



RCAR

June 2026

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NEWSLETTER

NEWS FROM
RCAR INSURANCE
RESEARCH
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Sustainable
Vehicle Repair for
EVs

IIHS
New Whiplash
Prevention Test

KIDI / KART
Partnership for
Vehicle Data
Integration



Dear RCAR members
and readers,

This edition of the RCAR Newsletter highlights the breadth and strength of our global network. From advances in battery research and ADAS technologies to new approaches in training and repair processes, RCAR members are helping shape the future of mobility and insurance.

As our industry faces rapid technological change, international collaboration remains more important than ever.

For feedback or questions, please contact me at
clauterwasser@rcar.org

Christoph Lauterwasser, Secretary General of RCAR



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AZT-Paint^{PRO}: Advancing the industry standard for independent paint calculation



With AZT-Paint^{PRO}, AZT is modernizing its established paint calculation system to reflect current paint technologies, real repair processes and the increasing demand for transparent, reproducible claims calculation.

Repair painting processes are becoming more demanding. Modern materials, increasingly complex vehicle architectures and advanced coating technologies—including multi-layer coatings and tinted clearcoat systems—are raising the technical requirements for accident repair and, with them, the expectations placed on paint cost calculation.

Against this backdrop, AZT has undertaken a comprehensive update of its long-established paint calculation system, which has served for decades as a manufacturer-independent benchmark in international automotive paint calculation.

The result is AZT-Paint^{PRO}—a fundamentally revised calculation logic designed to map paint repair processes with greater granularity, technical accuracy and transparency. For insurers, experts and repair businesses alike, the objective is clear: strengthen consistency in estimates, reduce interpretive latitude in claims assessment and create a more robust basis for the settlement of claims.

Data foundation and core methodological enhancements

AZT-Paint^{PRO} is built on extensive time and material studies carried out at AZT and in independent paint shops under real repair conditions. The findings were systematically analyzed and incorporated into a new calculation model.

Key technical and methodological enhancements include:

- additional and more differentiated paint levels
- empirically recalibrated labor time values
- structured consideration of rework effort
- optional component specific additional items
- a more detailed process-oriented representation of paint operations

Market relevance for insurers, experts and repair networks

The strategic value of AZT-Paint^{PRO} lies in its ability to provide a standardized, transparent and reproducible foundation for calculating paint costs. For insurers, this creates a stronger technical basis for estimate validation and economically sound claims decisions. For repair shops and professionals, it improves traceability and practical applicability in day-to-day cost calculations. By better aligning its logic with real-world repair processes and current market conditions, the system is also designed to reduce disputes over additional paintwork as well as duplicate or unclear invoices. For insurers, this also means that the adjustment of the AZT Index 100 to country-specific repair procedures must be reconsidered.

Pilot implementation and technical validation

AZT-Paint^{PRO} is currently being validated in a pilot environment, with Austria serving as the first test market. Findings from this phase are feeding directly into further optimization of the calculation logic and its practical application. In parallel, AZT is continuing technical dialogue with market participants and system providers on topics such as allocation of services, additional items, and the avoidance of double counting —areas that are critical for broad market acceptance and reliable

implementation.

Rollout outlook: integration into claims calculation platforms

Full integration of AZT-Paint^{PRO} into claims estimating systems is planned for 2027. Given the complexity of the required changes on the IT and workflow side, implementation by our customers will take place through a transition phase. To support market introduction, AZT will provide expanded technical documentation and practical guidance through a comprehensive system description that will be available on the AZT website. As the industry continues to balance repair quality, process efficiency and cost transparency, AZT-Paint^{PRO} is positioned to become an important next step in the evolution of paint cost calculation.

Analysis of Battery Damage in Electric and Hybrid Vehicles

The increasing prevalence of electric and hybrid vehicles presents new challenges for insurers and repair shops, particularly in the regulation of damage to high-voltage batteries (HV batteries). These components are not only cost-intensive but also technically complex, making repairs and replacements more difficult. AZT did an analysis with the aim to examine the causes and frequency of battery damage, identify preventive measures, and explore cost-reduction opportunities through repair-friendly approaches.

The study was based on 86 real comprehensive insurance claims from Allianz between 2020 and 2024, of which 10% involved plug-in hybrid vehicles and 90% battery-electric vehicles. The analysis focused on identifying the causes of damage, the necessity of battery replacements, and the cost differences between repairs and replacements. A key aspect was balancing technical and formal manufacturer requirements with the effectiveness of preventive measures, such as underbody protection plates. The analysis revealed that battery replacements were carried out in 59% of the cases. However, 27% of these replacements were technically unnecessary, as the batteries were demonstrably undamaged. Besides few car fires, the main causes of damage included the activation of pyrotechnic safety devices and underbody impacts. Preventive measures, such as underbody protection plates, showed significant potential in reducing mechanical damage. Among 12 cases where HV batteries had to be replaced due to underbody damage, 10 vehicles lacked an underbody protection plate. Approximately 32% of the costs were attributed to manufacturer requirements, such as blanket battery replacements following the activation of a pyrotechnic fuse, unavailability of spare parts, or, in some cases, decisions made by assessors. These costs could have been avoided, highlighting the necessity of establishing cost-effective repair methods as an alternative to replacements.

The findings underscore that a significant portion of costs arises from unnecessary battery replacements driven by formal requirements. A stronger focus on repair-friendly solutions could not only reduce costs for insurers and repair shops but also enhance the sustainability of e-mobility. Preventive measures, such as increased use of protective devices, demonstrate clear potential to minimize damage in advance. Improved mechanical protection for the underside of batteries and adjustments to manufacturer guidelines are still not universally implemented and are urgently needed to address rising damage costs in the field of e-mobility. Similar to bodywork design, repair-friendly HV battery designs could contribute significantly to cost reduction.

Growth in Repair Certification

The sustainable repair workshop certification promoted by Centro Zaragoza continues to establish itself as one of the automotive repair sector's leading initiatives in Spain for promoting more environmentally responsible practices. There are currently more than 500 certified workshops across the country, reflecting the sector's growing commitment to sustainability and the circular economy.

The "CZ Sustainable Workshop" certification, developed by Centro Zaragoza as a benchmark automotive research and technical center, recognizes repair workshops that incorporate environmental criteria into their repair processes. Among other aspects, these workshops assess repair needs from a sustainable perspective, prioritize the recovery of parts, properly manage the waste generated, and implement improvement plans aimed at reducing the environmental impact of their activities.

The certification model is based on the four "R's" of sustainability: repair, reduce, recycle, and reuse. In this way, it promotes repair over the unnecessary replacement of components, the reduction of waste and emissions, the proper management of materials, and the use of reconditioned or second-hand parts whenever possible and safe.

Technological advances in the automotive industry and the progress of sustainable mobility have made this type of certification a key tool for the sector. In addition to contributing to environmental protection, the certification enables workshops to improve their processes, optimize resources, and strengthen their positioning with customers and insurance companies.

Sustainability is no longer a future trend, but a present-day necessity within the repair ecosystem. Through research, training, and certification, Centro Zaragoza continues to drive the transformation of the sector toward more efficient, responsible models aligned with today's environmental challenges.



Paint application in the spray booth

Centro Zaragoza's Presence at the "3rd Edition of the Annual International Seminar Combating Vehicle Trafficking and Insurance Fraud"

Centro Zaragoza's participation in this seminar, held in Morocco, reinforces our role in the fight against illicit vehicle trafficking and insurance fraud. In a context marked by the increasing complexity of organized crime at an international level, Centro Zaragoza's presence at this forum is strategic in promoting global cooperation, knowledge sharing, and the development of innovative crime prevention solutions.

For years, Centro Zaragoza has been carrying out intensive work in this field, collaborating with insurance companies, law enforcement agencies, and various national and international organizations in vehicle identification and the detection of irregularities linked to fraud and illicit trafficking. In addition, the organization works on the development of technological tools and databases that facilitate vehicle traceability and identification, helping to improve investigation and prevention processes.

The seminar brought together international experts, authorities, legal representatives, and technology providers, generating synergies to tackle complex criminal networks. Through this participation, Centro Zaragoza contributes to strengthening the protection of the insurance market, preserving consumer confidence, and promoting a coordinated and global approach to crimes with significant economic and social impact.



Seminar room during the event session.

CESVI ARGENTINA presented CESVI E-Lab **its electric Vehicle Laboratory**



The increase in the number of electric vehicles demanded that insurers have the appropriate technical infrastructure in place for the repair, diagnosis and final disposal of units with high-voltage batteries, in compliance with safety and environmental standards. With this in mind, CESVI ARGENTINA has once again taken a pioneering role, keeping pace with technological advances in the automotive industry and vehicle reparability.

During the 30 years of the Centre's existence, we have kept pace with developments in the automotive industry and the incorporation of new technologies to provide support to insurance companies, advise service centers, the repair market and the user. We have been studying electro mobility for some time, training our technicians, and now, with the creation of our CESVI E-Lab – a specialized laboratory for this type of vehicle – we reaffirm our commitment to anticipating challenges and evolving in step with a constantly changing environment.

In this context, the first phase of the CESVI E-Lab was opened on March 26, and the remaining facilities will be fully operational by the end of this year, thereby fully establishing our new laboratory.

For CESVI ARGENTINA, having a laboratory and recycling center specialized in electric vehicles was not only an operational need, but a **strategic decision** that combines safety, efficiency, sustainability and regulatory compliance.

The implementation of this laboratory strengthens insurers' ability **to manage next-generation claims**, optimizes technical resources, and reinforces their reputation for innovation and environmental responsibility.

The facilities and staff are trained to handle high-voltage systems and **manage high-voltage batteries safely**.

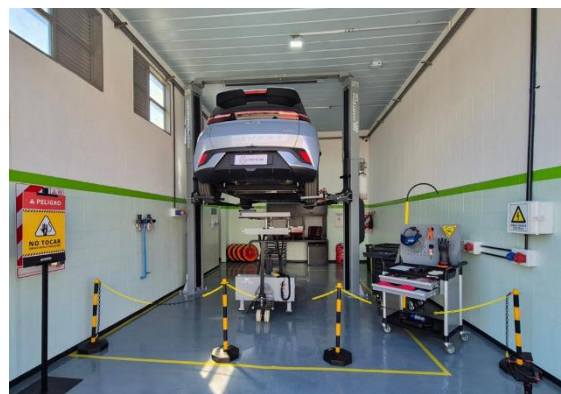
The site serves as a training ground for adjustment experts, inspectors and claims teams in the diagnosis, assessment and safety of electric vehicles.

The creation of the CESVI E-Lab came hand in hand with **the center for the dismantling and storage of batteries from written-off vehicles**, with the aim of advancing the analysis of such batteries, responding to the environmental and sustainability requirements of the insurers' parent companies.

With the creation of this new laboratory, CESVI ARGENTINA has consolidated its position as a technical leader in innovation and responsible management.



Members of the Board



Laboratory



Complete Project by the end of the year

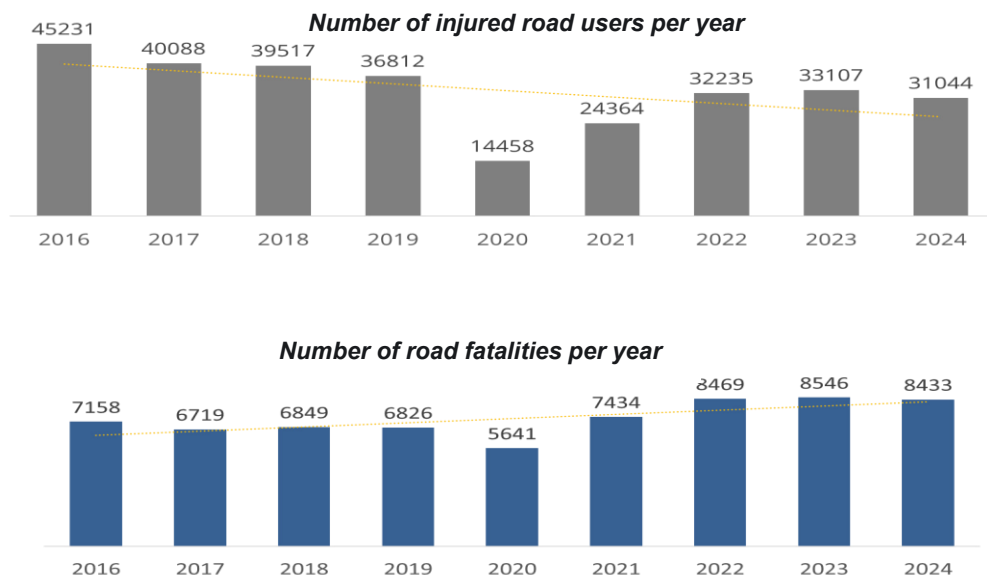
Introduction

Road safety continues to be a major challenge in Colombia. Despite efforts in regulation, infrastructure and enforcement, crash rates remain high, reinforcing road safety as both a public health issue and an economic sustainability concern. In this context, Advanced Driver Assistance Systems —ADAS— are emerging as one of the most effective strategies to reduce risk, particularly risks associated with human error, which is responsible for approximately 90% of road crashes.

