

ISSUE 45 Q1, 2026  
RM8.00

# ASIAN BUSES

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ISSN 2289-8921



9 772289 892003  
KDN PP18692/03/2015 (034159)

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MINES International Exhibition & Convention Centre (MIECC) Sri Kembangan, Selangor, Malaysia

MCVE 2026

# CONTENTS

12



## 08 - EDITOR'S NOTE

### MARKET UPDATE

- 10 - Karsan Posts Record Growth, Announces Upcoming Strategic Goals
- 11 - The Search for the World's Best Bus Driver
- 12 - Singapore Bus Operators Raise Hiring Bonuses to Recruit Local Drivers
- 14 - Transtar Elevates the Bus Journey Experience to New Heights

### EVENTS

- 16 - MCVE 2026: The Most International Session Yet
- 17 - Indonesia's Top Bus Bodybuilders Reunite at Busworld Southeast Asia 2026

### SERVICE NETWORK

- 18 - CIDC Dinamik Boosts MAN's Service Network on the East Coast

### LAUNCHES

- 20 - MFTBC and Hon Hai Technology Group announce plan to create new Bus OEM in Japan

### FACILITIES

- 20 - Scania' New Kuantan Workshop with Enhanced Driver Facilities a Basis for Expansion

### COVER STORY

- 22 - Differences Create Opportunities for MAN

### BUSINESS EVOLUTION

- 26 - Allegiance Malaysia Presents New Business Direction





# CONTENTS



## THOUGHT LEADERS

- 28 - Mitrans at UiTM: Where Mobility Meets Safety, Sustainability, and Professional Purpose

## TECH TALK

- 30 - The Evolution of Braking Systems

## TYRE TECH

- 34 - Hengst SE: Advancing Filtration Solutions as Enablers of Alternative Drivetrains

## PRODUCT FEATURE

- 36 - Conventional Drive Systems for Buses Offer Sustainable Transition to the Future

## HEADLIGHTS

## COUNTRY REPORT

- 38 - Vietnam's Bus Market: Trends, Performance, and Outlook

## TRANSPORT STRATEGY

- 42 - 5G Powers Malaysia's Autonomous Bus Ambition

## EXHIBITION

- 44 - MITA and CAM Malaysia Sign MOU

- 43 - News & Notes



36



30



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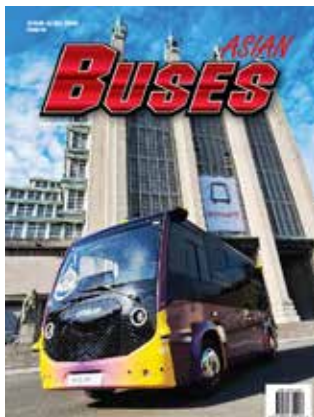
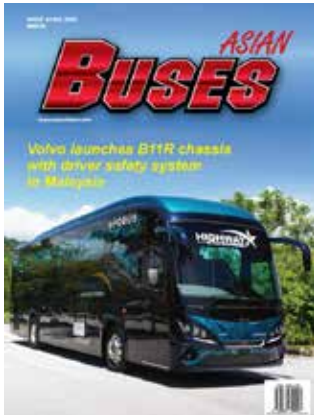
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## PUBLISHED BY

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

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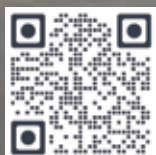
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## PRINTED IN MALAYSIA

Percetakan Lenang Istimewa Sdn Bhd (KDN:PQ1780/3486)  
29, 29A-B, Jalan Lengkongan Brunei, Jalan Brunei Utara, Pudu,  
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What has started out as a promising year will now again become one that is challenging. I am looking forward to learning about the creative ways the industry will come up with to counter the negative impact of the Iran war. With the help of the OEM brands, transport owners will find solutions on how to weather this storm as well. I notice that many have put their travels abroad on hold, giving air travel a miss. Perhaps we can all take a local trip, paying for a bus ride and thus sending some funding towards our bus operators?

As mentioned, in this issue of Asian Buses, we talk about a number of businesses that have ramped up their capabilities. There are new workshops, improved ones. I have learned about how one business pivoted from their workshop business to becoming a provider of complete and complex repair and remanufacturing solutions. Companies investing in sophisticated vehicles are in focus while an analysis of the Vietnamese market shows growth potential in our region. What I can see is that the bus industry remains a vibrant one, one that is brimming with potential and opportunities.

I learned a lot about brakes from our article on the evolution of these crucial components in buses. It was quiet the surprise to find out that retarders have been around for such a long time! Hopefully, the economy will not put on the brakes for too long though.

Autonomous driving is also a hot topic, and I have an update on the state of the development in Malaysia for you as well. Interestingly, autonomous trucks seem to be introduced in Malaysia first; this seems a different approach from what Singapore is doing, as they have a number of autonomous buses in trial operations. I would like to hear your opinion on this new type of vehicle and how you are planning to integrate them into your operation.

