



# MEETING THE DEMAND FOR SKILLED VEHICLE TECHNICIANS IN THE AGE OF ADAS

An Analysis of the Skills Gap and  
Future Outlook for the Next Decade



# Summary

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**The use of ADAS technologies is becoming increasingly common in new vehicles and is seen as a key step towards the development of fully autonomous vehicles. By improving road safety and reducing the number of accidents, ADAS technologies are seen as a critical component of the future of mobility.**

The IMI believes that as of the end of 2022, 5% of the UK car parc has some degree of level 2 autonomy. This is set to rise rapidly over the next decade as all new vehicles as of July 2022 are mandated (EU regulation) to include several safety components, a number of which include Level 2 autonomy. The IMI forecasts that 44% of the UK car parc will have level 2 autonomy by 2030.

The IMI estimate that by the end of 2022, there will be 3000 technicians ADAS qualified in the UK. This highlights that there is already a skills gap when considering the number of cars with level 2 autonomy compared to the number of technicians qualified. This gap is currently in the region of 3000 to 9000 technicians and is set to increase to 51,000 by 2030. To meet the demand of 44% of the UK car parc having level 2 autonomy by 2030, we estimate that the sector will require 106,000 technicians qualified to work with vehicle with ADAS by 2030.

Several subsectors - mainly accident repair, body and glazing – are further along when it comes to being qualified to work with ADAS, mainly due to greater exposure to this technology. We estimate that there are currently 1800 technicians ADAS qualified in these subsectors and will require 25,000 technicians ADAS qualified by 2030. Indications are that, although there is currently a small skills gap, those qualifying have broadly been keeping up with the demand to date. However, a significant skills gap appears as early as 2023.



# Introduction & Background

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## What is ADAS and why is it important?

ADAS stands for Advanced Driver Assistance Systems. It refers to a range of technologies and systems that are designed to assist drivers and improve road safety. ADAS technologies can range from simple features, such as lane departure warning and rear-view cameras, to more advanced systems, such as adaptive cruise control and autonomous emergency braking.

The use of ADAS technology is becoming increasingly common in new vehicles, which is seen as a key step towards the development of fully autonomous vehicles. By improving road safety and reducing the number of accidents, ADAS technologies are seen as a critical component of the future of mobility.

Technicians need to be skilled in working on autonomous vehicles because these vehicles rely on complex systems, including advanced electronics, sensors, and software, which require specialized knowledge and expertise to maintain, repair, as well as a myriad of different calibration requirements. As these vehicles become more prevalent, it is crucial for technicians to have the necessary skills to diagnose and fix issues with autonomous systems, ensuring the safety and reliability of the vehicles. Additionally, with the increasing integration of autonomous technology in vehicles, technicians need to have a deep understanding of how different systems interact and work together, which requires ongoing training and education to keep up with the latest advancements in the field.

## Limitations of data and approach taken

We have focussed our analysis to examine the number of vehicles with some degree of level 2 autonomy. Please see below for definition. However, there is no current publicly available central source that outlines vehicle models that have this technology. This is because ADAS focuses on components on a vehicle rather than a vehicle type, such as their power train. The IMI have therefore created this data set using current vehicle registration data and highlighting makes and models which following extensive research we believe have some degree of level 2 autonomy. Using this data and a variety of other data sources, including the IMI's own data, a model has been built that forecasts the number of technicians the UK will need over the next 10 years to meet the demand on vehicles with at a minimum level 2 autonomy.

**Warning:** the data provided is for informational purposes only and should not be relied upon as accurate. It is subject to change without notice and may contain errors or omissions. Please verify the information before using it for important decisions. Please also note that the details of the model remain the intellectual property of the IMI and so limited information should be shared outside of the IMI and its colleagues; however, data sources are referenced.

# Vehicles with Level 2 autonomy

## What is Level 2 autonomy?

Level 2 autonomy in vehicles refers to a level of autonomous driving where the vehicle can control acceleration, braking, and steering, but the driver is still required to be in control and monitor the driving environment at all times. In this level, the driver must be prepared to take over control of the vehicle if necessary.

