

UK **SPECIALIST CAR** **MANUFACTURERS** REPORT 2017

A WORLD LEADING SUCCESS STORY



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THE SPECIALIST SECTOR WITH BIG AMBITIONS



► The UK is home to the largest number of specialist car manufacturers in the world. Producing some of the most globally iconic brands, these companies represent one of the jewels in the crown of the British vehicle manufacturing sector. They have also provided innovative new technologies, notably light-weighting and highly efficient powertrains, and typically use a highly specialised and skilled workforce.

The industry has shown strong growth in the five years since SMMT last reported on the sector, and independent forecasts suggest this is set to continue. To support this, we need to ensure the right trade and business conditions are in place to ensure the UK's specialist car manufacturers remain competitive and continue to deliver innovative, exciting and desirable products to consumers across the world.

This report sets out the importance of the specialist car manufacturing industry to the UK's economy and workforce, and the innovation and positive image it brings to the UK and wider automotive industry.

Last year the UK's specialist car manufacturers had a turnover of £3.6 billion and employed over 11,000 people. Typically, highly skilled engineers and craftsmen and women, these people collectively produced more than 32,000 cars, of which two-thirds are exported around the world. Output is expected to grow to in excess of 50,000 units by 2020.

We define specialist car manufacturers as producing around 10,000 vehicles, or fewer, globally per year. These businesses are highly diverse, and they produce a vast array of different types of vehicles, from sports cars, luxury tourers, limousines and SUVs, to taxis and wheelchair-accessible vehicles.

Specialist car manufacturers compete in the global market

place, exporting around the world, to markets as diverse as the EU, the US, China, Japan and the Gulf States. As such, they need to comply with a huge range of differing regulations and requirements.

While it is encouraging that some policies and regulations already recognise the specialist nature of the industry, greater harmonisation of regulations, which also recognise the size of the businesses, would enable the sector to grow further.

The specialist car manufacturing industry, through SMMT, will continue to work with governments and stakeholders – both in the UK and abroad – on developing such regulations and ensuring that specialist manufacturers have the best possible access to key global markets. ■

