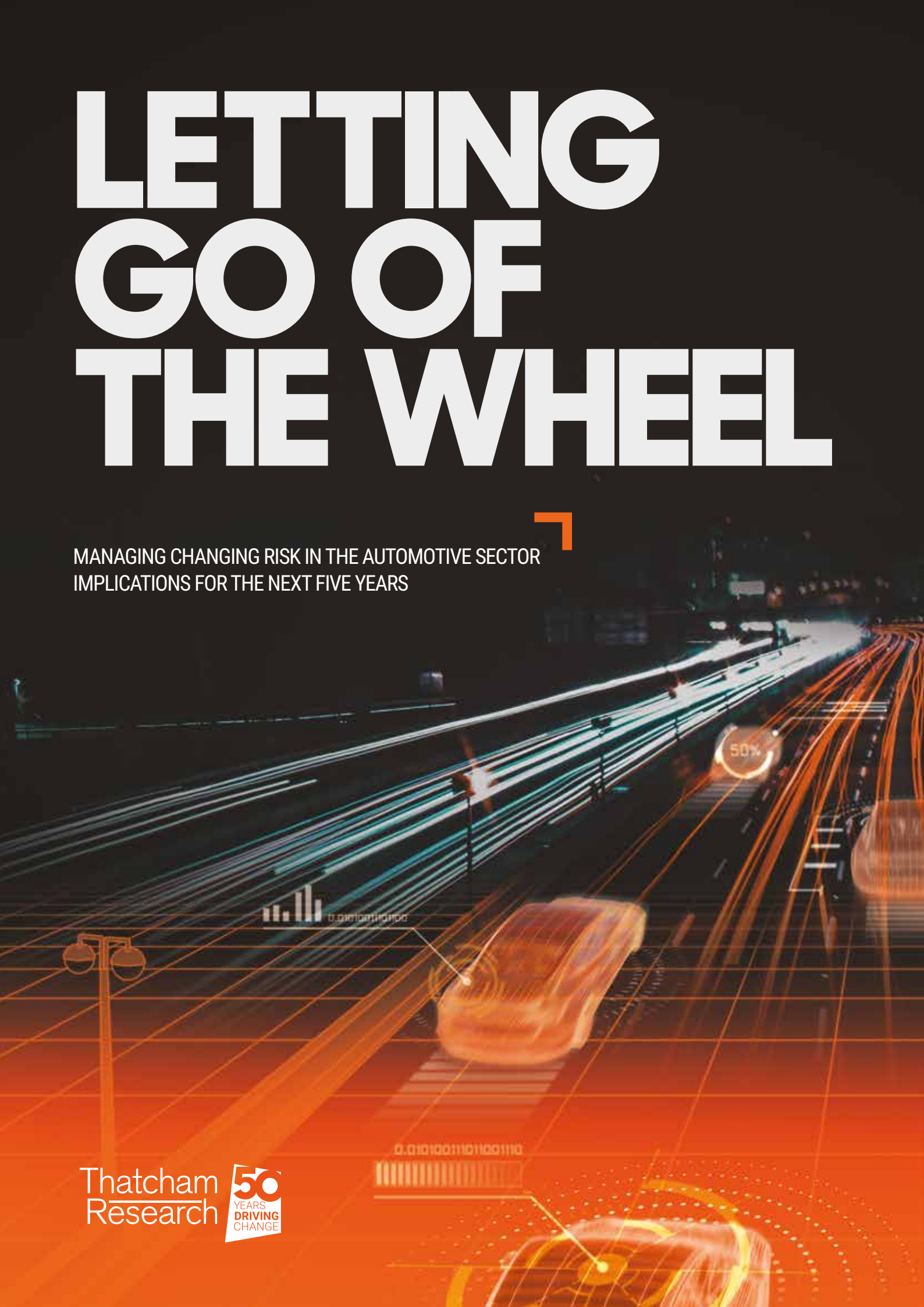
LETTING GO OF THE WHEEL

MANAGING CHANGING RISK IN THE AUTOMOTIVE SECTOR
IMPLICATIONS FOR THE NEXT FIVE YEARS



Thatcham Research
50 YEARS DRIVING CHANGE

Thatcham Research

50 YEARS DRIVING CHANGE

The UK Government made a very clear statement of intent in 2018 when the Automated and Electric Vehicles Act 2018 received Royal Assent. As Jesse Norman MP, Roads Minister commented at the time: **“This act will ensure that the UK’s infrastructure and insurance system is ready for the biggest transport revolution in a century.”**

The Act paved the way for changes to UK law around the sale and use of automated vehicles; amendments to existing compulsory third party insurance framework by extending it to cover the use of automated vehicles; as well as mandating an electric and hydrogen powered vehicle charging infrastructure.

