ISSUE 43 Q3, 2025
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ISSN 2289-8921
KDN PP18692/03/2015 (034159)

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PUBLISHED BY

Asian Trucker Media Sdn. Bhd. No. 27-1, Block C, Zenith Corporate Park, Jalan SS7/26 Kelana Jaya, 47301 Selangor, Malaysia www.asiantrucker.com

PRINTED IN MALAYSIA

Percetakan Osacar Sdn Bhd (Co.Registration : 63461-W)
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Bus to Europe

A bus trip from Asia to Europe sounds fun. There are specialist travel agencies that put together tours that will take passengers from India to London by bus for example. I would not mind hopping onto such an epic journey. However, I want to talk about the matter of buses made in Asia now being sold in Europe.

It is not a secret anymore that Asian brands are aggressively investing into their expansion into foreign markets. For instance, Chinese brands now have a foothold in many Asian countries, and they are knocking on the doors of many European countries. It is no longer an uncommon sight to spot a China-made vehicle on European roads.

The number of Chinese bus brands may not be surprising, considering the size of the country. What I was not expecting when visiting Busworld Europe were the many brands with origins in Türkiye. Well-known for spare parts, the country is home to many highly innovative and daring brands offering buses. They, too, are jostling for market share in Europe with products specifically designed for this market.

The two most surprising brands I came across at the Busworld were MG and Vinfast. The former being a highly recognisable brand, with roots in the UK, is now offering their first bus. Chinese-owned, the products may be easy to link to the brand. To me, the question is if the logo can evoke the same emotions it does on a car. Also, would the market associate them with the qualities that the marque stands for?

Vinfast was a known unknown. When talking about the automotive industry in Southeast Asia, one will have come across this ambitious upstart. Until now, I have not seen any of their commercial vehicles. They seem to take an interesting route for overseas expansion. Seemingly bypassing Malaysia, they head straight to the continent, complete with a tag line that does not leave any doubts about their seriousness to conquer the European market.

Typically, we find that Asian markets follow Europe when it comes to legislation and the use of technology. For instance the mirror cam replacing rear-view mirrors are among the latest technological advances that are slowly making their way to Asia. I am having an eye on what is going on to spot any innovations originating from our shores making it big in Europe.

Ultimately, competition is good for buyers and end-users. With the influx of Asian brands into Europe, I am expecting that everyone will step up their game. Price may be an important factor; profitability, Total Cost of Ownership and mostly comfort would be key decision-making points. I have yet to see massage chairs on board of buses I have taken in Germany. Maybe Germans prefer a minimalist approach to travel? I cannot imagine this being the case.

The test of time will tell us how successful the new entrants are. Being able to sell a vehicle is one thing. Providing the after sales service is another. Perhaps we are also seeing an introduction of Asian ways of how service should be delivered being introduced in Europe? Having lived abroad for 25 years, I can attest that the European way is not the only way. European clients may also have to adjust to the way business is done in Asia. I suggest we take the best of both worlds.

Drive Safe, Travel Lots,

Stefan Pertz
Editor, Asian Buses

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EDSA Busway Upgrade: A New Chapter for Manila's Buses

The Department of Transportation in the Philippines has requested 13 billion pesos to modernise the EDSA Busway, Metro Manila's busiest bus corridor. The plan includes station upgrades, better accessibility and stronger safety systems, while also laying the foundation for bus rapid transit services in other parts of the capital.

The busway began as a temporary pandemic measure in 2020, created to manage passenger flow when rail services had to reduce capacity. Buses were shifted into the centre lane of EDSA, with defined stops and stricter controls. The results were immediate. Travel times that once stretched for hours were cut dramatically, showing how effective buses could be when given space and structure.

What started as an emergency has since grown into one of the most important public transport systems in the Philippines. By 2024, daily ridership was approaching 180 000 passengers. For workers, students and families, the busway became a dependable link across the city. Some passengers once found the system difficult to use, but planned upgrades are set to make stations and transfers more accessible. Large stations such as Monumento and Guadalupe are slated for rehabilitation, with elevators and ramps to support senior citizens and persons with disabilities. CCTV and smart traffic controls are part of the package, designed to raise safety and reliability. During the works, an additional 200 buses are planned to maintain service and reduce queues.

The government has also signalled a shift in management. A move toward public-private partnerships is expected, with private operators helping to maintain consistent standards. Other corridors are being studied, such as España and Quezon Avenue, where similar systems could extend the benefits of rapid bus travel beyond EDSA.

For commuters, the impact will be felt in shorter waiting times, smoother transfers and clearer information. Better facilities will bring Manila's buses closer to the level of service seen in cities across the region.

Elsewhere in the Philippines, smaller bus initiatives show how the sector is diversifying. Hybrid buses from Green Frog connect key districts, Quezon City has launched electric services through its QCity programme, and point-to-point buses continue to attract passengers who value comfort and direct routes. Each of these reflects a growing recognition that buses form the backbone of daily mobility.

The planned upgrade for the EDSA Busway is more than an infrastructure project. It signals a stronger role for buses as a central pillar of public transport, with improvements that could ripple across the economy and daily life in the capital. For Manila, where millions depend on affordable and efficient mobility, the next stage of the busway's journey will be closely watched.

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Karsan Autonomous e-ATAK Era Begins in Autonomous Public Transportation in Sweden

Karsan has added another achievement to its worldwide successes with the world's first Level 4 series-produced autonomous bus, having begun service in Sweden. Karsan Autonomous e-ATAK, which has started carrying passengers in open traffic, will connect Gothenburg Central Station to Liseberg Station and provide a seamless and efficient transportation solution in the city's Gårda district. Karsan CEO Okan Baş said that this project represents a new milestone in Karsan's journey to redefine public transportation, adding, "The project involves a highly complex route operating under real traffic conditions in the city centre. This is not only a testament to Karsan's engineering capabilities but also a significant contribution to Sweden's future mobility ecosystem. Overcoming challenging operational conditions, including Scandinavia's harsh climate and dynamic city traffic, Autonomous e-ATAK will offer passengers a unique experience centered on comfort, safety, and reliability.

Karsan Autonomous e-ATAK, which began passenger transport at an event held in Gothenburg, Sweden, and was previously delivered to Vy Buss, one of Northern Europe's leading Public Transport Authorities (PTA), will now operate in collaboration with Sweden's leading public transport operator Västtrafik, under Vy Buss. Following the ceremony, Karsan Autonomous e-ATAK drove on public roads along a 4-kilometer route with seven stops connecting Gothenburg Central Station and Liseberg Station. The Karsan Autonomous e-ATAK will connect Gothenburg Central Station to Liseberg Station and provide a seamless and efficient transportation solution in the city's Gårda district. Baş said that Karsan Autonomous e-ATAK is a Level 4 autonomous vehicle that has started carrying passengers in Sweden's real traffic conditions, adding, "In this context, our vehicle will start a one-year operation in Gothenburg, one of Sweden's most strategically important cities, in cooperation with Västtrafik. This represents another milestone in our company's journey to redefine public transportation."

Dr. Ali Peker, CEO of ADASTEC, the technology partner of Karsan Autonomous e-ATAK, made the following comments on the subject: "The Level-4 public transportation service we offer in different cities and countries around the world in collaboration with Karsan proves the maturity and reliability of our technology. The Autonomous e-ATAK, which has been put into service in Gothenburg, is designed to withstand harsh weather conditions and the complexity of urban traffic, offering a safe and seamless journey with ADASTEC's Level-4 autonomous driving technology. At each new stop, we are not only transporting people, but also sustainable cities and inclusive public transportation into the future. Our goal is to transform autonomous public transportation services into a meaningful service that meets today's needs and will be passed on to tomorrow's societies."

Emphasising that the project involves a highly complex route operating under real traffic conditions in the city center, Baş said, "This application is not only a demonstration of Karsan's engineering capabilities, but also a significant contribution to Sweden's future mobility ecosystem. This groundbreaking project is the result of a strong partnership between Karsan and ADASTEC, which provides the vehicle with advanced automation technology. With this partnership, Karsan continues to set new standards in autonomous transportation and shows the world how innovation, flexibility, and vision can reshape public transportation. With this project implemented in Sweden, Karsan is not only strengthening its position in Northern Europe's most advanced transportation market but also taking another step toward achieving its vision of becoming a global leader in sustainable transportation. We would like to thank Västtrafik, Vy Buss, and the City of Gothenburg, who played a significant role in bringing this project to life, as well as our technology partner ADASTEC," he said.

Equipped with an Advanced Sensor Package, Karsan Autonomous e-ATAK uses a combination of LiDAR, Radar, RGB Cameras, GNSS, and the latest technology sensors working together to provide precise navigation and situational awareness in different weather conditions. With a 220 kWh battery pack and a length of 8.3 meters, the Karsan Autonomous e-ATAK stands out as a sustainable, high-capacity transit solution capable of efficiently meeting Gothenburg's urban transportation demands. The bus's ability to fully charge in 5 hours with AC units and 3 hours with DC units ensures the vehicle is always ready for service.

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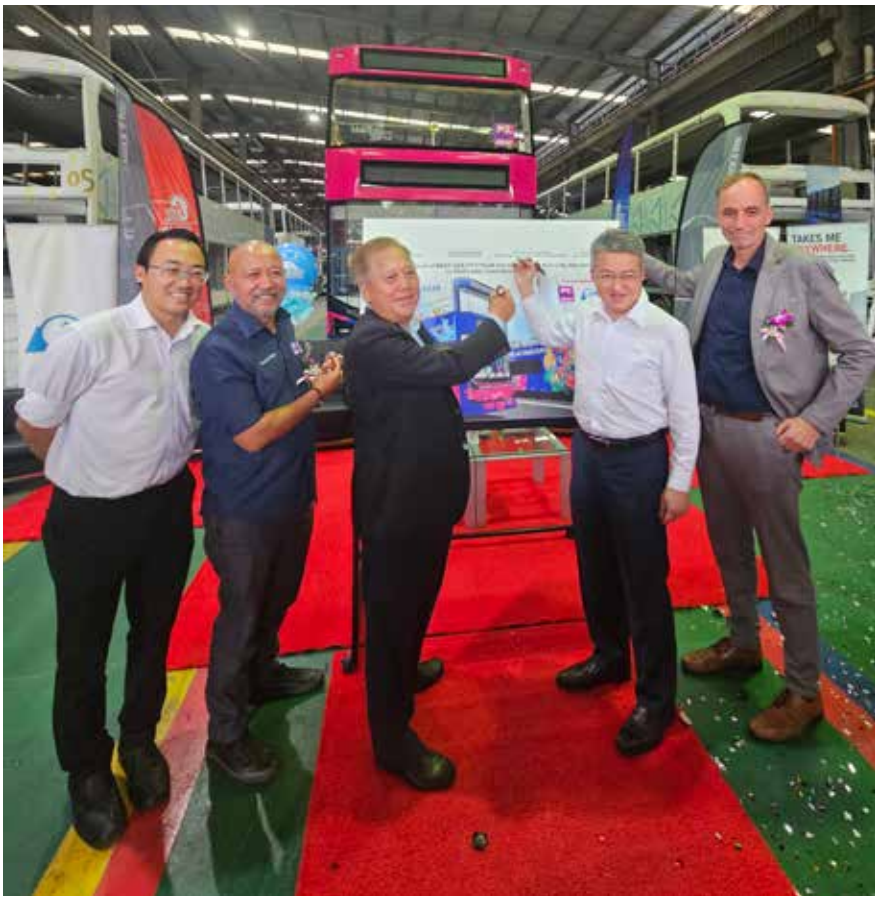
Elang Wah Hops on MAN for their HOHO

Elang Wah Sdn Bhd (EWSB), which operates the award-winning KL Hop On Hop Off (KL HOHO) open top double-deck sight-seeing buses, has become the first transport operator in Malaysia to operate buses built on MAN's Euro VI-specification bus chassis.



MAN Truck & Bus (M) Sdn Bhd (MAN Malaysia) officially handed over six units of the custom-built MAN Buses to EWSB at Gemilang Coachwork Sdn Bhd in Senai, Johor, recently. One completed unit that was displayed at the recent MATTA Fair 2025 in Kuala Lumpur received overwhelming response from visitors.

The colourful sight-seeing buses with lightweight aluminium alloy bodies and a fully retractable cover on the top deck customised by Gemilang Coachwork, are built on the proven MAN RR3 bus chassis and powered by MAN's high-performance Euro VI-specification D26 engine with a maximum power output of 440 hp and 2,250 Nm of torque.

The 12.4-litre MAN engine is mated to a ZF EcoLife 2 6-speed automatic gearbox. The next-generation gearbox

is highly suitable for start-stop city bus applications. Its weight-optimised and robust design delivers an excellent and smooth driving experience through fast and comfortable gearshifts. It also features a new torsional damper and advanced software functions that help provide quieter operation while improving overall fuel efficiency.

All the 56-seater buses are equipped with advanced safety features such as Electronic Braking System (EBS), Anti-Slip Regulation (ASR) traction control system, Anti-Lock Braking System (ABS), Electronic Stability Program (ESP) and Tyre Pressure Monitoring System (TPMS).

Beyond the safety features, the on-board PA system is a unique feature. Passengers on board can opt to use headphones, which will provide commentary in their respective language. Using GPS, with geofencing, the commentary accompanying the journey will be triggered to provide insights into the sights around the vehicle. This is to elevate the experience while offering an educational experience for visitors to Kuala Lumpur. In view of the upcoming Visit Malaysia Year 2026, this feature will be highlighted in particular in EWSB's communication.