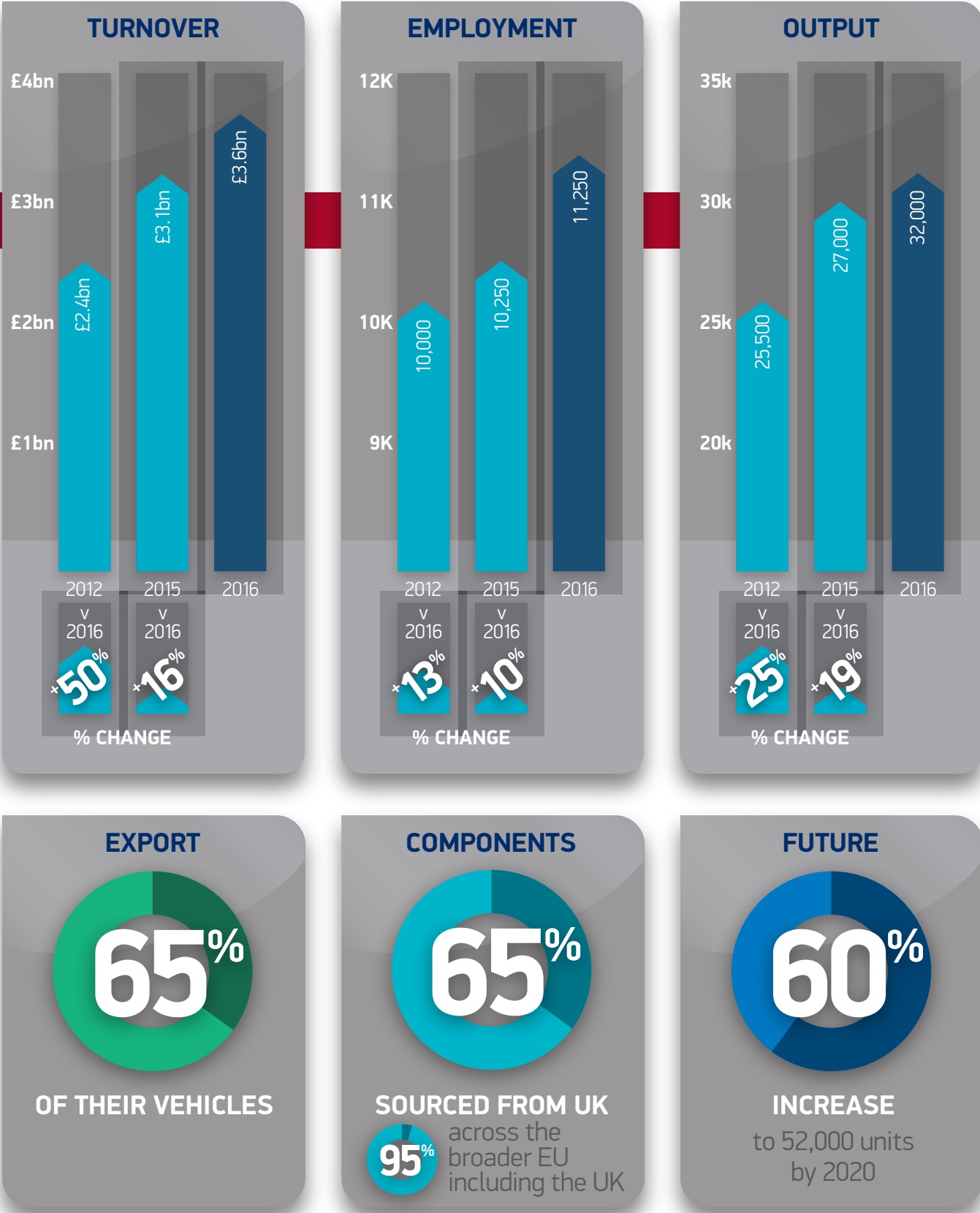
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The Society of Motor Manufacturers and Traders (SMMT)

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OVERVIEW | 2016

UK SPECIALIST CAR MANUFACTURERS



Data based on SMMT Member survey. Output forecast based on AutoAnalysis, July 2017

SIX KEY MESSAGES

1

THE UK IS HOME TO THE LARGEST NUMBER OF SPECIALIST CAR MANUFACTURERS IN THE WORLD

There are more than 60 specialist car manufacturers in the UK, including several globally recognisable brands. The array of specialist car manufacturers is diverse and the products they make are equally varied. These companies collectively have a turnover of some £3.6 billion, directly employ over 11,000 people – often highly skilled – support local suppliers, predominantly do their R&D in the UK and export their products around the world. The sector also relies upon, and demonstrates, the creativity and engineering excellence available in the UK.

2

SPECIALIST CAR MANUFACTURERS PLAY A KEY ROLE IN TECHNOLOGY DEVELOPMENT

Specialist car manufacturers, in part through their roots in motorsport, deliver innovation and advancement to the broader industry. They have a strong track-record in delivering light weighting solutions – often through new technologies such as carbon fibre and composite materials, as well as highly efficient powertrains, including electric motors.

3

REGULATIONS AND STANDARDS DESIGNED TO RECOGNISE SPECIALIST CAR MAKERS' NEEDS

Specialist manufacturers need appropriate regulations that are commensurate with their lower volumes, overall market impact, administrative burden and timely access to off-the-shelf new technologies. Some regulations and policies already recognise this such as the EU new car CO₂ regulation and RDE (Real Driving Emissions) provisions, small volume manufacturers must still comply to these regulations but have specific targets and timescales to meet. However, industry looks for broader recognition and the move to harmonising global technical regulations to help reduce complexity and the administrative burden of delivering products to the global market place.

4

TRADE AND GLOBAL MARKET ACCESS IS KEY TO GROWTH

Specialist car manufacturers export around two-thirds of their production, to all corners of the world and notably the US, EU, China, Japan and the Gulf States. The industry looks to the government to support on-going access and growth in these markets through a suitable Brexit deal and future trade deals.