Examples of Level 2 autonomous capabilities in vehicles include:

- 1 Adaptive Cruise Control (ACC)** – which adjusts the speed of the vehicle based on the speed of the vehicle in front of it.
- 2 Lane Keeping Assistance (LKA)** – which uses cameras and sensors to detect lane markings and assist the driver in maintaining the vehicle's position within the lane.
- 3 Autosteer** – which uses cameras and sensors to automatically steer the vehicle along a specific path.
- 4 Traffic Jam Assistance** – which combines ACC and LKA to provide autonomous driving in slow-moving traffic.
- 5 Automated Lane Change** – which allows the vehicle to change lanes automatically, with the driver still required to confirm the lane change.



**These features are designed to enhance driving convenience and safety but are not intended to replace the driver. The driver is still responsible for monitoring the driving environment and taking control of the vehicle when necessary. Some examples include:**



### **Tesla Model S and Model X:**

These electric vehicles from Tesla were among the first to offer advanced autonomous features, including autopilot, which provides level 2 autonomy for driving functions such as lane keeping, speed control, and adaptive cruise control.



### **Mercedes-Benz S-Class:**

The S-Class from Mercedes-Benz was one of the first luxury vehicles to offer level 2 autonomy with features such as drive pilot and active lane change assist, which provide hands-off driving in certain conditions.



### **Audi A8:**

The Audi A8 was one of the first vehicles from a German automaker to offer level 2 autonomy, with features such as traffic jam pilot, which provides hands-off driving in slow-moving traffic.



### **BMW 5 Series:**

The BMW 5 Series offered level 2 autonomy with its driving assistant plus system, which includes features such as lane departure warning, lane keeping assist, and active cruise control.



## EU regulation

The European Union (EU) has established regulations regarding autonomous vehicles, including level 2 autonomy. The EU's regulatory framework for autonomous vehicles is based on the principles of the United Nations Economic Commission for Europe (UNECE) World Forum for Harmonization of Vehicle Regulations.

According to the UNECE's regulatory framework, level 2 autonomy is classified as "partly automated driving." The framework establishes minimum requirements for vehicles equipped with level 2 autonomous systems, including the requirement for a driver to be able to take control of the vehicle at any time.

In the EU, manufacturers of vehicles with level 2 autonomous systems are required to ensure that the systems are designed to meet specific safety, performance, and reliability standards. The EU also requires manufacturers to provide information to drivers about the limitations and capabilities of the autonomous systems, and to ensure that the systems are accompanied by clear and concise instructions for use.

Overall, the EU's regulations regarding level 2 autonomy in vehicles are aimed at promoting the safe and responsible use of autonomous systems, while balancing the benefits of increased driving convenience and safety with the need to protect public safety.

Although EU regulation, the UK has adopted this regulation which states that starting from July 6, 2022, new vehicles sold in the European Union must comply with new safety requirements outlined by the European Commission.

Some of the new safety features required in vehicles are:

