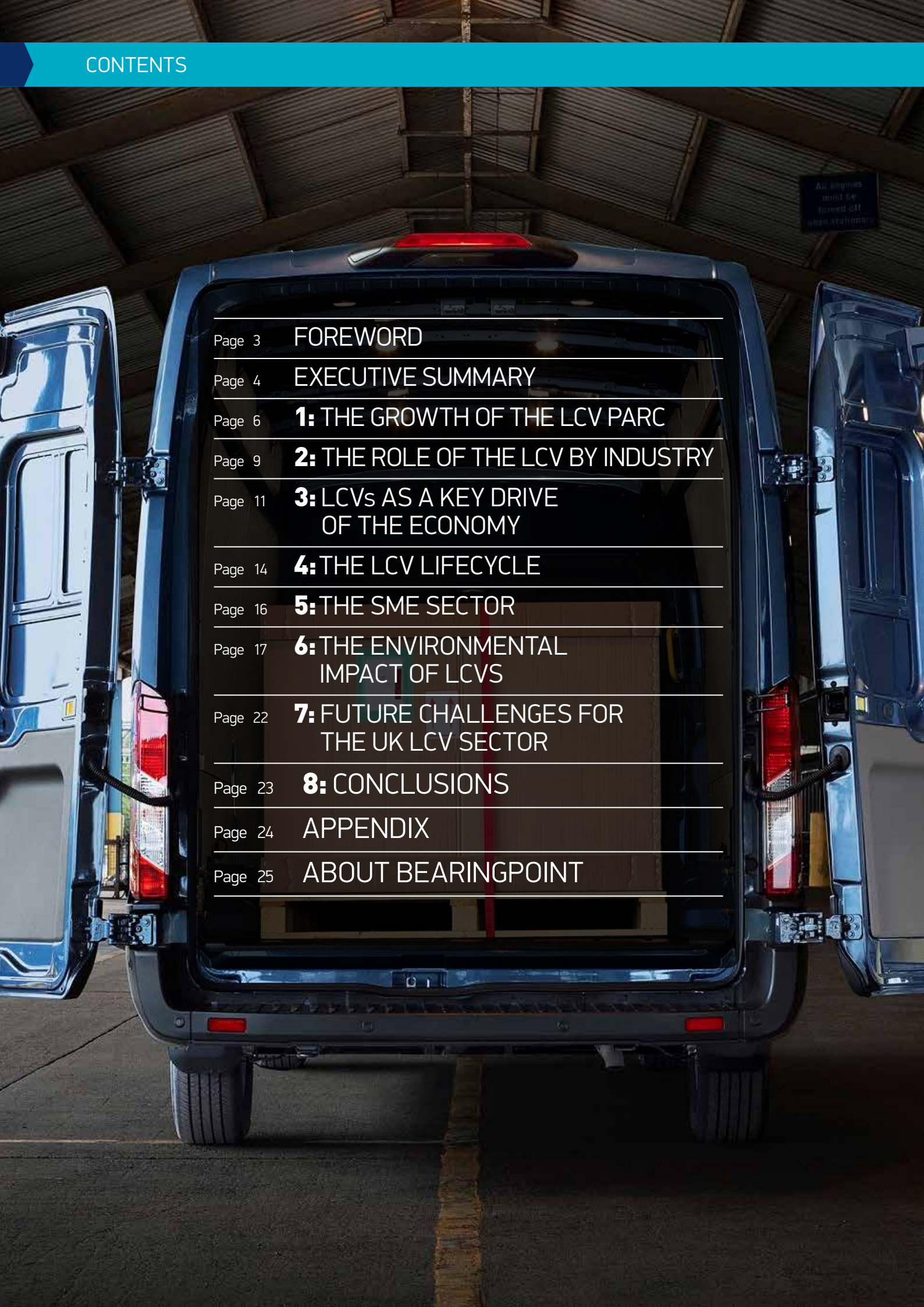


LIGHT COMMERCIAL VEHICLES DELIVERING FOR THE UK ECONOMY

2019 REPORT





The background of the page is a photograph of the open rear of a blue van, viewed from behind, parked inside a warehouse. The van's rear doors are open, revealing the interior cargo space. The warehouse ceiling is made of corrugated metal, and a sign is visible in the upper right corner that reads "All engines must be turned off when stationary".

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LIGHT COMMERCIAL VEHICLES

THE BACKBONE OF BRITISH SOCIETY



► The UK's light commercial vehicle sector has never been more important, driving the economy and supporting millions of jobs across the country. Whether making up part of the fleets of big business or supporting the thriving SME and sole-trader sector, these workhorses are the backbone of British society.

Light Commercial Vehicles: Delivering for the UK economy

is the first report of its kind, delivering valuable market intelligence to this vital sector. There are currently some 4.6 million vans on UK roads, with almost all serving a role that will have a direct impact on the economy. For the first time, the study looks at how the van market has grown, why it has grown and exactly how these vehicles are being used.

The van parc has experienced significant growth in recent years, increasing by 59% since 2000, almost double that seen in the car sector. Commercial vehicle downsizing, a rise in self-employment and the boom in online shopping are all factors that have resulted in a record number of vans on our roads.

But the van is not merely a vehicle, it is an essential tool to businesses and the millions of workers they employ. Without the van, one in 10 British workers would not be able to carry out their work. This 3.4 million strong workforce has a combined annual wage bill of £56 billion – amounting to some 11% of GDP. Yet this only accounts for a small proportion of the sector's true economic value. The UK is also home to two major LCV manufacturing plants, a thriving conversion and aftermarket sector, and a buoyant used and new van market, with the latter estimated to be worth around £10 billion a year.

New vans now offer a variety of features, often as standard, including advanced driver assistance, lane departure warning and autonomous emergency braking systems. These developments have helped maintain the sector's strong safety record, on which the industry continues to work hard to improve.

Environmental concerns are at the top of industry's agenda. Almost all of the UK's van fleet is powered by diesel, something that should not be downplayed. Thanks to heavy investment from industry, the latest Euro 6 diesel vans on sale today are the cleanest in history and are already playing a vital part in improving air quality, as well as helping to address other environmental concerns, with average new van CO₂ emissions having fallen more than 10% over the past five years.

Manufacturers are also bringing an exciting range of ultra low and zero emission vans to market. However, while industry can develop new technology, it can't determine the rate of uptake. Alternatively fuelled vans accounted for only 0.3% of registrations last year, underlining the challenges to business in adopting electrified LCVs. If demand is to increase, we need to promote the benefits of this technology, address range and payload anxiety and tackle this sectors' specific charging infrastructure requirements. Above all, we need policies and incentives that encourage businesses to renew their fleets with the latest, cleanest technology that best suits their needs.

As this report highlights, the UK is home to a thriving van industry and dedicated workforce, and while there are complex challenges, the sector stands ready to meet them, always innovating and developing ever-more advanced technology to serve a changing society. The van will continue to be a vital tool in the growth of our economy for decades to come. ■