5

IMPORTANCE OF THE SUPPLY CHAIN

Manufacturers need a supportive, cost-effective and timely supply of diverse components to ensure they can continue to deliver and grow their varied product offerings and remain relevant in future market places.

6

IMPORTANCE OF A SKILLED WORKFORCE

Specialist car manufacturers often need specific skills to differentiate their products from the mainstream – and so require a strong and secure supply of appropriately skilled workers, especially in advanced engineering, design and electronics.

SPECIALIST CAR MANUFACTURERS

Alcraft Motor Company Limited 01

Allied 02

Aston Martin Lagonda Limited 03

Bentley Motors Limited 04

Caterham Cars Limited 05

Dare (UK) Limited 06

David Brown Automotive Limited 07

Elemental Motor Company Limited 08

Liberty Vehicle Technologies Limited 09

LEVC 10

Lotus Cars Limited 11

McLaren Automotive Limited 12

Morgan Motor Company Limited 13

Pilgrim 14

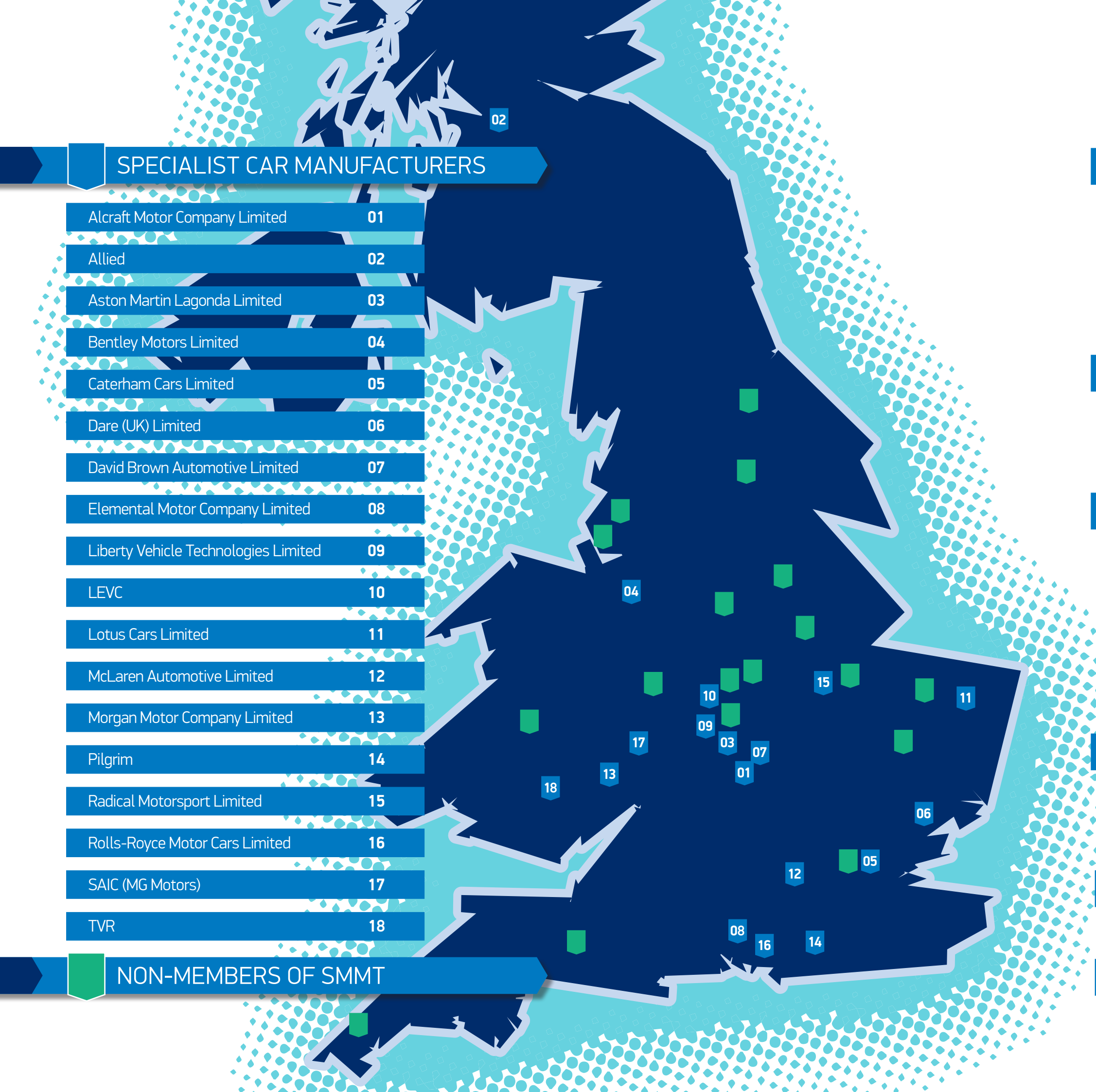
Radical Motorsport Limited 15

Rolls-Royce Motor Cars Limited 16

SAIC (MG Motors) 17

TVR 18

NON-MEMBERS OF SMMT



VALUE OF SECTOR TO THE UK

REGULATIONS AND STANDARDS

1 SPECIALIST CAR MANUFACTURERS' CONTRIBUTION

**UK HOME TO LARGEST
NUMBER OF SPECIALIST
CAR MANUFACTURERS
IN THE WORLD**

**SECTOR IS WORTH
£3.6 BILLION TO UK,
EMPLOYING MORE
THAN 11,000 PEOPLE**

**OUTPUT IS EXPECTED
TO GROW 60% OVER
THE NEXT FIVE YEARS**

► The UK is seen as the home of the specialist car industry, and the Society of Motor Manufacturers and Traders (SMMT) represents around 20 of the largest and most well-known specialist car brands.

SMMT supports the interests of the UK automotive industry at home and abroad, promoting a united position to government, stakeholders and the media. The automotive industry is a vital part of the UK economy, accounting for more than £77.5 billion turnover and £21.5 billion value added. With some 169,000 people employed directly in manufacturing and 814,000 across the wider automotive industry, it accounts for 13% of total UK export of goods and invests £2.75 billion each year in automotive R&D.