Drive Safe,

Stefan Pertz  
Editor, Asian Buses

## What Just Happened?

**T**his last quarter has been one of the strangest experiences we must have gone through in the bus industry. At the beginning of the year, we were talking about the re-growth of the industry after the pandemic and how we are now getting back to a stable, more promising business environment

I have experienced bus travel, simulating how a group of tourists would be travelling from Kuching to Miri by bus. Thus, I can very well relate to the efforts that were put in motion to promote bus travel in the context of the Visit Malaysia Year 2026 campaign. There is truly a lot to be seen in Malaysia, and it can all be explored by buses.

Over the past weeks, I have also visited a number of businesses, that have ramped up their capacities in anticipation of vehicle fleet growth and higher demand for their products and services. A lot of optimism was felt, and it was truly remarkable to sense the positive energy that was in the air.

However, literally within days, all these best laid plans and optimism vanished as the world had yet again to face adversity. The conflict in the Middle East has had an immediate and drastic effect. Just now, I am reading about bus fleets not being able to fill the tanks of their vehicles as petrol stations are running out of Diesel. In addition, the Diesel needed may exceed the amount that is allocated to each vehicle under the subsidy scheme and thus is extremely expensive. Profit margins have turned into red numbers.

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# Karsan Posts Record Growth, Announces Upcoming Strategic Goals



**K**arsan increased its turnover by 11 percent to 330 million Euros in 2025. Karsan, which generated 220 million Euros of turnover from electric vehicle sales, saw a 43 percent increase in its exports to 197 million Euros. Aiming to maintain its growth in Europe, Karsan plans to begin driverless autonomous public transportation operations in 2026. Stating that Karsan e-JEST and e-ATAK models preserve leadership in their segments in the European public transportation market, Karsan CEO Okan Baş said, “Türkiye is Europe’s production base in bus & midibus manufacturing. Karsan conducted 80 percent of the electric minibus and bus exports from Türkiye to Europe between 2019 and 2025.”

Emphasizing that they aim to maintain their growth in Europe by boosting their EV sales in 2026, ranking among the top five players in Europe in the next five years, Okan Baş mentioned, “Of course, we are aware that our presence in the existing markets is not sufficient to achieve this target. Accordingly, we will expand into new markets. We will focus on some northern countries in 2026. We do not operate in the Netherlands, Sweden, Norway, or Germany. In these markets, we will first initiate our organizational structuring. We will also increase our strength in the Spanish and Polish markets we entered last year. We aim to expand our electric vehicle fleet in Europe to exceed 2 800 units, representing over 30 percent growth. Autonomous mobility is among our strategic focal points. We will concentrate on Europe with the 8-meter Autonomous e-ATAK, and on America with the 6-meter Autonomous e-JEST. In the autonomous mobility field, we have started our efforts

to remove the safety driver from the vehicle. We aim to initiate fully driverless operations in Stavanger by Q3 2026. Towards the end of 2026, we will add another electric vehicle to the product range. We constantly strengthen our presence by expanding our product range and accelerating our development in technology.”

## **Karsan e-JEST and e-ATAK Maintain Leadership in Europe**

Mentioning that they, as Karsan, focus on three technologies: electric, autonomous, and hydrogen, Okan Baş continued: “Since 2021, we have had presence in the market with our 6-8-10-12 and 18-meter full-electric product range. In the European urban electric public transport market, which grew by 39 percent last year, we could advance one position. In 2025, we increased our market share in Europe by 0.5 points to 5 percent. Thus, we rose from 8th to 7th in the ranking. During this period, e-JEST became the leader in the electric public transportation minibus market with 30 percent share, while e-ATAK secured a 25 percent share, leading the electric midibus class. Karsan e-JEST, which was the leader of its segment for the first time in 2020, has not ceded this title to any of its competitors for 6 years. In 2025, our 10-meter e-ATA model became the leader in the 10-meter electric bus market in Europe by gaining a share of 26 percent.”



Goal: Increasing the Share of Exports  
Underlining that they have ranked among the top four in nine countries

across Europe, Okan Baş said, “In this regard, we are the market leader with 34 percent in Romania and 50 percent in Croatia. Karsan is the second brand with 12.5 percent in Italy and 19.5 percent in Bulgaria. In addition, we are among the third brands in France, Portugal, and Greece, and the top four in Poland and Switzerland.” Stating that their brand is the pioneer and leader of the Turkish electric public transportation market, Karsan CEO Okan Baş said: “In 2025, 69 electric public transport vehicles were sold in Türkiye. We, as Karsan, sold all of these. A total of 139 Karsan electric vehicles are deployed in Türkiye. Türkiye is also Europe’s production base in bus and midibus manufacturing. Our country has produced one out of every two buses in Europe. Karsan conducted 80 percent of electric minibuses and bus exports from Türkiye to Europe between 2019 and 2025. In 2025, we increased our electric vehicle exports by 15 percent, reaching 555 units. As of today, the part of our exports in our total turnover is nearly 60 percent. We intend to raise this rate to more than 70 percent in three years.”