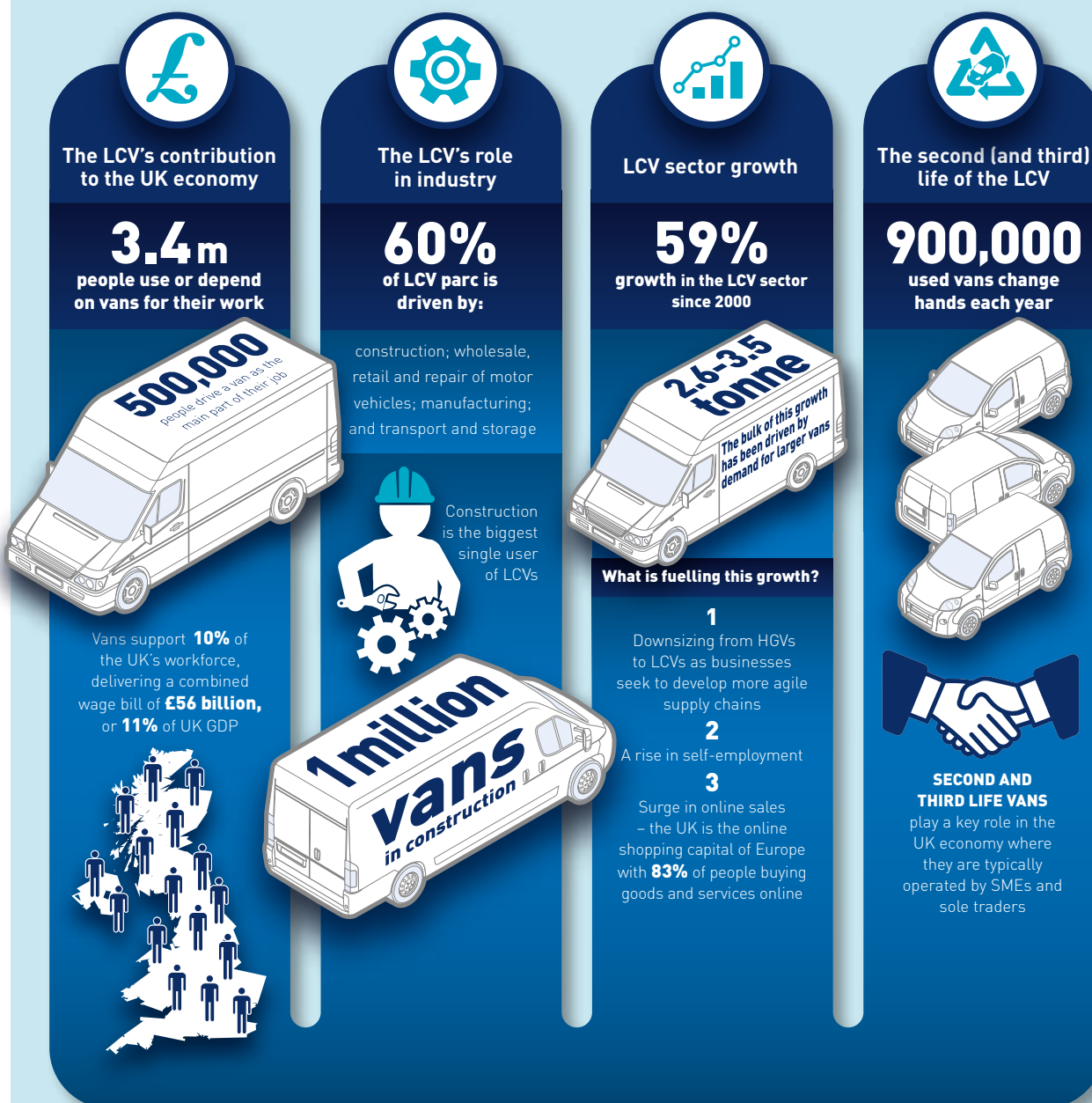
Mike Hawes Chief Executive

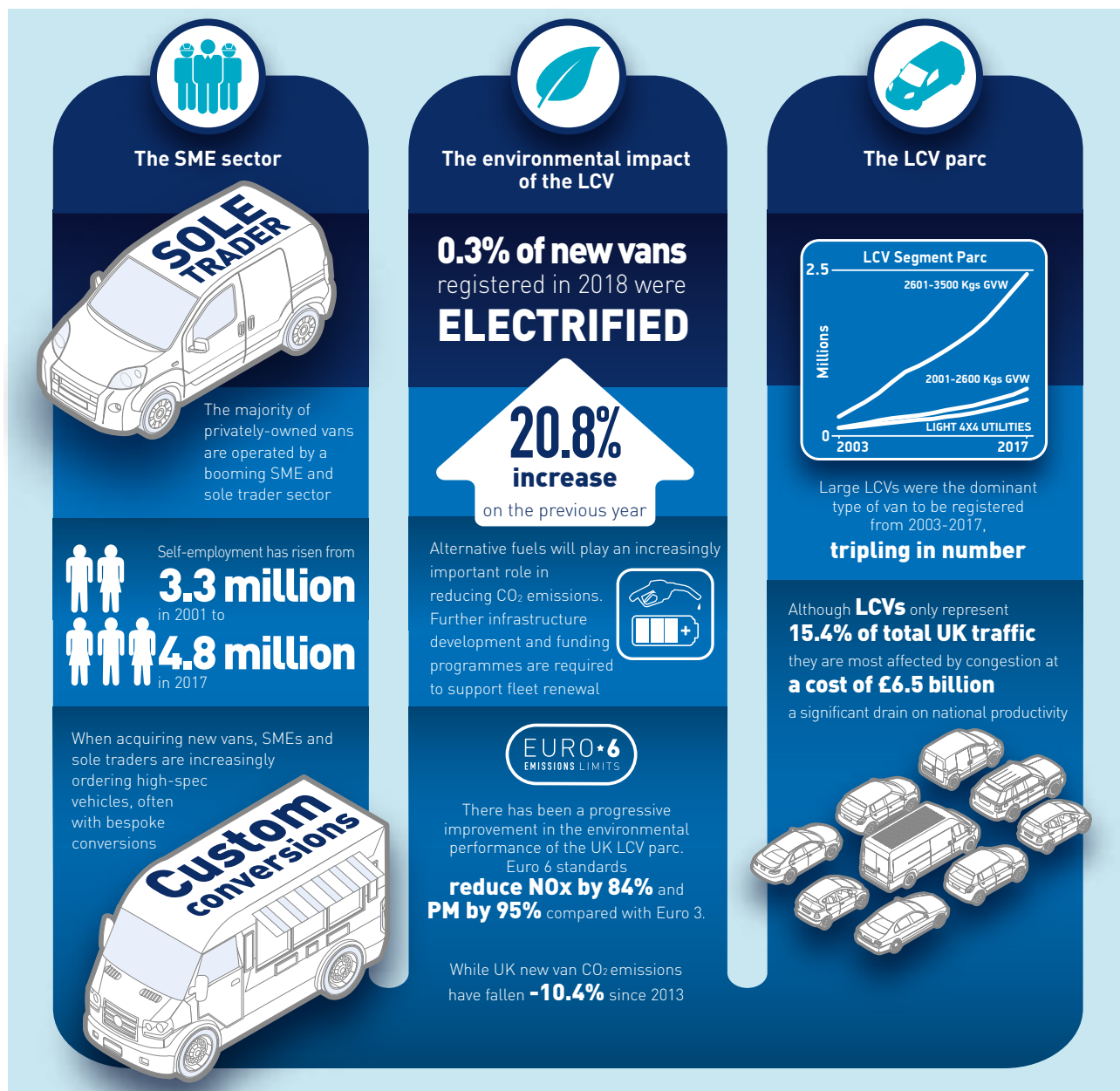
► There are 4.6 million Light Commercial Vehicles (LCVs)¹ driving on the UK's roads, yet there has been limited structured research conducted into the growing importance and influence of this sector on the UK economy. Apart from licencing and traffic data, the Office of National Statistics and Department for Transport do not publish statistics on the van parc and its use. This is in contrast to the research and data captured on Heavy Goods Vehicles (HGV) where a parc of just 450,000 vehicles is monitored through the Continuing Survey of Roads Goods Transport (CSRGT).

This report, commissioned by the Society of Motor Manufacturers & Traders (SMMT), covers new ground, setting out the results of a qualitative research project conducted by BearingPoint, which blends insights gained from an analysis of available data

sources, economic modelling and interviews conducted with a wide spectrum of industry stakeholders. Full details of the data sources assessed, methodologies utilised and the organisations interviewed can be found in the report appendix.

THE KEY FINDINGS IN THIS REPORT INCLUDE:





The report aims to provide an informed and balanced view for stakeholders and policy makers. It seeks to address gaps in understanding of the sector so that generalisations, stereotypes and false perceptions can be challenged with empirical facts.

REPORT OBJECTIVES AND APPROACH

► In developing this report BearingPoint has analysed and synthesised existing data sources, conducted economic modelling of that data, and cross referenced it with insights derived from interviews with a broad range of industry stakeholders in order to provide a broad and balanced overview of the LCV sector. Full details of the data sources assessed, methodologies utilised and the stakeholders interviewed can be found in the report appendix.

The report aims to provide an informed and balanced view for stakeholders and policy makers. It seeks to address gaps in understanding of the sector so that generalisations, stereotypes and false perceptions can be challenged with empirical facts. It also highlights a need for further primary research to be conducted

into this complex and diverse sector to ensure that there is an informed basis upon which to determine future decisions and policies regarding the LCV sector, enabling businesses to thrive rather than creating challenges for them to overcome



► In recent years, the LCV sector has been the fastest growing vehicle category in the UK. The broad range of LCV sizes and configurations has seen the sector capitalise upon changes in consumer dynamics and supply chain concepts to become the ‘workhorse’ of choice for UK business.

KEY FINDINGS

- Since 2000, the LCV parc has **grown by 59%**, almost double that of the growth seen in the passenger car market while, by contrast, the HGV parc has **shrunk by 2%**.
- The bulk of this growth has been driven by demand for larger vans (2,600-3,500 kg Gross Vehicle Weight).
- Factors fuelling this growth include a fundamental shift in consumer behaviour with the growth of online shopping, an increase in LCVs as businesses seek to develop more agile logistics operations in response to the growth in the ‘fulfilment from store’ model (a service which previously would have been completed by an HGV)² and a rise in self-employment (from 3.3 million in 2001 to 4.8 million in 2017).³
- This growth has had an associated impact on traffic with miles travelled by vans **increasing by 56%**, in comparison to a more **modest 9%** seen within the passenger car parc, since 2000, indicating the changing dynamic of the UK’s supply chain⁴ and reliance on the LCV sector to deliver goods and services.

The van category is hugely diverse with a wide range of sizes and configurations. These range from panel vans to pick-ups with open back loading areas and a range of specialist bodies and conversions serving such industries as construction; road maintenance; refrigerated food delivery; vehicle repair and recovery; and waste management and recycling. There is no requirement for a special licence to drive a van, a car licence is sufficient. This combination of factors makes them easy to acquire, configure and operate.

There are four classes of LCV:

- **Small vans**, typically up to 2 tonnes Gross Vehicle Weight (GVW) – this includes car-derived vans and small specialist vans.
- **Medium vans**, typically up to 2.6 tonnes GVW – this is the segment that is strongly favoured by the service industries..
- **Large vans**, up to 2.6 tonnes to 3.5 tonnes GVW - vehicles from this segment are deployed for a wide range of service, construction and parcel deliveries. This class is also often sold in chassis form (i.e. the frame of the LCV upon which the body is mounted) for specialist application in industries such as construction, road repair, waste management, removals and automotive recovery.
- **Light 4x4 Utilities (Pickup trucks)** – often used in the construction or agriculture sectors



Figure 1 shows the growth in the vehicle parc for cars, LCVs and HGVs in the UK. LCVs are clearly the fastest growing vehicle segment at more than double the rate of cars and with an average annual growth rate of 3%.

Figure 1 : UK PARC (INDEXED)

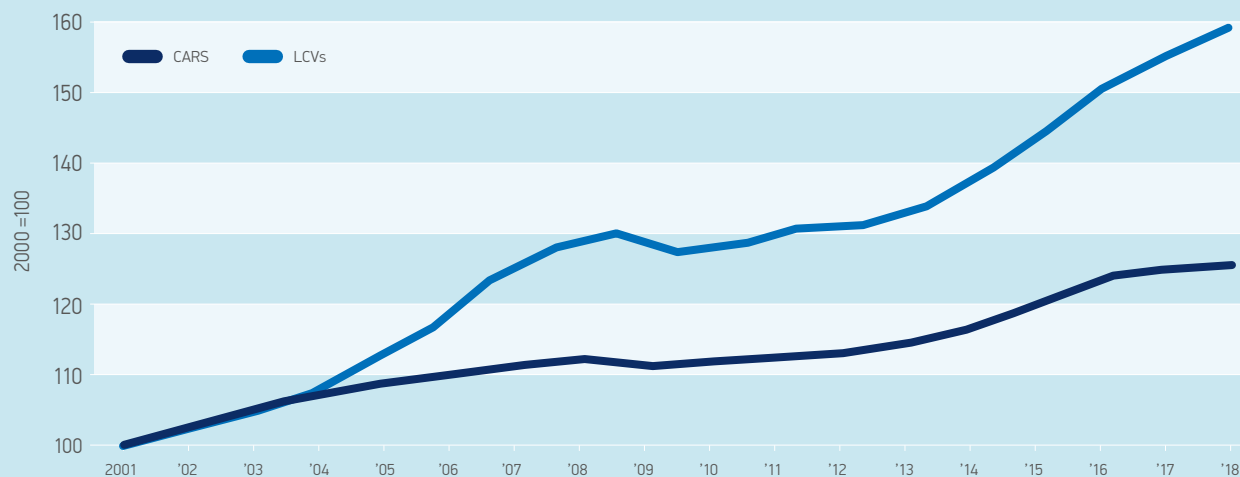
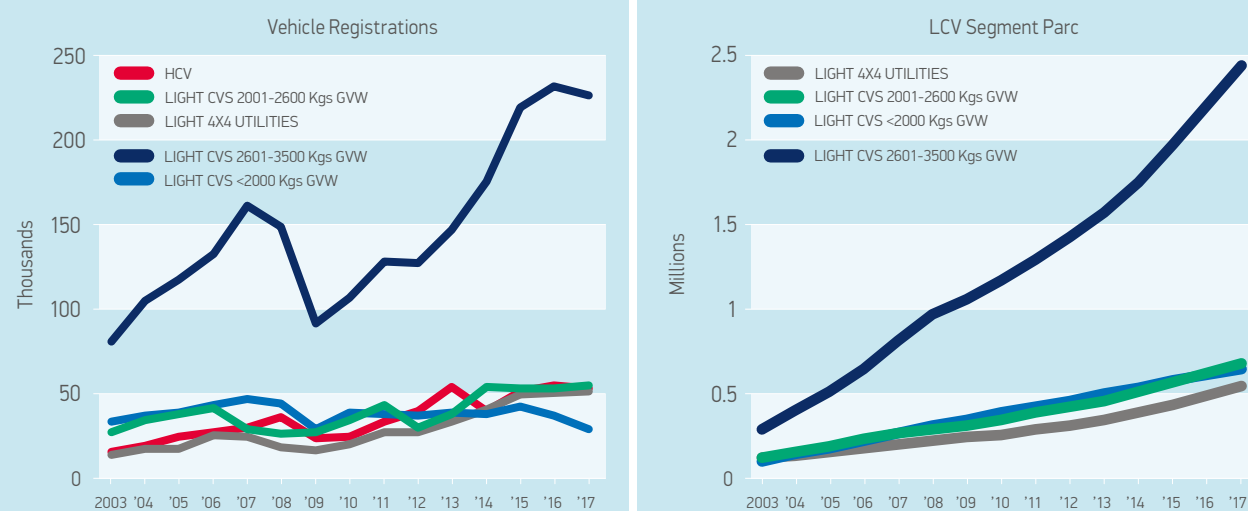


