automatic processing of such data, in order to facilitate the efficient design and deployment of multi-brand IT applications. Overall, the answers to this second request were as follows:

- None of the companies granted the access requested.
- 29 companies did not provide an answer or promised to answer at a later date but never proceeded to do so.
- 6 companies argued that the term "raw data" was included in previous drafts of the Euro 5/6 Regulation but was not included in the final version of the Regulation.
- 12 companies were of the opinion that there was no legal basis for such a claim.
- 12 companies answered that access to their web-based spare parts catalogue would fulfill their obligations for Euro 5/6 Regulations.

Individual requests – access to "raw" data

At least five individual requests have been made (Germany) to access vehicle manufacturers' parts catalogues/use raw data.

At least five individual[18] companies in Germany addressed OEMs with regard to access to parts catalogues and/or use of raw data. The answers to these individual requests were the following:

- All requests received an answer.
- In general, IAMs felt that it remained difficult to obtain access to catalogues; they indicated that some vehicle manufacturers rejected such access, some treated the matter within "an excessive period of time" and some required "very high fees".

[17] "*(12) In order to ensure effective competition on the market for vehicle repair and maintenance information services, and in order to clarify that the information concerned also covers information which needs to be provided to independent operators other than repairers, so as to ensure that the independent vehicle repair and maintenance market as a whole can compete with authorised dealers, regardless of whether the vehicle manufacturer gives such information to authorised dealers and repairers directly, further clarifications with regard to the details of the information to be provided under Regulation (EC) No 715/2007 are necessary.*".

[18] Herth+Buss Fahrzeugteile GmbH & Co KG, Europart GmbH, PE Data GmbH, Diesel Technic AG, Christian Winkler GmbH & Co. KG.

- One vehicle manufacturer acknowledged the importance of having accurate spare parts identification, but also indicated it was willing only to allow the manual extract of information.

4.3.2. Formal complaints before the European Commission

Two formal complaints have been filed before the European Commission, which are still under review at the time of writing.

Complaint filed by GVA

In August 2013, GVA[19] submitted a complaint before the European Commission (Directorate General Enterprise & Industry) against the National Standard Authority of Ireland (NSAI - Irish Type Approval Authority) based on an infringement of Regulation 715/2007 concerning the obligations of manufacturers to provide data on parts identification.

Underlying this complaint there was the request made in 2012 from GVA to the NSAI to enforce Regulation 715/2007, as the former was of the opinion that the manufacturer BMW, which obtained the system's Type Approval from the NSAI, was not complying with its obligations regarding provision of RMI. GVA argued that BMW did not offer access to RMI in the appropriate manner, in the sense that technical information for parts identification was not easily accessible and did not allow for automatic processing. This request was followed by an extensive exchange of correspondence between both parties and their representatives.

The NSAI rejected GVA's request. According to the NSAI, an audit pursuant to Article 14 of Regulation 692/2008 was carried out in order to examine BMW's on-line service system and parts catalogue and, as a result, the authority could conclude that BMW complied with the requirements set out in Regulation 715/2007 concerning the access to RMI. This complaint filed by GVA before the European Commission (ref. CHAP(2013)00253) is still under scrutiny at the time of writing.

Complaints filed by European IAM associations

In December 2013, European associations representing independent wholesalers and spare parts suppliers, FIGIEFA[20] and CLEPA[21], contacted the European Commission (Directorate General for Competition) regarding their position on the issue of parts identification data. The associations submitted a series of surveys, market studies and other evidence to substantiate their views. Based on this information, the associations concluded that the lack of parts identification data would deter repairers from acquiring spare parts from independent manufacturers.

The associations also pointed out that this situation is likely become worse due to the increasing complexity of vehicles which could ultimately lead to the foreclosure of the market and to considerable consumer harm.

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[19] Gesamtverband Autoteile-Handel e.V. (GVA) is the association of independent automotive parts wholesalers in Germany, representing 154 company members.

[20] *Fédération Internationale des Grossistes, Importateurs & Exportateurs en Fournitures Automobiles* - European federation and representative of independent wholesalers and retailers of automotive replacement parts and their associated repair chains at European level. Together with its 19 national European members, it represents the interests of more than 30,000 companies trading with vehicle parts, components and accessories.

[21] *Comité de Liaison Européen des fabricants d'équipements et de Pièces Automobiles* - the European association of automotive suppliers. 109 worldwide suppliers for car parts, systems and modules and 25 national trade associations and European sector associations are members of CLEPA.

FIGIEFA and CLEPA recognised that the European Commission had improved the situation of independent repairers when adopting a series of infringement decisions against certain vehicle manufacturers in 2007 and had introduced a stricter legal regime in 2010 for the automotive sales market that facilitates the enforcement of competition rules. However, they are of the view that in spite of these improvements, the withholding of technical information continues to exist and that an enforcement action is needed from the European Commission in order to ensure that the independent market can operate efficiently.

4.3.3. Complaints before Type Approval Authorities

Complaints before TAAs that have been identified relate to access to spare parts information.

Three TAAs stated that they have received at least one complaint. These complaints related to concerns over access to a full parts catalogue by way of which a parts manufacturer would be able to recreate the part e.g. to know where parts fit within the vehicle rather than to find out which part is required for carrying out maintenance or servicing work. Following this complaint, the manufacturer was keen to comply with any requests for information and to discuss and resolve the issue.

4.3.4. Litigation

To the best of the study team's knowledge, litigation concerning access to RMI is not extensive.

Research was carried out on a sample of Member States, i.e. United Kingdom, France, Germany, Italy and Spain. To the best of the study team's knowledge, litigation concerning access to RMI is limited. Possible reasons (other than that OEMs are fully compliant) for the lack of litigation have been suggested by various stakeholders, including:

- Existing relationships between the original equipment segment and the independent aftermarket operators (in particular, operators active in both sides of the business);
- Independent operators – particularly SMEs - would not be willing to take the risk of submitting a complaint;
- Litigation procedures are not straightforward and are costly; and
- Independent operators are not aware of their rights under the Regulations.

Existing RMI-related litigation has been brought about by GVA against vehicle manufacturer KIA – it is claimed that KIA does not provide access to raw data in an electronic format for further processing at a reasonable price. A decision is expected in mid-2015.

The German association GVA brought an action against KIA Motors Deutschland GmbH and KIA Motors Corporation on the grounds that this vehicle manufacturer has violated the German Unfair Competition Act (UWG). GVA claims that KIA does not provide access to raw data in an electronic format for further processing at a reasonable price.

In addition to the arguments based on unfair competition, GVA has argued that KIA has infringed Articles 6 (1), (2), (4) and 13 (1) of Regulation 715/2007, as well as Annex XIV No 2.1 subparagraph 2 of Regulation 692/2008.

GVA chose Frankfurt to file an action because KIA's headquarters in Europe and KIA GmbH are established in this city. In addition, the claim was also targeted at KIA Motors Corporation (based in Korea) as the latter is the holder of the relevant type-approvals for KIA vehicles in Europe. GVA also indicated in its writ that the German court should contact the European Commission using the amicus curia procedure in case of doubt.

A hearing is expected to take place in autumn 2014 and the final decision would be delivered by mid-2015.

4.4. Conclusions – compliance and enforcement

Further clarity is required on specific definitions used in the Regulations, in order to avoid misinterpretation of the requirements.

Clarity is considered to be lacking in some areas of the legislation, leading to difficulties with interpretation of certain regulatory clauses and on the implementation of some functionalities by OEMs (see **Section 2** and **Section 3** for further details).

It is clear from the complaints set out above that at present some independent operators, such as independent parts manufacturers/distributors and data republishers are not satisfied with the actual level of protection, compliance and/or enforcement of the Euro 5/6 Regulations with respect to access to RMI. In this sense, a recurring concern is a clear definition of, and the access to "raw data". The ongoing litigation in this area highlights that the interpretation by different stakeholders is conflicting, and therefore greater clarification is required. On the other hand, complaints raised by these stakeholders have been both based on regulatory aspects (Euro 5/6 Regulations) and on Competition Law (Articles 101 and 102 TFEU). Some stakeholders have even requested such access on the basis of an infringement of unfair competition national rules.

Additional guidance on aspects of the Regulations that are more flexible would also be considered helpful by stakeholders, including guidance on what might be considered "reasonable and proportionate" fees, "timely" access etc.

To overcome this issue, OEMs mentioned that they often consulted with other OEMs to gain a common understanding/interpretation of the Regulations. Further guidance would be welcome from the Commission on certain aspects of the legislation in order to avoid confusion or possible non-compliance in the future.

Other stakeholders have also agreed that further guidance would be beneficial. Specific suggestions were provided for additional guidance on the following aspects from various stakeholders:

- The level of detail required to meet quality standards for the different types of information that must be provided.
- Guidelines on appropriate basis for implementation – for example requirement for a "reasonable" fee (both for access to RMI websites and contractual agreements with IAM operators).
- More specific guidelines on the level/scope of safety and security information that must be provided versus what could be excluded (e.g. electronic system security data for airbags, electronic stability control (ESC) systems, anti-theft equipment, electronic control units (ECUs)).
- Additional guidance on the structure and formatting of the information (although it was acknowledged that the CEN/ISO standards would address this aspect for information provided to independent repairers via RMI websites, there are also concerns over the format of information provided to other IAM operators such as data publishers and tool manufacturers).
- Additional information with regard to multi-stage vehicles, e.g. whether TAA's can/should issue a certificate of compliance if multi-stage vehicle manufacturers can only provide information on the modifications that they have made to the vehicle.

Some of these aspects are expected to be addressed in the forthcoming CEN/ISO standards on RMI, which also provide for a conformance test for OEMs.

Derogations for small volume manufacturers or niche vehicle manufacturers could be considered in future amendments to the Regulations.

Small volume and niche vehicle manufacturers tended to have the lowest number of independent operator users of their websites – some consider the requirements of the Regulations to be disproportionate to their market share.

In order to improve enforcement powers, the penalties for infringement need to be better defined and harmonised across Europe.

TAAs feel their responsibilities are unclear and additional guidance would be beneficial, particularly concerning how they should act in situations where type approval is granted in one country but an authority in a different country receives a complaint.

In particular, revoking type approval is considered to be an extreme option, and therefore unlikely to be used. While national authorities can introduce different penalties, few have done so. In order to prevent loss of custom for TAAs in countries with the greatest penalties, appropriate fines and/or guidance should be provided for at EU level.

An entirely separate (or new) body may be more suitable than TAAs to address the mandatory requirements of the Regulations.

Currently, TAAs rely in the first instance on a simple form filled in by the OEMs and do not have resources to monitor/verify compliance in detail. The TAAs feel that it is important that an appropriate verification body should be nominated, which is trained and skilled in checking the required data is accurate – particularly following the introduction of the CEN/ISO standards, where very specific requirements are set out. In addition, monitoring of technical compatibility (e.g. for online diagnostics) and the conditions under which technical information is transmitted to specialist intermediaries will require specific knowledge and expertise.

Given the volume of technical data and the frequency of updates, it would not appear that constant monitoring would be effective or desirable. Rather, the introduction of a common administrative procedure to investigate complaints received from any independent operator may be a more appropriate solution, and would also allow pooling of resources (and reduction of administrative costs).

Stakeholders have also pointed to the National Automotive Service Task Force (NASTF) in the USA as a potential model to replicate in Europe. The NASTF is a not-for-profit task force that serves as a forum to resolve industry issues regarding access to information, software and tools. It is a voluntary effort that aims to facilitate the identification and correction of gaps in the availability and accessibility of auto service information, service training, diagnostic tools and equipment, and communications. Although the NASTF model has been successful at increasing collaboration in some areas, some states have imposed additional legislation to ensure access to information.

5. ASSESSMENT OF THE EFFECTS ON COMPETITION

Overview:

The requirements to grant access to repair and maintenance information were integrated into the type approval legislation in 2007. A key question for this study is whether these provisions are sufficient to allow for effective competition in the automotive aftermarket, by creating a level playing field for all players in terms of access to technical information.

This section reviews the market structure and economic context of the aftermarket, and analyses the impact of access to technical information on competition. The competitiveness of the independent aftermarket as a whole depends on the functioning of several different operators, as defined in Regulation 715/2007. The major stakeholders in the aftermarket are:

- Repairers;
- Manufacturers and/or distributors of spare parts;
- Manufacturers of diagnostic and repair equipment; and
- Publishers of technical information.

Below, the market structure and economic context for each of these stakeholders is briefly outlined. However, aggregate trends can only reflect the impact of access to technical information to a limited extent – firstly because it takes some years for vehicles affected by the Regulations to penetrate different segments of the market, and second because access to this information is only one of many factors that affect the market for vehicle repair and maintenance. Therefore, the specific role of access to technical information is also discussed for each stakeholder group.

5.1. Repairers

5.1.1. Repairer market structure

The market for repair and maintenance services is made up of different groups, which may be characterised according to the level of central control and the range of activities they undertake.

These groups can be categorised in the following way (Royer, n.d.):

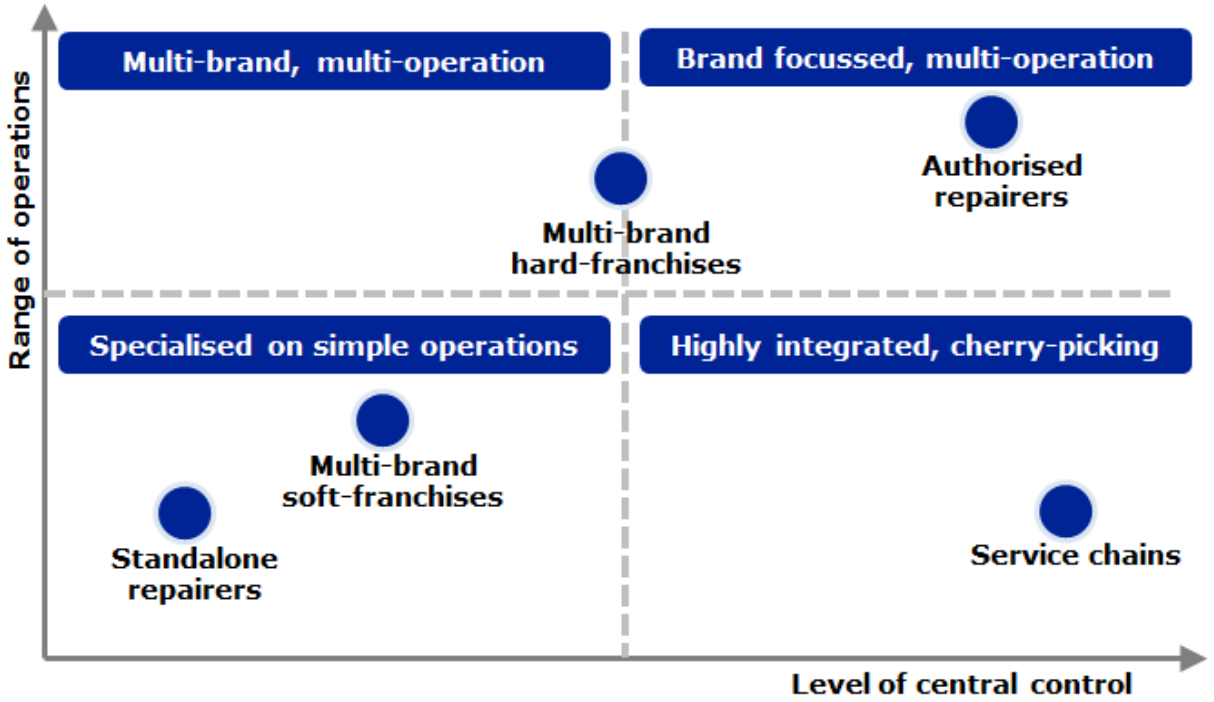
- **Standalone repairers** are usually small, owner-operated garages - sometimes thought of as "traditional" garages – operating outside the distribution systems set up by vehicle manufacturers.
- **Authorised repairers**: a manufacturer-branded outlet. They operate within a distribution system set up by a vehicle manufacturer. Operators are generalists capable of performing a variety of maintenance and repair operations for a particular brand of vehicle.
- **Multi-brand franchises:** these are networks of repairers, run by both independent operators as well as vehicle manufacturers involved in multi-brand franchises, which can broadly be categorised into a range between "soft" and "hard" franchise concepts depending on the degree of involvement or extent of the requirements imposed by the franchisor. For example:
    - Soft franchises: have minimal requirements set by the franchisor, but also provide minimal support compared to "hard" franchises. Annual fees range from nothing to around €500 and parts purchases are normally agreed with local parts distributors (Royer, n.d.).

  - Hard franchises: tend to have higher annual fees (~€2,000 and above), higher requirements for minimum annual turnover (e.g. at least €300k), minimum number of employees (e.g. at least three), minimum parts purchase (e.g. €50k per annum) and requirements for mandatory training.

- **Service chains**: generic term for fast-fit and auto-centre chains. Outlets are generally owned by the company and most value-adding activities are centrally coordinated (Royer & Stratmann, 2008).
  - Auto-centres are outlets with a self-service area and a workshop focussing on simple operations (e.g. Norauto, Feu Vert). Some have expanded their offers to include simple mechanical repairs, but do not offer very complex services
  - Fast fits initially started out as no-wait service concepts focussing on simple, quick operations but have progressively expanded the scope of their activities (e.g. PitStop, Kwik-Fit). The fast fit services do not require highly trained staff, extensive parts supply or complex facilities (ICDP, 2012). Their business model can be quite close to that of auto-centres, but generally they do not have a business selling parts or accessories.

Figure 5-1 provides an overview of market segmentation according to these factors.

Figure 5-1: Overview of repairer market segmentation



Source: Adapted from (Royer, n.d.)

The structure within authorised networks and independent operators has significant implications for the level of competition amongst garages as well as amongst their part suppliers.

The advantages for authorised repairers are primarily the brand value and ability to capture custom from new car owners. However, they must meet various obligations, such as complying with manufacturer-imposed standards and providing warranty repairs. Independent repairers have much greater autonomy and can service multiple brands.

Franchises for independent repair services are run by both vehicle manufacturers and other independent operators. Most of the large parts wholesalers and distributors offer multi-

brand franchise schemes. More recently, some OEMs have launched multi-brand franchises for repairers, aimed at ex-authorised repairers who were not able or willing to invest in order to retain their authorised status – for example, Renault (Motrio), Citroën (Eurorepar), and Ford (Motorcraft) (ICDP, 2014b). Joining a franchise concept provides garage owners with corporate branding elements as well as a more formalised support network in the form of improved access to technical information and training.

5.1.2. Economic and market context

Better vehicle build quality and parts durability have led to longer service intervals, but technological advancements and an ageing vehicle fleet have contributed to higher costs per visit.

In 2012, the European vehicle aftermarket had an annual turnover of around €170 billion. In real terms, there has been little change in annual turnover since 2008 for Europe as a whole, although there has been some variation in different countries. Specifically, although the market is relatively flat in most Western European countries, Eastern Europe is growing at a faster rate, albeit from a smaller base (Datamonitor, 2014), (Spivey, 2014).

The reduction in new car sales volumes following the economic recession is a short-term driver of aftermarket sales, as consumers hold on to their vehicles for longer and older cars require more repair and maintenance. However, a shrinking volume of vehicles on the road will ultimately lead to a smaller market for repair and maintenance services in the longer term. National scrappage schemes introduced to support the automotive industry during the crisis have contributed to removing some of the older vehicles that have higher service and repair needs in certain markets (ICDP, 2012). While this has benefited the authorised repairers in the short term, it is not expected to have a major mid- to long-term effect since the car owners affected primarily purchased more affordable cars, and are thus expected to return to the independent repairer channel sooner than average (AT Kearney, 2010).

In addition, general industry trends have been towards better quality, high performance parts that need replacing less frequently. Reductions in mileage travelled and reductions in the number of accidents also reduce the market for repair and maintenance (Aboltins & Rivza, 2014); (Verdict, 2012). These factors have been offset by positive drivers, including increasing quality (and cost) of individual car components (usually electronics), as well as a move towards changing of modules instead of separate car spare parts, which cost significantly more (Aboltins & Rivza, 2014); (Verdict, 2012).

There has been little change in overall market shares between authorised and independent repairers since the Regulation was introduced.

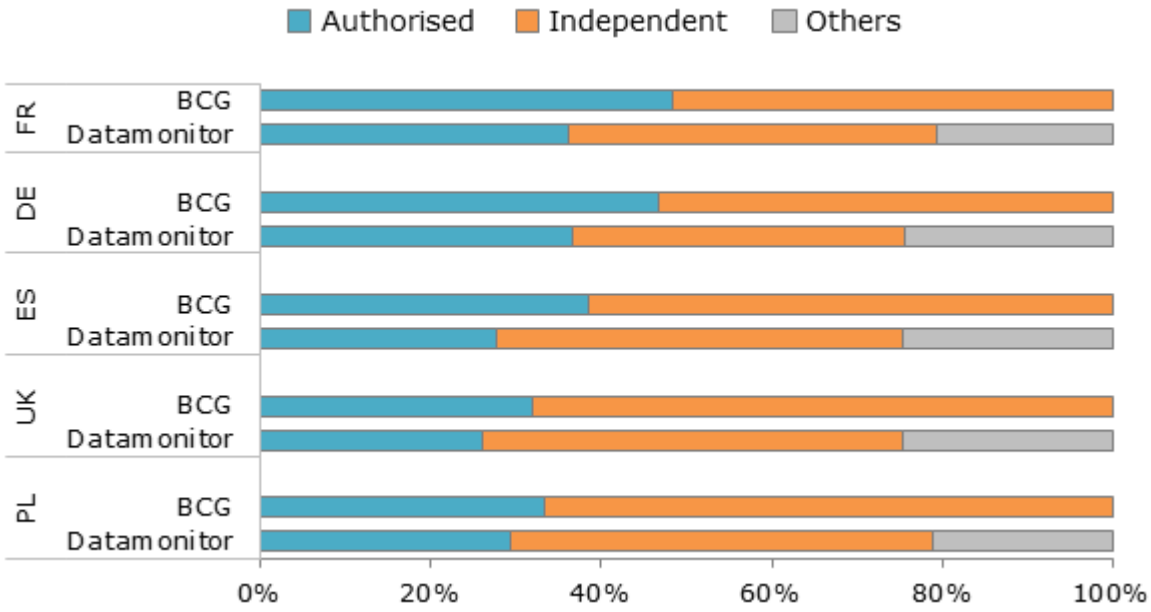
One of the most closely analysed issues in terms of market competition is the share of authorised repairers versus independent operators in total aftermarket revenue. This distinction is sometimes difficult to identify, especially since authorised repairers and the independent operators are not homogenous groups.

The aftermarket is not consistently monitored across Europe, and so market research is typically used to derive data on revenues in individual channels and parts. While there is general agreement between the sources that the overall market shares for authorised and independent operators have remained fairly stable over time, it is particularly challenging to determine the share between different channels and vehicle age groups - both due to difficulties in primary data collection and in harmonising definitions between different countries and data sources.

In order to assess the market situation at a European level, a dataset of the European aftermarket was purchased (Datamonitor, 2014), which offers a consistent approach across all countries. Another multi-country overview is provided by BCG (2012) and (2014). Estimates for Germany, France, UK, Spain and Poland are available from both

sources and shown in Figure 5-2, where several differences in market share are apparent. Although the study team spoke to the developers of both of these datasets, the reliability of the data could not be independently assessed, since both BCG and Datamonitor report that their detailed methods are proprietary. Conducting a bottom-up survey of the market is outside the scope of the study, where the primary focus is on the functioning of the system of access to RMI.

Figure 5-2: Market share (by value of aftermarket revenue) by operator type in Germany, France, UK, Spain and Poland in 2012



Notes: Including labour costs and VAT. Independent operators include garages (both chains and stand-alone), fast fits (chains such as Kwik Fit and ATU), Autocentres (large garages-cum-retailers such as Norauto and Feu Vert), crash repair centres (garages specialised in crash repairs, both chains and stand-alone) and tyre specialists (chains such as Euromaster) are counted as independent operators. The category 'Others' contains petrol stations, hypermarkets and online retailing as well as not further specified 'others'. According to the data provider this includes mostly parts and accessories stores

Sources: (Datamonitor, 2014), (BCG, 2014)

Despite these differences, both sources agree that across Europe as a whole, the market share of manufacturer networks in the aftermarket has remained relatively constant between 2008 and 2012 (Datamonitor, 2014), (BCG, 2014).

Table 5-1 provides an overview of the methodologies used to generate the different estimates, noting that the basis for comparison varied between value (turnover) and share of visits. Datamonitor (2014) suggests that the share of authorised retailers in Germany is much lower compared to the other sources, accounting only for 37%. Around 16% of the market is not attributed to any particular type of outlet. If this share is disregarded, the values match more closely to the other sources, which all suggest a higher market share for the authorised network.

Table 5-1: Different estimates of market shares in the German aftermarket

	(Datamonitor, 2014)	(DAT, 2013)	(IPSOS, 2013)	(BCG, 2012)
Year	2012	2011	2011	2010
Basis	Value (turnover), including labour and VAT	Share of garage visits	Share of garage visits	Value (turnover)
Authorised	37%	56%	47%	49%
Independent	39%[22]	36%	53%	51%
Others	24%[23]	8%	0%	n/a
Sample	3,000 industry experts, 'including marketing managers, product managers and business information specialists'	Slightly over 1,000 private vehicle owners	15,000 interviews	Expert interviews, Datamonitor
Data collection method and comments.	Five models are combined which gives country and component specific data for volume and value, broken down by parts and labour, replacement rates and distribution channel market shares for each product	Annual representative survey, market size estimate based on extrapolation of on average spend in sample.	Mainly based on member state business registers.	DAT, Datamonitor and own analysis.

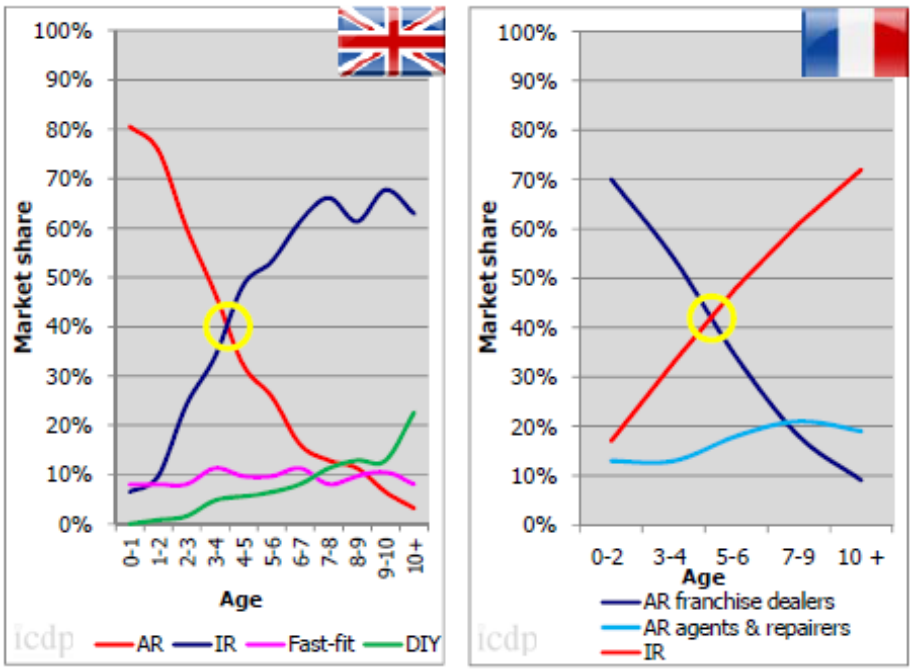
The repair and maintenance market can be segmented by vehicle age. Typically, manufacturer networks control the vast majority of the aftermarket value for vehicles less than four years old, while the market share of independent garages increases continuously with vehicle age.

Vehicle manufacturer networks hold the majority of the aftermarket for vehicle within warranty, but typically struggle to retain customers after the initial warranty period (ICDP, 2014b). This is characteristic of most European markets (ICDP, 2012), and indeed international markets as well (Capgemini, 2010). In general, owners of older vehicles are more cost conscious and more likely to use independent repairers (Autorité de la concurrence, 2012).

Data from selected Member States indicates that the switch points for market share dominance from authorised to independent repairers vary by country. Figure 5-3 illustrates the point at which the market share for authorised repairers falls below that of independent repairers – approximately 3-4 years in the UK and 5 years in France. The prime determinant for switching in these countries is thought to be the warranty period (ICDP, 2012).

[22] Including autocentres, crash repair centres, fast fits, garages and tyre specialists
[23] Including hypermarkets, online retail, petrol stations and 'others'. 'Others' account for 16% of total turnover.

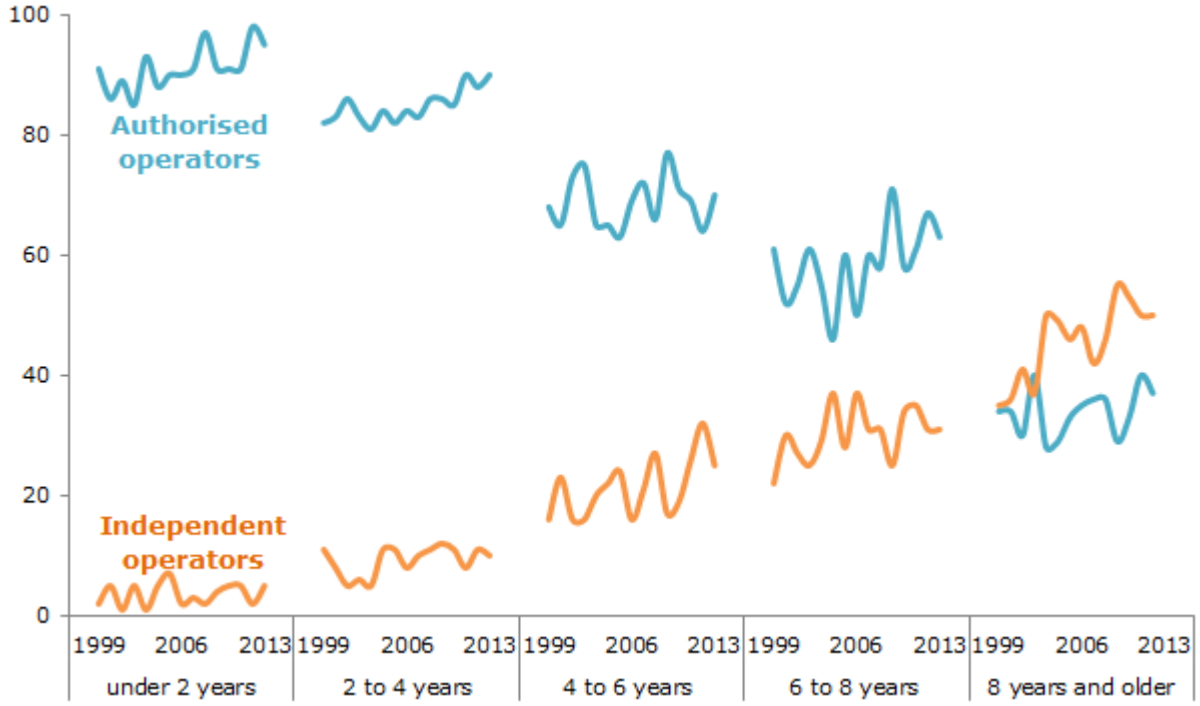
Figure 5-3: Switch point for market share dominance from authorised to independents



Notes: AR = authorised repairer; IR = independent repairer
Source: (ICDP, 2012)

The average switchover point is estimated to be significantly higher in Germany (at around 8-9 years), mainly due to the dominance of the local authorised repairer networks (ICDP, 2012). In general, it is thought that in the German-speaking aftermarkets, the influence of the OE market is much stronger than in other European countries due to the concentration of manufacturer brands (Wolk & Nikolic, 2013). Authorised operators have gained greater control of the aftermarket for newer vehicles (4 years and younger) over since 1999 (see Figure 5-4), whereas the independent operators have gained a higher market share for vehicles older than four years.

