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After sales trends in the capital goods sector

Developments in the after sales market, the role of lean six sigma and the response of market parties

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COLOFON

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Developments in the after sales market, the role of lean six sigma and the response of market parties

Lean is not a destination it's a journey

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CHAPTER 1

Preface

Introduction

A lot of research has been done into the developments and the future trends in the spare parts logistics of the automotive industry and how best to respond to these. The automotive industry operates in a mature market with professional and well-developed logistic infrastructures for both the initial sale and the after-sales market. Furthermore, this industry also includes the business-to-business (B2B) and the business-to-consumer (B2C) markets. Due to its size and maturity, the automotive industry has often had a pioneering role for similar industries.

Members of the Lean Six Sigma community of the vLm have taken the initiative to investigate whether automotive trends could also apply in related industries, and if so, whether lessons could be learned. The research originally focussed on the (Dutch) OEMs and the larger distributors of industrial capital goods in the B2B market, with logistic spare parts operations in the Netherlands and sometimes abroad. In a later stage, a number of brand dealers and universal spare parts suppliers became involved in the research as well. The focus was particularly on the trends in Lean Spare Parts Logistics, and how that was being dealt with. Over time, however, the scope broadened and the conclusions and recommendations basically go beyond spare parts logistics only.

Acknowledgements

First of all, we would like to thank the participating companies for their time and openness. This kind of research can only be successful if the interviewees are willing to provide insight into the strengths and challenges of their organizations. We noticed that the vast majority of the companies we approached were very frank and generous with their time to go over the questionnaire together.

Secondly, we would like to thank the vLm, on the one hand for offering a platform in which research groups and communities can mature and on the other hand for their practical help during the publication of this booklet.

vLm and LEAN

The vLm (Vereniging Logistiek Management, or the Association of Logistics Management) is a professional association for logistics managers, experts, students and interested parties from other fields of expertise. The vLm positions itself as the main knowledge and network platform for logisticians in The Netherlands. The association wants to promote the professional development of (upcoming) logisticians by providing a network and by exchanging knowledge and experience.

The vLm has given the Research Groups a renewed platform with new possibilities. The objective of these Research Groups is to carry out the gathering, development and transfer of knowledge of logistics and experience in a professional manner. In this way vLm members develop knowledge on new logistical themes together, and share useful experiences. The association strives to secure a prominent position in the market for itself and its members, to promote pioneering thinking and to render scientific and practical research applicable in practice.

This report started from the Research Group Lean Six Sigma. The LEAN ideology will act as a guide within this report. Central theme in LEAN is the improvement of processes to create more customer value. LEAN is a systematic approach to identify activities that add value and to eliminate those that do not. Cost reduction is categorically not a LEAN objective, but could be a result. It should be said that LEAN is not only a 'technology', but requires a 'humanology' elaboration as well. The people, after all, support the system. Leadership at the top, and in-depth involvement of all layers of management and staff are critical.

Lean is not a destination it's a journey

1 - Define Value
Determine what is of value and what is waste, from the perspective of the customer

2 - Map the Value stream
Check the steps of the production process and the ones that actually add value. Draw the 'value stream' to clarify value and waste.

3 - Create Flow
To stimulate flow, remove the steps that have no added value for the process. And, in order to reduce waiting times and intermediate stocks to deliver customer value, make sure that the steps in the production chain are aligned and interconnected.

4 - Let the customer pull
Allow the customer demand (the actual consumption) to increasingly 'pull' the production process and bring the supporting processes in line. In doing so, scale back the role of centrally generated production and purchase orders or sales forecasts, that have more of a 'push' character.

5 - Strive for perfection by continually removing waste
Use the increasing simplicity and the speed of the processes to constantly optimize, and ensure that the 'waste' will not be able to infiltrate the processes again.

The research team

Frans Bosman
Studied Engineering and Technical Business Administration. Internationally active for more than 30 years in a variety of executive and senior management positions at Ceteco, Pon Holdings and Mitsubishi Caterpillar Forklift. Since 2014, active as independent Interim Manager in the industrial capital goods sector. Frans specialises in the improvement of Parts and Service organizations as trouble-shooter, improvement manager and/or transition manager.
Also see www.fjbosmaninterim.com.

Frank Dotman
Studied Chemical Technology and Business Administration and is a certified Master Black Belt in Lean Six Sigma. After more than 15 years of Operations Management for multinationals, since 2001 founder and owner of LeanConsult, one of the first Lean Six Sigma consultancy agencies in the Netherlands. Lean consultation provides training, coaching, consultancy, interim management and programme management to industry, healthcare and the government. LeanConsult brings focus on process improvement in primary processes, on efficient transfer from supporting processes, and on embedding process improvement in the integral business model. Frank is also the Chairman of the vLm community Lean Six Sigma.
Also see www.leanconsult.nl.

Raoul Hildebrand
Graduated in 2003 as Technical Business Administrator from the University of Twente. Raoul has been active in the logistics of PostNL in a variety of roles, from Supervisor to LEAN expert to Operations Manager. At the time of this research, active as Contract Manager for CEVA Logistics and responsible for, among other things, a spare parts operation. Currently responsible for the Distribution Centre of C&A Nederland.
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Patrick Watervoort
Graduated in 1996 as Econometrist from the Erasmus University Rotterdam. Since then active in various logistical functions within KLM Cargo, TNT, Geodis Wilson and CEVA Logistics. Since 2012 active as an independent logistics consultant within a partnership of logistics experts, UC Logistics & Fulfilment, specialised in logistics engineering, logistical blueprint design, and analyses and improvement of existing supply chains.
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Begin with the end user as starting point for strategic choices

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CHAPTER 2

Management Summary

This research clusters and discusses thirteen trends in the automotive industry, and looks at how the automotive industry responds to these trends. Subsequently, the results of a large number of interviews are used to determine whether these trends also occur in similar industries of lorries, forklift trucks, agricultural machinery and earthmoving equipment, and the impact that they have.

All industries included in this research are very dynamic in their own way, but all the same, a number of trends are clearly identifiable. The most distinguishable trends in the automotive industry are:

- Development and use of telematic applications
- After-sales price transparency
- Consolidation of the distribution chain

There are however also a number of trends that are less easily recognized, the two most interesting thereof being:

- New sales via the Internet
- Price transparency new machine sales

In addition to all thirteen trends, the general macro-economic developments and the resulting developments in the various business models will be reviewed as well.

The traditional roles of the organizations in the distribution chain are changing and are constantly influenced by new developments. The traditional revenue model is under great pressure in all industries mentioned, mainly because of the great consolidation efforts of the distribution chains. 'Searching' for the right form takes a lot of time and causes uncertainty in the market. New creative forms of cooperation and willingness to endeavour into new innovative ways of doing business will be decisive for success.

Most surveyed businesses in the various industries are in a functional stage of product-thinking. They make a product, and sell that to the customer. The more customers one has, and the more products one makes and sells, the more profit can be made. In the near future, this thought process will have to be reversed: a solution-oriented approach from the end-user's point of view. The market needs a service-oriented approach, to be developed jointly with the chain partners for the end-user. That capital goods will be used in the process is clear, but the demand, the way to meet that demand and the payment thereof will change radically.

Depending on the role in the distribution chain and the future strategy, companies can make various choices to capitalize on this dynamic environment.

Automotive trends as predictor of trends in the industrial capital goodssector

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CHAPTER 3

The research

Problem definition

The developments in the automotive industry are often a good predictor for what is going to happen in the industrial capital goods market. Examples thereof are, of course, LEAN management. However, also the corresponding and far-reaching cooperation with the suppliers and logistics solutions were originally initiated in the automotive branch (private cars) and later adopted by other similar industries (e.g. lorries, forklift trucks, agricultural and earthmoving machinery).

Are there any lessons to be learned from the way in which the automotive industry responds to the current market trends? To obtain a representative picture of the current long-term trends in the automotive industry, we consulted various sources. We interviewed 42 companies and studied multiple reports from BOVAG, RAI, KPMG, TVM, PWC, ING, Innovam and Oomt and many other related articles. See Appendix 3 for a summary of the sources used.

Objective

The aim of the research is to chart the above and any other trends and market developments, as well as their impact on the various companies in this sector. On that basis, we drafted a number of generic recommendations to provide an adequate response to these developments, so that companies might improve themselves.

Approach

The industries examined are Lorries, Forklift Trucks, Agricultural and Earth-moving machinery. The chosen research method is interviews with people from our own network who we actively approached. We summarized the trends and considerations from the automobile industry, supplemented it, and compiled a list of questions to inventory the market response. This report is not of a scientific nature, as that would require more variation, a larger and random sample group and a less qualitative nature of the questionnaires and interviews.

Prior to the interviews, we sent a brief explanation/description of the research. The questionnaire was worked through during the interviews, which usually took up to 2 hours.

For these interviews, we initially approached the manager responsible for the After-Sales. Shortly after the start of the research we asked the General Manager, CEO or Machine Sales responsible person to join the interviews. This was because the research mainly focused on the strategic and commercial trends in the market. This proved to be the right setting to discuss the questionnaires properly.
The questionnaire developed during the research period. On the one hand, a number of closed questions were asked to limit the required interview time, while on the other, a number of open ques-

tions were asked to allow companies more scope to give their views.

Report structure

We looked for the trends in the automotive after-sales market and analysed them. We supplemented these with our own observations and subsequently tested/reviewed with the companies from our own network. As a result, the population of companies in this research is not random. The majority of companies that we approached were generously prepared to take part in this research.