Figure 2 shows the picture of van growth by size segment. It shows sustained growth in registrations apart from the economic crisis in 2008/9 when the market turned down. Even then there was continuous growth in the overall LCV parc. One possible explanation for this downturn was that operators retained their vehicles for longer.

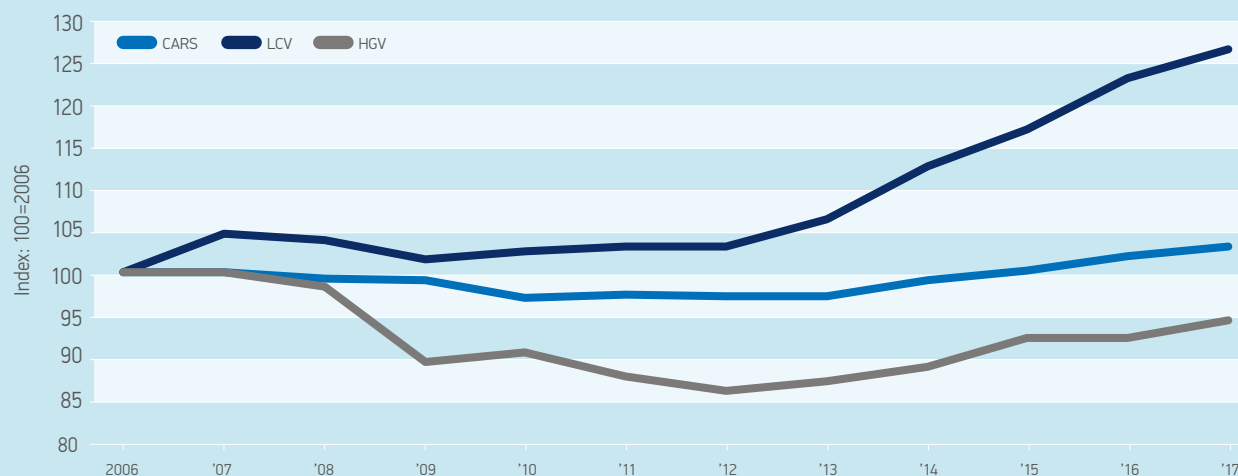
Figure 2 : LCV REGISTRATIONS AND PARC



Although there has been steady growth in the LCV parc overall, this deeper analysis of vehicle registrations shows that large LCVs were the dominant type of van to be registered from 2003-2017, tripling in numbers, with all other categories expanding more modestly.

The impact on traffic of LCV growth is even more marked than its increase in the national vehicle parc. Since 2000, the 29% growth in the car parc has generated less than 9% increase in miles travelled by car while the 59% increase in the van parc has led to a 56% increase in the miles travelled by vans. While the number of cars on the road is increasing, average car mileage is falling; it is now just 8,500 miles per year while van mileage has remained nearly unchanged at 12,800 per year.

This is shown in Figure 3 on page 8.

Figure 3 : TOTAL MILES RUN BY VEHICLE TYPE

Van traffic now accounts for 15.4% of all vehicle miles. Figures from Transport for London point to vans making up well over 20% of London traffic in the morning peaks (8.00am – 9.00am) and the National Traffic Forecast projects the national average to be 20% by 2035 with the London average being 22%.⁵

Interviews with industry stakeholders highlighted a number of reasons for the increase in registration and use of LCVs in recent years:

► **CHANGING CONSUMER BUYING PATTERNS:** The buying of goods and services from bricks-and-mortar retailers has declined due to the increasing consumer trend to buy good online. Online shopping is particularly popular in the UK, research conducted in 2018 by Eurostat shows that the UK is, proportionally, the largest user of online shopping in the European Union, with 83% of individuals making purchases online during the past 12 months as opposed to the EU average of 60%.⁶ As a consequence, we are more likely to take delivery of goods and services at home or at places of work, which are distributed by LCVs.

► **DOWNSIZING FROM HGVS TO LCVS:** Linked to this point, a theme that consistently emerged from the interviews was a general impression that downsizing from lighter HGVS to LCVs is occurring. Companies are looking to deploy more agile logistics solutions, particularly for deliveries into congested and restricted urban areas. Much of the recent growth of the LCV parc has been at the heavier end (2,600kg – 3,500kg). From this it appears that the world of freight service is polarising into very heavy HGV and upper end LCVs.

► **THE RISE IN SELF-EMPLOYMENT:** Interviewees also highlighted that for SMEs and Sole Traders the van is often an essential tool of the trade

Other factors that have driven the continuing expansion of the LCV sector since 2000 include the lasting trend of UK urbanisation, the evolution of customised services to serve profitable business niches and the rise in demand for more flexible pick-ups.

“ LCVs are the fastest growing form of road transport but they are the least well understood. The growth of the service sector as the UK continues to move from a manufacturing economy to a service-based economy is likely to further increase the demand for LCV activity. ”

Julian Allen, Senior Research Fellow, University of Westminster

2 THE ROLE OF THE LCV BY INDUSTRY



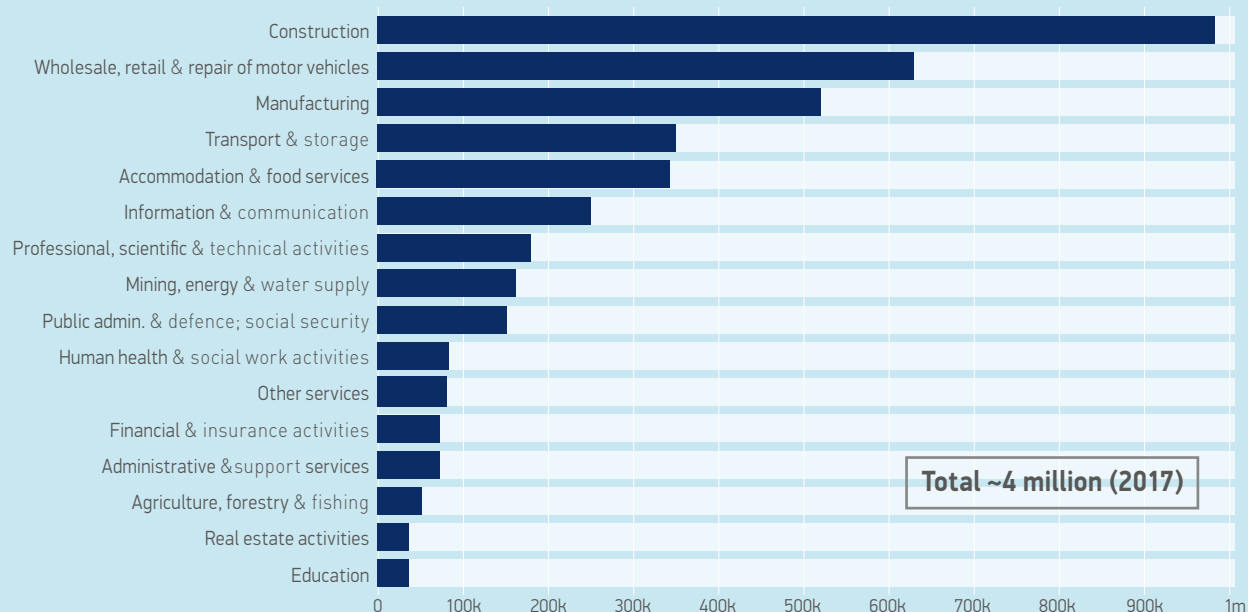
► Construction, wholesale and manufacturing emerge as the industries with the highest reliance on LCV usage.

KEY FINDINGS

- We estimate that construction; wholesale, retail and repair of motor vehicles; manufacturing; and transport and storage account for circa **60%** of the LCV parc.
- Construction, in its widest sense, is the biggest single user of LCVs with nearly **1 million** vans in use (representing 24% of the LCV parc). By inference, it has been a major contributor to the growth in the parc, driven by new business models of subcontracting and service support.
- Despite the growth of online shopping and associated home delivery, we estimate that transport and storage only contributes **9%** to the LCV parc.
- Decisions relating to the variety of funding and ownership models on offer, including an emerging trend towards flexi-leasing, tend to be industry-agnostic and driven by financial and operational considerations.

While it is clear that the number of vans in the UK is growing, the role they are actually performing is less clear. To build an estimate of where vans are used in the economy, a number of different data sources were triangulated to form a picture by industry sector. The research notes in the appendix to this report provide further insight into this process.