Figure 5-4: Variation of market shares with vehicle age in Germany between 1999 and 2013



Notes: graph excludes petrol stations, DIY and not stated; the latter is thought to include mainly black market repairs.
Source: DAT (various years)

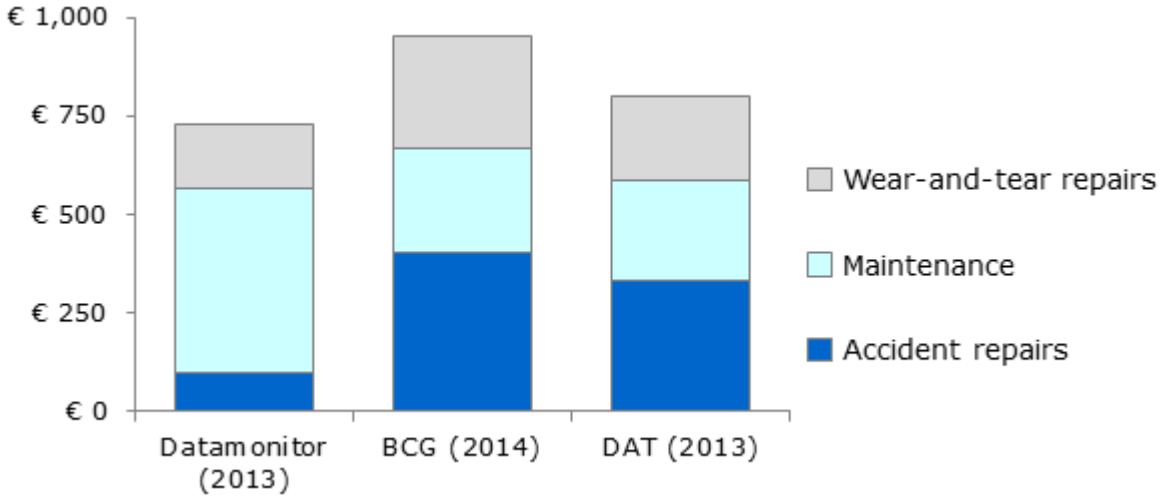
On the repair and maintenance sector for recent vehicles, the vehicle manufacturers' networks seem relatively resistant to competition from the independent channel. Although there appears to be a long-term trend suggesting that independent operators are gaining market share in older age groups, this has predominantly been at the expense of DIY or informal repair and maintenance works – indeed authorised repairers have also increased market share in most age groups in Germany.

The market can also be segmented by service type – maintenance and more predictable servicing jobs are typically dominated by independent service chains, while mechanical repairs tend to be carried out by authorised repairers.

There are general repairers (both independent and authorised) who offer all operations to their customers. Other repairers are specialised in certain areas (e.g. tyres, glass) and therefore only compete with general repairers for these specific operations.

As with the aggregate data for market shares, several data sources are available for market data on service events. In the case of Germany, data from the annual DAT reports are available in addition to BCG and Datamonitor. For better comparability, the data are expressed as average expenditure per vehicle in Figure 5-5.

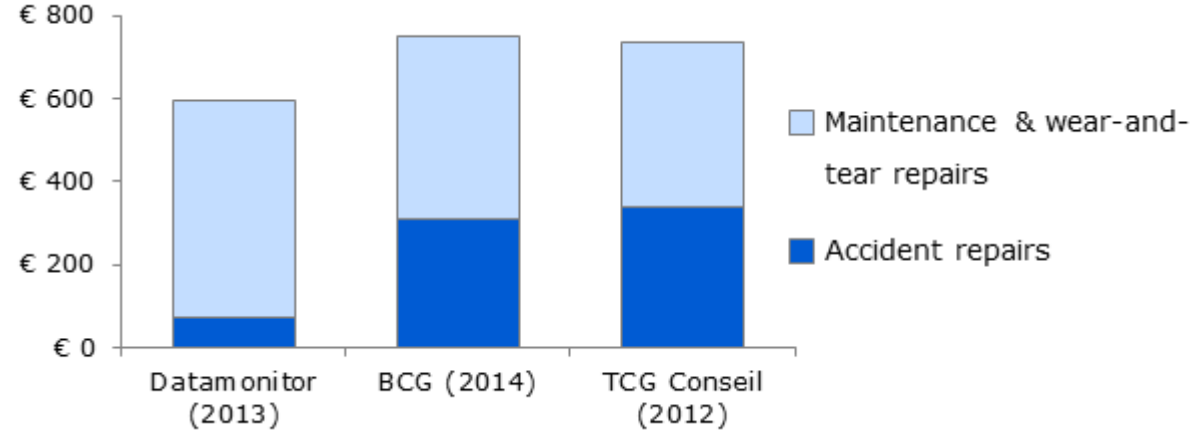
Figure 5-5: Different estimates of average expenditure per car by type of service in Germany for 2012



Notes: Including labour costs and VAT. Based on the figure of 49.41m cars (including temporary deregistrations), as estimated by DAT (2013)*. Maintenance includes service parts, tyres, and consumables and accessories. Wear-and-Tear repairs include mechanical and electronics repairs in addition to standard wear-and-tear repairs. Country level data from BCG provided in meeting on ACEA Aftermarket Update 2014, adapted from* (BCG, 2014).

The data from BCG and DAT (2013) are broadly consistent in attributing around €300-400 per car per year to accident repairs – a large fraction of annual vehicle insurance premiums will go towards these repair costs. Just over €250 goes towards annual vehicle maintenance while €200-€300 is spent on vehicle repairs. The Datamonitor data estimates similar levels of aggregate expenditure per vehicle; however, the majority is spent on maintenance. A similar picture emerges for France (see Figure 5-6): data from TCG Conseil (2012) and BCG is fairly consistent, whereas the data from Datamonitor indicates far lower expenditure on crash repairs and greater expenditure on maintenance and wear-and-tear repairs.

Figure 5-6: Different estimates of average expenditure per car by type of service in France



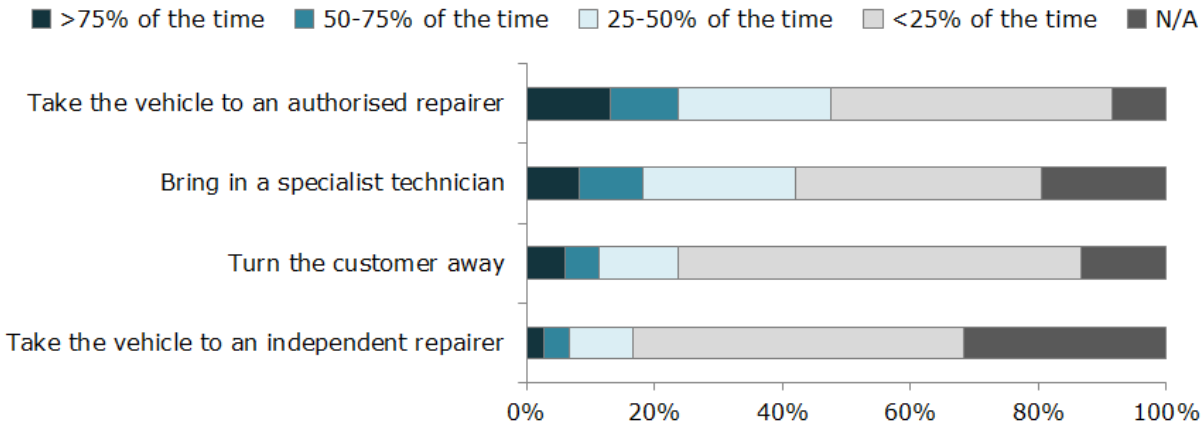
Notes: Including labour costs and VAT. Based on the figure of 38.6m cars registered, as estimated by Datamonitor. TCG Conseil (2012) figures are for 2010, BCG and Datamonitor figures for 2012. Country level data from BCG provided in meeting on ACEA Aftermarket Update 2014, adapted from (BCG, 2014).

It is recognised that it is more difficult to create competition between repair channels for some types of services – particularly those with low volume demand or which may need to be carried out urgently and without forward planning (Autorité de la concurrence, 2012). For example, mechanical repairs are not usually standardised, require greater diagnostic skills and appear to be carried out by authorised repair shops to a greater extent (BCG, 2014). More predictable and standard vehicle servicing such as tyre changes, oil changes and brake work are areas where consumers are typically more price sensitive and independent repairers hold a greater market share (BCG, 2014).

The intensity of competition between authorised and independent repairers may be affected by personal relationships as well as market structure.

Repairers indicated a slight preference for taking a vehicle to an authorised repairer in cases where they are unable to carry out a particular repair or maintenance service, with around a quarter saying they would do this in over half of cases – see Figure 5-7. There was no significant change in the share of responses when considering firm size or type of repairer (i.e. independent and authorised repairers expressed very similar preferences). Analysis by country indicated that repairers in Poland were more comfortable turning customers away (around one-third indicated this action would be chosen more often than not, compared to only 11% on average in other countries), while respondents from other countries appear to place more emphasis on finding alternatives. Interviews with Polish repairers suggested that this was because traditionally there have been a lot of second-hand cars in Poland, and so garages can turn away customers with newer vehicles because they still have a dependable revenue stream from all of the existing older vehicles in circulation.

Figure 5-7: Responses to survey of repairers: – "*What action do you typically take if you are unable to carry out a particular repair or maintenance service for a customer?*"



Notes: N=1,736
Source: Survey of repairers carried out for this study carried out April-July 2014

Anecdotal evidence gathered from the surveys carried out for this study suggests that authorised dealers do not usually discriminate between business that comes directly from the customer or from other repair shops. In some cases the profitability of such work was considered the same as any other work, although in some cases referral work was considered to be slightly less profitable due to discounted prices offered (to encourage repeat business) and/or the work being of a more complex nature. Authorised dealers also indicated that the majority of requests from independent repairers related to spare parts identification rather than diagnosis or repair jobs, and indicated that it did not typically account for a large proportion of their business (<5% in most cases).

"We believe in cooperation with the independent operators, because they have their own customers and so do we. It is [also] important for us to deliver them what is necessary because of the profit that we make."

- Authorised repairer, Netherlands

Nevertheless, the situation may be considered unsatisfactory from both the perspective of the OEMs and the repairers – manufacturers would benefit from providing information directly to the repairer (for an appropriate fee), while repairers – who ultimately prefer to keep as much work in-house as possible - would benefit from a more effective way of operating.

5.1.3. Challenges related to access to technical information

Analysis of competition between different operators must consider both vehicle age and types of operation, as these segments may not be substitutable in terms of supply and demand. That is, there is not usually strong competition between operators serving these different segments.

The most important segmentation for the purposes of analysing competition in this study is the dominance of authorised repairers in the market for new vehicles below 2-4 years. It is therefore still early days to truly assess the impact of the new rules on the market - competition between authorised and independent repairers is typically most intense just after the vehicle warranty period, and most of the Euro 5/6 vehicles in circulation today are still under warranty (including extended warranties that are increasingly being offered – see **Section 6**). Therefore, aggregate economic and financial indicators are of limited use, particularly given the low penetration of vehicles affected by the Regulation in the segments traditionally served by the independent sector.

A report by BCG also suggests that authorised repairers have slightly increased their market share in younger vehicles (less than four years old) due to the increased complexity and the rising number of new cars sold with service plans (BCG, 2014). A number of challenges with respect to independent repairers' access to vehicle RMI may also have contributed to this (or are expected to exacerbate this trend in future), as follows:

- **Reliance on obtaining technical information through independent channels;** and
- **Increasing investment requirements in training and tools**.

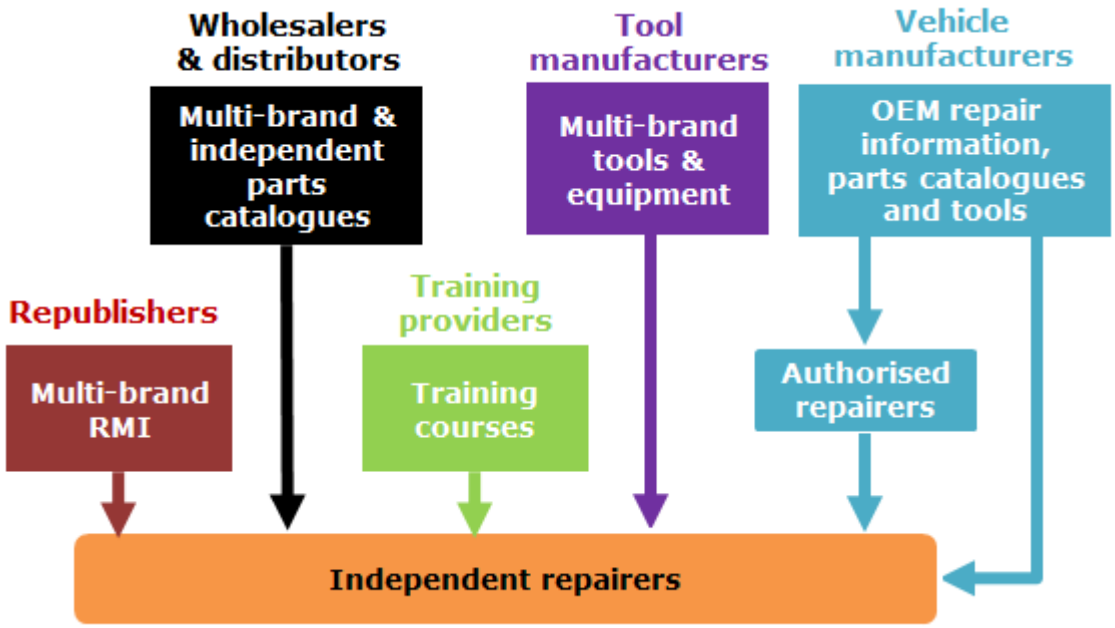
Note that these challenges may affect both authorised repairers and independent workshops. However, the reliance on other parties for technical information is a key characteristic for both segments, where the format and content of the information is determined by OEMs, OESs and/or publishers.

5.1.3.1. Reliance on technical information through independent channels

A clear finding from the stakeholder engagement carried out for this study is that the majority of repairers rely on independent providers for their technical information – including spare parts information, tools and equipment, repair and maintenance information and training, as well as authorised repairers.

This is despite the widespread acknowledgement by repairers that information compiled by these specialist intermediaries can be incomplete, subject to delays and/or out of date – issues that repairers appear to try to circumvent by purchasing products from multiple third-party sources rather than going to OEMs directly. The reasons for this appear to be cost and convenience. Although OEMs make technical information available for independent repairers to purchase, it is unlikely to be economically viable for them to do so across multiple brands. The varying user interfaces and formats of the OEM information are also less convenient when dealing with multiple brands, hence independent repairers rely on technical data that is not sourced directly from OEMs in the vast majority of cases – see Figure 5-8.

Figure 5-8: Schematic of information flows to independent repairers



Source: Image source – Ricardo-AEA

Further analysis of the relative importance of these different information channels is provided in the subsequent sections in terms of formal information sources:

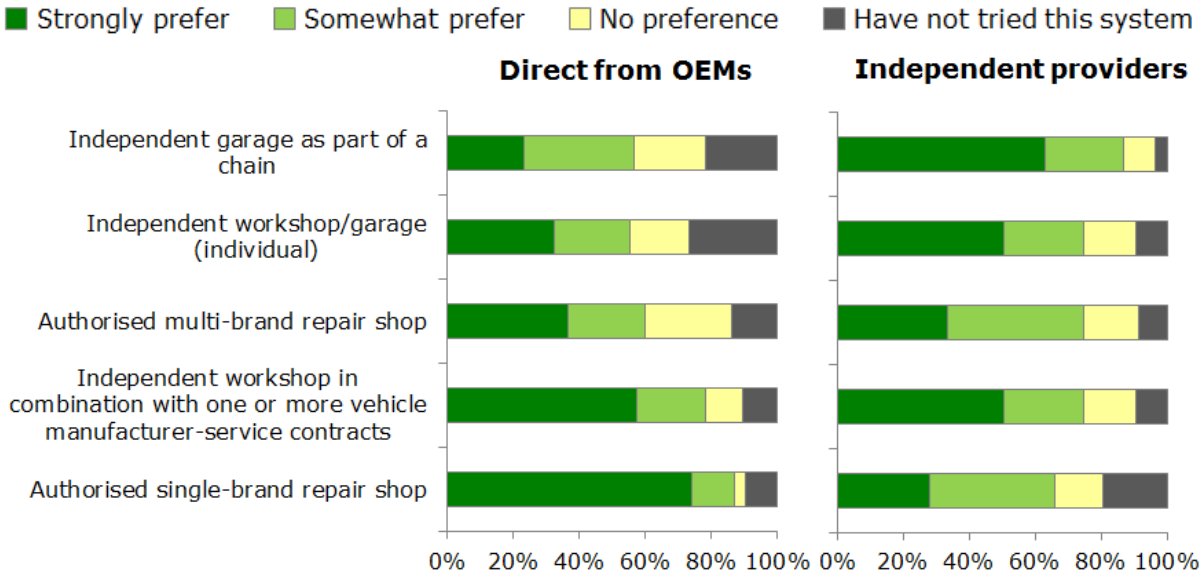
- Spare parts information;
- Diagnostic tools;
- Repair and maintenance information; and
- Training.

In addition, as discussed previously there can also be a high level of collaboration between independent and authorised repairers.

Spare parts information

Repairers were asked about which parts identification systems they preferred. Both authorised and independent repairers use the systems from specialist intermediaries as well as direct from OEMs, although there is a tendency for independent repairers to prefer third-party catalogues.

Figure 5-9: Responses to survey of repairers: "*Which parts information system/parts catalogues do you use for Euro 5/6 spare parts identification in general?*"



Notes: N=1,759
Source: Survey of repairers carried out for this study carried out April-July 2014

Some independent repairers mentioned that the system provided by OEMs did not necessarily meet their needs, as they could only identify OEM-branded parts through these systems.

Diagnostic tools

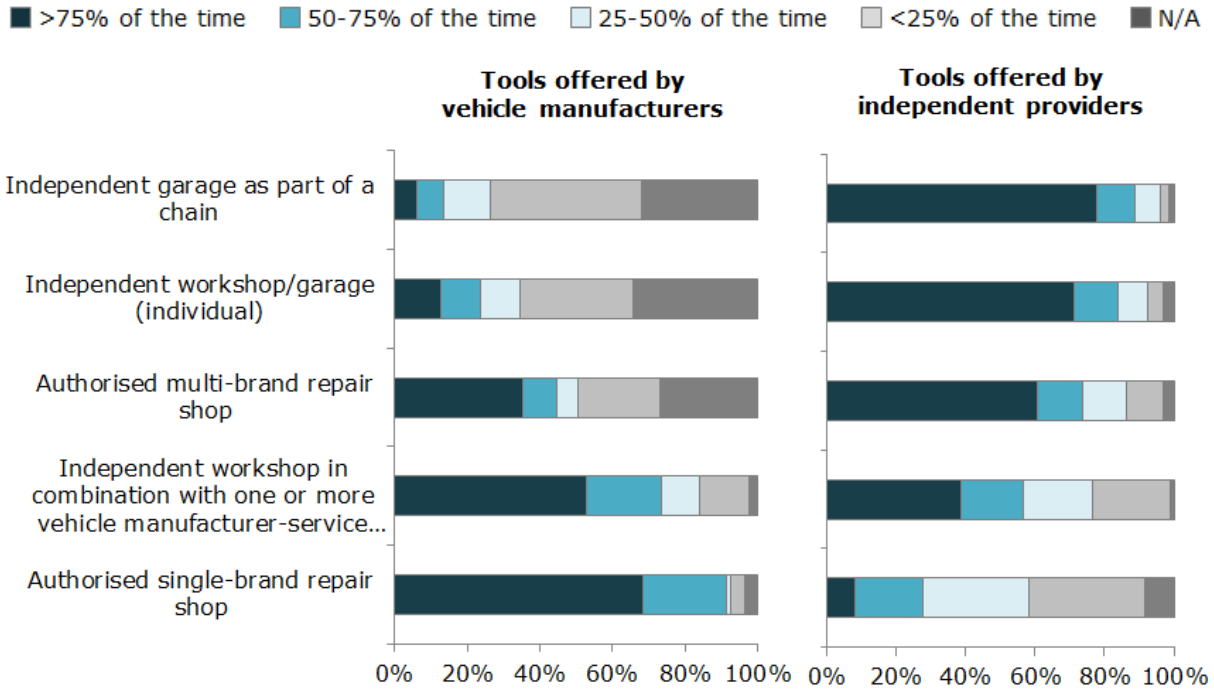
Multi-brand diagnostic equipment manufacturers are the main source of tools for independent repairers.

There are several ways in which an independent repairer can access diagnostic information:

- By visiting the vehicle manufacturer's RMI website using a Vehicle Communication Interface (VCI). The VCI is used to establish a physical connection between the OBD and the repairer's computer. This interface may be a standalone device or part of a multi-brand diagnostic tool equipped with pass-through functionality.
- By using the vehicle manufacturer's own-brand diagnostic tools.
- By using a multi-brand diagnostic tool offline.

Single-brand diagnostic tools are often used by authorised repairers, but almost never purchased by independent repairers even though they have the opportunity to buy them. In practice, independent repairers usually use multi-brand tools – as shown in Figure 5-10 - and therefore these tools are a vital factor in repairers' ability to compete in the aftermarket

Figure 5-10: Proportion of respondents to repairer survey stating that they use diagnostic tools offered by vehicle manufacturers and/or independent providers



Notes: N=1,736
Source: Survey of repairers carried out for this study in April-July 2014

Repair and maintenance information

Around 80% of independent repairers surveyed use third party (independent) data providers to access repair and maintenance information.

The majority of independent repairers use data republishers for access to RMI. Authorised repairers also appear to use independent providers to a large extent (see Table 5-2).

Table 5-2: Percentage (number) of respondents to the repairs survey who use independent providers for access to repair and maintenance information

Type of repairer	Use independent data providers	Do not use independent providers	Total responses
Independent	**80%**	20%	**1599**
Authorised	**62%**	38%	**347**

Source: Survey of repairers carried out for this study

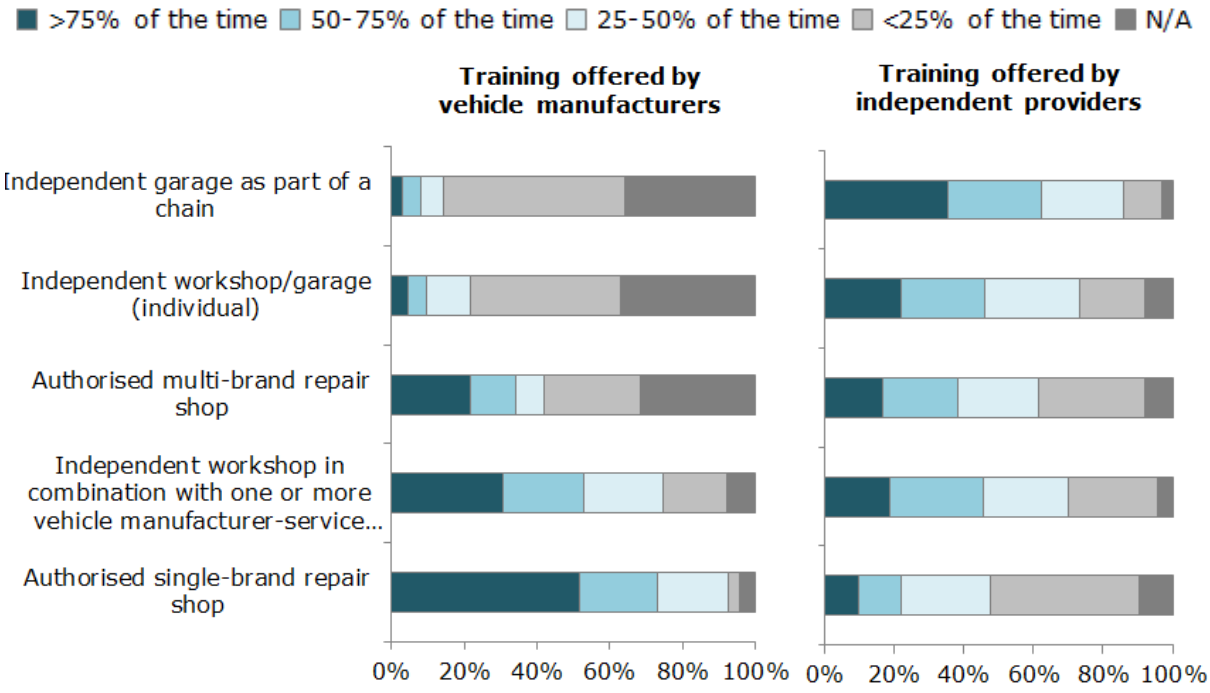
When considering repairers specialised in body repair, a smaller proportion used independent sources (50%), likely due to external factors such as limitations around design protection.

Training

There appears to be a much higher preference for independent repairers (individual or belonging to a chain) to choose independent training providers as shown in Figure 5-11.

Responses from OEMs during interviews are aligned with this viewpoint, where they estimated that less than 5% of attendees on their courses were independent operators.

Figure 5-11: Responses to survey of repairers: *"Do you currently send your staff to training courses?"*



Notes: N=1,736
Source: Survey of repairers carried out for this study in April-July 2014

Another important source of technical information is provided over "hotlines" in order to assist with faster and more accurate diagnosis and repair.

Independent repairers will be increasingly disadvantaged without access to technical resources, both in terms of the time required to carry out a job and the range of issues they are able to handle. Such support is made available to authorised repairers through vehicle manufacturer networks, as well as independent franchises (particularly hard-franchise concepts such as Bosch) that also provide a high level of technical expertise across multiple brands.

> *"Our default position is to use independent aftermarket companies for our diagnostic and software support. Such companies offer the advantage of user-friendly interfaces and support phone lines."*
>
> - Independent repairer, UK

It was also apparent from the research conducted for this study that repairers also rely on a range of other sources for their work, including other garages through informal networks and in some cases website forums aimed at their profession.

5.1.3.2. Increasing complexity of vehicles, leading to investment requirements in training and tools

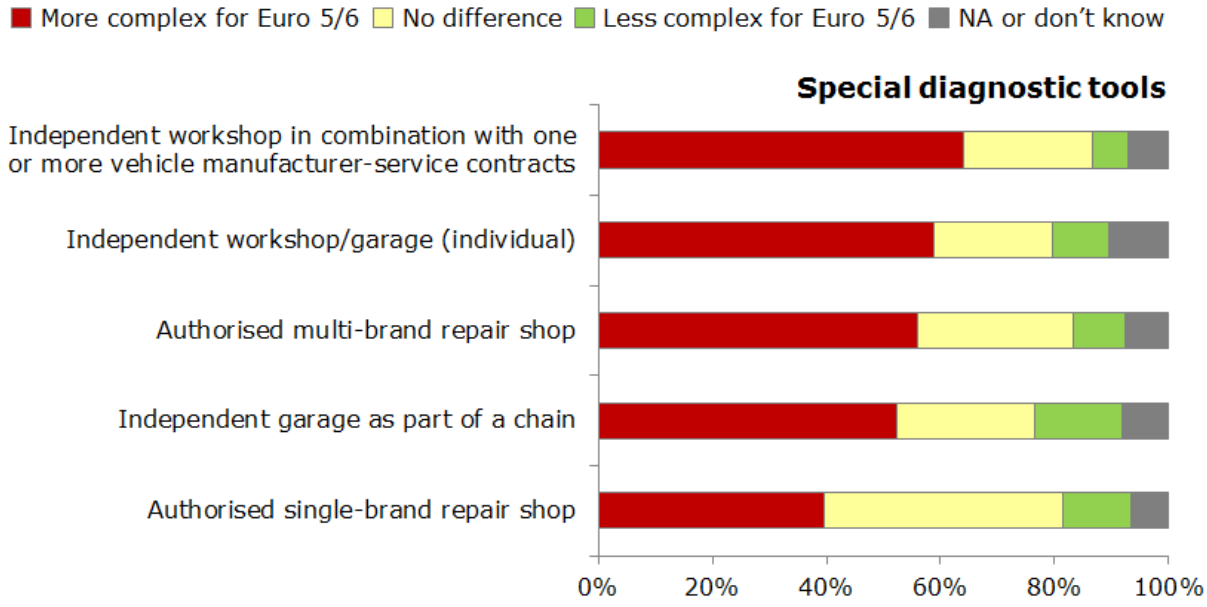
Improving technical capabilities through investment in tools and training requires additional investment, which drives up costs that must in turn be passed on to the customer.

Repair and maintenance of vehicles is becoming more complex, requiring greater investment into diagnostic equipment and training to cope with newer vehicles (FAZ, 2006), (Royer, n.d.).

Repairer views on diagnostic tools

Repairers were asked whether they felt that the complexity of diagnostic tools had increased or decreased for Euro 5/6 vehicles (see Figure 5-12). In general, there is agreement between all repairers that the level of complexity is increasing. Authorised single brand repairers appear to be the least likely to consider there is any difference, although 40% of respondents felt that the tools were more complex. The majority of other repairer types reported that tools were more complex, ranging from 52-64% depending on the type of repairer.