We have had very open and interesting talks with all interviewed parties. During the interviews, many trends proved to be familiar, but some were definitely not.

This report is divided in a number of blocks, of which the following provides a short overview of the various topics *discussed in each chapter.*

Chapter 4 describes and explains how the automotive industry copes with *13 automotive trends*. The trends were selected based on the argument that they might also be distinguishable in similar industries of the capital goods industry of interest in this research, mainly mobile equipment. To keep the report manageable, these trends have been summarized in 4 clusters.

The results of the interviews are dealt with in **Chapter 5** by explanations and statements to indicate how the various markets (Lorries, Forklift Trucks, Agricultural and Earthmoving equipment) respond to the automotive trends. Each industry has indicated by means of a qualitative score to which extent they recognize the indicated trend and/or are actively working on this.

In **Chapter 6** a number of *developments and observations* are clustered that are not directly related to the automotive trends mentioned before, but do have important areas of overlap. These macro-economic developments and visions give a deeper insight into the future dynamics of the reviewed industries. This chapter also gives an insight into the *diversity of the distribution chains* and the role of the universal channel in relation to the brand channel.

Chapter 7 shows an example of the *revenue model* of an average car dealer and explains why this is no longer future-proof. Related industries will not recognize the amounts and percentages so much, but will recognize the organization's dependence on the after-sales market with regard to its profitability. *Changes in the revenue model* are needed, for which this chapter also discusses a number of *strategic options*.

Chapter 8 contains our *conclusions and recommendations*.

This research is published to share the acquired knowledge with the participating companies and members of the vLm. Publication will take place via this Research Group report, under the auspices of the vLm. The content of the publication has been discussed with the participating companies and anonymized where necessary. Parts of this research have already been presented on during the vLm Annual Congress in 2016. The core issue of the distribution of the margins in the supply chain was put to the test among the participants as well, in an interactive manner during workshops.

After the workshop, critical but very welcome comments were made by the various participants. The research would have focused too much on logistical resources and too little on LEAN Six Sigma, logistical processes and logistics management, and placed too much emphasis on commercial aspects. We are grateful for this criticism – because it forces us to think harder, and we do agree, in part. We also recognize that these emphases diverge somewhat from the traditional focus on logistics and the professional interest. On the other hand, precisely these key industries show us that functionally regarding disciplines, pathways and improvement projects independently of each other is a thing of the past.

Increasingly, the focus is on meeting the client's needs and that different disciplines have to work more together. In short: in addition to all kinds of specializations, the demand for an integrated approach is growing, because that will provide the necessary breakthroughs that the customer considers positive. We believe that it is the 'logistics provider' in his capacity of generalist who should/could play the leading role, because to a large extent, he has already developed the necessary skills in the field of cooperation.

We trust that you will enjoy reading this report!

The research team
Frans Bosman
Frank Dotman
Raoul Hildebrand
Patrick Watervoort
■

The following is an impression of the interviewed companies.

13 automotive trends reviewed with 42 companies in the industrial capital goods sector

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CHAPTER 4

Automotive trends

Prior to the interviews, a detailed literature research was completed. This resulted in a lot of information. Because of the available time and the manageability of the research, we decided to restrict ourselves to thirteen automotive trends closely related to the after-sales market, of which we believe that related industries would be able to recognize them. For each trend, we briefly explain how the automotive industry in general would be able to respond to this trend.

The following is a summary of 4 clusters with the corresponding trends.

CLUSTERS	AUTOMOTIVE TRENDS
Technological developments	**1 - Emergence of the 'connected machinery'** **2 - 'Block' exemptions vs. open standards** **3 - Longer Maintenance Intervals**
Commercial developments (external)	**4 - The Internet as a sales channel for new vehicles** **5 - The Internet as a sales channel for after-sales** **6 - Increasing price transparency for new vehicles** **7 - Increasing price transparency for after-sales**
Supply Chain Developments (internal)	**8 - Shortening the manufacturer to end-user chain** **9 - Emergence of intermediaries (demand-aggregation)**
Culture changes	**10 - From ownership to use** **11 - Rising demand of end-user convenience** **12 - Emergence of Generation Y** **13 - Emergence of circular economy**

Cluster Technological Developments

The cluster of the technological developments regards the continuous improvement of the products in a technical sense. These days, the information technology and telematics are a large part of the product, and this opens completely new possibilities for the provision of services in the chain, but requires players to make fundamental choices in the translation and application of these technological possibilities as well.

1.
Emergence of 'connected machinery'

Integrated mobile ICT applications are continuously being enhanced. Users, owners, dealers, manufacturers, app developers and service providers are connected to each other by real-time information exchange. The sensors of connected machinery generate and collect information on components, (sub-) systems and environment. Users can share this information with, for example, dealers, maintenance services, or importers and manufacturers. This creates opportunities for an improved efficiency of the technological design, the maintenance service intervals or even remote maintenance, customised services and direct communication with users.

Response automotive industry: Using vehicle data, look for specific service packages, possibly in cooperation with intermediaries. Who owns the 'big data'?, this is the big question in the field of the 'connected machinery'. This issue relates to conflicting interests between privacy concerns and customer loyalty.

2.
Block-exemption (EC 461/2010)

This concerns European legislation aimed at young vehicles in particular, to ensure a healthy competitive relationship between the brand channel and the universal channel. Among other things, EC 461 requires that the manufacturer/brand importer facilitates technical information and diagnostic equipment available to brand-independent parties as well. With the growing complexity in respect of telematics and electronics, and the required training and specializations, the brand dealer has a knowledge advantage. The brand dealers are the first ones to receive all new information, training, equipment and software updates. Without EC-461, there would be less potential competition on younger vehicles.

Response automotive industry: Specialise in brand or activity. Look for modes of cooperation between brand and universal parties.

3.
Longer Maintenance Intervals

Because of technological developments, products and materials are improved and a manufacturer has a much better insight into the lifespan of components. In addition, parts are designed much more modularly. This will cause a further shift from corrective maintenance to scheduled preventative or indicative maintenance. The maintenance intervals are increasing and will demand fewer man-hours per service.

Response automotive industry: Look for modes of cooperation between the various parties to optimally plan the service at flexible locations, including the availability of correct parts.

Cluster Market Developments

The external market and economic developments are characterized by product information becoming increasingly more transparent in terms of price, quality and availability. This enables the end user to be (much) better informed. Items such as 'uptime', 'mean time between failure' and 'total cost of ownership' are much more important and the service around the product can be expanded much further as well. These last years, the increased transparency also caused price pressure, in part because of the economic downturn.

4.
Internet as a fully-fledged sales and distribution channel for new vehicles

Internet is widely used as a pre-sales medium. Consumers prepare themselves very well and familiarise themselves online on the standard specifications, special package versions, configurations and additional options. Once at the dealer, the end user has already made his or her choice and is only there for the final price negotiations and getting as many options as possible. Dealers no longer sell vehicles, but deliver them. Customers are still a little hesitant with purchases through certified web shops. This channel is still in its infancy, but will irrevocably grow. BMW and Mercedes' plans to open web shops for online car sales are in a very advanced stage.

Response automotive industry: The internet is already a mature pre-sales medium. The next logical step is the actual sales, and steering the customer to the dealer or brand dealer to collect the car. Cooperate with universal market parties that consolidate this market demand.

5.
Internet as a fully-fledged sales and distribution channel for After-Sales

The role of the Internet is undeniable and will be very dominant for online workshop planning, mobile service and online rate differentiation to control supply and demand.

Response automotive industry: Recognize the Internet as a mature sales channel and start using it as soon as possible. Users want transparency and convenience. Develop a Digital Workshop, make repairs comprehensible, let the user schedule appointments online and develop rate differentiation for better workshop coverage (e.g. a lower rate in the idle hours).

6.
Increasing price transparency new vehicles

Because of the many price comparison sites and web shops, price transparency is increasing. Because the automotive market is a market for end-users the published prices are close to reality (±3-6%). As a result, prices are very similar.

Response automotive industry: Create customer loyalty through a market conform price level in combination with above-average services.

7.
Increasing price transparency After-Sales

After login, price comparison sites and web shops are completely accessible for dealers and universal garages/workshops. Price transparency for parts is normal. Suppliers of parts distinguish themselves mainly by the speed of their

response and the number of times a delivery can be made per day.

Response automotive industry: Make sure that all links in the supply chain are able to stand on their own two feet. Avoid competition between chain players within one brand channel, create 'thicker' distribution streams, create modular service packages with price differentiation, and develop your own contracts to create customer loyalty.

Cluster Supply Chain Developments

A third cluster comprises the supply chain developments, in particular in the organization of the distribution chains. The supply chain from manufacturer to end-user is becoming ever shorter. A number of parties in the supply chain are fading away as their function is taken over by intermediaries who consolidate services for a number of brands or products.

8.
Shortening the manufacturer to customer chain

The traditional chain from manufacturer via importer to dealer/workshop and ultimately to the end user is shifting. The links in the chain that only pass on products and have no added value, are becoming redundant. The number of 'earning points' is reducing.

Response automotive industry: Manufacturers should create their own importer/dealer networks for their own brand, or combine the importer/dealer function for various brands.

9.
Emergence of intermediaries

This is particularly arising in the after-sales market. For instance, parties such as Bookings.com, Groupon, ANWB (the Dutch AA) and Vereniging Eigen Huis (association of home owners). The customer demand is consolidated, at which time a negotiating fee is requested. The consolidated customer demand can also be auctioned off by these purchase collectives. Intermediaries may also join in the maintenance control, allowing more maintenance competition, more price transparency and more price pressure.