Figure 4 : DISTRIBUTION OF THE VAN PARC BY INDUSTRY SEGMENT



Construction; wholesale, retail and repair of motor vehicles; manufacturing; and transport and storage account for 60% of the parc. Perhaps surprisingly, transport and storage only contribute 9% to the parc by this analysis. This supports the findings of a study published by the RAC Foundation in 2016 that found that van delivery for internet fulfilment was 5% of the parc and perhaps only accounted for 10% of van traffic.⁷

As previously mentioned, these figures do not reveal the range of activities that take place within each segment. Just consider:

- Vans in construction support the full range of trades, from bricklayers, plasterers and plumbers, to lift and glazing installation. Vans are also used for road and public building construction and maintenance. Some will be operated by private contractors carrying out public building maintenance. But where those vans are part of a public sector fleet, they could be classified as public administration and defence.
- Vans in wholesale, retail and repair of motor vehicles will support activities such as food service providers, market stall traders, spare parts distribution, roadside repair and recovery and retailers that make their own deliveries such as the home delivery of grocery. But vans delivering food may also be in the accommodation and food services economic and employment category.
- Vans in the manufacturing sector will be used for customer deliveries, collection of supplies and the movement of equipment. However, those manufacturers may also use the services of transport and storage companies to undertake the same activities.
- Vans in the transport and storage sector will provide courier services, removals, house clearance, parcel and package distribution and emergency support for HGVs when that work is done in-house.

FUNDING AND OWNERSHIP MODELS

Stakeholder interviews provided valuable insights into the variations in ownership and funding models adopted across the different industries:

- The decision as to whether to outright purchase or lease a van is more often financial and speed of supply related rather than strategic. If a company needs its vehicles off the balance sheet, wants to control costs and manage cash flow then contract hire and leasing is preferred.
- If a company wants a turnkey solution then the outsourced fleet management benefits of contract hire, including maintenance, might appeal. This route is often attractive for companies without in-house fleet management capability.
- The fact that this is a financial rather than strategic decision is exemplified by interviews with two utility companies:
 - ◆ One company recently took back ownership of its whole fleet in order to be confident that it can service vital infrastructure in a timely and efficient manner. Any

possible resultant increase in cost of operating the fleet is relatively insignificant when compared with the cost of maintaining the said infrastructure. However, this approach is by no means consistent across the industry.

- ◆ A second utility company placed greater emphasis on cost and outsourced its fleet to a third-party provider. In this instance, this has led to an efficient operation in which vehicle downtime is minimised and engineers are kept mobile allowing them to perform their key functions.

- The one industry which was consistently mentioned in interviews as acquiring vehicles mainly through outright purchase was construction. Perhaps not surprisingly, given the robust usage of vehicles on construction sites, the outright purchase of vans avoids the cost of 'end of contract' damage charges had they been leased.

THE RISE OF FLEXI-LEASING

Interviews with the major leasing companies and OEMs highlighted a trend towards so-called 'flexi-leasing'.

- Historically vans have been contract hired over a period of 36-60 months with shorter term requirements being satisfied through daily rental companies.
- However, flexi leasing has emerged to bridge this gap with rental profiles of 12-24 months and flexible call off and de-fleeting of vans (i.e. shorten or the extend the lease length of the vehicle to suit user requirements).
- Demand for this new leasing profile has typically been driven by the companies bidding for large infrastructure contracts or industries where there is a seasonal variation in their need for vans.

INDUSTRY INVESTMENT IN LCV SPECIALISM

Given this increasingly complex landscape in terms of customer needs, funding and powertrain options it was also clear from our interviews that a number of the key suppliers to the LCV market, notably the OEMs, dealers, leasing companies and convertors, are investing heavily in their LCV expertise and increasingly taking on the roles of 'trusted advisors'.



3 LCVs AS A KEY DRIVER OF THE UK ECONOMY



► LCVs play a critical role in delivering value for the UK economy with approximately one in 10 people relying on vans as an integral part of their job.

KEY FINDINGS

- There are an estimated **3.4 million** people who use or depend on vans for their work.
- In effect, this represents **10%** of the UK workforce, equating to a combined wage bill of **£56 billion** or **11%** of UK GDP.
- We estimate that around **500,000** people drive a van as the main part of their job.
- In addition to this direct economic contribution, the LCV market also supports a flourishing sub-economy of van conversion companies.

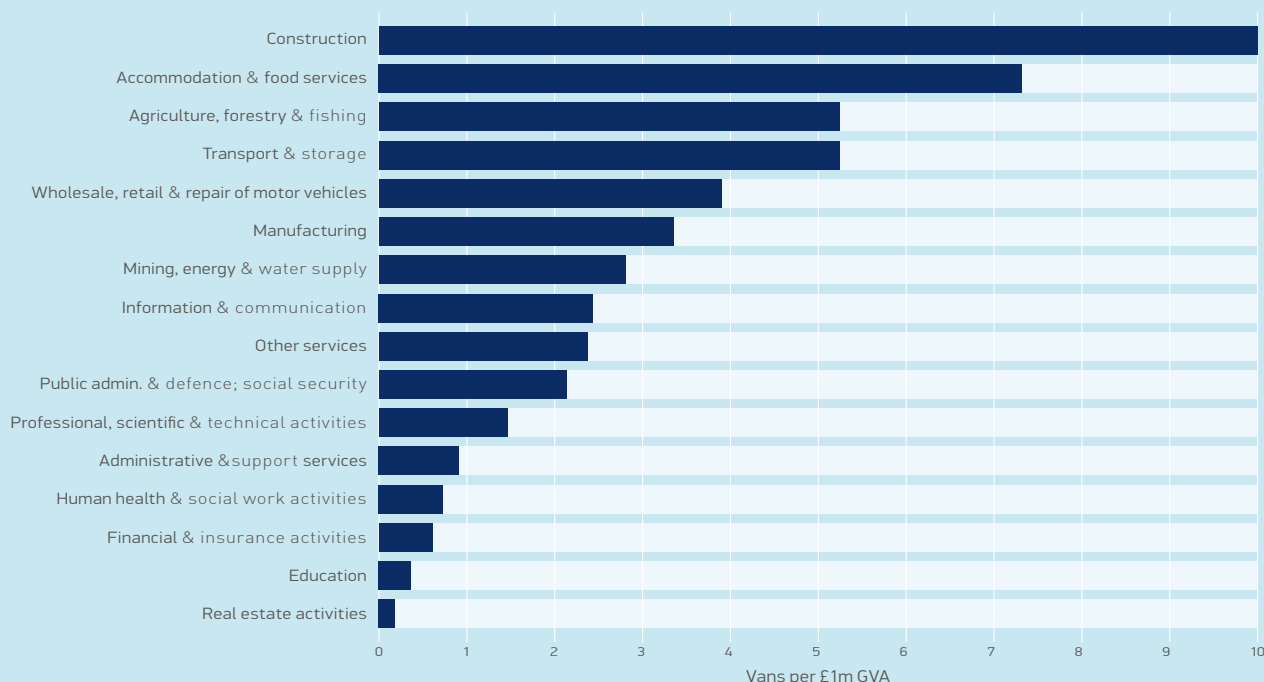
The analysis in the previous section has been correlated with government statistics on the GVA (Gross Value Added) by sector (see Figure 5). This shows the van intensity per £1 million of GVA varies from around nine vans to a fraction of a van. GVA is a measure of the value of goods and services which are produced within an economy.

What is clear is that van usage in the construction sector stands head and shoulders above other sectors, followed by accommodation and food services; agriculture, forestry and fishing; transport and storage; and wholesale, retail and repair of

motor vehicles in the vans per £1 million of GVA. Furthermore, the chart highlights the LCV's range in significance across industries from playing a central role to those where usage is perhaps considered as more of a 'nice to have' rather than an essential tool to conduct business.

With the observations on the imprecision of sector classifications earlier in this report, it may be that some industries outsource more than others; this is invisible in current statistics and would benefit from further primary research.

Figure 5 : VANS PER £1M GVA



Source: ONS, Expert Assumptions

THE VALUE OF VANS TO THE ECONOMY

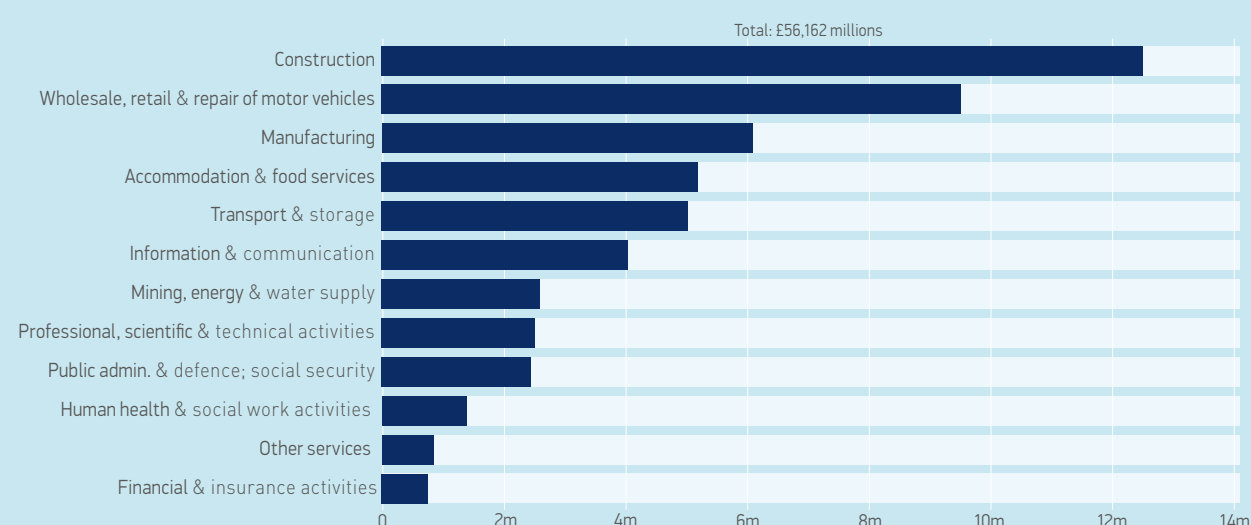
We estimate that there are 3.4 million people in the UK who use and depend on vans for their work. The balance of the 4.6 million van parc are in third use (third owner of van) where economic dependency on the van is difficult to determine.

■ This figure represents about 10% of the UK workforce, meaning that one in 10 people rely on vans as an important part of their work. Of these, we estimate that around 500,000 are driving vans as a main part of their job. We have defined this as covering more than 20,000 miles per year which is more than 400 miles per week and three or more hours driving per day. This is a greater number than appears in employment statistics where people record their work as 'van driver'.

■ The remainder, around 2.9 million, use their vans as an important tool of their work – they are reliant on vans for carrying tools, equipment, supplies and people, for example.

Estimating the employment value (rewards and benefits received by an employee) of these people at a conservative rate yields a combined wage bill of £56 billion, around 11% of GDP.