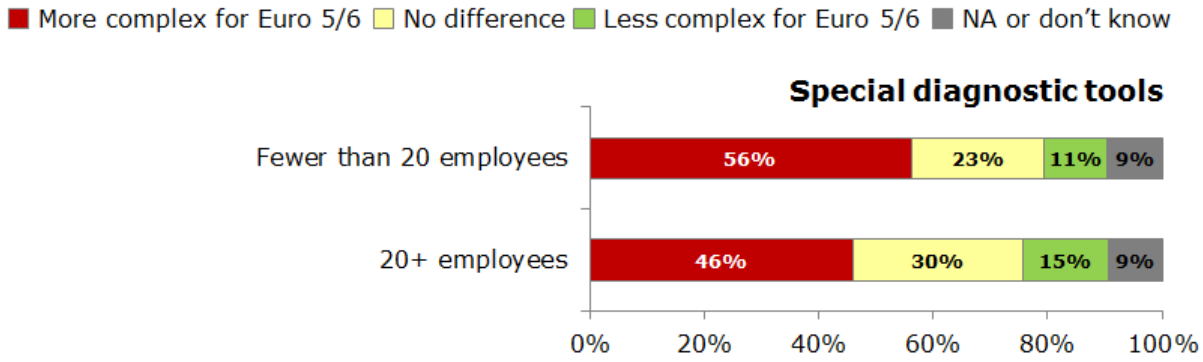
Figure 5-12: Responses to survey of repairers: "*How do developments in tools requirements affect your ability to carry out services for Euro 5 vehicles compared to older vehicles?*"



Notes: N=1,845
Source: Survey of repairers carried out for this study in April-July 2014

Figure 5-13suggests that this is a slightly higher concern for SMEs, with 56% of firms employing fewer than 20 people reporting that diagnostic tools were more complex (ten percentage points higher compared to firms employing more than 20 people).

Figure 5-13: Responses to survey of repairers: "*How do developments in tools requirements affect your ability to carry out services for Euro 5 vehicles compared to older vehicles?*"



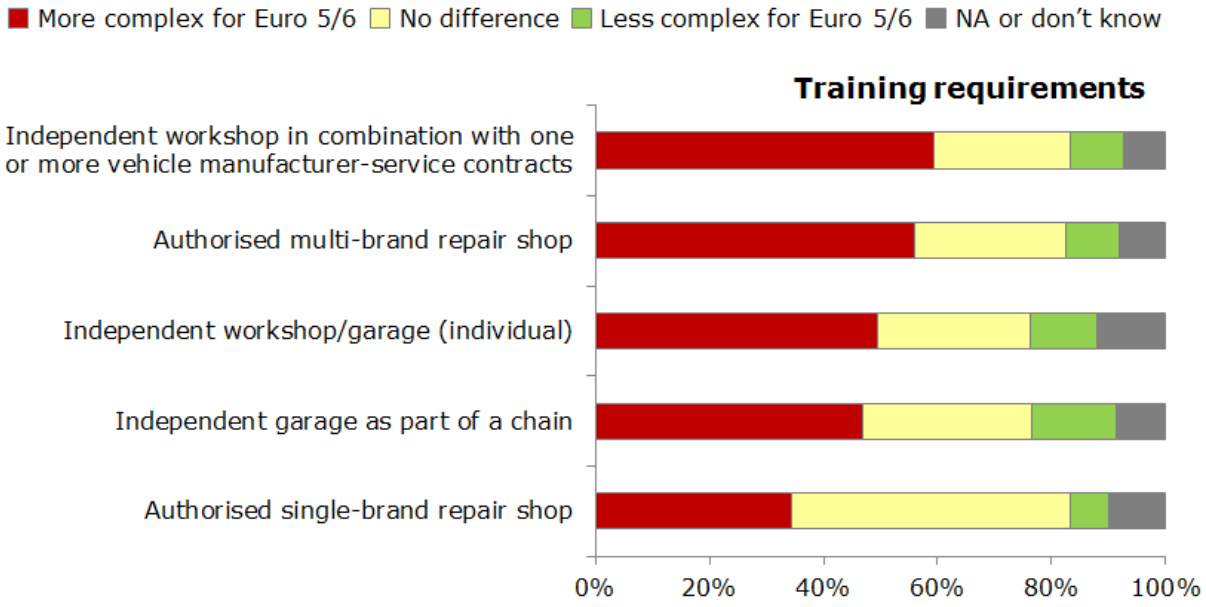
Notes: N=1,845
Source: Survey of repairers carried out for this study in April-July 2014

While the largest service chains are thought to be investing in tools and training to meet these challenges, standalone independent repairers are suggested to be reacting much more slowly. This is thought to be because their day-to-day activities have not yet been affected by the newest advancement, since independent workshops service vehicles that are over 5-6 years old on average (ICDP, 2014a).

Repairer views on training requirements

Repairers were asked whether they felt that the complexity of training had increased or decreased for Euro 5/6 vehicles to the extent that it affected their ability to carry out repairs. There is general agreement across all repairer types that training requirements are more complex – ranging from 34% (authorised single-brand repairers) to 59% for independent workshops in combination with manufacturer service contracts (see Figure 5-14).

Figure 5-14: Responses to survey of repairers: "*How do developments in training requirements affect your ability to carry out services for Euro 5 vehicles compared to older vehicles?*"



Notes: N=1,833
Source: Survey of repairers carried out for this study carried out April-July 2014

To explore this issue in more depth, a field test was conducted at an independent training centre. The training provider felt that in their experience, attendance rates from independent (standalone) garages were not typically an issue and their courses were normally fully subscribed.

Although tools and training from OEMs are available for independent repairers to purchase, it is rarely economical for them to do so when servicing multiple brands.

The typical investment to an independent to establish all-makes diagnostics capability is estimated to be £40,000 (€50,500) or more (motor.org.uk, n.d.), and even so may still require an authorised repairer to provide assistance with respect to fault diagnosis, access codes and/or reprogramming. On top of this, each machine supplier requires a subscription (typically annually), which gives access to the required software as well as other services such as a telephone helpline and downloadable data. Example diagnostic tool prices were given as:

Table 5-3: Typical range of costs for independent diagnostic tools

Example brands	Cost per tool	Annual subscription	Notes
Marelli, Texa, Tecnomotor	€2,000 to €2,800	~€1,000	-
Bosch, Hella Gudman, Autodiagnos	€3,500 to €7,000	€1,000 to €1,500	Updates are now available online and cost between €400 and €700.
Autologic	€30,000 to €50,000	~€1,250 per OEM	Covers 9 OEMs. Market leader in the UK

Source: Confidential stakeholder interviews – responses from independent repairers

Anecdotal evidence from interviews suggests that the coverage of diagnostic tools has improved, although the investment requirements are still substantial.

> *"Some years ago, with three diagnostic tools from independent manufacturers it was possible to cover around 70% of the vehicle fleet. Today this percentage has increased, and it is now possible to cover around 80% of the whole vehicles."*
>
> - Independent repairer, Italy

For comparison, the average annual investments required by authorised dealers were collected from a sample of authorised outlets belonging to various brands for comparison – see Table 5-4. The median is lower than the average in all cases, along with a large range, which suggests a positive skew to the data. The range in estimated investment costs provided appeared to be more affected by the associated brand/manufacturer rather than the "authorised repairer" status.

Table 5-4: Annual investments made by authorised repairers

Investment	Range	Mean	Median
Tools and equipment	€2,000 to €60,700	€22,600	€15,000
Training	€2,000 to €45,000	€14,100	€6,000
Other	€1,800 to €36,000	€13,900	€12,000

Source: Confidential stakeholder interviews – estimates provided by authorised repairers across 11 European countries for eight different OEMs (12 brands)

Notes: "Other" category included aspects that varied between respondents, such as subscriptions to updates, technical assistance etc.

Estimated costs for equipment provided by OEMs are similar, ranging from around €50,000 to €60,000 for a full set of hardware and software, and a few thousand euros for a dedicated diagnostic tool.

Based on these figures it can be seen that replicating the same level of service as an authorised dealer across multiple brands would quickly lead to very high investment costs without the use of independent garage equipment tools.

To be competitive, independent repairers need to be able to access the technical information necessary to repair vehicles through specialist intermediaries.

The channels independent repairers rely on for access to the information they require are predominantly through other third-party providers, including:

- Spare parts via multi-brand catalogues (Parts wholesalers and distributors – **Section 5.2**);
- Multi-brand diagnostic tools (Manufacturers of diagnostic and repair tools – **Section 5.3**);
- Multi-brand repair and maintenance information (Publishers of technical information – **Section 5.4**); and
- Third-party training providers.

It is therefore vital that the conditions of access for these independent operators are ensured.

5.2. Parts distributors and wholesalers

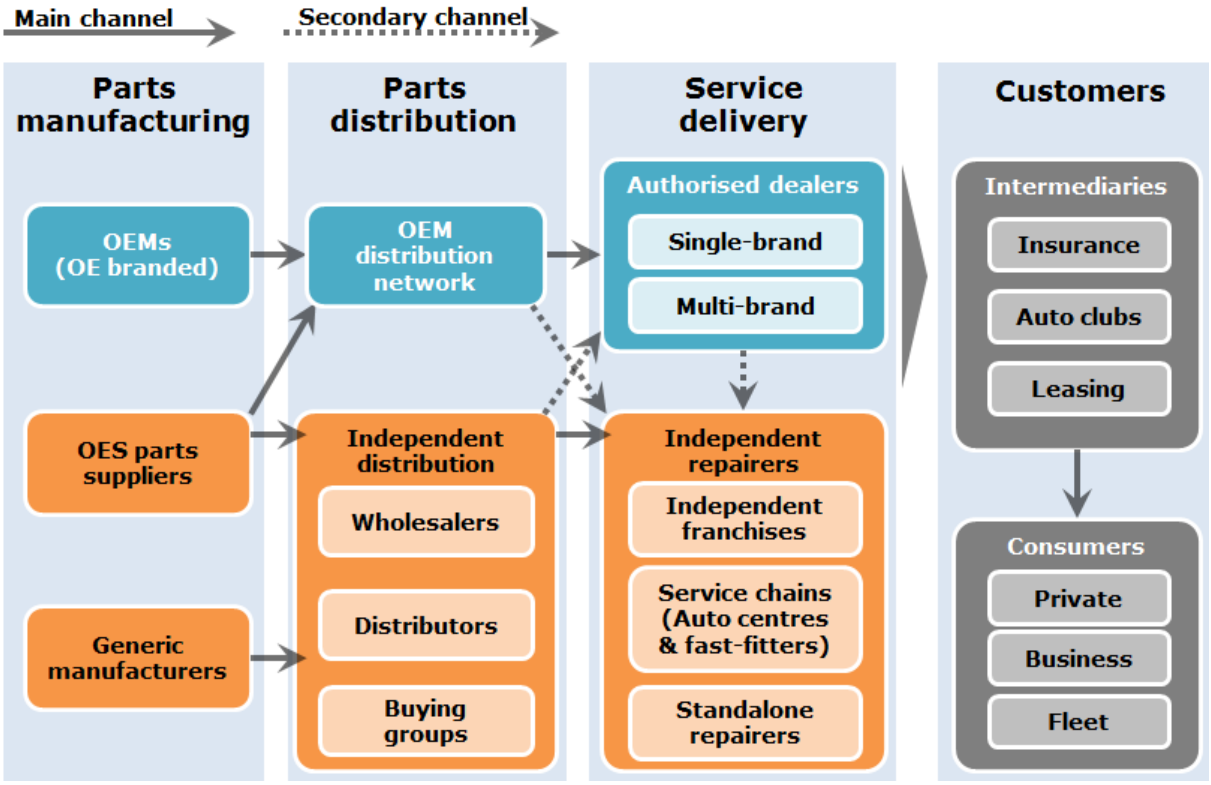
5.2.1. Market structure

When a vehicle part has to be replaced, the customer in principle has the choice between the original spare parts marketed by three main parts manufacturers:

- **The vehicle manufacturer (OEM-branded parts):** OEMs produce around 20% of the original spare parts they sell (mainly relating to sheet metal body parts, and engines), and generally source the remaining 80% from their original equipment suppliers (OES).
- **The original equipment suppliers (OES):** Competition between suppliers at the original assembly stage is intense, since contracts with OEMs typically represent 80-90% of their overall turnover (Autorité de la concurrence, 2012). Considering only the turnover from spare parts, typically around one-third is from the manufacturer channel and two-thirds from the independent channel (Autorité de la concurrence, 2012)
- **Generic independent spare part manufacturers:** These companies manufacture parts to be used as spare parts and only supply wholesalers in the Independent Aftermarket (who may then sell the parts on to authorised repairers). (Autorité de la concurrence, 2012) A generic equipment supplier for a specific part may also be the original equipment supplier of another part. Another relatively limited (but growing) market is for remanufactured or reconditioned parts.

Vehicle manufacturer supply chains compete with the independent sector supply chains to deliver parts to workshops. Whilst the traditional distinctions between authorised and independent channels have become increasingly blurred, the general structure of the parts supply market is shown in Figure 5-15.

Figure 5-15: Overview of aftermarket parts supply channels



Source: Image source from Ricardo-AEA

The authorised and independent distribution channels are relatively segmented, with authorised repairers mainly purchasing from the OEM network and independent repairers mainly purchasing from the independent channel.

Authorised parts distribution channels are typically organised by brand, selling original equipment (OE) parts, as well as "second line" parts ranges. Authorised repairers tend to source the majority of their OE parts through the vehicle manufacturer channels – typically around 65% (ICDP, 2013).

The independent distribution channel involves several different players who deal with multiple brands and non-OE parts:

- Parts wholesalers;
- Parts distributors; and
- Buying groups of wholesalers or distributors.

Independent repairers obtain the majority of their parts (as high as 95% for auto centres) from independent distributors (Autorité de la concurrence, 2012). The traditional independent distribution channel involves wholesalers or purchasing centres buying parts from various manufacturers, storing them for resale to local stockists, who in turn supply independent repairers. Service chains may have a more integrated structure where their main source of supply is a warehouse managed by the franchisor, which acts as a centralised purchaser (Autorité de la concurrence, 2012).

Overall, the manufacturer and independent channels operate relatively separately – authorised repairers obtain most of their parts from vehicle manufacturers and independent repairers tend to purchase their supplies from independent channels unless the parts are not available. This is largely due to the preferences of repairers to be able to obtain their parts from one supplier.

Authorised dealers are also a significant source of spare parts for independent repairers.

At the service delivery stage, both authorised and independent repairers source parts from vehicle manufacturer channels and independent channels, but authorised dealers/repairers are also a significant source of spare parts for independent repairers – potentially, this can account for more than 30% of their total sales (Roland Berger, 2013a). Anecdotal evidence suggests that authorised repairers are able to gain significant revenue from selling parts to independent garages. According to one group, 70% of its revenue comes from external customers, and a local independent will typically spend £10,000 to £15,000 per month (€12,600 to €19,000) with them (Phillips, 2014).

5.2.2. Economic and market context

Europe has the most diverse mix of brands in the world, along with wide variations in consumer brand loyalty and distribution channels – creating challenges for suppliers to meet parts demands for all makes and models.

The overall market share of original spare parts sold through car manufacturer channels has increased slightly over the past five years (ICDP, 2014d). However, the relative importance appears to be closely related to the level of integration in the parts distribution network, as well as consumer brand loyalty:

- The share of original spare parts sold through car manufacturers is relatively low in countries where parts distribution channels are dominated by independent parts wholesalers and distributors, and the markets are highly fragmented - for example it is estimated at 33% in Italy (ICDP, 2014d).

- In regions where vehicle manufacturer networks control the majority of the parts distribution business and channels are well-integrated, the share of original spare parts sold through car manufacturers is higher. For example in Germany the share is 56% (ICDP, 2014d). Germany is home to many premium brands and consumer loyalty remains high.
- In Central and Eastern Europe, there is a small number of leading independent parts distributors in each Member State, typically supplying garages directly via a dense network of branches (Roland Berger, 2013a). For example, the Czech Republic and Slovakia have a strong presence of major international distributors, including Rhiag, Stahlgruber and Trost. On the other hand, Romania and Hungary are dominated by local players with only a minor presence on other markets (Roland Berger, 2013a).

The number of suppliers for particular parts can be limited for a number of reasons, but tends to be higher for high volume parts with more predictable demand.

The volume of parts demand depends both on how frequently the part needs to be changed and the number of vehicles on which the part is fitted. Spare parts are usually specific to a particular make and model, or even to a particular production series despite manufacturers' efforts to increase standardisation, which has greatly reduced the market for individual parts while inflating the number of referenced parts. Competition tends to be higher for interchangeable parts and/or those with high volume demand (e.g. batteries, timing belts, tyres, brake pads, lubricants etc.).

The competition to supply a specific part may also be limited by national regulations in some cases (e.g. design protection rights). These aspects are outside the scope of the current study but it is worth mentioning that design protection rights on visible spare parts have been debated at length in the European Commission.

Contractual relationships with the OEMs may also limit competition. The vehicle manufacturer, as the owner of the tooling, can prohibit a supplier from using the tooling to produce spare parts for the independent channel. Alternatively, they may authorise the use of the tooling in return for royalties. Finally, large OESs may not choose to compete on the independent aftermarket, since OEMs are their main clients (Autorité de la concurrence, 2012).

The OEM and independent channels have different competitive advantages.

Vehicle manufacturers must be able to provide spare parts for all the vehicles they assemble, and therefore offer a full range of parts and repair services. Conversely, independent operators can focus only on the most profitable segments of the aftermarket and avoid more complex or less profitable areas (Autorité de la concurrence, 2012).

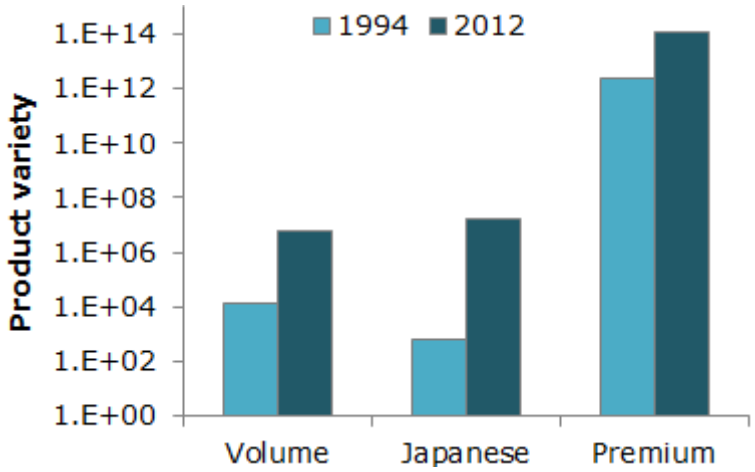
On the other hand, independent channels must earn the trust of consumers who already have an established relationship with the network of the manufacturer from whom they purchased the car, while wholesalers have to cover the storage costs incurred to stock a wide range of parts across multiple brands (Autorité de la concurrence, 2012).

Modern vehicles have become increasingly complex, with rapidly growing product variety - creating challenges for spare parts management in terms of infrastructure and logistics, as well as keeping up to date technical information.

Vehicles incorporate higher levels of electronics such as X-by-Wire, electric and hybrid-electric powertrains, telematics, wireless sensors etc. Whilst this has brought considerable benefits in terms of safety, environmental performance, comfort and convenience for consumers, it also means that the complexity of vehicles has increased.

In addition, consumers may customise their vehicles with optional equipment. While allowing OEMs to reach smaller, specialised segments with tailored models, this has further increased the number of vehicle variants. The variety of model configurations for premium brands is particularly high - for example, according to one statistical analysis, less than 1% of BMW cars are identical, which implies a considerable challenge in editing and updating diagnostic tools (Azarian et al, 2012). However, for volume manufacturers and Japanese brands, the product variety has also been increasing significantly, as shown in Figure 5-16.

Figure 5-16: Product variety offering has increased significantly



Notes: Based on UK offered varied. Log10 scale indicates 1.E+02 = 100, 1.E+04 = 10,000 etc.
Source: (ICDP benchmark survey, 2014)

Some distributors have found it difficult to provide the vast amount of specific stock that some vehicles require, restricting their ability to compete with vehicle manufacturer networks, which in turn may impact their sales by reducing their market coverage (Verdict, 2012).

Increasingly, it appears that only the largest parts wholesalers and distributors are able to achieve profitability in spare parts distribution.

Independent repairers rely heavily (typically around 70%) on independent distributors for their parts. Repairers place great value on the ability to obtain all their supplies from one supplier, which is particularly important for logistical savings given that repairers receive several deliveries of spare parts every day (up to six) (Autorité de la concurrence, 2012).

In order to better cope with multi-make parts, there appears to be a move towards larger and fewer parts wholesalers, who benefit from higher negotiating power (AMZ, 2013); (Capgemini, 2010). Independent wholesalers and distributors have been consolidating, and buying groups have been expanding (ICDP, 2014d). The major parts buying groups in Europe are ATRI, TIA, ADI and GAUI. There are a further 20-25 major distributors that are members of these buying groups, which are also active outside of Europe (Wolk & Nikolic, 2013).

This appears to be a continuation of a longer-term trend rather than due to any recent radical changes in channel structures or strategies – new initiatives have typically been marginal (ICDP, 2014d). This trend is in part due to the advantages that larger players have in terms of negotiating power with suppliers, economies of scale in logistics and quality of service (Roland Berger, 2013a).

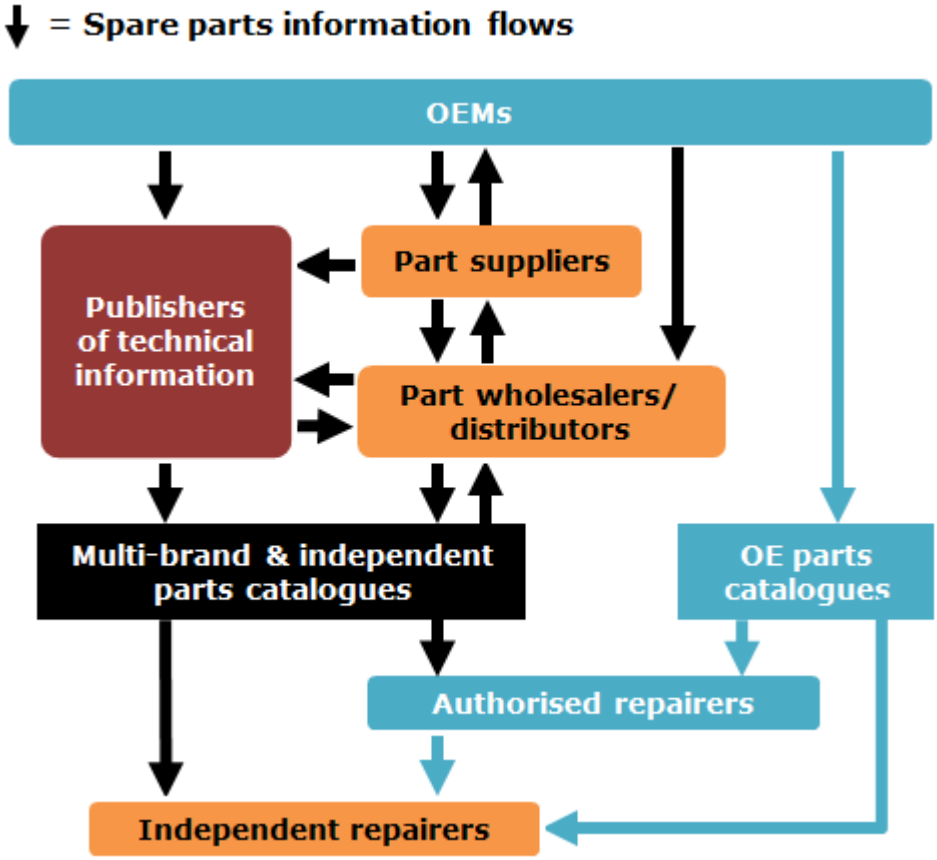
5.2.3. Challenges related to access to technical information for spare parts distribution

Parts manufacturers, wholesalers and specialist publishers are involved in the creation of independent parts catalogues.

Independent spare part distributors need to obtain OE (original equipment) part numbers to create cross-reference tables from the OE number to the after-sales part number. Since the OE part numbers are often changed, it is also necessary to obtain information on updated spare part numbers.

Figure 5-17 provides an illustration of the information flows related to spare parts. Parts manufacturers often hold a substantial amount of data that they can share with publishers and their own networks, but may require additional information from OEMs (e.g. on model compatibility). Parts wholesalers and distributors gather data from various sources, with a key actor being publishers of technical information (see **Section 5.4**).

Figure 5-17: Overview of information flows for spare parts information



Notes: Illustrative of the main information flows only.
Source: Image source from Ricardo-AEA

There appear to be several key issues related to accessing the required information from OEMs in a manner that is satisfactory to both parties. These include:

- Unequivocal parts identification; and
- Accessing up to date and complete information.

5.2.3.1. Unequivocal parts identification

Access to accurate parts information in an easily useable format has become more important as vehicle complexity has increased.

A growing challenge is managing logistics and inventories, for which access to up-to-date and accurate spare parts information is required to ensure that the right parts are available, delivered on time and with minimal returns. In order to create spare parts catalogues, parts wholesalers must be able to reliably indicate the (non-OEM) spare parts corresponding to each vehicle. Since different part references can be fitted on a given model, knowing the model is not always sufficient to be able to identify the suitable part, and OEMs have acknowledged in interviews that the VIN reference is the only way to ensure unequivocal identification. Thus, without VIN data, non-OEM parts catalogues must be created on the basis of a limited number of vehicle features.

Although the Euro 5 Regulations contain several provisions relating to this aspect, these have been interpreted differently by OEMs and IAMs.

We do not debate the requirements of the Regulation nor compliance levels in this section, since there is currently ongoing litigation in this area (see **Section 4).** Rather, the focus is on the potential challenges faced by IAMs and the impacts on competition in the aftermarket.

The lack of unequivocal identification can lead to additional costs being incurred by the parts wholesaler, and delays/errors in deliveries of spare parts.

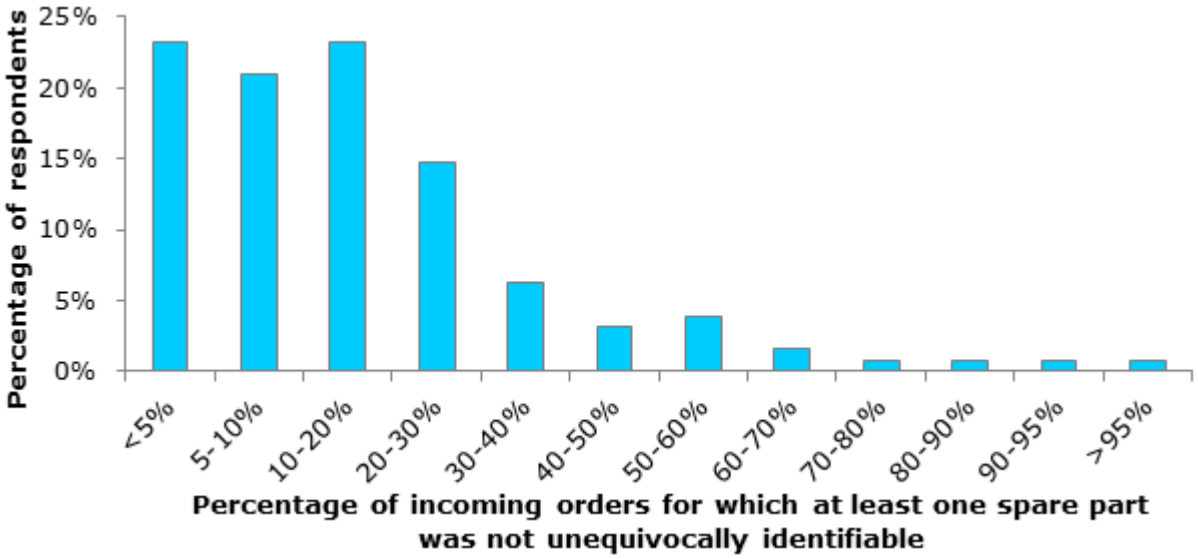
This aspect primarily affects parts wholesalers: 87% of parts wholesalers participating in the survey stated that they have experienced multiple or wrong deliveries due to insufficient or inadequate parts identification.

Respondents were asked to estimate the percentage of incoming orders affected (over the past year) - see Figure 5-18. Most respondents (80%) estimated this occurred in up to 30% of all incoming orders, with the median category being **10-20%**. A small number of organisations estimated very high levels of their incoming orders were affected, but closer examination of these responses did not reveal any clear reasons for this[24].

Figure 5-18: Responses to survey of parts wholesalers/distributors: "*What is the percentage among all incoming orders within the last 12 months where at least*

[24] All were relatively small wholesalers (turnover over less than €50 million), dealing with a relatively small range of part numbers, and all of them stated that they used the systems of OEMs at least some of the time. However, other organisations with similar profiles reported a lower percentage of their incoming orders being affected, so these characteristics do not appear to represent any systematic issues.

one spare part was not unequivocally identifiable from the parts catalogues that you use?"



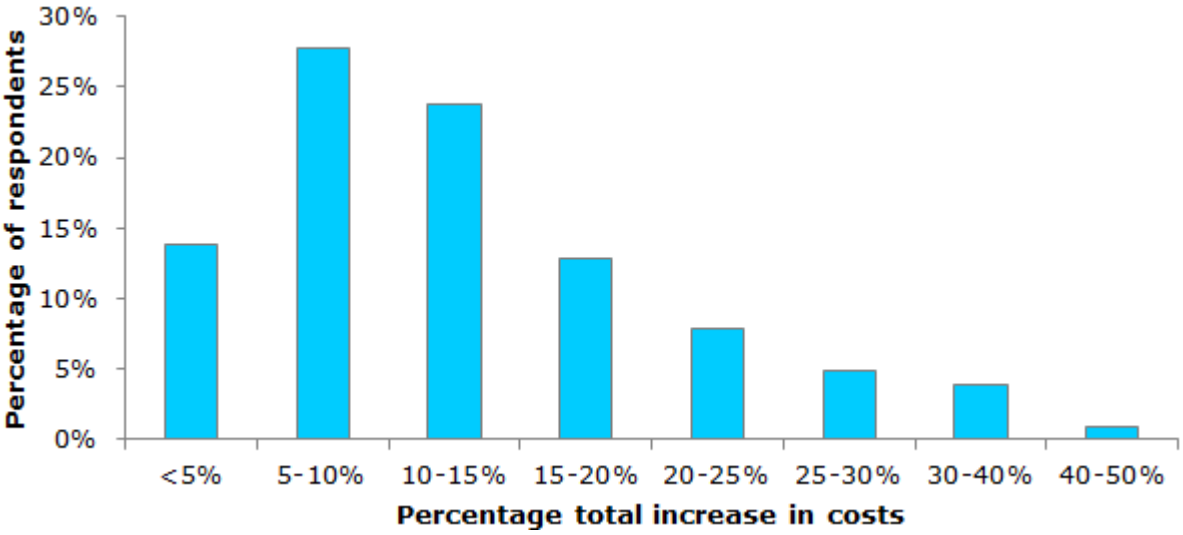
Notes: N=129
Source: Survey of parts wholesalers carried out for this study carried out April-July 2014

When repairers cannot identify a single part, they will typically order two or more similar spare parts and return those that are not needed.