Speaking at the event, MAN Malaysia Managing Director Marc Appelt, commended EWSB for its decision to choose MAN's proven bus chassis and became the pioneering customer of the low-emission Euro VI diesel engine in Malaysia.

"The decision to invest in Euro VI buses when the Malaysian is still in the early stages of adopting Euro V standards clearly demonstrates EWSB's far-sightedness, industry leadership and commitment to sustainability. Euro VI is the current standard for all new heavy vehicle registrations in Europe. Aside from lower emissions of harmful gases, Euro VI diesel engines offer more power to boost operational efficiency but uses less fuel which results in lower costs," he said.

Appelt also reiterated MAN Malaysia's readiness to provide EWSB with world-class aftersales support to keep the new MAN Euro VI buses operating with optimum uptime.

"Our back-end is highly digitised with an easy and convenient MAN Online Service Booking system to secure repair and maintenance appointments while our Mobile24 breakdown service provides round-the-clock, hassle-free roadside assistance support in emergency situations. Our Shah Alam service centre is open until 2.00 am to cater to vehicles that can come in after working hours and be ready for collection in the morning," he added.

EWSB founder and Chief Executive Officer Tuan Syed Azhar Syed Nadzir said the decision to purchase MAN buses for the first time in 20 years was down to MAN Malaysia's ability to meet its urgent needs ahead of Visit Malaysia Year 2026.

"The team at MAN was extremely responsive and able to deliver the right chassis and worked closely with Gemilang, which is a certified manufacturing partner of MAN, to ensure that the new buses were delivered in just five months despite the high level of customisation required.

Prior to the purchase decision, we sought the advice of our peers in the transport industry and also talked to various experienced bus drivers. They had no hesitation in recommending MAN for its reliability, safety, power and comfort," he said.

In addition, he was praising the Gemilang Coachwork by saying that they have impressed him during

spontaneous, unannounced checks. "We have a habit of showing up without making an appointment when we want to check on the progress of our vehicles. Gemilang Coachwork has demonstrated an impeccable record and every time we dropped in on them, there was someone working on our buses."

EWSB's new MAN buses are scheduled to be commissioned into KL HOHO service by mid-September. The company is already looking into acquiring more new units as fleet replacement by the second quarter of 2026 in anticipation of the influx of tourists.

Daimler Buses Introduces eIntouro

Daimler Buses celebrated its world premiere at Busworld Europe 2025 from October 4 to 9, 2025 in Brussels: With the Mercedes-Benz eIntouro, the enterprise is presenting its first all-electric series-production inter-city bus to the public. The high-floor bus is based on the familiar diesel-powered Intouro, but has a battery-electric drive. This means that Daimler Buses is now also enabling the switch to e-mobility for the first time for classic inter-city routes, school bus trips, and smaller trips. Two lengths are available: The 12.18-meter eIntouro and the 13.09-meter eIntouro M.

The new Mercedes-Benz eIntouro is optionally available with one or two battery packs, each with a capacity of 207 kWh. The maximum total capacity is 414 kWh. The first battery pack is always accommodated in the space behind the front axle to ensure optimum weight distribution. The optional second battery is located in the previous engine compartment at the rear. The batteries and many of the high-voltage components of the new eIntouro are already successful in the battery-electric long-haul truck Mercedes-Benz eActros in action.

The batteries are based on lithium iron phosphate cell technology (LFP) and provide a supply voltage of 800 volts. The LFP cell chemistry exhibits very good performance in terms of calendar aging, which is why a service life of up to 15 years is possible for individual applications. In contrast to other battery cell technologies, more than 95 percent of the installed capacity can also be used with LFP technology. If equipped with two battery packs, the eIntouro can cover up to 500 kilometers without recharging, depending on driving style, topography, and weather conditions.

The batteries can be charged at charging stations overlaid with CCS type 2 plugs with up to 400 kW charging capacity when equipped with two battery packs and up to 225 kW charging capacity with one battery pack. Companies that already have eCitaro buses in their fleet can use the existing charging technology provided that it has an output voltage of at least 900 V.

Daimler Buses combines tried-and-tested components for the powertrain: The central drive ZF CeTrax 2 dual CX332 with 320 kW continuous performance and a maximum output torque of 24,700 Nm serves as the electric motor. The drive force is transmitted via a fully automatic three-speed transmission integrated in the drive unit to the Mercedes-Benz RO 440 drive axle. This configuration enables a high share of common parts with the conventional Intouro and thus a high level of availability and profitability. With the Mercedes-Benz eIntouro, Daimler Buses is the first bus manufacturer in Europe to present a bus that can be updated over-the-air. Software updates are transmitted to the vehicle via the mobile network and the system is updated without a workshop visit being required as previously. Updates are controlled via the Omniplus On portal. The new electronics architecture in the eIntouro allows secure two-way communication and the transfer of possible updates via mobile communications. This means that the software of the control units in the vehicle can always be kept up to date without having to bring the vehicle to the workshop. This reduces the number of workshop visits and improves vehicle availability.

The safety equipment in the new eIntouro includes a multitude of state-of-the-art assistance systems. The optional emergency braking system Active Brake Assist 6 (ABA 6) can react to pedestrians and cyclists crossing its lane, approaching the vehicle, or moving along its own lane with automatic maximum full-stop braking. Sideguard Assist 2 monitors not only the front passenger side but also the driver's side. At speeds above 40 km/h, Sideguard Assist 2 also performs the function of a lane change assistant. Up to the maximum permissible speed, it informs the driver of objects on both sides of the vehicle. Frontguard Assist monitors the traffic area in front of the vehicle up to a speed of 15 km/h and can warn the driver of people or obstacles when moving off. The eIntouro's standard equipment also includes the intelligent Traffic Sign Assist speed limiter, the Tire Pressure Monitoring (TPM) system, Attention Assist (AtAs), an interface for the use of alcohol testers for the driver's area, and a reversing camera. As an alternative to the reversing camera, enterprises can choose the optional 360° camera system. MirrorCam instead of conventional mirrors is also available for the eIntouro.

Events & Exhibitions

Japan Mobility Show

Date : 30 October – 9 November 2025
Venue : Tokyo Big Sight
Contact : https://www.japan-mobility-show.com/app/en/contact/

The Japan Mobility Show was launched in 2023 as the successor to the 70-year-old Tokyo Motor Show to spotlight the comprehensive transformation taking place in the sector and bring together companies across industries to pursue innovative visions for future mobility. Japan Mobility Show 2025 will showcase wide-ranging advances that expand and enhance mobility from multiple perspectives, enabling visitors of all generations to experience and enjoy a new and exciting world of mobility

BUS2BUS

Date : 15 – 16 April 2026
Venue : Berlin Exhibition Grounds, Berlin, Germany
Contact : https://www.bus2bus.berlin/en

BUS2BUS is for everyone who's offering or searching for something new in the industry. As a central meeting point at BUS2BUS, the trade show focuses on all aspects of modern buses. Here you will get a full overview of the market. The national and international exhibitors present innovations, current products and numerous new vehicles. Buses can also be viewed and tested "live" in action in the Outdoor Area.

Future partnerships are formed in the Startup Area, where young companies from the mobility industry present their solutions.

Busworld Türkiye

Date : 17 – 19 June 2026
Venue :
Contact : https://www.busworldturkey.org/en/contact

Since 1971 Busworld organizes events for the bus and coach industry around the world. From live exhibitions and conferences to online events where we bring bus people together to network, do business, exchange knowledge, and not to forget: have fun. At Busworld business and pleasure go hand in hand.

It's the platform where the latest innovations and trends in the world of bus and coach are being revealed, displayed and discussed from leading global brands to local start-ups.

Busworld Türkiye is the second biggest and most international exhibition after Busworld Europe. The bus and coach market in Türkiye is absolutely huge and thus brings many opportunities for companies that are looking to expand their export business to or from Türkiye.

IAA TRANSPORTATION 2026

Date : 15 – 20 September 2026
Venue : Deutsche Messe Hannover exhibition centre, Hannover, Germany
Contact : https://www.iaa-transportation.com/en/exhibitors

Visit IAA TRANSPORTATION in Hannover from September 15th to 20th, 2026 (Press Day: September 14th, 2026) - the leading platform for logistics, commercial vehicles, and the transport sector.

Latest Scania Engines Introduced

Scania launches new combustion and plug-in hybrid powertrains for buses and coaches

Scania's new powertrain platform, based on the Super truck engine, comes in internal combustion and plug-in hybrid configurations for buses and coaches to meet varying needs and requirements, enabling significantly reduced fuel consumption and zero-emission zone compliance for long-distance operators.

In a time of political and technological change, when carbon emission regulations and varying local sustainability laws are creating uncertainty for bus and coach operators, Scania is responding with the launch of two new powertrains.

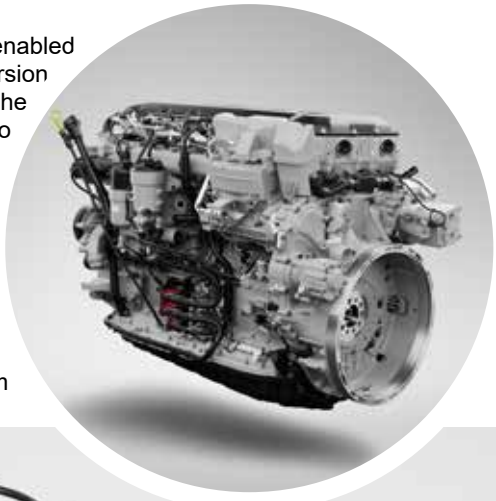
The new Scania Super combustion powertrain, which is already giving the company's trucks the benefits of its award-winning fuel consumption, is Scania's most efficient, cost-effective and long-lasting yet.

The plug-in hybrid electric (PHEV) variant is an excellent alternative for customers who are aiming for exceptional cost and carbon emission reductions, outstanding operational flexibility to meet zero-emission zone requirements, and the provision of a premium customer experience in their long-distance operations.

The new powertrain platform, with the two distinct alternatives in the ICE and PHEV solutions, allows long-distance operators to find a solution that is perfectly fitted to their particular challenges and prerequisites.

Scania Super: eight percent fuel and emission savings with extended lifespan
For a large portion of long-distance routes around the world, conventional buses and coaches remain the most suitable, or even the only, feasible choice. The Scania Super powertrain caters to those needs, representing the very latest in combustion technology.

There are several highlights here but one stands out: the exceptional fuel savings of up to 8 (eight!) percent compared with the equivalent current powertrain, which itself is already industry-leading. This greatly reduces the total cost of operation while also significantly cutting CO2 emissions.



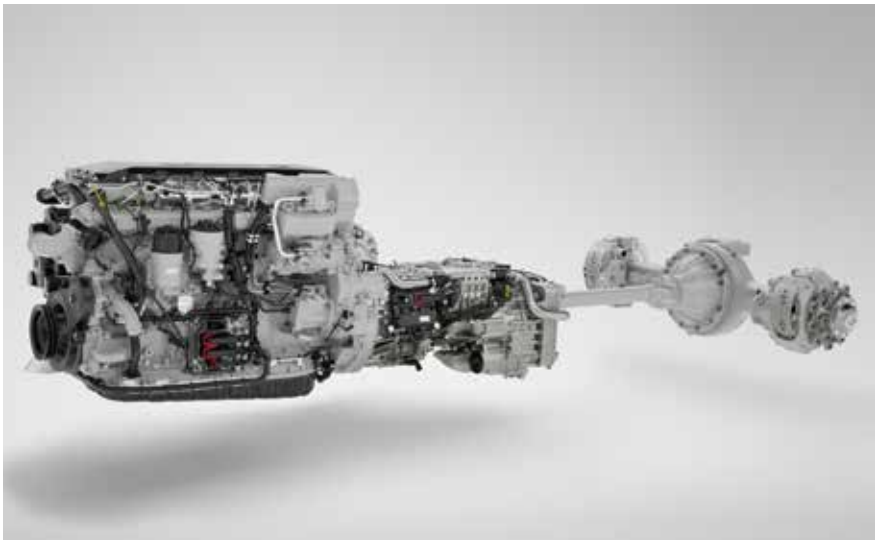
These cost and carbon savings are enabled by a new 13-litre engine and a new version of the Scania Opticruise gearbox. The powertrain is also prepared for the Euro 7 emissions legislation. A brand-new aftertreatment system further reduces harmful emissions.

Scania's commitment to sustainable people transport is matched by its commitment to helping customers get the most out of their operations. The new engine is designed with the aim

of lasting for two million kilometres, a massive increase from its already durable predecessor.

Uptime is also boosted because all engine filters are positioned on the 'cold', non-turbo side of the engine which allows for better service access and faster filter replacements.

Transport sustainability is not only about CO_2 emissions; it's also about safer roads. Scania is committed to road safety and the new powertrain's auxiliary brakes enable safer vehicle handling. Scania's suite of driver safety systems can add to this vitally important aspect of people transport.

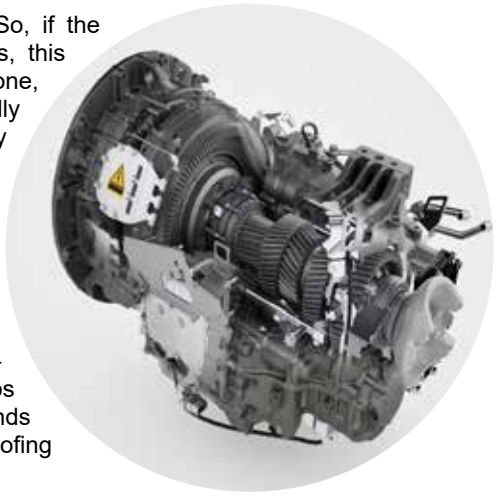


The plug-in hybrid: exceptional efficiency and up to 80 km electric range

The plug-in hybrid electric option (PHEV) is a versatile solution that is primarily designed to meet the demands of long-distance operations, enabling zero-emission zone compliance, drastically lowering fuel consumption and emissions, and increasing driver and passenger comfort.