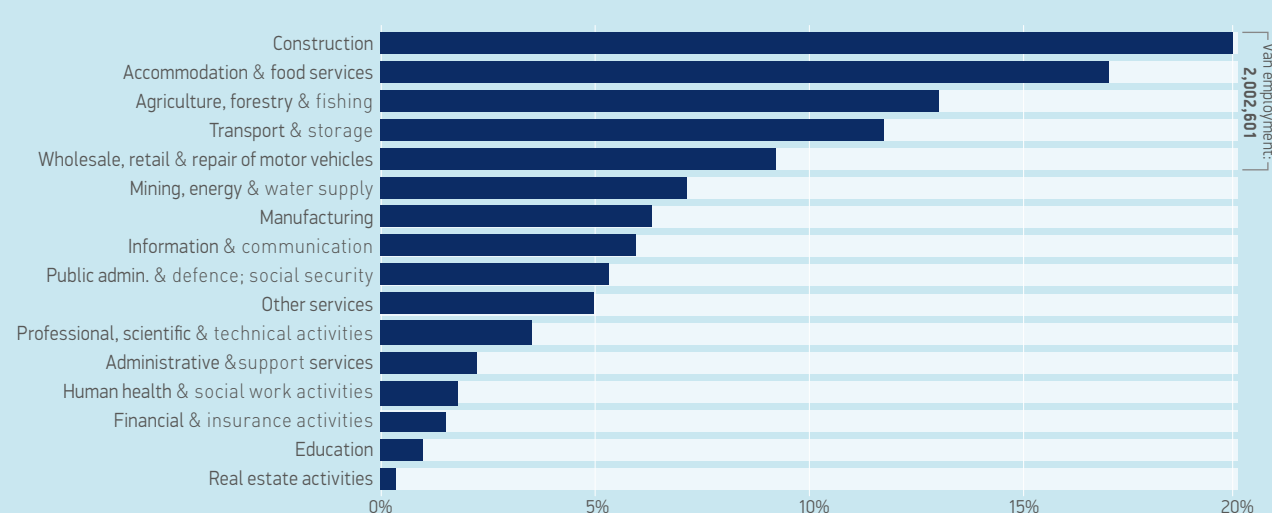
Figure 6 : VAN EMPLOYMENT VALUE BY SECTOR



Source: ONS, Expert Assumptions

From this analysis the cost of vans including both employment costs and the cost of running the van has been correlated to the sector GVA. The conclusions of this analysis are shown in Figure 7 below:

Figure 7 : TOTAL ECONOMIC COST RELATIVE TO GVA



This demonstrates again the significance of vans in the construction sector with 20% of its GVA dependent on people who use a van, at least for some of their work. The significance of vans for the top five sectors down to wholesale, retail and motor repair segment of the economy covers the range 9% to 20% of GVA; the economic dependency could not be clearer.

THE THRIVING LCV CONVERSION MARKET

In addition to the core economic value derived from van deliveries of goods and services there are thriving secondary specialist and niche marketplaces served by LCV convertors.

The greater demand from consumers for professionalism has led to a larger number of LCV operators converting their vans for specialist use. LCV users also recognise the efficiencies that can be achieved through vehicle customisation: a well specified vehicle will allow them to perform their task more effectively.

Interviews with the LCV conversion companies highlighted a wide spectrum of conversions available, ranging from specialist racking, winches, on-board power sources and specialist lighting, through to cherry pickers and tippers. The industry offers totally bespoke propositions to customers and a number of OEMs have an ecosystem of convertors whose work often comes with full European whole vehicle type approval, meeting the same standards as the factory supplied vehicles.

Between 2010 and 2016 the average value of weekly online sales at predominantly food stores more than doubled to reach £141.9 million in 2016.⁹ The boom in online food shopping has also contributed substantially to the demand for LCVs converted for refrigeration.

- These vehicles must be robust as the demands on them are substantial; in some instances, one vehicle is used in three different shifts throughout the day.
- The additional weight that comes with refrigeration capability also means that the conversions they go through are very sophisticated and weight conscious, resulting in significant costs.
- The cost of such conversions and the high mileages the vehicles cover mean that refrigerated bodies are often refurbished and then reused on a new chassis.

Due to operators' technological requirements there is an increasing demand for connectivity in vehicle conversions.

Companies need to distribute their products and services ever more efficiently, so modular components and cross docking are becoming increasingly important.



4 THE LCV LIFECYCLE

► LCVs continue to play a vital role in the UK economy in their second and third lives where they support a thriving ecosystem of SMEs and sole traders.

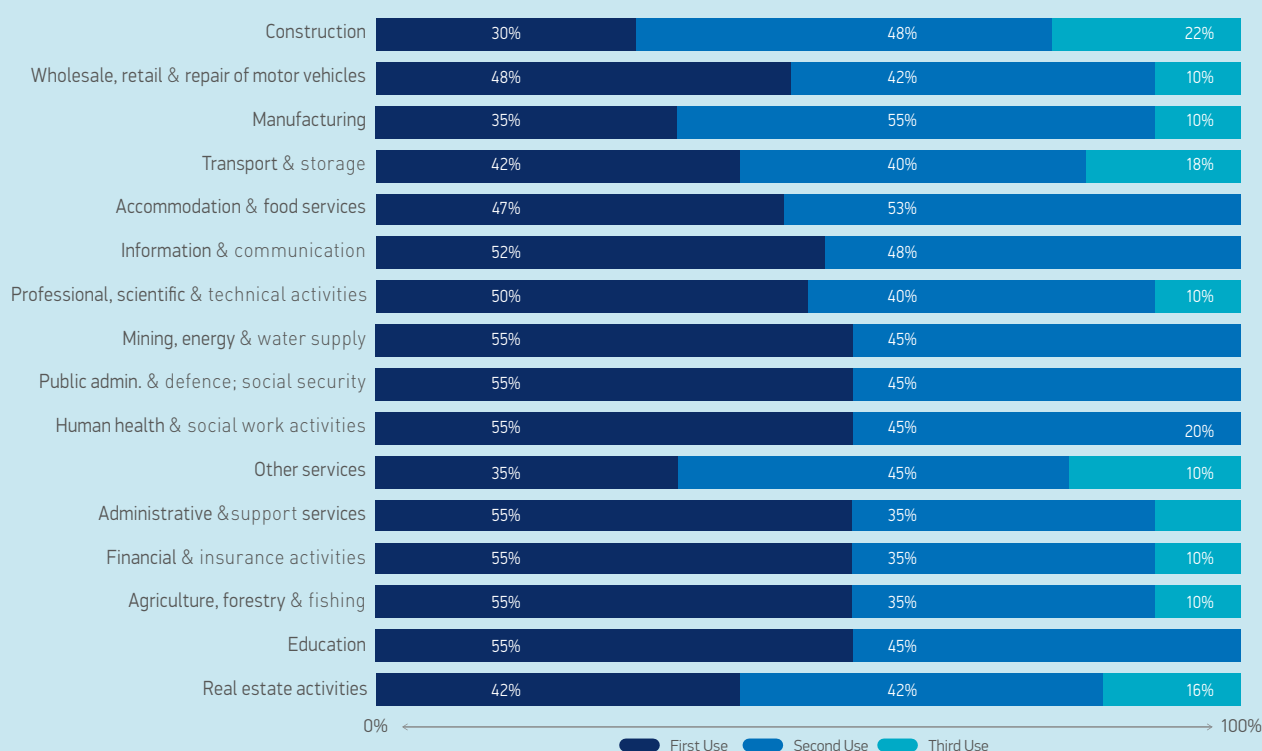
KEY FINDINGS

- Around **900,000** used vans change hands each year, the average age of vans on the road being around eight years.
- Second and third life vans play a key role in the UK economy where they are typically operated by SMEs and sole traders.
- Our interviews highlighted a thriving sub-contractor sector which plays a key role in supporting the construction and parcel delivery industries.

Around 900,000 vans change hands each year illustrating how the used van market is critical for the economy. Vans purchased from new tend to be de-fleeted on average after 48 to 60 months. Used vans reduce the capital outlay required of small traders and have lower depreciation cost. Vans in their second and third life tend to cover lower mileages compared with their first life (against the average of 12,800, the second and third life vans do 6,000 to 8,500 typically).

Based on the analysis of vans by industrial sector below, we have estimated the proportion of vans in use by sector is based on three users in a lifespan. This analysis has been triangulated to reconcile to high level statistics the number of vans in first use with the average miles undertaken. It serves to recognise the significance of second-hand vans in the SME economy in the different economic segments.

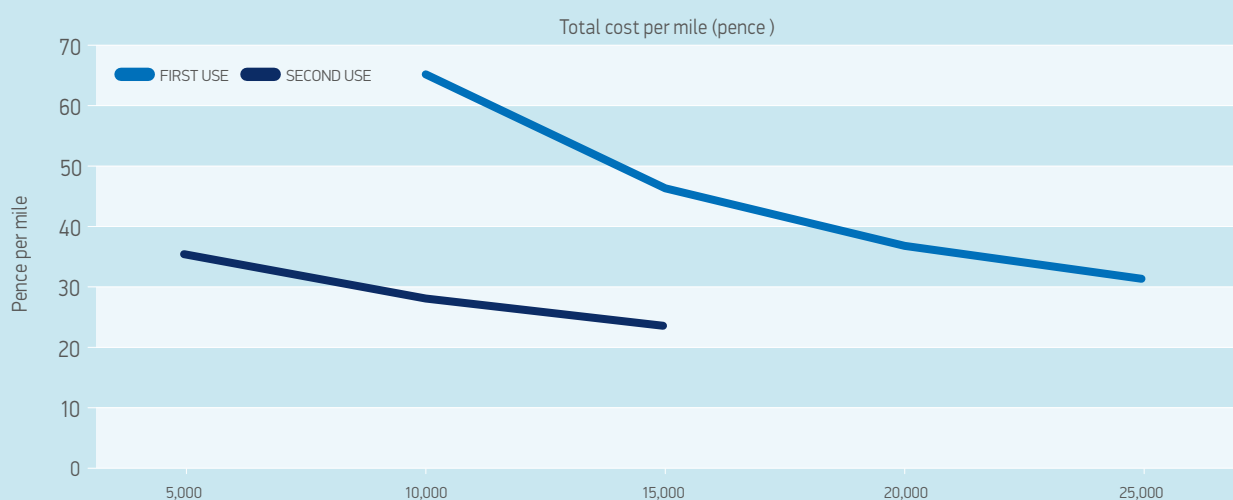
Figure 8 : VAN USAGE BY INDUSTRY BY VEHICLE LIFE



Source: Expert Assumptions

Analysis of van ownership costs based on cost per mile and capital depreciation shows that low costs per mile for SMEs reflect the lower cost of acquisition of second-hand vehicles. They run fewer miles which means reliability is less of a dependency; many small traders cannot sustain the investment of a new van so the 'used' market is the natural route to doing business. This effect is illustrated by average cost per van mile across the payload ranges and is illustrated for first and second uses in the figure below. The figures have been derived from a range of industry cost tables and normalised into standing (capital and fixed) and running costs (mileage related costs covering fuel, tyres and maintenance).