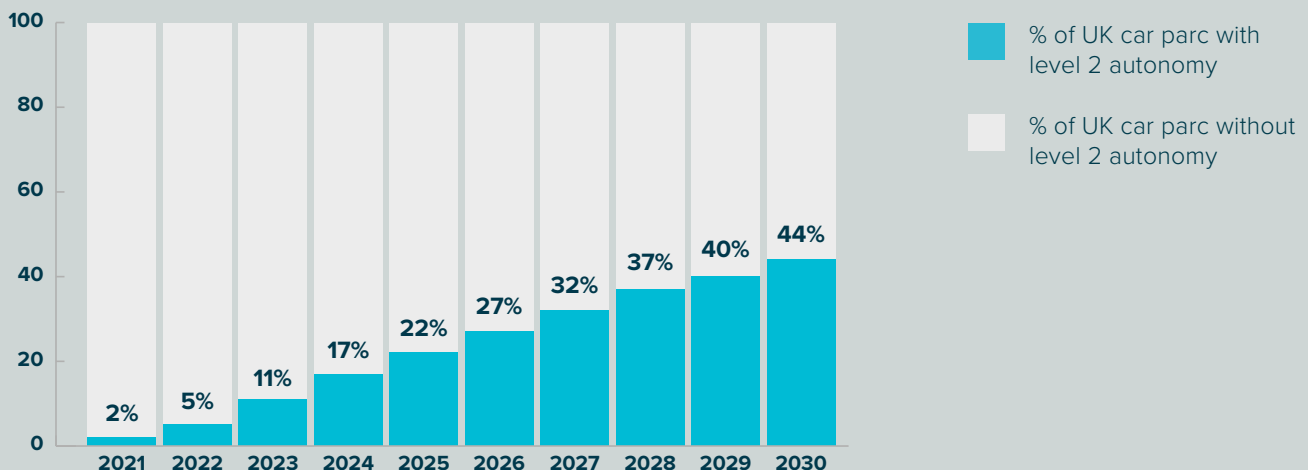
- 1 Advanced emergency braking systems (AEBS):** AEBS is a collision avoidance technology that can detect an imminent collision and automatically apply the brakes to prevent or mitigate an impact.
- 2 Lane departure warning systems (LDWS):** LDWS alerts drivers when they unintentionally drift out of their lane.
- 3 Speed assistance systems:** Speed assistance systems help drivers to adhere to the speed limit by providing real-time information on the applicable speed limit and warning them when they exceed it.
- 4 Rear-view cameras:** Rear-view cameras are mandatory for vehicles with a weight of 3.5 tons or less, to enhance visibility and reduce blind spots.
- 5 Alcohol interlock installation facilitation:** Vehicles must have facilities for the easy installation of alcohol interlocks, which prevent drivers from starting the vehicle if they have a certain level of alcohol in their blood.

These are some of the new safety features that are required in vehicles starting from July 6, 2022, in the European Union. The European Commission's aim is to enhance road safety and reduce the number of accidents caused by human error. For more information: 'New rules on vehicle safety and automated mobility fact sheet' accessible [here](#).

## IMI analysis

### Proportion of UK car Parc with Level 2 autonomy

The IMI believes that, as of the end of 2022, 5% of the UK car parc has some degree of level 2 autonomy. This is set to rise rapidly over the next decade, as all new vehicles as from July 2022 are mandated (EU regulation) to include several safety components a number of which include Level 2 autonomy. The IMI forecasts that 44% of the UK car parc will have level 2 autonomy by 2030.