With its integrated e-machine and six-speed powershift gearbox, the PHEV can run in four different modes: electric, hybrid, charge sustain and forced charging. The electric range is up to 80 kilometres on a single charge, while the electric power output is 290 kilowatts. Without compromising on total range, this makes it possible to enter zero-emission zones; even those of significant size. Depending on local requirements, the electric vehicle mode enables access to city centres – for current or future needs.

To facilitate the transition to and from electric mode, operators can choose to utilise Scania Zone geofencing technology to automate the process. So, if the vehicle is used in zero-emission areas, this can be pre-programmed into Scania Zone, meaning the vehicle can automatically switch to electric power from the still very efficient hybrid mode normally used in other types of traffic.

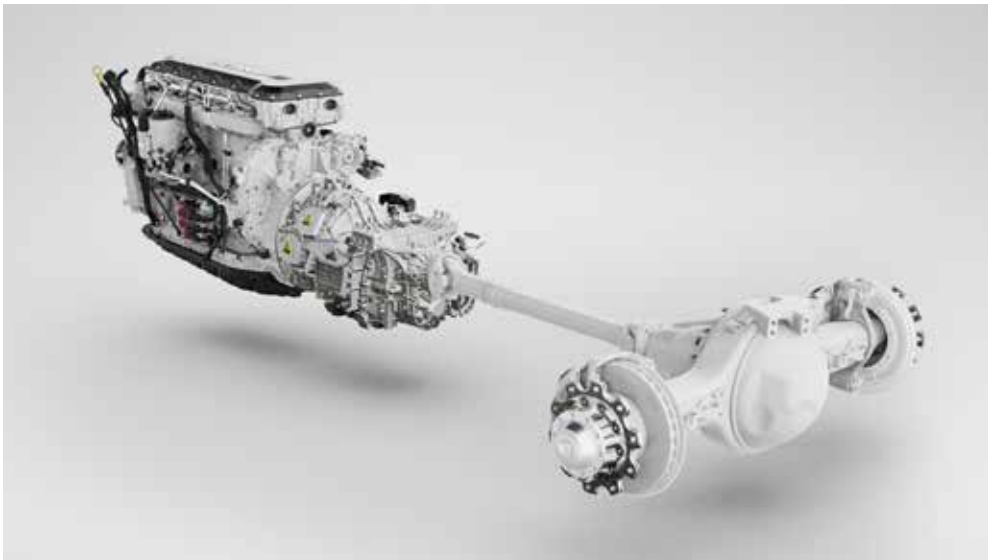


The different drive modes together add up to a powertrain that allows extremely efficient long-distance travelling – with fuel and emission savings of up to 40 percent in typical mixed coach traffic – and a flexibility and versatility that helps operators deal with the growing demands of coach operations while future-proofing their business.

Different solutions for different needs

"Our new combustion and plug-in hybrid powertrains are shining examples of Scania's twin commitment to sustainability and profitability for bus and coach customers," says Carl-Johan Lööf, Head of Product Management for People Transport Solutions at Scania.

"With these new powertrains, we will be able to provide long-distance bus and coach operators with incredibly competitive solutions, regardless of their specific needs or which particular challenges they face, meeting both their current and future business needs."



Volvo's Third-generation Driver Assistance Systems

Under the umbrella of ADAS, several systems are used to enhance road safety and driving comfort for the driver. Asian Buses takes a closer look at the complete package Volvo offers.

In mid-2024, Volvo Buses unveiled a new and updated range of smart safety systems designed to assist drivers and further improve safety for bus occupants as well as other road users. Volvo Buses applies a new approach, calling it "Three perspectives on safety". The new and updated safety systems are an important part of Volvo Buses' safety perspective, which help ensure it provides the best preconditions for safe driving to avoid collisions and, if an accident is unavoidable, minimise their consequences.

The perspectives consist of three levels - Safe Driving with clear margins for error and Collision Avoidance, both enabled by the use of the active safety systems that assist the driver. Finally, Collision Protection - features on the bus that protect the driver, passengers, and other road users when a collision cannot be avoided.

The safety feature are based on the driver's reality. With Volvo's active safety systems, all information to the driver is integrated in the instrument cluster, right in front of the driver. The absence of multiple external display units reduces distractions and helps the driver to stay focused. The driver's eyes are the best sensors we have. But because the human field of vision is limited, we add sensors for visibility all around the vehicle.

Radars and different types of cameras in sensor fusion configurations provide vital information about the traffic situation.

Active Safety Features

Volvo has the industry's strongest reputation for safety innovations. The brand gave us the ABS braking system, power steering and compressed air brakes. And their work continues, as they constantly improve, moving towards zero accidents. Today, the focus is shifting towards active safety systems, of which Volvo offers a comprehensive range.

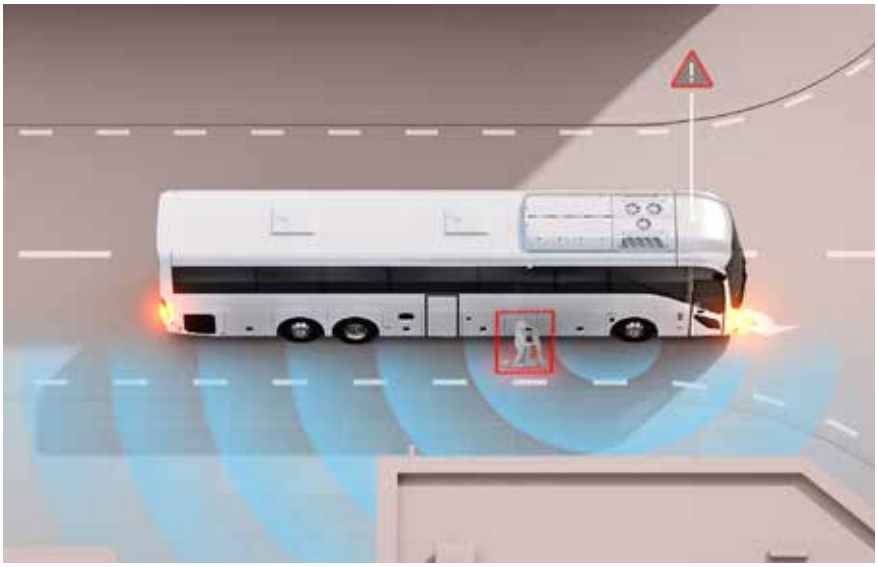
Collision Warning with Emergency Brake

With radar and cameras, the bus detects vehicles ahead, their properties, and changes in distance. If a collision is imminent, the driver gets both a visual and an audible warning. If the driver does not respond, the system automatically activates the brakes lightly in a pre-brake procedure, and then with full braking power. In excess of the legal demand, the braking procedure will be activated not only by detection of vehicles, but of cyclists and pedestrians as well.

Collision Warning with City Brake

This is an active safety function developed for buses allowing standing passengers. When detecting a risk for collision, the driver is alerted and unless immediate action is taken, the brakes are activated.

The sequence includes a pre-brake, which reduces the speed but also serves as a haptic alert signal to the driver. If there is still no driver action, the brake



force is increased to a retardation aimed to minimise the collision risk while still keeping the risk and inconvenience for standing passengers low. At low speed, typical for city traffic, the calculated time to impact is short which means that the pre-brake phase is barely noticeable, while at higher speeds the two phases are clearly different. The function is active at speeds above 10 km/h.

Forward Collision Warning
Forward Collision Warning uses radar to determine the presence of, and distance to, objects ahead of the bus. For enhanced performance, image processing provides additional and redundant data. When detecting a risk for collision, the driver is alerted and can take action at an earlier stage. The automatic warning can add valuable time to the safety margin, thus helping the driver to drive safely in dense traffic environments. The function is active at speeds above 10 km/h.

Adaptive Cruise Control
A forward-facing radar detects vehicles within a certain distance in front of the vehicle. By deploying accelerator and brakes, the system maintains a preset and speed-dependant distance to vehicles ahead. When no vehicle is detected, the system reverts to the preset speed.

Side Collision Avoidance Support
This system detects moving people and vehicles along the sides of the bus. Covering 30 meters rearwards and 7 meters in front of the bus, it serves as a blind spot information system (BSIS), warning the driver of, for instance, cyclists and e-scooters on both sides of the bus. It also functions as a lane changing support (LCS), warning the driver of approaching vehicles in adjacent lanes.

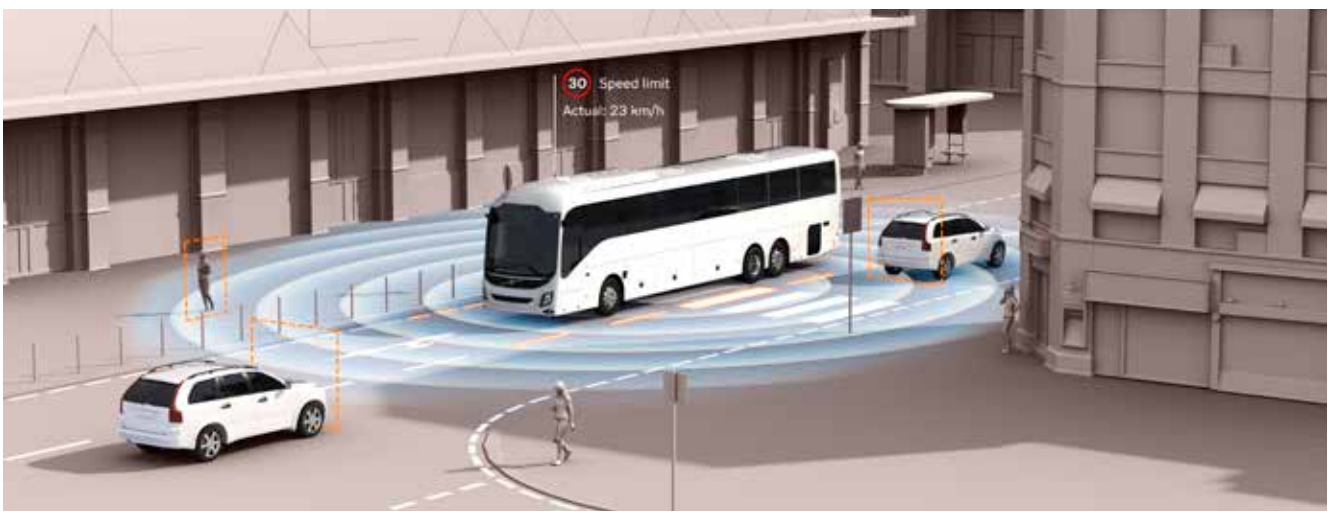
Front Short Range Assist
The system is active at low speed, below 10 km/h, when starting from a standstill. It uses radar, cameras and image processing to detect moving and stationary people and objects in front of the bus. It covers an area of approximately 4 x 4 meters in the immediate proximity of the bus. If an object is detected, the driver receives an audible and visual warning.

Lane Change Support
During lane changes, fast-approaching vehicles can easily cause a hazardous situation. Keeping an extra pair of eyes on the blind spots, on both sides of the vehicle, helps the driver to safely adjust to the traffic situation.

Driver Alert Support
The system detects patterns in steering wheel movements, and if there is a tendency to meander within the lane. If there are indications of insufficient driver focus, a warning is given by an illuminated symbol on the dashboard display.

Tire Pressure Monitoring System
Tires make up a substantial expense for fleets, and pressure monitoring can help reduce these costs. The system alerts the driver via the instrument cluster if a tire's air pressure drops below safe levels. The system will not only cut tire maintenance costs, it will also improve drivability and your fleet's energy efficiency.

While ADAS as valuable tools and awareness for the need for more sophisticated system are acknowledged, it must also be pointed out that the driver remains the most critical component when it comes to road safety. Volvo therefore stresses that proper training on how to best uses ADAS in combination with defensive driving practices are the best way forward.




busworld
OTOKAR
e-CENTRO

Busworld Europe: : The Global Pulse of Bus and Coach Innovation

Asian Buses visited the world's largest exhibition dedicated to buses, accessing the latest trends, innovations and products in people transportation.

This year's Busworld in Brussels turned out to be a major milestone for the organisers as well as exhibitors. Drawing record crowds, seeing world premieres and improving on the user experience, the show concluded as a resounding success. Filling a total of 85 000 square meters, a total of 560 exhibitors from 40 countries jostled for attention. This year, 81 bus builders joined the event.

This time, Turkish brands dominated the exhibition with 107 companies participating, China with 85 companies, and Germany with 68 companies. Inside the halls, 252 vehicles were on display while another 32 were set up outside. Many of the buses, some of them autonomous, were available for test drives. Lining them all up, it would have been around 5.1 Kilometres of buses. This number was surpassed by the length of carpet laid at 6.8 Kilometres.

While the presence of Turkish brands could be felt, signalling these ambitious brands are poised to make their mark on the global stage, it could also be observed that Hydrogen-powered vehicles have yet to shine. Among the many exhibitors showcasing new BEV vehicles, specialists emerged offering conversions of ICE-powered buses to BEV. In doing so, bus operators can enjoy the benefits of electric powertrains without having to purchase new chassis and bodies, which are oftentimes still fit for many years of service to come when the original combustion engines start to give problems. Also making an impression were numerous brands utilising the outdoor areal to demonstrate their autonomous buses.