In cases where spare parts cannot be unequivocally identified, it is generally estimated by survey respondents that there could be two or three relevant parts (not including competing suppliers). In some cases, five or more spare parts could be identified – with half of respondents to the survey estimating that this could occur in up to 25% of cases.

Parts wholesalers estimate that the increase in costs to their business due to the delivery and take-back of multiple parts is typically in the region of 5-15%, with the median category being **10-15%** – see Figure 5-19.

Figure 5-19: Responses to survey of parts wholesalers/distributors: *"Estimate the total increase in cost to your business due to delivery and take-back of multiple parts"*



Notes: N=101

Source: Survey of parts wholesalers carried out for this study carried out April-July 2014

Other indirect costs may be relevant, such as delays and waiting times for the consumer and/or loss of business for independent operators; however, such costs are difficult to identify or quantify.

> "*Where identification of parts linked to vehicles is not available, a lot of mistakes are made in IAM catalogues. This leads to a higher number of parts returned, leading to higher costs and a delay for the consumer because the right part was not available at the right time and place*"
>
> - Parts supplier

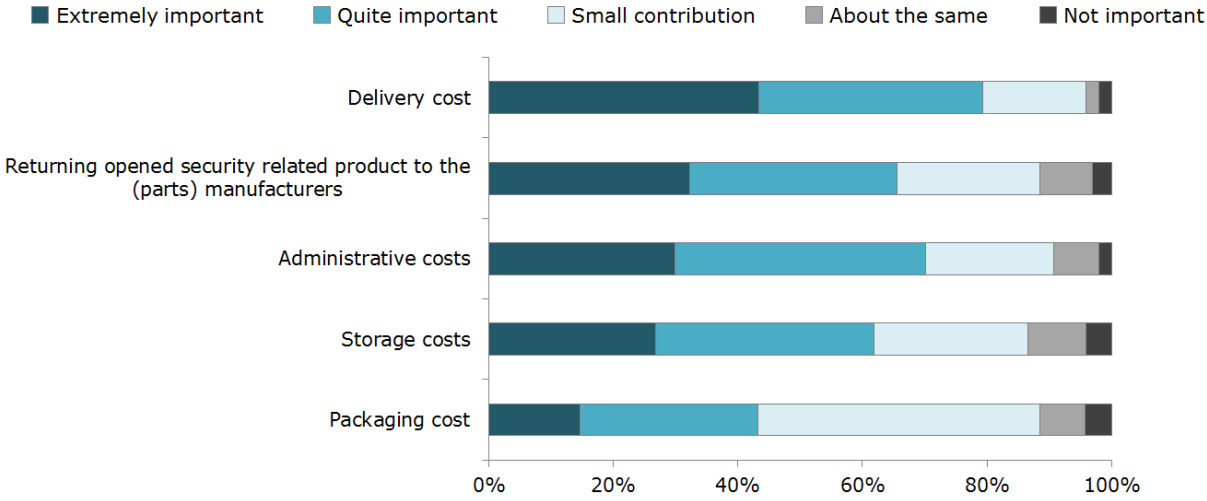
Overall, organisations that estimated a higher number of relevant parts associated with each order generally reported higher increases in costs overall. That is, the number of relevant parts identified appears to be a key aspect that drives overall cost increases – more-so than the percentage of orders affected.

Again, a small number of respondents estimated that the increased costs to their business were very high (i.e. more than 30% increase in costs), but this did not appear to be related to any specific characteristics of the organisation such as turnover, the types of parts sold or the number of parts numbers dealt with. However, detailed statistical analysis was not carried out due to the limitations of the survey collection methods[25].

Delivery costs are thought to be the most important driver of higher costs incurred by wholesalers due to unequivocal parts identification.

The most important factors that lead to increased costs have been identified primarily as the delivery costs (see Figure 5-20), but also include returning opened/broken security related products to the (parts) manufacturers, administrative costs and costs associated with storage of parts.

Figure 5-20: Responses to survey of parts wholesalers/distributors: *"How important are the following factors in contributing to increases in cost?"*



[25] Namely that we did not have a sampling frame and were unable to carry out random sampling, along with the potential for response bias, it would not be appropriate to conduct statistical inference on these survey results. Rather, they give an indication of the opinions of the stakeholders questioned.

Notes: N=101
Source: Survey of parts wholesalers carried out for this study carried out April-July 2014

The increase in costs due to inaccurate parts identification is relevant when considering both the ability of independent distributors to compete, as well as the final impacts on consumer choice/prices. Potentially, these increased costs could be avoided through unequivocal parts identification; however, the actual savings to consumers would be likely to be lower than this for several reasons.

- First, providing data for unequivocal parts identification may be more expensive for OEMs to collate, and therefore they may charge higher prices for it (provided this is "reasonable and proportionate");
- Secondly, it is not clear to what extent any savings would be passed through to the consumers – this is likely to depend on the specific type of component in question and the level of competition in the market.

The problems related to a lack of unequivocal parts identification are also expected to increase in the future.

Over 60% of respondents believe that there will be an increase in the percentage of parts that cannot be unequivocally identified in the next five years (with 23% stating it is likely to remain the same).

> *"Cars are becoming increasingly more complex and the volume and variety of data and access restrictions will continue to complicate this business model going forward"*
>
> - Parts wholesaler

With respect to future trends over the next five years, parts wholesalers anticipated increases for a wide range of issues, in particular the total number of users of spare parts catalogues (both manufacturers and IAM), the market share of IAM spare parts catalogues in workshops, total market volume of spare parts and market share of manufacturer-branded spare parts by volume.

5.2.3.2. Accessing complete information on vehicles, particularly at the start of production

The lack of complete or up to date data for new vehicles has been identified as a particular issue for IAM parts catalogues compared to those provided by vehicle manufacturers.

Analysis conducted by the French Competition Authority found that availability rates of vehicle parts for vehicles in France rises with the model's age, but a substantial number of parts were found to be unavailable for recently launched models (Autorité de la concurrence, 2012). Possible reasons for this include:

- **Demand for many of the parts is low**, particularly for the first few years after model launch: Reasons in this instance are primarily due to economic issues, i.e. that demand is too low to justify supplying the part.
- **Parts are related to vehicle security/anti-theft systems**: Developments in the security-certification scheme SERMI are expected to help improve accessibility of parts associated with vehicle security and safety systems.

- **Delays in initial availability, but the parts will be available later**: There appear to be availability issues affecting other parts, ranging from three months to several years (Autorité de la concurrence, 2012).
- **Parts will not be made available in the independent channel**: As discussed in **Section 5.2.2,** some spare parts are not available in the independent channels due to intellectual property rights (particularly those covered under design protection legislation), contractual agreements between the OEMs and the parts suppliers, as well as strategic decisions by OES not to supply the independent market. These issues are not considered in detail in this study.

The majority of parts wholesalers and distributors revealed that they relied on data/information from other independent providers, rather than accessing data directly from OEMs.

A further finding was that the many parts suppliers and wholesalers had not attempted to approach OEMs for a contract. Of those surveyed who develop spare parts catalogues, over 60% of them had not approached vehicle manufacturers for a contract in the last five years.

The most frequently cited reasons as to why they had not attempted to gain direct access to the information were:

- **Delays in the availability of data** (discussed above);
- **Price of the information**: A small number of price quotes were confidentially shared with the study team, which revealed a wide range in licence fees set by OEMs for direct access to data[26]. Fees for information were also offered on a per VIN basis (from €0.3 to €2.50 per enquiry), although this was not considered by wholesalers to be a viable basis on which they could develop catalogues;
- **Difficulties in identifying the right contacts and/or the very long timescale involved in reaching agreements**. Processes of ten months and up to eight years were mentioned by parts suppliers and wholesalers responding to the survey. Many of those that had approached OEMs within the last five years claimed they had never received a response. The CEN/ISO standards related to RMI may help in a limited way (by requiring that contact information is provided), but the negotiation procedures may continue to take a long time.

Overall, the complexity of negotiating contracts, taken in combination with prices that were considered "too high" given the quality/completeness of the information they received from OEMs meant that many parts wholesalers choose to rely instead on data republishers – often subscribing to multiple providers. Other sources of information included reverse engineering parts, and access to VIN data from the government.

Stakeholders have highlighted three types of information that wholesalers are reliant on OEM data for:

- Labour units (information on work steps required to fit the part and typical time required);
- Technical data (OEM maintenance schedules, wiring diagrams, etc.); and
- OEM part specifications (for reference if part is unobtainable through independent channel).

[26] Direct comparisons were not possible, since the fees charged vary greatly depending on the intended use of the data. However, a very large range was reported, with annual fees ranging from a few thousand Euros up to €1 million.

Since accessing this information in bulk is often not possible, the wholesaler is required to purchase each of the three types of information from a different data publisher.

5.3. Manufacturers of diagnostic and repair tools

5.3.1. Market structure

Manufacturers of diagnostic and repair tools are involved in the design, manufacture and supply of test equipment to both vehicle manufacturers, independent and authorised workshops, inspection centres and other specialist operators.

The European diagnostic equipment market is dominated by six major players: Bosch, Texa Spa, SPX-Technotest, AVL DiTEST, Actia and Snap-on (Frost & Sullivan, 2008). They manufacture multi-brand tools that enable repairers to repair and maintain vehicles without having to purchase brand-specific equipment offered by the manufacturers. There is a lot of variation in terms of the range of brands covered and the capabilities offered by different tools, hence garages typically need several in order to carry out their work. Equipment manufacturers usually also offer technical support and/or training.

5.3.2. Economic and market context

The increase in on-board electronics means that diagnostic tools are needed for the majority of vehicle repair and maintenance works.

Diagnostic technical information is needed to interface with the vehicle electronics systems, to interpret fault codes and to reset and reprogram on-board computers. There are several types of specialised on-board computers designed to manage the engine, braking system, traction control, the alarms and air conditioning etc. For example, formerly straightforward jobs such as the replacement of a windscreen may now require diagnostic tools and access to vehicle repair and maintenance information, since modern windscreens are equipped with rain, light and glass fogging sensors, or camera systems for advanced driver assistance systems (KTI, 2013). The availability of diagnostic tools is therefore more important, as well as access to the relevant diagnostic information (ICDP, 2014a).

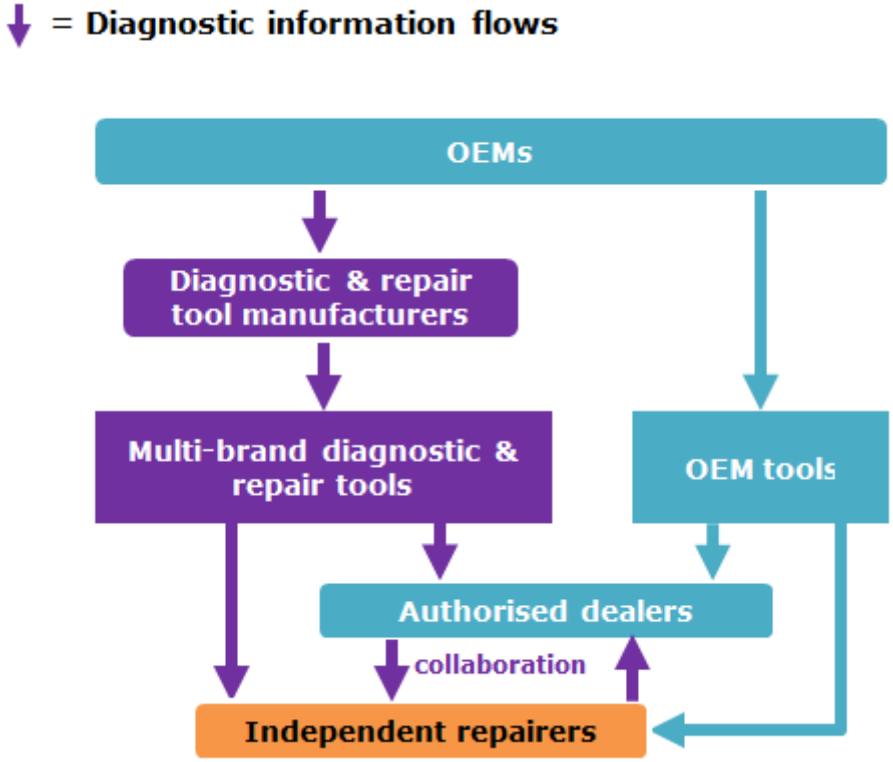
It is estimated that a diagnostic tool is currently required for 70-90% of repair and maintenance jobs carried out at both independent and authorised repairers. Some OEMs have suggested that the proportion is lower for independent repairers – however, even if this is the case it could be due to these repairers having lower access to such tools (Autorité de la concurrence, 2012).

5.3.3. Challenges related to access to technical information for manufacturers of diagnostic tools

Relevant information (such as communication protocol information, test and diagnosis procedures etc.) must be obtained to produce multi-brand tools, which are used by both independent and authorised repairers.

A simplified illustration of the information flows is shown in Figure 5-21. The technical information can be provided by OEMs in "read only" mode through their RMI websites, where it can be viewed each time the independent operator requires the information using a VCI. Single-brand tools are available for both authorised and independent repairers to purchase.

Figure 5-21: Diagnostic and repair information flows in the European aftermarket



Source: Image source from Ricardo-AEA

In addition, there is informal collaboration between authorised and independent repairers, where diagnostic services can be provided to other workshops in exchange for a fee. Although it appears likely that most diagnostic work is carried out by authorised repairers on behalf of independent repairers, interviewees also noted that it sometimes occurs the other way around as well (with independent repairers offering support to authorised repairers).

Tool and equipment manufacturers usually prefer to obtain information by reverse engineering rather than direct licensing agreements with OEMs.

The Regulations state that "*for the purposes of manufacture and servicing of OBD-compatible replacement or service parts and diagnostic tools and test equipment, manufacturers shall provide the relevant OBD and vehicle repair and maintenance information on a non-discriminatory basis to any interested component, diagnostic tools or test equipment manufacturer or repairer*".

Obtaining information directly from OEMs would appear to be an attractive prospect, as they are the only stakeholders who possess all of the technical information for all of their vehicles. Moreover, since they provide information to manufacture their brand-specific tools, the marginal costs of compiling the required information may be low (Autorité de la concurrence, 2012).

However, consultation with manufacturers of diagnostic and multi-brand tools (through surveys and interviews) revealed that in practice they typically prefer to obtain the required data through reverse engineering, despite being aware of their rights under the Euro 5 Regulation. Reverse engineering involves artificially creating vehicle breakdowns in order to understand how the system interprets them, and then this information can be used to make a diagnostic tool. The downsides are that it takes substantial time and effort, and the information may not be complete – therefore the reasons that tool manufacturers continue to prefer this technique require closer examination.

There appear to be several key issues in obtaining the required information from OEMs in a manner that is satisfactory to both parties. Commonly cited reasons for this included:

- Price of access to information required to manufacture diagnostic tools;
- Contractual clauses;
- Format of the information provided;
- Delays and long timescales involved in negotiating with OEMs; and
- Suitability of standards.

Each of these issues is examined below. The findings are based on interviews and surveys with a selection of tool and equipment manufacturers. However, it should be noted that in general, these stakeholders were reluctant to participate in the study due to concerns about confidentiality and implications for their business models.

5.3.3.1. Price of access to information

A commonly reported issue was that tool manufacturers felt the prices quoted by OEMs for licences were too high, especially considering that for multi-brand tools they would need to purchases data from several OEMs.

Tool manufacturers participating in the survey/interviews were first asked whether they had approached OEMs in order to negotiate contracts for access to RMI in the past five years, in order to differentiate their experiences prior to the Euro 5 Regulation to the functioning of the system after the Regulations had been introduced.

Those that had approached OEMs often reported that they usually did not proceed with an agreement due to the prohibitive price, with some tool manufacturers emphasising that the cumulative costs of incorporating data from multiple OEMs into their tools was a key issue.

Several stakeholders felt that there is no consistency between the cost of access to data between Europe and the USA – costs in the USA were generally felt to be lower. In general, we consider it appropriate that prices should vary depending on the scope of information and the market share of the OEM. Therefore, general statements of the nature we received during interviews were not considered sufficient to independently assess this aspect and we cannot comment on the extent to which this view may be valid.

Respondents to the survey of tool manufacturers were also asked to consider whether quoted prices for data for Euro 5/6 vehicles have increased compared to previous contracts. Over 40% of survey respondents felt that prices have increased compared to previous contracts, whereas around 20% stated that they have remained the same. However, none of the respondents felt that prices have decreased.

While the price for licences from the same OEM was typically similar when quoted to different tool manufacturers, there is very significant variation between the prices offered by different OEMs.

Since the prices quoted by OEMs for access to diagnostic information are not publically available, our analysis has been based on a number of confidentially shared price quotes that have been provided by OEMs to tool manufacturers[27]. While this allows us to draw high-level conclusions about the market, it does not cover every situation.

[27] As such, we have not revealed the absolute prices.

Prices that the study team were able to assess were typically quoted as an initial fee for access to data, and an ongoing subscription fee dependent on turnover. For illustration of the different prices, the initial fees for access to the information showed a large range of almost **12,000%** in absolute terms. However it is recognised that OEM market share may not be the only basis for price quotations (e.g. the extent/type of data requested, the geographical scope for which it was permitted etc.). While the calculation basis of these fees was not transparent, the following general observations could be made:

- These appeared to be a high level of consistency in the prices quoted to ***different tool manufacturers by the same OEM***.
- Conversely, there was little or no consistency in the quotations provided to the ***same tool manufacturers from different OEMs.***

Together, these observations suggest that the basis for calculating the licensing fees varies between different OEMs.

However, the range of prices associated with agreed contracts was much smaller than the overall range of all price quotes, suggesting that there is a range within which the price could be agreeable to both parties.

The full range of prices showed a very high level of variation – however, the highest fees quoted were not taken up. Where fees were considered reasonable given the market position of the OEMs, several tool manufacturers had signed licence agreements with the OEMs, suggesting that agreement is possible in principle.

The price range is much narrower when considering only the contracts that had been agreed – with a variation between the lowest and highest absolute prices of **140%** (compared to 12,000% for all quotes, including those that were not taken up).

5.3.3.2. Contractual clauses

Tool manufacturers wishing to access technical information from OEMs are required to agree to a contract. Territorial and/or termination clauses are often cited as issues for tool and equipment manufacturers, since these clauses can make the use of the information and incorporation into their tools impractical. These issues are described in more detail below.

Territorial clauses

Since it is common for tool manufacturers to operate internationally, restrictions on the use of data to specific regions make it impractical for them to incorporate the information into their products.

Information supply agreements may limit the use of the information to specific geographical areas. However, it is common for tool and equipment manufacturers to operate internationally, including in China, Russia and the USA (amongst others). Therefore, if tool and equipment manufacturers sell or intend to sell their products internationally they would need to either obtain licences for other regions (incurring additional negotiation costs) or remove the Europe-restricted licensed content from their tools and reverse-engineer the required information before rebuilding the tool for international markets. In either case, tool manufacturers would incur repeated costs, and the possibility of being able to negotiate international licences is not guaranteed.

Generally speaking, territorial clauses can limit the value of the information to a tool manufacturer who operates at an international level. This was supported by responses to the survey, where around half of tool manufacturers (that had approached OEMs for

contracts) stated that they considered territorial clauses to be problems 'most of the time' (75% to 100% of cases).

Interviews with stakeholders revealed a wide range of approaches to territorial restrictions imposed by OEMs, suggesting that there is not a consistent rationale for territorial restrictions.

Access to the technical information is based on European legislation, which may have contributed to the inclusion of territorial clauses. Some OEMs have stated that global harmonisation would be beneficial in allowing them to ensure that the information was valid outside of Europe (Autorité de la concurrence, 2012).

Interviews with tool manufacturers revealed that OEMs took very different approaches to territorial clauses, with some OEMs restricting licenses to the European Economic Area and others allowing extension to neighbouring territories. It was also revealed that at least one OEM was supportive of licensing data for both Europe and the USA.

Termination clauses

Tool manufacturers are reluctant to accept termination clauses due to a perceived risk of being exposed to later price increases for contract renewal.

Several OEMs agreements stipulate that if a licence is discontinued for any reason, the tool manufacturer must remove all of their products that use the associated data from the field (after a certain grace period or until they can agree on renewing a contract). A key concern was that such clauses exposed the tool manufacturers to the risk that the OEM would increase the subscription price, leaving the tool manufacturer with limited options except to accept the price increase or to remove their tools from the market and attempt to obtain the information again through reverse engineering. Around half of tool manufacturers participating in the survey stated that termination clauses were problems "most of the time" (75% to 100% of cases).

The extent to which termination due to excessive price increases might occur in practice is not clear. The risk would appear to be mitigated by the requirement for OEMs to "*charge reasonable and proportionate fees*" for access to the relevant information; however, the analysis of licence fees already suggests that the interpretation of this aspect has varied significantly. It may therefore be helpful if guidelines on this aspect are provided to give some reassurance/protection to tool manufacturers.

From the text of the Regulations, there is no requirement to provide a permanent transfer of information, and the rationale proposed by some OEMs for termination clauses is that using obsolete information that has not been updated through re-subscribing could harm the consumers (Autorité de la concurrence, 2012).

On the other hand, some OEMs allow the use of their information after termination of the agreement, whereas others allow it subject to payment of a flat fee. This suggests that it may not always be strictly necessary to require all of the data included in their diagnostic tools to be deleted after termination of their agreement. (Autorité de la concurrence, 2012).

5.3.3.3. Format and completeness of the information

Further investment is often required to process the information into a useable format.

The technical information received from OEMs needs to be standardised before it can be integrated into multi-brand tools. The technical Regulations require OEMs to supply data in the Open Diagnostics Exchange (ODX) format[28] *if they use that format within their authorised network*. However, very few OEMs use this format for their authorised networks, and as a result the information is supplied to tool manufacturers in a range of different formats.

The tool manufacturers consulted in the course of this study reiterated that formats such as scanned documents (which are not electronically readable) were the most difficult to work with, whereas information provided electronically was much preferred.

Since the format of the information can have a significant impact on the subsequent processing costs, it may be reasonable to consider the format/processability of information provided by OEMs when assessing the prices they charge.

Access to security-related information is also an issue in some cases, although experiences differ.

The information provided by OEMs varies due to different interpretations of what can/should be withheld under security-related reasons related to anti-theft systems. Several functions requiring access to security-related information were highlighted as being difficult to incorporate into multi-brand tools, including resetting, remote coding and reprogramming of computers, fault code interpretation etc. In such cases, the missing technical information cannot necessarily be obtained through reverse engineering, particularly when it corresponds to service reports or security-related information.

One of the tool manufacturers stated that they had increasingly been told that certain data could not be provided by the vehicle manufacturer due to 'security' reasons. However, another tool manufacturer recounted their more positive experiences gaining access to 'security' data - waiting a month after initial request, but subsequently being granted access.

5.3.3.4. Delays and long timescales involved in negotiating with OEMs

The time taken to reach initial contractual agreements with OEMs varied significantly, with timeframes typically ranging from between six months to one year.

Several tool manufacturers noted that the time taken to reach agreements was considered to be a problem, with many negotiations being drawn out for months or even years. The extent to which this may or may not have been done intentionally is not clear – since contracts need to be negotiated between businesses, a certain delay is to be expected – particularly for the first agreement. Some tool manufacturers acknowledged that delays were not only due to the OEMs, but also with their own legal departments, while others noted that the process with certain OEMs has been very straightforward. Overall, this

[28] The Open Diagnostics Exchange (ODX) format provides an XML-based, machine-readable data format to specify and exchange vehicle and ECU diagnostic capabilities including variants throughout the vehicle life-cycle. Along with other related standards defines architecture for vehicle communication that permits seamless processing of diagnostic configuration and flash reprogramming data.

suggests that greater guidance/standardisation of the processes (both for OEMs and tool manufacturers) would be beneficial.

Although reverse engineering is usually still the quicker method, tool manufacturers noted that the time taken to develop software has been increasing given the increased complexities of modern vehicles and software. One tool manufacturer stated that they would change to licensing information from OEMs if this allowed them to bring products to the market faster.

The implications are that there are significant delays in time-to-market for multi-brand tools, meaning that independent repairers also experience delays in their ability to repair new vehicle models.

After gaining access to information (whether through licences or reverse engineering), additional time is needed to incorporate the data into multi-brand tools. By comparison, OEM tools are usually available on the market much earlier, as single-brand tool manufacturers have access to the information prior to the model launch date (Autorité de la concurrence, 2012).

In view of the reliance of independent repairers on multi-brand tools, and the time needed for to integrate the information, it is essential that tool manufacturers are supplied with information that is as up-to-date as possible.

It is also important to note that experiences with different OEMs have varied. During interviews, it was highlighted that some tool manufacturers have managed to establish very good working relationships with their licensors and in these cases the OEMs have been quick to respond to requests.

5.3.3.5. Suitability of standards for online diagnostics

There is a mixed response in terms of how well manufacturers of tools think the standards prescribed in the Regulations are working. Several tool manufacturers questioned the inclusion of two standards, stating that this could lead to more confusion and additional costs.

The Regulations state that "*reprogramming of control units of vehicles manufactured later than 31 August 2010 shall be conducted in accordance with either ISO 22900 or SAE J2534, regardless of the date of type approval. For the validation of the compatibility of the manufacturer-specific application and the vehicle communication interfaces (VCI) complying to ISO 22900 or SAE J2534, the manufacturer shall offer either a validation of independently developed VCIs or the information, and loan of any special hardware, required for a VCI manufacturer to conduct such a validation himself*. "

The Euro 5 Regulation provides for reprogramming standards through two standards:

- **SAE J2534** – An interface standard designed by SAE (Society of Automotive Engineers) for vehicle ECU programming. Its purpose is to create an API (Application Programming Interface) which would be adopted by all vehicle manufacturers, allowing independent aftermarket the ability to reprogram ECUs without the need for a special dealer-only tool.

- **ISO 22900** – Provides a framework to allow diagnostic and reprogramming software applications from all vehicle manufacturers the flexibility to work with different modular vehicle communication interfaces (VCI) from multiple tool suppliers. It enables each vehicle manufacturer to support all VCI to perform diagnostics and to control the programming sequence for electronic control units (ECUs) in their vehicles.

SAE J2534 standard appears to be preferred over ISO 22900 by respondents to the tool manufacturer survey. This is likely due to the fact that most OEMs support the SAE J2534 protocol. While the study team acknowledges that the use of two standards may be questioned by some, it does not appear to be practical to require a single standard at this point.

Validation of the VCI was also viewed as problematic in some cases, with varying levels of support provided between different OEMs.

While the reprogramming standards define certain parameters, OEMs still have a level of discretion in the way in which they operate within these parameters. It is therefore important that OEMs provide a function for VCI validation.

When interfacing multi-brand tools with the OEM's RMI websites, tool manufacturers report that validating the operation of their VCI can be expensive, and often there is no test environment. In addition, stakeholders felt that the level of support among different OEMs varies, with some highlighted as being particularly unstable.

Overall, they suggested that this issue should be dealt with at the industry level, rather than on an individual basis. However, the draft CEN/ISO standards require that OEMs provide contact details on their RMI websites to allow requests to participate in their validation process. The information may be an implementation guide, a test specification and the availability of a test environment (e.g. the definition and loan of any special hardware) – however, participation and provision of information is subject to an individual agreement between the OEM and the tool manufacturer.

5.4. Publishers of technical information

5.4.1. Market structure for publishers of technical information

Data publishers provide multi-brand technical information to a range of aftermarket operators.

The focus of this section is on publishers of technical repair and maintenance information (as opposed to other information such as spare parts catalogues, although many of the issues are similar).

Their major clients include both independent and authorised workshops, parts suppliers and wholesalers (who both use and develop catalogues), and roadside patrols. Some publishers also provide technical hotlines to subscribers.

The market for publishing RMI data in Europe is relatively concentrated, with a small number of large players dominating the market. Statistics on the precise market share were not available; however from the survey responses it appears that the major providers vary across different Member States.

Coverage of vehicle brands and the scope of data varies depending on the publishers, so workshops will generally use data from several publishers and/or combine it with data from OEMs in order to gather all of the information they need.

The main advantages of using independent republishers are that it allows them to circumvent the problem of dealing with different data structures between OEMs, as well as the lower price. Authorised workshops may work on brands outside of their own networks, in which case they also tend to prefer data republishers.

5.4.2. Economic and market context

The primary reason given by independent repairers for using independent publishers for access to repair and maintenance information was stated to be the price.

Comparing pricing data reveals why: the monthly access fee for a typical multi-brand data publisher is €50 to €70 (Autorité de la concurrence, 2012), compared to a monthly fee of €55 to €400 for a single OEM (average of around €290 – see Section 3). When information is purchased from OEM websites, it is typically for short time periods of one hour or one day.

> *"The majority of independent garages are multi-brand and therefore it is not possible to accurately forecast the number of cars of a specific brand that will be repaired during a year or a month. For this reason, annual or monthly subscriptions are not considered a cost-effective option and, when needed, short time subscriptions are generally bought"*
>
> - Independent repairer, Italy

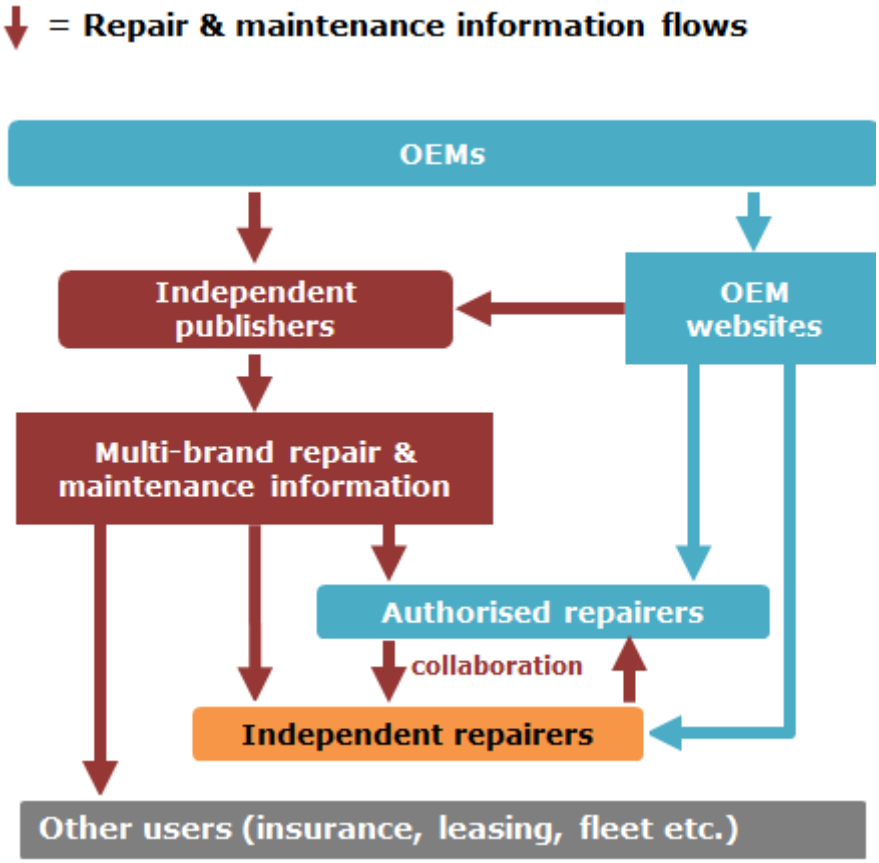
As noted in **Section 2** and **Section 3**, the development of OEMs' RMI websites has been costly for some OEMs, and further investments will be required to meet the CEN/ISO RMI

standards – while at the same time, the number of active users from the independent sector has been low. Independent republishers, on the other hand, are able to generate economies of scale by developing OEM data into a standardised, multi-brand product for which there is a clear market demand.