# Technicians, skills & qualifications

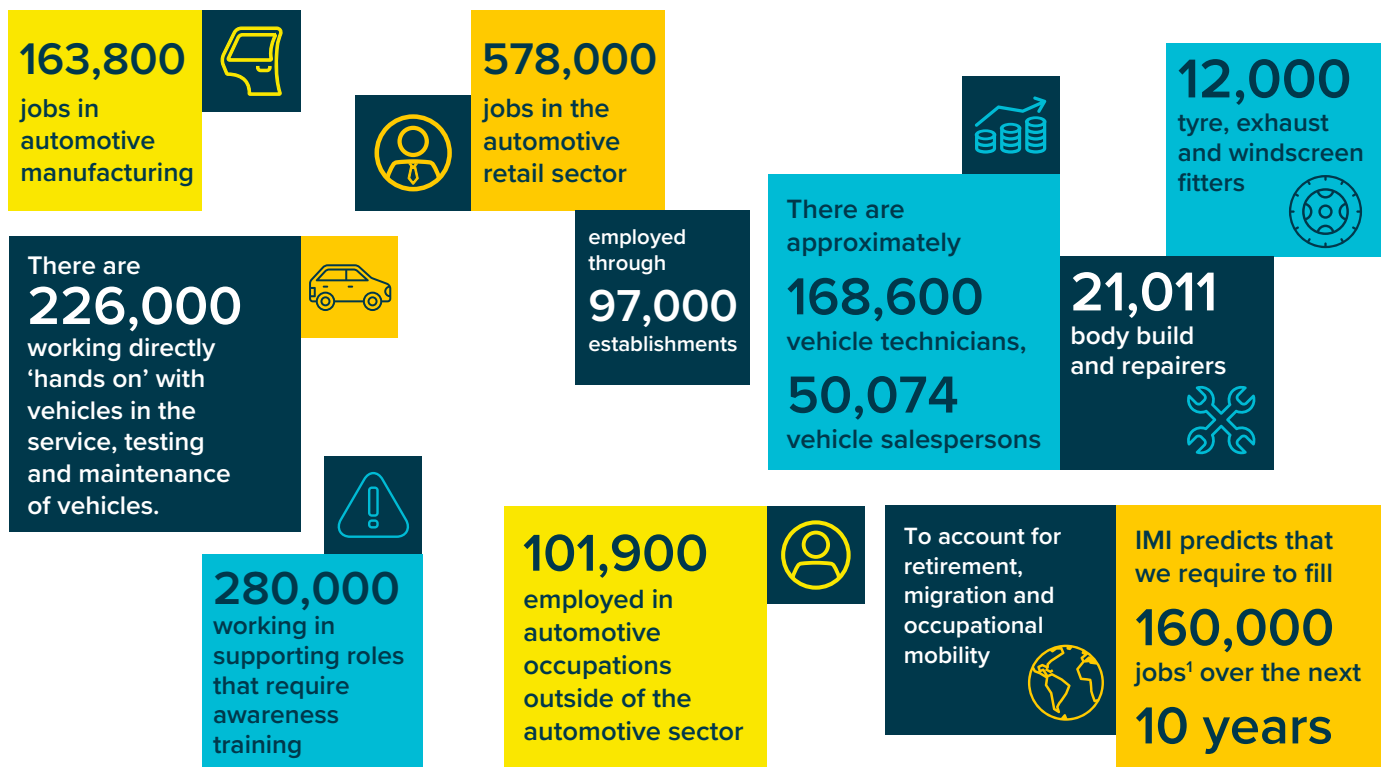
## Labour market

The UK automotive labour market employs over 800,000 people. This includes workers in a variety of roles, such as technicians, mechanics, engineers, salespeople, and managers, across a range of industries including vehicle manufacturing, retail, and aftermarket services. The industry is a significant contributor to the UK economy, with a total turnover of over £77 billion and a strong focus on innovation and technology.

The retail automotive labour market in the UK is a significant part of the country's economy and employs a large number of people in various roles, including technicians, mechanics, salespeople, and managers. According to recent data, there are over 8,000 franchised dealerships in the UK, employing around 320,000 people.

It is highly competitive, with a large number of dealership networks and independent garages competing for business. As the industry continues to evolve and new technologies, such as electric and autonomous vehicles, become more prevalent, the skills and expertise required of technicians and other workers in the industry are changing. This is driving a need for ongoing training and education to keep up with the latest advancements and to maintain the high standards of service and expertise required in the retail automotive industry.

## As of 2021, there are:



<sup>1</sup>IMI report – Automotive sector employment 2021-2031 <https://tide.theimi.org.uk/industry-latest/research/automotive-sector-employment-2021-2031>

## Skills and qualifications

There are various qualifications available in the UK for those interested in learning how to work with autonomous vehicles. Some of these include:

**Apprenticeships:** Automotive apprenticeships provide hands-on training and education in a variety of areas, including vehicle maintenance and repair, and are a good option for those looking to start a career in the industry.

**Technical Certificates:** Technical certificates in areas such as automotive technology, electronics, or mechatronics can provide students with a strong foundation in the skills and knowledge needed to work with autonomous vehicles.

**Degree Programs:** Degree programs in engineering, computer science, or a related field can also provide a comprehensive education in the technology and systems used in autonomous vehicles.

**Professional Certifications:** Professional certifications from organizations such as the IMI can demonstrate a technician's competence and expertise in working with autonomous vehicles and can help advance their careers.