Response automotive industry: Start with more price transparency yourself, to complicate the entry of intermediaries, work with intermediaries in combinations that complement each other. Since January-2015, www.nieuwe-autokopen.nl (website for purchasing cars online) has joined Marktplaats/ Ebay. This is an example of an Internet channel, but also of an intermediary who negotiates and in return, demands a (part of) the margin.

Cluster Culture Change

The last cluster centres on culture change and a different way of dealing with products. For instance, the conversion from ownership to sole use of the product's functionality and by doing so, entirely focusing on customer convenience. This gives a totally different insight into the requirements and demands of the various end users (depending on their role as the owner or user) in relation to the current situation.

10.
From owner to user
Users don't necessarily have to be the owner any longer. New lease or rental constructions are developed and ownership centralised (including the corresponding financing burden). 'Centralised' owners will affect maintenance control with a great deal of influence on the price and the way in which (and by whom) the maintenance is performed. The end user will only have to deal with service or maintenance intervals.

For instance, an end user has no need of a truck or lorry, but wants items moved within a warehouse, or transported to a customer. He pays for a service to move his items, not for the cost of the handling equipment to achieve this.

Response automotive industry: Develop user solutions, don't think in sales transactions but in payment per hour or km, develop subscriptions to mobility products.

11.
Rising demand end-user convenience
High quality and reliability is becoming the standard and is no longer distinctive. Convenience, accessibility and predictability of price and maintenance are becoming increasingly more important.

Response automotive sector: Know the vehicle, make sure that the customer knows which maintenance is coming up, offer maintenance contracts with fixed price, pick-up and drop-off services, and have a nice waiting area with (very) attractive facilities.

12.
Emergency Generation Y
The generation born between 1980 and 2000 (now ± 15-35 years old) has a major influence on the future after-sales market. This generation is very verbal, empowered, very knowledgeable, grew up with the Internet, focused on use instead of ownership, very sensitive to convenience and comfort, often does not know the 'maintenance booklet', and does want to be involved in planning active/preventive maintenance. Loyalty is determined by convenience, predictability, fairness and price transparency. Both positive and negative experiences are very easily shared on social media, without any hesitation.

Response automotive sector: ensure a good Internet presence, offer online workshop planning, repair-tracking, payment modules. Use your own social media to provide services and to ask for feedback, use after sales-staff to arrange this.

13.
Emergence of circular economy
Remanufacture or rebuilding final products and components. Users are becoming increasingly more socially conscious customers. Owners of vehicles (manufacturers, leasing companies) 'control' their maintenance and direct it to companies using revised, 'greener' components.

Response automotive sector: provide sustainable mobility products with green financing or revised (green) parts, include these parts in the standard range on offer.

The B2B market needs **universal products**

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CHAPTER 5

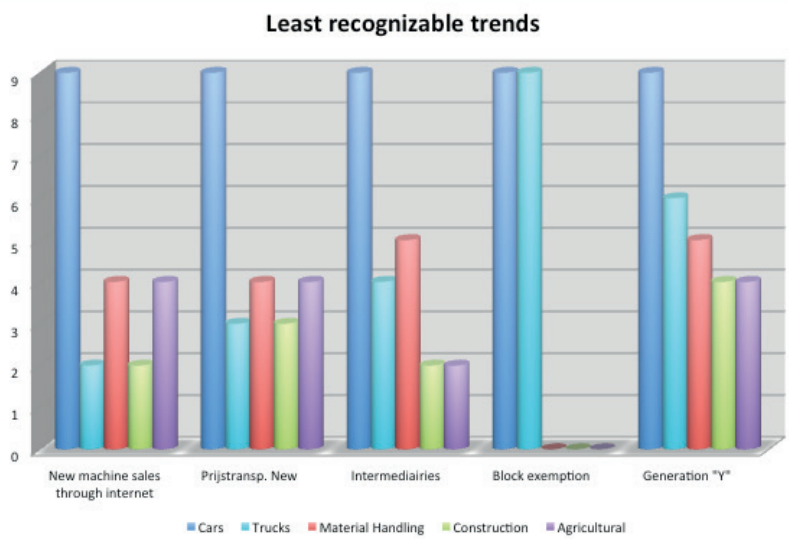
Results of interviews

In the first chapter, the assumption was made that the developments in the automotive sector are a good predictor of what is going to happen in the similar segments of the B2B industrial capital goods industry that we researched.

The selected trends discussed in the preceding chapter subsequently also form the basis for the interviews with the companies visited, and although these companies are active in various roles and in different market segments, a large number of trends was identified and deemed applicable to their role and in their market.

Trends with low impact

It was interesting to note that a number of automotive trends had a different impact on the various market segments within our research. The following chart gives an overview of 6 trends that, based on a qualitative comparison, show clear differences in terms of their specific applicability.



** The Y-axis shows the degree of recognition/applicability and/or activity of the indicated trend*

New sales via the Internet

All sectors, besides the automotive sector, clearly indicate they hardly pay attention towards the development of initiatives to stimulate the sale of new vehicles via the Internet. The automobile industry operates mainly in the B2C market and has simplified the configuration models of options and accessories, allowing end users to easily determine their own configurations. This is (deemed) different in the B2B market. The determination of the necessary specifications is often (considered) complex and very customer-specific. Complex capital goods in the B2B sector are rarely purchased without the expert advice from the dealer/importer by simply pushing a button.

# 2014	PRIVATE CARS	LORRIES	FORKLIFT-TRUCKS	EARTHMOVING-EQUIPMENT	AGRICULTURAL MACHINERY
Number new units	385.000	12.900	13.800	1.900	3.000
Avg price/ unit	€22.000	€70.000	€16.000	€125.000	€75.000
Turnover new	€8,5 mld.	€900 mln.	€220 mln.	€238 mln	€225 mln.

Price transparency new vehicles

The automobile industry is very price transparent. On the one hand, because of the large volume, and on the other because the B2C market requires a 'legible' price level for the end user. In other words, the published list prices are close to reality, with a small margin for negotiation (~ 3-6%).

The volumes in the other researched industries are much smaller (see table below indicating sales volumes in The Netherlands). In these industries, the list prices are often not transparent, mainly because of the complexity of the product and a generally longer distribution chain (mostly with importers).
In the B2B market, the list prices are traditionally 10-30% higher than what the end user actually pays. The real price per order is always determined on the basis of region, customer type, order volume, annual volume, maintenance support by the dealer and/or importer, complexity of configuration, and negotiating skills of the end user.

Industries other than the automotive industry usually do not, or not yet, actively encourage price transparency. The end user mainly requires a product that fits in with his or her business needs, causing to the focus to be more on functionality than on price.

Emergence of intermediaries

The control and steering of repairs and maintenance is dominantly present in the private car industry. On the one hand this is because of the magnitude of the sector and the number of vehicles to be maintained. On the other hand, the fleet is also increasingly getting older, mainly because sales of new cars remain is structurally depressed. Intermediaries combine demand and auction this off to the cheapest bidder for a fee, for instance the repair and maintenance contracts of large lease companies' fleet, or smaller fleet owners, but also insurance, and (larger) replacement cars during the holiday season.

The emergence of intermediaries and/ or intermediate parties in the lorry and forklift truck industry is not wide-spread, at best in tires, where tire manufacturers make fixed-price agreements for on-the-spot replacement or exchange of tires on a national as well as an international level.

In the agricultural and earthmoving industries, intermediaries are hardly manifest.

Block exemption
European legislation in this area applies in particular to the private car and lorry industries. In the other industries (forklift, earthmoving and agricultural machinery), the manufacturers are able to release technical information only to their own brand channel and not to the universal channel.

Emergence of Generation Y
The private car industry clearly takes this target group into account and adjusts the dealer organizations accordingly. In the other industries, in the commercial B2B market, the ‘return-handling’ factor has been part of the standard service package deal for some time now. These industries therefore are less active and innovative in this field, but the demand for comfort and ‘return-handling’ is being recognized.

Trends with high impact

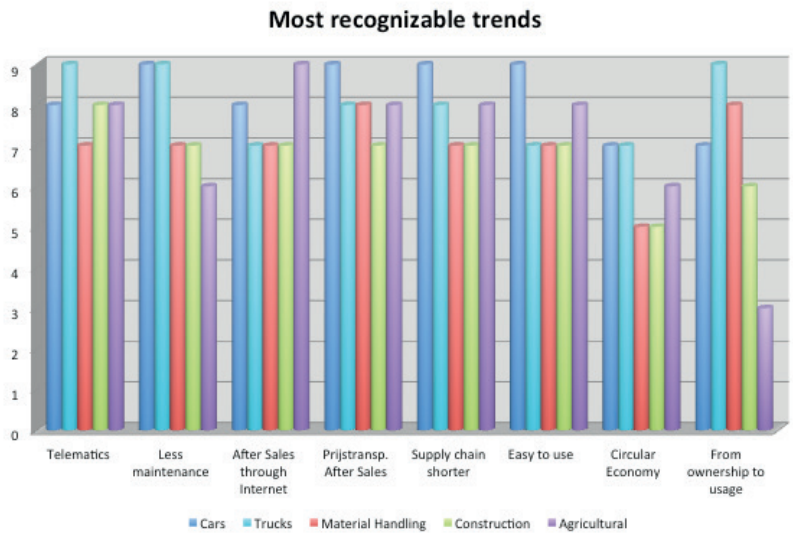
Of the 13 researched automotive trends, 8 are largely distinguishable in similar industries.