#### Autonomous e-JEST goes to the World Cup

Asserting that Karsan’s global electric vehicle park has reached 2 130 units, Okan Baş stated, “as of today, our electric

vehicles continue to carry passengers in 27 countries on three continents. In 2025, we expanded our electric vehicle fleet by 40 percent. We have achieved a very significant success by winning 40 percent of the tenders we have participated in. We have also gained notable experience and operational competence in autonomous mobility. We have undertaken 16 projects in 12 countries with Karsan Autonomous e-ATAK, the first Level-4 Autonomous bus carrying ticketed passengers globally. 12 of them have been implemented, and 4 will be initiated soon. As a result of these efforts, we have accumulated 160 000 kilometers of road experience, serving 60 000 passengers autonomously. We observe that the demand for autonomous solutions is increasing. In our first three years, we commissioned seven



projects, and in 2025, we executed nine new ones. The most substantial factors that increase interest in autonomous mobility are high operating costs, difficulty in finding drivers, and, of course, accidents. Since we saw potential in this field, we developed and unveiled an autonomous version of our e-JEST model. In Autonomous e-JEST, we brought together the four years of experience from Autonomous e-ATAK and the seven years of public transportation experience of e-JEST. After the launch, we immediately received 10 orders for Autonomous e-JEST from the USA. We will deliver these vehicles in the second half of 2026, and they will be used at the World Cup.”

## The Search for the World’s Best Bus Driver

Organisers are pleased to report strong international interest in the Professional Driver World Championship 2026 (PDWC26). This year’s competition is taking place 9–12 September 2026 in Eppelheim near Heidelberg, Germany.

Professional driver associations from across the globe have already confirmed their interest in sending national teams to Germany for the Professional Driver World Championship. To date, participants from 21 countries have pre-registered. The challengers will compete in six vehicle categories, demonstrating professional skill, vehicle control, and eco-driving techniques.

Drivers qualify through national championships organised by UICR member associations and their partners, representing their country at the world championship. For the competition, buses are in the category



B, Bus / Coach, Length with 2/3 axles max. 12 metres, width 2.50 metres and height max. 4.00 metres, weight up to max. 18 tonnes

The best drivers from all categories compete for the prestigious overall title of Professional Driver World Champion. National Professional Driver Associations that still wish to register their country’s professional driver team

for PDWC 2026 are kindly invited to contact the organising committee directly.

ASIAN TRUCKER WILDCARD: For 2026, Asian Trucker WildCard has arranged a WildCard with the organisers of the PDW26. Contestants from Malaysia may enter directly into the finals, registering through Asian Trucker, without having to compete on national level to qualify first.



# Singapore Bus Operators Raise Hiring Bonuses to Recruit Local Drivers



Public bus operators in Singapore have increased recruitment incentives as they seek more local drivers for the national bus network. Several operators now offer sign-on bonuses of up to S\$20 000 for Singapore citizens and permanent residents who join the profession.

The incentives reflect a longstanding manpower challenge within the sector. Foreign workers continue to form the majority of the bus driver workforce.

According to data presented in Parliament, Singapore had about 9 700 bus drivers in 2024. The workforce composition shows the industry's reliance on overseas labour. Around 28 percent of drivers were Singapore citizens, 15 percent were permanent residents, and 57 percent held foreign work passes. The figures were cited in a parliamentary reply by Jeffrey Siow.

During parliamentary discussions, he noted that there are not enough Singaporeans willing to take up bus driving roles. Authorities continue to work with operators and the National Transport Workers' Union to strengthen recruitment and retention in the sector.

## Operators Increase Recruitment Incentives

Singapore's public bus network operates under a contracting framework overseen by the Land Transport Authority. Four operators provide scheduled services across the island.

Three operators offer sign-on bonuses of up to S\$20 000:

- SBS Transit
- SMRT Buses
- Go-Ahead Singapore

Another operator, Tower Transit Singapore, offers a sign-on incentive of S\$7,200, paid over two years.

The higher bonuses mark a gradual increase in recruitment efforts. SBS Transit raised its incentive to S\$20 000 in October 2024, doubling the earlier S\$10 000 offer.

## Early Recruitment Results

Operators report increased interest from local applicants since the incentives were introduced.

SBS Transit stated that nearly 500 Singapore citizens and permanent residents joined the company after the S\$20 000 bonus was introduced. The operator also recorded an 8 percent increase in local driver hires in 2025 compared with the previous year.