The IMI TechSafe recognition program provides independent assessment and recognition of the technical competence of technicians working in the UK automotive sector. The IMI TechSafe recognition program is seen as an important tool for technicians wanting to demonstrate their technical competence and stay up to date with the latest developments and technologies in the automotive sector. By completing the IMI TechSafe recognition program, technicians can demonstrate their commitment to professional development and the highest standards of technical competence, which is valued by employers and customers alike. TechSafe identifies a member's professionalism and safe working practice in the field of electric vehicles (EV) and other safety-critical vehicle systems such as Autonomous or Advanced Driver Assistance Systems (ADAS).

The IMI forecast model assumes to be an ADAS qualified technician, the technician will need to reach a level 2 (or equivalent) or above in an ADAS qualification or accreditation. This is the same requirements to achieve TechSafe recognition.

Outside of the IMI, there are limited number of products offered by other Awarding Organisations to qualify in ADAS level 2 and above. These are GQA qualifications and SEG accreditation. Moving forward, other elements to be considered are ADAS modules within Scottish apprenticeships and optional ADAS modules.

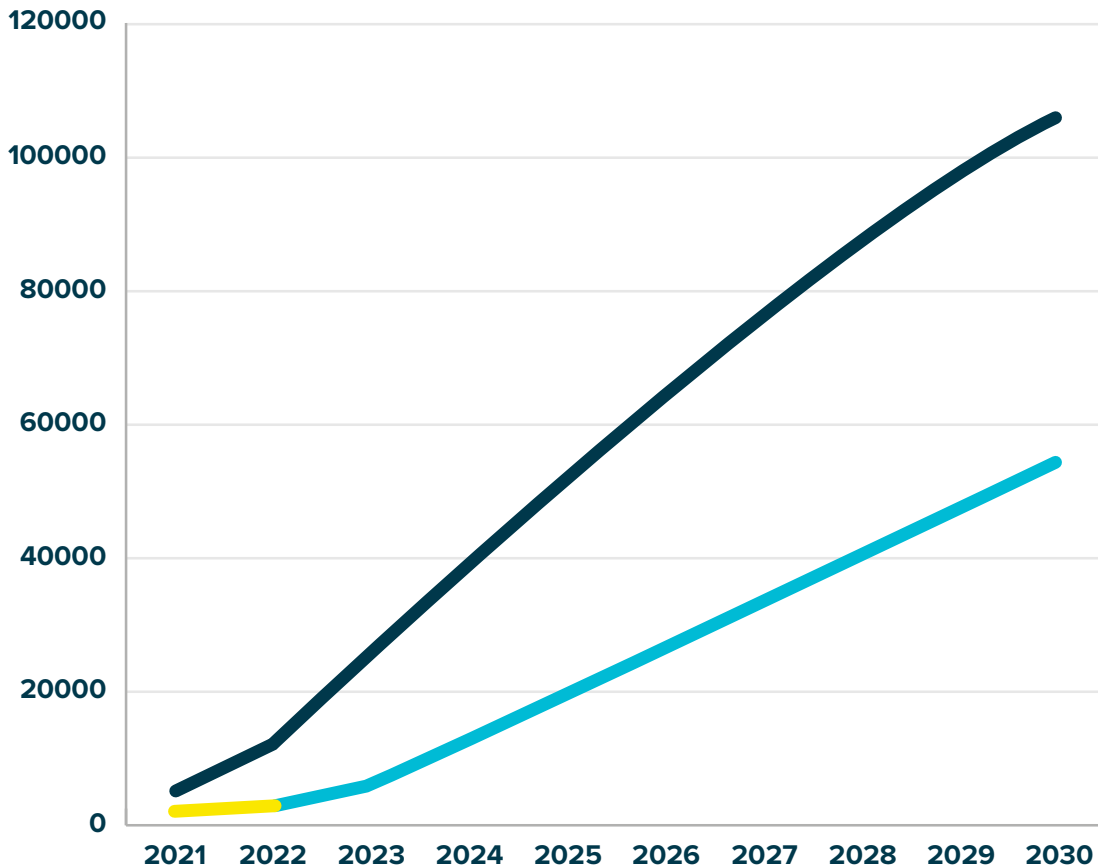
IMI has a long-established accreditation programme and in 2022 launched a level 2 and level 3 ADAS qualifications.

