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► The mainstream adoption of battery electric vehicles heralds a transformative era in the automotive industry. QBE Europe looks at the high-stakes impact of batteries on motor insurance, examines what will it take for British fleets to go electric, and unpacks the impact of the UK'S Automated Vehicles Act on insurance, pricing and liability

Mitigating risk for electric and self-driving vehicles



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The mainstream adoption in recent years of battery electric vehicles heralds a transformative era in the automotive industry – one with profound implications for the insurance sector.

As BEVs become more prevalent – the UK saw 41 per cent growth between 2022-23 – insurers are grappling with a number of significant challenges, exposing a lack of readiness for this new era in sectors from repair centres to charging networks. This lack of preparedness, combined with the unique characteristics of BEVs, is pushing underwriters to rethink traditional approaches to adapt to a rapidly evolving landscape.

Sleeping at the wheel

The projected increase in BEVs in the car parc is not being matched by readiness across all the sectors required to support the transition. Automotive services, including battery repair and recycling centres, parts suppliers and charging networks are struggling to keep pace with the rate at which BEVs are coming on to the market. This disparity creates bottlenecks, particularly in repair and maintenance services, where the necessary skills and equipment for handling BEVs are in short supply.

Traditional internal combustion engine vehicles have dominated the market for so long that the infrastructure and expertise required for BEVs are still in their infancy. The gap is becoming more pronounced as the number of BEVs on the road increases, leading to longer repair times and higher costs for insurers.

Battery costs: A high-value dilemma

The cost of batteries relative to the value of the vehicle presents another significant challenge. Batteries are the most expensive component of a BEV

Charging ahead

Thomas Williams writes about the high-stakes impact of batteries on motor insurance, and the challenges insurers face when navigating the cost and complexity of claims in the electric vehicle battery boom





and their replacement cost can often be a substantial portion of the vehicle's overall value. This creates a financial strain for insurers when damaged, as the cost of battery replacement must be weighed against the total insured value of the vehicle.

According to a report from Thatcham Research, BEV incident claims are currently about 25.5 per cent more expensive than their ICE equivalents and can take some 14 per cent longer to repair.

According to the research, collisions involving a BEV can be catastrophic for the vehicle as understanding and competence in rectifying the damage continues to develop. Thatcham specifically points to a concerning lack of affordable or available repair solutions and post-accident diagnostics.

Often, the high cost of batteries can lead to vehicles being written off as total losses, even for relatively minor damage. In addition to expensive disposal or recycling processes this is driving up claims costs and in turn insurance premiums.

Likewise, the disparate repair requirements and varying guidance for BEVs are causing growing concern. Unlike ICE vehicles, BEVs

require specialised knowledge and tools for repairs and the lack of standardised repair protocols adds complexity.

Every BEV manufacturer uses a slightly different battery technology, platform and design, each with distinct repair and maintenance needs, creating a lack of uniformity in repair practices. This inconsistency complicates the repair process, stretching the required knowledge of battery repair engineers and leading to longer vehicle downtimes and higher repair costs.

The varying array of installation, maintenance and repair practices makes it challenging for insurers to develop standardised policies and pricing models, complicating the underwriting process, and increasing uncertainty. These are significant risks, the costs of which are ultimately borne by insurers and in turn, consumers and business.

Sustainability shortfall

The environmental credentials of BEVs receive plenty of headline attention but when it comes to battery diagnostics, repair, recycling and salvage, serious sustainability questions are raised. Effective

battery diagnostics and repair can extend the life of batteries, reducing the need for replacements and minimising environmental impact. However, the current infrastructure for battery recycling and salvage is underdeveloped, leading to inefficiencies and sky-high costs. Insurers are keen to highlight the importance of the second life use and recycling conundrum, but more concerted efforts are needed to develop sustainable practices that can support the growing number of BEVs on the road.

Changing lanes

Looking to the future, insurers must revolutionise their approach to battery data analysis, move away from outdated risk models, and adapt to new strategies that fit the changing landscape. For claimants, this shift will mean facing a more complex and potentially costlier insurance environment.

The industry can no longer afford to stay in the slow lane; insurers must prioritise cutting-edge expertise, advanced data analytics, robust infrastructure and support genuinely sustainable repair practices to address the emerging risks. In the coming years the potential rapid uptake of BEVs may usher in a more efficient and environmentally friendly automotive sector – but only if the insurance industry can step up to meet the emerging risks, playing a central role in maintaining affordability for customers and enabling the successful transition to sustainability.