Other operators confirmed stronger interest in driver positions, although detailed hiring figures were not publicly released.

## Pay and Entry Requirements

Bus driving roles in Singapore typically offer starting pay of around S\$3 600 per month including overtime. Total monthly earnings can reach about S\$4 500 depending on overtime hours and allowances.

Operators require several conditions for new drivers. Applicants must be Singapore citizens or permanent residents and hold a Class 3 or Class 3A driving licence. At least one year of driving experience is required. All candidates must also pass the necessary medical checks before entering service.

The S\$20 000 incentive is not paid as a single lump sum. Payments are spread across several stages over a number of years. The structure begins after training and continues through instalments designed to encourage long-term retention.

An Industry Facing Workforce Pressures Singapore's bus network depends on thousands of drivers who operate services across the city every day. Despite recruitment incentives, foreign workers remain central to maintaining operations.

The role requires shift work, early morning and late evening duties, as well as weekend operations. These conditions continue to limit the number of local applicants entering the profession.

Operators and authorities continue to examine ways to strengthen the workforce. Recruitment incentives, structured career pathways and salary adjustments remain part of ongoing efforts to stabilise manpower in Singapore's public bus sector. ■



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# Transtar Elevates the Bus Journey Experience to New Heights

**T**ranstar’s coaches offer premium luxury service. Their routes connect Singapore and Malaysia. This set-up of just 19-seats on a double deck bus is the first and only one operator doing it this way. Transtar Travel Managing Director, Mr Elson Yap, told Asian Buses that “It is our focus to provide an experience, a memorable and super luxurious travel mode, which leaves our passengers with a feeling of comfiness similar to flights. Our service is always in demand, and that shows the acceptance of passengers to boarding buses repeatedly.”

## Safer Chassis for Comfort

Transtar choose Volvo Chassis for their operation for the first time based on the range of premium solutions offered by Volvo. The deciding factors where Volvo’s focus on safety, sustainability, durability, Driver Safety System (DSS) and lane keeping support. “Not only that, but its high-performance engines are designed for a smooth long-distance travel for high uptime, long service intervals and optimised diesel consumption,” Yap continued.

Gemilang is a partner of choice for Transtar Travel. It is down to the craftsmanship, high-quality body solutions, conceptualisation and design, regulation compliance and most importantly on time completion of a production and delivery.

## A New Approach to Use of Space

Double-deck buses, with lower seat count address customer requirements for their long-distance travel. Being able to offer higher comfort levels, more luxury, and more space on long-distance journeys is eventually pushing the demand for a sustainable premium service. Yap and his team have been surveying and analysing the market extensively to be able to find the best possible solution for their clientele.

During the hand-over, Yap received coaches with a unique design, whereby the lower floor features two-seater cabins. The cabins which can be found in our First-Class Solitaire Suites 19-seater, especially on our brand-new coaches are an enhancement and improvement from their previous model. The cabins are known as Suites, which offer privacy, more space, comfort and luxury for passengers.

“Our overall fleet is varied accordingly to our class of service. For example we have FIRST CLASS SOLITAIRE SUITES (19-seater), which consist of eight buses on the road to date. We also have SUPERSTARZ SINGLE HIGH-DECK (20–21-seater), with a total of 7 buses and SUPERSTARZ HIGH-DECK (25-seater). For the latter we have four coaches on the road. We currently have three chassis brands in our fleet, including Volvo now,” Yap elaborated.

Yap remarked that budget airlines and enhanced train services have impacted bus services in Malaysia, forcing bus operator to shift for a more premium, comfortable bus experience to compete. So, many operators, including Transtar are always looking for ways to upgrade to “luxury” or “business” class services. One way to achieve this is by adding amenities. Although this means higher cost upfront, offering premium services is risky, and the market demand is sometimes unpredictable, Transtar believes this is the way forward.

## Meeting Needs of Travellers

When asked if Yap thinks his brand will gain from the Visit Malaysia Year 2026, he confidentially said “Yes, this is the time where we should portray the image of the bus industry and coach service to the world. Buses are a preferred, accessible and economical choice, not only for local but also international tourists exploring the diversity of Malaysia.”

Supporting this are the current mega trends Transtar Travel is observing and integrating into their operations. Digitalisation and online ticketing, growing of public confidence and ridership, sustainability and modernization, data-driven service improvements are hot topics that he and his team are discussing in order to enhance their offering. Of course, safety is a key aspect of bus travel, which is also why Yap places his trust in Volvo’s chassis. Since the publication of this feature,

Transtar has officially launched these next-generation Volvo B11R coaches (Feb 2026), marking their return to the Volvo brand after 30 years. While the company faces current challenges from rising Diesel costs, Yap remains committed to the premium strategy, stating that the new fleet is key to capturing the Visit Malaysia Year 2026 market.