It is important to note that there is also a significant amount of ADAS training that takes place outside of the qualification arena. This analysis, though, is focussed on regulated qualifications specifically.

# Skills Gap

## Sector wide – all technicians

Forecast gap between predicted Cars with L2 autonomy on UK roads and the number of ADAS qualified technicians



- Minimum ADAS qualified technicians
- ADAS TechSafe eligible qualified
- ADAS TechSafe eligible qualified forecast

The IMI estimate that as of the end of 2022 there were 3000 technicians ADAS qualified in the UK. This highlights that there is already a skills gap when considering the number of cars with level 2 autonomy (5% of the UK car parc) compared to the number of technicians qualified. This gap is currently in the region of 3000 to 9000 technicians and is set to increase to 51,000 by 2030. In order to meet the demand of 44% of the UK car parc having level 2 autonomy by 2030, we estimate that the sector will require 106,000 technicians qualified to work with vehicle with ADAS by 2030.

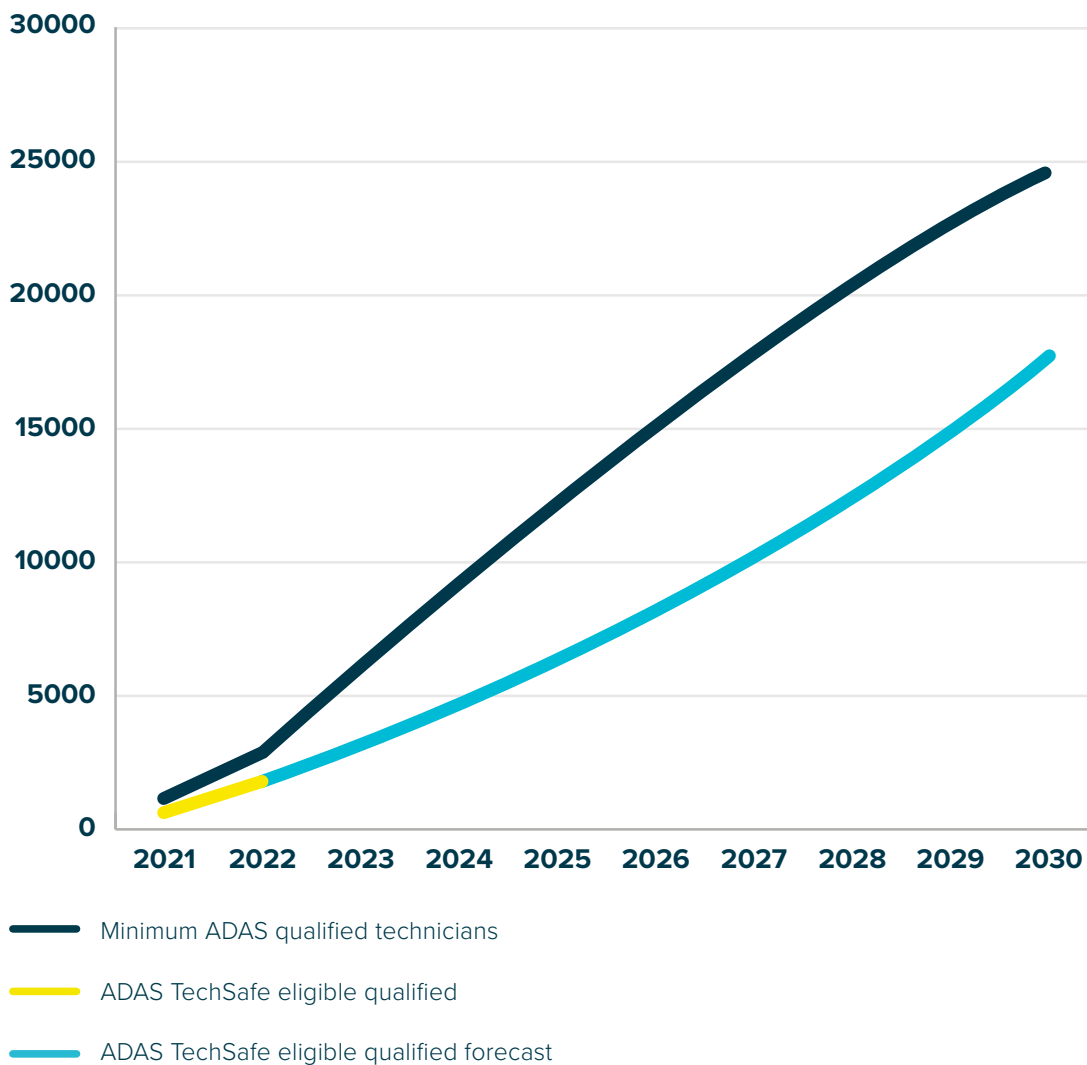


## Accident & Repair, Body and Glazing subsectors

Several subsectors mainly accident repair, body and glazing due to exposure to this technology are further on the journey to being qualified to work with ADAS systems and so a second forecast has been produced focussing on just those from accident repair, body and glazing subsectors and occupations.

The accident and repair, body and glazing sector in the UK is a significant part of the country's automotive industry and plays a critical role in repairing and restoring vehicles after accidents. This sector is made up of a large number of independent repair shops, as well as dealership networks and large, multi-site repair organizations. To remain competitive, businesses in the sector must invest in the latest tools and technologies, as well as training for their workers to ensure they are able to repair the latest vehicles and their increasingly complex systems.

### Forecast gap between predicted Cars with L2 autonomy on UK roads and the number of ADAS qualified technicians in accident & repair, body and glazing sub sectors



The IMI estimates that there are 53,000 employed in technician type occupations within the accident repair, body and glazing subsectors. Of these, we estimate that there are currently 1800 technicians ADAS qualified. Estimates are that we will require 25,000 technicians ADAS qualified by 2030 in this subsector. Indications are that although there is currently a small skills gap, those qualifying has broadly been keeping up with the demand to date. However, a significant skills gap appears as early as 2023.