ADAS technologies enable vehicles to anticipate risk situations through sensors, cameras and radar systems, allowing the vehicle to intervene to prevent or mitigate a crash. Their incorporation into the Colombian market represents a key opportunity to improve critical road safety indicators.

Crash Statistics in Colombia

Crash trends in Colombia reveal a persistent road safety challenge. Between 2016 and 2024, the number of injured road users decreased by approximately 31%, from more than 45,000 cases to around 31,000. However, over the same period, fatalities increased by 18%, rising from 7,158 to approximately 8,400 deaths.



This trend reflects an increase in crash severity. The road users with the highest mortality rates continue to be:

- **Motorcyclists:** 57%
- **Pedestrians:** 24%
- **Drivers and occupants of light vehicles:** 12%
- **Others:** 7%

The high share of vulnerable road users highlights the need for technologies capable of mitigating crash occurrence and reducing severity, particularly in both urban and interurban environments.

Evolution of the ADAS Market in Colombia

Unlike Europe and the United States, where ADAS technologies are already mandatory in several vehicle segments, Colombia does not yet have specific regulations requiring their incorporation or technical assessment.

In the local market, ADAS adoption has been gradual and mainly concentrated in mid-range and high-end vehicles. Systems such as:

- **Autonomous Emergency Braking —AEB—**
- **Forward Collision Warning —FCW—**
- **Lane Keeping Assist / Lane Departure Warning —LKA/LDW—**

have begun to gain market presence, driven by manufacturers' differentiation strategies and increasing consumer awareness. However, penetration remains limited in entry-level vehicles, which represent a significant share of the Colombian vehicle fleet.



Impact of ADAS: International and Local Evidence

International evidence demonstrates the potential of ADAS technologies to transform road safety. Studies based on data from insurers and research centers indicate:

- A 40% reduction in collisions
- A 37% decrease in injuries
- Prevention of up to 29% fatalities

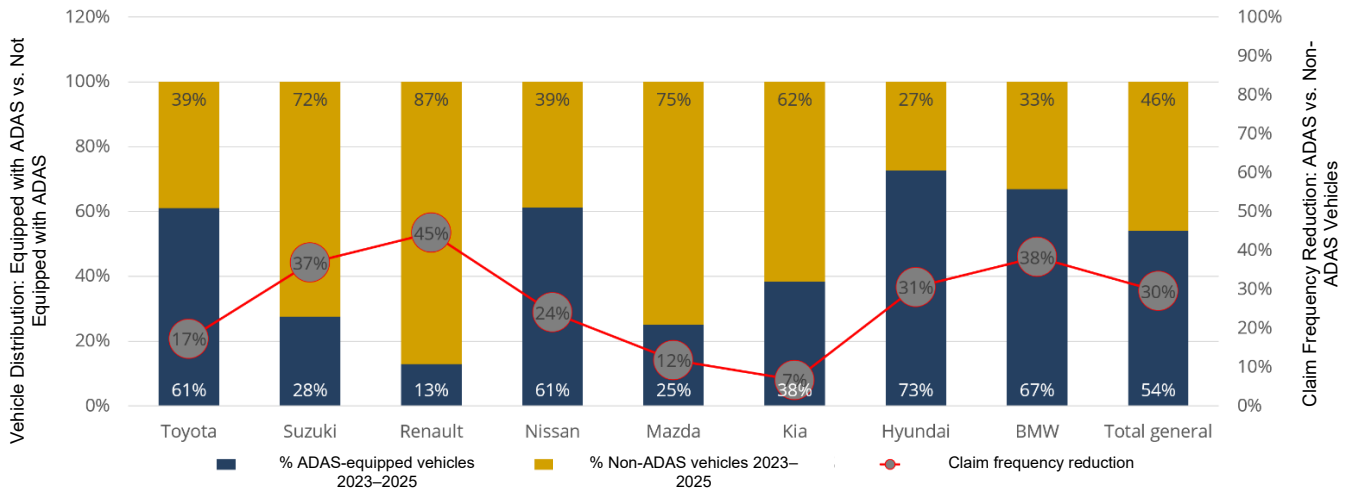
These results are mainly explained by the systems' ability to intervene in critical situations such as late braking, driver distraction or lane departure.

In Colombia, CESVI's analysis using consolidated information from Fasecolda for the 2023–2025 period confirms similar trends. When comparing vehicle lines with versions equipped and not equipped with ADAS, especially FCW and AEB—the analysis shows:

A 30% Reduction in Claim Frequency

This indicator, measured as the ratio between partial damage claims and exposed vehicles —PD claims / exposed vehicles— is particularly relevant for the insurance sector, as it reflects a direct reduction in event occurrence.

Reduction in Claim Frequency for ADAS Systems 2.023–2.025



- Claim frequency: Partial Physical Damage claims / Exposed vehicles
- Comparison of vehicle lines offering both ADAS-equipped and non-ADAS versions.

Implications for the Insurance and Repair Sectors

The incorporation of ADAS generates significant impacts across the entire automotive ecosystem value chain.

1. Reduction in Claims

Lower claim frequency implies a reduction in indemnity costs, supporting the technical sustainability of insurance companies.

2. Changes in Severity

Although these systems reduce crash occurrence, repair costs may increase due to the presence of sensors, radar units and cameras, which require new technical capabilities.

3. Need for Calibration

Proper ADAS calibration after repairs is critical. An inadequate intervention may compromise system performance and increase the risk of a crash.

4. Specialized Technical Training

Repair shops and collision repair centers must strengthen technical training to ensure appropriate repair procedures for vehicles equipped with these technologies.

Critical Success Factors in the Colombian Context

To maximize the impact of ADAS in Colombia, several factors must be addressed:

- User education: Many drivers are unaware of how these systems work and what their limitations are.
- Repair quality: Lack of standardization may affect ADAS performance.
- Road infrastructure: Poor or non-existent road markings limit the operation of certain systems, such as LKA.
- Technology access: ADAS technologies must become accessible to broader market segments.

The effectiveness of ADAS does not depend solely on their presence in the vehicle, but also on their correct interaction with the environment and the driver

Regulatory Gaps and Opportunities

Colombia shows an important gap compared with international standards. While the European Union has mandatory regulations for ADAS systems and the United States is moving toward making them mandatory in new vehicles, Colombia does not yet have equivalent regulatory requirements.

This situation creates challenges, but also important opportunities to:

- Establish progressive regulatory frameworks.
- Incorporate technical assessment schemes like Euro NCAP.
- Promote incentives for safer vehicles.
- Integrate insurance sector data into public policy.

Conclusions

ADAS technologies represent one of the most effective tools to reduce road crash rates in Colombia. Local evidence, supported by analyses from CESVI and Fasecolda, shows a significant 30% reduction in claim frequency among vehicles equipped with these technologies.

Beyond their impact on safety, ADAS generates economic and social benefits by reducing costs for insurers, easing pressure on the healthcare system and mitigating the social consequences of road crashes.

However, their effectiveness in Colombia depends on progress in regulation, technical training, repair quality and user education. Modern road safety requires an evidence-based and technology-driven approach, in which ADAS play a central role.

The widespread adoption of these systems in the Colombian market is not only a trend, but a necessary step to save lives and structurally transform mobility in the country.

For information about this article, please contact:

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5 Years of Impact: The Evolution of CESVI Colombia's CPT in Collision Repair Shops

For more than two decades, the Repair Shop Classification Plan (Circulo Preferencial de Talleres - CPT) has been a key tool for raising quality, efficiency and productivity standards in the Colombian automotive sector. Today, CESVI Colombia is introducing a new stage in its evolution, aimed at transforming the way collision repair shops address the challenges of competitiveness, service quality and sustainability.



Introduction

In the highly competitive automotive industry, the quality of vehicle repair is far from a minor detail. It is a factor that directly affects customer trust, occupant safety, and the reputation of both insurers and repair shops. For 25 years, CESVI Colombia has supported the sector through a model that is unique in Latin America: The “Circulo Preferencial de Talleres” (CPT), a methodology that has become a benchmark for quality, productivity and efficiency in the country’s collision repair shops.

Today, in response to new market challenges, CPT is entering a new stage of evolution. This renewed approach seeks to further strengthen repair shops by helping them improve their processes, increase efficiency and achieve sustainable financial results.

Context: 25 Years Building Quality in the Automotive Sector

Since its foundation, CESVI Colombia has worked with a clear objective: to raise technical and administrative standards in the automotive sector, generating a positive impact on repair shops, insurance companies and, ultimately, the end customer.

CPT was created as an evaluation and classification tool designed to allow repair shops to measure their quality level across key areas of automotive aftersales service. Through this model, hundreds of repair shops in Colombia have strengthened their infrastructure, upgraded their equipment, implemented better materials and processes, and trained their staff according to high-level technical and administrative standards.

Over these 25 years, the impact has been clear: repair shops that are part of the Preferred Repair Shop Network have shown significant progress in productivity, repair quality, occupational safety and environmental management. As a result, CPT has helped consolidate a network that builds trust among insurers, manufacturers and customers.

The Evolution of the CPT and Its New Dimensions

Areas Evaluated in Repair Shops

The CPT model focuses on five main areas:

- Bodywork
- Electromechanics
- Straightening and pulling
- Paintwork, with emphasis on preparation and finishing
- Administrative and environmental management

Each of these areas is analyzed under specific parameters ranging from infrastructure and equipment to materials used, technical procedures applied and staff training.

Evaluation Parameters

To ensure a comprehensive diagnosis, the CPT evaluates seven cross-cutting dimensions:

- Infrastructure
- Equipment and tools
- Materials
- Occupational safety
- Technical and administrative processes
- Staff training
- Environmental management

This comprehensive approach has enabled repair shops to strengthen their performance across all fronts, with an impact that goes beyond technical quality. It also improves economic sustainability and customer confidence.

The Need to Update the Model

The automotive sector is undergoing constant transformation. New vehicle materials, increasing technological complexity in repairs, sustainability requirements and increasingly demanding customer expectations are reshaping the repair business.

In this context, CESVI Colombia recognizes the need to evolve the CPT. The updated model incorporates adjustments that more accurately reflect the current reality of repair shops, adapting the weighting of evaluation parameters and giving greater relevance to total quality processes, operational efficiency and customer satisfaction

Analysis: Towards a Comprehensive Consulting Model

The new stage of the CPT goes beyond evaluation. Its purpose is to transform repair shop management through a more comprehensive consulting approach. Among the main changes are:

Greater Emphasis on Quality and Efficiency

Technical and administrative processes that directly influence customer satisfaction will have greater weight in the final rating.

More Accurate Management Indicators

The updated model includes metrics related to average repair times, internal productivity and satisfaction levels, aligned with current market standards

Environmental Management as a Strategic Factor

Environmental care is no longer considered a secondary aspect. It becomes a key pillar within the evaluation, reflecting the growing importance of sustainability in the automotive repair sector.

Consulting Focused on Financial Results

The improvement plans proposed by CESVI Colombia are not only aimed at making repair shops more technical and safer, but also more profitable and sustainable over time

This comprehensive approach responds to a clear need within the sector: ensuring that every repair shop not only repairs vehicles with high quality standards, but also does so efficiently, profitably and in line with the expectations of insurers, manufacturers and customers.