### Engineered for Modern Needs

Talking about the intricacies of manufacturing the vehicle was Pang Jun Jie, Executive Director, Gemilang Coachwork Sdn Bhd. He told Asian Buses that Gemilang's aluminium body technology allows us to significantly reduce overall vehicle weight while maintaining structural strength and durability. This is especially important for high-specification luxury coaches like Transtar's, where added features, such as private cabins, enhanced interiors, and onboard amenities, would traditionally increase weight. "From a body builder's standpoint, what truly sets these vehicles apart is the integration of premium luxury design with a lightweight aluminium structure," Pang said.

The modular design approach taken by Gemilang Coachwork also enables a high degree of customisation, ensuring that operators like Transtar can deliver a unique passenger experience without compromising on performance, safety, or lifecycle cost. Aluminium's corrosion resistance further enhances longevity, making the buses well-suited for intensive cross-border operations.

One could expect that a double-deck bus poses unique and specific problems. However, Pang explained that, on the contrary, aluminium is particularly well-suited for double-deck applications. One of the biggest challenges with double-deck buses is managing weight while maintaining stability and structural integrity. Aluminium's high strength-to-weight ratio allows us to keep the overall vehicle weight comparable to, or only marginally higher than, a steel bodied bus, while still meeting stringent safety requirements.

*From a body builder's standpoint, what truly sets these vehicles apart is the integration of premium luxury design with a lightweight aluminium structure.*

Additionally, Gemilang Coachwork's engineering experience across multiple global markets, including high-capacity double-deck buses, has enabled them to refine load distribution, structural rigidity, and rollover compliance. In summary, rather than posing a problem, aluminium is actually a key enabler for efficient and safe double-deck designs.

### Premiumisation of Road Transport

Of the two bus models handed over, the double deck variant on display offers two-seater cabins with enhanced privacy and luxury. More often nowadays we see the move towards offering unique experiences on board of buses as a trend in Malaysia. "We are clearly seeing a shift towards premiumisation in the coach segment, particularly for longer-distance and cross-border routes," Pang confirmed.

Operators are increasingly differentiating themselves through passenger experience—moving beyond simple point-to-point transport into something closer to a "mobile lounge" or even "business class on wheels." Features such as private cabins, massage chairs, lie-flat seating, and enhanced onboard amenities reflect evolving passenger expectations.

In Malaysia and the broader ASEAN region, rising income levels and competition from low-cost airlines are pushing operators to elevate comfort levels. Pang and his colleagues believe that this trend will continue, especially for niche premium services where passengers are willing to pay for privacy, convenience, and superior travel experience.

### Solid Basis: The Chassis

Pang stressed that "As a body builder, we maintain our neutrality to work with any chassis brand. However, we can safely say that Volvo chassis are particularly well-suited for premium and high-specification applications due to their proven reliability, safety systems, and drivability."



For example, a platform such as the Volvo B11R is designed with strong powertrains, advanced suspension systems, and integrated safety technologies like Electronic Braking Systems and stability control. From a bodybuilder's perspective, Volvo's modular chassis architecture also allows for seamless integration with Gemilang Coachwork's body structures. This ensures optimal weight distribution, ride comfort, and ease of maintenance.

Equally important is Volvo's focus on driver ergonomics and smooth driveline performance, which translates into a better overall passenger experience—something critical for luxury coach operations.

**Challenges Creating Luxury Coaches**  
Fabricating premium luxury coaches of this nature does come with unique challenges: Firstly, the integration of complex interior layouts is a consideration. Private cabins, electrical systems, and onboard amenities all require precise coordination between structural design, electrical architecture, and interior finishing.

Secondly, maintaining weight efficiency while incorporating high-end features is always a balancing act. This is where Gemilang Coachwork's aluminium expertise plays a crucial role in offsetting additional weight from luxury components.

Lastly, achieving consistent fit and finish at a premium level demands a high degree of craftsmanship and quality control, especially when each unit may be customised to operator requirements. However, these challenges are also what drive innovation within Gemilang Coachwork's engineering and production teams, allowing us to continuously refine our capabilities in the premium coach segment. ■



# MCVE 2026: The Most International Session Yet

The Malaysia Commercial Vehicle Expo 2026 (MCVE 2026) will take place from 14 to 16 May 2026 at the MINES International Exhibition & Convention Centre (MIECC). Organised by Asian Trucker Media, the event focuses on the commercial vehicle sector, bringing together stakeholders across trucking and logistics. It is the seventh session of the largest exhibition in Southeast Asia dedicated to the commercial vehicle industry.

MCVE remains a trade-focused exhibition. Entry is free with registration, and the event is targeted at industry professionals, including fleet operators, business owners, and decision-makers.

The exhibition centres on trucks and the supporting ecosystem. Exhibitors will present components, workshop equipment, and transport-related solutions relevant to fleet operations, focusing on maintenance, operational efficiency, and day-to-day performance.