The specialist car manufacturers are important contributors to these figures – representing almost 2% of output and 5% of turnover, as well as providing a diverse array of vehicles to market. The sector's turnover grew by more than half on the 2012 level to reach some £3.6 billion in 2016. Manufacturers also exported almost two-thirds of their production last year, and given the high value of some of their products, this delivered considerable revenue to the UK economy. Further, these manufacturers employ more than 11,000 staff directly in the UK – often providing very skilled and specialised jobs.

The sector's output is set to grow by 60% or 20,000 units over the next few years to some 52,000 units, as output at several of the key plants – including Bentley and McLaren – grows, new facilities come on-stream from the likes of Aston Martin and London Electric Vehicle Company (LEVC, formerly London Taxis), and new entrants enter the market such as Alcraft and TVR.

The new Aston Martin SUV, the DBX, will be produced in Wales, creating 750 jobs and up to a further 3,000 in the local supply chain. Wales is also home to the new TVR factory, which will use the innovative Gordon Murray design iStream manufacturing process. In 2020, McLaren's new £50 million plant in Sheffield is set to come on-stream to build the carbon-fibre chassis for future products, rather than import them.

The industry also includes multi-stage manufacturers such as Allied Vehicles, which take products from volume manufacturers and develop them to suit particular market sectors such as wheel-chair accessible vehicles. ■

DEFINING THE SECTOR

Specialist car manufacturers in this report produce around 10,000 or fewer vehicles globally. This includes a diverse array of manufacturers, from those as large as Bentley through to companies producing only a handful of cars every year such as Dare. There are specific definitions of small volume manufacturers (SVMs) in the Real Driving Emissions (RDE) Regulation and EU New Car CO₂ Regulations, which are based on this 10,000 limit. They also have to have their own design and manufacturing bases, to ensure they are suitably differentiated from brands from volume manufacturers. Both these two regulations also include a definition of ultra-small volume manufacturers, SVMs which register fewer than 1,000 units per year.