Conclusions

Over the past 25 years, CESVI Colombia has been a strategic partner in the evolution of the automotive sector, consolidating the CPT as a fundamental tool for raising repair standards in the country's collision repair shops.

Today, with its latest update, CPT is positioned as a more complete, modern and business-oriented model, adapted to the current reality of the collision repair industry. Its objective is clear: more efficient repair shops, more reliable processes and more satisfied customers.

Repair shops that are part of the Preferred Repair Shop Network are invited to embrace this challenge as an opportunity for comprehensive growth. Quality and efficiency are not only technical goals; they are the path toward greater competitiveness and stronger financial results.

CESVI Colombia's commitment is to continue supporting the sector, promoting innovation and ensuring that every repair, every process and every administrative decision translate into what matters most: total satisfaction for the end customer and long-term sustainability for repair shops.

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CESVI Colombia

EXPO CESVI 2026 Sets New Participation Records to Define Automotive Repair Standards



Thanks to an accelerated professionalization in the automotive sector, EXPO CESVI 2026 successfully brought together the entire collision repair value chain, the insurance sector, and technology providers from June 4 at the WTC in Mexico City. The 23rd edition broke all previous records, attracting 10,343 professional visitors and generating over 5,000 qualified business opportunities on the exhibition floor.

This effort directly responds to a growing and highly demanding market. Mexico currently features a fleet of over 61 million registered motor vehicles in circulation, which strictly requires advanced technical capabilities for specialized diagnostics, maintenance, and repair.

In numbers, this 2026 edition achieved:

- **60+ global exhibitors** specializing in tooling, refinishing, diagnostics, and management software.
- **65 stands** distributed across the exhibition floor.
- **3 critical fronts demonstrated at the CESVI Future Garage:** live laboratory interactions focused on Advanced Driver Assistance Systems (ADAS) recalibration, hybrid/electric vehicle high-voltage battery diagnostics, and artificial intelligence integration for workflow management.
- **4 paint spray booths** operating simultaneously for live training.

In parallel, the academic agenda was reinforced by the international forum "**Workshops of the Future,**" developed in partnership with **IBIS Worldwide (Connecting changemakers)**, where global specialists analyzed international trends in vehicle damage evaluation, repair center productivity, and smart vehicle reconditioning.



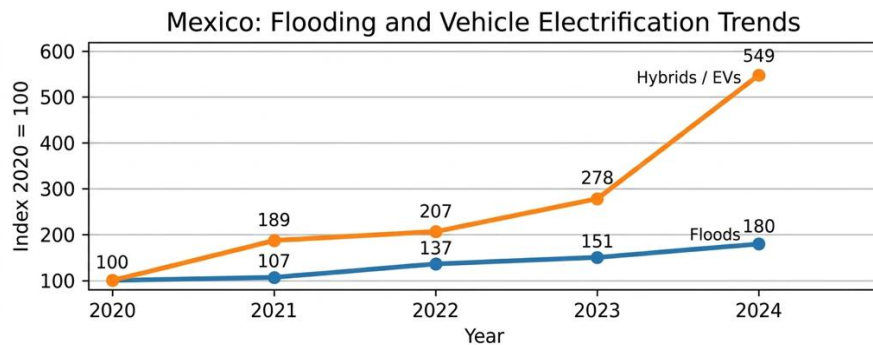
The event successfully placed automotive repair within a broader global conversation centered on technical professionalization, road safety, and adaptation to an increasingly digital and electrified vehicle fleet.



When Water Meets High Voltage: Investigating Hybrid Vehicle Submersion

- **CESVI MÉXICO** conducts a controlled submersion test on a Hybrid Electric Vehicle (HEV) to analyze post-flood degradation and long-term risks of high-voltage components.

The rapid growth of electrified mobility—BEVs, PHEVs, and REEVs—coincides with rising urban flooding events. To assess how prolonged water exposure affects high-density energy components, CESVI MÉXICO developed a controlled submersion study on a hybrid platform. Unlike fully sealed BEVs, many HEV battery packs are not entirely hermetic, exposing critical lithium-ion batteries, DC/DC converters, service plugs, and high-voltage wiring to water hazards.



The Submersion Testing Protocol

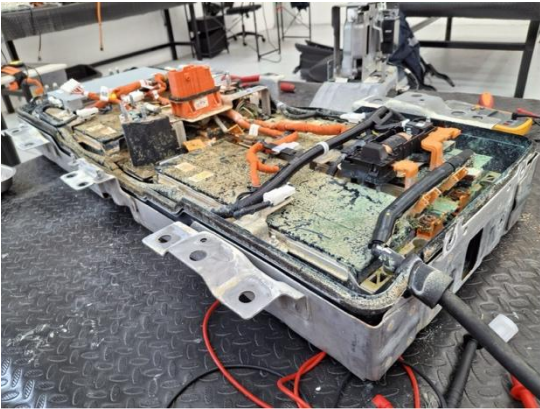
The controlled experiment used a dedicated testing pool with approximately 5,000 liters of water:

- The water level was raised gradually to a maximum height of **52 cm** relative to the ground, completely submerging the high-voltage battery pack.
- Initially operational in **"Ready" mode**, the vehicle's safety systems triggered an automatic protection protocol near the maximum water level.
- The cluster displayed: **"Warning - No power. Stop safely,"** successfully isolating the high-voltage system.



Post-Submersion Technical Findings

Although the system safely isolated power during the live test, critical damage developed post-submersion due to trapped moisture, sediments, and chemical reactions. Subsequent teardown revealed:



- **Contamination:** Significant sediment deposits inside the high-voltage battery casing and internal modules.
- **Chemical Degradation:** Blue-green oxidation on copper terminals, severe corrosion on busbars, and moisture ingress within the service plug.
- **Electrical Migration:** Residual voltage differentials measured between the water, chassis, and electrical points, indicating progressive discharge and active galvanic corrosion.

Insurance and Repair Implications

Traditional 360-degree visual inspections and superficial drying are entirely insufficient to declare a flooded electrified vehicle recoverable. Residual moisture migrates via capillary action, progressively reducing insulation resistance long after drainage.

For RCAR members, this study establishes that flooded electrified units require mandatory quarantine zones due to deferred hazards, active insulation diagnostics instead of simple visual checks, and a redefinition of risk, as factory protections are not engineered for prolonged immersion.

Modular Design in Automotive Technical Training: Pedagogical Foundations and Application

Mexico City, June 12, 2026. CESVI MÉXICO is developing advanced training plans for automotive mechanics and vehicle electronics using a modular course design. This structural strategy departs from traditional linear curricula to optimize technical knowledge transfer amid rapid vehicular technology changes. A modular course operates through self-contained units with independent learning goals, targeted practical activities, and separate evaluations. These can be combined or substituted depending on participant profiles and corporate training needs.

Pedagogical Foundations of the Modular Approach

The educational framework implemented by CESVI MÉXICO relies on three scientifically validated pillars:

- **Competency-Based Education (CBE):** Each individual module focuses on a specific, verifiable technical skill. Evaluation is criterion-referenced, requiring participants to demonstrate real mastery rather than normative peer comparison.
- **Andragogy and Meaningful Learning:** Adult technicians learn efficiently when content directly impacts their work. The system provides immediate applicability to concrete technical diagnostics, allows learning route autonomy, and recognizes prior empirical experience.
- **Cognitive Load Theory:** Fragmenting complex technical topics into shorter, standalone instructional units prevents cognitive overload. This manages the intrinsic mental effort required when theoretical physics and electronic procedures converge with scanner and measurement tool operations.

Strategic Objectives and Implementation Benefits

The application of this methodology within CESVI MÉXICO achieves specific institutional and market goals:

1. **Profile Heterogeneity Flexibility:** It accommodates diverse background levels, ranging from empirical technicians and technical graduates to senior engineers undergoing career reconversion. Personalized learning paths are built without redesigning separate whole courses.
2. **Agile Technological Updating:** Vehicle electronics evolve fast. Specific modules—such as high-voltage hybrid battery diagnostics—can be updated or replaced independently, minimizing structural adaptation costs and time.
3. **Granular Certification:** Independent module evaluation allows the issuance of micro-credentials for discrete skills, aligning with professional international standards promoted by SAE International and CONOCER.
4. **Resource Optimization:** Training centers maximize the use of workshops, test benches, simulators, and diagnostic equipment by combining existing module blocks to generate varied specialized programs.

The structural architecture of this modular design allows for systematic curricular mapping, making it easier to define specific prerequisite pathways for advanced courses. Because each module is mapped out with precise baseline requirements and predefined technical links, instructors can immediately pinpoint the exact previous competencies needed for any technical track. This structured transparency ensures that students do not skip crucial steps, while allowing experienced mechanics to skip basic introductory content and focus directly on cutting-edge systems like advanced vehicle electronics or hybrid platforms. This



comprehensive approach maximizes institutional resources and standardizes technical education across all deployment phases, guaranteeing that every training cycle remains highly effective, commercially viable, and perfectly aligned with modern automotive industry standard.

BATRAW project completion

The European BATRAW project (Battery Raw Materials Recovery), funded by the Horizon Europe programme, has concluded after four years (2022–2026), delivering significant advances for the circular economy in electric mobility. The project set out to develop innovative solutions for recycling end-of-life electric vehicle batteries, enabling the recovery of critical raw materials such as lithium, nickel, cobalt, manganese, and graphite -key resources for Europe's energy and automotive industries-.



BATRAW brought together 17 partners from seven European countries, including Cesvimap, combining technological centres, industrial companies, and research organisations. The initiative adopted a holistic approach to the battery lifecycle, from safe dismantling to advanced recycling and second-life applications. Within this framework, Cesvimap - recognised for its expertise in mobility, repair technologies and end-of-life vehicle management- played a key role in battery dismantling, reparability assessment and reuse.

Among the project's main achievement is the validation of pilot technologies that significantly improve material recovery rates. These include semi-automated dismantling processes and advanced hydrometallurgical techniques capable of recovering most of the metals contained in the so-called "black mass." The project also made progress in digitalisation through the development of a blockchain-based battery passport, ensuring full traceability of components.

BATRAW represents a major step forward in strengthening sustainable supply chains in Europe, reducing dependency on external raw materials and contributing to EU climate and regulatory objectives. Cesvimap's participation reinforces its position as a leading applied research centre in sustainable mobility.

New EV workstation at CESVIrecambios

Cesvimap has commissioned a new specialised workstation for electric vehicles at its CESVIrecambios facilities, reinforcing its commitment to sustainability and the circular economy in the automotive sector.

This new area represents a pioneering initiative in Spain among Authorised Treatment Facilities (ATFs) and underlines Mapfre's commitment to decarbonisation, responsible recycling and the efficient management of electrified vehicles.



The workstation has been specifically designed for the handling, diagnostics and dismantling of electric and hybrid vehicles, with a particular focus on high-voltage batteries due to their technical complexity, value and safety requirements. It is equipped with specialised tools, tailored procedures and dedicated safety systems to ensure safe and efficient operations.

This facility will enhance the recovery and reuse of components from electrified vehicles, reducing hazardous waste, promoting material recycling and extending the useful life of recovered parts.

With this development, CESVIrecambios strengthens its capabilities in response to the growing electrification of the Spanish car park and anticipates future regulatory and market requirements in battery treatment and recycling.

Overall, this initiative marks a further step in the sector's transformation towards a more technological, safe and sustainable model, in which Cesvimap plays a key role as a driver of innovation and applied knowledge.

CESVIrecambios, located in Ávila, is Cesvimap's Authorised Treatment Facility and a benchmark in the comprehensive management of end-of-life vehicles. Its activity enables the recovery and reuse of thousands of components each year, reducing environmental impact and supporting a circular economy model. In 2025, the centre recovered 742 tonnes of parts from 1,839 end-of-life vehicles, representing a 9.8% increase compared to 2024.

Cesvimap Workshop Awards 2026

Cesvimap will host the third edition of its Workshop Awards in June, an event that has become a key occasion for recognising excellence in the vehicle repair sector in Spain.