While a revolution might be a stretch, what is clear is changes are on the way and being driven by the UK Government’s industrial strategy to promote the development and deployment of both automated and electric vehicles. This combined with incentives for company car drivers, who represent nearly 50% of the UK car parc, to switch to zero emission cars, are key to driving penetration into the car parc.

Change is inevitable.

A HANDS-ON APPROACH TO HANDS-OFF DRIVING

There are many projections about what shape the automotive market will take in 2025. This document seeks to clarify the future issues, risks and opportunities in the sector and reveal how Thatcham Research is preparing to help the industry meet these challenges.

The UK car parc is becoming significantly more complex in terms of how vehicles are manufactured, the powertrains they use, the introduction of newly automated and connected systems, and new ownership models in the shape of Mobility as a Service.

These factors make it increasingly complicated for insurers to calculate premiums for new vehicles and to put things right in the event of an accident.

Following 50 years of hardware-oriented testing, Thatcham Research is developing expertise to ensure software-based systems can maintain the levels of safety and security motorists need for the life of the vehicle. Think of a PC or smartphone, they are constantly updated to fix security vulnerabilities and add greater functionality. The same will be true of vehicles, so we must gear up for this more agile future. To meet this challenge, Thatcham Research is becoming more dexterous with data. We'll employ more analysts to model what's happening, and we'll provide insurers with intelligent insight – not just lots of big data.

To allow consumers to reap the benefits of new technologies, we must ensure motorists know how to use them safely and in the correct contexts. Without this safety-first principle enshrined in new technology adoption, our roads will become more dangerous and it will take considerably longer to reap the benefits that assisted and automated systems can bring.

By being relentlessly inquisitive, Thatcham Research will ensure that UK motor insurers are well prepared for the changing risk dynamics as vehicles move from the analogue to the digital age.

Jonathan Hewett
Chief Executive Officer, Thatcham Research

"By being relentlessly inquisitive, Thatcham Research will ensure that UK motor insurers are well prepared for the changing risk dynamics as vehicles move from the analogue to the digital age."

50 YEARS OF DRIVING CHANGE

For half a century, Thatcham Research has worked with carmakers, insurers, government and other stakeholders to make motoring in the UK as safe as possible.

Our business was established by the motor insurance industry in 1969 to contain or reduce the cost of claims while maintaining safety standards.

It's an exciting time for everyone in the automotive industry, and Thatcham Research's relevance is growing all the time. Since opening our doors 50 years ago, our role has expanded to include:

- Testing the safety and security of new cars
- Developing procedures for the European New Car Assessment Programme (Euro NCAP)
- Building data sets and intelligence to underpin vehicle risk assessment (Group Rating)
- Lobbying regulators for the safe and sustainable introduction of new technologies
- Developing cost-effective repair methods
- Providing technician training

We're proud of the successes we've achieved. Since the Euro NCAP tests were introduced more than two decades ago, the number of people killed or seriously injured on the UK's roads has been reduced by 57%. Our stringent tests ensure that the top five-star rating is always harder to achieve each year. As our workload increases, so does our value to the industry.

Thatcham Research's value to UK insurers alone is expected to reach £700m[1] by 2020. We remain the UK's only insurer-funded research centre with a proven track-record of helping the industry to manage changing risk in all its forms.

"Thatcham Research continues to work closely with Euro NCAP to develop new protocols and testing methodologies for advanced driver assistance systems and for automated driving. With its focus set firmly on the future of motoring and mobility, Thatcham Research is a key player in the field of automotive safety."

Michiel van Ratingen
Secretary General, Euro NCAP

[1]The financial benefit of Thatcham Research to UK insurers is calculated on current and future activities where it has an impact on vehicle safety and security, the reduction in key to key times, as well as delivering underwriting benefits through data provision.

50 YEARS OF KEY ACHIEVEMENTS

SAFER ROADS

Our work around the introduction of Euro NCAP tests for whiplash and AEB have helped reduce fatalities and crash frequency. This, and a combination of transport initiatives, government policy and vehicle specifications, now means that the UK's roads are among the world's safest. Between 1997 and 2017, deaths on our roads were halved from 3,599 to 1,793.

INDUSTRY VOICE

The Association of British Insurers estimates that lobbying by Thatcham Research has enabled the adoption of Autonomous Emergency Braking (AEB) on vehicles to be accelerated by six years. 12% of the UK's car parc is now AEB enabled.