5.4.3. Challenges related to access to technical information for publishers of technical information

Figure 5-22 shows a schematic of key information flows involved for repair and maintenance information.

Figure 5-22: Repair and maintenance information is provided to multiple clients through independent publishers as well as OEMs



Notes: Illustrative only.
Source: Image source from Ricardo-AEA

Any issues involving the transfer of information from OEMs to republishers in the first stage (e.g. delays in obtaining contracts, incompleteness/inaccuracy of the data etc.) tend to propagate through to the end users.

Commonly cited issues are, for the most part, similar to those experienced by tool and equipment manufacturers:

- Price of access to information;
- Obtaining republishing licences from OEMs;
- Format of the information provided; and
- Delays and long timescales involved in negotiating with OEMs.

These issues are discussed in more detail below.

5.4.3.1. Price of accessing data for republishing purposes

Pricing structures for republishing contracts appear to differ greatly between OEMs.

While data publishers generally report that the prices for republishing licences from OEMs are "too high", it is difficult to objectively assess this statement without access to internal business information. A number of stakeholders provided estimates confidentially to the study team. Noting that such information will not be exhaustive, the conclusions drawn may not be representative for every situation, since republishing rights are subject to individual agreements between OEMs and the licencee.

The typical structure is for data to be provided on the basis of an annual fee and a licence fee, while a small number of OEMs also charge a fee for initial access. However, the basis for calculating these charges varies significantly, as shown in Table 5-5.

Table 5-5: Overview of fee structures for data republishers

Charge type	Basis for charge			
	Flat fee	Scales with OEM market share	Scales with amount of data downloaded	Other basis
Annual fee	✓	✓	✓	• Reduced rates for data for *updated* models • % of republisher turnover • Scales with number of republisher's customers • Scales with number of countries in which data is published
Licence fee	✓	✓		• Included in annual fee; • Number of user accounts republisher requires • Free
Initial access fee	✓			• Free (most OEMs)

Notes: Quotes received from multiple data republishers covering 19 different OEMs
Source: Confidential data provided during interviews

While both OEMs and data republishers appear to demonstrate some flexibility in their negotiations, there are certain practices that appear more favourable than others.

The range of different metrics used makes it difficult to draw direct comparisons. The study team have been provided with examples of republishers accepting fees of various structures, and evidence suggests that both parties may be open to negotiation. There is also some evidence that data republishers take the format of the information (including whether VIN data is available) into account when deciding whether a fee is reasonable. Fees structures that appear to have been consistently rejected are those that include very high initial access fees, and those that set high charges relative to the OEM's market share.

On the basis of the estimates provided, an equivalent total annual charge was calculated for different OEMs (excluding initial access fees, which were not imposed in most cases). This resulted in:

- An overall range of quoted annual fees of between **€0.35 and €85 per 1,000 vehicles on the road**. This is only an approximation given European-level data on OEM market share (e.g. it does not consider the quality, scope, format or intended use of the data), but serves to illustrate the huge diversity in charges. In cases where *contracts had been agreed*, the range of equivalent annual fees reduced significantly to between **€0.35 and €7.20 per 1,000 vehicles on the road**. While the precise figures are likely to vary depending on the republisher/OEM involved, this suggests that the range of mutually acceptable prices is much smaller than what is currently on offer.

5.4.3.2. Difficulties in obtaining republishing licences from OEMs.

The time taken to obtain a contract for republishing rights is considered to be too long by data republishers - these delays restrict the information that can be published by the IAM.

In contrast to the situation for parts wholesalers (where on the whole they had not approached OEMs for contracts), most data republishers participating in the survey (80%) stated that they had actively pursued OEMs in order to agree licences. Those that had not approached OEMs for contracts were generally specialised organisations that produced information through reverse engineering parts (e.g. publishers of step-by-step instruction guides, interpretation guides for wiring diagrams, publishing work times etc.).

Of those data republishers who had approached vehicle manufacturers for a contract to publish Euro 5/6 technical data (over two-thirds of survey respondents), all of them stated that they had experienced problems in terms of the time taken to obtain a contract. This was confirmed in interviews with data republishers, where the time taken to identify, contact and undertake initial communications for the purposes of obtaining data and initiating contractual talks, was been quoted as the most difficult and time consuming part of the data publisher-OEM relationship.

Data republishers suggested that they expected that the process of contacting and negotiating a contract for publishing data to take a few months if the OEM is fully on-board with the data publisher's request and they have issued similar contracts before. However, many data republishers stated that they often remain in talks with OEMs that they initially approached over a year ago (with some republishers reporting timescales for agreement of between one and eight years).

Contractual clauses imposed by OEMs include restrictions that some republishers feel would make their products unviable.

Territorial and cancellation clauses are often included in contracts, which affect republishers in a similar way as tool manufacturers (see **Section 5.3.3**). OEMs confirmed in interviews that they may impose territorial clauses restricting the use of the information/data to the EU (or to models available in the EU) or other selected regions, as they cannot guarantee the reliability of the information outside of stated regions.

Several also confirmed that cancellation clauses are included in contracts – in extreme cases, if a contract is cancelled the republisher would have to discontinue the use of any materials that have been developed using the data during the contract period. However, three other OEMs explained that their cancellation clauses resulted in a halt to the provision of technical data/information, but that the republisher could continue to use/sell existing products – only new products could not be developed/sold using data obtained during the contract period after the contract has been cancelled.

Several other problems specifically mentioned by data republishers were:

- User right restrictions that would prohibit data delivery to spare parts suppliers/wholesalers;
- Territorial restrictions to a single Member State;
- Unresolved price issues leading to rejection of contract renewal;
- Lack of willingness to negotiate on the part of some OEMs.

In general, republishers were very reluctant to speak about specific practices. However, it is clear that in several cases, information is published without a specific contract with the OEM in question.

Although we are not able to determine the extent of this activity, this appeared to be less common for large European OEMs, although some of the OEMs indicated during interviews that they were already aware of this activity.

5.4.3.3. Format and completeness of the data

Republishers that have entered into contracts with OEMs report that certain aspects of the data increase the time and costs required to integrate the information into their products.

The main issues appear to relate to the format of the data, visibility of updates and completeness of information.

Format of the data

Where republishing contracts are in place with OEMs, data republishers reported that they still encounter problems with the format that the data is received in - primarily that it is delivered in a format that cannot be electronically scanned.

In order to extract the relevant data/information for use in their data republishing activities from RMI websites, staff are required to manually gather and harmonise the data directly from the portals. This introduces a risk of producing manual errors.

Of the 19 OEMs interviewed for this study, eleven stated that independent operators, including publishers and spare parts manufacturers etc., are currently able to access information in bulk, or 'raw', format. However, although 15 of the OEMs reported that they had been had been approached for a contract by independent operators (sometimes by multiple parties) in order to access bulk data in the last three years, only six stated that they had reached any positive agreements in this time period (a further three OEMs had negotiations that were pending at time of assessment).

Ability to incorporate updates into multi-brand products

Some data republishers feel that OEMs (intentionally or not) make it very difficult to integrate data into their multi-brand products.

Without directly viewing the contractual agreements between these parties it is difficult to identify whether the issues specially mentioned for different OEMs are due to contractual clauses (e.g. information provided only annually or bi-annually) or due to other issues such as the format of the data (e.g. not making updates clear, so the entire website needs to be scanned again). However, examples of both practices have been mentioned. For example, many republishers have to undertake routine checks of information/data that they have previously received to identify any potential updates that have been made.

Incomplete or delayed information

Many accounts of various items of missing data were mentioned during interviews and surveys with data republishers. Reconciling these points of view is not straightforward due to the diversity of different errors and the range of OEMs involved, but the number of issues raised suggests that there are indeed some issues even if their extent cannot be precisely quantified.

Additionally, some data republishers have claimed that they experience significant delays in gaining access to this information for newer vehicles, whereas OEMs report that they make the information on new models available when the vehicles go on sale or earlier. Some OEMs have claimed that these delays are due to the time taken by intermediaries to integrate the data – see for example (Autorité de la concurrence, 2012).

5.5. Emerging issues

5.5.1. Telematics

One of the key concerns for the independent aftermarket is the growing use of telematics systems that allow information to be transferred wirelessly.

The current market penetration of telematics is low, but it is considered to be an important growth area. It will be possible to collect much more information on drivers and their cars as future models become more connected to the internet, thus allowing for greater information exchange. This has raised concerns over potentially excluding independent operators on the one hand, versus data protection issues on the other (i.e. whether car owners have sufficient control over the information produced and sent by their vehicle).

In general, the scope of vehicle RMI is likely to include at least some information transferred wirelessly – the precise definitions and means for data exchange will need to be further clarified and included in the Regulations to ensure that interpretations result in fair access to information.

It should be noted that this is an aspect that is being investigated in other legislative areas, and as such there is scope to pool resources and harmonise requirements. As an example, relevant provisions are contained in Directive 2010/40/EU (the ITS Directive)[29]. This mandates the definition of necessary measures to further progress the development and implementation of cooperative (vehicle-vehicle, vehicle-infrastructure, infrastructure-infrastructure) systems, based on:

- The facilitation of the exchange of data or information between vehicles, infrastructures and between vehicle and infrastructure,
- The availability of the relevant data or information to be exchanged to the respective vehicle or road infrastructure parties,
- The use of a standardised message format for the exchange of data or information between the vehicle and the infrastructure,
- The definition of a communication infrastructure for data or information exchange between vehicles, infrastructures and between vehicle and infrastructure,
- The use of standardisation processes to adopt the respective architectures.

5.5.2. Hybrid and electric vehicles, and other advanced technologies

Growing hybridisation and electrification of cars may necessitate additional training and specialised services to deal with specific repair and maintenance needs.

The rate at which these technologies will penetrate the market is still fairly uncertain, and currently it appears to be largely driven by national incentives. In France, TCG Conseil (2011) estimate that by 2020, hybrid and electric vehicles may account for between 1.5% and 3% of total aftermarket revenue. However, this may vary substantially by brand: in 2013, almost 20% of Toyota's European sales were hybrids, a share which is rapidly growing (Automotive News Europe, 2014). General aftermarket expenditure per vehicle is expected to continue falling in real terms, and expenditure for hybrid and electric vehicles is expected to be even lower than for conventional vehicles. The number of workshop hours

[29] Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (OJ L 207, 6.8.2010, p. 1).

is forecast to fall by some 25% per average vehicle between 2010 and 2020 while an average electric vehicle will require some 40% fewer workshop hours over the average vehicle in 2010 (Ibid.).

Despite reduced repair and maintenance requirements for electric (and hybrid) vehicles, their servicing will require high investment into specialist equipment and training (Table 5-6). Given the fairly low overall market share in the time horizon up to 2020, the required investments are not guaranteed a rapid payback in the short or medium term (TCG Conseil, 2011).

Table 5-6: Specific aspects of repair and maintenance of electric and hybrid vehicles

	Battery electric cars	(Plug-in) Hybrid cars
Maintenance	Fewer wear-and-tear parts due to: • Simple electric motor (no clutch, gear change etc.) • Less use of brake pads • No oil change Battery maintenance	Less wear-and-tear on the internal combustion engine and braking systems (including brake pads); Depending on hybrid design: less wear-and-tear on transmission (e.g. some hybrid vehicles are not fitted with clutches, gearboxes etc.)
Repairs	Uncertain reliability in the short term Increased use of remote diagnostics via telematics	More complex interplay between ICE and electric motor Telematics will also play a role
Specific parts	Electronic components, especially those related to power electronics more expensive. Possibility of price decrease with increasing volumes Increased electronic content/software use. More reprogramming and less replacement	
Equipment and training	Specialised tools required: • Battery removal and handling equipment • Protection of technicians (gloves, helmets etc.) • Diagnostic and reprogramming tools Dedicated area for (dis)assembly of electronic components Training of technicians, especially on electronics	
Other services	Installation and maintenance of home charging stations Assistance to the customer and the vehicle via ICT/telematics Resolving errors around recharging Roadside assistance, including empty batteries	

Source: Adapted from TCG Conseil (2011)

A key issue for the independent aftermarket will be to what extent the knowledge and equipment required to safely service and repair hybrid and electric vehicles will be transferable across brands.

For example, Toyota's hybrid architecture is very different from that of Hyundai, Volkswagen and others (Reuters, 2011). During our site visits at garages and part wholesalers it became apparent that at present the independent aftermarket has had very little experience with hybrid vehicles. Indeed, remarks from independent repairers during interviews suggest that many are currently reluctant to deal with these vehicles and they believed that almost all hybrid vehicles are being serviced at authorised repairers.

Training for advanced technologies and diagnostics appears to be an area of growing importance, and the means of addressing these needs should be considered in terms of how it affects independent repairers.

Some OEMs suggested that training requirements for independent operators should be introduced to ensure that they are able to properly perform repair and maintenance works - for example, the use of programming and other technical tools is often not intuitive. Repairers were also asked to comment on any additional training they felt should be provided, and although the responses were very diverse, several areas were commonly mentioned:

- Electric and hybrid vehicles (19% of respondents);
- Electronics repair (24%);
- Vehicle diagnosis (14%); and
- New technologies in general (11%).

In terms of general training requirements for access to the profession, there are varying national vocational standards already in place and it is outside the scope of this study to consider whether and how to harmonise them.

On the other hand, the study team consider that safety-related training is of increasing importance, particularly when dealing with new vehicle technologies such as hybrid and electric vehicles. There are very real safety issues with respect to repair and maintenance activities for which both training and RMI are required.

As more OEMs have introduced their own ranges of hybrid and electric vehicles, as well as other advanced technologies in recent years, this raises a question of how training for independent repairers might be organised to ensure they are able to carry out effective and safe work across multiple brands.

For example, requiring attendance at specific courses for each OEM may be considered excessive where repairers deal with a large number of brands. In this respect, the Commission's FAQs on antitrust rules in the motor vehicle sector (European Commission, 2012a) note that: *"Where there is a need to restrict access to a safety-related part with which independent repairers are likely to be unfamiliar… the vehicle manufacturer should adopt the least-restrictive means of achieving the desired result. One example might be to require independent repairers to attend training on the particular system or technique. Where the vehicle manufacturer or an undertaking acting on its behalf provides such training, the independent repairer should not be required to follow more training than it needs to work on the system or master the technique"* (emphasis added). Thus, it may also be beneficial to examine how to recognise appropriate multi-brand training for safety authorisation procedures.

5.6. Conclusions and recommendations

5.6.1. Repairers

Repairers (both authorised and independent) are reliant on the functioning of information flows between OEMs to other intermediate actors in the aftermarket.

To be competitive, independent repairers need to be able to access the technical information necessary to repair vehicles. The channels they rely on for access to this information are predominantly through other third-party provider, including for:

- Spare parts via multi-brand catalogues (Parts wholesalers and distributors);
- Multi-brand diagnostic tools (Manufacturers of diagnostic and repair tools);
- Multi-brand repair and maintenance information (Publishers of technical information); and
- Third-party training providers.

It is therefore vital that the conditions of access for these independent operators are ensured.

All of these actors provide the main source of technical information to independent repairers and so are especially important for the independent repair sector, but also affect authorised repairers who are increasingly becoming multi-brand.

These challenges will be felt particularly as independent repairers attempt to gain market share for vehicles still under warranty, where the sophistication of service required is higher and delays in acquiring RMI will affect their ability to compete.

In the longer term, repairers will need to upskill to deal with increasingly complex vehicles entering the older segments if they are to maintain their market share.

Recent market shares between independent and authorised repairers have been affected by increasing complexity of newer vehicles (benefiting authorised repairers), offset by the increasing age of the vehicle parc (benefiting independents) (BCG, 2014).

The investments in tools and training required to meet the demands of more complex modern vehicles are significant, and likely to impact SMEs most heavily. One of the key ways to deal with the higher capital costs is to join a franchise network (run by manufacturers or independent operators), where access to technical support is much greater.

5.6.2. Parts distributors and wholesalers

The major issue concerning parts distributors and wholesalers is access to unequivocal parts identification information.

It is clear that this is a complex topic, and litigation on this aspect has been ongoing for several years (see **Section 4**). Further clarification of the Regulations in this area is likely to be needed in order to settle such disputes.

Notwithstanding the issues related to how the Regulations should be interpreted, parts wholesalers report that the lack of unequivocal access to parts information typically leads to two or three parts being identified as relevant. Where repairers are unable to identify a single part, they usually order multiple parts and return those that are not needed.

This leads to increases in overall costs (estimated at 10-15%), arising from additional expenditures on logistics and administration, which may ultimately lead to higher parts

prices for consumers. Furthermore, as vehicle complexity increases, the issues are expected to become more prevalent.

It is difficult to determine how the Regulation has affected these issues since many parts wholesalers have not attempted to gain contracts with OEMs since the Regulations were introduced.

The majority of parts distributors and wholesalers appear to rely on information from publishers of technical information and parts suppliers, rather than directly accessing information from OEMs.

5.6.3. Tool manufacturers

Even though they are aware of their rights under the Euro 5 Regulation, tool manufacturers continue to prefer reverse engineering over directly accessing the technical information they require from OEMs.

This is despite the drawbacks of reverse engineering – namely, that it entails considerable time, effort, cost and does not produce complete information.

It is therefore clear that in some cases there are fundamental issues that either limit tool manufacturer's access to technical information directly from OEMs, either in terms of being discouraged by informal barriers (such as delays and formatting), or by contractual clauses that limit its value. Ultimately, this is likely to affect the competitiveness of independent repairers, as multi-brand tool manufacturers are unable to place products on the market at the same time as the OEM-branded tools.

Overall, it appears that greater clarity and guidance is needed to establish common principles of good practice on key issues such as pricing, contractual restrictions, data format, time for access etc.

In all cases, tool manufacturers reported a very wide range of approaches had been taken by different OEMs. In this respect, it is important to note that there were several OEMs for which tool manufacturers felt there were no significant issues in terms of obtaining data, and several tool manufacturers report positive experiences in terms of all potential problems areas with certain OEMs. Several OEMs seemed capable of responding to requests and turning around contracts with acceptable contractual clauses contracts in a short time, – suggesting that the problems discussed are by no means universal.

It is also worth noting that several tool manufacturers currently have licensing agreements with OEMs – therefore it appears that at least in some cases it is possible to reach a mutual agreement on both prices and contractual terms. As a result, the study team suggest that clearer guidelines are required on what might be considered good practice, as well as the minimum requirements to be considered in the context of the Regulations.

In general, tool manufacturers felt that VCI issues should be dealt with at the industry level, rather than on an individual basis.

Tool manufacturers have pointed out that in the USA, the ETI390 standard test was developed to validate the electronic functionalities of data exchange systems. A similar system could therefore be introduced in Europe to define and control the functionality of technical information.

5.6.4. Publishers of technical information

In contrast to manufacturers of diagnostic tools and equipment, there is no possibility for data republishers to reverse engineer the (non-diagnostic) technical information they require. Therefore direct access to OEM data is the only way they can obtain all of the relevant information.

Hence, the majority of republishers participating in the survey (80%) reported that they had actively sought to establish licences directly with OEMs. Those that reported that they had not sought licences had generally derived their data from reverse engineering parts in order to provide specialist information such as work times.

Currently there is great diversity in the fee structures used by different OEMs, and republishers must negotiate with each OEM individually. Additional guidance may be helpful to allow organisations to better understand what might be considered reasonable.

General observations based on price quotations provided to the study team were that contracts were generally rejected in cases where there was a large initial access fee and/or if the fee was considered to be too high relative to the OEM's market share. Based on this, we calculated approximate ranges of the price per 1,000 vehicles from different OEMs and noted that:

- The range of equivalent annual fees was between **€0.35 and €85 per 1,000 vehicles on the road**.
- Where contracts had been agreed, the range of equivalent annual fees reduces significantly to between **€0.35 and €7.20 per 1,000 vehicles on the road**.

This suggests that in principle there is a range of mutually acceptable prices for data republishing licences. There is also some evidence that data republishers take the format of the information (including whether VIN data is available) into account when deciding whether to accept a contract. Some republishers reported that they may accept licences with OEMs that included royalty fees – on the other hand, tool manufacturers felt this condition was less suitable for their products, since it was difficult to calculate the value of each OEM's information in their multi-brand tools.

Any issues involving the transfer of information from OEMs to republishers in the first stage (e.g. delays in obtaining contracts, incompleteness/inaccuracy of the data etc.) tend to propagate through to the end users.

Several issues appear to be important in this respect:

- **The time taken to obtain a contract for republishing rights is considered to be too long by data republishers - these delays restrict the information that can be published by the IAM:** Data republishers suggested that OEMs are able to negotiate contracts within a few months if they have previous experience and are willing to do so, while at the other end of the spectrum, negotiation procedures can take several years.
- **Some republishers feel that certain contractual clauses imposed by OEMs would make their products unviable**: Mostly commonly these include cancellation clauses and territorial restrictions. Although anecdotal evidence suggests that some OEMs are demonstrating more flexibility in these areas, numerous problems are still reported.
- **Issues with the format of the data (electronic processability), completeness and visibility of updates affect the speed at which republishers can incorporate the latest information into their products:** These issues also typically increase the costs associated with processing the data.

5.6.5. Emerging issues

The emerging issues related to telematics and access to safety-restricted information across multiple brands will require a high level of cooperation and coordination between different stakeholders.

Examples of telematics relevant to the aftermarket include actions such as the exchange of vehicle status information with a service provider to notify the owner of recommended or mandatory maintenance. Agreeing on the appropriate legislative and technical conditions requires interaction between the consumers, independent operators, OEMs, standardisation committees and international regulators (amongst others).

Regarding new advanced technologies - while there is an increasing need for safety-related training to ensure that independent repairers are able to properly perform jobs on advanced technologies, it would be beneficial to consider how to recognise multi-brand training in certification for access to information restricted for safety reasons.

6. ASSESSMENT OF THE EFFECTS ON THE INTERNAL MARKET

Overview:

The European 'internal market' describes the institutions in place which allow for the free movement of goods, services, capital and persons between EU Member States. The level of competition in the market for vehicle repair and maintenance and the functioning of the internal market are closely connected.

In the previous section, trends in the market structure and economic context were discussed in order to examine levels of competition in the market. The present section focusses on other aspects of the internal market, both from the industry and consumer perspective.

6.1. Market perspective

In terms of establishing an effective internal market, key issues include:

- Market consolidation trends;
- Emergence of new business models; and
- Ability for SMEs to compete.

6.1.1. Market consolidation trends

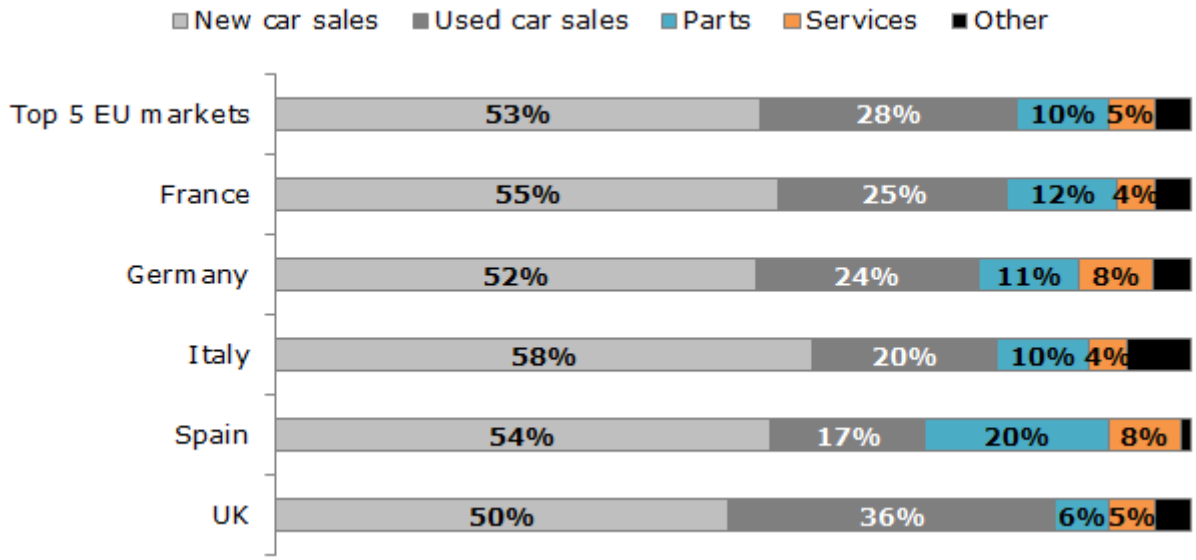
The economic recession has had a significant impact on the repair and maintenance sector, leading to greater pressure on margins and competition in all segments.

Western European markets are characterised by oversupply in garages and competitive parts trade, leading to strong price and margin pressure. Market volumes have been decreasing due to improved quality and reduced mileage – nevertheless, new high-tech products with higher prices are thought to have helped offset the decreasing volumes (Wolk & Nikolic, 2013).

In countries that have been heavily affected by the recession (such as Italy and Spain), there are numerous small local garages and small/medium-sized parts wholesalers, which will face increasing pressure (Wolk & Nikolic, 2013). On the other hand, significant future growth is expected to be driven by the increasing number of vehicles in operation (particularly due to expanding ownership in Eastern Europe) (Spivey, 2014).

The slump in car sales following the economic recession has had significant impacts on profitability of the authorised dealer sector, where the majority of revenue has traditionally come from new car sales (just over half) – see Figure 6-1. A smaller proportion of dealer revenue comes from parts and services – respectively 10% and 5% on average (Tongue, 2013). Nonetheless, margins on in-house repair work are typically much greater – around 60% on repair work compared with 9% on new car sales and 8% on used car sales according to one major dealer (Gibbs, 2012). Although these gross margins tend to be higher compared to independent repairers, these are mostly used to cross-subsidise vehicle sales (ICDP, 2012).

Figure 6-1: Dealer % revenue split by business area in 2012



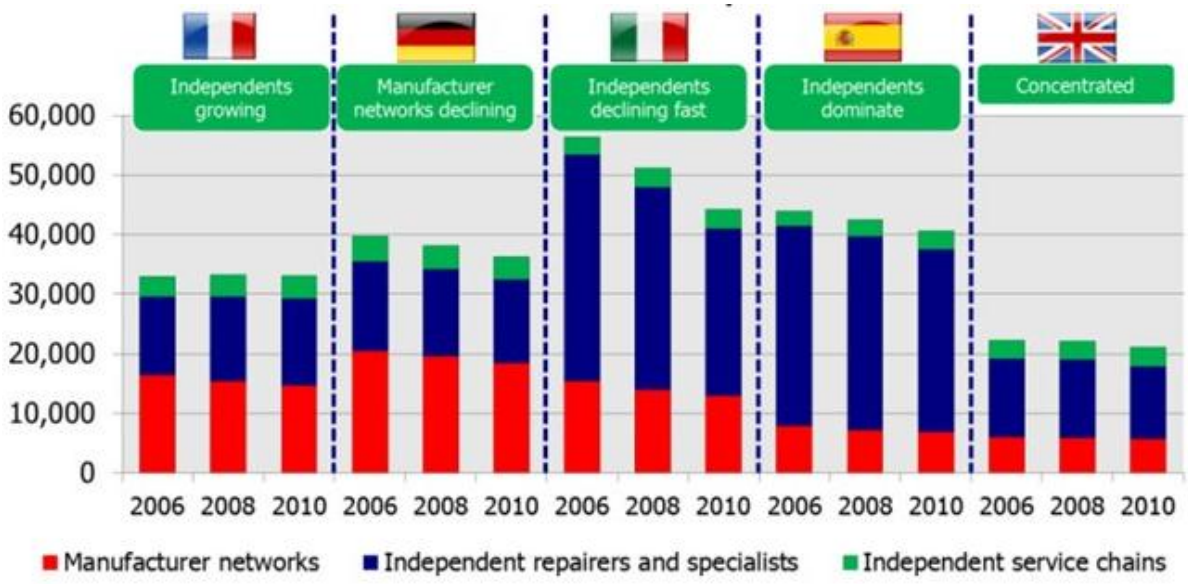
Source: (Tongue, 2013)

By contrast, service chains may have significantly lower gross margins than both authorised and independent franchise chains, reflected in the fact that such chains have seen frequent mergers, take-overs and financial restructuring (ICDP, 2012).

The pressure on margins and completion means that most European markets are showing signs of consolidation in terms of the number of outlets.

These trends are characterised in Figure 6-2.

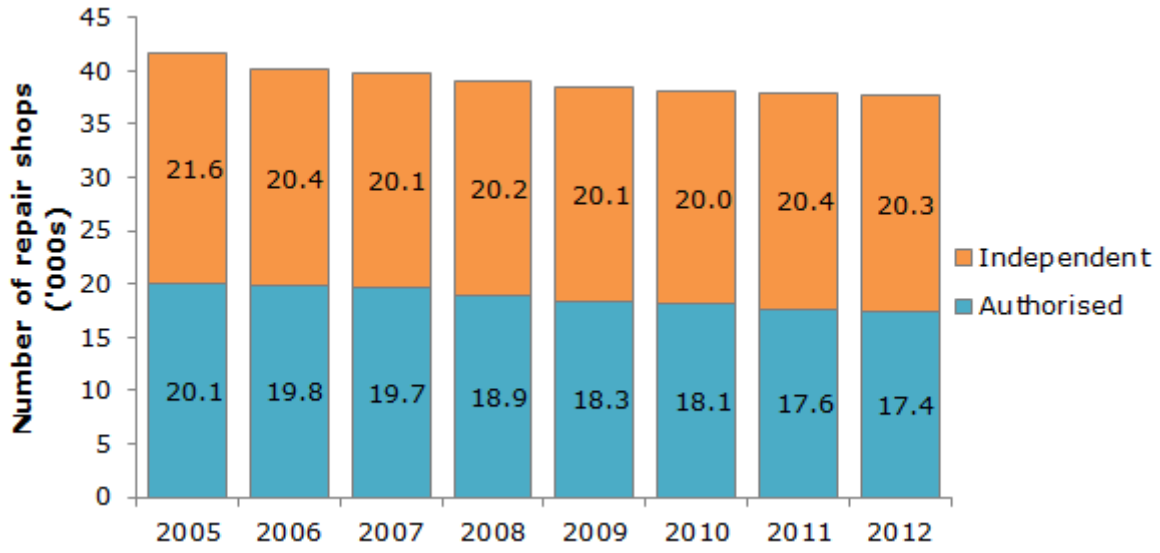
Figure 6-2: Number of workshops – trends over time in selected Member States



Source: (ICDP, 2014a)

Although disaggregated data are not routinely reported by Member States, trends in Germany show a decrease in the overall number of garages has continued due to insolvencies, mergers and acquisitions (Roland Berger, 2013b). The share of authorised repairers has fallen slightly over this period by two percentage points.