The event will bring together leading repair shops from across the country, specialising in bodywork, paint and mechanics. It provides a unique platform to recognise professionalism, technical expertise and the ongoing commitment of repair professionals.

Following the success of the 2024 and 2025 editions, which brought together more than 120 workshops nationwide, the 2026 edition is expected to welcome around 200 attendees, including repairers, suppliers and key stakeholders from the aftermarket ecosystem.



The event is supported by major industry associations such as Aprotalleres and Faconauto, as well as specialised media including Infotaller, MundoRecambio y Taller, Posventa.com and Posventa.info, further reinforcing its relevance within the sector.

More than a ceremonial event, the Workshop Awards have established themselves as a benchmark initiative that highlights the essential role of repair professionals, their capacity for innovation and their contribution to safety and mobility.

The decision to host the event in Salamanca reflects its continued growth and consolidation, as well as Cesvimap's commitment to expanding its reach and impact.

The programme will include networking activities, a gala dinner and the awards ceremony. In addition, participants will have the opportunity to visit the Salamanca Automotive History Museum, enhancing the overall experience.

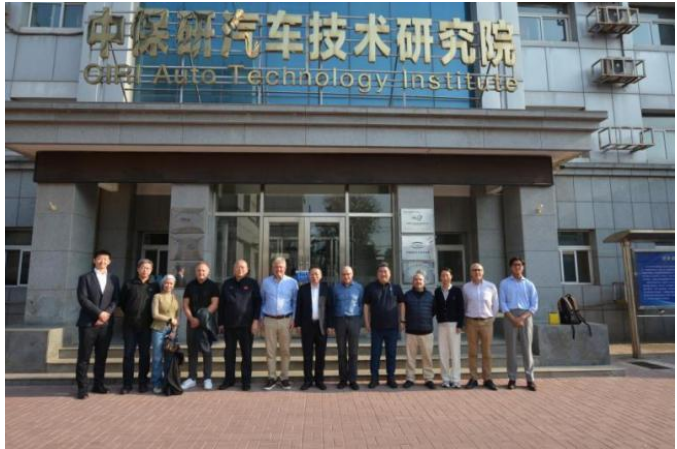
Awards will recognise outstanding performance in areas such as repair quality, operational efficiency, sustainability and customer satisfaction. These distinctions underline the sector's ability to evolve in an increasingly technological and demanding environment.

With this third edition, the Cesvimap Workshop Awards consolidate their role as a platform for recognition, knowledge sharing and sector development, reinforcing a shared commitment to quality, innovation and sustainability.

RCAR Workshop on Vehicle Rating and Overseas After-Sales Support Held in Beijing

On April 22–23, 2026, CIRI Auto Technology Institute hosted an RCAR workshop in Beijing. The event brought together RCAR Secretary General Dr. Christoph Lauterwasser and representatives from Thatcham, MRC and Centro Zaragoza, alongside experts from Chinese insurers (PICC, Ping An, CPIC), OEMs (Chery, Geely, BYD, Li Auto), CATL, and CAERI.

Discussions led by Dr. Lauterwasser covered RCAR test logic and methodologies, as well as the Type Class rating system of GDV. Thatcham also shared its predictive vehicle risk rating system. The afternoon session focused on aftermarket challenges for Chinese brand vehicles overseas, including repairability, rising repair costs, appropriate service coverage, and risks of high insurance classifications. Speakers from MRC, CAERI and CATL shared valuable insights.



During the meetings, representatives from OEMs and insurance companies showed high interest in RCAR's research on vehicle repair and vehicle rating systems. The participants reached a consensus that globally harmonized test standards are vital for supporting the application of new technologies and promoting cross-border technical mutual recognition. The RCAR working groups will continue advancing work in this direction.

On the second day of the event, RCAR representatives visited CIRI's testing center and reviewed its latest research on vehicle Damageability, repairability, and undercarriage impact tests for NEVs.

The workshop strengthened CIRI's role as an international bridge, promoted technical cooperation, and laid a solid foundation for advancing vehicle risk research and overseas after-sales systems.



Third Batch of 2025 China Insurance Automotive Safety Index (C-IASI) Test Results Released

Adhering to the principles of "professionalism, impartiality, scientific rigor, independence, and public welfare," the China Insurance Automotive Safety Index (C-IASI) conducted evaluations on five vehicle models based on the 2023 C-IASI testing protocol. An expert review panel consisting of eight specialists randomly selected from universities, the insurance industry, and the automotive sector was formed to professionally assess the test data and evaluation results. The findings were officially released in Beijing on March 26, 2026.

This release covers five models: Chery Luxeed R7, Lynk & Co 900, XPeng P7, NIO ES8, and Li Auto i6. Among them, four are SUVs (Chery Luxeed R7, Lynk & Co 900, NIO ES8, Li Auto i6) and one is a sedan (XPeng P7). All five models are new energy vehicles (electric vehicles and hybrid vehicles).

						 中国保险汽车安全指数 CHINA INSURANCE AUTOMOTIVE SAFETY INDEX				
No.	OEM	Brand	Tested Module	Tested Vehicle Type	Tested Vehicle Trim Level	 Damageability and Repair Economy	 Occupant Safety	 Pedestrian Safety	 Assistant Safety System	 EV Special Test
1	奇瑞汽车股份有限公司	Chery	Luxeed R7	SUV	2026 Electric Max (SQR6500BEVEHY3)	M	G+	G+	G+	G
2	浙江吉利汽车有限公司	Lynk & Co	900	SUV	2025 1.5T Halo (MR6521DPHEV101)	A	G+	G+	G+	G
3	肇庆小鹏新能源投资有限公司	XPeng	P7	Sedan	2025 702 Long-Range Ultra (NHQ7002BEVEA)	M	G+	G+	G+	G
4	蔚来汽车科技(安徽)有限公司	NIO	ES8	SUV	2026 6-Seat Luxury (NAL6533BSEVE1)	G	G+	G+	G+	G
5	北京理想汽车有限公司	Li Auto	i6	SUV	2025 i6 (LXA6503BEVW02)	G	G+	G+	G+	G

In the sub-index of Damageability and Repair Economy, two models received a Good (G) rating, one model received a Acceptable (A) rating, and two models received a Marginal (M) rating. In structural damageability, one model (NIO ES8) received a Good rating. In crash compatibility, three models (Chery Luxeed R7, NIO ES8, Li Auto i6) received a Good rating. All five models received extra credit and a Good rating in low-speed active safety.

For the sub-index of Occupant Safety, all five models received a Good+ (G+) rating. In the driver-side 25% small overlap frontal crash test, passenger-side 25% small overlap frontal crash test, 50% frontal offset crash test, and side impact crash test, all five models received a Good rating. In the roof strength test, 100% of the models received a Good rating. In the seat/headrest test, 100% of the models received a Good rating.

For the sub-index of Pedestrian Safety, all five models received a Good+ (G+) rating.

For the sub-index of Vehicle Assistance Safety, all five models received a Good+ (G+) rating. All five models come standard with AEB functionality, achieving a 100% equipment rate. All five models are also equipped with emergency call (E-call) services, achieving a 100% equipment rate.

In the NEV Special Index, all five models received a Good (G) rating.

The C-IASI will continue to monitor vehicle performance and encourage manufacturers to develop and offer safer, more competitive new models for consumers. Moving forward, the C-IASI will remain committed to its mission of "serving society and promoting safety" by expanding the range of tested models and providing fair, unbiased, and objective guidance for car buyers, thereby effectively safeguarding road travel safety.

Modernizing Damage Assessment Systems: Labour-Time Methodologies in Transition



Since mid-2024, the Norwegian insurance industry, through Finance Norway Insurance Operations, has been working on a comprehensive modernization of the national damage assessment system (DBS). The initiative is driven by increasing vehicle complexity, evolving repair methods and the need for greater transparency and consistency across the repair value chain.

A central focus in the modernization process is the evaluation of estimating platforms and the labor-time methodologies that underpin them. This includes assessing the role of different labor-time approaches and how such data is developed, governed and applied in practice. The objective is not only to evaluate system functionality, but to ensure that labor times support accurate, consistent and auditable repair processes.

As part of this work, the Norwegian market has engaged in dialogue within the RCAR network, covering multiple approaches to labor-time development, including analyzed labor-time systems, OEM-derived times, and paint and material calculation methodologies. These exchanges provide valuable insight into how different markets address transparency, governance and alignment with actual repair processes.

The Norwegian market has, for approximately 40 years, relied on analyzed labor times for body repairs, based on established methodologies. For mechanical repairs, OEM-derived labor times have largely been the standard. This dual approach has provided a stable and predictable framework for both insurers and repairers.

A potential transition in approaches for body repairs therefore represents a significant shift. Early evaluations indicate that variations are observed across different methodologies and data sources, reflecting differences in vehicle design, repair processes and data development approaches. Similar patterns are also observed in the area of paint, where both labor times and material calculations vary depending on methodology and data source.

These findings underline that the choice of labor-time system is not only a technical matter, but also a question of consistency, predictability and market alignment. Careful evaluation of methodologies and their practical implications is therefore essential when modernizing national damage assessment systems.

The Norwegian approach is characterized by close collaboration between insurers, repair networks and system providers, supported by structured workshops and joint evaluation processes.

Looking ahead, the ambition is to continue progressing evaluation work and move towards well-informed future decisions on system direction and methodology.

For further information, please contact:

Mr. Ian Derrick, Head of Motor Assessment

ian.derrick@forsikringsdrift.no

Building a Sustainable Repair Ecosystem:
Collaboration Across Industries in Norway



The Norwegian vehicle fleet is undergoing a rapid transition towards electrification. As of March 2026, electric vehicles represent 32.4 percent of the total passenger car fleet, and the combined number of electric cars and vans has exceeded one million vehicles. At the same time, new car sales are now almost entirely electric, with monthly shares reaching up to 98.6 percent.

This development is significantly influencing the collision repair sector and is shaping how sustainability is addressed in practice. In this context, Finance Norway Insurance Operations is working closely with industry stakeholders to support a more sustainable and predictable repair ecosystem.

A key element is the increased focus on the use of reused parts. While the Norwegian market is still largely dominated by new OEM parts, the share of recycled components is gradually increasing. This development is supported through close collaboration with the dismantling industry, as well as ongoing dialogue with organisations representing both repair workshops and dismantlers. Together, these stakeholders are working towards establishing national approaches for grading and scoring the quality of reused and equivalent parts, with the aim of providing greater predictability for repairers when sourcing such components.

In parallel, strong collaboration has been established between authorities and the recycling industry. This includes close dialogue with the Norwegian Environment Agency (Miljødirektoratet), as well as industrial actors such as Hydrovolt, Stena Recycling and others involved in the circular value chain.

The rapid growth of electric vehicles has also brought increased attention to the handling of high-voltage batteries. This includes both end-of-life management and the potential for reuse and second-life applications. Ensuring safe, controlled and well-documented processes for battery handling is becoming an important focus area, with implications for repair processes, dismantling practices and regulatory frameworks.

In addition, there is ongoing work to integrate CO₂-related considerations into repair decisions. This includes developing models that can support more informed choices between repair and replacement, as well as between new and reused parts.

The Norwegian approach is characterised by cross-industry collaboration and gradual implementation. By aligning insurers, repairers, dismantlers, authorities and recycling actors, the aim is to build a repair ecosystem that supports both sustainability and operational predictability in a rapidly changing vehicle landscape.

For further information, please contact:

Mr. Ian Derrick, Head of Motor Assessment

ian.derrick@forsikringsdrift.no

Maximum 30 km/h in areas with mixed road user groups

Folksam has conducted a national study on the need for lower speed limits in city areas with a mix of road users, such as cars, pedestrians, bicyclist and e-scooter riders. The study included both an analysis of scientific facts showing relevant maximum speed limits to avoid serious and fatal injuries in such areas, but also a survey among Swedish Local Authorities responsible for setting speed limits in city areas.