Telematics

The emergence of the 'connected machinery' as a result of the application of telematics is considered a very important trend in all industries in this research. Telematics is still in its infancy, but emerging in the private car industry. A lot of data (more than just for preventive maintenance) can already be collected, but privacy legislation prevents its unlimited application and use. Who owns the data and who is allowed to use it and for what? Many forums and discussion platforms of importers, dealers and users are extremely active on this topic.

Despite the fact that these objections also apply to the business B2B markets, it appears to be less of a problem here. On commercial grounds, the B2B markets choose to make optimal use of the opportunities for direct efficiency improvement and cost savings. Not only the predictability of preventive maintenance, but many other applications as well, such as the remote assessment of problems for the technician to bring the correct spare parts, the management of drivers of pick-up and delivery services, the location of earthmoving and agricultural machinery active in secluded areas and monitoring driving behaviour by means of damage sensors and electronic recording of their use of brakes and monitoring speed.

The brand channel is developing unique telematics applications (black-boxes) for each brand. As yet, there are no universal standards or platforms. Fleet owners who consciously opt for different brands of vehicles (to be less dependent on a single supplier) are thus forced to use multiple, non-interchangeable but similar telematics systems.



** The Y-axis shows the degree of distinction/applicability and/or activity of the indicated trend*

The corporate sector needs universal products.

Less maintenance

Almost all sectors recognize the trend that vehicles constantly improve and require less maintenance. This not only reduces the need for the replacement of old vehicles, but also the need for service to and maintenance of the existing installed base. This trend is less recognizable in agriculture, where the maintenance costs appear to remain stable because of a combination of better quality and more intensive use.

Traditionally, the after-sales organization generates the major part of the pre-tax profit. Income from the after-sales (spare parts and workshop hours) is decreasing structurally in all industries. The number of workshops and technicians will decrease significantly. Estimations in the truck industry already suggest 15-25% less need for maintenance within the next 5-10 years.

The coming years, the traditional earning model will change radically. The emphasis will be on the changing 'packaging' of sales and after-sales products. Product packages will become more service-oriented and more tailored to the customer's needs.

After-sales via the Internet

All industries have online ordering systems by which components can be easily ordered and delivered. Manufacturers and importers all have detailed arrangements with Logistic Service Providers (LSP's) for fast deliveries. The brand channel usually supplies its dealers twice a day. The universal channel is more advanced and often more professionally organized towards smaller deliveries, up to five times a day. Based on the existing logistic infrastructures, there shouldn't be any reason any longer for large stocks of parts in the workshop.

The private car industry is externally oriented, the most innovative in service and maintenance via the Internet. End users can actively schedule online workshop maintenance themselves, and view the progress of the repairs. Based on tariff differentiation, one can also opt for workshop visits in a less busy period, which will cost less.

These innovations are more internal in the commercial B2B industry. Service and maintenance are often part of maintenance contracts with the supplier. The supplier will carry out (preventive) maintenance at the user as often as necessary to guarantee up-time.

Price transparency After-Sales

Universal parts suppliers are active in all industries. The prices for parts have been made easily accessible online for all workshops, mostly by the universal parts suppliers, resulting in a high level of price competition. Where 10-20 years ago, the universal suppliers distinguished themselves by a (very) low price level, high availability and a will-fit quality, circumstances are very different now.

Besides improved availability and a low price level, the universal channel is now in the position to provide a high level of quality, comparable to that of the brand channel. The purchase volumes of the larger universal suppliers are often higher than those of the brand channel. As a result, the universal channel can often

purchase products of the same quality from the same suppliers of the OEM at a better price. Only, without the brand name.

An importer or brand dealer is limited to its own revenue potential of original parts, because these only 'fit' its own brand (i.e.: market share).

Supply Chain becomes shorter
All costs in the distribution chain are constantly monitored and critiqued on added value.

The links that provide actual value, and thus justify the better part of the margin are the manufacturer who actually produces the products and the dealer/ workshop that maintains the direct relationship with the end user. All other intermediate links are called into question and constantly need to prove their added value. Reorganization of the distribution chain is necessary from a cost point of view, and is well underway.

End-user's increasing convenience
All industries also recognize the increasing need for return handling and comfort for the end user.

The B2B market is increasingly rationalising and focuses mainly on improvements offering a demonstrable contribution to efficiency improvement with measurable cost savings.

A lorry manufacturer has calculated that the cost (for the transporter) of an 'unplanned standstill' in Europe can run to €1,000 per day, apart from any damage to the cargo. The manufacturer aims to avoid to such 'standstills'. Using online connections, the workshop can monitor real-time where wear takes place and where service is required. Planning preventive maintenance properly may reduce the chance of a 'standstill' by up to 80%.

Circular Economy
The private car and lorry industries are the most involved in the circular economy. ARN for instance (Auto Recycling Nederland) is financed from the recycling charges. With a network of almost 300 chain partners, ARN arranges environmentally responsible processing of end-of-life vehicles. Since 2015, the legal objective for auto recycling has been set at 95% recycling and useful applications. With the help of the efforts of ARN and its partners in the chain, this objective has now been achieved.

In the lorry industry, we observe various solutions at various manufacturers. A possible interpretation consists of a central location where used trucks are dismantled. Parts are removed, revised and added to the standard delivery programme with full manufacturer's warranty and at substantially reduced prices. Another interpretation is the setting up of a separate business unit 'Used Parts' of their own brand with KZD certificate (quality management disassembly). KZD is a certificate issued by STIBA (interbranch organization of dismantling companies).

The possible price differentiation for new and used parts may well be interpreted using own brand components. In that case, the dealer does not have to resort to a universal channel for a lower price level.

The other industries indicate that they are involved in the circular economy at the level of the manufacturers. In reality,

however, this is limited to a handful of costly electronic components and the most popular transmissions and engines. Common constraining factors are often the low volume, and the high transport costs. Reuse of products and/or components, therefore, occurs more at the level of dealers/workshops.

An overview of the differences between the linear and circular economy.

	LINEAR ECONOMY	CIRCULAR ECONOMY
Attitude toward the natural environment	Forcing nature to produce more	Do more with what nature can provide
Attitude in relation to production	Take, make & waste	Reduce, reuse, recycle
Reuse	One life cycle per product or component	Materials and energy flow through the economy indefinitely
Extend the life cycle	Replacing products while they are still usable	Life cycle is extended by applications in new or other applications
Economic performance	Consumers buy goods	Accessibility and performance instead of ownership are becoming leading in the consumption industry, end users share more products
Earning Model	Manufacturers set the selling price for products	Manufacturers will set prices for the use of the product
Multiple values and principles	Money is the most important driving force in earning models	Earning models are based on multiple values, e.g. financial, environmental and social values
Supply chain	Companies improve their efficiency independently of each other	Companies cooperate to increase value in the distribution chain, sharing both the advantages and the disadvantages.

From owner to user
This trend is widely known in the commercial car market, but still emerging at the private user level. The trend has been 'institutionalised' in the lorry and forklift truck industries as well, and is still very active.

Vehicles are increasingly seen as a means of production that should move with the times in terms of comfort and reimbursement per unit of use. This even goes so far that some businesses even demand more than 100% availability. In other words: spare vehicles must be available at a moment's notice in case of failure and during holiday periods.

In earthmoving equipment, the proportion of leased earthmoving machinery doubled in 6 years. In 2014, 30% of the operational units came from rental companies. In 2008, that was only 15%. Leasing the equipment makes a user more flexible. The major construction companies in the Netherlands have had to downsize their equipment because of the limited availability of work, and now make more use of leased equipment. Importers/dealers respond by reorganising their services with fewer locations and more mobile workshops. The number of used machinery with factory guarantee has expanded greatly as well.

Over the past 25 years, the number of farms fell from 140,000 to 65,000, while the number of m2 in agricultural land has remained about the same. Farms and contractors have become larger and more professional. Rental and lease constructions have increased greatly, in particular among the younger generation. Nevertheless, the agricultural industry remains more conservative in nature. Traditionally, ownership is still preferred, especially because it guarantees independence. The sowing and harvesting periods for the crops are the same for everyone, causing a great demand and a limited supply of machinery and operators, all at the same time. This translates into a high price and high dependence on contractors.

Large parties in the various markets sometimes have reverse auctions of capital goods. Based on specifications, suppliers may offer and the best bid wins the order. From the observations we have collected here, we have to say, however, that the quality of the reverse auctions themselves is still lagging. It is all very price-driven, with little attention for the total cost of ownership and the value in the life cycle, there is little room for added innovative elements and the award criteria are unclear. The auctioneers would do themselves a great service if they develop this method further, specify a little less themselves, and use modern methods that offer the experts in the market more opportunities.

Brand loyalty is weakening...

...end users are focusing on functionality and cost of ownership

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CHAPTER 6

Other developments per cluster

Due to the limited scope of this research, the variation in the interviews and the various situations in which the companies in these sectors find themselves, generally applicable responses to the above trends cannot be concluded.

However, during the literature research and also during the interviews, a great diversity of unexpected (macro-economic) developments emerged. Although these are not always directly related to the chosen automotive trends, there are various interesting areas of overlap, resulting in the following summaries of interesting observations, trends, visions and new opportunities.