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Fleet operators are being encouraged to spearhead the transition to electric vehicles – but it's a big challenge

Misinformation on the strengths and weaknesses of EVs is widespread. Earlier this year, one newspaper was forced to apologise for fabricating a story about electric vehicles causing potholes, while Richard Bruce at the Department for Transport recently argued that parts of the UK press operate “a concerted campaign of misinformation” on EVs.

But while mainstream media often loves to hate EVs, current research shows that more than one in five cars sold worldwide in 2024 is expected to be electric.

In fact, the growth is so steady that the number of EVs sold in the first three months of this year was roughly equal to the number sold in the whole of 2020, even while vehicle sales were suppressed that year due to the pandemic.

Despite the headlines, this positive trend isn't just global – EV demand is on the rise in the UK. There was a ten-fold increase in new electric car registrations in the UK from 2015 to 2022 – and as we inch

Amid widespread misinformation and misunderstanding of the strengths and weaknesses of electric vehicles, Jon Dye asks what will it take for British fleets to go electric?

closer to 2025, many companies are also considering the switch to EVs.

In the fleet sector, 2023 saw significant growth in EV adoption with 242,235 fully electric vehicles registered from a fleet total of just over 1 million – an increase of about 40 per cent over the previous year.

However, despite a jump in registrations, the EV market share has fallen to 16.5 per cent, showing a lingering preference for internal combustion engines for fleet use. In some cases, companies are also returning to ICE fleets from electric – Hertz in the US announced the sale of 20,000 of its EV fleet in January due, in part, to high repair costs.

So, what will it take for fleet managers in the UK to follow their dreams and transition to electric?

A different league of repair costs

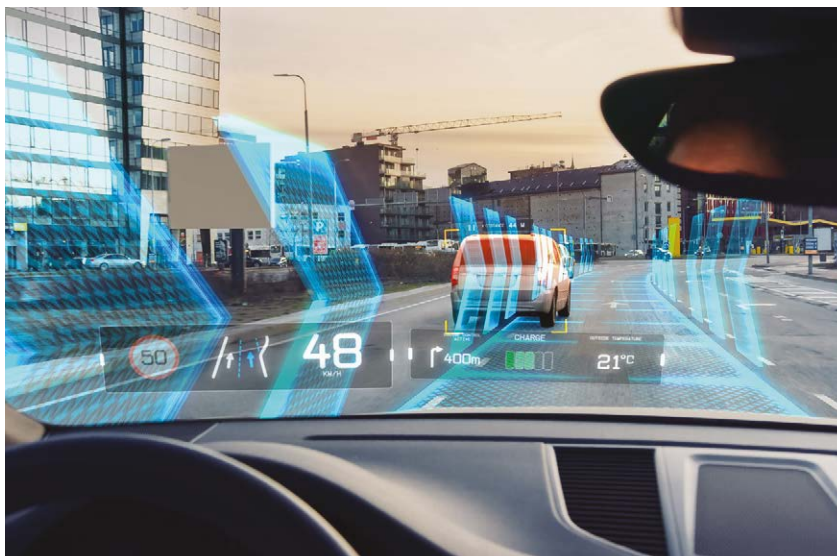
While EVs are more expensive out of the box than ICE there are more subtle factors preventing a smooth transition. Insurance claims alone for EVs are 25.5 per cent more expensive compared with their petrol equivalents.

While above average premiums may be one blocker, the higher cost of repairs is a major factor holding back EV adoption – and the price of insurance is purely reflective of this.

The most significant claims challenges originate from high voltage battery damage. EV design largely positions the battery and related systems in the floor of the vehicle chassis with mounting points under the side sills, making them vulnerable to collision damage. In short, repairs will be more expensive and complicated because multiple areas of the car can need repair, even when a collision is minor.

A Thatcham Research assessment indicated that EVs with single-zone body damage have a battery damage probability of 1.5-7.5 per cent. In comparison, EVs sustaining damage to multiple zones have a 25-35 per cent probability and damage to the vehicle's underside was considered to represent an 85 per cent probability of battery damage.

A battery may allow manufacturers to reduce the number of components in a vehicle, but this also means it is very difficult to isolate any problem within the battery, even if it only



relates to a single cell. Replacing an entire battery is a significant cost, in some examples higher than the list price of the vehicle, not to mention additional charges to dispose of a damaged battery.

Under the circumstances, a great many EVs may be classified as a total write-off after an accident, as repair and/or battery replacement could cost more than the residual value of the car.

Data-driven modelling produced for Thatcham Research shows that 9,400 vehicles on UK roads were involved in an accident which could result in battery inclusion in 2022 – and this figure could hit 260,000 vehicles annually by 2035.