Figure 6-3: Decline in repair shop numbers in Germany over time



Source: (Roland Berger, 2013b)

In Central and Eastern Europe, the markets are smaller and typically less fragmented. Even so, most of the more developed markets such as the Czech Republic and Slovakia are also consolidating (Roland Berger, 2013a).

This process has been evident since the early 2000's, with decreases in both authorised and independent outlets seen across Europe (London Economics, 2006). An important factor is thought to have been the ban on quantitative selective distribution systems and exclusive distribution systems introduced by Regulation 1400/2002, after which the number of authorised repairers started to fall - resulting in a lower density for the manufacturer network. However, the European Commission observed that this has raised the standards of quality that the vehicle manufacturers' authorised networks are expected to provide: "*While vehicle manufacturers have set more demanding quality standards for their networks of authorised repairers, this does not seem to have operated against consumers' interests. The new standards have not only increased the quality of service provision, but have also had an influence on the independent sector, which has reacted by setting up competing networks and franchised chains with common standards, so as to better respond to consumers' demand for high quality, efficient and reliable services*" (European Commission, 2008).

However, the widely differing trends in the number of outlets in these countries suggests that factors other than EU-wide legislation are having an impact – primarily engrained consumer preferences and evolving business models appear to be at least partly responsible (London Economics, 2006), (ICDP, 2014a).

The longer-term implications of the Euro 5 Regulation on the internal market are not yet clear.

This is mainly because vehicles affected by the Euro 5 provisions on access to RMI are largely still within their warranty periods and therefore mainly serviced at authorised dealers. For example, in Germany, it is estimated that less than 5% of the vehicles serviced at independent garages in 2013 were affected by the Regulation[30]. Figures are

[30] Germany, data on the number of new Euro 5 and 6 vehicle registrations in each year is available from KBA. Using DAT data on the frequency of repairs and maintenance by vehicle age group as

likely to be similar for other Western European countries. In the Eastern European Member States the market share of independent garages will tend to be higher while the shares of Euro 5/6 vehicles in the vehicle stock are likely to be smaller. Substantially higher shares of Euro 5/6 vehicles are therefore unlikely in other Member States.

6.1.2. Emergence of new business models

A key focus for car manufacturers has been to generate more business from older vehicle segments – both by aiming to keep new car owners loyal for longer, as well as targeting used car markets.

In terms of profitability, aftermarket sales typically account for a significant proportion of a vehicle manufacturer's profits. Estimates range from 25% to 80% (IMI Magazine, n.d.), (Capgemini, 2010), (Roland Berger, 2013). This is typical for many durable goods industries, where aftersales comprise a relatively small proportion of revenue but command a high proportion of profits - see for example, (Jönke, 2012).

Most car manufacturers now offer extended warranties on new cars, which are generally considered to be profitable (ICDP, 2014b). Service packages are also offered for many brands, ranging from basic plans covering only routine maintenance operations, to all-inclusive plans, which add wear and tear and mechanical repairs – these have been more successful in some markets (Belgium, Germany, UK) than others (France, Italy) (ICDP, 2014c). Finally, in recent years OEMs have started to offer after-sales packages for used cars in the form of financing or leasing services, warranty extensions or used car warranties and service packages (BCG, 2014). These new offers typically require these services to be performed by authorised repairers (BCG, 2014).

Although an independent garage may carry out work without invalidating the warranty (provided the correct procedures are followed), consumers still generally prefer to take their vehicles to authorised networks during the manufacturer warranty period. However, even for extended warranties, authorised dealers/repairers tend only to have a competitive advantage over independent garages at the original point of sale (European Commission, 2012a), and used car buyers do not generally choose their aftersales providers based on where they purchased their vehicle (Tongue, 2013).

At the same time, major independent distributors are aiming to set up stronger links to leasing, fleet management and insurance companies in order to gain a larger share of the younger car segment.

Growth in the independent sector has mainly been driven by corporate chains, independent service chains (auto centres, fast-fits and tyre specialists, such as ATU and Autocentres), hard franchises (such as Bosch Service) and other recognised brands. These organised independent players have the credibility to attract customers that traditionally relied on authorised dealers such as cars still in warranty and fleet customers (Young, 2012).

well as the share of visits to independent garages by vehicle age group it is therefore possible to develop an estimate of the market share of Euro 5/6 vehicles among independent garages. Source: KBA (2014) and DAT (2014)

"Many of the vehicles presented to our workshop – that are still under warranty – are forwarded by leasing companies reluctant to use authorised repairers because of the long lead times involved in booking a vehicle for repair with an authorised repairer, and the dealers' refusal to accept the preferential labour rates that lease companies insist on."

- Non-franchised independent repairer, UK

According to one study, insurance companies could save up to 20% by using independent garages, although growth potential has been hampered by the ability for independent repairers to meet quality standards (Roland Berger, 2013a). However, leasing companies and fleet managers have increasingly been drawn to the independent segment over the past few years in order to optimise their cost base (Roland Berger, 2013a).

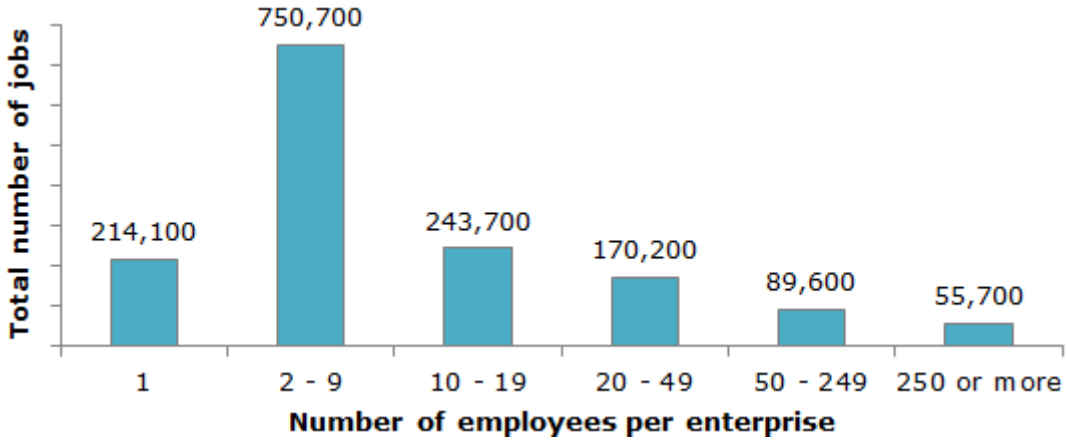
The ability of independent providers to offer the level of sophistication needed to service fleet and insurance companies highlights the importance of accurate and timely information - delays in information being provided to the independent network will stymie their ability to reach these new customer segments.

6.1.3. Ability for SMEs to function in the market

SMEs are an important segment in the repair and maintenance sector – firms with fewer than ten employees account for around 95% of enterprises and 60% of jobs.

In total, Eurostat records some 1.5 million persons employed in the repair and maintenance of motor vehicles (NACE R2 G452) and another 320,000 in the retail trade of vehicle parts and accessories (NACE R2 G4532). Around half of the total jobs are within firms employing two to nine people – see Figure 6-4. These firms include stand-alone garages, as well as franchises of larger chains.

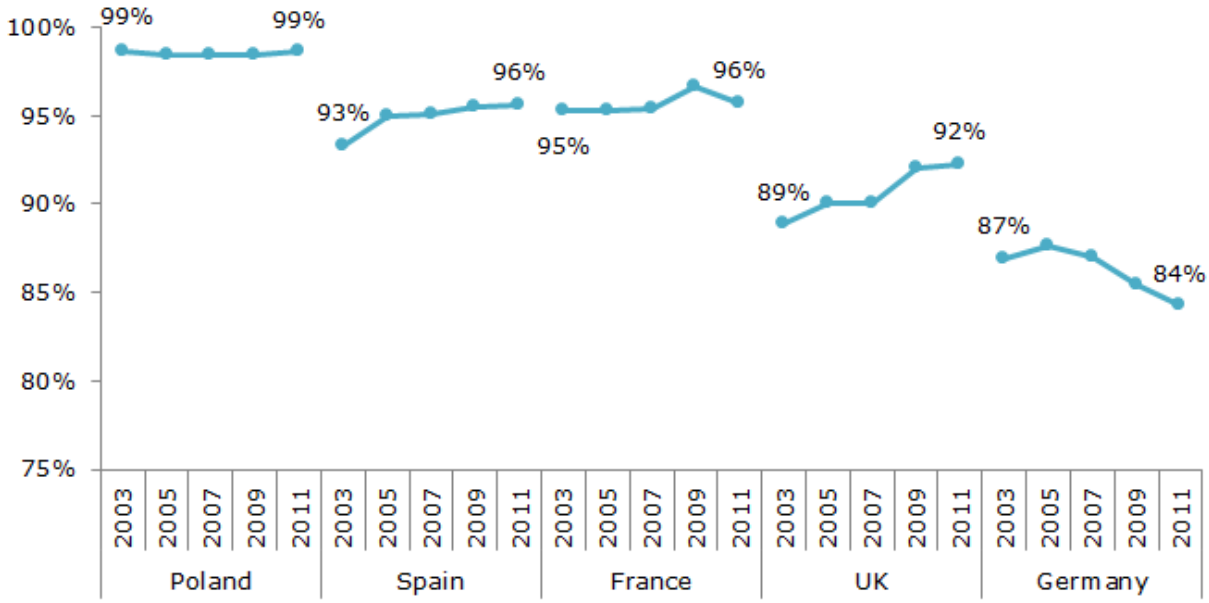
Figure 6-4: Number of jobs by business size class 2011 in the EU-28



Notes: Includes only businesses in the category NACE R2 G452 (repair and maintenance of motor vehicles), not vehicle parts and accessories (NACE R2 G453), as no distinction between retail and wholesale available for this dataset.
Source: Eurostat (2014)

Trends over time indicate that the share of firms employing fewer than ten people has been relatively constant, with changes of a few percentage points at most (see Figure 6-5).

Figure 6-5: Proportion of firms in the motor vehicle repair and maintenance industry with <10 employees



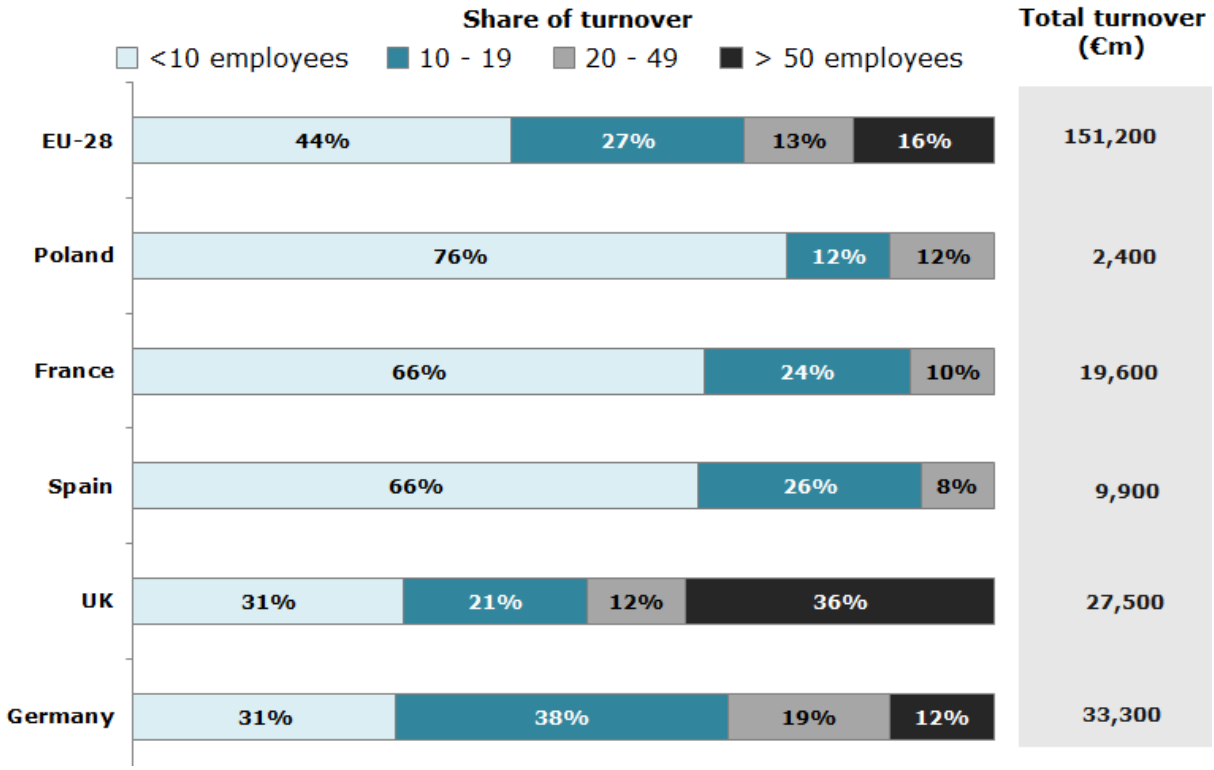
Source: Eurostat (2014)

Although SMEs make the vast majority of the market in terms of numbers, larger firms with 20 and more employees account for around 30% of the total market turnover in 2011.

The share of firms with more than 20 employees has grown from around 25% of total turnover in 2007 to 30% in 2011 (Eurostat, 2014)[31]. Market shares by company size differ significantly between Member States. While large companies with over 250 persons employed have almost a quarter of the market share in the UK and the Netherlands they only account for a small proportions in other Member States (see Figure 6-6).

[31] This is likely to be an under-estimate as figures from businesses classified under vehicle parts and accessories (NACE R2 G453) are not included. This is because no distinction between wholesale and retail businesses is available here so turnover would therefore be likely to be double-counted. However, some of the larger actors in vehicle aftermarket retailing, especially fast fitters such as ATU, are likely to be classified under sale of parts rather than under repair and maintenance.

Figure 6-6: Turnover in 2011 for sector 'maintenance and repair of motor vehicles' (NACE R2 G452) by business size class



Source: Eurostat (2014)

Although the number of authorised and independent repairers is both declining, SMEs are likely to be hit hardest by an increasing cost base – SMEs tend to suffer in sectors that are more capital intensive and where economies of scale are important.

The increased level of investment required in training, tools and equipment affects all SMEs dealing with more complex vehicles (both authorised and independent).

For traditional standalone independent repairers, joining franchise networks appears to be an effective method of managing these issues - reflected in the increasing number of independent garages joining such networks. Overall, in the EU top five markets, the number of independent repairers belonging to a multi-brand franchise organisation has increased by over 50% between 2002 and 2010 (ICDP, 2014a). In Germany, according to a recent survey, around half of all independent repairers are part of a garage network. One of the principal reasons for joining is to obtain access to technical information from vehicle manufacturers, alongside staff training opportunities and improvements to the garage's visual appearance (Kfz-Betrieb, 2013).

6.2. Consumer perspective

Important factors determining consumer choice and welfare include:

- Prices of repair and maintenance services;
- Availability and choice of local repairers; and

Freedom of choice for parts and part quality. These factors are discussed in more detail below.

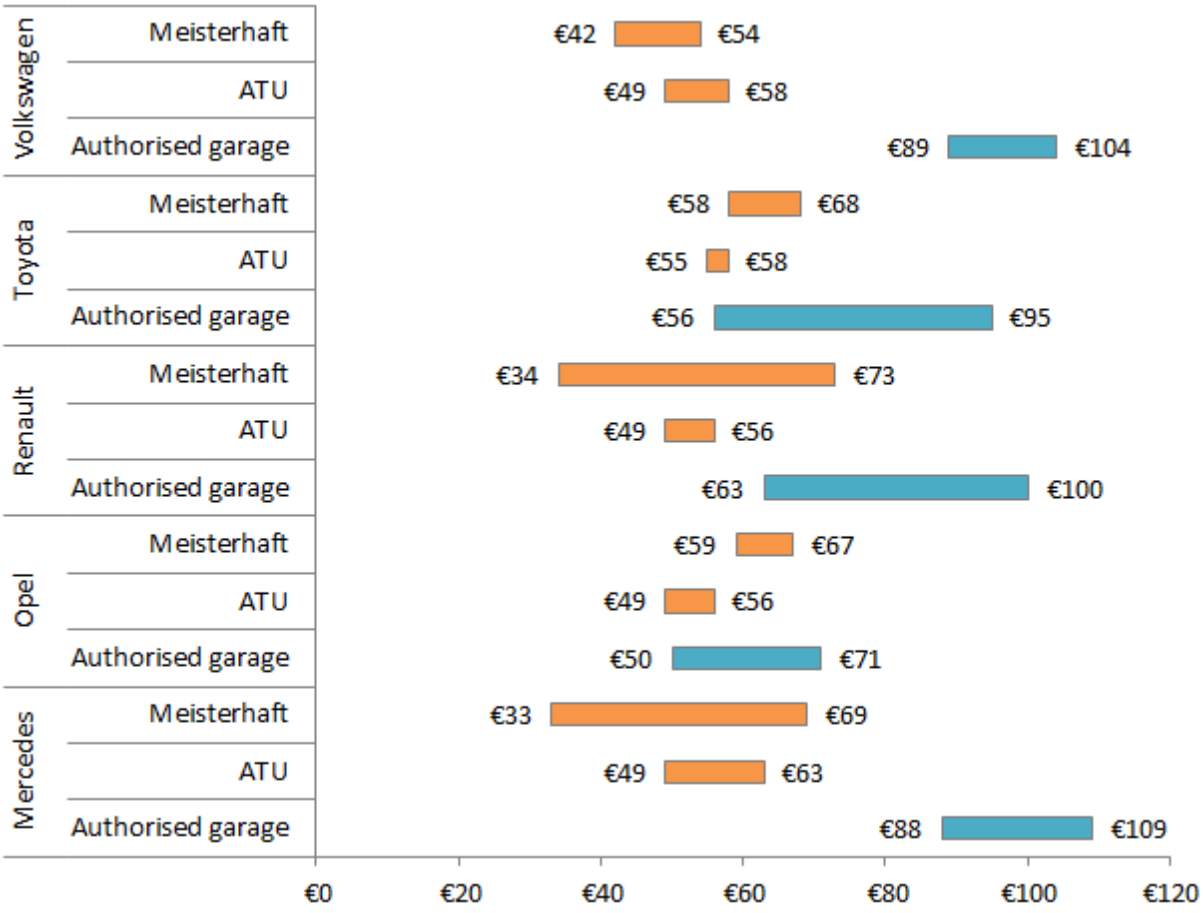
6.2.1. Prices of repair and maintenance services

The additional costs to authorised repairers from training, tools and complying with the manufacturer's branding and quality requirements tend to be recovered through higher rates to customers.

A hotly debated issue is whether authorised dealers actually charge more compared to independent operators – straightforward comparisons of prices do not take into account differences in service and parts quality.

Figure 6-7 illustrates how labour rates varied by brand and garage in a mystery shopper test carried out by *Stiftung Warentest* (2010). Authorised garages were found to charge higher rates on average for each manufacturer brand compared to the independent garages visited.

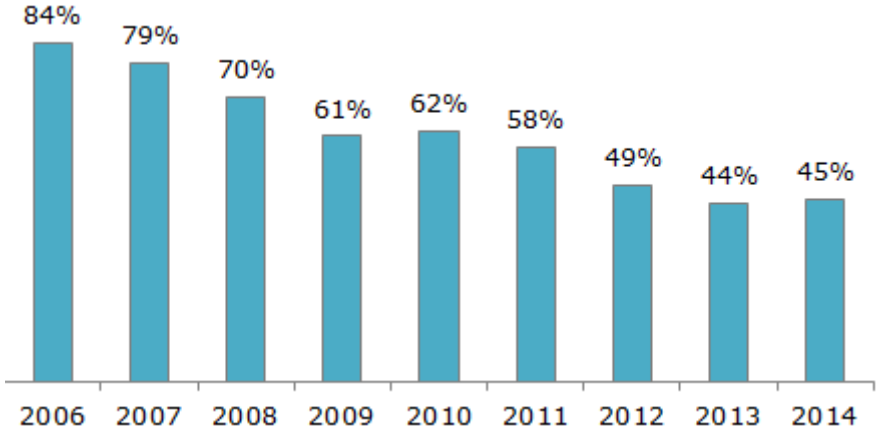
Figure 6-7: Range of hourly labour rates charged in the sample by manufacturer and type of garage



Notes: Five cars per OEM tested at each garage type; total of 75 garage visits. Meisterhaft and ATU are independent franchises in Germany
Source: Stiftung Warentest (2010).

Similarly, in the UK, labour rates gathered through a survey conducted by Warranty Direct found on average main dealers charged an average rate of £92/h (€116/hr) while independents charged an average £64/h (€80/h) - a difference of 45% (Motor Trader, 2014) – see Figure 6-8. The reduction in labour rates is through to be driven by the increasing popularity of fast-fits and autocentres, as well as manufacturer discount schemes for older cars placing price pressures on the overall franchised rate (Motor Trader, 2014).

Figure 6-8: Difference in average labour rates between authorised and independent workshops in the UK



Notes: Data based on the annual Warranty Direct Labour Rates Survey, which involves analysis of thousands of franchised and independent garages across the UK
Source: (Motor Trader, 2014).

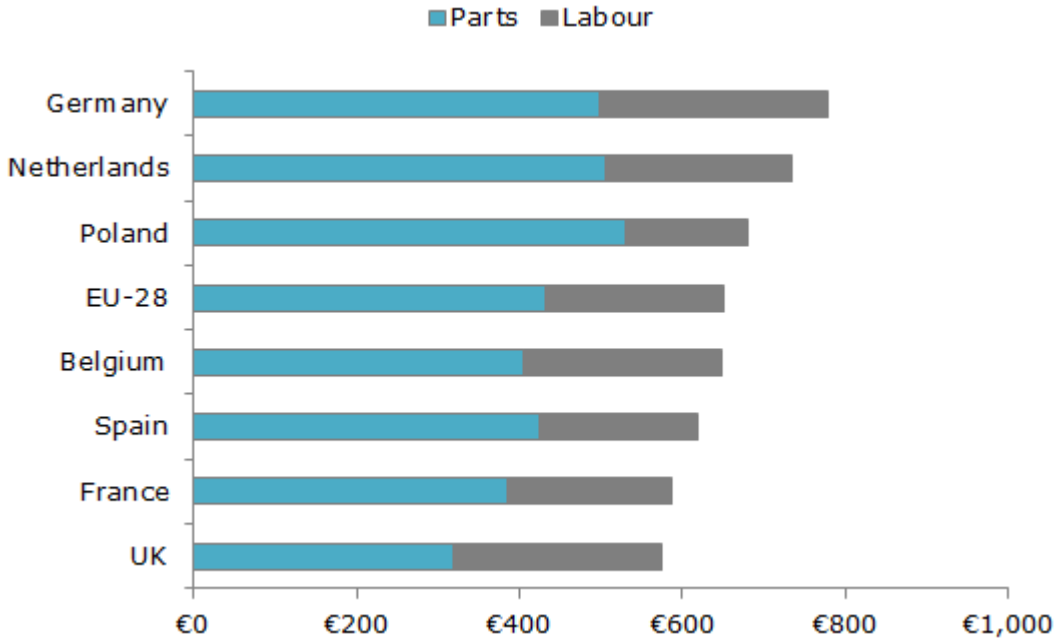
Finally, in France, average repair and maintenance prices in the independent channel were found to be between 15% and 30% lower than in the manufacturer channel in 2011 (Autorité de la concurrence, 2012). Price differences between the manufacturer channel and the independent channel are more or less important depending on the type of service – with differences being particularly large for scheduled maintenance, which was 25-45% lower in the independent channel. Differences in the hourly labour rates charged by authorised repairers and independent repairers were also significant, at an average of €74/hr for Level 1 authorised repairers, €57/hr for Level 2 authorised repairers[32] and €51 for independent repairers (Autorité de la concurrence, 2012).

Average annual parts expenditure is higher in countries with ageing vehicle fleets, but labour costs are lower on average in the EU-12 compared to the EU-15.

The total amount spent in the vehicle aftermarket per car registered varies between Member States (Figure 6-9). In the sample of seven countries analysed, expenditure per vehicle varies from just below €600 in the UK to just below €800 in Germany. Poland stands out in the sample as the country with the highest expenditure on parts and at the same time the lowest expenditure on labour. High parts expenditure is likely to be due to a slightly older vehicle fleet as well as a high number of LPG-converted vehicles while low labour expenditure is likely to be due to lower wage levels compared to the other countries in the sample.

[32] Level 1 authorised repairers, who tend to be dealers who distribute spare parts and often also sell new vehicles, and Level 2 authorised repairers, who only carry out repair and maintenance works and are not authorised by the manufacturer to distribute parts.

Figure 6-9: Annual aftermarket expenditure per car registered in 2012 (incl. VAT)



Source: Datamonitor (2014)

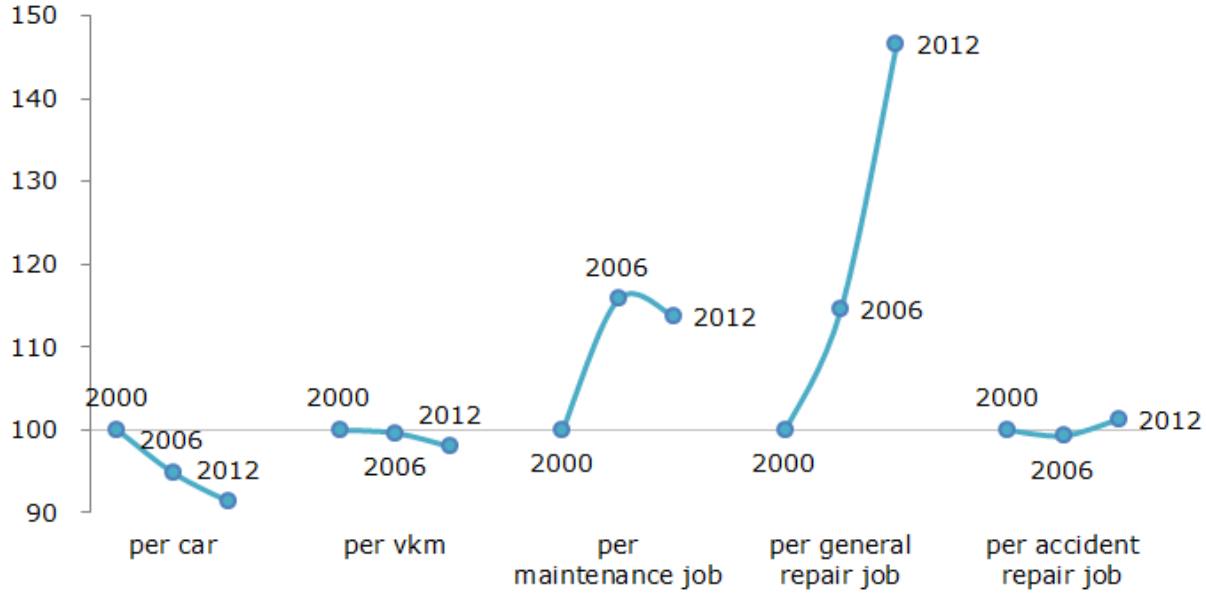
Skilled labour is required to repair and maintain vehicles, and increasingly to diagnose causes of malfunctions. Across Europe, average annual spending on parts in 2012 was €60 higher in EU-12 countries compared to the EU-15, but labour costs are €100 lower (Datamonitor, 2014). In Southern Europe, where countries have been hit especially hard by the recession, average annual spending is particularly low. According to DAT data for Germany, over the past 15 years, real expenditure per car on maintenance and non-accident repairs has remained fairly stable, while expenditure on accident repairs (data available from 2000) has fallen significantly, from around €420 in 2000 to €320 in 2012.

Overall, consumer spending on repair and maintenance has reduced, with falling volumes offset to some extent by increasing prices. In particular, competition in the vehicle maintenance sector appears to be stronger compared to the vehicle repair sector.

In real terms, average annual expenditure for vehicle repair and maintenance in Europe has seen a small decline from around €625 to €615 between 2009 and 2012 (Datamonitor, 2014).

A more detailed picture is available for the German market (Figure 6-10). It shows that between the years 2000 and 2012 real expenditure per garage visit, especially for non-accident repairs, has increased substantially. However, similar to the European trend, real expenditure per car has slightly reduced. This is because the number of garage visits per car has fallen over the years as cars have become more reliable, maintenance intervals have grown and the number of accidents has decreased. Between 2007 and 2013 the average number of jobs carried out per vehicle dropped by 9%, from 1.78 to 1.62 (DAT, various years).

Figure 6-10: Cost index for Germany (in real terms), 2000=100



Source: DAT 2014, HICP from Eurostat, vkm from DIW 2013

This illustrates the trend toward longer service intervals (more reliable vehicles/parts), which is only partially offset by the increase in cost per job – saving German consumers money overall.

In France, the cost of vehicle repairs has risen faster compared to the cost of maintenance (36% increase in price index for repair compared to 17% for maintenance between 2000 and 2011) (Autorité de la concurrence, 2012). The main contributing factor is thought to be that the repair segment is better insulated from competition, although rising labour and material costs have also had some influence (Autorité de la concurrence, 2012).

Particularly following the economic recession, discounts and sales offers have proliferated throughout Europe, offering significant discounts and many garage networks (including main dealers) are now offering price-match guarantees (Automotive Industries, 2012). Motorists in many markets remain cost-conscious, deferring non-essential maintenance and aiming to cut costs. As a result there has been an increase in the volume of budget components: including in Greece, Portugal, Spain and even in mature markets such as the UK (Verdict, 2014).

In countries where consumer knowledge of vehicle parts is relatively high (especially Eastern Europe), some consumers prefer to defer parts replacement until they feel it is absolutely necessary, while others will buy and replace the parts themselves to avoid service costs (Verdict, 2012).