2 RECOGNISING SPECIALIST CAR MANUFACTURERS' NEEDS

**APPROPRIATE
LEGISLATION NEEDED
TO ENABLE INNOVATION
AND GROWTH**

**A HARMONISED GLOBAL
APPROACH REDUCES
ADMINISTRATIVE
BURDENS**

**SUITABLE LEAD
TIMES ARE NECESSARY
TO IMPLEMENT NEW
REGULATIONS**

► Regulators already consider the administrative burden of any regulation on participants, but often they can be focused on the larger players and potentially less so on smaller volume manufacturers. By their nature, specialist car manufacturers have a limited effect on the overall impact of a regulation, due to the low volumes of vehicles being produced, however, they face the same administrative burden as a volume producer.

Specialist car manufacturers have varied levels of economic and technical resource, especially when compared with global volume manufacturers, even though some may be highly innovative. The low volume nature of the operation also means that the manufacturer has less volume over which to spread the costs of technology. Additionally, it may be more difficult or costly to get timely access to advanced technologies from component suppliers, who may choose to service the needs of volume players in advance of any provisions to smaller companies.

Specialist manufacturers also typically produce vehicles catering for specific buyer types who in general undertake limited annual mileages; therefore, their net impact on society and the environment is often very low. However, some specialist products such as taxis can be extensively used, enabling many people greater freedom and mobility.

As outlined earlier in the report, some European Union (EU) regulations recognise the impact of small volume manufacturers and provide additional lead-times or provisions for compliance. SMMT would welcome consideration of specialist car manufacturers to be routinely considered in any proposals for new or amended regulations, across the globe.

Greater harmonisation of global regulations would also greatly help the specialist car manufacturers, which typically build a single model and sell it in as many markets as possible. Building to a global standard would help to maximise the markets available for their products. It would also significantly reduce the administrative burden on manufacturers' type approval processes.

The specialist sector would also welcome consideration of suitable lead times for new regulations. Often specialist car manufacturers' products have longer life-cycles than mainstream products, to recover investment costs across lower annual volumes. Rapidly changing regulations and the time it takes to test new products, including access to those approved testing facilities to enable vehicle certification, can undermine specialist car manufacturers' ability to access the market. ■



SECTOR IMPORTANCE IN DEVELOPING VEHICLE TECHNOLOGY AND INNOVATION

3

SPECIALIST CAR MANUFACTURERS OFTEN ACT AS A CONDUIT FOR NEW TECHNOLOGY, DEVELOPING IT FOR ROAD USE AND CREATING CONSUMER APPETITE

THIS SECTION DEMONSTRATES SIX PARTICULAR TECHNOLOGIES SPECIALIST CAR MANUFACTURERS HAVE SUPPORTED THE DEVELOPMENT OF

1 LIGHT-WEIGHTING

Specialist car manufacturers have continually been pioneers in light-weighting. Lighter vehicles give enhanced driver appeal, but also enable down-sizing of powertrains to further help efficiency.

The most promising way to reduce the weight of vehicles, while maintaining vehicle size and safety performance, is through material substitution. Examples of materials substitution include using higher-strength steel alloys, carbon fibre, aluminium, magnesium or other light metals in place of conventional steel structural components. Strategies to reduce vehicle weight play an increasingly important role in efforts to reduce CO₂ emissions.