Cluster Technological Developments

Observations:

- The ownership of telematics data is privacy-sensitive and will continue to be an important topic of discussion in the coming years, especially in the private car industry (B2C), but less so in the corporate sector. Manufacturers, importers and dealers will continue their discussions on this issue in the next few years. The discussion must be had, but will not prevent the collection of data.
- End-users need a universal platform for telematics applications, and demand open standards in both software and hardware developments. However, brand manufacturers for now continue to develop brand-specific platforms.
- Self-driving robotized machines has already resulted in the development of self-managing milk and feed robots (Lely) and huge self-propelled agricultural vehicles have also already been developed (Agrifac). The driver keeps an eye on everything and only needs to intervene in the event of deviations.
- While the diesel drive will continue to be the most dominant drive, the emergence of alternative drives can be seen in all industries, for instance, CNG (compressed natural gas), LNG (liquid natural gas), EV (electric vehicles) and hybrid forms.
- The emergence of the 3D-production of spare parts has not materialised yet, but commercially, has a very promising future, in particular for the costly slow moving spare parts.
- Fleet owners in the earthmoving and agricultural industries not only focus on cost of ownership and machine productivity, but increasingly also on sustainable entrepreneurship and an equally associated product range. Machine manufacturers and machine lessors can improve their competitive position with the customer by marketing machinery that limit CO2-emissions. This leads to higher investments and to a deterioration of the competitive

position, at least as long as machinery from outside Europe does not have to meet the stringent European emission legislation.
- Some of the investigated industries manufacture machinery that can easily be driven to the dealer or workshop for maintenance (general road transport and wheeled earthmoving equipment). Other vehicles (forklifts, agro and excavators) can be moved in such a limited way, or are so extremely hard to move at all, that their maintenance is almost always performed on or very close to the point of use. Innovative customer-oriented maintenance strategies, warehousing, spare parts distribution and service models will need to be developed, particularly for these industries.

Cluster Market Developments

Observations:
- The life cycle of products and services and their 'time-to-market' is becoming increasingly shorter.' The payback period of the product development costs will become shorter, too, and with that, the pressure on the volume sales rises. Manufacturers (and importers) are forced to sell their production volume, recession or not. As a result, vehicles are still being 'pushed' onto the market. This is contrary to the LEAN principle, that production should be based on the 'pull', that is to say: only on the customer's need.
- These days, co-creation is the answer to shorter product life cycles. Exclusivity is outdated and increasingly more forms of open source cooperation are created.
- Brand loyalty is becoming structurally less, end users focus increasingly on functionality and on costs in proportion to use.
- User friendliness, carefree maintenance and service offerings are (becoming) much more important than technical optimization. High quality products are standard and no longer distinctive. The customer and the customer's customer should be listened to carefully.
- Partly because of the long-term economic downturn, the economic life span of capital goods has become longer, in a market, which by nature is also very cyclical. There are fewer operating hours, so they can last longer. The machinery is currently still relatively young because of the massive replacement during the 'fat years' (2006-2008). Reconditioned old machinery still offer solutions, but the economic life span is still shorter than in other countries, mainly due to the impact of the driver/operator's wishes.
- The tight labour market for technically trained staff in the earthmoving and agricultural industries is the main threat to parties using capital goods. Certainly now that the technology of the machinery is increasingly becoming more sophisticated and the work itself more specialized, the availability of good quality staff is essential. This is true not only for technicians, but increasingly also for crane drivers as well.
- The emergence of the Internet has played a major part in the price transparency in products with high comparability, whereby the purchase price plays a decisive role. If more attention is paid to Total Cost of Ownership, the Internet can develop into a prominent opportunity instead of a threat.

In summary:
Of course, the market developments for each segment of the market and each company are not the same, but there is a number of interesting combinations/collaborations between OEM and universal suppliers on the basis of specific products that are delivered per channel.

But what is clear is that the first one to come up with the best response to market trends using technological developments will immediately achieve a (permanent) competitive edge. The companies that still believe cost cutting is a good survival tactic will very probably not be among the future winners.

Cluster Supply Chain Developments

Observations:

- To some extent, the brand-channel seems to be complacent. After all, a high-quality product with a good image, supposedly 'sells itself'. One assumes that a brand dealer and a final customer remain loyal to their brand, especially where after-sales are concerned. A brand dealer is tied by brand regulations in all kinds of areas. Entrepreneurs and end-users experience brand rules and regulations as very controlling.
- After the warranty period, the brand channel loses 'control'. The majority of the after sales demand shifts away from the branded to the universal channel. In the following a summary of considerations;

ADVANTAGE BRAND CHANNEL	DISADVANTAGE BRAND CHANNEL
Image advantage gives great feeling of security and reliability	High price level; price adjustments take long
Quality of spare parts is not in dispute, image advantage, 100% reliability	Sales volume limited to brand population
Customer loyalty during warranty period, first insights into Total Cost of Ownership (TCO)	Independent entrepreneurs consider push factor & regulations from manufacturer too controlling
Ability to further develop TCO into cost per unit of use	Distribution logistics limited to own brand channel; less volume, less cost advantage
Innovation at the start of the chain, integrated telematic applications, therefore also the first to know the cost of preventive maintenance	High costs for parts management, all parts must be kept in stock, including slow movers
In depth knowledge of own brand products	A lot of investment in brand and image, while trends show that brand and image are becoming less important

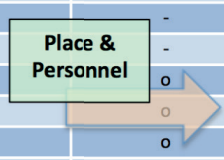
ADVANTAGE UNIVERSAL CHANNEL	DISADVANTAGE UNIVERSAL KANAAL
Low price level, same-day price adjustments	Block-exemption only applies to private car and lorry industries
No obligation to keep certain parts in stock	Always room for doubt regarding the quality of parts
Large procurement volume	Acting reactive
Volume of sales much higher, able to supply all dealers (both branded and universal), has extensive and refined distribution logistics	Especially strong in older mechanical parts. Harder when components become more electronic, especially where no block exemption legislation is upheld.
No push culture, few rules	One-stop shopping for all brands
Business-friendly	A lot of investment in ICT and customer needs

- At the end of 2012, the Volvo Group acquired the shares of Renault trucks. Since then, the two dealer networks are being combined. Each brand with fewer dealers, but together forming a larger network. The intention is to have both brands serviced by mostly the same dealers. Both brands will be displayed on the facades of the truck centres.
- At the beginning of 2014, Volkswagen, owner of MAN Trucks, acquired a majority interest in Scania trucks. Mid 2015, Volkswagen announced that both brands will be placed in a separate holding company.

- The role of the independent importer (i.e. no part of the manufacturer-owned supply chain) is being phased out. Where importers are no longer able to fulfil their role in the distribution chain with suitable added value, they are taken over by the manufacturer or (temporarily) taken over by dealers, or they become co-shareholders. Several tasks of the importer can be taken over by the manufacturer (e.g. Product, Price and Promotion). Other tasks can be taken over by the dealers who, through consolidation, have continued to grow and become more professional (e.g. Location and Staff). Also see the table below.

New vehicles	Manufacturer	Importer	Dealer
Market research	global	national	regional
Product management & options	o	-	-
Product manufacturing	o	-	-
Appointment of representations	Importer	Dealers	-
ICT new vehicles & logistics	global	national	regional
Inventory holding new vehicles	o	o	-
Branding standards	o	o	-
Spec. Sheets, literature & manuals	-	o	-
Pricing	global	national	regional
Customer specific modifications	-	o	oo
Certifications, homologations	-	o	-
Customs clearances	-	o	-
Pre-delivery inspections	-	o	o
Large customer sales & relations	-	o	o
Small customer sales & relations	-	-	o
Warranty systems & evaluation	o	-	-

Spare Parts	Manufacturer	Importer	Dealer
Quality approval, product liability	o	-	-
Pricing	global	national	regional
ICT spare parts & logistics	o	o	-
Inventory management (service %)	o	o	-
Inventory (fast, medium, slow)	F,M,S	F,M	F



- The table below gives an overview of the various distribution channels of the sectors under review and the number of ‘businesses’ per role (mid-2015). Clearly discernible is that there is a great diversity of distribution channels.
  - Toyota (Forklifts) en Scania (Lorries) are fully vertically integrated and they controle the entire chain from production to the customer (a few independent small businesses excluded).
  - On the other end of the spectrum are, for example, DAF (trucks) and the majority of the agricultural tractors, set-up with fully independent dealers.

units 2014 and average cost/unit	*13.800*	*@*	*€*	*16.000*	*/unit*	*=*	*€ 220.800.000*	*(new sales)*					
Forklifts	**Toyota**		**Jungheinrich**		**Linde**		**Still**		**Mitsubishi**		**Hyster**		**Crown**	
	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls
Factory owned branches	1	85%	1	99%	-	-	1	95%	-	-	-	-	1	100%
Independent importer	-	-	-	-	1	90%	-	-	1	90%	1	100%	-	-
Shared ownerships	-	-	-	-	-		-	-	-	-	-	-	-	-
Independent contractpartners														
Independent (sub)dealers	12	15%	1	1%	2	10%	3	5%	5	10%	0	0%	0	0%

units 2014 and average cost/unit	*12.900*	*@*	*€*	*70.000*	*/unit*	*=*	*€ 903.000.000*	*(new sales)*					
Vrachtwagens	**Daf**		**Volvo/Renault**		**Mercedes**		**Scania**		**MAN**					
	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls				
Factory owned branches	1	10%	1	10%	1	5%	32	90%	-	-				
Independent importer	-	-	-	-	-	-	-	-	1	25%				
Shared ownerships	-	-	-	-	-	-	-	-	11	30%				
Independent contractpartners	19	90%	48	90%	13	95%	4	10%	8	45%				
Total sales & maintenance locations	73	100%	48	100%	48	100%	36	100%	34	100%				

units 2014 and average cost/unit	*2.900*	*@*	*€*	*75.000*	*/unit*	*=*	*€ 217.500.000*	*(new sales)*					
Landbouwtractoren	**Case**		**John Deere**		**Fendt**		**Massey Ferg**		**New Holland**		**Claas**		**Deutz-Fahr**	
	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls
Factory owned branches	1	0%	1	0%	-	-	-	-	1	0%	-	-	1	0%
Independent importer	-	-	-	-	2	0%	1	0%	-	-	1	80%		
Shared ownerships	-	-	-	-	12	25%	-	-	-	-	5	20%		
Independent contractpartners	10	40%	7		40	75%	43	100%	10	50%			35	
Total sales & maintenance locations	50	100%	44	100%	52	100%	43	100%	50	100%	6	100%	35	100%

units 2014 and average cost/unit	*1.900*	*@*	*€*	*125.000*	*/unit*	*=*	*€ 237.500.000*	*(new sales)*					
Grondverzet	**Volvo**		**Caterpillar**		**Komatsu**		**Hitachi**		**Liebherr**					
	#	%-sls	#	%-sls	#	%-sls	#	%-sls	#	%-sls				
Factory owned branches	-	-	-	-	-	-	1	65%	-	-				
Independent importer	1	100%	1	100%	1	100%	-	-	1	100%				
Shared ownerships	-	-	-	-	-	-								
Independent contractpartners							6	35%	2					
Total sales & maintenance locations	1	100%	4	100%	3	100%	10	100%	5	100%				