The Busworld Conference offered delegates a plethora of possibilities to get updates and insights. Organisers of the expo highlighted that altogether, the event welcomed 282 speakers, of which about 20 percent are female. According to Busworld organisers, the low involvement of females remains a

problem in our industry. The European Union is asking for a 50-50 match, which in the transport industry continues to be a problematic goal to achieve.

Busworld Plaza is here.
It is an innovative website developed by Busworld, the world's leader in bus and coach exhibitions since 1971. As brand that has allowed bus manufacturers and operators to have a meeting space at its exhibitions in Europe, Asia and America, Busworld strives to enhance businesses in the industry world-wide through solutions beyond exhibitions.

Bus and coach manufacturers will now have a permanent space available year-round. Busworld Plaza connects sellers and buyers seven days a week, 24 hours a day through a simple interface. By registering as a buyer, those sourcing bus components can find sellers from all over the world, selected and verified by the Busworld team.

"To be clear, Busworld Plaza is not a sales platform but a 'community' where we want to bring people from the bus industry together when they are looking for one product or the other. Through Busworld Plaza, you can search for products in a targeted and detailed way. Think, for example, of bus doors, steering wheels, or seats, and filtering by the countries in which the suppliers are active," said Mieke Glorieux, Director Busworld Europe.

ZF: Booming Bus Business
According to Fabian Schlegel, Senior Vice President and Head of EMEA Region within ZF's Commercial Vehicle Solutions Division (CVS), ZF's bus business has grown by 30 percent over the last three years. Currently, the brand has more than one billion euros in orders in the pipeline. Seen as a clear signal that ZF is delivering what the market needs, from development to deployment, Total Cost of Ownership is at the heart of every solution the German brand creates for their customers. Hence, ZF's bus technology business is expanding faster than the overall market. As an overarching trend they see more OEMs and fleet operators equipping their vehicles with ZF's intelligent systems."

At the show, ZF premiered a new generation of axles for upcoming bus and coach platforms. This includes the A134 axle which enables overall energy savings through improved recuperation capacity and reduced weight, while maintaining existing installation points. ZF will also reveal details of its AV134 portal axle, which has up to 20 percent higher torque capacity and enables more than 4 percent lower energy consumption compared to the previous generation. The SOP is planned for 2027.

ZF also presented new performance data for its electric drives, with the latest central electric drive, CeTrax 2 dual, achieving an efficiency rate of at least 94.5 percent. Its latest electric portal axle, the AxTrax 2 LF, can also generate 20% energy savings compared to its predecessor, based on SORT testing, and can support 6x4 configurations as well as 6x2, providing OEMs with design flexibility.

New additions to its electrified auxiliary systems portfolio are also highlighted by ZF, including a newly developed Air Supply Unit featuring its recently launched oil-free e-comp Scroll compressor. These systems enhance efficiency and significantly reduce Noise, Vibration and Harshness (NVH), a growing area of focus given the quiet operation of electric buses.

ZF's ingenuity is also recognized at Busworld with the Digital Award for its Braking and e-Drive Synergy Program. Based on ZF's new electric drives and the modular braking platform mBSP XBS, this solution uses advanced software to synchronize driveline and braking into one integrated system. It maximizes energy efficiency while maintaining full stability control, improving operating costs and reducing TCO for fleets.

ZF continues to advance safety by developing ADAS technologies to fulfil regulatory requirements. ZF's suite already meets ADAS and General Safety Regulation (GSR) standards. At Busworld 2025, ZF introduces two new solutions that comply with the General Safety Regulation: The Advanced Driver Distraction Warning, which monitors driver behaviour to detect distraction, fatigue or other unsafe actions, and the Event Data Recorder, which can provide vital crash-related vehicle data to support accident investigations and safety analysis.

BYD's Blade Cuts to the Chase

By now, the brand does not need any further introduction. Known in the industry for their thought leadership centred around the battery of vehicles, BYD showcased a number of vehicles in one of the biggest stands on site, taking up some 1 000 square meters.

Their battery technology, named Blade, was the centrepiece of the displays. Allowing for modular configuration and innovative chassis constructions, has now found its way into even the longest vehicles offered by the Chinese brand. BYD's Blade technology utilizes a Cell-to-Pack (CTP) approach with long, flat lithium iron phosphate (LFP) cells arranged in an array, increasing energy density, safety, and space utilization by over 50 percent compared to traditional battery packs. This innovative design allows each cell to function as a structural beam, enhancing the pack's overall rigidity and safety, while also enabling a longer battery life and improving energy efficiency. Buses on display were constructed with their batteries integrated into the chassis. It is the belief of BYD that this is a safer way compared to roof-mounted batteries, which would shift the centre of gravity significantly upwards.

Blade technology was first used in BYD's 12-meter buses. Following that, the power plants were introduced to the 13- and 15-meter vehicles. At Busworld Europe, it was the first time BYD showed the 18-meter articulated bus equipped with blade battery.

Citing the adaptability of BYD's busses to the local climates, the company has made good progress in conquering Europe, especially the Nordic countries. However, it was pointed out that BYD buses can also be found in the Middle East. This, according to a spokesperson Asian Buses spoke to, is a testament to the high quality and engineering marvels the brand is producing. Nordic countries appear to be at the forefront of carbon emission reductions, which plays into the hands of those that have been heavily involved in BEV technology as pioneers.

Comfy Rides on Wings of Butterflies
Butterfly Flexible Seating Solutions (Butterfly Seating) launched their seating solution called Butterfly-Motorcoach. Being a seat that converts into a bed, the Coach Sleeper Seat, was introduced to European operators. According to Butterfly Seating, the solution is a uniquely flexible design that redefines long-haul comfort. In less than ten seconds, the Butterfly seat can transform from two premium recliners into a private lounge or a full two-meter lie-flat bed. By simply pressing a button, without tools, floor anchoring, or cabin rework. This flexibility allows operators to serve multiple passenger segments with a single vehicle and avoid costly reconfiguration. It is especially valuable for markets such as overnight scheduled services, sports leagues, and entertainment tours. These are segments where passenger comfort and privacy are critical. Already in service across the U.S. through Napaway and its network of operators, Butterfly proves how its engineering expertise turns flexible design into measurable value for passengers and operators alike.

Seatbelts: Clicked!
Austrian safety systems provider Holmbergs showcased their range of seat belts for commercial, agricultural, construction, and other speciality vehicles keep drivers and passengers secure as they travel and work. Supporting these systems, the company also offers monitoring systems, which should be of particular interest Malaysian bus operators.

When passengers sit down on a seat, the bus driver will be informed via

Malaysian Expertise
Standing tall was an electric double deck bus at the CRRC Corporation Limited stand. Known for their railway products, the state-owned brand is also involved in the development of future public transport products for Hong Kong.

Operating on several continents and in countries like Singapore, New Zealand, Australia, United Kingdom, Europe, and also Middle East, the brand is no

stranger the industry. However, it is Hong Kong which steps up to be a pioneer to introduce thier full electric double deck EV truck.

The specification summed up reveal the vehicle to be 12 metre in length, 2 455 mm width, and 4.4 metre height and it is fully electric. Safety is a main concern for large vehicles such as this in Hong Kong. The topography and harsh, subtropical climate pose special circumstances.

Introducing the vehicle, Gemilang Coachwork underscored that their approach is the perfect solution. Using a tested and proven Swiss system, using aluminium structures, making it the safest transportation solution in the delivery operation. Body structures manufactured by Gemilang Coachwork are bolted, not welded allowing for easier repairs while the material, aluminium, is corrosion resistant.

CRRC, best known for their trains is using the same platform, same culture, using the same major components to produce buses. The business is anchored in five major cornerstones: strong power, lightweight body, fully aluminium body and extra comfort, safety is our most concern.

Using the same underlying principles when manufacturing trains, CRRC is using the same platform, design, syllabus and the procedure for full electric buses. Their high-speed and underground trains are all powered by electricity. CRRC being focused on electric, together with the expertise of Gemilang Coachwork is proud to be offering the full-electric double-deck in a demanding market like Hong Kong as a pioneer product.

Fast to Europe: Vinfast

At Busworld, Vietnamese manufacturer VinFast presented two new buses for the first time on European soil. The names couldn't be simpler: EB8 for an Electric Bus that is 8 m long and EB 12 for one that measures 12 m.

The EB8 draws attention to VinFast's innovative design. This bus can accommodate 60 passengers and is equipped with 360 kWh Gotion LFP batteries. These are partly located on the roof and partly in the floor. This makes the entry height too high for European homologation, but the vehicle is available worldwide for other markets. VinFast specifies a range of at least 300 km.

The EB12 was designed entirely in accordance with European regulations and the existing charging infrastructure. As a result, the EB12 complies with UNECE and CE standards and has full European homologation. For its introduction to the European market, we will be working with local bus specialists as suppliers of charging infrastructure.

To keep maintenance and repairs simple, European components were specifically chosen. For example, the drive axle is a ZF AVE130 portal axle with two 125 kW hub motors, the doors are from Ventura, and the seats are from Ster. The bus has all ADAS features on board. The driver is been given a head-up display, which is rather extraordinary for city buses. Depending on the configuration, with either two or three doors, and the specific requirements of the operator, the EB12 can carry around 90 passengers.
The EB12 is equipped with up to 422 kWh LFP batteries from manufacturer CATL. This provides a range of more

than 400 km according to SORT2. VinFast guarantees at least 80 percent SOH after eight years. The batteries are continuously monitored in real time. Charging is done via a standard CCS2 plug at a maximum of 140 kW and takes only two to three hours. VinFast offers a 5-year warranty on the entire vehicle, which has a very favourable impact on the TCO.

Karsan's Japan Journey

Being able to operate autonomous, electric buses in Japan has been a challenge as well as a test bed for the Turkish bus manufacturer.

Karsan, began the automotive journey in 1960 by producing vehicle chassis. To understand the current status of their autonomous vehicles, one needs to look at the history first. Initially, the company was increasingly involved in the production of ICE buses for use in public transportation. Karsan's vision had changed, and they said that they wanted to be "one step ahead". In their words, this means that they must be a pioneer for public transportation. "We started with electric buses, and it is followed by autonomous bus then FCEV bus (hydrogen powered). We have been producing electric buses since 2017 starting with e-JEST minibus," Deniz Cetin, KARSAN, Chief Commercial Officer, Karsan Otomotiv Sanayii ve Tic. A Ş (Karsan), told Asian Trucker.

Pioneering Transporation

In 2018 the e-ATAK midibus model was launched; in 2019 Karsan produced their first e-ATAK Autonomous model. In 2021 the e-ATA 10-12-18m bus model range was introduced. "Our vision pushed us more forward and we produced FCEV e-ATA in 2022 and signed a with Toyota Motor Europe. As technology is rising worldwide as we do, in 2025 we produced our fresh new model autonomous vehicle e-JEST Autonomous. Our next step should be producing Autonomous e-JEST." Cetin said. Always has to be "one step ahead".

Currently, Karsan has delivered over 2000 electric and autonomous buses into 27 countries on three continents. Summing up their passion, it is to provide safer, smarter and innovative public transportation solutions to the world. What Karsan has discovered is that one would first have to be able to successfully deliver buses with electric powertrain. Only then can one add the autonomous technology. An advantage Karsan sees in their operations is that they are active in the Americas as well as in Europe and Asia, which Cetin says sets them apart and allowing them to compete in Japan against their own established OEM brands.

Entering the Japanese Market

Karsan's Japan journey started with their partner Altech Co Ltd visiting Busworld Europe in 2022. By then, the Turkish

bus maker already produced a e-JEST RHD version. After initial discussions and benchmarking in Japan, Karsan delivered their first e-JEST RHD Japan vehicle in 2023 December. It followed with two vehicles for customers commencing real-time operations in September 2024. An additional, new customer vehicle will be delivered in November 2025. In another, on-going project partner Altech, “We are determined to bring safer, smarter and innovative public transportation solutions to Japan with the help of our partner Altech.”

Considering that it is a new technology, autonomous public transportation still does not have a specific regulation, an issue that persists in all markets globally. Authorities are trying to understand how to test or regulate autonomous bus safety. In view of the fact that it affects human lives, safety is always the number one priority in any kind of transportation.

According to Cetin, what Karsan found is that the country is very receptive to the idea of replacing human drivers with machines, due to aging population. According to research, by the year 2035 Japan will face a shortage of drivers. Government or local operators cannot provide a public transportation service without a driver. Japanese authorities already made decisions to take steps for future transportation with autonomous vehicles. There are some trails in different cities to get more experience with it.

Addressing Real World Problems

Besides being able to address the issue of an impending driver shortage, Karsan has identified real world problems that can be solved with autonomous vehicles. An ageing population means that fewer people would require public transport and thus, the Japanese government is also shutting down train routes. This, however, results in a lack of connectivity for those living in towns affected by the train service discontinuation. “It is such a scenario that favours our autonomous vehicles,” Cetin said. Being able to deploy their Autonomous e-JEST and Autonomous e-ATAK on different routes at different times enables to provide transportation services where needed.

Cetin explained that the technology deployed is Level 4 autonomous driving, which means that there is still an attendant riding along, who can intervene in case of any issues. Featuring a fully equipped dashboard, the bus is still offering the possibility to operate outside the routes geofenced for autonomous driving. A clear business case is being made here as the fact that this level of autonomous driving allows the operator to rent out the vehicle for other missions.