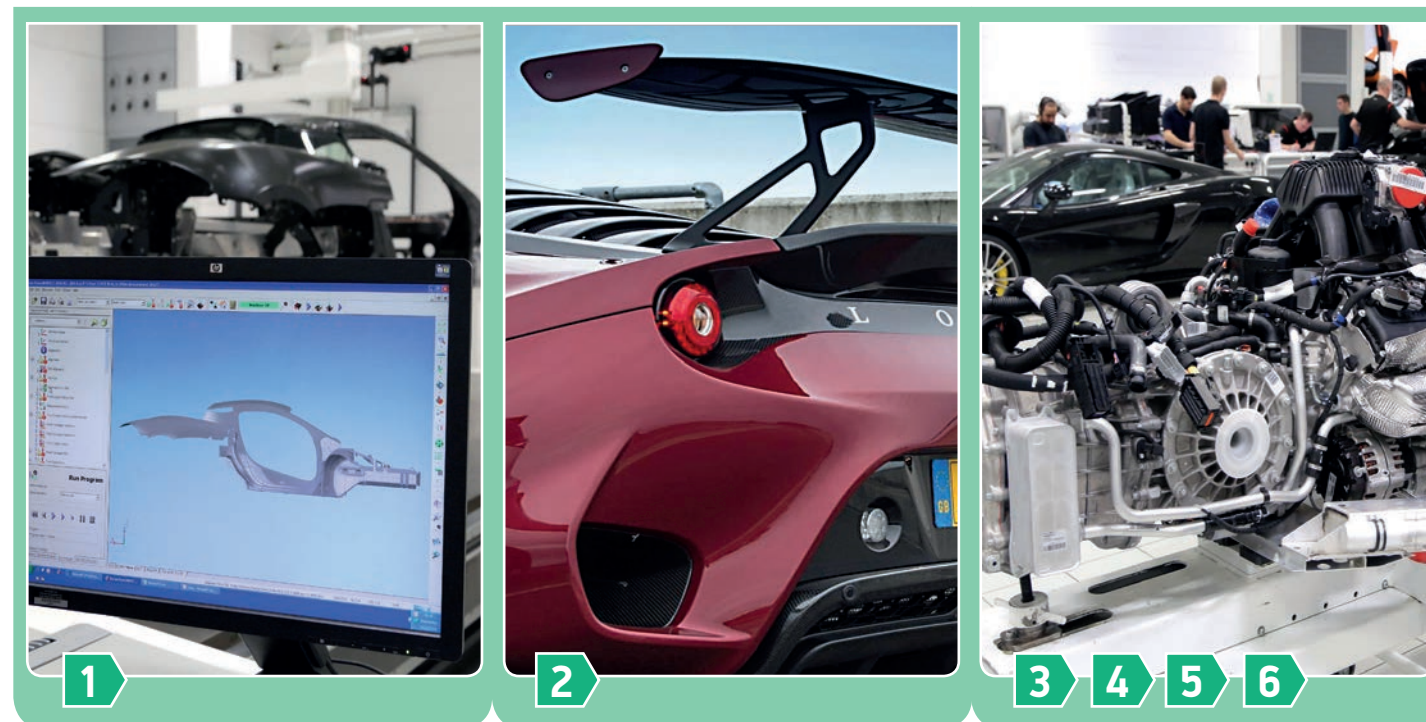
Specialist car manufacturers have introduced high strength bonded aluminium structures to the automotive industry, delivering strong crashworthiness as well as dynamic loading. Such techniques are now being used for electric vehicles, where traditional manufacturing techniques have not been suitable for non-traditional component layouts and volumes. Specialist car manufacturers have also developed integral composite design concepts such as carbon fibre that are inspired by Formula One monocoque construction – delivering light-weighting but enhanced strength, at a relatively low cost.

2 AERODYNAMICS

Enhanced aerodynamics cuts drag and so improves fuel efficiency. Specialist car manufacturers have used low aerodynamic drag designs, active aero (for example, movable spoilers) and low friction surface treatments to improve aerodynamic efficiency, but also provide enhanced levels of grip, when necessary, to provide safe and efficient vehicles. Many of the volume manufacturers' models designed specifically to reduce CO₂ emissions and improve fuel efficiency now feature such enhanced aerodynamic features.