6.2.2. Availability and choice of repairers

Since the number of authorised dealerships is usually much lower compared to independent garages, consumers may otherwise have to travel long distances to have their vehicles serviced.

According to one survey, half of consumers want a service point within 30 minutes of their house (Young, 2014). Another survey suggests that consumers give priority to the geographic proximity of the repairer over other factors such as price (Autorité de la concurrence, 2012). To achieve this level of service with dedicated manufacturer networks would be uneconomical, hence multi-brand services are important.

Table 6-1 provides the estimated number of garages provided to the study team by national associations, along with the share of which are part of manufacturer networks. While the development of aftermarket services varies greatly across Europe, the number of independent workshops is higher.

Table 6-1: Estimated number of garages in selected Member States in 2014

	Germany	Spain	UK	Netherlands	Belgium	Austria
Estimate provided by national associations	38,500	34,700	24,000	9,200	8,838	4,900
of which part of manufacturer networks	45%	42%	21%	35%	35%	49%

Notes: Estimates from national associations refer to 2014.
Sources: personal communication from Member State repairer associations - CEBEK, Netherlands (BOVAG), Belgium (FEDERAUTO), Austria (WKO), (TrendTracker, 2013) and (DAT, 2014)

National market composition strongly reflects consumer preferences. In regions with very high levels of independent repairers, the importance of access to vehicle RMI is clear – without fair and equal access, these vehicles could not be fully repaired and maintained.

For example, in Eastern Europe, independent workshops are dominant – estimated in 2010 to account for 93% of outlets in Latvia and 96% in Lithuania and Estonia (Aboltins & Rivza, 2011). Consumers in these countries are highly cost-conscious and DIY repairs are relatively popular, although as the complexity of vehicles increases and disposable income grows they are more likely to choose an independent workshop (Verdict, 2012). In Poland, independent workshops have a much larger number of outlets, providing access to a wider customer base, and customers are typically loyal to their local garage (Verdict, 2012).

In Southern Europe there tend to be a large number of independent repairers, while there are a larger number of authorised dealers in France and Germany. According to ICDP (2014a), independent service chains have developed well in Benelux markets, France, Spain and the UK, but have not been particularly successful in Germany and Italy.

Motorists across much of Northern Europe are traditionally loyal to local garages and generally prefer to let professionals choose the appropriate parts rather than fitting it themselves (Verdict, 2012). In Scandinavia and in Ireland, the market is relatively evenly split between garages and vehicle manufacturer networks. Vehicle manufacturer networks are expected to retain a high market share as the average age of the vehicle parc is relatively low, particularly in Sweden and Denmark. Garages are also anticipated to remain popular, especially in Scandinavia due to the presence of large chains such as Mekonomen (Verdict, 2012).

6.2.3. Choice of parts and the impact of guided sales

End-consumer demand for part choice is increasingly shaping the market, with a steady increase in the number of customers expecting their providers to offer a choice of parts quality.

In many markets it is often the repairers who select the spare parts on behalf of consumers – although in some regions DIY repairs are relatively popular. Typically, for vehicles less than two years old the use of original equipment parts dominates, and is a more important consideration than price. After this point, the importance of branding declines and price becomes more important (ICDP, 2013).

According to one survey[33], over recent years there has been a steady increase in the number of customers expecting to be offered a choice of parts quality, ranging from 17% in Germany to 34% in Italy (ICDP, 2013).

This aspect is particularly relevant for independent repairers operating under multi-brand franchises (ICDP, 2013), and highlights the need for workshops to be able to access accurate and up-to-date parts information across a range of suppliers.

Further development of online business is expected, where many cost-conscious consumers are able to purchase parts online and take them to a garage for fitting.

A number of aftermarket providers now make e-catalogue information available online and via mobile devices, or have released mobile applications that make it easier to search for and purchase parts. Currently, over 60% of spare parts available online are sold to end customers, while 30% are sold to repair shops (Roland Berger, 2014). Batteries, tyres and easy-to-install accessories (floor mats, seat covers, steering wheel covers and in-car entertainment) were identified as the parts most likely to be bought online by consumers (Capgemini, 2011).

For more complex parts, consumers can search for local workshops to have the part fitted and compare prices. For example, one concept - motointergrator.pl - allows the consumer to purchase the part and at the same time book a slot at an Inter Cars partner garage to have them fitted (Roland Berger, 2013a).

On the other hand, other business models aim to route consumers to certain channels.

Insurance companies have set up alliances to channel customers into selected repair shops (both authorised and independent). This already works very smoothly for accident and glass repair claims and may start to penetrate other service areas (Roland Berger, 2013b). In the bodywork sector, insurers account for a major part of the demand for spare parts – according to one study in France, approximately 85% of turnover in the bodywork sector comes from vehicle insurers (Autorité de la concurrence, 2012). Insurers encourage their policy holders to use their networks of approved repairers, while still respecting their freedom of choice[34].

The rise in new mobility concepts including car-sharing schemes, as well as the growth in fleet management also reduces the element of private consumer choice over parts – in future, framework agreements with these large customers will multiply (Roland Berger, 2013b).

6.3. Conclusions and recommendations

Overall, consumers appear to have benefitted from market competition through lower spending on repair and maintenance, while the vehicle technology has improved at the same time.

Greater price and margin pressure is expected in all segments due to increasing competition between OEM and independent networks. A trend toward consolidation has been observed since the early 2000's, and market developments suggest that this is likely to continue in the future – including new offers aimed at older vehicle segments from

[33] Covering 700 repair shops across the top four EU markets (Germany, France, Italy and the UK)

[34] Similarly to conditions for warranties, policyholders should be free to use any repairer of their choice although the use of an insurer-approved repairer is found to vary from 55% to 65% on average (Autorité de la concurrence, 2012).

OEMs, and greater availability of online information that enables consumers to shop around.

Ultimately the Regulation on access to RMI aims to protect consumer choice, allowing an owner to take their vehicle to whichever outlet they choose. For example, consumers may prefer a garage due to its proximity, long-standing relationship, turn-around times and numerous other factors that may vary between authorised and independent repairers. Nevertheless, this freedom of choice should not come at the cost of vehicle performance or safety.

SMEs are socially and economically important, yet they tend to struggle with the costs of the tools and training required to service modern vehicles, and with aggressive promotional pricing strategies for standardised products.

The increased level of investment required in training, tools and equipment affects all SMEs dealing with more complex vehicles (both authorised and independent). The traditional standalone repairers are expected to be significantly affected - reflected in the increasing number of independent garages joining franchise networks. One of the principal reasons for joining is to obtain access to technical information from vehicle manufacturers, alongside access to training and marketing.

Large framework agreements are likely to become more important in future years.

Insurance companies, leasing companies and fleet managers have increasingly been developing agreements with independent aftermarket players in recent years in order to reduce their costs. The rise in new mobility concepts such as car-sharing schemes has also presented new opportunities. Yet, since these actors represent a key source of business they are consequently in a strong negotiating position, which should stimulate additional competition.

The ability for independent operators to offer the required service levels highlights the importance of accurate and timely RMI, especially given the average age of these vehicles is low. However, it is typically only the larger independent franchises that have the credibility to attract these customers.

7. ENVIRONMENTAL AND SAFETY BENEFITS OF THE SYSTEM OF ACCESS TO VEHICLE REPAIR AND MAINTENANCE INFORMATION

Overview:

This task aims to determine whether the system of access to RMI for Euro 5/6 vehicles has led to environmental and/or safety benefits.

However, since the current penetration of Euro 5/6 vehicles in the independent repairer market is extremely low, the majority of independent repairers have limited or no experience in working with these vehicles. As a result, the analysis is primarily based on expert judgement, literature review, and a limited number of stakeholder survey responses.

7.1. Potential environmental benefits of access to RMI

There are several potential mechanisms through which access to RMI could influence environmental issues:

- **Preserving equipment performance:** avoiding excess emissions from malfunctioning or incorrectly maintained equipment.
- **Reduced travel:** allowing repair and maintenance work on vehicles to be carried out closer to the vehicle's usual location.
- **Remanufacturing**: reduced lifecycle emissions due to remanufacturing or refurbishing of parts and components.

7.1.1. Preserving equipment performance

A large fraction of total emissions from road transport are thought to come from vehicles with malfunctioning emission control systems that have not been properly maintained and/or repaired.

If independent providers are better able to identify and/or repair vehicle defects that can affect vehicle emissions due to provision of RMI, these emissions may be reduced compared to the theoretical baseline situation in which the Euro 5 provisions on RMI had not been implemented.

Malfunctions on emission-related components should generally be detected by the vehicle's OBD system. The system will indicate (e.g. by means of a light on the dashboard) a malfunction only if the threshold limit is exceeded or if a malfunctioning component is detected during the OBD system checks. Before this point, a vehicle's emissions may already be increased (although still below the threshold limit).

Once the OBD system detects a malfunction, diagnostic codes can be obtained to identify whether the problem is related to a sensor or component. For some malfunctions, e.g. for malfunctions that may cause engine damage, the engine management system may switch to 'limp-home' mode.

A list of the most common components that may affect vehicle emissions when malfunctioning has been compiled, based on input from parts distributors/wholesalers and data publishers, as well as expert judgement. This is shown in Table 7-1. The table also shows estimates on whether there could be potential improvements in a repairer's ability to identify and/or repair the fault, as well as the level of errors in parts identification.

Table 7-1: Potential malfunctioning vehicle components, their effects on emissions and potential effects of access to RMI.

Part	Possible (reasons for) malfunctions	Effect on emissions	Improvements due to RMI?		Errors in spare part identification due to lack of unequivocal identification
			Identifi-cation	Repair quality	
Variable valve timing	Large range of possible malfunctions	Could be large, depending on malfunction	Yes	Yes	1%
(Cylinder) valves	Contamination, wear, damaged by overheating, stem seal leakage	PM_{10} and CO_2	No	No	1%
Pistons	Contamination, wear, damaged by overheating	PM_{10} and CO_2	No	No	1%
Spark plugs	Misfire	CO, HC and CO_2	No, standard code for misfire	No	20-50%
Diesel glow plug	Overvoltage, overheating	Mainly PM_{10}	RMI may facilitate	No	25-50%
Fuel injectors	Diesel: deposits Petrol: misfire	Diesel: Smoke, PM_{10} Petrol: HC	May not be easy to detect, so RMI helps	No	1-25%
Lambda sensors	Bent sensor, carbon deposits, rusty contacts, frayed/broken cables	NOx, HC, CO	No, standard codes	No	2-15%
Catalytic converter (3-way)	Superheating, anti-freeze or oil in exhaust, deteriorated spark plugs	NOx, HC, CO	No	No	15-25%
LNT (lean NOx-trap)	Superheating, anti-freeze or oil in exhaust, deteriorated spark plugs	Mainly NOx	Yes	No	0-3%
EGR valve	Carbon deposits	NOx, possibly also PM_{10}	No	No	1-15%
DPF (Diesel particulate filter)	Defective temperature sensors, pressure sensors, poor connections, wiring issues	PM_{10}	No	No	3-10%
Mass air flow sensor/Manifold air pressure	Hard to start engine or stall after starting, hiccup when the throttle suddenly changes position	Possibly all emissions	No	No	1-15%

Part	Possible (reasons for) malfunctions	Effect on emissions	Improvements due to RMI?		Errors in spare part identification due to lack of unequivocal identification
			Identifi-cation	Repair quality	
Cooling Parts, thermostat	Overheating, or too cold	Possibly all emissions	Yes	No	5-10%
ECU	Engine malfunctioning	Possibly all emissions	No	Replace	N/A
ECU	Software update	Fuel economy	Yes	Yes	N/A
Engine management sensor	Foot pedal position, throttle position, temperature, etc.	Possibly all emissions	No	No	2-15%
Turbo		Possibly all emissions, mainly PM_{10} and NOx	No	No	N/A
SCR		Mainly NOx	No	No	0-25%

Notes: Responses from 56 different parts wholesalers/distributors and data publishers
Source: Survey conducted for this study

Overall, there are limited components for which stakeholders feel that access to RMI has improved repairers' ability to identify and/or repair emissions-related malfunctions.

Early detection and repair of malfunctions can result in fewer emissions; however in terms of improvements in identification of faults, a vehicles' OBD system will signal failures for most of the listed components. Furthermore, the malfunction codes are standard codes that independent repairers were previously able to identify. However, some malfunction codes are OEM-specific and may therefore not be available in the handbooks that independent repairers have at their disposal.

Software updates are sometimes performed to improve fuel economy, or as preventative measure to prevent faults from appearing. Under the Euro 5 Regulations, independent operators may now carry out reprogramming; however it appears that independent operators do not currently exercise this option regularly. In the future, as awareness levels increase, more independent workshops may offer reprogramming.

The number of components for which the quality of the repair is likely to be improved given the access to RMI is also considered to be very limited. This is because almost all of the listed components in Table 7-1 would be replaced rather than repaired. Prior to the introduction of the Regulations, it was already possible for repairers to select an appropriate OEM or third-party replacement component (for example from handbooks) - therefore the availability of RMI is not likely to have improved the quality of the repair. However, access to RMI may increase the practicality of identifying the correct replacement parts as well as the repair itself.

Other issues that may cause additional emissions are likely to have been detected by independent repairers without access to RMI, and are not considered to be relevant in this respect – for example: worn bearings (additional drag), badly filled air-conditioning (lower efficiency and therefore higher fuel consumption), dragging brakes, incorrect tyre pressure, and wheel alignment, etc.

The fitment of incorrect parts due to errors in identification could be an issue for repairers, and in these cases a reduction in emissions performance might result.

Parts wholesales/distributors and data publishers provided estimates of the potential errors in parts identification due to a lack of unequivocal identification. Their responses indicated that errors could occur for most types of equipment related to emissions control outlined in Table 7-1, with error rates of up to 50% for some equipment. The wide range in estimates of the frequency of these errors was due to the diversity of parts numbers and technical specifications for different models. It should be emphasised that these issues are thought to be due to a lack of unequivocal parts identification (i.e. that multiple parts choices were available) and not due to, for example, the quality of the parts or the skill of the repairer.

The study team visited a parts wholesaler, who demonstrated how it was possible to incorrectly order several emissions-related parts (such as catalysts and lambda probes) due to unequivocal identification. In these cases, the parts wholesaler claimed that it was unlikely to be noticed if the wrong part was fitted, although emissions performance would decrease.

7.1.2. Reduced distance driven to repair locations

Impacts of reduced distances are not yet evident since most Euro 5/6 cars are still in warranty.

To date, the majority of Euro 5/6 vehicles are relatively new, and would therefore likely be covered by OEM warranties, guarantees and servicing agreements that can be performed by authorised dealers. In such cases, consumers typically take their vehicles to authorised repairers. Potentially, as these vehicles age and users become more likely to switch to independent repairers, vehicle travel could be reduced by allowing repair and maintenance work on vehicles to be carried out closer to the vehicle's usual location. This effect could be realised through allowing users to take their vehicles to an independent repairer who is much closer to them, or by avoiding transfer of vehicles to different repairers where the first repairer is unable to carry out the job.

In practice, the differences are not expected to be significant compared to annual mileage.

Since the network density of independent repairers is much greater compared to authorised dealers (considering that the independent repairers are typically multi-brand whereas authorised networks are more specialised), such an occurrence seems plausible.

In practice, the difference in distance driven (hence emissions) when compared to annual mileage resulting from any of these scenarios would be negligible. For example, the typical annual mileage in European is around 13,200km (EMISIA, INFRAS and IVL, 2013), and on average a car may require maintenance/repair only once per year.

7.1.3. Remanufacturing and/or reuse of parts

Access to RMI may be of increasing importance to allow independent remanufacturers to work on more complex components, leading to significant lifecycle savings in energy and emissions.

In terms of overall savings in lifecycle emissions, the use of remanufactured parts and components can conserve up to 85% material and energy use compared to new parts (Optimat, 2013). Further environmental benefits can also be expected in terms of water

consumption (88% lower), chemical usage (92% lower) and waste (70% lower) (Ellen MacArthur Foundation, 2013).

A remanufactured automotive part is functionally equivalent to a new part but costs are typically 25-50% lower and often the same warranty is offered (Volkswagen, 2009), so there are financial benefits to consumers as well. Availability of parts is currently low due to Euro 5/6 vehicles being relatively young, although vehicles retired early from the fleet (e.g. due to crashes) will become available sooner.

A large part of remanufacturing activity is carried out by independent aftermarket operators. Since remanufacturing involves significant effort, it is typically carried out only on high value parts - components that are often remanufactured include many mechanical and hydraulic parts (engines, gearboxes, pumps etc.). Other areas are at an earlier stage of development (such as electrical and electronic components) where the complexity is much greater, and there is considerable potential for market growth.

> *"In general there are more electronic components which add extra difficulties when parts are remanufactured or repaired… Full technical data availability at an affordable price [is important]"*
>
> - Remanufacturer

Although it was not possible to quantify the impact of access to RMI on levels of overall remanufacturing, it appears that availability of technical information is important, particularly given the growing electronics content of vehicles. While the volume of remanufactured components on the European market is currently low, there is increasing interest in this sector.

Some stakeholders also indicated that incorrectly fitted parts could cause damage to the vehicles (e.g. damage to the engine or axles), although such occurrences are rare.

In these cases, the useful life of the components and/or vehicle would be reduced, potentially leading to higher emissions from the sector due to additional manufacturing/transport of replacements. However, stakeholders indicated that in most cases the repairer is able to identify that the part is not correct – therefore the overall occurrence (and environmental impacts) of damage to vehicles/components is unlikely to be significant.

7.2. Potential safety benefits of access to RMI

General feedback from a range of independent operators suggests that it continues to be difficult to get technical details necessary for safety-related issues.

While the stakeholder engagement was only able to cover a sample of independent operators, several stakeholders expressed a view that there were still issues with gaining safety-relevant RMI. Authorities responsible for periodic technical inspections noted some general difficulties, but could not comment on how the situation for Euro 5/6 vehicles had changed in detail due to the majority of these vehicles being too young to necessitate inspections – hence their experience with the new system is low.

"In general it continues to be difficult to get technical details necessary for vehicle inspections. Everyone knows that there is an obligation to provide information, but its usability remains difficult… [However] we have been working with manufacturers to improve the format."

- Authority responsible for periodic technical inspections

Lack of access to unequivocal parts identification information was highlighted to be the main cause of errors in parts identification.

Respondents to the survey of parts wholesales/distributors noted that, while a lack of access to data in an easily processable format increased their costs, the errors introduced by manual processing were very low (typically 0.1%, and improving based on customer feedback). Rather, errors in spare part identification were due to multiple relevant parts being found due to lack of unequivocal parts identification. Stakeholders identified several potentially safety-relevant issues, as shown in Table 7-2.

Table 7-2: Potential errors in safety-critical parts due to unequivocal parts identification

Part	Errors in spare part identification due to lack of unequivocal identification
Brakes	5-20%
Steering and suspension	5-20%
Electronic parts (e.g. starters, alternator)	5-30%
Clutches	5-15%
Shock absorbers	5-10%
Ball joints	2-3%

Notes: Responses from 83 different parts wholesalers/distributors and data publishers
Source: Survey conducted for this study

Responses were received from a wide range of parts wholesalers/distributors and data publishers, with a wide range of estimates. The upper estimates of the error rates appear to indicate specific cases, while in the majority of cases the estimates provided were toward the lower end of the range.

A direct link between an incorrect part and increased risk of accidents is difficult to determine, as discussed below, so the safety implications of these errors are not easily assessed. Anecdotally, parts wholesalers interviewed as part of the study were not aware of any safety-relevant errors that have led to accidents or complaints – in many cases an "incorrect" part will function similarly to the correct part.

However, it is difficult to assess whether there have been any safety implications for Euro 5/6 vehicles, due to the vehicles concerned being relatively young and the statistics generally poor.

Safety impacts resulting from the operation of the system of access to RMI are very difficult to calculate - six national organisations responsible for the periodical technical inspections of vehicles from different Member States were approached for comment. All of them were of the view that Euro 5 and 6 vehicle models are too new to the market to accurately assess whether access to RMI has helped to improve vehicle safety.

Although it is very difficult to draw any conclusions regarding the impact of the availability of vehicle RMI on road traffic safety at this time, this is an important issue that may justify further investigation once Euro 5/6 vehicles have entered the European vehicle parc more widely.

7.3. Conclusions and recommendations

With respect to the impacts on environmental emissions, it appears that access to RMI may in some cases be useful to identify certain malfunctions resulting in additional vehicle emissions.

This is especially the case for OEM-specific malfunction codes. As a result, repairs may possibly be performed quicker and therefore at lower costs. However, the effects of access to RMI on overall emissions are expected to be very limited as (almost) all malfunctions related to emission control are signalled by the OBD system.

Emissions savings from greater remanufacturing is possible, and environmental benefits are very high per part – however overall market values are low.

Better availability of RMI may assist independent remanufacturers in dealing with more complex components, and savings of 80-90% of emissions and materials are possible for a remanufactured part. However, independent remanufacturers typically operate on a small scale, so overall market volumes are low.

With respect to safety issues, some independent operators have suggested initial difficulties in safety-related areas, but admit that current experience levels with Euro 5/6 vehicles are low. Empirical evidence of any increases in accidents due to incorrect parts is difficult to determine.

Safety-related defects are more common on older vehicles, so currently there is little experience in the sector of handling these issues. Initial suggestions are that it may be challenging to access required RMI, with unequivocal parts identification being highlighted as an issue for certain components.

However, the study team believe that OEMs would be anxious to remedy any safety-related issues, since consumer safety is of critical importance to their organisations.

Consumers appear to defer vehicle maintenance in order to save money, suggesting that price competition in the aftermarket to keep prices low will help encourage consumers to keep their vehicles better-maintained.

Better-maintained vehicles should have a lower risk of accidents and emit fewer emissions. More than 2,000 fatalities per year in Europe and thought to be linked to technical defects of vehicles, and defects increase emissions (e.g. CO, HC, NO and CO_2) by between 1.2% and 5.7% depending of vehicle and fuel type (European Commission, 2012b). Evidence from European-wide aftermarket sales data suggests that consumers have deferred maintenance to save money following the economic recession (Verdict, 2012). One survey suggests that 36% of UK motorists have deferred servicing their car in order to save money (TrendTracker, 2013), while another suggests 52% of drivers have deferred maintenance (am-online, 2014).

However, a direct link between access to RMI and improvements in environment and safety issues is difficult to quantify due to a paucity of independent data, and the real-world impact will not be evident for several years.

In order to properly study the effects of the RMI provisions on safety and environmental issues in future reports, a more consistent approach to data collection will be required throughout the EU.

In most cases, information on the Euro class of a vehicle is not recorded during inspections or accident reports, which may be necessary for near-term studies on this topic. In addition data on whether or not a technical fault may have contributed to an accident is needed - few Member States currently record this accident data in sufficient detail.

8. OVERALL CONCLUSIONS AND RECOMMENDATIONS

In order to be competitive, independent repairers need to be able to access the technical information necessary to repair vehicles. This technical information is increasingly important due to the greater complexity of vehicles, growing number of parts and more use of on-board electronics.

Despite overall improvements in access to RMI in recent years, certain obstacles are still apparent to varying degrees depending on the OEM and specific type of information required. This is likely to weaken competition between authorised and independent repairers.

This study has assessed the functioning of the system of access to vehicle repair and maintenance in Europe. Conclusions relevant to each of the major stakeholder groups are summarised below.

8.1. OEMs

OEMs have invested significant effort into their RMI websites and compliance with most of the requirements that are explicitly set out in the Regulations is high.

Providing the required level of functionality on their websites has entailed high investment costs for some OEMs, while in practice the usage of the required functionalities by independent workshops has been very low to date (compared to activity levels within their authorised networks). The main reasons for this disconnect appear to be issues that are very difficult to resolve, particularly around standardisation of formats/compatibility, as well as being able to charge fees that are fair to both the independent aftermarket and their own authorised network at the same time.

Furthermore, it is clear that direct flows of information from OEMs to independent repairers are limited – rather, these repairers rely on information passed to them via specialist intermediaries. Opportunities to recoup any additional investments made to their websites through user fees are therefore uncertain (for example, those required to comply with ISO/CEN standards).

In some cases, independent operators have had difficulties in accessing information – yet most of the OEMs interviewed firmly believe they fully comply with the requirements of the Regulations.

Only a case-by-case analysis can determine the precise reasons for any issues encountered by independent operators/intermediaries in terms of the reported delays, contractual restrictions, prices and completeness of the data made available to them. Various possible explanations have been offered and are considered plausible, due to the requirement to negotiate individual contracts between firms.

Overall, the situation suggests a need for OEMs to be able to demonstrate their compliance with the Regulations more clearly through following common guidelines, with a particular focus on aspects that were often considered unclear (discussed below). This will help to ensure that independent repairers are better able to access the information they need – whether directly from OEMs or via third parties. It will also help to ensure that OEMs are not unfairly accused of discrimination or non-compliance by providing a benchmark against which they can demonstrate their performance.

To support OEMs in this respect, the following actions are recommended:

- **Provision of additional guidance and clarification on aspects of the Regulations,** including:

- **Definition of "reasonable" fee levels**, including:
  - Appropriate metrics that may be included in their calculations of charges for access to information for all users[35], taking into account the needs of both OEMs and independent operators.
  - Charges for technical support, where prices have been found to vary substantially.
  - Fees for registration/verification checks under the security certification scheme SERMI.
- **Information that may be categorised as safety- or security-related**. There is a legitimate need to restrict access to such information, but without a common understanding disputes are likely to continue. A primary concern for OEMs is the need to protect their intellectual property, as well as their competitiveness (where divergent approaches between OEMs could lead to competitive distortion). In this respect, a first step would be to convene technical discussions about the content and boundaries of such information between OEMs and the European Commission in order to develop a more consistent approach and a level playing field. **Requirements related to Reg. 692/2008, Article 2.1(2):** covering access to information on bulk data on parts, as identified by VIN. As noted in Section 4, there is litigation on this topic that remains unresolved due to different interpretations of the requirements.
- **Contractual clauses to ensure adequate protection and use of their data when contracting with specialist intermediaries:** currently there are a wide range of different practices, which are not transparent. Yet the research clearly showed that at least some organisations have managed to reach agreements that are acceptable to both parties and some OEMs are considered to have more sophisticated systems in place for dealing with individual contract requests. Rather than expecting all contracts to be based on identical criteria, guidance is required to help both OEMs and independent operators establish appropriate negotiating positions in a variety of contexts. Acceptable conditions and prices will vary depending on the context of the agreement, the intended use of the data, and the market situation of the OEM etc.
- **Certain requirements relating to "non-discriminatory access":** areas that were highlighted as being unclear included in particular the provision of information in different languages, which entail costly translation fees.

- **Derogations or alternative means of providing RMI for very small volume, niche and special purpose vehicles:** The requirements of the Regulation may be considered too onerous for small volume manufacturers or niche vehicle manufacturers. Derogations for such manufacturers could be considered in future amendments to the Regulations. Regarding provisions for derogations for small volume manufacturers, provisions have already been included in similar legislation: Regulation No. 168/2013 (Approval and market surveillance of two-or three- wheel vehicles and quadricycles) and Regulation 44/2014 (supplementing Regulation 168/2013), which provide some exceptions for small volume manufacturers regarding the access to RMI information.

While clearer guidelines in these areas are expected to be beneficial for both OEMs and independent operators, the study team recognises that reaching agreement on the precise content and boundaries has the potential to be contentious.

[35] Including specialist intermediaries.

8.2. Independent operators

Access to information via specialist intermediaries is vital to keeping the costs of access to RMI across multiple brands in check, so that independent and multi-brand repairers are able to compete effectively.

The investments in tools and training required to meet the demands of more complex modern vehicles are significant, and it is rarely economically viable for repairers to purchase single-brand solutions.

The SERMI scheme aims to create a European-wide process for accreditation, approval and authorisation to access security-related RMI, which should streamline the current patchwork of systems; however, any fees and requirements for such certification (including specific training) should be reasonable and proportionate.

Regarding new advanced technologies - while there is an increasing need for safety-related training to ensure that independent repairers are able to properly perform jobs on advanced technologies, it would be beneficial to consider how to recognise multi-brand training in certification for access to information restricted for safety reasons

Any issues involving the transfer of information from OEMs to republishers in the first stage (e.g. delays in obtaining contracts, incompleteness/inaccuracy of the data etc.) tend to propagate through to the end users.

Given the fundamentally different business model of the independent multi-brand repairer compared to an authorised dealer, it appears unlikely that their needs would be best served by accessing each OEM's information directly. Rather, specialist intermediaries (data republishers, spare parts wholesalers/distributors and training providers) are currently the main providers of technical information to repairers (see Section 5.3.3.1 and Section 5.4.2).

One of the key difficulties is the need to negotiate individual contracts with the OEMs – a process that varies greatly depending on the parties involved.

Specialist intermediaries frequently highlight problems with gaining data directly from OEMs, either in terms contractual clauses that make their products unviable, or restrictions that reduce the value of their products.

Manufacturers of diagnostic tools and equipment usually prefer reverse engineering over direct access to information from OEMs due to various restrictive contractual clauses (especially territorial and cancellation clauses) and the time taken to negotiate agreements. The downsides of this are that the information obtained through reverse engineering can be less comprehensive, while significant effort is involved – while OEMs miss the opportunity to gain revenue from licences.

In addition, parts wholesalers frequently cite issues in reaching agreements with OEMs. As a result it appears that parts wholesalers have largely "outsourced" the negotiation process to data republishers, from whom they subsequently purchase the information they require.

This suggests that current practices that discourage the use of information directly from OEMs are likely to be adversely affecting the competitiveness of independent repairers. Therefore it is vital that specialist intermediaries are ensured access to technical information.

To help mitigate these issues, further guidance and clarity is needed on the following aspects:

- **Standardised processes for formatting and transmitting the required data (including updates to the data)**:

  - The CEN/ISO standards currently focus on the format of the information provided, but similar standards may be required for the formatting and transmission of other types of technical data, including data that is wirelessly transferred. In general, independent operators felt that as long as data could be electronically processed, the precise format was less important (the current main challenge is the manual scanning of data); therefore the requirements do not necessarily need to be as detailed as the current CEN/ISO standards for RMI websites.
  - A growing challenge is managing logistics and inventories, for which access to up-to-date and accurate spare parts information is required to ensure that the right parts are available, delivered on time and with minimal returns. Further clarification of the Regulations in this respect is needed, as the issues are proving to be extremely complex due to different interpretations.
- **Quality standards** for the different types of information that must be provided, including reliability, completeness, timeliness and functionality.
- **Guidance on practical and mutually acceptable contract negotiation practices** that ensure the proper use of the data without making their products unviable, including:
  - Prices, including guidance on appropriate fee structure and "reasonable" price increases during contract/subscription renewals.
  - "Reasonable" negotiation periods and response times from OEMs.
  - Examination of cancellation and territorial clauses.