Testing Grounds

One of the major findings was about the impact of climate on electric vehicles. Japan has a different climate from Türkiye, with hot and humid summers as well as winters with snow and frost. Addressing this, Karsan asked what is going to happen to an electric vehicle when it is minus 40 degrees out there or plus 50 degrees like in the Middle East. Vehicles would have to have enough capacity to keep either heavy-duty air conditioning or heating going throughout the operating hours.

Besides that, Cetin said that one of the biggest “aha moments” was when it was discovered that the two cultures are very much alike, to the point that grammar is almost identical in their two respective languages. Culture is a huge aspect when it comes to international sales and Karsan found that the Japanese are true to their approach of product quality. “First and foremost, our Japanese clients are looking for quality, vehicles that last and that perform without glitch for a long time. Consequently, they do not shy away from spending more, but one has to deliver on the promise of sustainability and uptime.” Japanese people have been known to be very receptive of new technology, embracing it, rather than seeing it as competition to the workforce, which supports the concept of using autonomous vehicles.

Another concern is a cyber security. In 2024, some 52 000 cyber-attacks were reported in Japan. As autonomous vehicles depend on internet access and wireless connectivity, this is one of the top subjects on the agenda of Japanese authorities.

For now, there are only but a few Karsan electric vehicles operating in Japan. “It is important to make sure that the product is the right fit,” Cetin cautioned. Letting their customer and distributors test the climate, test the vehicle, allows the partners to eventually accept the vehicle or incorporate new features, make adjustments, or revise the specifications.

Operational Mastery in Tyre Management: From Performance Metrics to Profitability

In the business of logistics, every kilometre counts. But behind every successful delivery and every cost-efficient route is a complex dance of operational decisions - many of which ride, quite literally, on tyres. While tyres may seem like standard consumables, their management holds the key to maximising fleet efficiency, minimizing downtime, and driving long-term cost savings. The question is no longer should fleets invest in tyre management - it's how deeply they embed it into the very core of their operations.

As the logistics sector evolves under the twin pressures of performance optimisation and ESG compliance, operational tyre management has emerged as both a cost strategy and a sustainability imperative. This article unpacks the real-world factors - technical, strategic, and procedural - that truly matter in operational tyre performance. We go beyond procurement, diving into pressure, load, alignment, casing care, digitalization, and failure analysis, all the way to future-facing sustainability metrics. This is the new lens through which tyre mastery must be viewed.

Tread Selection: Matching the Road, Maximising Performance

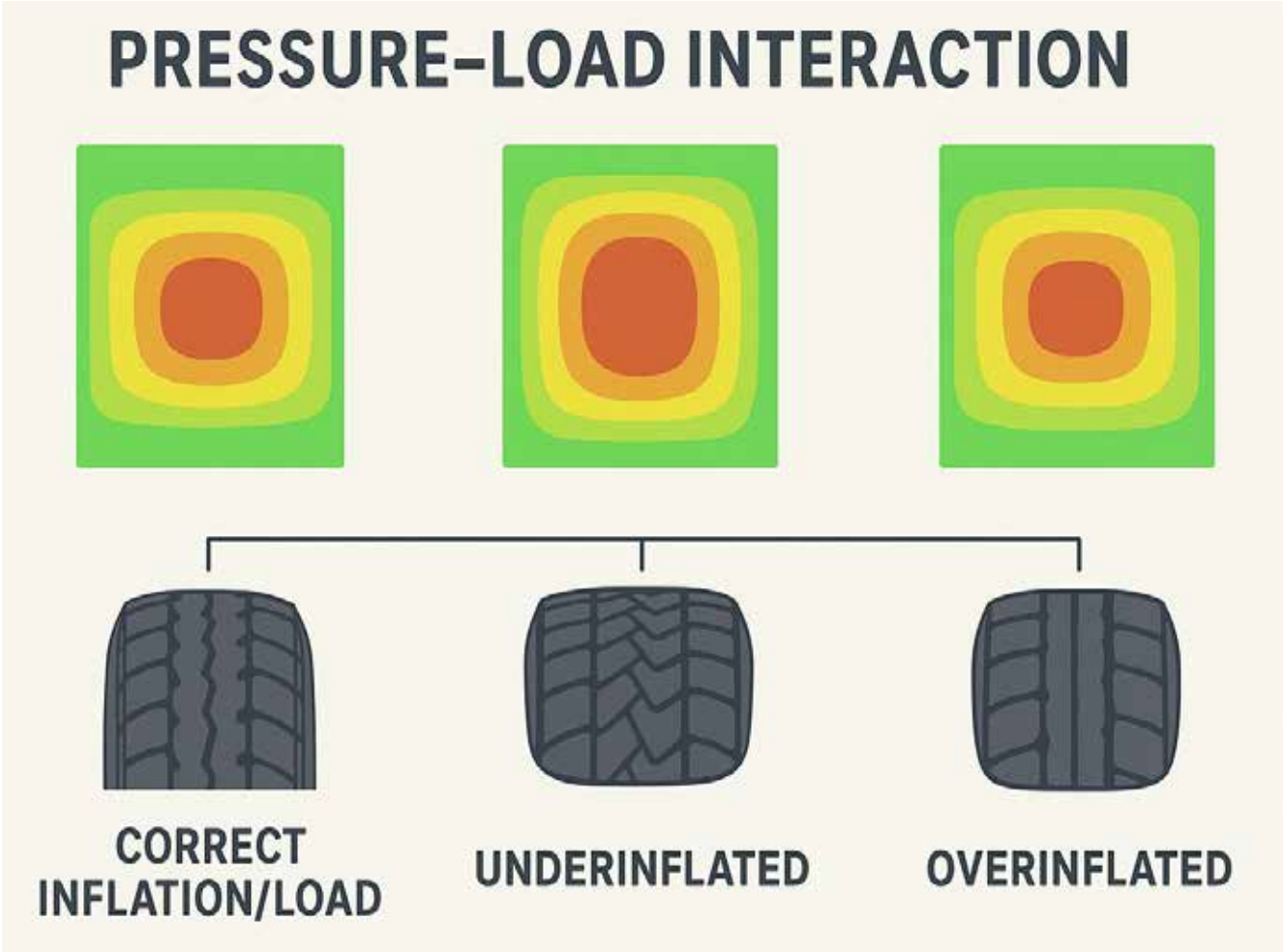
A surprisingly common operational mistake is using the wrong tread design for the wrong route. Tyres with aggressive lug patterns, designed for off-road traction, are sometimes deployed on smooth highways, causing excessive rolling resistance and wasted fuel. Conversely, highway treads on mixed-service or construction routes wear out prematurely and dangerously, lacking the grip needed for mud, gravel, or wet conditions.

Effective fleet operations take application-based tread selection seriously. Tyre procurement should consider not just brand or price, but the specific duty cycles the tyre will endure. Fleets operating across different terrains must maintain a diverse tyre inventory that matches regional needs. In Southeast Asia, for example, wet traction is a critical factor year-round. Ensuring the right tread pattern for rain, urban braking, and heat dispersion can have a measurable impact on both performance and tyre longevity.

When tread design is matched to actual route conditions, operational teams achieve more uniform wear, safer vehicle handling, and significantly lower fuel consumption - all of which directly feed into improved cost-per-kilometre (CPK) performance.

Pressure & Load: The Unseen Power Duo Driving Tyre Life or Death

In the world of fleet tyre operations, pressure and load are inseparable partners in performance - and when one fails, the other will turn against you. Tyre pressure is the invisible hand that quietly dictates casing life, rolling resistance, and fuel efficiency. Load, meanwhile, is the silent weight pressing down on every kilometre of service life, shaping how a tyre flexes, grips, and ultimately wears out. Together, they decide whether your tyres are cost-saving assets or profit-draining liabilities.



Consider this: a mere 10 percent underinflation may seem harmless, but it can slash casing life by up to 15 percent, rob you of 2–3 percent in fuel efficiency, and generate excess internal heat that quietly eats away at structural integrity. Overinflation isn't innocent either - it crowns the tread, shifting the load onto a narrow strip down the centre, accelerating wear and compromising traction. Yet, pressure errors rarely operate alone. They are magnified - sometimes catastrophically - by poor load discipline.

An overloaded axle doesn't just consume tread faster; it bends the sidewall beyond its intended flex, inflicts hidden damage on the carcass, and sets the stage for failures that may strike hundreds of kilometres later. In multi-axle setups, the danger is even greater, as weight is rarely distributed evenly without careful oversight. One axle running "heavy" can be enough to destroy the most expensive tyre in your fleet well before its time.

This is why forward-thinking fleet operations treat pressure - load balance as a mission-critical parameter - not a line item in the SOP. Each axle position has a defined load-carrying capacity, and every tyre fitted there must be inflated to match that load precisely. Today's best fleets deploy real-time Tyre Pressure Monitoring Systems (TPMS) and onboard axle load sensors to keep every position in check; every second the vehicle is on the road.

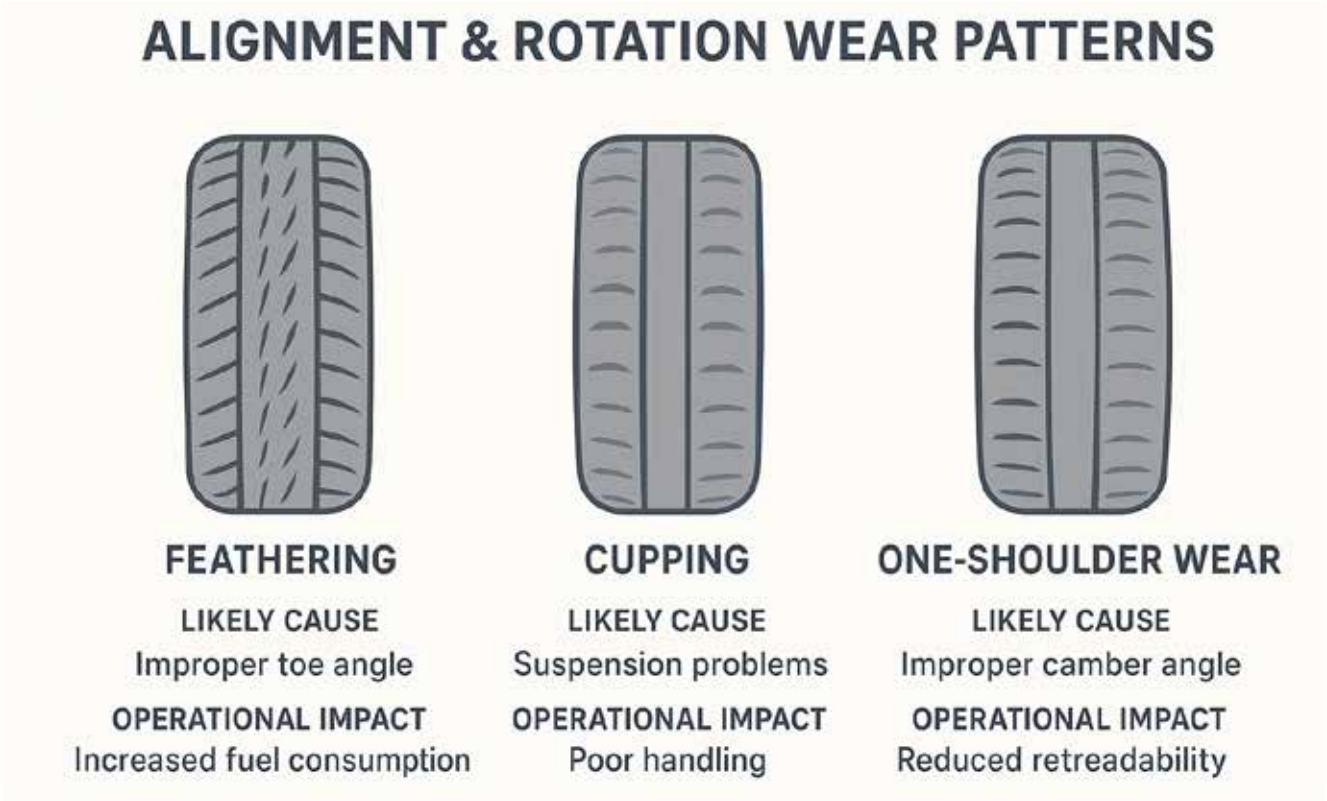
The human factor remains just as vital. Warehouse loaders and yard crews must be trained, audited, and empowered to follow manufacturer load indexes to the letter, not by guesswork or convenience. When pressure and load are actively managed together - tracked, logged, and enforced down to the individual axle - tyres reach their full design life, retread potential remains intact, and fleets unlock real cost-per-kilometre savings.

Pressure keeps the footprint stable. Load keeps the structure honest. Together, they are the unbreakable foundation of operational tyre excellence - ignore them at your peril.

Alignment and Rotation: Invisible Wear, Visible Cost

Operational inefficiency often hides in plain sight - like the telltale signs of misalignment or skipped rotations. Slight misalignment causes uneven wear patterns such as feathering or cupping, which in turn lead to reduced tyre lifespan, noisy rides, and lower fuel efficiency. Worse still, irregular wear may render tyres unfit for retreading, wasting what could have been an additional tyre lifecycle.

Fleet operations need to enforce a structured alignment and rotation routine. Ideally, alignment should be checked every 20 000 to 25 000 kilometres or during every major service. Rotation, too, should be based not just on mileage intervals but on actual wear patterns captured



through tread depth mapping or visual inspection. When wear is distributed evenly, tyre casings remain structurally sound, retread success rates go up, and the vehicle itself handles more safely - especially in emergency manoeuvres.