# Appendix

## Model data sources

- **L2 Vehicle numbers:** IMI calculations interpreting Vehicle licensing statistics data files (vehicles registered & vehicle registered for first time)
- **Technician forecasts:** IMI calculation interpreting EMSIE SOC data (2022)
- **Autotrader total car parc projections:** new release December 2022
- **Techsafe figures:** All 4-nation qualification regulatory board published data (Ofqual, SQA, CCEA, Qualifications Wales) 2021 – 2022Q3. 2022Q4 IMI data



# ADAS Development Solutions

The IMI have a number of nationally-recognised ADAS qualifications and accreditations which allow you to demonstrate that your knowledge, skills and competence are of the standard required to work in automotive.

## IMI Accredited Assessment

Advanced Driver Assistance Systems (ADAS) – Calibration



## IMI Qualifications

IMI Level 1 Award in Advanced Driver Assistance Systems (ADAS) Awareness

IMI Level 2 Award in Advanced Driver Assistance Systems (ADAS) Calibration

IMI Level 3 Award in Diagnosing, Rectifying and Recalibrating Advanced Driver Assistance System (ADAS) Components



# CPD Framework – ADAS

Stay current and w registered by completing approved CPD (a three year cycle)

CPD credit requirement: 10 CPD credits\* across the 3 year CPD cycle. Recommended 3 to 4 CPD credits per year.

### Subjects:

- **Safety issues** (updated guidance, codes of practice, HSE, manufacturers' recommendations and Insurance Industry Requirements (IIR))
- **Terminology** (from manufacturers' information)
- **Sensors and actuators** (updates, operation, new methods)
- **Accident repair and refinishing** (methods, safety, guidance/requirements)
- **Practical processes** (manufacturers' recommendations, servicing, methods/techniques)
- **Tools and equipment** (general/special tools/equipment, alignment system updates to software/hardware)

\* The IMI use credit-based CPD system where 1 CPD credit is equal to 1 hour of learning.



Please visit our website for further information [theimi.org.uk](http://theimi.org.uk)

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