3 TURBO-CHARGING AND ENGINE DOWNSIZING

Turbo-charging forces more air into the combustion chambers



and increases the specific power of the engine. This can enable downsizing resulting in a potential 5-7% fuel economy benefit over a naturally-aspirated engine of comparable performance. Smaller capacity engines are typically more efficient and weigh less. Specialist car manufacturers have redefined the benchmark in terms of performance, refinement, weight and efficiency, by delivering engines with the highest specific power output. In particular, they have helped ensure the smaller capacity engines are able to cope with the higher in-cylinder pressures and therefore higher temperatures in the exhaust port and manifolds. Bespoke engine knock control strategies have also been developed and specific materials are used to both reduce the weight of the exhaust system and increase the thermal resistance, thus allowing the power-train to withstand higher temperatures at the inlet of the turbocharger.

4 SUPER-CHARGING

Similar to turbo-charging, superchargers enable the engine to breathe more efficiently. For super-charged engines, since 1988, specialist car manufacturers have pioneered bypass valves to further reduce pumping loss at low load conditions. Liquid charge-cooling is an innovation used to ensure acceptable charge temperatures are maintained; the benefit over conventional air cooled systems is more freedom for packaging the components and improved transient thermal performance. This better packaging can help with aerodynamic performance.

5 ENGINE VALVE ACTUATION

Altering the timing of valves in the engine can be used to improve performance, fuel economy or emissions. Specialist car

manufacturers have been world leaders in the early development of variable valve actuation systems.

6 HYBRIDISATION AND ELECTRIFICATION

Hybrids feature both a conventional engine and an electric motor. The last decade has seen specialist car manufacturers delivering hybrids featuring exceptional performance combined with extremely low CO₂ emissions. These hybrid vehicles are technology leaders for many innovations, including energy recovery systems, enhanced packaging, battery cooling and durability.

Specialist car manufacturers are now competing to showcase the first electric supercar. Such extreme applications can help improve the perception of alternative powertrain vehicles, as well as advance the technologies and packaging of electric vehicles and help advance the broader global trend to vehicle electrification. Once again, these specialist products can bridge the gap between extreme motorsport, aerospace technology and everyday transportation.

Several manufacturers have also announced plans to make significant proportions of their fleets electrically powered – in both hybrid and all-electric models. These vehicles will be needed to enable the industry to compete in the market for years to come and can help improve the performance and efficiency of their products. Specialist manufacturers face the added complexity of ensuring these new technologies do not compromise other core attributes of their typical model portfolios.

While specialist manufacturers are delivering an array of high-tech and innovative improvements to the motoring world, many also look to maintain the traditional skills associated with hand-built, luxury products – such as leather and woodwork. Developing and maintaining these skills requires investment in the workforce and attracting staff to the sector, an issue covered further on **page 11**.



TRADE AND GLOBAL MARKET ACCESS

4

CONTINUOUS LOBBYING OF EU AND GLOBAL POLICY MAKERS

EXPORTING GLOBALLY NEEDS PREFERENTIAL ACCESS TO KEY MARKETS

► The UK's specialist car manufacturers have a strong export focus – with 65% of their output being exported, predominantly to the USA, EU, China, Japan and the Gulf States. They also have a high local content – 65% from UK and 95% across the broader EU. It is therefore important that these manufacturers have a voice and can work with global policy makers to ensure regulations and policies enable them to access the market, offer their products to as broad a population as possible, and so supporting market diversity as well as innovation.

As seen on the previous page, within the EU small and ultra-small volume manufacturers have been recognised in particular regulations, in part due to the support from the UK government. Brexit will pose an issue for the industry as to how the sector's voice is carried forward in developing future EU regulations.