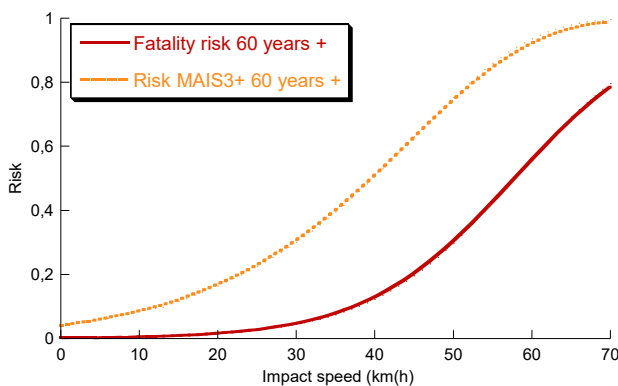
Sweden was early in the intention and goal for lower speed limits in cities and built-up areas. However, many cities like London and Paris have been more successful in lowering speed limits in cities. Studies looking at the effects on safety in London show positive figures with large reduction of road casualties.



From a system perspective the maximum speed limit should be chosen based on the human injury tolerances. The car design and safety systems such as autobrake and passive protection for vulnerable road users play important roles to keep the severity below critical levels. Pedestrians, cyclists and e-scooter riders are the most vulnerable road users in traffic. The speed of the vehicle at the time of impact is the single most important factor in avoiding serious personal injuries. Studies from for example Folksam and Autoliv show that the risk of serious or fatal injury increases significantly already at speeds just above 30 km/h and that the risk rises rapidly at speeds above 40 km/h (Stigson and Kullgren 2010, Rosen et al. 2011). Therefore, traffic environments where unprotected people interact with motor vehicles should be designed to avoid personal injuries. This can be done by separating road user types or through physical road infrastructural design combined with a reduced speed limit to 30 km/h or lower.

Already in 1996, the Swedish Vision Zero was adopted where it is stated that 30 km/h in built up areas with mixed road user categories should be the long-term goal as speed limit. Furthermore, the Stockholm Declaration 2020 as well as the following UN resolution states that 30 km/h in city areas is the target. Also, the World bank report "Guide for safe speeds" 2024 gives the same message.

However, the survey we made among Swedish Local Authorities showed that they experience difficulties to fulfil the intention stated in the Vision Zero approach (and law since 1998) mainly due to different views among Swedish Authorities on the process how to set speed limits. With the initiative Folksam will try to influence Authorities and to help Local Authorities in their work towards lower speed limits in city areas.

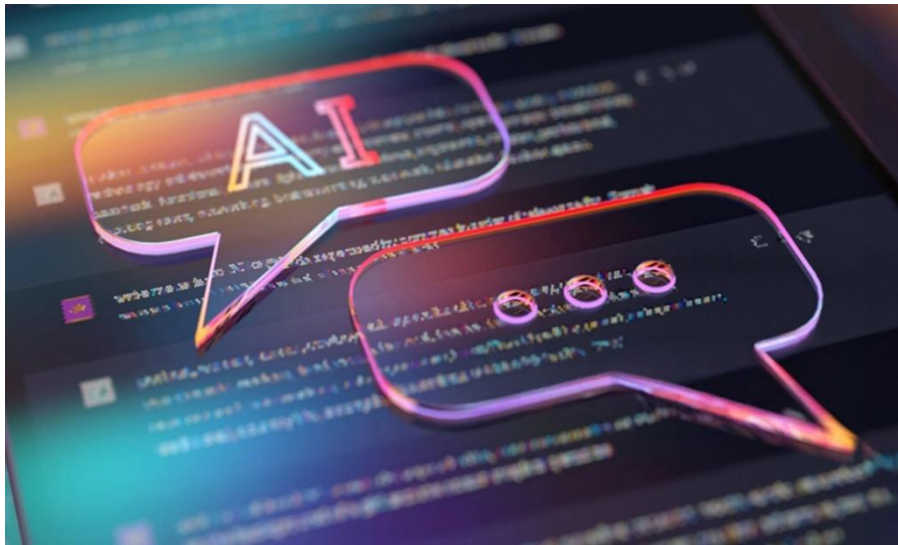


Risk of fatality and serious injury (MAIS3+) for pedestrians based on GIDAS data (Stigson and Kullgren 2010)

Replying to an assistance request email from a customer or an insurance agency may seem simple, until hundreds of them arrive every day, with attachments, different issues, and priorities that are not always clear. That is exactly why JOI was created: jeniot's artificial intelligence that doesn't just support operations but takes action.

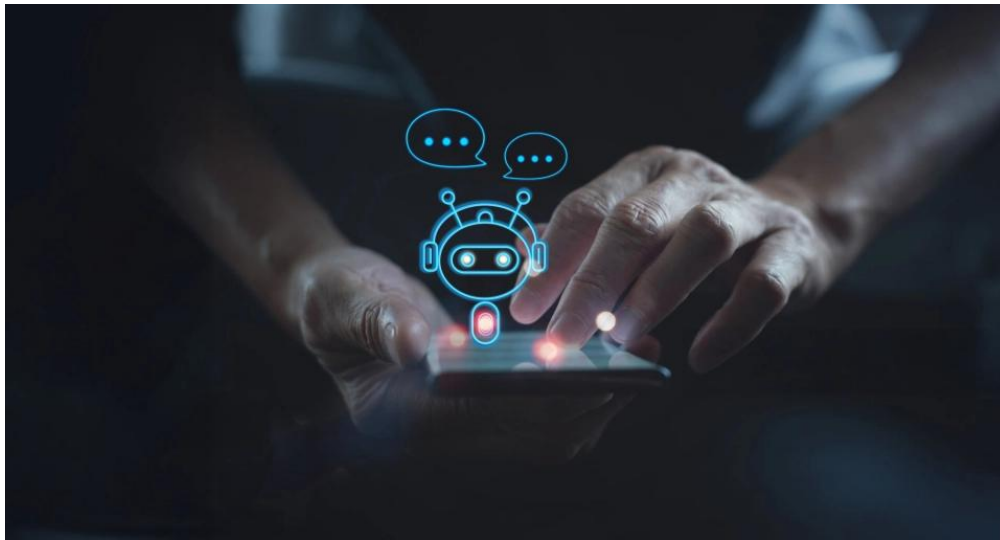
JOI reads, interprets, verifies, and routes assistance requests coming from both customers and agencies. It is an AI-powered solution designed to support customer care.

It recognizes email requests, checks that all the necessary information is included, and sends them to the right team depending on the topic: either the group responsible for resolving issues related to jeniot's IoT platform, or the specialist for the relevant subject area. No delays, no errors. In addition, JOI enriches each request with customer information already available in our systems.



Having JOI means saving time, improving efficiency, and increasing accuracy in responses to the benefit of all our customers. Since May 2024, JOI has been fully operational in support of all jeniot customers, and it has already changed the pace of our customer care service. Priorities are managed automatically, response times are shortened, and people can focus on what truly makes a difference: resolving complex cases, genuinely listening to customers and Agencies, and building trusted relationships.

And this is only the beginning: JOI now also includes a sentiment analysis service enabling it to detect not only the content of incoming messages, but also the “temperature” and emotions of the people writing to us, to be incorporated into the automated standard response system.



JOI is a real step forward toward smarter, more personal, and more useful assistance. And it is already making an impact today.

In November 2025, jeniot received a prestigious recognition at the Italian Insurtech Awards, winning in the “Excellence in Service Innovation” category with JOI, the solution that is revolutionizing customer care through artificial intelligence.

Laser Welding in Vehicle Repair

IAG Research Centre Australia



Is it possible to improve repair quality and reduce costs by using laser welding and cleaning?

The IAG Research Centre undertook a detailed study to assess whether could be viable for vehicle panel repair. The study explored performance, efficiency, safety, and practical application compared to traditional MIG and TIG welding processes.

Laser welding uses high-intensity infrared light focused into a small focal point, rapidly melting material to form a weld with deep penetration and minimal heat input. This differs from conventional arc-based welding, which relies on electrical current to generate heat. Laser cleaning applies a similar principle at lower intensity to remove coatings, corrosion, or contaminants without mechanical abrasion.

To evaluate these technologies, IAG conducted both practical workshop testing and independent materials analysis. A full vehicle roof replacement demonstrated that laser welding can achieve high-quality welds with very low distortion and a narrow heat-affected zone. Materials testing further confirmed that weld integrity was strong, with all samples failing in the base material rather than at the weld itself, an indicator of sound joint performance. While laser welded steel exhibited a slightly greater reduction in tensile strength compared to MIG welding, performance remained within acceptable limits for light structural applications. However, as testing was limited to tensile, bending, and hardness, further fatigue assessments are needed for a more complete understanding.

One of the most **significant advantages identified is efficiency**. Laser welding produces smaller, cleaner welds that require minimal post-processing. As a result, **welding and refinishing times can be reduced** from hours to minutes in suitable applications. This has the potential to significantly reduce repair cycle times and labour costs. Additionally, the process is relatively easy to operate, enabling faster training and more consistent weld quality.

Despite these benefits, several limitations were identified. Laser welding is highly sensitive to joint fit-up and requires precise panel alignment with minimal gaps. If gaps are present, the laser beam can pass through the joint, risking damage to underlying panels, wiring, or other components. In testing, this risk was demonstrated, particularly in areas where access or fit-up conditions were less controlled. However, in some cases this can be mitigated with the use of backing plates.

Safety is another critical consideration. The high-energy laser introduces risks of severe burns and eye injury, requiring specialised personal protective equipment, controlled work areas, and strict operating procedures. While there are a number of safety systems built in to the laser welding machine itself, the risks still represent an additional barrier to widespread adoption in repair workshops without first considering protective equipment.

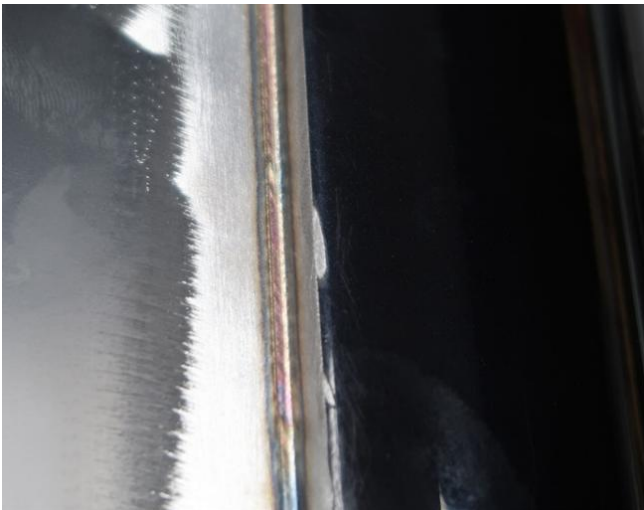
Laser cleaning was also assessed as a preparation method prior to welding or painting. While effective at removing coatings and corrosion (especially in intricate or hard to reach areas), it delivered limited time advantages compared to conventional sanding or grinding in typical repair scenarios.

A key barrier identified is the lack of OEM approval for laser welding as a repair method. Although some modern vehicles are originally manufactured using laser welding, current repair procedures generally rely on adhesive bonding, spot welding, or MIG welding techniques. This limits the ability to adopt laser welding within standard repair practices without further validation and endorsement.

Overall, the study concludes that laser welding offers clear technical and efficiency advantages but is best currently positioned as a supplementary tool rather than a full replacement for traditional welding. Its ability to reduce distortion, improve weld quality, and significantly shorten repair times makes it highly valuable in specific applications. However, limitations relating to access, safety, fit up requirements, and the absence of OEM approval restrict broader implementation.

Future adoption will depend on engagement with OEMs to validate and approve laser welding methods for repair, alongside further real-world trials within repair environments. Until then, laser welding represents a promising but targeted advancement, with the potential to enhance repair performance when applied under the right conditions.

For more information, please contact Cris Surace (crisopher.surace@iag.com.au) or Shawn Ticehurst (shawn.ticehurst@iag.com.au) from IAG's Research Centre.



Laser Weld



Laser Cleaning



Roof Post Laser Welding

IIHS launches new whiplash prevention test

The Insurance Institute for Highway Safety (IIHS) has launched a new seat and head restraint evaluation targeting neck injuries stemming from rear-end crashes. Only four out of the first 18 small SUVs tested earn a good rating.

“Neck sprains and strains are the most frequently reported injuries in U.S. auto insurance claims,” IIHS President David Harkey said. “This new test challenges automakers to further improve their seats and head restraints to provide better protection in the rear impacts that typically cause these injuries.”