The operational value of alignment isn't limited to tyres. Properly aligned wheels reduce strain on suspension systems and minimise fuel drag. In short, alignment is not a technical formality - it's a bottom-line contributor.

Casing Management: The Untapped Value in Every Tyre

Casing is the unsung hero of tyre economics. While the outer tread may wear and be replaced, the casing - the structural foundation - can often be used two or even three times if managed correctly. Yet in many fleets, casings are damaged, discarded, or rejected far earlier than necessary, often due to poor handling, underinflation, or late-stage failures that go undiagnosed.

Operational excellence in casing management begins with inspection. Shearography or digital X-ray scanning before retreading decisions are made can identify internal separations or flaws invisible to the naked eye. Casings should be tagged, barcoded, or RFID-enabled to enable full traceability from deployment to retread return. This creates a closed-loop system where casing performance is tracked, failure types are analysed, and casing rejection rates become a measure of operational discipline.

When casing care becomes a frontline practice, fleets drastically reduce total tyre spend, minimise environmental impact, and achieve greater predictability in tyre lifecycle planning.

Failure Analysis: Turning Incidents into Intelligence

Every failed tyre is a data point waiting to be decoded. Yet in many operations, failures are simply replaced and forgotten. There is no visual documentation, no root cause analysis, and no learning loop to prevent recurrence.

To embed continuous improvement into tyre management, operations teams must treat every failure like a warranty case - regardless of whether the tyre is new, retreaded, or scrapped. Photos should be taken, failure types categorised, and inspection notes uploaded to a centralised system. Patterns will emerge; repeated sidewall bulges in overloaded axles, consistent tread separation due to over-speeding, or casing failures linked to specific driving styles.

When failure analysis becomes routine, the operation gains something invaluable: clarity. And with clarity comes control.

Digitalisation: Visibility Transforms Everything

The future of tyre operations is digital - and it's already here. With the advent of smart sensors, telematics, and integrated tyre management systems, fleets can now monitor every critical parameter in real time. Pressure, temperature, load, wear, and even tyre ID can be tracked, logged, and analysed.

At the depot level, digital platforms streamline casing grading, track retread returns, and automate tyre inventory updates. Managers gain visibility across regions, depots, and vehicles, empowering them to make data-informed decisions - not gut-based guesses. More importantly, digital systems create accountability at every level - from driver to technician to logistics director.

When operations embrace digitalisation, tyre management shifts from reactive maintenance to predictive control. The result? Lower cost per kilometre, fewer breakdowns, and a culture of proactive performance.

ESG Integration: The New Benchmark of Operational Responsibility
Tyre management doesn't end with wear - it ends with disposal or recovery, and that brings us squarely into ESG territory. As global standards tighten and customers demand sustainability reporting, tyre-related emissions, waste handling, and resource recovery are under growing scrutiny.

Progressive fleets are now measuring casing recovery rates, tracking retread-to-new ratios, and partnering with certified recyclers or pyrolysis facilities to process end-of-life tyres responsibly. Scope 3 emissions reporting is making tyre lifecycle data a compliance necessity - not just a green marketing claim.

Operationally, this means sustainability must be built into tyre policies: from selecting low rolling resistance tyres, to extending tyre life via retreading, to ensuring scrap is properly categorised and not sent to illegal dumpsites. The data generated in tyre operations can - and should - feed directly into ESG disclosures, giving stakeholders confidence in the fleet's ethical footprint.

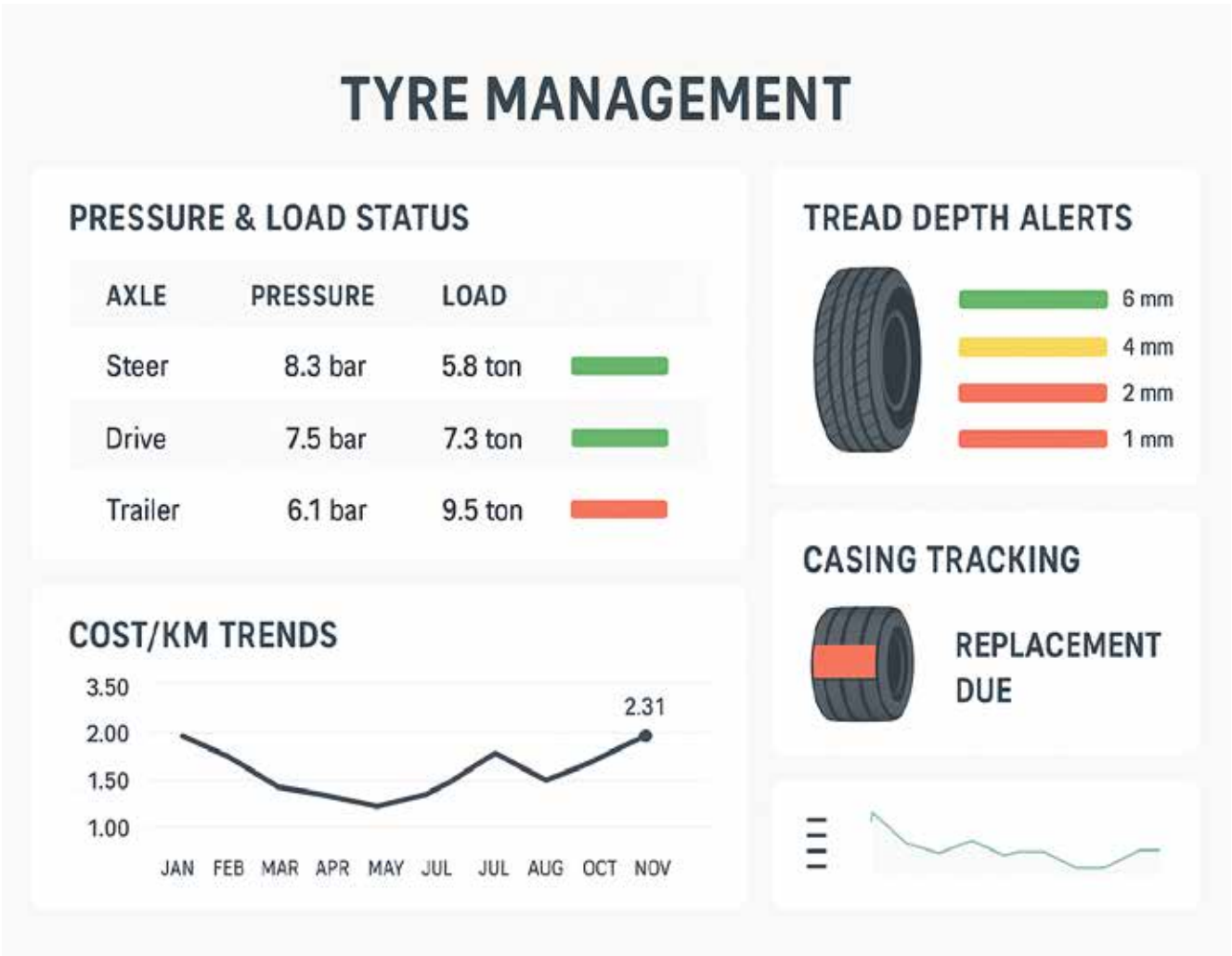
In a future where green fleets win contracts and capital, operational tyre management becomes a sustainability asset as much as a performance tool.

Final Thoughts: Mastery Lies in the Details
In the grand scheme of logistics and transportation, tyres seem deceptively simple. But operational mastery lies precisely in those small details - pressure here, alignment there, casing handled just right, failure logged, route matched to tread, and every scrap tyre accounted for.

When a fleet gets all these moving parts right - not just once, but consistently - it unlocks more than cost savings. It unlocks stability, uptime, accountability, and resilience.

Yes, frameworks like KL Sigma 5 and KL SC³ still support the philosophy. But this is where the rubber truly meets the road: on the operational frontlines, where performance is decided not by intention, but by execution.

And in the age of high cost, high scrutiny, and high expectations, that execution is what separates the good from the great.



Thermo King Introduces Electric Passenger Comfort Solutions

Advanced heat pump technologies and low GWP refrigerants address the evolving needs of a rapidly electrifying bus industry.

Thermo King, a leader in transport temperature control solutions and a brand of Trane Technologies, is addressing the need to provide climate control solutions to fit new energy vehicles. The all-electric Thermo King stand will highlight solutions designed to enhance passenger comfort and support the bus industry's transition to electrification, including the Athenia™ ENVI R-744 (CO2), S30—e heat pumps, and the latest Refrigerant-to-Water (R2W) heat pump option for the Athenia MKII E series.

With more than two thirds of new city and intercity buses now electric, the industry is undergoing a significant shift. Thermo King is well positioned to support this transition, drawing on its expertise in sustainable climate control and energy efficiency. Thermo King's advanced heating, ventilation and air-conditioning (HVAC) systems are designed to maintain consistent passenger comfort while helping to extend battery life through precise temperature management. In the Southeast Asia region, passenger comfort through use of climate control is a major aspect for bus builders and operators.

"As fleets shift to electric, our role is to keep both passengers and vehicle batteries at their best. Responding to environmental priorities and regulatory requirements, we work closely with manufacturers, operators and service providers to meet their operational and sustainability needs," said Urszula von Kreijfelt, Commercial Director for the Thermo King Bus business in EMEA. "The focus on electrification, energy efficiency, low GWP, natural refrigerants, and environmental compliance is redefining vehicle design and fleet investment decisions, and Thermo King is helping to lead this transformation."

Featured Electric Climate-Control Solutions

Thermo King's product portfolio now reflects its wide range of climate-control technologies for the bus market from large electric city buses to compact vehicles for urban mobility.

- **Athenia MKII E Refrigerant-to-Water (R2W) Heat Pump Option.** The integrated R2W option delivers 40–50°C hot water with a coefficient of performance (COP) of up to 2.5, reducing fuel and energy use compared with diesel preheaters. Designed for seamless integration into existing bus climate control systems without altering the vehicle's structure, it enables separate temperature regulation for the front box, convectors and saloon areas, with a reheat function to improve dehumidification. The system maintains full heating output at temperatures above 0°C and continues efficient operations in sub-zero conditions, relying on only limited diesel support when necessary. Operators in transitional climates can expect energy savings of 30–40%, along with cabin temperatures of 21°C or higher. Battery thermal management is also incorporated to protect electric bus power systems over time and reduce maintenance demands.

- **Athenia ENVI R-744 (CO2) Heat Pump for Electric Fleets.** Ideal for fleets prioritising environmental performance and operational reliability, this heat pump uses R744 (CO_2) refrigerant, a non-flammable option with a global warming potential (GWP) of 1, and operates efficiently across a wide range of conditions from –25°C to +50°C. The system provides heating, cooling and fresh-air control, plus integrated battery thermal management to help protect and extend battery life. Waste heat recovery further improves efficiency and reduces lifetime operating costs.

- **S-30—e Compact Rooftop Heat Pump Unit.** Designed for mini and midi buses under 8 metres, the S30—e is a compact, ultra low-profile heat pump unit. It delivers rapid temperature adjustment and operates at low noise levels, making it suited to urban and regional passenger services.

Thermo King' would also like to invite its stakeholders to discover electric innovations that move beyond broad sustainability themes, featuring practical technologies enabling the shift to electric fleets and supporting industry needs for operational efficiency and regulatory compliance.

Awarded: Winners at Busworld Europe 2025

PHEV Irizar i6S Efficient


Setra 515 HD

Thirty jury members, divided into ten groups of experts in their respective fields, evaluated the twelve vehicles entered for the Busworld Awards Coach and Bus on 27 September at Kortrijk Xpo. Particular attention was paid to Driving Dynamics, Emissions, Ecology & Maintenance, Driver & Passenger Comfort, Guide Equipment, Vehicle & Fire Safety, Design, Ecologies and Battery systems. Among the jury members were technicians, bus and coach operators, representatives of technology companies, trade journalists and specialists in public transport and coach travel.

Vehicles were sometimes assessed down to the smallest details and compared with contemporary technology and applications, as well as future visions regarding engineering, safety and comfort.

The following overview lists the key aspects that, after evaluation by the full jury, led to the respective Awards and Excellence Labels.

Busworld Award Coach
Grand Award: Yutong T14 E

- •Driving quality
- •Lowest noise levels inside and outside
- •Recyclability of parts
- •Accessibility of maintenance parts
- •Remote control for all locks
- •Ergonomic and comfortable driver's workspace
- •Maintenance check on display
- •Passenger environment – mobile phone/tablet – USB connection – Wi-Fi
- •Easy vehicle entrance
- •Excellent environment for touring guides
- •Balanced interior colours & trim
- •Floor design & trim

Excellence in Comfort: Setra 515 HD

- •Very good driving quality
- •Driver's environment overall excellent comfort
- •Visibility for driver and passengers
- •Luggage storage space in passenger compartment

Excellence in Safety: Yutong T14 E

- •Ergonomic dashboard, instrument panel and electronic equipment
- •Three-point safety belts
- •Front vision camera
- •Clearly marked pedestalsExcellence in Ecology: Yutong IC12E
- •Exterior LED lighting
- •Recyclability of parts
- •Accessibility of maintenance parts

Driveline Technology: Scania PHEV Irizar i6S Efficient

- •Long-distance coach with ZE solution for city excursions
- •DC battery charging via plug


Yutong T14 E

Challenging the Challenge: E-Mutiara

Tackling challenges and opportunities, E-Mutiara applies thinking that sets them on a different pace, creating a new pathway for success amidst tough competition.