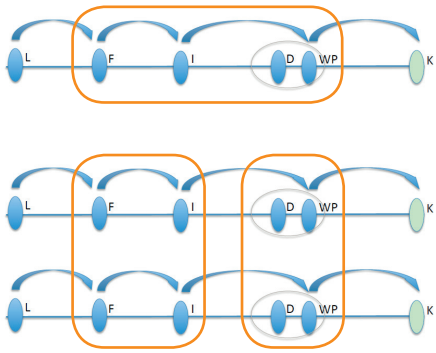
In summary:

During the interviews we came across a wide range of visions and implementations regarding the developments in the distribution chain, which can be described on the basis of the following model: The blue arrows indicate the sales process of the brand channel during the warranty period, the blue dots indicate the earning points.

** (L); supplier manufacturer, (F); Manufacturer OEM capital goods, (I) Importer, (D) Dealer, (WP) Workshop, (K) Customer/end user*

After the warranty period a huge proportion of the ties with the brand channel disappear. Because of the large purchase volumes and refined distribution logistics of the universal channel, the OEM suppliers (or their equivalent) become less dependent on the manufacturers. The universal channel is able to supply importers and dealer/workshops directly as well. See the orange arrows. A noticeable price pressure starts at the manufacturers and importers. The role of the independent importer will be difficult to maintain.

In practice, several combinations of these chain organizations are visible, in which multiple parallel chains can be connected to each other as well:



From a LEAN point of view, the supply chain organisation starts with the end user and this end user's wishes and needs should direct the work.

Cluster Culture changes

Observations:

- Generally speaking, for all industries under consideration: the dealers/ workshops should switch to a more proactive after-sales model. The limited addition of new vehicles in the last few years causes automatic aging of the installed based population. Traditionally, brand dealers are weak in the binding older vehicles to their business model. After the warranty period, customers easily make the move to universal dealers and suppliers. The brand channel could, for example, offer longer-term maintenance contracts, extended maintenance coverage and a variety of service packages.
- The importance of sustainability, functionality and ease of use will dominate.

Brand and image are becoming continuously less important.

- The sales process is becoming superficial and colder, i.e. mostly functional and business oriented. Much less based on warm relationships and trust. Purchases over the Internet and digitized menu-driven requirements (need-calculations) exceed the need for personal relationships. Thinking along with the customer is being digitized. Knowing each other based on trust and eye-to-eye contact is becoming less important. While customer satisfaction is to be kept at all-time-high levels, customer loyalty is declining.
- Because of their intensive use of the Internet, customers are increasingly aware of the specifications of vehicles and their unique after-sales selling points. This leads to a different type of sales process. The sales/account manager of a dealer to a business partner (B2B) will increasingly 'sell' less. The sales function will need to develop more towards a business consultant or sparring partner. One that helps to determine and balance the actual needs of the customer. He also has to be perfectly aware of the customer's earning model (B2B), the break-even points, industry developments, and all the local rules and regulations as well.
- The development of remanufactured components as a separate product line, to prevent price erosion of the original parts and to be able to offer an alternative for competing 'will-fit' components.
- There is a clear difference in the appearance of the brand channel in relation to the 'universal' channel. The brand channel is characterized by brand loyalty, experience and image by creating a brand appearance. The universal channel is characterised by freedom, convenience, price and freedom of choice; the latter being what Generation Y is looking for.

The traditional earning model is no longer sustainable

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CHAPTER 7

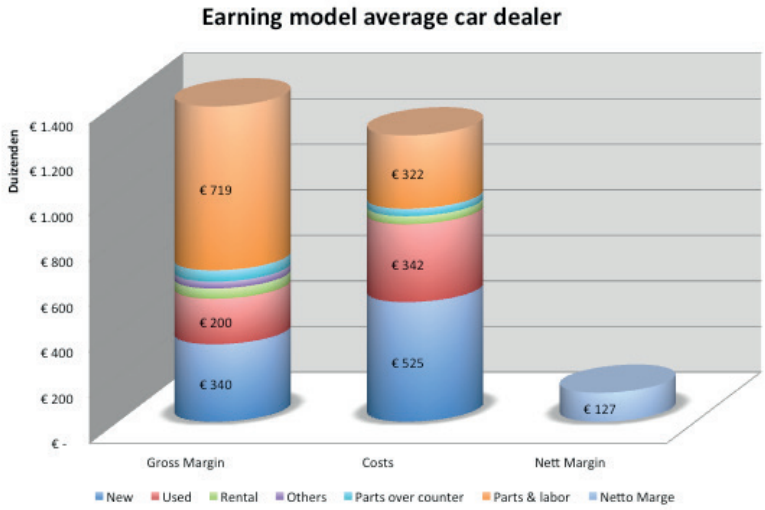
How to proceed?

During the interview process it surprisingly became clear that virtually all the researched industries were dissatisfied with the earning model. In particular in the private car industry. A risky business supported by an average return of 0.3% in 2013 (figures Bovag). This is no easy task, because this sector is highly dependent on the unpredictable fiscal and environmental legislation. Furthermore, the industry is also very dependent on the volume bonuses of importers. The earning model of a full-line dealer is no longer sustainable and seems to be running into a dead-end.

Example of a revenue model

The following is an example of a properly functioning single brand private car dealer with €13mln sales, 15 FTE and a turnover of 500 new and 400 used cars. What becomes evident is the great dependence on the after-sales for the overall profitability. After-sales provides 56% of the gross margin and absorbs only 28% of the total operating costs. This example illustrates that the revenue model is not sustainable and that innovations are much needed.

	GROSS MARGIN	COSTS	NET
Sales	€615.000	€902.000	(€287.000)
%	44%	72%	
After Sales	€770.000	€355.000	€414.000
%	56%	28%	€127.000



Change is necessary

In the previous chapters, we outlined the trends in the various market segments. We draw the conclusion that the revenue model in all industries is under pressure and that it is (over-) due for change. Reasons are;
The after-market parts sales volumes are under pressure due to the higher quality of the vehicles, the longer maintenance intervals and serious competition of the universal spare parts suppliers.
Traditionally, most profit is realized on the after-market sales. In the traditional earning model, after-sales subsidizes and repeatedly compensates for the lower to negative profits on sales of new and used.
The prices and margins of spare parts have reduced because of increased price transparency.
Businesses respond in various ways to these developments. In the following, a summary of strategic options that can be considered to help respond to changing circumstances.

Strategic options

Increase the selling price of new products

This is a possible strategy to compensate for the lower after-sales market profits. This renders the margin per activity more balanced. The lower profits of new sales should not be compensated/subsidized by other activities any longer. However, there is a risk that the price increase would cause a manufacturer to exclude itself from the market for new products. This could lead to a lower installed-base population, eventually causing the after-market sales to fall again, resulting in a negative spiral.

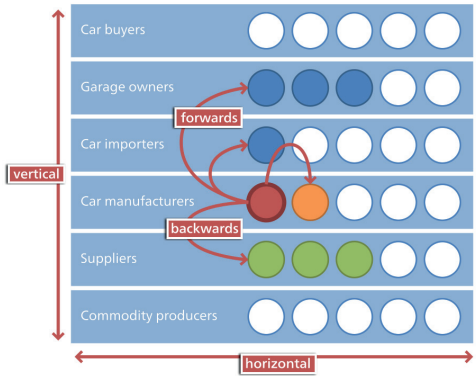
This strategy is understandable from the manufacturer's point of view and justifiable, but the customer will not accept this just like that, and may opt for a competitor with a different strategy.

Chain organization of the after-market

If the selling price and volume decrease, the profit can be kept at the same level by organizing the chain better. The main possibilities are:

a)
Vertical integration

Some after market chains consist of up to five steps: supplier, manufacturer, importer, dealer, lease company and end user. Costs are added at each step and - if these are separate companies - a profit must be made everywhere as well. A substantial part of the energy is spent on competition and sub-optimization, for which there is only limited customer benefit.



The purest form of a vertically integrated supply chain is created is when the manufacturer owns all the links in the supply chain i.e. from manufacturing to end-user. Products and services are optimized by vertical integration. Management is in a better position to identify

the links in the supply chain that do not provide sufficient added value. These links are more easily recognized and removed. The total profit potential can be better maximised as it 'owned' by one entity without conflicting interests. This causes the price level for the end user to decrease.