Figure 9 : TOTAL COST PER MILE BY FIRST AND SECOND USE VANS



Source: Industry cost tables

The industries with a substantial usage of second and third life vans operate through complex networks of subcontractors and specialists. Consistent with our data analysis, our interviews highlighted that this is particularly the case for both the construction industry and for parcel delivery:

- In construction there is a large ecosystem of SME and sole traders providing essential skills on site.

- The major parcel delivery firms often rely upon local couriers or 'privateers' for last mile delivery in those areas outside of their core networks.

- In both instances, parts of large contracts are subcontracted to SMEs or sole traders who are typically more cost sensitive and are more likely to operate vehicles that are in their second and third lives..



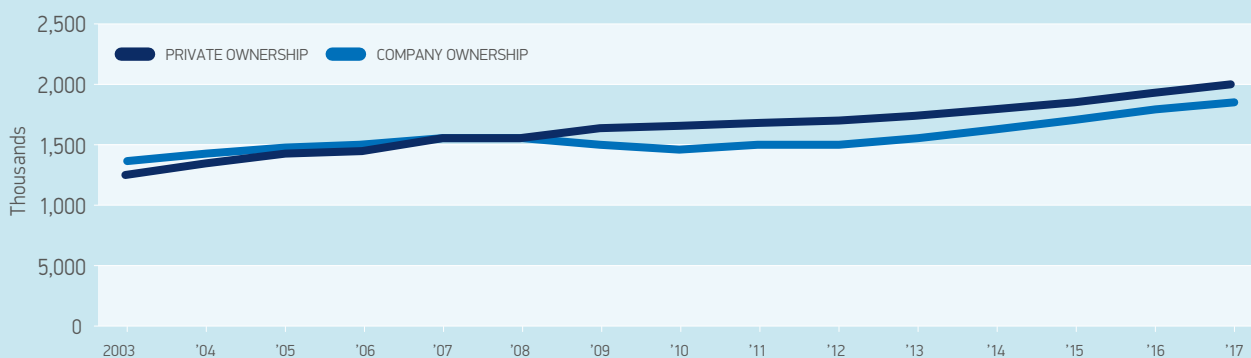
► The vast majority of privately owned LCVs are operated by SMEs and sole traders who typically operate higher specification vans than their corporate fleet counterparts.

KEY FINDINGS

- Following the economic crisis in 2008/9 private ownership of LCVs overtook corporate ownership.
- Our interviews revealed that the majority of these privately-owned vans are operated by a booming SME and sole trader sector.
- When acquiring new vans, SMEs and sole traders are increasingly ordering high spec vehicles, often with bespoke conversions, e.g. specialist racking and on-board power sources, reflecting the role of their vans as both a mobile workplace and symbol of professionalism of their trade.

Figures from the Department for Transport (DfT) show that private ownership of vans overtook company ownership in 2009 at the time of the economic downturn as illustrated in Figure 10. The interviews provided some useful insights into this shift, implying that corporates accelerated their outsourcing and subcontracting policies to become more agile in their cost base following the economic shock of 2008/9.

Figure 10 : VANS IN COMPANY AND PRIVATE OWNERSHIP



Source: Department for Transport

The DfT definition of vans in private ownership does not really provide the full picture. The reality is that the vast majority of these private vans are in fact operated by SME businesses and sole traders.

However, despite this lack of data, our interviews have enabled us to build a picture of a thriving SME and sole trader van sector:

- Given the need to carefully manage costs and monthly cash flow, it is perhaps not surprising that LCVs in this sector tend to be acquired through contract hire, although not typically with maintenance.
- More of a surprise is that, despite this cost sensitivity, the vans operated by SMEs and sole traders tend to be at higher specification levels with features such as air

conditioning, alloy wheels, metallic paint and enhanced in car entertainment being the norm.

- Reasons cited for the adoption of such high spec vehicles include the fact that operators want their vans to be as comfortable as possible given their role as a 'mobile office', and the fact that the van often has multiple uses.
- Within the sole trader sector the uptake of pick-ups has increased partly as a result of their dual role as LCVs and SUVs.

Linked to this trend towards the selection of higher specification vehicles by the SME and sole trader sector, our interviews also highlighted that vans in this segment often benefit from bespoke conversion and professional livery with the van in effect becoming the embodiment of the professionalism and expertise of its owner.

► The LCV industry is investing heavily in reducing CO₂ and pollutant emissions through new engine technologies and alternative powertrains, alongside developing new safety features and innovative new telematics solutions.

KEY FINDINGS

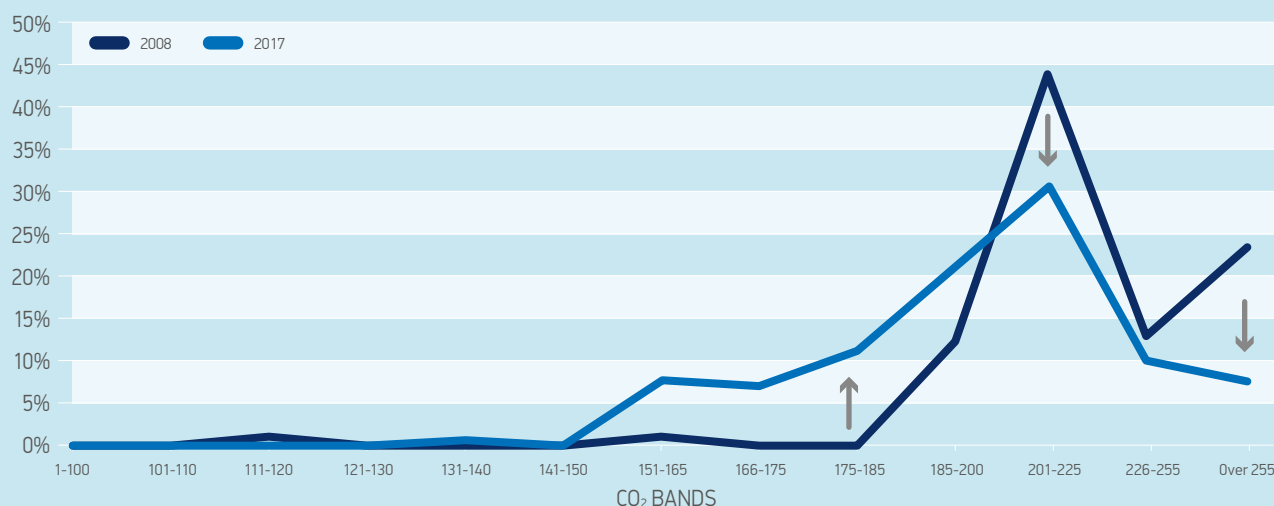
- There has been a progressive improvement in environmental performance of the UK LCV parc with the introduction of Euro 6 engines and the development of alternative powertrains.
- However, only **0.3%** of new vans registered in 2018 were electrified; **96.2%** of vans on the road are still powered by diesel, highlighting the vital role that diesel will continue to play in the foreseeable future.¹⁰
- Looking ahead, alternative fuels will play an increasingly important role in reducing CO₂ emissions and while appetite for these vehicles exists, this is not resulting in registrations. Further infrastructure development and funding programmes are required to support market growth.
- Although LCVs only represent **15.4%** of total UK traffic and are more often a victim of congestion than a root cause, there are regional variances. For example, figures from Transport for London point to vans making up well over **20%** of London traffic in the morning peaks (8.00am – 9.00am).
- Given the key role of the van as a workhorse of the UK economy we have estimated the cost of congestion for operators as being **£6.5 billion** – a significant drain on national productivity.
- LCVs have a strong safety record which the industry is working hard to maintain. OEMs are offering, and fleet operators increasingly mandating, the fitment of advanced safety features to new LCVs.
- Telematics is increasingly being used as a fleet optimisation tool supporting vehicle safety and corporate Duty of Care.



LCVs AND THE ENVIRONMENT

Analysis of the CO₂ performance of LCVs by emissions band¹¹ between 2008 and 2017 shows a significant improved environmental performance of the model range by OEMs. It is clear that vehicles' emissions performance has improved significantly in the space of 10 years with no detriment to van performance

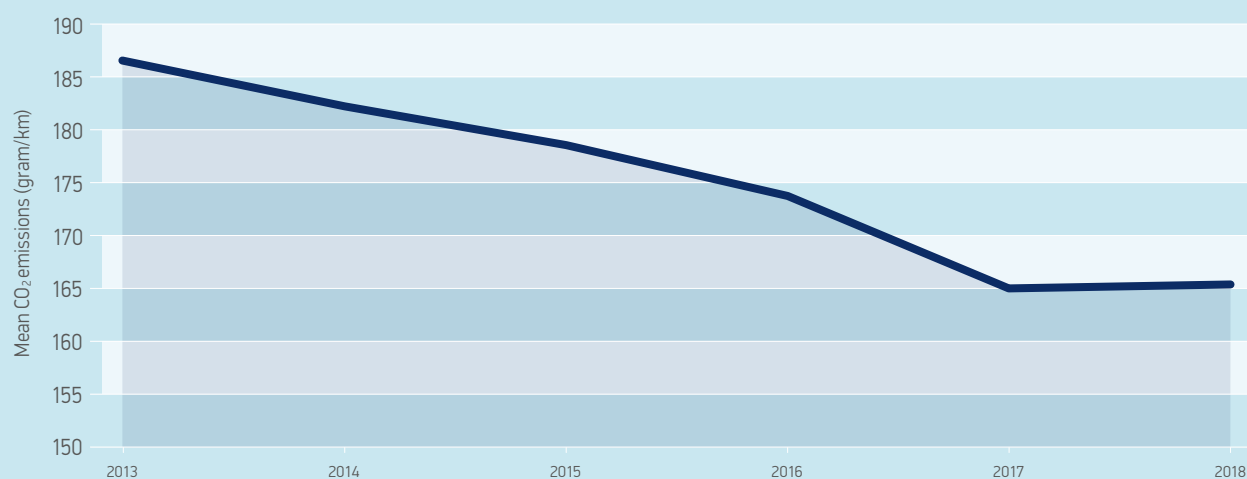
Figure 11 : LCVS SHARE OF CO₂ BANDS 2008 V 2017



Source: SMMT

The figure below illustrates the extent to which LCV CO₂ emissions have reduced - 10.4% since 2013. With 96% of all LCVs being diesel powertrains, this highlights the important role that Euro 6 diesels play for LCV emissions reductions.