## Strong Overseas Participation

This year's MCVE sees a strong influx of overseas exhibitors: A good 20 percent of the booths are occupied by international participants. "This year, we have the strongest representation of international brands ever. This signals that our commercial vehicle market as well as our exhibition, are of importance for brands outside Malaysia."

The international presence is further strengthened by the introduction of a Taiwan Pavilion. Joining with a delegation of seven companies, this pavilion will feature Taiwanese companies showcasing products and capabilities. The pavilion reflects growing regional participation and supports cross-border industry engagement.

## Conference and Industry Engagement

As a communication platform, MCVE 2026 includes a conference, a series of coffee talks and the Asian Trucker Networking Night. Spread across the three days of the exhibition, the Association of Malaysian Hauliers will host five coffee talks in which they discuss current issues and share knowledge. CargoNOW Malaysia will be co-hosted as a full-day conference on the 15th of May. The conference will address developments in logistics, digital systems, and supply chain coordination, covering the entire transportation industry.

Government agencies, associations, and industry bodies are involved in the event, supporting discussions on policy, regulation, and industry direction.

## Experience Zones

The Malaysia Commercial Vehicle Expo 2026 will be officiated on 14 May 2026 by the Minister of Transport, Anthony Loke, who will serve as guest of honour. The Minister previously officiated the 2024 edition of the event. As is a tradition for MCVE, the guest of honour will be driven to the hall in a truck, with a live feed broadcasting the journey from within the vehicle.

Another novelty for the 2026 instalment of MCVE is the Experience Zone, which shines a spotlight on the growing trend of camping in Malaysia. Several recreational vehicles will be on display, among them a converted Unimog, driven by a young couple traveling the world. 🚐



# Indonesia's Top Bus Bodybuilders Reunite at Busworld Southeast Asia 2026



The programme will feature high-level speakers from ASEAN governments, transport authorities and leading companies, as well as strong participation from regional stakeholders.

The conference will open with a strategic session on ASEAN's position in the global bus market and the transition towards clean, smart and connected buses.

Key topics will include electrification, charging infrastructure, urban mobility policies, safety standards and digital transformation. Sessions will also address the global ambitions of Southeast Asian body builders, the future of intercity transport, and the integration of multimodal transport systems.

The programme will conclude with a high-level panel discussion on the future of public transport in Jakarta and its role in shaping a modern and sustainable city.

## A strategic meeting place for ASEAN mobility

By bringing together manufacturers, suppliers, operators and public stakeholders, Busworld Southeast Asia 2026 reinforces its role as a key meeting platform for the bus and coach industry in the ASEAN region.

"Busworld Southeast Asia continues to grow as a relevant meeting place for the region. We are pleased to see a stronger ASEAN presence in the conference programme and expect to welcome more visitors from across the region. This is something we aim to further develop in the coming years.", says Vincent Dewaele, General Manager of Busworld International. 📌



From 20 to 22 May 2026, the 4th edition of Busworld Southeast Asia will take place at Jakarta International Expo (JIExpo Kemayoran), in one of the largest bus markets in Asia.

Indonesia, the world's fourth most populous country, ranks among the ten largest bus markets globally, driven by strong demand for public transport and continuous fleet renewal (IndexBox). The country is also known for its well-developed bodybuilder industry, which plays a central role in vehicle production.

## Strong presence of Indonesian body builders

The 2026 edition will feature an exceptional participation of Indonesia's leading body builders. Companies such as Adi Putro, Laksana, Tentrem and New Armada will participate for the fourth consecutive edition, together representing around 80% of the local market.

They will be joined by Piala Mas, which will participate for the first time at Busworld Southeast Asia, further strengthening the presence of Indonesia's top manufacturers on one platform.

The combined participation of these companies reflects the strength and maturity of the Indonesian bus industry, where local manufacturers play a dominant role in vehicle production and design, while maintaining strong partnerships with global chassis suppliers.

In addition to local players, international bus manufacturers such as Golden Dragon are also expected to participate, highlighting the growing global interest in the Southeast Asian market.

## From vehicles to full ecosystem

The exhibition will offer a comprehensive overview of the bus and coach industry, including:

- City buses, intercity buses and tourism coaches
- Premium and luxury vehicles
- Electric buses and future mobility solutions
- Components, interiors, accessories and safety systems
- Digital tools such as fleet management and smart transport technologies

This reflects the development of the ASEAN market, where innovation, cost efficiency and operational performance are key drivers.

## Conference with ASEAN focus and high-level speakers

Alongside the exhibition, the Busworld Southeast Asia Conference will bring together policymakers, operators, manufacturers and industry experts from across the ASEAN region.