We expect insurance premiums in the short-term to continue to increase, reflecting the higher cost of repair – but the UK's sophisticated insurance market can play a role to make substantial investments in understanding EVs, mitigating risks and reducing costs in the longer-term.

Addressing the skills shortage

Repairing EVs requires entirely new and specialised skills, which involve training, infrastructure and most importantly, funding.

The Association of British Insurers says EVs are taking 14 per cent longer to repair. QBE's own data shows that when looking at Tesla in isolation, there was a 93 per cent increase in repair costs compared with ICE vehicles and a 25 per cent increase in time off the road.

A key reason for this is a shortage of mechanics qualified to handle lithium-ion batteries. Repairing electric vehicles is infinitely more complex and costly compared with ICE vehicles. You do not want to touch a damaged electric vehicle unless you've isolated the battery and are trained to repair or dispose of

it – and unqualified mechanics put themselves and those around them at risk of fatality if they attempt to.

According to the Institute of the Motor Industry, there could be a shortage of well over 16,000 EV-qualified mechanics by 2032 due to a declining uptake of EV qualifications and new training requirements.

The ABI says this deficit may further impact the cost of repair and cost of insurance. To mitigate this, the sector must prioritise recruitment and upskilling in 2024, attracting newcomers and evolving current skill sets, ensuring a sustainable next generation of mechanics.

Infrastructure lags behind

Nationwide, fleet operators face serious charging challenges when travelling long distances. Despite private funding like ChargeUK announcing a £6 billion investment in EV charging infrastructure, the issue does not wholly lie with money or motive – but with location, too. EVs have an average range of 250 miles – but over 45 per cent of UK charging points are in London and Southeast England.

EV charge point operator, Believe, also found that 33 per cent of all local authorities surveyed said they have no formal EV infrastructure plan, which won't go far to reassure fleet managers that infrastructure can keep pace with growing demand.

Improved and considered charging infrastructure across the UK could allay range fears and increase EV sales amongst fleets in 2024. Increased vehicle range as battery technology evolves also will play a role in supporting more sustained adoption.

Targets and incentives

Faltering EV uptake for British fleets may also be attributed to the

government's decision to push the ban on new ICE car sales to 2035 but to propel the EV industry forward we need more than just targets.

Incentives are vital: over 77 per cent of UK EVs consist of fleet cars or company cars which have been spurred forward by company car and salary sacrifice tax breaks – noting these are planned to diminish over the next few years but will still be attractive to many. The government needs to do more to support both businesses and consumers to take the leap. The Zero Emission Vehicle mandate, which drives car manufacturers to increase EV sales, may be one lever but more are required.

The road ahead

EVs behave differently and they drive differently. The UK needs substantial investment to equip workers with the right skills for swift and affordable EV repairs – and to establish a nationwide charging network that eradicates range anxiety.

The good news is that the UK has one of the most sophisticated and developed insurance markets in the world. As proved from the past, we will research, adapt and find solutions that support the EV transition and the broader economic growth that should align to this. Insurers continue to invest heavily in understanding EVs and with the right skills, incentives and investments, the shift from petrol and diesel vehicles to EVs will hopefully become an obvious and practical choice for fleet managers across the UK.



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Accelerating the transition to self-driving vehicles

What does the UK government's Automated Vehicles Act mean for the insurance industry?

The introduction of self-driving vehicles will profoundly change road dynamics, and I am pleased to see that the Automated Vehicles Act addresses key questions around responsibility and accountability. While I thoroughly support the introduction of the legislation, it's also critical that we stay focused on the importance of data sharing between vehicle manufacturers and insurers – it's only with this key data that insurers can support customers and fulfil their obligations within the new framework.

It is reassuring to see consumer protection singled out in the AV Act, but we equally need more emphasis

Jon Dye speaks to CIR Magazine about the impact of the UK'S Automated Vehicles Act on insurance, pricing and liability

on driver education and awareness. Eliminating misleading marketing is important but a robust training and evaluation programme is required to ensure that drivers understand what their automated vehicle is and – crucially – is *not* capable of. In my opinion, the Act stops short on this front.

Another key aspect of the Act for insurers will be the authorisation process for self-driving vehicles. AVs on the road in the UK will be expected to complete a self-driving test designed to meet rigorous benchmarks which form part of a statement on Safety Principles. This also includes a requirement that the

introduction of AVs will actively enhance road safety, rather than simply meeting existing standards. Insurers will be looking for clear visibility of the authorisation process requirements, not only to ensure that the product sold is the appropriate one, but to assess and price risk with accuracy and therefore provide fair value to the customer.