Like the Institute’s original head restraint evaluation, the new test involves a simulated rear impact.

The original IIHS head restraint test involved a single pulse equivalent to being struck at 20 mph by a vehicle of the same weight. That evaluation was discontinued in 2022 because automakers had improved their designs so that virtually all the vehicles tested now earned good ratings.

While these improvements reduced injury rates, it was clear that a new test was needed to continue that progress. Occupants of good-rated vehicles were still suffering from whiplash injuries. Variations in insurance claim rates for different models showed that some designs provided better protection than others — even if the original test could not identify them.

To figure out how to measure those differences, IIHS tested the seats used in 36 late model vehicles at three different impact speeds, collecting data about the stresses on the test dummy and its motion during the test. They then looked for correlations between those metrics and increased injury claim rates in insurance data supplied by the IIHS-affiliated Highway Loss Data Institute (HLDI).

The analysis showed that several key metrics recorded at impact speeds of 20 mph and 30 mph provided useful information, so the new test uses separate acceleration pulses to simulate both types of crashes.

Some of the criteria used in the earlier test remained relevant and were significant predictors of injury claim rates at the higher impact speed. The research also led to the addition of several new metrics.



Whiplash prevention ratings for 18 small SUVs

Model	Rating	Model	Rating
2025 Audi Q3	G	2025 Mercedes-Benz GLB-Class	A
2025-26 Hyundai Ioniq 5	G	2025-26 Mitsubishi Outlander	A
2025-26 Subaru Forester	G	2025-26 Volkswagen Taos	A
2025 Toyota RAV4	G	2025-26 Volvo XC40	A
2025-26 Buick Encore GX	A	2025 BMW X1	M
2025-26 Chevrolet Equinox	A	2025-26 Nissan Rogue	M
2024-25 Honda CR-V	A	2025-26 Ford Bronco Sport	P
2025-26 Jeep Compass	A	2025-26 Hyundai Tucson	P
2025-26 Kia Sportage	A	2025-26 Mazda CX-50	P

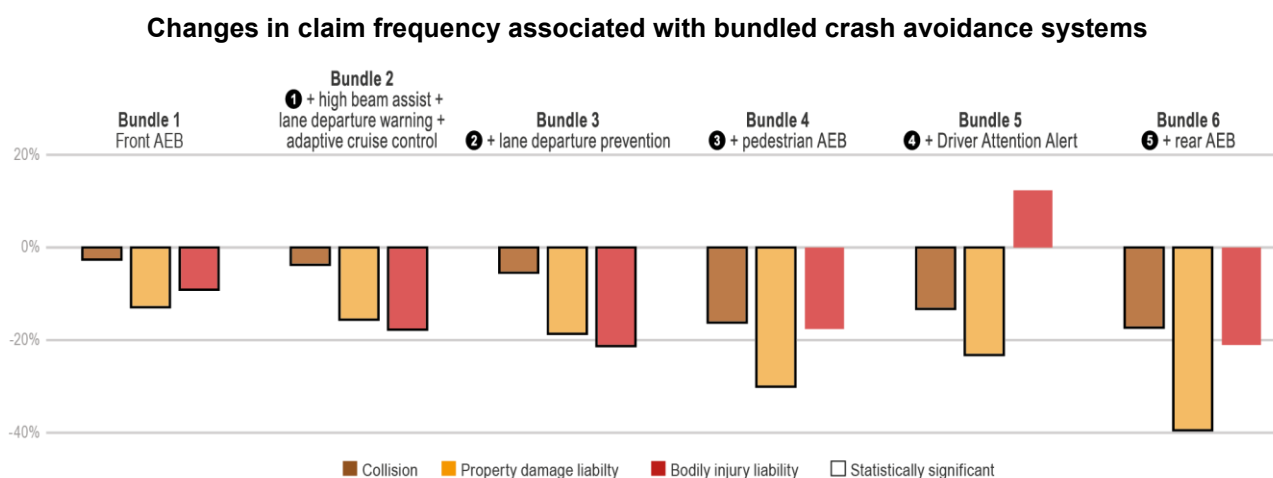
Safety benefits stack up from driver assistance features

The safety benefits from features like automatic emergency braking, lane departure prevention and high-beam assist stack up as multiple systems are bundled together and updated versions deliver better results, a new HLDI study shows.

To better understand this evolution, HLDI examined the impact of advanced driver assistance systems offered on 2015-23 Mazda vehicles.

The most basic bundle consisted of a single feature — front automatic emergency braking (AEB), which in all these vehicles included forward collision warning. The most comprehensive bundle included front AEB with pedestrian detection, adaptive cruise control, high-beam assist, lane departure warning, lane departure prevention, rear AEB, and Driver Attention Alert — a feature designed to detect when the driver is fatigued or distracted.

Not only were the larger bundles more comprehensive, but they also included more advanced versions of the technologies in the smaller bundles. That's because they were offered on newer vehicles. At the same time as Mazda was introducing new features, it was refining the older ones. Thus, while all the bundles included front AEB, the biggest bundles included a more advanced version of it.



The reductions in claim frequency were substantial, especially under property damage liability (PDL) and bodily injury liability (BIL) coverages.

The most basic bundle was associated with a 13% reduction in PDL claim rates and a 9% reduction in BIL claim rates. In general, those benefits grew with the addition of each new technology, and the most comprehensive bundle was linked to a 39% drop in PDL claim rates and a 21% fall in BIL claim rates, though the latter figure was not statistically significant.

Drivers use their cellphones more when speeding, telematics data show

Drivers are more likely to use their phones while speeding, according to new IIHS research.

Excluding time spent stopped at intersections, mired in traffic and driving small neighborhood streets, the amount that drivers handled their phones increased the more they exceeded the speed limit, a nationwide analysis of cellphone data showed.

On limited-access roads, the share of driving time spent handling a phone rose by 12% for every 5 mph drivers went over the local speed limit.

On other roads, such as arterials and routes that connect towns, every 5 mph over the local limit was linked to a smaller

3% increase in phone handling.

Several factors could be driving the pattern. One possibility is that drivers who take more risks are both more likely to speed and more likely to use their phones. Another is stress: Earlier research shows phone use spikes during rush hour and school drop-off, and those same situations may also lead people to speed. Drivers may also respond to other road cues, such as lighter traffic, an absence of pedestrians or longer gaps between stoplights, on roads with higher speed limits.

Previous studies have shown that drivers are more prone to engage in distracting activities when traveling at slower speeds or in simpler traffic settings, adjusting their behavior according to their perception of risk. But these studies did not tell the full story.

Most were limited to a few settings or relied on small groups of volunteer drivers. In addition, studies usually lumped together the time spent driving normally with the time spent stopped at intersections or in bumper-to-bumper traffic.

More nuanced information about driver behavior has recently become available with the proliferation of safe-driving apps. These apps let insurers adjust premiums based on how each person drives. Using a smartphone's GPS and other sensors, the apps track speed and location, time of day, events like hard braking and rapid acceleration, and phone use. With large amounts of aggregated data, researchers can now measure phone use much more comprehensively than before.

The authors of the new study analyzed nearly 600,000 trips taken in 2024 by drivers across the United States. The sample was supplied by Cambridge Mobile Telematics.



For more information on any of these topics, visit <https://www.iihs.org/news>.

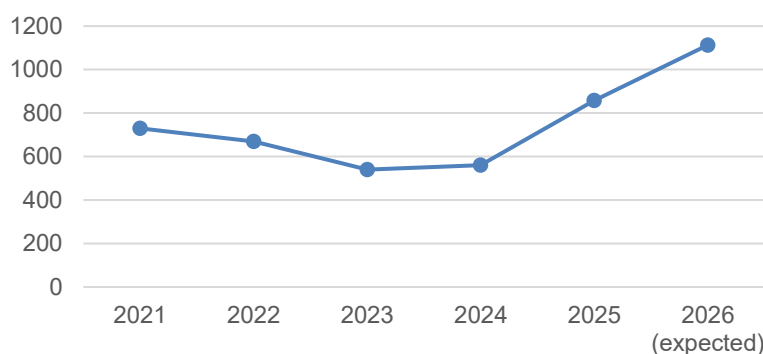
Introduction to Beginner Training Program for Loss Adjusters

Loss adjusters are responsible for investigating and verifying the amount of damage to vehicles for insurance claims, identifying the causes of accidents, and performing related duties.

JKC provides training programs certified by GIAJ* that adjusters are required to take. We offer various training programs to improve the knowledge and skills necessary for their work, such as vehicle structures, functions and repair methods.

*General Insurance Association of Japan

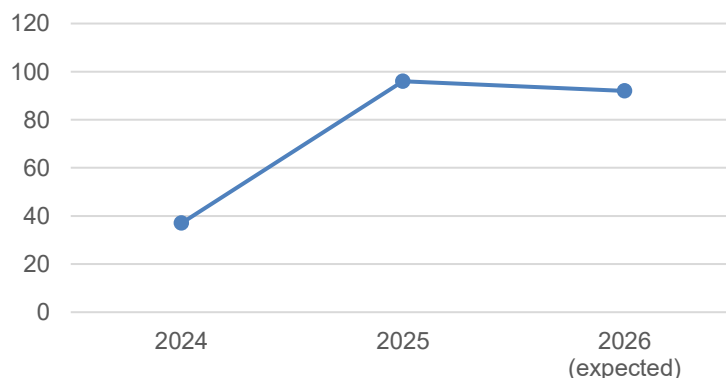
In recent years, insurance industry has been facing a growing shortage of adjusters due to the retirement of senior adjusters. Therefore, insurance companies have been hiring more adjusters, resulting in an increasing number of training participants every year.



Number of Participants in Loss Adjuster Training Programs, 2021–2026

Previously, most adjusters came from background in car dealerships and auto body shops. Therefore, they had a basic knowledge about vehicles. Nowadays, however, more people with limited knowledge of vehicles are becoming adjusters, such as those from other industries and graduates.

Based on this background, we have launched Beginner Adjuster Training Program since 2024 for people with limited vehicle knowledge, which provides hands-on training of basic repair skills. In 2025, the number of participants increased significantly, and a similar number of participants is expected in 2026.



Number of Participants in Beginner Training Programs, 2024–2026

Training Objective

JKC provides a curriculum to help participants acquire basic knowledge of vehicle structures and repair techniques.

Contents Overview

- Explanation of body structures and repair techniques using real vehicles, equipment and tools through observations and hands-on training.
- Explanation of basic structure of vehicle body using real vehicles and training materials such as body-in-white.
- Explanation of how to use equipment and tools required for repair work.
- Observation and hands-on training of the outer and inner panel repair and paint repair processes.



Feedback from Participants

From the participant questionnaires, we received highly positive feedback, "I was able to gain a clear understanding of which tool is used for which task by actually seeing and touching the tools," and "I was able to confirm outer panel repair methods by using a dolly. These are showing that our training meets the needs of new adjusters.

We will continue to update training programs and develop new training content to meet the needs of insurance companies.

Repair Labour Time Methodologies:

Insights from RCAR Member Institutes



KIDI/KART develops and maintains standard repair labour times used for automobile insurance repair cost estimation in Korea and operates the Automobile Repair Cost Online Service (AOS). AOS is a repair estimating platform used by insurance companies, repair shops, parts suppliers, and rental car companies, providing vehicle-specific repair labour times, parts information, and other repair-related data.

Prior to the launch of new vehicle models, KIDI/KART conducts RCAR Structured Tests and Bumper Tests using vehicles provided by manufacturers to evaluate damageability and repairability. In addition, repair process analyses, paint repair assessments, and vehicle construction studies are carried out to understand vehicle-specific repair characteristics and work elements. The results are used to establish labour times for removal and installation operations, paint repair operations, and vehicle assembly structures, and are subsequently incorporated into AOS to support objective and consistent automobile insurance claim assessments. AOS covers approximately 85% of claims.

As repair environments continue to evolve through the increasing adoption of advanced driver assistance systems (ADAS), calibration procedures, new vehicle materials, and emerging repair technologies, there is a growing need to ensure that repair labour time systems appropriately reflect current repair practices. To support the ongoing review of the repair labour time framework used in AOS, KIDI/KART conducted a survey among RCAR member institutes to better understand international practices and research methodologies.