SMMT'S PRIORITIES FOR BREXIT ARE:

- Securing continued membership of the Single Market to ensure that there are no tariff or regulatory barriers to trade with the EU
- Securing continued membership of the Customs Union
- Guaranteeing unrestricted access to talent across Europe
- Creating regulatory certainty through harmonisation and future influence
- Securing the UK's position in current EU trade deals and those under negotiation

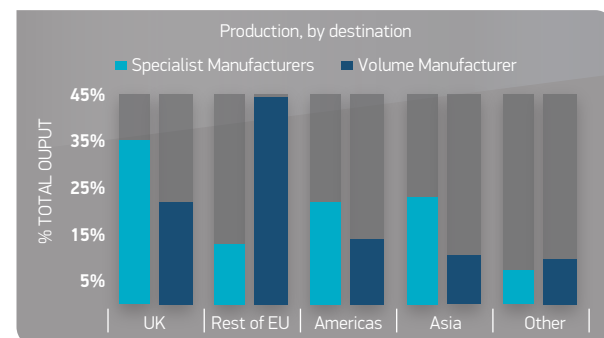
LOBBYING POLICY MAKERS TO MITIGATE RISK OF NON-TARIFF BARRIERS TO TRADE

These points are equally important to the UK's specialist car manufacturers, with around a fifth of their exports destined for the EU.

Trade deals with the rest of the world will also be very important, with broadly a third of specialist car manufacturer exports going to both the Americas and Asia. These are all levels well above the mainstream manufacturers.

Specialist car manufacturers also need a strong voice to ensure policy makers recognise their needs. For example, the industry has been focused recently on issues around the proposed Corporate Average Fuel Consumption targets in China; durability test requirements, also in China; the replica vehicles initiative in the US; and EU Small Series Type Approval recognition in the Gulf States.

Greater regulatory compliance or equivalency would overcome such issues, and securing regulations which recognise the low volume nature of the UK's specialist producers would provide a strong platform to design and build innovative and diverse products for as broad a marketplace as possible. ■



SIGNIFICANCE OF THE UK SUPPLY CHAIN



5 SECURING AN APPROPRIATE LOCAL SUPPLY CHAIN

LOCAL SUPPLIERS OFFERING LATEST TECHNOLOGIES AT AFFORDABLE PRICES IS A KEY GROWTH ENABLER

► Specialist car manufacturers source an above average proportion of components from the UK and EU – 65% from the UK, rising to 95% across the EU. By comparison, a recent study by the Automotive Council reports the average value of local content of a car built in the UK at 44%.

Specialist car manufacturers will look towards maintaining a strong local supply base. Further engagement with the Automotive Council and working through bodies such as SMMT, Cenex and Innovate UK through collaborative projects could help further advance this. Because of the low-volumes and bespoke engineering involved, some specialist car manufacturers may find it difficult to access some emerging technologies due to the cost and complexity involved for suppliers.

To address this challenge SMMT has worked with manufacturers and suppliers to create initiatives including 'Meet the Buyer' events and supply-finder databases to better enable contact and dialogue. ■



IMPORTANCE OF A SKILLED WORKFORCE



6 FUTUREPROOFING THE WORKFORCE

SECTOR REQUIRES BROAD SKILLS – FROM HANDCRAFTSMANSHIP TO NEW TECHNOLOGIES

► Given the diversity of the sector, manufacturers also require a diverse skill set from their staff. The sector has a strong track record in hand-crafted vehicles and so needs highly skilled workers in 'traditional' crafts such as panel beating and leatherwork. However, the sector is also innovative, for example, using advanced technologies such as composite materials, electric propulsion and active aerodynamics.

The broader automotive sector is already struggling to recruit the right skilled people, and for specialist manufacturers the problem is even more pronounced. Specialist car manufacturers, especially those developing leading edge technologies, will look around the world to access the best talent. Access to this talent will still be required post Brexit, especially given the pace of change in technology, consumer demands and regulatory needs in the future.



The industry has often invested in training people directly, for example through apprenticeships being used to ensure ongoing supply of skilled individuals. This can be an expensive process, however, and retaining staff is also an issue. The specialist car manufacturer would therefore look for further engagement with government and other stakeholders to help develop a suitable workforce. ■

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