8.3. Enforcement and compliance authorities (type approval authorities)

Procedures for investigation of complaints and penalties for infringement need to be better defined and harmonised across Europe.

In order to prevent loss of custom for Type Approval Authorities (TAAs) in countries with the greatest penalties, appropriate fines and/or guidance should be provided for at EU level – these are needed in addition to the power to revoke type approval, which is generally considered to be an extreme option. In addition, guidance is required on how to deal with situations where type approval is granted in one country but an authority in a different country receives a complaint.

A separate verification body may be more suitable to address the mandatory requirements of the Regulations in order to allow pooling of administrative costs

This verification body should have the necessary specialist technical knowledge and resources, particularly when verifying the following aspects:

- Compliance with the detailed requirements set out in the CEN/ISO standards, where very specific requirements are set out.
- Monitoring of technical compatibility (e.g. for online diagnostics) and the conditions under which technical information is transmitted to specialist intermediaries.

8.4. Recommendations on a revised framework Regulation

Requirements for access to RMI should remain in an EC Regulation, although consideration should be given to disassociating them from Type Approval requirements related to emissions.

General support for including the provisions on access to RMI in a revised legislative framework was found among stakeholders. Representatives of independent operators noted that the current inclusion in the Euro 5 Regulations was confusing, and contributed to a lack of awareness in the independent aftermarket of their rights. Further, in a speech at the CLEPA aftermarket conference (2011), the European Commission's Automotive Industry Unit at DG ENTR recognised that "*repair and maintenance was a horizontal issue and not limited to passenger cars / light-duty vehicles and that it was not meant to be restricted to emission control equipment and should rather be regulated in the framework legislation laying down general type approval requirements*."

Inclusion of RMI in in the Euro 5 Regulation was also considered to be confusing because vehicle RMI concerns the whole vehicle structure (and beyond if parts/ aftermarket accessories are taken into account), rather than just the engine. Current type approval procedures are designed to ensure compliance with a set of conditions and standards. The level of information required for RMI – on the other hand - is currently still open to interpretation and allows for a six month time lag between type approval and mandatory completion of the requirements.

The current system is not well-equipped to deal with occasional incidents such as missing data and other deficiencies. Revisions to the Regulations could consider some of the aspects suggested above to help improve the situation.

A more efficient monitoring and enforcement system, combined with guidelines on more standardised transfer/content of information provided to specialist intermediaries would improve independent repairers' access to RMI.

A consistent administrative procedure for complaints would help to address issues that are occasional or not systematic in nature. Implementation and harmonisation of fines/penalties across Member States also appears to be important in order to avoid a patchwork of different measures that may cause distortion between the administrative burdens and/or potential business viability of national TAAs. Consultation with stakeholders should be conducted in order to decide on the appropriate penalties.

The issue of telematics appears to be an emerging challenge, and harmonisation with relevant international standards and other European legislation is crucial.

Some OEMs operating globally also emphasised that international harmonisation would be beneficial, and in this respect several collaborative arrangements are already ongoing (in particular with the USA). However, any amendments should provide for sufficient time for OEMs to make the required changes. Independent operators have also acknowledged that OEMs are often very large, complex organisations, and bringing all of the required information into one place can be a challenge for them internally.

9. ANNEX 1: OVERVIEW OF EUROPEAN POLICY

9.1. The European Commission Block Exemption Regulation 1400/2002

Article 101.1 of the Treaty on the Functioning of the European Union (TFEU) establishes a prohibition for all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between EU Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market.

However, Article 101.3 of the TFEU provides for an exemption for agreements that contribute to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which does not impose indispensable restrictions and eliminate competition.

The Commission issued Regulation 1400/2002 of 31 July 2002 on the application of Article 101.3 TFEU to categories of vertical agreements and concerted practices; a specific block exemption is established for agreements in the motor vehicle sector. It is important to point out that this Regulation, even if related to manufacturers' obligations, is a Competition Law set of rules and not regulatory legislation.

Regulation 1400/2002 defined which categories of vertical agreements met the conditions of Article 101.3 TFEU and could therefore benefit from the block exemption.

Pursuant to Article 4(2) of the Regulation, the block exemption shall not apply where the supplier of motor vehicles refuses to give independent operators access to any technical information, diagnostic and other equipment, tools, including any relevant software, or training required for the repair and maintenance of these motor vehicles or for the implementation of environmental protection measures.

In particular, the access must include *"the unrestricted use of the electronic control and diagnostic systems of a motor vehicle, the programming of these systems in accordance with the supplier's standard procedures, the repair and training instructions and the information required for the use of diagnostic and servicing tools and equipment.* ***Access must be given*** *to independent operators* ***in a non-discriminatory, prompt and proportionate way, and the information must be provided in a usable form****. If the relevant item is covered by an intellectual property right or constitutes know-how, access shall not be withheld in any abusive manner".*

9.2. Changes in the European Commission Block Exemption regime for motor vehicles

In 2007 the issue of access to repair and maintenance information (RMI) was included in the type-approval legislation for the first time. It was decided that access to RMI for independent operators (IO) should be part of the general type-approval requirements.

Therefore, in accordance with Regulation No 715/2007 of 20th June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, obtaining the Euro 5/6 type-approval is submitted to a number of requirements, among which is granting access to RMI of vehicles.

Moreover, the abovementioned Regulation 1400/2002 was replaced by Commission Regulation No 461/2010 of 27th May 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and

concerted practices in the motor vehicle sector (Regulation 461/2010)[36] which specifies which agreements can be subject to the exemption provided in article 101 (3) of the TFEU. As indicated in the recital 13 of the new block exemption Regulation, the independent spare parts suppliers' and repairers' ability to compete depends on unrestricted access to essential inputs such as spare parts and technical information.

[36] COMMISSION REGULATION (EU) No 461/2010 of 27 May 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and concerted practices in the motor vehicle sector, OJ L 192/52 of 28.5.2010.

10. ANNEX 2: ANALYSIS OF LITIGATION CASES

10.1. Decisions concerning Daimler Chrysler, Toyota, General Motors and Fiat

In its 2007 decisions concerning Daimler Chrysler, Toyota, General Motors and Fiat, the European Commission had indicated that although the aforementioned companies had improved the accessibility to their vehicles' RMI following the entry into force of Regulation 1400/2002, the information that had been made available to independent repairers was still incomplete. In order to solve this problem, the companies offered commitments by way of which the same technical information would be made available in a non-discriminatory manner to authorised and to independent repairers. The Commission declared these commitments binding for the companies until 31st May 2010.

10.2. Decision n° 07-D- 31 of 9 October 2009 on practices implemented by Automobiles Citroën

Regulation 1400/2002 was one of the legal basis of the French competition authority decision in the 2009[37] which informed the French competition authority (*Autorité de la Concurrence*) about a potential abuse of dominant position consisting on Citröen's refusal to give access to technical information for its vehicles.

This decision originated from a complaint put forward by Autodistribution and AD Net, two independent repair and maintenance operators. They claimed that, by withholding the use of this information to its official repair services only, Citröen excluded independent workshops from competing in the market for reparation and maintenance. According to the complainants, Citröen also infringed Article 2, paragraph 4, of Regulation 1400/2002.

10.2.1. The complaints

According to both Autodistribution and AD Net, the diagnosis tool *Lexia Proxia* offered by Citröen did not provide sufficient information as it only gave access to defect codes and not full deatails of the reparation methods. In particular, the complainants indicated that they did not have access to:

- the tele-coding function; or
- a database including information from the daily practice of authorised repairers.

Citröen justified these restrictions based on safety reasons. In fact, the manufacturer relied on recital 26 of the abovementioned Regulation 1400/2002, pursuant to which *"It is, however, legitimate and proper for them to withhold access to technical information which might allow a third party to bypass or disarm on-board anti-theft devices, to recalibrate electronic devices or to tamper with devices which for instance limit the speed of a motor vehicle, unless protection against theft, re-calibration or tampering can be attained by other less restrictive means".*

However, the companies denounced Citröen's delay in responding to their numerous information requests. According to the complainants, the excessive duration of these negotiations, which lasted from 3rd October 2003 to 5th January 2006, was due to Citröen's reluctance to provide independent operators with information.

Finally, the complainants indicated that repairers are forced to use specific diagnosis devices, which reduced or even eliminated the role of editors such as AD Net. This company

[37] Available at: http://www.autoritedelaconcurrence.fr/user/avisdec.php?numero=07d31

had requested that Citröen provide them with access to the raw technical information in electronic format in order to integrate it in AD Net's site.

10.2.2. Assessment of the French competition authority

In its Decision of 20th September 2006, the French competition authority considered, in the first place, that Citröen had not respected certain conditions established in Article 4, paragraph 2, of Regulation 1400/2002, and that, therefore, some of its practices should be qualified as unjustified restrictions. In particular, the restrictions were integrated in the vertical agreements between Citröen and its authorised repairers and could be contrary to Articles L. 420-1 of the Commercial Code and Article 101 TFEU. They could also amount to an infringement of Article 102 TFEU. This was due to the fact that such lack of access to technical information hindered effective competition between authorised and independent repairers.

On the other hand, as Citröen was the rightholder of the intellectual property linked to its brand's information, the authority concluded that it made an abusive use of its market dominant position.

10.2.3. Commitments offered by Citröen

On 9th May 2007, Citröen offered a series of commitments that were published on the French competition authority's site on 16 May 2007. After several amendments, the definitive version of commitments proposed by Citröen and accepted by the authority can be summarised as follows:

General principles

Commitments were adopted by Citröen on the basis of the following principles:

- The non-discrimination principle, in order to avoid differential treatment between authorised and non-authorised repair and maintenance services.
- The proportionality principle, in order to take into account the information that Citröen must provide and the needs of the independent repairers.
- The transparency principle, concerning the price of access to Citröen's technical information.

Commitments were offered by Citröen until 31st May 2010.

As regards CBR database

The CBR database is accessory to the diagnosis tools which includes information that resulted from repair and maintenance practice of Citröen's authorised network. It also includes supplementary explanations directed to achieve a diagnostic in a prompter way.

On this issue, Citröen undertook to:

- Offer access to its CBR database as well as to *Lexia* and *Proxia* diagnosis devices in a standardized electronic format that permitted the integration of this information into editors' own databases.
- Integrate the CBR database in the diagnosis devices for independent repairers and in the Citröen Service internet site.
- Incorporate technical information related to diagnosis in the *Lexia* and *Proxia* devices in a dynamic way, which would improve the efficiency of the diagnosis.

10.3. RESOLUTION S/0300/10, Mazda Automóviles de España[38]

10.3.1. Background and relevant legislation

As a result of a complaint which indicated that Mazda might have infringed competition rules, the Spanish Competition Authority initiated an infringement procedure on 11th April 2001. According to the authority there was evidence that Mazda had carried out practices directed to limit the access to RMI by independent operators. This conduct may infringe Article 1 of the Spanish Competition Act and Article 101 TFEU.

Pursuant to paragraph 59 of the supplementary guidelines issued by the European Commission on Regulation 461/2010:

"*Qualitative selective agreements may also be caught by Article 101(1) if the supplier acts more directly to reserve repairs on certain categories of vehicle to the members of its authorised networks, for instance by making the manufacturer's warranty, whether legal or extended, conditional on the end user having all repairs, including those not covered by warranty, carried out within the authorised repair network".*

Before Regulation 461/2010 entered into force, any Mazda vehicle was subject to mandatory revision in a Mazda car dealership or authorised service (General Conditions of CSM contract, condition 1). However, after the entry into force of Regulation 461/2010 Mazda eliminated this obligation and established the warranty conditions for vehicles repaired by independent workshops. In addition, Mazda insisted, in several communications and even on its website, on the freedom of choice of consumers as regards repair workshops. However, the Spanish competition authority considered that the conditions imposed by Mazda with regard to its system of warranties could still result in an infringement of Article 101 TFEU. These conditions established the need to include very specific details about how the repairs had been carried out in the receipts provided by independent repairers.

These details were, according to the Spanish authority, not required from authorised repair operators and, therefore, lead to discrimination and severe competition disadvantages for independent operators.

In relation to this, it was also argued independent workshops experienced great difficulties in accessing the electronic book "CSR" which included all the information about maintenance and for which a previous free registry was required for independent operators. In this sense, the Spanish authority considered that (i) first, technical information was exclusively for use within the authorised network; and (ii) second, that the information was only drafted in English.

Alternatively, Mazda would have required the exclusive use of original spare parts for any repair work.

10.3.2. Mazda's response to the alleged conducts and conclusions of the Spanish competition authority

In response to the accusations on discrimination and lack of clarity of the warranty conditions, Mazda denied having exercised any discriminatory treatment and claimed that consumers were not asked to facilitate any information that they could not easily obtain. Mazda argued that it was just the provision of minimum information which allowed to them

[38] RESOLUTION of the Spanish NCA of 16 November 2012, S/0300/10, Mazda Automóviles de España available at:
http://www.cncompetencia.es/Inicio/Expedientes/tabid/116/Default.aspx?numero=S%2F0300%2F10&ambito=Conductas

to verify that the maintenance requirements had been complied with. Mazda alleged that it required this information for every workshop, including the authorised ones.

The authority rejected these arguments and concluded that there was discriminatory treatment when Mazda required the consumers to keep all the receipts related to repairs carried out by independent workshops in order to benefit from warranties, but did not indicate the contents that such receipts should have. As a result, the consumers could not be asked to guess what information Mazda may require from them at a later stage. Moreover, in accordance with the documents available to the authority, before 2010 Mazda only recommended (and not required) that they keep the receipts. It was only after the entering into force of Regulation 461/2010 that keeping the receipts became a mandatory condition.

Concerning the electronic book of maintenance, "DSR", Mazda affirmed that it could have been used by both authorised and independent workshops. Nevertheless, the authority observed that the documentation handed to the buyer did not refer to the use of "DSR" by independent workshops, which de facto made it an exclusive system for authorised services.

Mazda denied imposing the use of original spare parts for every repair work. It also denied that spare parts were only available from the authorised operators, forcing independent operators to pay a higher price than the price they could have obtained if they had bought the spare parts directly from the manufacturer. However, the authority had identified clear provisions that discouraged consumers to bring their Mazda vehicles to independent workshops.

Regarding the difficulties to access technical information, Mazda claimed that independent workshops could not argue the lack of knowledge, as they belonged to the vehicle sector and were aware that the access to the "Professional Area" in Mazda's website would provide enough technical details. In this regard, the authority found that no warranty mentioned that repair and maintenance of vehicles should be carried out in accordance with the workshop manuals; and moreover, that the information, which was only accessible from the "Professional Area", required registration and payment until 9 November 2011.

In summary, the Spanish competition authority considered that Mazda had infringed both Article 1 of the Spanish Competition Act and Article 101 TFEU on the following grounds:

- The existence of provisions in Mazda's warranties that in practice restricted the use by customers of independent workshop services.
- Requirements to independent workshops that were not imposed to the Mazda's authorised network.
- Requirement of use of original spare parts.

Mazda argued that the investigation carried out by the Spanish authority had not proved the existence of any restrictions in the agreements between Mazda and its authorised network. The Spanish authority rejected this too formalistic defence and considered that there was enough evidence relating to restrictive conducts from the application of these agreements in practice. This conclusion was supported by the fact that when Regulation 461/2010 entered into force, Mazda informed its authorised network that no rejection of warranty was allowed on the grounds of previous external independent repairs.

10.3.3. Applicability of the block exemption regulations

Regulation 461/2010 guaranteed the possibility for consumers to freely choose a repair workshop. Mazda had expressly denied this free choice only in three occasions, but it had been continuously hindering access to information for independent repairers, even after Regulation 461/2010 became enforceable.

On the other hand, it is clear that exemptions provided in Regulation 461/2010 were not applicable to Mazda due to the fact that (i) its share in the market of after sale services

was above 30%, due to the fact that is network of official workshops is selective and qualitative, and; (ii) the alleged conducts may had granted exclusive rights *de facto* towards independent workshops over repair and maintenance services and were contrary to competition rules.

10.3.4. Duration of the infringement

According to the authority, the infringement lasted from 2005 (with the issuance of the first form of warranty) until 2010 (when previous registry to access the electronic book was no longer required.

10.3.5. Fine

Article 63(1)(b) of the Spanish Competition Act establishes a fine for serious infringements of up to 5% of the turnover of the infringing undertaking.

However, the authority decided to grant a reduction of the fine by taking into account that Mazda's practices did not affect prices directly and that they were limited to repair and maintenance services. Moreover, a mitigating circumstance consisting on putting an end to the infringement (as provided in Article 64(3)(a)) was also applied. Finally, Mazda was fined EUR 181,856.00

11. GLOSSARY

ACEA	European Automobile Manufacturers Association
AIRC	Association Internationale des Réparateurs en Carrosserie
APRA	Automotive Parts Remanufacturers Association
BOVAG	Dutch Motor Trade Organisation
CEN	European Committee on Standardisation
CERCA	European Council for Motor Trades and Repairs
CITA	International Motor Vehicle Inspection Committee
CLEPA	European Association of Automotive Suppliers
CO_2	Carbon dioxide, one of the principal greenhouse gases
DG COMP	Directorate General for Competition
DG ENTR	Directorate General for Enterprise and Industry
DG MOVE	Directorate General for Mobility and Transport
EC	European Commission
EGEA	European Garage Equipment Association
EV	Electric vehicle
FEDA	Fédération des Syndicats de la Distribution Automobile
FER	Federation of Engine Remanufacturers
FIA	Fédération Internationale de l'Automobile
FIGIEFA	Internationale des Grossistes Importateurs et Exportateurs en Fournitures Automobiles – Automotive Aftermarket Distributors
FIRM	International Federation of Engine Remanufacturers and Rebuilders
GEA	Garage Equipment Association
IAAF	Independent Automotive Aftermarket Federation
IAM	Independent Aftermarket Operator
IGA	Independent Garage Association
Independent operators	Includes independent repairers, spare parts manufacturers and distributors, manufacturers of repair equipment or tools, publishers of technical information, automobile clubs, roadside assistance operators, operators offering inspection and testing services and operators offering training for repairers.
M1 vehicles	Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat.
M2 vehicles	Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tonnes

M3 vehicles	Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tonnes.
M category	Passenger vehicles, including categories M1, M2 and M3
N1 vehicles	Vehicles designed and constructed for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes
N2 vehicles	Vehicles designed and constructed for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes
N3 vehicles	Vehicles designed and constructed for the carriage of goods and having a maximum mass exceeding 12 tonnes
N category	Goods vehicles, including categories N1, N2 and N3
NOx	Oxides of nitrogen
OBD	On-board diagnostics
ODX	Open Diagnostics Exchange
OEM	Original Equipment Manufacturer. Refers to car manufacturers in this document
OES	Original Equipment Suppliers. Refers to suppliers of parts that are assembled in the final vehicle by the OEM.
PM	Particulate matter.
PIM	Polish Chamber of Automotive Industry
RMI	Repair and maintenance information. Vehicle repair and maintenance information means all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming or re-initialising of the vehicle and which the manufacturers provide for their authorised dealers and repairers, including all subsequent amendments and supplements to such information. This information includes all information required for fitting parts or equipment on vehicles;
RMIF	Retail Motor Industry Federation
SDCM	Stowarzyszenie Dystrybutorów Czesci Motoryzacyjnych
SMEs	Small and Medium Enterprises
SOx	Oxides of sulphur (including sulphur dioxide, SO_2)
TAA/M	Type Approval Authority / Type Approval Authorities Meeting
VBRA	The Vehicle Builders and Repairers Association
VIN	Vehicle Identification Number. A standardised code assigned to every vehicle to allow its unique identification.
UEIL	Union of the European Lubricants Industry
ZDK	German Federation for Motor Trades and Repairs

12. REFERENCES

AASA. (2011). Automotive Aftermarket Status Report 2012. Automotive Aftermarket Suppliers Association.

Aboltins & Rivza. (2011). Automotive aftersales market in the Baltic countries. Available at: http://aurora.turiba.lv/bti/Editor/Manuscript/Proceeding/EN_Aboltins_Rivza.htm.

Aboltins & Rivza. (2014). The car aftersales market development trends in the new economy . Procedia - Social and Behavioral Sciences 110 (2014) 341 – 352.

AMZ. (2013). Der Druck wird höher. Der freie Kfz ServiceMarkt 2013: amz Sonderheft.

APRA Europe (2014) APRA Website. Available at: http://www.apra.org/About/Reman.asp

AT Kearney (2010) Aftermarket business - Crisis stronghold in the automotive industry?

AutoIntelligence (2009) Euro 5: FAQs. Issue 8, Autumn 2009

Automotive New Europe (2014) Toyota Europe's profit rebound built on hybrid sales, cost-cutting, by Nick Gibbs. Available at: http://europe.autonews.com/article/20140604/ANE/140609929/toyota-europes-profit-rebound-built-on-hybrid-sales-cost-cutting

Automotive Industries. (2012). Vol. 191: Issue 3.

Autorité de la concurrence (2012). Avis n°12-A-21 du 8 octobre 2012 relatif au fonctionnement concurrentiel des secteurs de la réparation et de l'entretien de véhicules et de la fabrication et de la distribution de pièces de rechange

Azarian et al. (2012). A global modular framework for automotive diagnosis. Advanced Engineering Informatics 26 (2012) 131–144.

BCG. (2012). The European automotive aftermarket landscape. Report for ACEA. Available at: http://www.bcg.com/documents/file111373.pdf.

BCG. (2014). ACEA Aftermarket Update. Presentation notes from Meeting held on 20-June 2014

BOVAG (2011) Euro 5: Investigation into technical information on websites of vehicle manufacturers, BOVAG, Netherlands.

BOVAG (2013) Access to OEM maintenance websites: practical usability by independent repairers, BOVAG under the auspices of CECRA, Belgium.

Capgemini. (2010). The aftermarket in the automotive industry. Available at: http://www.capgemini.com/resource-file-access/resource/pdf/tl_The_Aftermarket_in_the_Automotive_Industry.pdf.

Capgemini. (2011). Cars Online 11/12.

CLEPA Aftermarket Conference (2011) The European Commission's recent Automotive Legislation and the future Work Programme affecting the European Aftermarket

DAT. (2000). DAT-Report 2000. Available at: http://www.dat.de/angebote/verlagsprodukte/dat-report.html.

DAT. (2013). DAT-Report 2013. Available at: http://www.dat.de/uploads/media/DAT-Report_2013_kfz-betrieb.pdf.

DAT. (2014). DAT-Report 2014. Available at: http://www.dat.de/angebote/verlagsprodukte/dat-report.html.

Datamonitor. (2014). Database on the European aftermarket. Proprietary data.

Ellen MacArthur Foundation. (2013, July 23). The circular economy applied to the automotive industry. Available at: http://www.ellenmacarthurfoundation.org/business/toolkit/the-circular-economy-applied-to-the-automotive-industry-1

EMISIA, INFRAS and IVL (2013). Transport data collection supporting the quantitative analysis of measures relating to transport and climate change (TRACCS), report for DG Climate Action

European Commission (2008). Commission evaluation report on the operation of Regulation 1400/2002 concerning motor vehicle distribution and servicing

European Commission. (2009). The components and downstream markets of the automotive sector. Available at: http://www.anticipationofchange.eu/fileadmin/anticipation/Logos/Documents/new_set_5509/EESC.pdf.

European Commission. (2012a). FAQs on the application of EU antitrust rules in the motor vehicle sector. Available at: http://ec.europa.eu/competition/sectors/motor_vehicles/legislation/mv_faq_en.pdf.

European Commission. (2012b). Impact Assessment accompanying the proposal for a Regulation on periodic roadworthiness tests for motor vehicles and their trailers - SWD(2012) 206 final

FAZ. (2006). Kleine Werkstätten auf dem Rückzug. Available at: http://www.faz.net/aktuell/rhein-main/wirtschaft/automobile-kleine-werkstaetten-auf-dem-rueckzug-1382352.html.

Frost & Sullivan. (2008). Strategic Analysis of the European Diagnostic Instrumentation Markets. Available at: http://www.frost.com/prod/servlet/report-brochure.pag?id=M11F-01-00-00-00.

Gibbs, N. (2012). Surviving the crisis. Automotive News Europe.

GVA. (2014). Marktakteure: Der Kfz-Teile- und Servicemarkt in Deutschland. Retrieved June 12, 2014, from Gesamtverband Autoteile-Handel: http://www.gva.de/website/de/branche/marktakteure.php

ICDP. (2012). A perfect storm: competitive trends in automotive service and repair provision.

ICDP. (2013). Parts quality expectations in the aftermarket. Executive Briefing 03/13.

ICDP. (2014a). Independent aftersales. Available at: https://www.icdp.net/how-can-we-help-you/aftersales/independent-aftersales.aspx.

ICDP. (2014b). Franchised aftersales. Available at: https://www.icdp.net/how-can-we-help-you/aftersales/franchised-aftersales.aspx.

ICDP. (2014c). Retention strategies & tools. Available at: https://www.icdp.net/how-can-we-help-you/aftersales/retention-strategies-tools.aspx.

ICDP. (2014d). ICDP website - Parts. Available at: https://www.icdp.net/how-can-we-help-you/parts.

ICDP benchmark survey. (2014). What are the impacts of product proliferation on lead times and the costs of customer satisfaction? Available at: https://www.icdp.net/who-we-are/our-news/automotive-blog/archive/2014/what-are-the-impacts-of-product-proliferation-on-lead-times-and-the-costs-of-customer-satisfaction.aspx.

IMI Magazine. (n.d.). Aftermarket alliances under pressure. Available at: http://www.motor.org.uk/magazine/articles/aftermarket-alliances-under-pressure-81.html.

IPSOS. (2013). Market share of independent repair facilities in Germany continues to rise. Available at: http://www.ipsos.de/publikationen-und-presse/pressemitteilungen/2013/neuer-mitteilung-tet.

Jönke. (2012). Managing After-Sales Services: Strategies and Interfirm Relationships. Universität Stuttgart DISS. ETH NO.: 20318.

Kfz-Betrieb. (2013). Neue Standards für VW-Werkstätten: Servicepartner verärgert über Auflagen und Umsetzung. Retrieved June 15, 2014, from Kfz-Betrieb Vogel: http://www.kfz-betrieb.vogel.de/service/management/articles/420285/

Kfz-Betrieb. (2013a). Die Freiheit steht im Vordergrund. Kfz-Betrieb Vogel.

KTI. (2013). Technische Information 02/2013. Retrieved July 21, 2014, from http://www.k-t-i.de/fileadmin/downloads/TI_2013-02_Euro_5-6.pdf

London Economics (2006). Developments in car retailing and after-sales markets under Regulation N° 1400/2002. Final report to EC DG Competition.

Motor Trader. (2014). Average workshop labour rate steadies at £74. Available at: http://www.motortrader.com/automotive-news/average-workshop-labour-rate-tracks-74/#sthash.0rgsEx8P.dpuf.

motor.org.uk. (n.d.). Diagnostics - Is all-makes capability just a mirage? Available at: http://www.motor.org.uk/magazine/articles/diagnostics-is-all-makes-capability-just-a-mirage-301.html.

Optimat. (2013). Remanufacture, refurbishment, reuse and recycling of vehicles: Trends and opportunities. Available at: http://www.scotland.gov.uk/Resource/0044/00440543.pdf

Phillips, C. (2014). Dealers can offset lost business to independent garages by selling them parts. AM Online. Available at: http://www.am-online.com/news/2014/1/10/dealers-can-offset-lost-business-to-independent-garages-by-selling-them-parts/34156/.

Reuters (2011) Hybrid Car Affordability Leaps Forward with P2 Technology. Available at: http://www.reuters.com/article/2011/04/22/idUS59936044220110422

Roland Berger. (2013a). Automotive insights: How well do you know your customers? Available at: http://www.rolandberger.com/media/pdf/Roland_Berger_Automotive_Insights_02_20130702.pdf.

Roland Berger. (2013b). Customising aftersales.

Roland Berger. (2014). Online automotive parts sales: The rise of a new channel. Available at: http://www.rolandberger.com/media/studies/2014-05-09-rbsc-pub-Online_automotive_parts_sales.html.

Royer. (n.d.). Service and repair: exploitation of the industry's last profit resort? Available at: http://www.business.uzh.ch/professorships/som/stu/Teaching/Teaching/D_Lecture3_AfterSales.pdf

Royer, S., & Stratmann, U. (2008). Value Net Organisation and Strategic Competitive Advantage: The Case of Value Net Design in Car Repair and Maintenance Services Markets in Europe. In Current Issues in International Human Resource Management and Strategy Research. Munich: Rainer Hampp Verlag.

Spivey. (2014). Developing regions of Easter Europe to drive EU aftermarket growth. SearchAutoparts online article. Available at: http://www.searchautoparts.com/aftermarket-business/market-trend-analysis/developing-regions-eastern-europe-drive-eu-aftermarket-gr?page=0.

Stiftung Warentest. (2010, September 10). Auto¬werk¬stätten: Freie reparieren schlechter. Available at: http://www.test.de/Autowerkstaetten-Freie-reparieren-schlechter-4127452-0/.

TG Conseil (2011) Les véhicules électriques et hybrides: Quel impact pour l'après-vente ? Presentation by Christophe Guillaneuf and Thomas Chieux at Planète Auto on 29 June 2011.

TG Conseil (2012) Situation et perspectives d'évolution du marché de l'après marché de l'après-vente en France. Presentation by Thomas Chieux at Symposium Après-Vente Autoactu, June 2012

Tongue, A. (2013). Changing the wheels whilst driving along. Presentation at CECRA European Car Dealers Day.

TrendTracker. (2013). Independent discussion. Available at: http://www.trendtracker.co.uk/blog/2013/10/independent-discussion.

Verdict. (2012). Aftermarket vehicle part complexity could scupper growth of established markets. Available at: https://service.verdictretail.com/verdict/news-and-views/article18540.ece.

Verdict. (2012). Sector trends. Proprietary purchased information.

Verdict. (2014). Slow growth in total aftermarket value in Europe as consumers turn toward budget components. Available at: https://service.verdictretail.com/verdict/news-and-views/article51963.ece.

Wolk & Nikolic. (2013). Concentration process in the European automotive aftermarket distribution is growing. Interview. Available at: http://www.wolk-aftersales.com/news-zu-wolk-after-sales-experts/concentration-process-in-the-european-automotive-aftermarket-distribution-is-growing.html.

Young. (2012). An agenda for Independent Repairer Dominance? ICDP Executive Briefing 06/2012.

Young, S. (2014). The aftersales market – past, present & future. Available at: http://www.am-online.com/news/2014/5/9/the-aftersales-market-past-present-and-future-steve-young-icdp/35990/

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