The survey was conducted between 11 March and 7 April 2026, with participation from nine RCAR member institutes: CESVIMAP, IIHS, Thatcham Research, CIRI, AZT, JKC, CESVI Mexico, Finans Norge Forsikringsdrift, and Centro Zaragoza (CZ).

The survey focused on five key topics: methodologies for establishing standard repair labour times, the applicability of OEM labour time data, appropriate environments for labour time studies, the potential use of video-based timing analysis, and technical considerations when designing a repair labour time system.

<Table 1.Survey results on RCAR Members>

	Methodology	OEM assembly line times Applicability	Optimal Testing Environment	Video Analysis Validity	System Design Recommendations
THATCHAM	Proprietary process DB as core Framework	Inapplicable	Controlled Lab Mandatory	Excluded	Structural Simplicity & Data Traceability
JKC	Standard Data Method	Inapplicable	Strictly Limited-to-Lab for Repeatability	Excluded	Logical Process Deconstruction & Structural Transparency
CIRI	Standard Data Method	Inapplicable	Lab Baseline + Field Calibration	Excluded	Establishing Data Lineage & Cultivating Skilled Analysts
AZT	OEM Labor Values + Validated Estimating Software	Inapplicable	Isolated Lab Environment	Excluded	Uniform Parameter Simplicity & Public Trust & Market Balance
IIHS	Validated Estimating Software	Inapplicable	Independent Laboratory	Restricted Use (Guideline Monitoring Only)	Rapid Absorption of Feedback
CESVIMAP	Proprietary Formulas + Targeted Stopwatch	Inapplicable	Controlled Lab Environment	Excluded	Advanced Material Pre- Classification & adequate Sample Sizes
CESVI Mexico	Standard Formulas + Selective Stopwatch	Inapplicable	Lab Environment+ Shop Comparison	Restricted Use (Secondary Reference Data Only)	High-Difficulty Process Classification & Sufficient Data Sample Coverage
CZ	Standard Data Method (via Linear Equations)	Inapplicable	Lab Environment	Excluded	Elemental Task Deconstruction & Granular Data Traceability

* Although Finans Norge Forsikringsdrift provided a response, they are not currently calculating standard labor times.

The survey found that many institutes establish repair labour times using Standard Data methodologies based on detailed and validated task elements. Under this approach, repair operations are broken down into individual work elements, and labour times are derived from structured task databases. Direct time measurements are generally used as a supplementary method, particularly when evaluating new technologies, new materials, or repair operations for which established data are not yet available.

Member responses also indicated limitations in directly applying OEM assembly-line labour times to collision repair operations. Manufacturing processes are performed in highly controlled production environments using new components, whereas collision repairs involve numerous variables such as damage, deformation, contamination, corrosion, and access restrictions. As a result, OEM labour times may not fully reflect real-world repair conditions and often require additional review before being applied to repair labour time systems.

At the same time, several institutes reported using OEM labour time information or OEM-based commercial estimating systems as reference sources. However, rather than applying such data directly, they generally adapt and supplement them to reflect local repair environments, insurance market conditions, and claim settlement practices. This suggests that OEM labour times can serve as a valuable reference, while still requiring further consideration before practical application in repair cost estimation.

The importance of conducting labour time studies in controlled research environments was also emphasized. Repair times observed in commercial workshops can vary significantly depending on technician skill levels, available tools and equipment, workshop conditions, and vehicle condition. Consequently, many institutes indicated that laboratory-based studies provide a more reliable foundation for establishing standard labour times, while workshop data may be used as a supplementary validation source.

Video-based timing analysis was identified as having potential value for specific applications such as process reviews, new repair procedure studies, training, and validation. However, using video analysis as the primary methodology for establishing labour times was generally viewed as challenging due to issues including data volume, camera positioning, synchronization requirements, post-processing effort, and analyst interpretation.

KIDI/KART will continue to monitor international developments and incorporate the experiences of RCAR member institutes into its research activities. The findings from this survey will support future efforts to enhance the objectivity, consistency, and credibility of automobile repair cost assessment in Korea.

**Technical Training Seminar on Engineering-Based
Accident Analysis for Police Insurance Fraud
Investigators**



On March 4, 2026, KART hosted a technical training seminar for 16 police insurance fraud investigators from the Gyeonggi Nambu Provincial Police Agency, introducing engineering-based accident analysis methods used to support insurance fraud investigations.

Participants toured KART's crash testing facilities and received briefings on KART's key research and analytical activities, including accident reconstruction, vehicle damage analysis, injury likelihood assessment, and repair cost review. They also observed the crash testing process and discussed practical applications of engineering-based accident analysis.



Photo 1. Insurance fraud investigators from the Gyeonggi Nambu Provincial Police Agency visit KART's crash testing facilities and receive an introduction to engineering-based accident analysis methodologies.

During the seminar, KART introduced various analytical techniques used in actual insurance fraud investigations, including suspected staged accident analysis, injury likelihood assessment in low-speed collisions, repair cost reasonableness reviews, consistency analysis between reported accident circumstances and vehicle damage, the use of crash test data, and accident reconstruction methods.

Investigators showed strong interest in how crash test results and engineering-based accident analysis can provide objective evidence when reviewing suspected insurance fraud cases. Participants also exchanged views on the importance of technical cooperation between research organizations and police investigators in addressing increasingly sophisticated insurance fraud schemes.

The seminar provided an opportunity to share practical applications of engineering-based accident analysis and strengthen cooperation between KART and police investigators. KART will continue to support insurance fraud investigations through its expertise in accident reconstruction, vehicle damage analysis, injury likelihood assessment, and repair cost review, while strengthening technical cooperation with police investigators.

KIDI/KART and Toyota·Lexus Partnership for Vehicle Data Integration



KIDI/KART signed a Memorandum of Understanding (MOU) with Toyota·Lexus on June 1, 2026, to strengthen cooperation on vehicle data integration and enhance customer access to insurance benefits.

Under the agreement, Toyota·Lexus will provide detailed vehicle specifications and information on ADAS features equipped on Toyota and Lexus vehicles, while KIDI/KART will incorporate the information into the insurance information network used by insurers across Korea. The initiative is intended to improve the efficiency and accuracy of vehicle information used in automobile insurance services.



Photo 1. KIDI Vice President Jinho Park (right) and Toyota·Lexus President Manabu Konyama (left)

In Korea, automobile insurers offer insurance benefits for vehicles equipped with safety technologies such as Lane Departure Warning Systems (LDWS), Autonomous Emergency Braking (AEB), Blind Spot Detection (BSD), and Around View Monitoring (AVM), reflecting their contribution to accident risk reduction. However, when such systems are installed as optional equipment, policyholders have often been required to verify the equipment themselves and submit supporting documentation to insurers in order to receive applicable insurance benefits. Another challenge is that vehicle manufacturers frequently use different names for similar ADAS functions, creating confusion for both consumers and insurers when identifying eligible vehicle features.

Through this cooperation, Toyota and Lexus customers will be able to access applicable insurance benefits more easily without the need to submit photographs or additional documents to verify ADAS installation. Vehicle information provided by Toyota·Lexus will be integrated into the industry-wide insurance information network, enabling insurers to verify ADAS equipment automatically and apply relevant insurance benefits in a more streamlined manner.

KIDI/KART also plays an important role in standardizing manufacturer-specific vehicle and ADAS information before distributing it through the insurance information network. By translating various manufacturers' naming conventions into standardized insurance data, KIDI/KART helps ensure consistent application of insurance products and services across the market.

This partnership represents a practical example of collaboration between the automotive and insurance industries through vehicle data sharing. Beyond improving customer convenience, it establishes a framework for utilizing manufacturer-provided vehicle information within insurance services. KIDI/KART serves as a data hub connecting vehicle manufacturers and insurers through vehicle specification and ADAS equipment information integration, supporting broader and more effective use of vehicle data within the insurance sector.

KIDI/KART plans to continue expanding cooperation with vehicle manufacturers to improve the availability and quality of vehicle-related information. Such initiatives are expected to support more efficient insurance services, enhance customer experience, and create additional opportunities for utilizing vehicle and safety technology data within the Korean automobile insurance market.

MRC Advocacy on Road Safety: Reducing Mobile Phone Usage While Driving

Malaysia continues to face serious road safety challenges, with distracted driving remaining one of the key contributors to road accidents. According to the Malaysian Road Transport Department (JPJ), the use of mobile phones while driving consistently remains among the top four causes of fatal accidents in Malaysia. In addition, a study by the Ministry of Transport Malaysia (MOT) revealed that 80.2% of distracted driving cases were caused by receiving or making phone calls and replying to messages while driving.

In line with its continuous commitment to supporting road safety awareness initiatives, MRC Malaysia actively participated as an invited panel speaker in two separate road safety advocacy programs organised by the Vehicle Theft and Accident Reduction Council of Malaysia (VTAREC). Both programs, arranged by VTAREC Co-ordinator, Puan Mas Tina Abdul Hamid, focused on enhancing public awareness of the risks associated with mobile phone usage while driving, as well as promoting safer driving behaviour among road users.



In both initiatives, through online awareness session and face-to-face event, MRC Malaysia was represented by its Chief Executive Officer, Steve Miller, who played a key role as an invited panelist, contributing leadership perspectives and industry insights on road safety advocacy and responsible driving culture. By way of his participation, MRC Malaysia's position in the industry and commitment towards road safety were further reinforced.



On February 13, 2026, MRC Malaysia participated in an online road safety awareness session through Facebook Live, titled "Panel Discussion: The Risk of Road Accidents - Using Mobile Phones While Driving Can Kill". This podcast styled session was also presented by Senior Lecturer of MARA University of Technology, Associate Professor Dr. Basharudin Abdul Hadi. This program aimed to raise public awareness on the dangers and consequences of mobile phone usage while driving, which remains one of the key contributing factors to road accidents.

Next, on March 12, 2026, MRC Malaysia participated as an invited panel speaker in the VTAREC Forum on Road Safety, held in Auditorium MNRB, Kuala Lumpur under the theme "No Mobile Phones While Driving" with the tagline "Driving Requires Brain, Not Phone". The forum was officially inaugurated by VTAREC Chairman, Datuk Lokman Jamaan. Besides

MRC Malaysia, this forum was also presented by Senior Assistant Director of Policy Enforcement, Road Transport Department Malaysia, Deputy Head of the Crime Prevention and Community Safety Department, Royal Malaysia Police, and Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.



In conclusion, MRC Malaysia's participation in both initiatives reflects its ongoing commitment to supporting national road safety advocacy efforts, particularly in addressing the risks associated with mobile phone usage while driving. Through the involvement of its Chief Executive Officer, Steve Miller, as an invited panelist in both programs, MRC Malaysia continues to contribute meaningful industry perspectives alongside key stakeholders from enforcement agencies, academia and civil society. These engagements underscore the importance of continuous public education, corporate responsibility and collective action in reducing distracted driving behaviours. Moving forward, MRC Malaysia remains committed to supporting initiatives that promote safer driving practices and reinforce the shared responsibility of all road users in ensuring safer roads for everyone.



SFMI Joins National Partnership for Level 4 Autonomous Driving Demonstration Project

On May 13, 2026, Samsung Fire & Marine Insurance (SFMI) signed a multilateral Memorandum of Understanding (MOU) with government agencies, mobility companies, and research organizations to support a three-year Level 4 autonomous driving demonstration project in Gwangju, Korea. The initiative aims to validate autonomous driving technologies in real-world urban environments while addressing the emerging safety, liability, and insurance challenges posed by highly automated vehicles.

As autonomous driving technologies continue to evolve, insurers face new challenges in accident investigation, liability assessment, and risk evaluation. Real-world demonstration projects offer valuable opportunities to observe how automated driving systems perform under diverse operating conditions and to better understand the risks involved in their deployment.