What is needed from driver education?

As Thatcham Research recently stated in its response to the AV Bill, it's critical that drivers (or in the future 'users in charge') have a clear understanding of a vehicle's



capabilities and their obligations regarding its safe use. Alongside auto sector education, manufacturers will also need to be transparent on what each specific vehicle is capable of at a point in time.

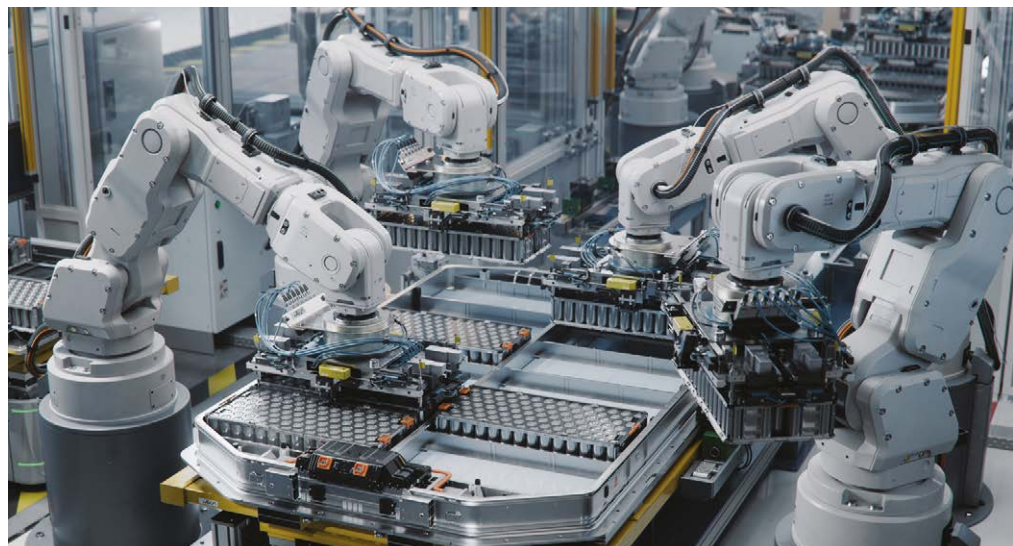
With some models likely to have the self-driving technology as 'optional', or as an 'over the air update' – meaning it would be possible to change a vehicle's capabilities overnight – it's imperative that the driver has a full and clear understanding of the vehicle's limitations post-update, and that they are adequately protected by purchasing an appropriate insurance product.

What issues do autonomous vehicles create around liability?

Secondary legislation is still needed to provide full clarity on the future handling of claims involving an automated vehicle. If liability for incidents is soon determined by the vehicle mode at the time of the accident, it will require the industry to reconsider current practices. This means that access to vehicle data will be needed and for it to be clear and understandable to claims handlers. Given that data differences across VMs exist this will mean that claims handling teams will need significant upskilling. These liability decisions could take significant time to understand and could therefore have significant impact on business as well as determining those who are able to receive compensation.

How will the introduction of AVs affect pricing?

Autonomous vehicles create challenges around current motor vehicle legislation and this will need to be fully understood and resolved before the impact on pricing can be fully assessed. This will need to



consider the process and likely success of subrogated claims against vehicle or technology providers for an accident occurring while the vehicle is in 'self-driving mode'. Vehicle systems, capability, age, and/or software updates could all become important factors to consider when pricing risks.

How will AVs affect damage repairs?

Although much of the technology required for autonomous driving already exists in newer vehicles, further technological development is needed for full autonomy. We can already see that the increase in vehicle technology creates challenges in vehicle repair complexity, leading to increased vehicle down time and costs. In addition, while it's expected that motor insurers will handle claims in the first instance, the claims journey will become more complex in relation to liability decisions, with customer experience and efficiency likely to be determined by insurers' access to vehicle data.

Are new risks emerging from this new technology?

Even with current vehicle connectivity, cyber threats already

exist in cars – however 'eyes off' driving further increases the potential impact of such attacks. Currently gaps remain relating to cyber threats in relation to the automated vehicle framework and current road traffic act legislation, including uninsured driving. These will need to be addressed by the government, prior to finalising secondary legislation.

One area of emerging risk with autonomous vehicles comes from the capabilities of individual vehicle manufacturer systems and an expectation that some will be better than others, for example handling certain road conditions, such as rain, rural areas/roads, urban areas and/or vulnerable road users. Understanding these systems, the risk they present and reacting in risk assessment accordingly will be important for insurers.



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