An advantage for manufacturers who pursue vertical integration is, that they have direct contact with end users. In this way, critical information about the market's needs reach the manufacturer faster and unfiltered, enabling it to anticipate developments in the market accurately and fast. Furthermore, manufacturers have an overview of and insight into the real costs and the distribution margin in the entire distribution chain. We note that producers often take the initiative to forward integration (i.e. integrating downstream activities) and even make backward activities independent. There are also suppliers (in the after-sales market) who take forward integration initiatives, and totally bypassing the producers intentionally.

A KPMG survey among 200 executives from all layers in the automotive distribution chain shows that 77% of those questioned believe that automotive OEMs are well on their way to become complete mobility solution providers. 81% is also of the opinion that the overall expertise in vehicle development at the manufacturers is becoming less because of stronger collaborations of suppliers.

b)
Horizontal integration
To reduce the costs of the after-market in the brand channel, one can choose to cooperate with similar companies, for example by making use of the same infrastructure for logistics and warehousing of spare parts.

Joining a universal formula or franchising network could also be considered. Brand dealers could also consider acquiring an authorized repairer of another brand. In this way, brand dealers become less dependent on only the after-sales potential of their own brand and can increase their market potential. An increasing number of car dealers has opted for this path in the past few years. Some have opted to do this with a private – self-invented - concept. Others opted to join an existing universal formula.

c)
The concentration of the dealer network
The number of dealers and showrooms in the private car industry is declining sharply. Because sales via the Internet are increasing, there is increasingly less need for showrooms. Poorly attended and expensive showrooms will make way for some of the larger and much frequented 'experience centres' where the user can get experience and training. Dealers in the region can make use of these.

Small businesses could get good results as niche players, but in general, these companies have less opportunity to influence the high fixed costs (housing, financing and advertising). The larger the dealer, the better the chance of efficient cost controls.

Reducing the number of sales outlets can be arranged in a 'warm' way, by consolidation, or in a 'cold' way, with bankruptcies. Importers play an important role by imposing more stringent requirements on their contractual partners.

d)
Reducing supply chain costs by outsourcing
A common method to reduce costs is to outsource the logistics to a 3rd party logistic service provider (3PL). By making sound arrangements for the service levels and pricing, the costs may be limited, while the quality of the delivery remains the same, or even improves. The manufacturer can then focus on what is often considerd the core business: marketing, design and production. However, it has transpired that outsourcing and cost reduction doesn't always offer good results. Product knowledge, engineering change, customer focus, process improvement, and stock reduction regularly run into difficulties and a low-cost provider (often the winner of a tender) often has its own financial interests.

e)
Smart Buying
The simplest way to reduce after-market sales' costs is to reduce the purchase prices. The production purchases from OEM manufacturers are not yet combined with the purchase of after-market spare parts. Often, this is 'not possible' as well. Intelligently combining this, or forming purchasing combinations with other companies, could result in sizeable purchase advantages.

f)
Universal chains
Universal after-market chains as a supplier of spare parts and maintenance are growing rapidly in the automotive industry. The larger universal garages, fast-fit chains or franchise formulas buy for all brands (mostly at the same OEM suppliers). This could make their purchasing power greater than that of the individual OEM. This industry increased by 207 branches in 2013, i.e. +10,6% compared to 2012 (Source: Aumacon Garage formula top-40, excl. Lorry branches)

Increasing the market share

The total margin can be maintained, even with a decreasing percentage of margins, by means of increasing market share and by doing so causing sales volumes to rise.

a)
Supply other brands
By also offering spare parts from other suppliers, you can increase your potential sales volume considerably. Part of this strategy is that the dealers are also encouraged to do maintenance for other brands.

	TOP 5 GARAGE FORMULAS	# BRANCHES 2013
1	Bosch Car Service	383
2	Vakgarage	206
3	Kwik-fit	180
4	Profile Tyre Center (excl lorry establ.)	173
5	Requal Erkend Reparateur	139
overige	Total of ~ 35 formulas…	506
	Total	*1.587*

b)
Increase Service
In the trends we have found that there is an increasing need and adaptation towards convenience. Both businesses and private users increasingly desire a carefree and maximum service experience. Therefore, organize excellent customer service, fast deliveries, a user-friendly order system, carefully maintain customer purchase histories and deploy targeted communications with special offers.

Improving service can also be achieved by delivering innovative services. A good example of this is that the maintenance of lorries can be done during the inevitable delays at border crossings. This increases the availability of the means of production for the end user.

Part of customer-centred thinking is the use of LEAN methodologies. Here, the customer is the focal point and all processes are arranged to optimize customer satisfaction. LEAN improvements are possible in all processes, in all industries and in almost all participating companies.

Providing new services

The trends and technological developments offer the possibility of introducing new services in the market.

a)
Service Contracts
Many companies of the interviewed companies offer service contracts. This means that at the time that the machine is purchased, a maintenance contract is concluded with the dealer or manufacturer. This offers the user the advantage of not having to worry about the maintenance costs of the machine for as many years the contract or extended warranty lasts. It offers the manufacturer the advantage of a guaranteed aftermarket sales turnover and customer retention upon the sale of a new product.

b)
Data based services
Because of the available telematics boxes in the machinery and the use of sensors, the end user can be offered a variety of data based services. The fact that the issue of ownership of the data has not been settled yet was mentioned already in the discussion of the telematics trend. While there are few privacy issues in the industries still under review, in practice this does not cause many problems with the end user. The most current agreement is: the party who owns the hardware (machine) and pays for the subscription (often the end-user), is also the owner of the data. Since increasingly more users no longer own the machinery, the manufacturer or dealer has access to the data and is able to develop and deliver services.

Legally, the question is who in the chain has the right to market the data to the end user. This will be settled over the next few years, either by making arrangements, or by vertical integration. In addition, with regard to said data it is still not entirely clear exactly where the boundary lies between permitted data services and not allowable privacy violation. What can or can't a manufacturer of heavy goods vehicles tell a carrier about the driving behaviour of a driver? Or about the use of mobile devices while driving?

We will discuss the possibilities of data-based services in ascending order of added value from the person who manages the data.

i. Wear and Tear
By placing sensors at critical spots in the machine, the manufacturer or dealer can receive a signal as soon as preventive maintenance should take place. For example when the brake pads are worn, the oil is overheating, or the filters need to be replaced. Another much used 'simple' data service is to provide the location of a machine by GPS.

ii. Service plan
By combining the kilometres/hours of operating data and the date of the previous maintenance, contacts can be made to pro-actively schedule periodic maintenance. This can be scheduled in such a way that the number of times that a service technician must come for maintenance is minimized, which is cost-saving.

iii. Advice on the basis of data
By intelligently combining the data stored, reports and advice can be provided to the end-users. This may include upscaling or downsizing the fleet based on utilization. Data about user operation can also be reported e.g. number of emergency stops, number of hours per user, and near-accidents. Data analysis can offer the end user many new insights and can could also reduce costs and maximize added value. Depending on the agreements, the benefits can be shared by the manufacturer and the user.

Reconditioned vehicles & components

The research revealed that the reconditioning of used machinery and parts can be commercially very interesting. Most certainly when the machinery and/or components have only partially reached the end of their economic life and the purchase prices of the older used machinery are at an historic low. The dealer or manufacturer disassembles the machinery, installs new parts and provides a factory or dealer warranty. The machines can be added to the rental fleet or sold as used-with-warranty.

Raise barriers

Where the above strategies are in particular offensive in nature, a number of defensive strategies could be developed as well. The effectiveness of these defensive strategies in a rapidly changing market is often of short-lived. Examples of these strategies are:

a)
Set conditions for the guarantee
The automotive industry prohibits making a warranty on a purchased vehicle subject to maintenance at a workshop, designated by the manufacturer. In the capital goods industry in this research, however, this is still allowed, and applied on a large scale.

b)
Limit the available information
Similar to setting conditions on a warranty, one can choose to make finding alternatives for maintenance at the dealership so difficult, that only a few players will be able to offer this.

Know your customer's machine better than the customer does

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CHAPTER 8

Conclusions and recommendations

Each of the companies in this research is unique, each has its own principles, each has a different positioning and each is committed in various ways to different objectives with different resources at its disposal.

When reading this report, each company may determine its own position and choose the steps they consider the right steps to follow. The researchers cannot possibly - and out of respect for the participating companies do not consider that appropriate either - to list all recommendations for all participating companies here. The researchers will, however, be pleased to make an appropriate contribution to future further research or improvement.

Because the nature and the extent of the discussed trends, the business models will gradually change as well. And once the business models change, everything changes. The traditional roles of the organizations in the distribution chain are changing and are constantly influenced by developments. Not all organizations are aware of the rapidly changing world around them and do not anticipate this sufficiently.

All industries included in this study are strongly in motion, in their own way. All the same, eight of the thirteen automotive trends are clearly identifiable. The most striking recognizable trends are:

- Development and use of telematic applications
- After-sales price transparency
- Consolidation of the distribution chain

The surveyed industries are all key industries, large multinationals that control the playing field. However, only a few processes have been organized properly at several companies. Or better: most brand chains haven't yet organized most of the processes properly. The improvement potential is great and as virtually every industry has a brilliant frontrunner, the need to tackle the issues is tangibly present.

The revenue model is under great pressure in all industries mentioned, mainly because of the great consolidation efforts in the distribution chains. 'Searching' for the right form takes a lot of time and causes uncertainty in the market. New creative forms of cooperation and daring to do business in an innovative way will be decisive on the road to success.