IMPROVED SECURITY

Thatcham Research issued a group standard rating for alarms and immobilisers. In 1992, there were 620,000 recorded car thefts. By 2016, that figure had dropped by 80%.

OUR PEOPLE

We're proud of our record as an employer of top talent within the industry and employ more than 175 people across research, data analysis, IT/Digital, testing, evaluation and training.

We offer cutting-edge training and career development to our employees. This, in turn, is of great benefit to the wider automotive sector, which recognises Thatcham Research as a provider of critical expert analysis and a constant at a time of great change.

HIGHER STANDARDS

Since 2012, we've awarded 23 cars a five-star Euro NCAP rating, eight a four-star rating, and two a three-star rating.

RAPID TRANSITION: THE NEXT FIVE YEARS

The automotive industry is undergoing seismic shifts. The pace of change between now and 2025 will be faster than at any point since Thatcham Research was founded.

Electric and hybrid vehicles are powering a motoring revolution. Already, the sector is beginning to reduce its burden on the environment. It's a welcome dawn for cleaner driving but there's lots more to do to reach our target of zero emissions.

Meanwhile, Automated Driving Systems (ADS) will accelerate the pace of change. But innovation brings with it new security and safety considerations for insurers, legislators and carmakers.

Among them: What technology is fitted to the vehicle and have any software updates changed it's functionality or performance characteristics? Who is in control – a human or ADS?

Our data will provide the answers.

Five areas of great change in the next five years:

AN AGE OF DIVERSITY

We'll see a dramatically diverse car parc in 2025. About 1 % of vehicles will feature some form of automation by then, we expect that figure to accelerate quickly.

Electrification will be familiar with most UK motorists in five years. Around 10% of the car parc will have built-in electrification by 2025, in turn aiding the vital push for cleaner driving.

And the brakes are off connectivity. From in-car entertainment to systems that speak directly to appliances in the home, we predict 57% of all vehicles will include at least some connected systems in their infrastructure by 2025.

ELECTRIC DREAMS

We think electrification will spark the biggest short-term change in the automotive industry. Our prediction is that 30% of all new vehicles sold by 2025 will be electrified. For that reason, we must make sure these vehicles can be safely and economically repaired.

It's vital that anyone who encounters an electric vehicle (EV) battery cell – from accident first responders to bodyshop technicians – can deal with them correctly. We're constantly updating our education programmes to deliver the training the new landscape demands.

All the major vehicle manufacturers are investing heavily in EV platforms. The rise of electric and hybrid vehicles on our roads is likely to outstrip legislation, making our role in assisting UK motor insurers and body repairers more important than ever.

AUTOMATIC FOR THE PEOPLE

Although the projected share of the Automated Driving enabled car parc is predicted to be slightly less than 1% in 2025, the first such cars will hit the road by 2021. Thereafter, growth will escalate. Manufacturer spend on automation is second only to electrification expenditure.

However, **#TestingAutomation**, a study we commissioned with Euro NCAP to review current consumer understanding of automated driving systems revealed drivers have false impressions. Almost three quarters (71%) of motorists thought that they could already buy a fully self-driving car. Our view is that this is driven in a large part due to terms such as 'self-driving' and 'semi-autonomous' in carmaker's marketing. Similarly, only 51% of respondents thought they'd be liable in the event of a crash when using ADAS systems.

There is clearly lots of confusion. To keep people safe, and ensure the safe introduction of Automated Driving, the core principles that we have developed with UK Insurers, and lain out in our document "Defining Safe Automated Driving", need to be adopted by legislators and carmakers.

SAFER CONNECTIONS

The Society of Motor Manufacturers and Traders (SMMT) projects that up to 90% of new cars – and over half the parc – will be connected to the internet by 2025.

As 5G services boom, connectivity can be a great leap forward for safety: vehicles talking intelligently to each other to prevent accidents, for instance. Some Volvos already warn each other about poor driving conditions. Real-time traffic information could also boost fuel efficiency.

But as technology strides forward it risks tripping itself up. Cybersecurity will be vital to mitigate vulnerabilities, such as data theft during Over-The-Air updates and keyless entry.

The answer lies in progressively treating vehicles like computer on wheels. To stay on top of new threats, we assess every new car – including a physical attack and a penetration test.

ONUS ON NEW OWNERSHIP

The days of the motorist buying a vehicle and maintaining it for a decade or more are fast drawing to a close. Mobility as a Service (MaaS) means consumers can subscribe to their carmaker of choice. Drivers will be able to pick the vehicle that best suits their needs, wherever they are. For example, using a 4x4 for a sporty holiday.