## CIDC Dinamik Boosts MAN’s Service Network on the East Coast

*Bolstering MAN Truck & Bus’s service along the east coast, CIDC Dynamic is ready to deliver expertise, parts and service above and beyond the call of duty.*

In recent years, Malaysia’s east coast has seen a boost in economic growth. The corridor is expected to further grow with the East Coast Railway Link adding resources and mobility. In tandem, the population of commercial vehicles has grown, given MAN Truck & Bus a growth market for their vehicles. To support the rapidly growing population of MAN trucks, the German marque has appointed CIDC Dinamik Sdn Bhd to be one of their service partners looking after operators in and around Kuantan.

Having had a successful career with another European commercial vehicle brand, Mr Yee Chun Han, Managing Director, CIDC Dinamik Sdn Bhd, decided to set out on his own in 2025. Having been approached by a number of brands, he picked MAN to be one of those he would want to focus on in July 2025. At the time of writing, an expansion of his existing workshop was underway, paving the way to create more capacity to service MAN vehicles in his private dealership.

For now, CIDC Dinamik can handle between four to six vehicles a day. Yee aims to increase that number, and is currently recruiting as well. Many in the industry lament the difficulty in hiring: Yee’s recipe for success lies in an open communication and short, direct lines of reporting. Hence, he sees that he is able to attract talent that is aligned with his ambitions and the need to ramp up his capacity. Adding capabilities to service buses is the next step for CIDC Dinamik. Current investments are aimed at procuring the tools required to carry out service and maintenance tasks on MAN bus chassis. “We plan to have a dedicated bus bay here soon.”

According to him, the setting-up of his workshop has been a challenging time. The training of staff to be able to handle MAN’s vehicles needed to be juggled with the many bureaucratic dealings. Like many others, Yee also said that he hoped that the authorities could streamline their processes.

“What I have observed is that several of the leading transporters in this area have started to purchase MAN. Additionally, we can see that MAN is more aggressive in selling their vehicles here now. This is a great opportunity for us,” Yee told Asian Trucker. His confidence is further boosted by knowing that his workshop is forming the centre of three surrounding industrial areas, making it easy for most transporters to get to him within under half an hour. “The port, and several





big brands in Oil & Gas operating here make this a fantastic, central location for our kind of business.”

True to the saying that it is the after-sales that sells any truck beyond the first, Yee is putting an emphasis on the delivery of a fast and efficient service. Genuine parts, complete with warranty and guarantees are stocked at CIDC Dinamik along with the OEM-approved options. A total of 500 000 RM worth of parts is on hand. In collaboration with MAN, CIDC Dinamik is supporting the rapid growth of MAN in the area by having ample parts available. Considering that CIDC Dinamik is a young company with limited monetary resources, the parts are sold on consignment basis. “I am not aware of any other brand offering this, which helps us a lot. We must bear in mind that the truck population on the east coast is less, thus stocking parts can become a risky and expensive aspect of the business. However, now we can carry all the parts we may need at all times. This translates into faster service for the customers.”

Concurrently, his seven technicians are being trained in Shah Alam by MAN Truck & Bus. Being familiar with the brand-proprietary systems and procedures as well as the intricacies of working on the vehicles, ensures that the customers will receive service as if it was administered by the OEM itself.

Reflecting on the current market trends and challenges, Yee is stating that he believes that there will be a shift in paradigms: multi-brand workshops are



the future. This would allow a workshop to take on more vehicles, thus increasing throughput. This would also address a challenge he is facing operationally when the approval for the work takes longer than expected. “We understand that bigger jobs require a more deliberate approval process, but at the same time, we have to then deal with limited space to juggle.” As customers would also operate multi-brand fleets, a workshop could become a true one-stop-shop.

Amidst rising numbers of Chinese truck brands available in Malaysia, Yee still opted to favour the European truck. In his view, and this has been a long-standing truism, uptime is what operators are looking for. When it comes to comparing OEMs, he opines though that a lower initial investment into a commercial vehicle not necessarily translates in low Total Cost of Ownership (TCO). “You have to consider a lot more than just the sticker price: spare parts availability, service intervals and re-sale value in addition to the cost per kilometres.” When looking at all these, Yee is convinced that the traditional, Continental trucks still have the upper hand, however, he admits that there is also a market for the Chinese challengers.

Yee and his team also have a powerful message for those wanting to maximise their profits from their MAN trucks. “Service on time, service using correct, approved parts and best sign a service and maintenance agreement with the OEM.”



# MFTBC and Hon Hai Technology Group Announce Plan to Create New Bus OEM in Japan



**M**itsubishi Fuso Truck and Bus Corporation (MFTBC) announced plans to create a standalone bus company with partner Hon Hai Technology Group (Foxconn). Katsuto Kora (currently Director, Head of FUSO BUS, Mitsubishi Fuso Truck & Bus Corporation) is designated as the new company's CEO. The two companies previously announced the signing of 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.