Standing in the sun, gleaming, are the newly completed coaches Gemilan Coachworks has manufactured for E-Mutiara. They are the first ten of a total of 67 units of Euro V-specification MAN Coaches ordered by Kumpulan e-Mutiara Berhad. This makes Kota Bahru-based e-Mutiara one of the largest operators of MAN Coaches in the country after switching supplier of its coaches for the first time in 15 years. Asian Buses spoke to E-Mutiara's Managing Director, Ms Naemah bt Ya'acob as there is more than meets the eye to this hand-over.

In this exclusive interview, Naemah details the ambitious plans of the company and how they tackle challenges in the now hypercompetitive environment. The path is clear, and the future looks exciting as E-Mutiara is rolling out new services.

Test Drive

In a deliberate break from their past chassis supplier of record, E-Mutiara has made a significant change to their operations. The evaluation of the MAN chassis for the newly acquired buses took an unusual approach: needing trucks in their operation, E-Mutiara first purchased trucks from the German marque to trial them. "This is easier done with trucks than buses as they are not travelling long distance in our operation. Doing so, has given us invaluable insights into how to specify the bus chassis and what we have to look out for when ordering them," she said.

Chassis Choice

Asked about the thinking process behind the procurement of these vehicles, Naemah explained "How did we arrive at the decision to use MAN chassis? There are two factors: firstly, we believe that German technology is superior. Secondly, it is about the service network." Crucial to the operation is the ability to achieve high uptime. This, according to her requires strong partners that have the expertise, parts and locations to service an operator that is covering the entirety of peninsular Malaysia.

With workshops in strategic locations now, MAN has been selected as the winner for this bid for the chassis. Seeing how the service network of the Shah Alam-based OEM has grown and improved over the years, E-Mutiara has re-gained the confidence in the brand. "We started out with MAN buses, however, in the early

2000s, their service network was not as established, prompting us to switch to another brand." Citing the concept of Total Cost of Ownership (TCO) and the correlation between workshop accessibility and uptime, Naemah opines that this is a concept more operators should embrace.

Maintenance by Experts

Part of the deal is a comprehensive service and maintenance contract. This is to ensure that the vehicles will be covered under warranty, should any problems occur. More importantly, though, E-Mutiara insists on the service and maintenance works to be carried

out by the OEM is the fact that the technicians working for MAN would be the best qualified to do so.

True to the notion that E-Mutiara is in the business of transporting people and not in a workshop operation, they gladly hand over the work to the people that should know best. In addition, running an in-house workshop would add complication, cost and complication. It is the view of E-Mutiara's management that their time is better spent on finding ways to optimise business performance with regards to their core business, which is transporting people.

The Difference: Tech Integration

Stepping into these newly acquired buses, one will notice that a big tough screen tablet dominates the dashboard. Within easy reach of the driver, this tool, introduced now to the E-Mutiara fleet, could be possibly seen as their biggest game-changer. Through this online tool, they achieve a number of feats, streamlining the business and making bus travel more convenient for passengers.

Using the tablet, drivers are now able to conduct their pre-drive check must faster, more convenient and with a higher integrity of the data. Previously, paper had to be filled and filed, with the next person having to work with it only being able to access it much later. Now, as everything is online, the data can be accessed in real time; managers can make decisions on the spot, which can also mean better safety for passengers and drivers. Driver Management is also embedded in the App accessible through the tablet.

Ticketing has been one of the areas that has been vastly improved through the use of IoT. Now, passengers can book their tickets much closer to their departure times, even while the bus is already on the road, heading their way. If a passenger along the way is booking a ticket for a seat still available, the bus captain will be alerted to make that stop to collect the guest. Should there be no collection be needed, the bus driver would also know and can skip stops, thus speeding up the travel.

Paid to be on the Road

As many in the industry, E-Mutiara also considers the shrinking talent pool of dedicated and responsible bus captains. To address one of their plights, that they depend on a high number of trips to make sufficient money, the brand has implemented a new payment scheme for drivers. "Whenever they drive, they earn," Naemah summed it up.

(L-R) Philip Walton, Anvar Kasimov, Tuan Hj Che Ibrahim Che Ismail and Naemah Yaacob

What that means is effectively a CPK, Cost per Kilometre, for the business. Should a driver have to bring a bus to the workshop, it is a trip made for the business and should hence be compensated. According to her, drivers employed by the brand have taken a liking to this new scheme. Initially, there was some resistance as the pay-per-trip model is the commonly accepted industry standard. However, with the new calculation, it doesn't matter if a driver does fewer longer trips or more frequent shorter ones.

Shifting the Competition

Addressing all aspects of the operation, E-Mutiara has also expressed strong views about the way competition shapes the industry. What they have observed is that others predominantly manage the number of seats available on a bus to make money. Considering that the Malaysian government is involved in setting the fares for the "economy class" of coaches, some opine that the only way to make money is to cram as many seats onto a bus as legally possible.

However, while E-Mutiara also offers the economy option, they are gearing towards launching extra-luxuries options. "Here, we are free to set the fares, and this allows us to really get creative." For instance, bigger seats, food being served on board to avoid stops that prolong the journey and business class style service are some of the things that are about to be introduced. The basis for these options is the conviction of E-Mutiara's management that there will be a market for high-class service at a premium price. Further, it is expected that the travel time being about the same as that of travelling by air will steer passengers towards them as they would get a better experience.

Shifting Focus: East

Another opportunity Naemah and her colleague are seeing is to expand to East Malaysia. Now with the Pan Borneo Highway nearing completion across its entire length, there are more possibilities opening up. "While everyone is looking to compete here, in peninsular Malaysia, we feel that the bus travel business has yet to reach its full potential on routes between Kuching to Tawau." Asian Buses learned that the company is working on some exciting news in the background and we were asked to "Watch this space!"

A 10 inch tablet is now part of the dashboard to enable digital pre-departure checklist and passenger manifest

Snapshot of the Philippine Bus Market

Visiting Manila, Asian Trucker went to find out what operators in the Philippine commercial vehicle market are concerned about and how they address market needs.

The Philippines are an interesting country for anyone involved in road transportation. Being an archipelago consisting of more than 7 000 islands, boasting some 13 million registered motor vehicles, it poses a unique set of challenges and opportunities. In 2024, the gross value added (GVA) generated from the land transportation industry in the Philippines reached approximately 423.09 billion Philippine pesos. This reflects a significant increase from the previous year's total. Land transportation in the country is dominated by public utility vehicles such as jeepneys, buses, and taxis, along with private vehicles. Asian Trucker visited the Philippine Commercial Vehicle show, held in the SMX Exhibition Centre, 3rd to 5th July, to find out about the way the transport industry works in the country.

A Country at the Crossroads

The Legacy Truck & Tractors Inc is the exclusive distributor of Forland buses, which are sourced from China. The featured vehicles are also meant to replace the traditional jeepneys. Speaking to representatives of The Legacy Truck & Tractors, it was learned that the push for the modernisation of the transport system in the Philippines is far reaching with other suppliers rapidly catching on.

The ambition to replace the old-style jeepneys is rooted in the revised PNS national standard, which "Are followed and what the government wants us to have as design approach," Asian Buses learned from the interaction with The Legacy Truck & Tractors. The modernisation programme was implemented in 2017. From 2018 up to

now, the project aims to replace almost 200 000 jeepneys. Tus far, only 11 000 have been phase out. One of the biggest challenge, as others interviewed during the expo echoed, is lack of access to financing. Banks in the Philippines are deemed to have too high restrictions for SMEs to access loans and other financing instruments.

Providing insights was Mr Ronald Fabrea - Business Development Manager and Forland PUVMP Manager. He told Asian Buses that “The old design of the traditional jeepney is now deemed bulky, not easy to maintain or not easy to have the customer or the passengers to ride on. Passenger using the traditional jeepney, have long since voiced that entering them is not comfortable and riding on them is oftentimes a cramped experience too.” He explained that the average national income per head in the Philippines is about 17 000 Philippine Pesos (approx. USD 300). Hence, many people depend and rely on public transport as their only means of commuting.

In conjunction with the modernisation of the transportation system, the Philippine government is also looking at re-structuring business models and implementing the latest technologies. Fabrea pointed out that the bus models on display in their booth are environmentally friendly, being Euro 4 and Euro 5 compliant. According to him, the electrification of transport has also started in the country with suppliers offering buses with this drive train technology. He anticipates that his own company would be adding electric vehicles to their portfolio withing the next 12 to 18 months.

The biggest mindset shift may, however, be in how the operations of the jeepney is now being challenged. Traditionally, jeepneys would be run by single operators, each vying for their own lucrative routes. The government has decided to consolidate operators in consortiums, this structuring routes and operation hours in a more effective and user-friendly ways. This, as it is hoped, will also attract younger people to enter the industry by becoming bus drivers.

As with most countries, the Philippines are facing a severe shortage of commercial vehicle drivers. “If you are asking me about is it hard for them to get drivers? Yes, of course. In the Philippines, some of the drivers are not skilled or let’s say not educated. They are not good in particularly in following the instruction or traffic laws or traffic signs in the Philippines,” Fabrea added.

Jabbing at the Jeepney – Baguio Leads the Charge in Public Transport Reform. For decades, the Jeepney has been the undisputed king of Philippine roads. Born from post–World War II ingenuity, surplus Willys and Ford jeeps left by the US military were stretched, fitted with benches, and given roofs to carry more passengers. These colorful, customized workhorses became a cultural icon — and for many tourists, a must-try ride.

But as cities grow and traffic worsens, the Jeepney’s limitations are becoming harder to ignore. Boarding is awkward,

seating is cramped, ventilation is poor, and safety features are minimal. The Philippine government's ongoing push for public transport modernization aims to fix that — and Lexbuild is stepping in with a purpose-built solution.

At a recent transport exhibition, Lexbuild unveiled its 5.99-metre electric bus, designed specifically for Philippine conditions. The vehicle directly addresses long-standing Jeepney pain points:

1. Air-conditioned comfort for passengers.
2. Low-floor, easy-entry access to speed up boarding and alighting.
3. Properly designed seating and lighting for safety and convenience.
4. Purpose-built chassis with integrated safety features.

The response has been swift. The Bases Conversion and Development Authority (BCDA) and Camp John

Hay in Baguio have already adopted the model for their transport operations, signaling a strong vote of Confidence from high-profile institutions.

"So far, the feedback has been very encouraging," said Mr. Peter Leong, Technical Director of Lexbuild Motors Pte Ltd. "On the first day of the exhibition alone, there was an indication of intend for ten Vehicles."

To back up its commitment, Lexbuild has established a Philippine-based sales team led by a Country Manager, an after-sales service network, and a spare parts supply chain. A full-service workshop is also under construction.

"This bus is not a one-size-fits-all product," Peter emphasised. "It's built for the Philippines — for its roads, its commuters, and its transport future. With modernization efforts gaining momentum, we believe the market potential here is enormous."

Addressing Road Safety Issues

Recently, both speed limiters and the privatisation of vehicle inspection services have been in the limelight in Malaysia. These matters seem to be an international interest. Participating in the show was Platinum Legacy Vortex Cooperation. Their Managing Director, Atty. Lester G. Cavestany, told us about their offering to instal such

devices. "We understand ourselves as a provider of road safety systems. Our last project was the supply of motor vehicle inspection systems," he told Asian Trucker.

Back in 2019, the Philippine government initiated the privatisation of vehicle inspection services. Having investigated the matter, Cavestany could confirm that such services had been successfully implemented in other countries. "What such services require is constant upkeep and updating. This is something that a government cannot do easily, thus the private sector is better suited to handle this." Wanting to expand the business, Cavestany looked at other opportunities to grow within this industry. He found that a law has been enacted in 2016 to manage the installation and implementation of speed limiters.

However, there had been very little action taken on this matter and Platinum Legacy Vortex Cooperation saw this as a chance as the issue with the speed limiters is similar to the one described in the matter of the privatisation of vehicle inspection: the government needs help from the private sector Cavestany explained that there needs to be a national certification body which will then appoint dealers, which will be monitored and verified, in order to fully implement the law. "Essentially, we start with the testing and certification of the electronic devices to be fit for the intended purpose," he added, stating that there have been severe safety risks previously with uncertified electrical components. For now, Platinum Legacy Vortex Cooperation is the first certified provider of speed limiters.

New Regulations can be Opportunities too

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Recently, Malaysia's government has implemented now regulations. Speed limiters and use of seat belts are now mandatory. Of course, these are additional costs and considerations for the operators, there is no denying that. However, any new law or regulation is also opening up opportunities for businesses

Take the seat belt rule: somehow, the driver should have a system on hand to tell him if everyone is strapped in. As both, passenger and bus captain are going to be fined in case of non-compliance, the bus captain needs to take responsibility. One opportunity would be to create a technical solution that would address the need to monitor seat belt compliance. Seeing how such systems already exist, it could be an opportunity to become a distributor. Someone could also think that the existing systems may not be the best they could be and come up with a new solution, an own product.

Similarly, there are business opportunities with regards to speed limiters. Older trucks may not be fitted with such device as standard and would need retrofitting. Offering a type of consultancy, one could set up a business to check the functionality of the speed limiters prior to the regular vehicle inspections. Making sure that the speed limiter is set up correctly, this could prevent a truck from failing the inspection.