MaaS will accelerate the shift towards commercially insured vehicles as fewer people are likely to buy cars in the future. As motor insurance becomes more about the vehicle than the driver, we'll help insurers adapt.

New forms of transport like driverless pods will appear, making the road environment ever more complex. We think that if they're on public roads, they should meet the safety standards set out in Euro NCAP. We'll lobby for legislation that's up to the task.

"The advent of autonomous driving, electrification and new mobility concepts, will make the next decade more disruptive than any before. With vehicle safety continuing to be a top societal goal, we will need to deal with new safety challenges around autonomous driving and challenges associated with high voltage electric vehicles.

"This makes the need for continual observation of accident statistics and identifying any changes to real world traffic and behavioural trends, so that we can adopt to them accordingly, even more important. Ultimately, it will require us to strengthen our activities around virtual assessments as well as deepening our wider understanding of driver behaviour in this period of rapid change."

Klaus Kompass
Vice President Vehicle Safety, BMW Group

EMBRACING THE FUTURE

“At Microsoft, we believe there are four major trends disrupting the automotive industry. Whilst the shift to Connected, Autonomous, Shared, and Electric Vehicles presents the industry with significant opportunities, for some participants these innovations may represent an existential threat.”

Microsoft

John Stenlake
Automotive Lead, EMEA, Microsoft

REASSURING THE INSURERS

Insurer techniques used for the last 50 years will face increasing pressure. Chief among those challenges is connectivity. As stated, Over-the-Air updates can significantly increase risk, such as changing the performance dynamics of the vehicle or vulnerability to data theft.

Cyber-crime as a whole is a great concern. Thatcham Research was a member of the government-funded 5StarS consortium that developed a framework to help carmakers, insurers and consumers understand the threats of connectivity, and how to mitigate against them in design and development. The output could be a risk rating system similar to Euro NCAP.

Meanwhile, we’re developing tools for the insurance industry to underpin pricing strategies with technology. It’s difficult to set prices in an era of so many moving parts, such as power output that changes overnight.

Access to data will be essential. We’re discussing it with the DVLA and others. **Thatcham ratings will evolve to give insurers the information they need about individual vehicle functionality.**

Automation will be a game-changer. It won’t be long before drivers can engage in secondary tasks – from playing games through the vehicle’s infotainment system to sleeping – thanks to ADS.

But this will make liability difficult to determine. For example, the carmaker might be to blame – and the driver entitled to compensation – if an accident or injury is caused by a vehicle in automated mode. We are working with the international insurance community and regulators at the UN to ensure insurers get access to the data that identifies who was in control of the vehicle in the event of a crash.

Finally, Mobility as a Service (MaaS) changes the landscape for insurers. Drivers will increasingly take to unknown roads in unfamiliar vehicles, bringing greater risk of distraction.

SAFETY STILL COMES FIRST

Thanks to active safety systems, accident volumes should drop significantly. Thatcham Research projects a 5% decrease in the number of serious collisions on UK roads between 2019 and 2025. This is good for the volume of claims but, more importantly, good for society.

Our work with the Society of Motor Manufacturers and Traders (SMMT) and car makers globally, especially on new safety technologies, reassures consumers while helping insurers to validate the effectiveness of new systems in reducing risk.

Yet there is work to be done. Euro NCAP safety assessments exist for passenger vehicles but there is nothing similar for Light Commercial Vehicles (LCVs). There isn’t the same level of take-up of safety features, such as AEB, in vans. Thatcham has initiated discussions to introduce a scheme to to accelerate and encourage fitment.

FIVE-STAR SECURITY

Sadly, vehicle crime is becoming more organised, high tech and is exploiting features such as keyless entry. A vehicle can never be made 100% secure. It's a case of not if, but when a vulnerability is discovered. **To combat new threats, we assess the ability of each new car to resist physical and cyber-attacks.**

Motorists will soon use their mobile phone as a car key. This gives carmakers a headache. Most software updates on mobile phones are security patches – so how will it be possible to ensure everyone is running the latest versions?

As outlined above, Thatcham Research is part of a consortium devising a new standard for cybersecurity, which presents a whole new raft of risks. We've also been involved in developing the UN standard on automotive cybersecurity, and the closely aligned ISO/SAE 21434 standard covers both vehicles and corporate structures.

When the standard is published in 2020, we'll push for accreditation to ensure it is followed by carmakers and others in the supply chain.