Most businesses surveyed in the various industries are in a functional stage of product-thinking, i.e. optimize a product and develop a logistics distribution chain to deliver the product as profitably as possible to the customer. This functional product-thinking mostly causes sub-optimization and wastage. In the future, our thinking has to be reversed. The market needs integral solutions and a service-oriented approach, to be developed jointly with and for the end-user. The provision of services has more distinctive and added value than the provision of physical products that usually are easy to copy.

Recommendations:

- Work closely with the customer in the search for new, cheaper or more effective solutions that benefit the customer.
- Know your customer's business model. Know your customer's machine better than your customer.
- Don't have your customer pay for the use and interpretation of telematics applications, as this is a textbook example of the specialist service that the customer needs and with which the manufacturer and dealer be distinctive.
- Innovation of products and services. As a company, make time and resources available to monitor the market developments and to translate them into opportunities. Be prepared to develop joint ventures or co-productions with partners or chain partners. Chances are that they are facing the very same challenges that you are.
- Customize your sales and after-sales organization. Sales & Account management should not think in terms of product sales any more, but in terms of solutions to the customer's problem. Invest in telematics applications, ICT systems and custom services for preventive maintenance.
- Develop your earning model in such a way that each of the 3 core activities in the business should be made profitable independently, i.e. no more interdepartmental subsidies.
- New sales including lease
- Used sales and rental
- After-sales; parts and workshop hours

Trends & Developments
(technology, market, supply chain, culture)

Defensive strategy	Offensive/Growth strategy

The end-user as starting point for strategy development	
Differentiation on price for brand specific services	Invest in innovative/services Forward vertical integration (towards end-user)
Develop customer loyalty programs Concentrate on Dealer-transcending programs for services (cost efficiency)	Horizontal intergration
Consolidate Dealer networks Focus on service centers for maintenance & repairs	Expand 'installed' base for sales & service (multi-brand strategy) Backward vertical integration (towards manufacturer)

Questionnaire
Future scenarios
Companies interviewed
Literature

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CHAPTER 9
Appendices

Appendix 1: Questionnaire for interviews

Research Group vLm
Trends in Lean Spare Parts Logistics

Research questions
Do the trends in the automotive industry also apply in related industries? Does the automotive industry actually have a leading role? If so, how is this conducted?

Target group
The research partly targets (Dutch) OEMs, but mostly the larger distributors/dealers of capital goods in the B2B market, and focuses in particular on the trends in Lean Spare Parts Logistics and how these are applied.

1	*Short description of the organizational structure/organizational chart. How is After-Sales organized?*
2	*What are your current 3 main management conerns?*
3	*Are you satisfied with your earning model? Why is that so? What could/should be better?*
4	*Are you satisfied with the growth strategy? And with the implementation?*
5	*Can you tell us about the general trends in your market?*
6	*Who are your customers and what service level is demanded? Do you succeed in that?*
7	*Who are your spare parts competitors and what do they really do well?*
8	*How loyal are your after-sales customers? How do you hold on to the population?*

9 *Should/could sales be separated from after-sales? Why?*

10 *What are the advantages and disadvantages of factory owned vs. independent dealers?*

11 *How do you feel about multi-brand showrooms? And multi-brand workshops?*

12 *Are you a Lean Six Sigma user? Do you have a process-driven organization or a traditionally driven organization?*

13 *Do you recognize the trends shown in the illustration?, Please respond/comment.*

1. *From fewer assets to more use, more hire/lease constructions.*
2. *Emergence of "connected machinery", telematics boxes*
3. *Emergence of intermediaries, pooling customer demand*
4. *Internet as a fully-fledged sales channel for sales of new vehicles*
5. *Price transparency for sales of new vehicles*
6. *Internet as a fully-fledged sales channel for after-sales ?*
7. *After-sales price transparency?*
8. *Longer maintenance intervals?*
9. *Does the supply-chain work as it should? Number of links/earning stages?*
10. *Rising demand end-user convenience*
11. *Block-exemption (EC 461/2010), equal provision of information act*
12. *Emergence Generation Y, born 1981~2001 (now 15~35jr)*
13. *Emergence of a circular economy, i.e. reuse of components and/or machinery.*

14 *Of the following 4 future scenarios, which one appeals to you most regarding your industry/sector?*

Innovation
Concentrated assets, great influence intermediaries

- Financially strong intermediaries are owners (e.g. Google, Apple, Microsoft, Virgin), forward maintenance to selected maintenance chains for maintenance at multi-brand dealers
- Extremely high complexity maintenance
- The car drives itself, controls, plans, books and streams everything, is the ultimate computer
- The user is no longer the owner
- The user wants to pay for a full service solution (mostly via Apps)
- Car is a status symbol
- The car is the pivot of the mobility solution (car-sharing, Public transport, bicycle, etc.)
- Payment per km or per month, rate dependent on the level at which advertising is allowed and the degree of maintenance control

Mobility
Concentrated assets, little influence intermediaries

- Dominant role of manufacturers and lease companies (both in technology and in ownership)
- High complexity of maintenance
- Maintenance control to brand dealers (MFG) and multi-brand dealers (leasing)
- The user is no longer the owner
- The car is no longer a status symbol
- Forms of subscription are popular
- The car is the pivot of the mobility solution (car-sharing, public transport, bicycle, etc.)
- Workshops are replaced by large clusters of maintenance centres (+H&B service)

Chains
Fragmented ownership, great influence intermediaries

- The user is the owner, very cost-conscious and risk-averse, the car is a commodity
- Shared use unpopular
- Car has no status
- After-sales is a non-interest product, has become completely universal (i.e. not via brand dealers)
- The user is willing to pay for at most a maintenance-insurance (in case of a brand)
- Many intermediaries dominate the market, capitalize on price-consciousness and combine the demand (inspections, tires, maintenance intervals

Retailer
Fragmented ownership, little influence intermediaries

- The user is the owner, wants to control all himself and is willing to pay for convenience, comfort and price transparency
- The user cannot be controlled.
- In case of a sale, a maintenance contract as well
- A car brings status
- Shared use unpopular
- Dealer holdings and multi-brand dealers (franchises) dominate the market and work together, thus excluding other intermediaries

Appendix 2:
List of participating companies

	COMPANY	CATEGORY	
1	Kamps de Wild Holding, Zevenaar (Reesink)	Agricultural	Importer LB machinery
2	Lely, Maassluis	Agricultural	Milk robots
3	AGCO, Grubbenvorst	Agricultural	Manufacturer/importer LB
4	Abemec, Veghel	Agricultural	Importer/Dealer LB
5	Agrifac, Steenwijk	Agricultural	Manufacturer LB machinery
6	Mechan Groep, Achterveld	Agricultural	Importer LB machinery
7	Ravas, Oosterhout	Forklift	Mobile weighing equipment
8	NACCO (Hyster & Yale), Nijmegen	Forklift	Manufacturer
9	MCFE (Mitsubishi & Caterpillar), Almere	Forklift	Manufacturer
10	Toyota Material Handling, EMEA	Forklift	Corporate
11	Toyota Material Handling, Ede	Forklift	Factory site
12	Motrac Linde, Almere (Reesink)	Forklift	Importer
13	Hencon, Ulft	Forklift	Manufacturer special vehicles
14	Unicarriers, Nissan, Rijswijk	Forklift	Factory site
15	Peinemann, Hoogvliet	Forklift/Cranes	Rental
16	Kemp Holding, Tiel (Reesink)	Earthmoving	Importer
17	Pon Equipment, Caterpillar, Almere	Earthmoving	Importer
18	Hitachi Construction Machinery Europe, A'dam	Earthmoving	Manufacturer
19	Komatsu, BIA, Zutphen	Earthmoving	Importer
20	DAF Trucks NV, Eindhoven	Trucks	Manufacturer/Importer
21	Volvo Trucks, Beesd	Trucks	Importer
22	MAN Truck & Bus, Leusden	Trucks	Importer
23	MAN Trucks, RosiervandenBosch, Utrecht	Trucks	Brand dealer
24	MAN-Roordink, Barneveld	Trucks	Brand Dealer
25	Terberg, Benschop	Trucks	Manufacturer special vehicles
26	Scania, Breda	Trucks	Factory Importer
27	TVH, Waregem, Belgie	Spare parts	Universal supplier, Forkl.
28	Kramp, Varsseveld	Spare parts	Universal supplier, Agro
29	Granit, Wehl	Spare parts	Universal supplier, Agro
30	De Onderdelendienst, Veenendaal	Spare parts	Brand supplier, Automotive
31	Wabco	Spare parts	Spare parts for trucks
32	Agri-Parts, Tiel	Spare parts	Recycling Agro parts
33	Pon's Automobielhandel, Leusden	Automotive	Importer VW, Audi, Seat, Skoda
34	BCA Autoveiling, Barneveld	Automotive	Auction house, used cars
35	Mitsubishi Turbo and Engine Europe, Almere	Automotive	Turbo manufacturer for PKW
36	Auto Recycling Nederland, Tiel	Automotive	Recycling Automobielen
37	IVA, Driebergen	Other	Training Institute
38	Parts Express, Vianen	Other	Logistics Service Provider
39	Elma, Soesterberg	Other	Drive Technology
40	ING Lease, Amsterdam	Other	Financing capital goods
41	Innovam, Nieuwegein	Other	Training Institute
42	Royal Reesink, Apeldoorn	Other	Earthmoving, Agri and Forklift

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