Figure 12 : LCV CO₂ EMISSIONS



Source: SMMT

The reduction in CO₂ emissions is not the only environmental improvement seen in vans in recent years. The Euro 6 diesel standard has reduced NO_x by 84% and particulate matter by 95% compared with Euro 3, highlighting the dramatic improvements delivered by manufacturer investment in new technology.

Our interviews highlighted that the introduction of the London Ultra Low Emission Zone (ULEZ) and similar schemes will drive fleet segmentation and displacement with large fleet operators moving vehicles around the country to align their emissions standards with regional variations in ULEZ requirements.

In contrast, SMEs will not be able to manage their fleet in such a manner so they will be more affected by the introduction of the new schemes. In such instances it is possible that companies and sole traders will accept the costs incurred through ULEZ charges and will pass them on to their customers rather than renewing their vehicles.

“Policy makers see vehicles as a homogeneous entity. There needs to be a better understanding. An efficient freight and logistics sector helps congestion and air quality. It is essential that commercial vehicle activity is separated from private usage.”

Denise Beedell, Policy Manager – Vans and Urban, FTA

“Clean air zones are very hit and miss in terms of where and when they’re implemented. We want it to be more joined up in terms of what is going to happen – this is crucial when you’re operating a large fleet of vans.”

Steve Winter, Head of Fleet, British Gas



LCVS AND ALTERNATIVE POWERTRAINS

As ever stricter regulations are imposed on vehicles with respect to their emissions and environmental impact, the introduction of alternative powertrains will take on increased importance.

UK sales of battery-electric and plug-in hybrid electric vehicles grew to 5.8% of all new vehicle sales in the year to March 2019.¹² However, the uptake of electrified vans is much lower, accounting for just 0.6% of registrations over the same period.

Electrification delivers a large reduction in CO₂ emissions. In 2017 battery electric vans are estimated to have emitted 120g/km CO₂e – a reduction of 67% in comparison with petrol and 60% diesel engine vans respectively (based on a reduction of electricity grid emissions).¹³ And although coming from a low base, from 2016 to 2017 there has been a 20.8% increase (to 6,347) in the number of low-emission vans.¹⁴ An Ultra-Low Emission Vehicle (ULEV), is a van which emits less than 75g CO₂ per km driven. A Zero Emission Vehicle (ZEV) is a van which has no tailpipe emissions.¹⁵

While electrified LCVs are almost universally welcomed in principle, there is some scepticism in relation to their practicality:

- These doubts centre around their ability to carry large loads, cover long distances and perform tasks on sites for prolonged durations.
- Such concerns about their viability were not limited to those

operating in rural environments, where charging facilities are more limited and the distances covered are higher. They were also shared by those van fleets operating in cities.

- There are practical implications of a lack of an effective charging infrastructure and operational restrictions when it comes to van drivers bringing their vehicles home and charging them overnight. Public charging infrastructure for cars is not, in many cases, practical for vans. This is because the size of parking bays is not always sufficient and there is lack of availability at suitable charging locations for LCV owners to perform their roles.

However, despite this element of scepticism, a ‘target profile’ did emerge from our interviews where electrified LCVs are already being seen as a viable and preferable alternative to a conventional diesel van:

- Operators in urban areas, with relatively low daily mileages, light load carrying requirements and access to effective fast charging infrastructures can derive significant benefits from deploying electrified LCVs.
- This profile is typical of local councils and other public sector organisations which, as well as achieving lower emissions, also benefit from the strong environmentally friendly image of the electrified LCV
- Some of the organisations that we interviewed also cited improved driver satisfaction given that electrified LCVs tend to be easier and more pleasant to drive, due to being quieter

to operate and typically having automatic transmissions.

In addition, our interviews with leasing companies and OEMs highlighted that the total cost of ownership of electrified LCVs is getting much closer to diesel vehicles when taking into account full running costs, notably servicing and fuel. Moreover, where LCVs are operated in congestion charge zones there are significant additional potential savings.

“The Total Cost of Ownership (TCO) gap between eLCVs and diesel vans is narrowing and when factoring in ongoing fuel costs and where LCVs are operated in congestion charge zones there are significant potential savings.”

Mark Lovett, Head of Commercial Vehicles, LeasePlan

To account for the additional weight that comes with battery powered and some other alternatively fuelled LCVs, SMMT worked with government to increase the payload threshold for driving licence requirements from 3.5 tonnes to 4.25 tonnes. The initiative, which is only available on certain alternatively fuelled vans, could support increased UK sales¹⁴.

While there is appetite for electrified LCVs from certain fleet operators and some government incentives are in place to encourage their adoption, the technical challenge of developing vehicles to address van driver concerns, the limited range of models available and the lack of availability in terms of battery supply and production are all factors that currently impact uptake and mean that the UK LCV sector could struggle to meet environmental targets set by the government.

Attention needs to be paid to this environmental disconnect, however, electric powertrains are not the only potential answer to the problem. Several of our interviewees suggested that hydrogen fuel cell powertrains would be the longer-term solution for the LCVs, as they will be lighter and have longer operational ranges, with electrified LCVs only performing a stop gap function. At the same time, industry is aware that other alternative powertrains, such as hybrid and gas, will play a key role in reducing vehicle emissions in the future.

Indeed, the £23 million grant funding, introduced in 2017 by the Hydrogen Transport Programme (HTP) to support the growth of refuelling infrastructure alongside the deployment of new vehicles, would reinforce this perspective.

LCVs AND CONGESTION

LCVs operating within city and urban environments are often cited as a cause of congestion. The growth in van traffic was discussed earlier together with forecasts for future growth.

An INRIX report on congestion costs measures the time lost in traffic as being 178 hours per vehicle. This is 9% of the working week and for LCVs there is a real cost to this loss.¹⁶

For vans that are mainly used for driving and delivering, the loss of 9% of productive time, particularly in the morning peak, may cause the business to employ extra people and vehicles than would be needed if the conditions were better, in turn increasing congestion.

We have estimated the cost of congestion for LCVs on this basis as being £6.5 billion – a significant drain on national productivity – particularly when one considers, as highlighted earlier in this report, the pivotal role of the van in terms of GVA carried and employment supported.¹⁷

Vans are not a major contributor to congestion as they account for only 15.4% of national traffic, however, regional variances exist and, in urban areas, time at the kerb side for vans that are delivering may contribute disproportionately to congestion. As mentioned previously, there are congestion hot spots and figures from Transport for London point to vans making up well over 20% of London traffic in the morning peaks (8.00am – 9.00am). This is now recognised in policy terms and the recent Mayor of London's Freight Servicing Action Plan proposes a more integrated approach to the design and management of the conflicting demands for road and kerb space.

It is possible that the downsizing trend from HGVs to LCVs highlighted earlier in this report will cause more congestion on the UK's roads as the same amount of goods will be moved in a larger number of vehicles. However, as we will discuss in our concluding section, new means of transportation and innovative new logistical techniques are increasingly being used which will help to create a more efficient supply chain for the last mile.

LCVs AND SAFETY

OEMs now offer an array of safety features, often fitted as standard, for their LCVs including Anti-lock Braking Systems (ABS), Advanced Driver Assistance Systems (ADAS), lane departure warning systems (LDWS) and autonomous emergency braking systems (AEBS). These safety features are increasingly being specified as pre-requisites in vehicle supply tenders issued by major fleet operators.

As with other modes of motorised transport, LCVs are becoming more 'connected' with telematics yielding useful data for improving various aspects of van and driver performance. Although telematics technology has been widely deployed in the HGV sector for many years, an increasing number of van operators are investing in technology to improve the safety and efficiency of their fleets. Companies have long realised that enhanced safety systems not only lower accident rates, they also reduce costs and improve customer service, reputation and efficiency.

6 THE ENVIRONMENTAL IMPACT OF LCVs (cont.)

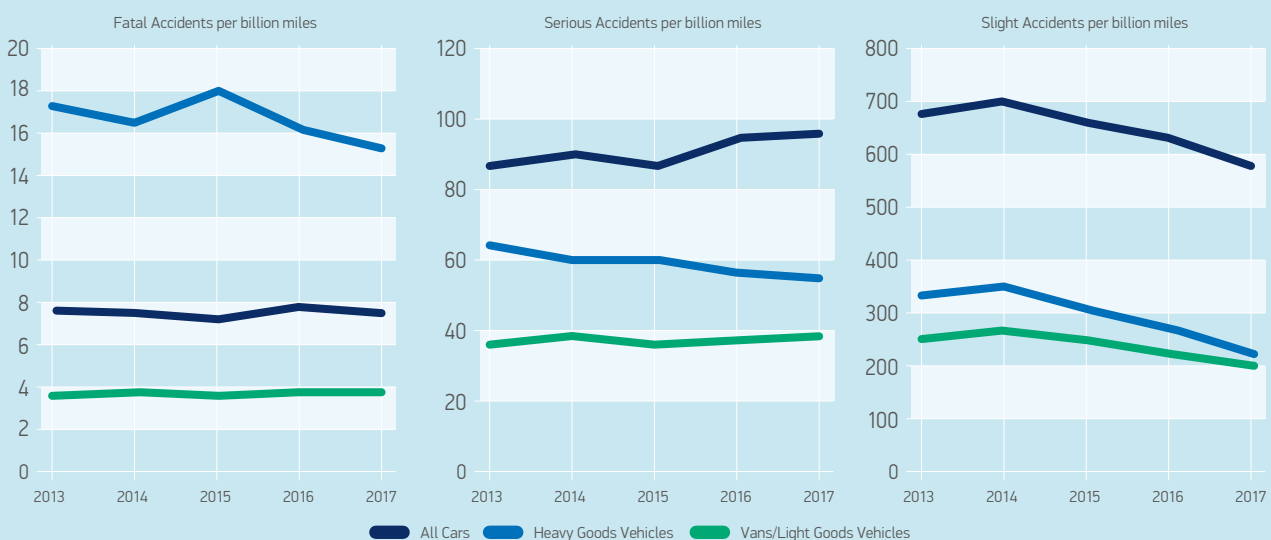
In a recent study of LCV operators, 34% had implemented telematics in their fleet to monitor issues such as fuel consumption, driver behaviour and vehicle location. Of this segment, 93% said the reason for using telematics was to improve driver behaviour, 91% said they used digital solutions to locate vehicles and 88% stated the technology improved driver safety.¹⁸

Telematics technology is also being leveraged to address the van fleet operator's Duty of Care obligations. A good example of this is the LeasePlan Driver Check app, which utilises a telematics feed from the van to support the driver in carrying out a physical check of the vehicle at the start of the day in order to confirm that it is fit to drive

The figure below shows the number of accidents per billion miles travelled by different vehicle types and would suggest LCVs have a strong safety record.