The partnership brings together public and private stakeholders to establish a cooperative framework for the deployment and operation of autonomous vehicles. Hyundai Motor Company will provide the autonomous vehicles and operational platforms for the pilot program, while autonomous driving technology developers, including Autonomous A2Z and RideFlux, will carry out on-road validation of their Level 4 systems. The Ministry of Land, Infrastructure and Transport (MOLIT), Gwangju Metropolitan City, and the Korea Transportation Safety Authority (TS) will provide policy, infrastructure, and technical support to facilitate the project.

As the insurance partner, SFMI will contribute expertise in risk management, accident response, and insurance system development for autonomous vehicle operations. Within the partnership, the Samsung Traffic Safety Research Institute (TSRI) will support the analysis of autonomous driving incidents, helping to identify causal factors in accidents and deepen understanding of the emerging risks these vehicles present.

In addition to incident analysis, TSRI will take part in research on liability and insurance frameworks for autonomous driving, supporting the development of practical insurance solutions and the institutional improvements required for future mobility services. The institute also plans to contribute to the establishment of standardized incident response procedures aimed at improving post-crash management and reducing secondary safety risks.

The Gwangju initiative represents one of Korea's most significant public-private efforts to advance Level 4 autonomous driving. Through active participation in the project, SFMI and TSRI aim to deepen their practical insights into autonomous vehicle risk assessment, accident investigation, and claims handling, while helping to shape the future insurance frameworks for automated mobility services.



MOU Signing Ceremony for the Autonomous Driving Demonstration Project

SFMI TSRI Raises Awareness of Highway ACC Crash Risks

The Samsung Fire & Marine Insurance Traffic Safety Research Institute (SFMI TSRI) recently released the findings of a study examining crashes that occurred while Adaptive Cruise Control (ACC) was active on Korean highways. The analysis found a substantial increase in ACC-related crashes in recent years, reflecting the growing use of advanced driver assistance systems.

Although ACC can reduce driver workload and improve driving comfort, the research suggests that some drivers overestimate the system's capabilities and become less attentive to the driving task. Lane-departure crashes accounted for the largest share of the crashes analyzed, followed by collisions involving cut-in/cut-out situations and rear-end crashes with low-speed or stopped traffic ahead. These crash patterns indicate that ACC-related risks are not limited to simple car-following situations, but may also arise when drivers fail to respond promptly to changing traffic conditions or system limitations.

Delayed driver intervention was identified as a key contributing factor in many cases. Event Data Recorder (EDR) data from several crash-involved vehicles showed that some drivers failed to respond appropriately even after system warnings were issued, leading to impacts without meaningful speed reduction. The findings highlight how limitations of Level 2 automation, combined with insufficient driver understanding, can contribute to severe highway crashes.

SFMI TSRI emphasized that drivers must continuously monitor the driving environment and remain prepared to take immediate control of the vehicle, even when ACC is active. The study also recommends broader adoption of Driver Monitoring Systems (DMS), enhanced consumer education regarding system limitations, and continued analysis of real-world crash data to support the safe deployment of driver assistance technologies.

To raise public awareness of the risks associated with ACC operation, SFMI TSRI shared the study findings through national media outlets and plans to work with highway authorities, police agencies, and other stakeholders to promote safer use of driver assistance technologies. The institute also intends to support safety awareness initiatives and discussions on potential countermeasures aimed at reducing crashes involving ACC-equipped vehicles on highways.



SFMI TSRI Briefs Highway ACC Crash Risks and Improvement Measures

As electrified vehicle adoption accelerates across UK and European markets, the motor insurance industry faces a growing divergence between the pace of fleet change and the capacity of the repair sector to respond to it. Thatcham Research's participation in RCAR is grounded in a shared conviction: that independent, technically rigorous research into vehicle damage and repairability is the most effective mechanism by which the automotive industry can be held to account for the real-world consequences of its design decisions. In early 2026, Thatcham Research presented its Insurability Blueprint for Electrification to showcase the evidence for design-led change of high-voltage vehicle architecture, and to articulate the specific requirements manufacturers must address if electrification is to remain economically sustainable for insurers, repairers, and consumers alike.

To ensure the value of this is fully realised, we have to go back to 2023 when Thatcham Research published its report on the Impact of BEV Adoption on the Repair and Insurance Sectors. Back then, the headline finding was unambiguous: battery electric vehicles were generating repair costs approximately 25% higher than equivalent internal combustion engine vehicles, with repair cycle times extending by 14%. These figures were not principally attributable to repairer unfamiliarity or skills gaps, though those factors contributed. They were, and remain, substantially a consequence of how electrified vehicles is designed.

More recent data from industry experts, Gecko Risk, shows meaningful progress. Repair costs have decreased by 11% as repair networks have gained expertise and refined process workflows. A 2025 Thatcham Research industry study, however, confirms that 45% of insurers and 42% of repair professionals still identify battery-related issues as the primary barrier to competitive EV insurance and effective post-collision repair. Again, the underlying constraint is not one of skill or willingness. It is one of design.

The high-voltage battery in an electric vehicle today can represent up to 40% of a vehicle's total value. Where those batteries are not engineered to be serviceable, diagnosable, or partially repairable following collision, the claims process frequently defaults to total loss determination regardless of incident severity. With 1.8 million fully electric vehicles already on UK roads and a regulatory trajectory mandating zero-emission-only sales from 2035, the volume of claims involving high-voltage systems will grow substantially. The design decisions being made by manufacturers today will define the repairability outcomes of those claims for the next decade.

Thatcham Research identified accurate damage assessment and efficient repair execution are exacerbated by design choices that prioritise vehicle performance or manufacturing efficiency over end-of-life serviceability. The most consequential of these concerns battery architecture.



High voltage charger systems showcased in front of crash damaged EV

In the majority of current BEV platforms, the high-voltage battery occupies a low-mounted, full-floor position that optimises weight distribution and stability. That same position introduces vulnerability to underbody impacts from road debris, kerb strikes, and elevated-kerb collisions, as well as side impacts in the sill area. Where robust under-shields and sill protection are absent, even minor incidents can cause sufficient damage to trigger full battery replacement. In numerous documented cases, damage limited to outer battery brackets has necessitated complete pack replacement due to integrated casting designs that preclude partial disassembly.

Sealants, foams, and adhesives used in battery pack construction compound this problem. Many current battery designs are effectively non-dismantlable, rendering casing repair economically unviable even where physical damage is limited. Shredding and recycling remain the default outcome for batteries that could, with appropriate design, have been repaired or refurbished.

Charge port placement presents a further, underappreciated risk. Forward-mounted charge ports integrated with wiring looms or onboard chargers are disproportionately exposed to damage in common low-speed incidents. Minor front-end collisions can necessitate replacement of complete electrical assemblies rather than the charge port component alone.

Diagnostic access presents a parallel challenge. Where high-voltage system diagnostics require proprietary tooling, subscription-only software, or physical battery removal for auxiliary system access, the cost and time burden of accurate post-collision assessment increases significantly. Insurance personnel who carry out the first notice of loss assessment and Vehicle Damage Assessors currently operate without consistent, manufacturer-supplied damage tolerance limits for battery systems, producing avoidable inconsistency in repair-versus-write-off determinations across the market.

[Thatcham Research's Insurability Blueprint translates](#) these findings into eight actionable design and operational requirements. These design-led requirements carry the greatest systemic impact into the sustainability of the battery electric vehicle market. It details how manufacturers should design for sustainability from integrating robust underbody protection and sill-area shielding capable of withstanding common low-speed impacts that the RCAR program covers without battery pack damage and charge ports being positioned in lower-exposure locations and isolated from adjacent high-voltage assemblies.



Series of EVs showcasing a number of different design and therefore risk profiles under review at Thatcham Research

The internal combustion engine sump provides the appropriate analogy: structurally significant and vulnerable yet served by repair and replacement pathways that do not require engine removal. Battery casing design should follow the same principle.

RCAR's function is to generate the independent, comparative evidence that makes manufacturer accountability possible. The reparability and damageability outcomes of electrified vehicles are determined by design choices, and design choices can be changed. Thatcham Research's participation in RCAR reflects the conviction that rigorous, independent assessment of those choices is the most direct route to good EV design that safe, sustainable, and affordable widespread deployment requires.

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ELV Regulation: Increasing regulatory Complexity and Remaining Implementation Challenges

The development of the End-of-Life Vehicles (ELV) Regulation has been actively followed over an extended period, and Finnish Motor Insurers' Centre (LVK) has been closely involved in its discussion and practical interpretation at both European and national level. The proposal has evolved in a more balanced direction, but key implementation challenges remain and national interpretation is expected to play a significant role.

A central issue is the unclear boundary between repairable vehicles and end-of-life vehicles (ELVs), which may lead to a broad assessment obligation even though only a limited share of cases meets the criteria for technical irreparability. At the same time, responsibilities remain unclear, particularly regarding when an insurer's assessment is sufficient and when an independent expert is required.

Uncertainty also relates to the scope of assessments, including the handling of non-accident-related defects and differing interpretations of economic non-repairability. The regulation is primarily based on technical criteria, with limited emphasis on owner intent. Some technical indicators are defined at a level that may capture normal repair or rescue actions (e.g. dismantling, fluid drainage, protective measures to prevent further damage), even though these do not indicate technical irreparability.

The role of a vehicle inspection certificate is not fully defined, particularly regarding its sufficiency, content and recording. In addition, interaction with the Battery Regulation may limit the reuse of traction batteries from damaged vehicles, even where they remain technically usable.

Extensive EU-level guidance is not expected, and implementation will largely develop at national level. The topic has already been discussed with the national competent authority, emphasizing the importance of continued engagement.

The regulation reached a political agreement in late 2025 and has been further refined during 2026 before final adoption. It is expected to enter into force shortly after formal approval, with requirements phased in overtime and extended to additional vehicle categories.

Accident Insights: Risks Concentrated in Speed, Visibility and Interaction

Recent accident investigations in Finland (2015–2024) highlight recurring and partly systemic risk factors in both moped and heavy vehicle incidents.

Moped accidents show a clear pattern: a total of 30 fatal accidents resulted in 33 fatalities, with approximately one third of the mopeds modified. Increased speed enabled by these modifications was identified as contributing to the occurrence of most accidents. In addition, technical defects were present in roughly one third of mopeds, with tyre-related faults being particularly common, alongside deficiencies in rider fitness to drive.

Heavy vehicles were involved in 579 accidents during the same period. However, driver responsibility was attributed to heavy vehicle drivers in only 19% of these cases, with a significant share of accidents caused by other motor vehicle drivers or pedestrians. Notably, 429 collisions were initiated by another motor vehicle, highlighting the role of interaction risks in mixed traffic.

While technical failures in heavy vehicles were relatively rare, they had clear safety impacts. Six accidents were caused by a tyre burst and one by a brake failure, and in total, 11 heavy vehicles had technical defects that contributed to the occurrence or consequences of the accidents. Additional technical defects were identified in a wider number of vehicles, although not all had a direct impact on accident causation, and for some cases information on technical condition was not available.



Fatal accidents involving pedestrians and cyclists were most often linked to observation errors and limited visibility, underlining persistent challenges in detecting vulnerable road users.

Overall, the findings suggest that accident risks are not only linked to individual technical failures, but are strongly driven by vehicle modifications, interactions between road users, and visibility constraints across the traffic system.

Partnership Survey 2026: Stable Cooperation and Continuous Development

The 2026 partnership survey between the insurance and repair sectors was conducted for the fifth time. The results confirm that cooperation remains stable across the industry, with only minor year-on-year changes. Insurance companies' assessments of repair shops improved slightly (3.00 → 3.04), while repair shops' evaluations of insurance companies remained broadly unchanged (3.02 → 3.01).

The survey provides a consistent framework for monitoring cooperation and identifying development needs over time. The latest results indicate an increasing focus on the practical performance of repair processes, including efficiency, predictability, cost management and the increased utilization of recycled parts in line with circular economy objectives. At the same time, traditional strengths such as technical quality and structured dialogue between stakeholders remain central.

These insights are used to support the development of common understanding, practical guidance and the continuous improvement of industry practices.

Open-ended feedback plays a key role in this process. Expanded opportunities for qualitative input have significantly increased the volume and depth of comments, providing valuable insights into practical challenges and emerging issues that cannot be fully captured through quantitative indicators. These insights provide an essential basis for guiding future development actions.