Weigh in motion is another aspect of road transportation where opportunities arise. Truck Weigh-in-Motion (WIM) systems use sensors embedded in the road surface, such as load cells or piezoelectric sensors, to measure the downward force of a vehicle's axles as it passes at highway speed. This means that we would have to have trusted companies to instal these systems. Again, we could possibly find existing solutions or create our own. Following that, I would like these systems to be calibrated and checked by independent service providers to ensure accuracy. With bulk goods, there could be additional uses of the weigh in motion systems that would make the life of the fleet owner easier and their work more efficient.

Electrification is one of the hot topics and one can expect that there will be a number of new regulations coming into effect as well. Road tax is one of them. Beyond that, there surely will be mandates around safety, charging stations, and training for drivers and technicians. There are some obvious opportunities, like say training courses, but surely someone will look at electric buses with different eyes and come up with ideas to enhance electric bus businesses in ways we couldn't imagine.

Trade fairs abroad are good sources of ideas. Legislation in other countries may address issues not yet tackled in our domestic market; however, some issues will eventually need to be discussed in the context of our local regulations as well (Emission norms being just one). What we can learn abroad regarding legislation may give way to opportunities ahead of an adaptation locally. This could allow entrepreneurs to be pro-active, rather than to be rushing for solutions.

Sometimes, innovative products created within a legal framework may even challenge the current laws. If a product falls outside the norms, legislation may have to be adopted to allow for a product to be used.

It should be safe to say that there will be a constant change in legislation, alongside the development of the transport and other industries surrounding it. Hence, there are always new possibilities and opportunities arising. For my part, I shall be looking out for opportunities that I can exploit in the context of publishing magazines and hosting industry-specific events. And beyond.

ASEAN NCAP and MIROS Host SHIFT 2025

The International Conference on Safety and Holistic Innovation for Future Vehicles (SHIFT 2025) will take place 28 to 30 October 2025. SHIFT 2025 is a groundbreaking conference bridging academia and industry, creating a dynamic platform for collaboration and innovation. Organized by ASEAN NCAP and MIROS, this event is designed to bridge the gap between local characteristics scientific research and real-world application.

With motorbike riders and children being the most vulnerable in traffic, especially when it comes to accidents with heavy vehicles, this year's event showcases a number of highlights that will focus on these high risk groups.

ASEAN Motorcycle Target
The year 2026 marks the debut for the 2026–2030 ASEAN NCAP Assessment Protocol.

Building on its success in the car safety domain, ASEAN NCAP recognised the need to focus on motorcyclist safety as well. With ASEAN NCAP AEB Car to Motorcyclist Test Protocol Version 1.0, an ASEAN Motorcycle Target (AMT) was introduced.

It was created as part of ASEAN NCAP's broader effort to improve road safety for motorcyclists, who are particularly vulnerable to traffic accidents.

The AMT is engineered to replicate a scooter with rider motion, capable of reaching 60 km/h in line within the speed requirement of the ASEAN NCAP AEB Car-to-Motorcyclist Test Protocol Version 1.0 is now available on ASEAN NCAP website.

The AMT will be introduced by the company 4activeSystems GmbH, who will be present at the SHIFT 2025 and subsequently they will also have a representative to give a technical talk to the audience.

ASEAN CPD Dummy: Advancing Child Safety through Innovation
The Child Presence Detection (CPD) Dummy has been developed to represent the average ASEAN infant at approximately 12 months of age. Designed with precision and realism in mind, the dummy can replicate natural infant breathing patterns ranging from 20 to 50 breaths per minute and maintain a realistic body temperature between 35°C and 37°C. It also features articulated limbs and head movement, enabling lifelike motion that better simulates a real infant's presence in a vehicle.

MIROS will conduct a live demonstration showcasing the CPD Dummy's advanced capabilities during Day 3 of SHIFT 2025. This event marks an important milestone in ASEAN's child safety initiatives. Looking ahead, the ASEAN NCAP assessment protocol incorporating CPD will be officially introduced as part of the 2026–2030 Roadmap.

The development of the CPD Dummy is the result of a collaborative effort between the Malaysian Institute of Road Safety Research (MIROS), ASEAN NCAP, Universiti Teknologi Malaysia (UTM), ACTS Smart Solutions Sdn Bhd, and the China Automotive Engineering Research Institute (CAERI). This partnership underscores a shared commitment to advancing automotive safety innovation and child protection in the ASEAN region.

Additionally, during the SHIFT 2025 there will be three keynote speakers:

Mr. Seigo Watanabe, Japan Automobile Manufacturers Association (JAMA). Presentation title: The Future of Vehicle Safety Technology: Japan Perspective

Mr. Wang Guojie, China Automotive Engineering Research Institute (CAERI). Presentation title: EV Safety, Technology and Assessment

Mr. Yang Jialin, China Automotive Technology and Research Center (CATARC). Presentation title: Introduction of C-NCAP new side impact and frontal impact barriers research

ASEAN NCAP and MIROS are committed to reducing road traffic fatalities and serious injuries involving motorcycles, which remain the most vulnerable group of road users in the region. By setting clear, evidence-based goals and aligning them with global road safety frameworks, ASEAN NCAP and MIROS demonstrate its determination to address a long-standing challenge through collaborative action and innovation.

Stoneridge Next-Generation MirrorEye MP II

Stoneridge, Inc. debuted MirrorEye Multi-Purpose II (MP II) system: the latest evolution of Stoneridge's industry-leading MirrorEye Camera Monitor System (CMS), specifically engineered for buses and coaches.

Building on Stoneridge's commitment to enhance driver visibility and passenger safety, MirrorEye MP II replaces traditional mirrors with advanced digital camera technology. The system improves aerodynamics, reduces blind spots, and enhances situational awareness. Additionally, the next-generation system delivers critical safety features — including a Blind Spot Information System (BSIS), Moving Off Information System (MOIS), and digital video output capabilities for recording and analysis — ensuring full compliance with the European Union's General Safety Regulation (EU 2019/2144).

Digital Vision Systems

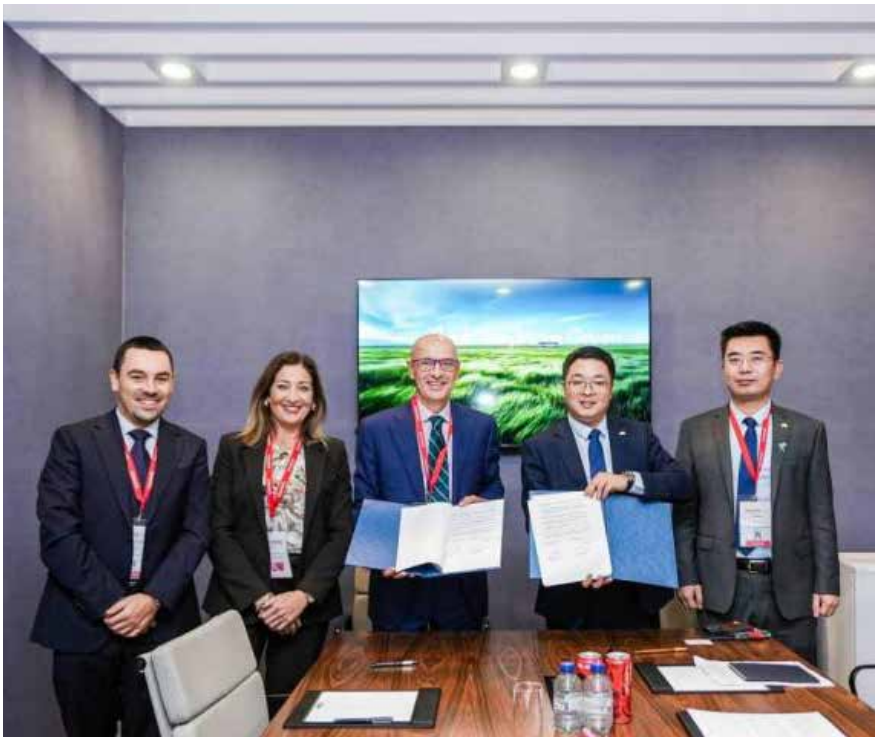
Stoneridge also intorduced its Orlaco-branded vision solutions, CornerEye and Digital MultiView. CornerEye is designed to eliminate blind spots at the front and sides of vehicles, significantly enhancing safety and reducing the risk of accidents. This advanced camera monitoring system delivers continuous visibility of cyclists, pedestrians, obstacles, and other road users in the vehicle's surroundings. CornerEye can be integrated as a full mirror replacement or as an additional camera solution for bus and coach vehicles — providing operators with greater awareness and precision when maneuvering.

Molead Introduces Intelligent Cockpit

What could the driver's workstation of the future look like? The Chinese company Molead unveils a design concept for an intelligent cockpit for bus and coach drivers.

Molead is the winner in the "Digital Onboard Comfort" category of the Busworld Digital Awards with their "Intelligent Cockpit System". For this system, Molead integrated various technologies and applications into a new dashboard concept. Numerous tools, electronic mirrors, video surveillance, and a reversing camera are combined into a new, structured unit enhanced with voice control and advanced driver assistance alerts. The system supports remote upgrades and offers multilingual functionality. The accuracy of its voice interaction exceeds 95%. It also reduces many of the driver's manual operations, significantly improving both comfort and safety.

Grupo Castrosua and Yutong Sign a Letter of Intent



Both companies emphasize the LOI contemplates the possible integration of Yutong's electrical technology with the bodies of Grupo Castrosua, adapted to the technical and quality requirements of the European market. "This Letter of Intent with Yutong represents a new milestone for Grupo Castrosua," says Juan Luis Castro, President of Grupo Castrosua. "We are very proud to start exploring this collaboration with one of the world leaders in electromobility." The understanding between Grupo Castrosua and Yutong covers ongoing technical and commercial discussions in engineering,

design and production, as well as the future adaptation of vehicles to European safety, quality and sustainability regulations, subject to the formalization of a definitive agreement. Mr. Liu Guang, CEO European Region of Yutong Bus, highlights: "For Yutong, this Letter of Intent with Grupo Castrosua is an exceptional opportunity to further explore our cooperation in Europe. Castrosua brings extensive experience in European design, customisation and regulatory compliance, while Yutong brings its technological leadership and expertise in electrical systems."

Mitsubishi Fuso, Foxconn, Foxtron and MFBM sign MoU to Jointly Develop ZEV Buses

Mitsubishi Fuso Truck and Bus Corporation (MFTBC) and Hon Hai Technology Group ("Foxconn") (TWSE:2317) have signed a memorandum of understanding to explore strategic collaboration in zero emission, accelerating clean mobility for the Japanese commercial vehicle powerhouse and the world's largest electronics manufacturer.

As part of the collaboration that will strengthen the FUSO bus business, the two companies via their subsidiaries – Mitsubishi Fuso Bus Manufacturing Co., Ltd. (MFBM) and Foxtron Vehicle Technologies (TWSE:2258) – will cooperate in the development, production, supply chain management, and sales of ZEV buses, beginning with Foxtron-developed MODEL T and MODEL U.

The four companies will use the MOU as a starting point to investigate future business models aimed at strengthening the FUSO brand and developing new, made-in-Japan buses. Through this initiative, the companies will provide products that meet a wider range of needs in the rapidly evolving bus market and achieve sustainable business growth.

MFBM will serve as the operations platform for the development, production, and commercialisation of buses in target markets, including exploring the introduction of made-in Japan ICE and ZEV buses into target markets.

With a track record in performance and safety, the award-winning, full-size MODEL T is already operating commercially as part of the public transit systems in Taiwan's biggest cities. Universal and intelligent in midi size mobility, MODEL U's clean and simple appearance emphasises flexibility and multi-functionality.

FUSO FOXCONN

ENGINEERING PERFORMANCE. DRIVING SUSTAINABILITY.

REDUCE IMPACT. MAXIMIZE TYRE LIFE. POWER THE FUTURE

At Kit Loong, we don't just retread - we are re-imagining tyres through a scientific performance & ESG precision methodology.

Our KL SIGMA 5 integrates:

- **Kinetic Energy & Load Distribution Analysis**
- **Gas Law Compliance**
  (PV=nRT - managing pressure for fuel efficiency)

KL SIGMA 5

- **Kinetic Energy & Load Distribution Analysis** (KE=1/2mv^2 | F=ma)
- **Tyre Heat Management**
  (Conduction, Convection, Radiation)
- **Tyre Performance Standards**
  (MS 1394 | MS 224)
  - Your assurance of safety & quality.

ESG FOCUSED

Reducing new tyre waste starts with smart choices. Kit Loong's ESG journey - powered by KL SIGMA 5 - extends tyre life, boosts performance, and closes the loop through sustainable retreading and recycling.

KIT LOONG
COMMERCIAL TYRE GROUP
吉隆·商用轮胎集团

VOLVO

SAFETY BEYOND THE BUS

Every Volvo bus is built around one uncompromising promise — safety. From city streets to highways, Volvo's advanced active safety systems are engineered to protect drivers, passengers, and other road users. Using radar, cameras, and intelligent software, these systems continuously monitor the surroundings to anticipate risks and prevent accidents before they happen.

Features such as Collision Warning with Emergency Brake, Lane Keeping Support, Adaptive Cruise Control, and Side Collision Avoidance Support give drivers the confidence to focus on what matters most — safe, smooth journeys. Volvo's integrated dashboard display delivers clear alerts without distraction, ensuring the driver stays aware and in control at all times.

Beyond technology, every innovation is designed with human insight, making Volvo buses trusted by operators worldwide for their reliability and passenger protection. With Volvo, safety isn't just a feature — it's a foundation. Because when every journey matters, there's no safer way forward than with Volvo.

www.volvobuses.com/sg/

Volvo Buses. Driving Quality of Life