While LCVs do enjoy a strong safety record, with the increase of LCVs on UK roads the future management of this sector will need to be carefully monitored. Many of our interviewees referred to a lack of understanding in the sector of the implications of overloading vehicles. The pressure on operating costs and constraints in LCV capacity is having an impact on the overloading of vans. Industry is working closely with the DVSA on a number of campaigns to target overloading, however, recent DVSA figures state that of the 10,800 vans stopped by the roadside each year 88.5% are overloaded.

Figure 13 : ACCIDENT DATA BY VEHICLE TYPE



There is concern within the industry at the high rate of failure for LCVs at first presentation for MoT. These vehicles have much more demanding operating cycles than passenger cars, both in terms of mileage and payload, and this needs to be taken into consideration when considering the safety regime of the sector. Industry believes that the MOT test frequency for vans should be 1-1-1 (or annual testing), closer aligned with the test frequency required of heavier commercial vehicles.

The conclusion from our analysis in this chapter is that LCVs are often negatively regarded in the context of congestion, emissions and safety. However, advances in technology and innovation have resulted in significant improvements for this sector.





► This report clearly demonstrates the diversity and vibrance of the LCV sector, and its importance to the UK economy. The sector is making substantial strides forward in terms of innovation and environmental progress. As such, an ongoing and informed debate with policy-makers is needed to ensure that the sector continues to thrive and to contribute to the success of UK plc.

During our research we identified two key challenges facing the stakeholders within the UK LCV sector.

1. ENCOURAGING FLEET RENEWAL

Our research highlighted the fierce pace of change that will be required in the UK LCV parc in order to meet the challenges of environmental policy and ambitions such as ULEZs, the Road to Zero strategy and Clean Air Zones. The alternatively fuelled van market is still in its infancy, and there are many factors affecting the pace of uptake. The lack of understanding of the benefits of the technology and range as well as payload anxiety are just some of the issues that are hampering adoption. Importantly, addressing LCV's specific infrastructure requirements is vital. New Euro 6 vans currently face no penalties or access restrictions anywhere in the country and continue to be the right choice for many businesses – helping to improve air quality and reduce carbon emissions. However, it will take a number of years for Euro 6 compliant vehicles to filter through the used market – the most common way for sole traders and SMEs to purchase a van. If businesses are unable to purchase a compliant vehicle, they face the prospect of penalties associated with their non-compliance. While larger organisations may be able to absorb these costs, SMEs and sole traders will surely not. It is an open question as to what will be the implications for their businesses and the customers that they serve.

RECOMMENDATIONS

- Electrified vans accounted for only 0.3% of the new LCV market in 2018 – evidence that the government should maintain support for the Plug-In Van Grant beyond 2021.
- While industry supports government's plan to introduce CO₂-based Vehicle Excise Duty for vans it should be implemented in a way that ensures businesses pick the right vehicle for their needs, avoiding any unintended consequences. Government must work with industry and consumers during the implementation process.
- The introduction of ULEZ/CAZ should not deter from the need for a nationally unified transport network. The consistent implementation of the national framework is required with clear communication for LCV drivers so that they understand the requirements regardless of where they are operating.
- Diesel engines will still play a vital role in the commercial fleet sector for the foreseeable future. Alternative measures for last-mile delivery can only offer limited benefits in helping reduce congestion and pollution within towns and cities. Policies

to support the uptake of low and ultra-low emission vehicles, including the latest Euro 6 diesels and hydrogen powertrains, as well as measures to improve traffic flow, are required to help improve local air quality and reduce carbon emissions.

- There are a significant number of barriers to overcome to help support the uptake of electrified vans. These include higher capital costs, residual values, range, charging infrastructure and constrained payload.

2. THE CHANGING SHAPE OF LOGISTICS

The UK transport sector is rapidly evolving. Suppliers, responding to rising consumer and business sector expectations, have developed agile, creative and flexible ways to make good on these demands. In addition, new cleaner and more fuel-efficient vehicles coupled with technology on and off the vehicle is improving usage and driving down costs.

Despite this innovation, increasing congestion continues to place adverse pressure on the sector.

A variety of ideas and initiatives are being trialled. These include regional collaboration and consolidation of courier companies and services. Businesses also now have a range of complementary options for last-mile deliveries in urban areas, including electric cargo bikes and autonomous robots.

The vehicle supply chain has also developed customised, personal and more tailored solutions to match the needs of a more complex market.

Our research has highlighted that the LCV sector has undoubtedly benefitted from a change in consumer buying behaviour, market structure and business model changes. As companies continue to innovate to become more flexible, responsive and efficient, the current role of the LCV as the workhorse of the UK's supply chain looks set to continue. However, this needs to be balanced against the need to reduce congestion and improve the environment.

RECOMMENDATIONS

- In the interests of minimising congestion, the sector needs recognition in local transport policies, consistent across authorities, to ensure ease of access and maintain efficiency.
- Local emissions regulations should enforce clear and uniform policies that apply across the UK.



► This research in this report highlights a sector that is a vital component of the UK economy and society. LCVs play a critical role, well beyond the realms of home shopping, in terms of supporting large corporates, SMEs and sole traders working across a broad range of industries. It is because of these factors that we believe the van market is set to grow and become more influential, aided by its vehicles' adaptability, excellent safety record and improving environmental credentials.

However, the current unpredictability of the LCV operating environment is a source of uneasiness and debate among industry players. The report also highlights some future challenges that will require industry collaboration with other stakeholders, notably in relation to:

- Ensuring that the van parc can keep up with timelines associated with new environmental legislation and initiatives.

- Exploring the future role of the LCV as supply chain and logistics concepts evolve and leverage new technologies such as automation, electric cargo bikes and drones.

As such, greater understanding of LCVs and supporting their place as a key driver of the UK economy will help the country to thrive. These vehicles deserve to be recognised as a major driver of the UK economy, now and in the future.



INTERVIEWEES

- Arval
- Bri Stor Systems Limited
- British Gas
- Committee on Climate Change
- Cox Automotive
- Driver and Vehicle Standards Agency
- Fiat Chrysler Automobiles
- Ford
- Freight Transport Association
- Future City Logistics
- Glass's Information Services
- Isuzu UK
- LeasePlan
- Paneltex
- PSA Group
- RAC Foundation
- Renault
- Retail Motor Industry Federation
- Road Haulage Association
- Ryder
- Tevo
- Transport for Greater Manchester
- Transport for London
- Transport Scotland
- University of Southampton
- University of Westminster
- Vauxhall
- Volkswagen Commercial Vehicles
- Welsh Water
- ZipCar UK

RESEARCH NOTES

The economic assessment of the impact of LCVs has been based on the Gross Value Added (GVA) by sector in the UK economy compared with estimates of the deployment of LCVs in each sector, their employment and operating costs.

GVA is the value of output less the value of intermediate consumption; it is a measure of the contribution to GDP made by an individual producer, industry or sector. GVA can be broken down by industry and institutional sector. The sum of GVA over all industries or sectors plus taxes on products minus subsidies on products gives gross domestic product.

The data used was extracted from the UK Office of National Statistics, SMMT and industry reports, together with the application of industry expertise. The central step to the research was the estimation of vans deployed by sector and by ownership stages; the process used was one of triangulation of a number of sources, including the LCV parc, age distribution, used van usage patterns, mileage distributions and research on van use by the Freight Transport Association, Transport for London and Cranfield University. It is important to note that GVA sector economic data does not perfectly align with typical logistics classifications of vehicle use.

The employment value or cost is a conservative estimate based on the national minimum wage and associated social costs. Employment value is made up of direct and indirect employment. Direct employment is defined as individuals that use LCVs as the critical tool for delivering value, such as individuals that conduct parcel or food delivery. Indirect employment is defined as individuals that use LCVs as an important adjunct to their employment such as plumbers or construction workers. In addition to defining the employment value (or cost) per industry, the direct cost of ownership of LCVs is defined as the combination annual and standing costs including vehicle capital depreciation.

Data from the Department of Transport and industry reports have been used as a basis for estimating the cost of congestion and environmental and safety impacts on the UK economy. Congestion cost is the combination of traffic miles per year per vehicle, average hours lost in traffic per driver per year and the employee cost per year. Environmental cost estimates use emissions data (CO₂, NO_x, PM_{2.5}, PM₁₀) and cost per tonne of emissions. Safety cost estimates are calculated based on the number of accidents per vehicle and the cost per accident.

FOOTNOTES

- ¹ Light Commercial Vehicle is the official term within the European Union for a commercial carrier with a gross vehicle weight of no more than 3.5 metric tons. Throughout the report the terms LCV and van are used interchangeably
- ² Mayor of London Transport Strategy Report
- ³ Trends in Self-Employment in the UK Office for National Statistics
- ⁴ Better Delivery: The Challenge for Freight, National Infrastructure Committee
- ⁵ Presentation Ian Wainwright to CILT (2019)
- ⁶ Eurostat: eCommerce statistics (2018)
- ⁷ RAC Foundation, The Implications of Internet Shopping Growth on the Van Fleet and Traffic Activity (2017)
- ⁸ 'Online Grocery shopping the United Kingdom' Statista

- ⁹ The term 'electrified LCVs' refers to both PHEV and BEV
- ¹⁰ Car emissions bands have been used for the purpose of this analysis
- ¹¹ SMMT. This statistic relates to all vehicles in the market, including passenger cars and electric vehicles
- ¹² Department for Transport, 'Transport Energy Model' (2018)
- ¹³ The Van Excellence Report, FTA (2018)
- ¹⁴ Low Carbon Vehicle Partnership and Cenex, 'The Low Emission Van Guide' (2016)
- ¹⁵ For example, pure electric, and plug in hybrid
- ¹⁶ INRIX, Congestion Costs (2019)
- ¹⁷ Please see Research Notes in Appendix for explanation of method
- ¹⁸ Corporate Vehicle Observatory, Fleet Barometer (2017)

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Alan has worked in logistics and supply chain management for nearly 40 years. He has taken a particular interest in freight transport policy and investment, publishing widely on freight policy including being the lead author of the Chartered Institute of Logistics and Transport – Freight Vision 2035. He is the Chairman of the CILT's Freight and Logistics Policy Forum and has been sitting on the National Infrastructure Commission's Freight Policy Panel. In 2017 he authored a report for the RAC Foundation on the implications of internet shopping growth on the van fleet and traffic activity.

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Petra has more than 18 years of Automotive OEM experience gained from roles within industry and professional services. Specialising in large scale transformation projects, customer experience design, digital business model innovation, new services development and revenue generation, Petra has worked with several industry leaders to define their future digital customer experience.

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