FROM DESIGN TO REPAIR

We're asking vehicles to be simultaneously stronger and lighter. Carmakers are using innovative design and new materials to meet safety strictures - but many vehicles are harder to repair. We're rolling out guidance to push repair up the corporate agenda at carmakers.

Returning a car to its pre-accident condition is a very different proposition than it was a decade ago. As the guardian of vehicle safety and security, we'll continue our rigorous approach to researching new technologies, and pushing for **sustainability and repairability to be built in at the design stage**.

The ability to identify ADAS is critical for bodyshops to carry out safe repairs and calibrations. We propose that every vehicle entering a garage should be assessed for ADAS. If sensors become part of a repair specification, calibration must be completed to confirm sensors are functioning to the vehicle manufacturers' specified tolerances. Even if a vehicle doesn't have ADAS, a note should be made that no calibration is required.

We're also working with carmakers, insurers, windscreen repair and replacement companies, equipment providers and repairers to develop an ADAS Code of Practice. For their own piece of mind, the general public, insurers and repairers need proof they've taken all reasonable steps to reinstate safety functions before returning a vehicle to the road.

For the future, we are pushing for self-aligning ADAS systems that maintain their functionality through the life of the vehicle, and clearly indicate to the driver when a fault occurs.

TRAINING FOR TOMORROW

Education will play a major role in the next five years and beyond. Modern bodyshop technicians need to be able to use diagnostic tools for sensors as well as they can repair panels. High on our agenda is finding increasingly efficient ways to define what must happen with ADAS systems in the repair process.

What was taught 20 years ago needs to be updated in a new, high-tech era of change. The average age of a technician is 47, meaning there is room – and a need for – younger generations to enter the industry.

With investments being made into the industry, it's a great time for young people to consider an automotive career.

There are huge opportunities for digital natives, and we sit at the cutting edge. For example, within our Academy we use the latest educational technology for more efficient training.

We are constantly using research to improve our repair methods and technical training, to understand each new function or feature from the perspective of insurers, carmarkers, drivers, repairers and others. **We'll maintain our comprehensive, industry-wide range of training courses to suit the needs of today and tomorrow and continue to attract new talent into the sector through our Apprentice scheme.**

"In the next three to four years, we expect to see ADAS across 100% of our passenger car fleet. Our focus is always around customer safety and therefore it's essential to manage the correct and efficient repair of these technologies through a robust vehicle repair structure. Key to this is making sure that we don't have knowledge or skills gaps across our business or our repair network, as well as having compliant body shop capacity.

"Increasingly though, one of the key issues for the industry is quick and easy access to Model Year Data for new or facelifted vehicles. We are seeing an upward trend in the severity and cost of repair, and this, combined with a lack of parts availability on new vehicles, means we are beginning to see longer key to key times with vehicles being off the road for greater periods of time. The impact of this lack of data for an organisation like ours is reduced fleet utilisation that directly impacts our bottom line."

Craig Feather
Assistant Vice President
Vehicle Repair/Service Operations Europe, Enterprise Holdings

STEERING A COURSE THROUGH CHANGE

For the past 50 years, our mission has been to drive change, while constantly improving the safety of motorists and the reputation of the industry. We face the future with the same objective – providing leadership around rapid developments in automotive technology, mobility and insurance.

We're urging carmakers to follow criteria set out for the safe introduction of Automated Driving Systems that are designed to clarify a range of issues, from naming of systems to user monitoring.

Our Insurance Rating data will evolve fast to provide Members with critical insight into the benefits and risks associated with complex, technology advanced cars.

We're setting the standard for how emerging automation performs. We're leading the debate at a legislative level, and working with carmakers, Euro NCAP and international standards bodies to define and develop test protocols to ensure the rigorous testing and evaluation of automation systems.

As the guardian of vehicle safety and security, we'll continue our rigorous approach to researching new technologies, and making repairability and sustainability an imperative at the design stage.

Our connectivity studies are ongoing to understand the benefits and challenges it brings. We are collaborating with carmakers so they understand the vulnerabilities and can act accordingly.

We will tackle cyber-security by identifying the people we need to be talking to, building relationships and using the best technologies available.

At a time of great change, our vision and objective is to ensure that every vehicle on the road in five years' time is safer than those being driven today.

“For half a century, Thatcham Research has worked with carmakers, insurers, government and other stakeholders **to make motoring in the UK as safe as possible.”**

Thatcham Research 50 YEARS DRIVING CHANGE

Thatcham Research

50 YEARS DRIVING CHANGE

www.thatcham.org