Via their subsidiaries - Mitsubishi Fuso Bus Manufacturing Co., Ltd. (MFBM) and Foxtron Vehicle Technologies – MFTBC and Foxconn plan to cooperate in the development, production, supply chain management, and sales of ZEV buses, beginning with Foxtron-developed MODEL T and MODEL U.

The announcement marks the next stage in the companies' collaboration. The new company aims to fulfil society's demand for high quality public transportation by accelerating the development of competitive, zero-emission buses in addition to the current diesel lineup. The buses will be developed and manufactured at the company's plant in Toyama under the FUSO name, which already has over 90 years of heritage as a CV brand. The company will be headquartered in Kawasaki, Japan.

As a bus-dedicated OEM, the new company will focus on quickly developing and launching EV buses for domestic and international markets, while continuing to improve the conventional ICE portfolio.

With local development, sourcing, production and sales channels, the company will also be able to smoothly comply with Japanese regulations, quality standards and customer needs. This will be backed by Foxconn's ZEV expertise, high-tech competency and global partnership network to help ensure products are successful in Japan and abroad.

Karl Deppen, CEO of MFTBC: "We are excited to join forces with Foxconn. This collaboration will combine the strengths of both parties to accelerate our transformation in the bus sector. By combining FUSO and Foxconn's extensive experience and technological know-how, we will offer customers state-of-the art

solutions for public transport, thereby contributing to society both in Japan and abroad."

"Mobility is a strategic priority for Foxconn," said Jun Seki, Foxconn Chief Strategy Officer for EVs. "This collaboration with MFTBC will provide a comprehensive electrification solution for Japan's transportation ecosystem. This approach will significantly shorten development cycles and enhance cost-efficiency."

Katsuto Kora, designated CEO of New Bus OEM: "The new joint venture will integrate the corporate cultures of both companies, blending Japan's spirit of manufacturing excellence with Foxconn's agility and technological prowess. Given the extensive existing partnerships of both shareholders, we expect even broader collaboration opportunities in the field of future technologies in the years to come. Our focus will be on meeting customer expectations not only for current conventional ICE improvement but also for zero-emission transportation and leading FUSO bus into a new era of digitalization and electrification."

Having signed the definitive agreements today, MFTBC and Foxconn aim to close the transaction in the second half of 2026. The transaction is subject to all parties involved reaching an agreement and receiving approval from the relevant Boards, shareholders and authorities. 📄





## Scania' New Kuantan Workshop with Enhanced Driver Facilities a Basis for Expansion

*Welcoming truckers and fleet owners to their new workshop in Kuantan, Scania offers insights into their strategic thinking.*

On April 3rd, Scania hosted a Customer & Drivers Day. Guided tours of the premises, introductions to Scania Digital Services, and presenting new model specification of the Scania Super P and R-series were part of the program. The intention of the activities were all designed to help fleet operators to achieve better profitability and sustainability for their businesses.

While the location of Scania's Kuantan new workshop is not very far from the old place, it immediately makes its presence known with more space and better accessibility. Drivers have already taken a liking to the new Scania workshop in Kawasan Perindustrian Semambu 7. Known to be an industrial area, it is a familiar place for most drivers. With known landmarks around, dropping off a vehicle for service is easier now. An issue Scania had identified in the previous compound was the fact that the address was not easy to find in navigation apps.

"So, that was one of the reasons why it was very important to actually pick this place. Secondly, later on when one tours the place, visitors will see it gives us enough space to expand quite a lot of things that we wanted to do," Ian Tan, Marketing & Communications and Digitalisation Director, told Asian Trucker.

### Upgraded Facilities

Within the bigger building, Scania remodelled the space for their Kuantan operations. For example, the driver's room deserves special attention. "It was brought to my attention that not a lot of workshops in Malaysia prepare driver's

room. And we are one of the few that really, really put effort in creating a driver's room," Tan said. Accordingly, Scania managed to expand the driver's room, included air-conditioning and beds. Understanding that with drivers being the most important aspect along with the vehicle performance, facilities have been designed with a focus to enhance their experience. Those waiting while their vehicles to be serviced will also be provided with snacks and drinks. The expanded lobby is meant to make the driver feel at ease, welcome and comfortable.

The space is a bigger lot, accommodating more vehicles to be readied for their service. Serving customers around Kuantan, this workshop is strategically located to cater to fleets moving along the routes with Kuantan as a hub. Customers on the east coast of Peninsular Malaysia using routes that may not go via Kuantan can count on the Scania workshop in Kota Baru to be on their side. With the construction of the new workshop signifying a substantial investment, Scania aims to signal their commitment to supporting their customers. Tan is confident that the brand will be able to further grow their vehicle population in the area. "They can be assured that if they expand their business, we are ready to support them."

Tan stressed the importance of inviting business owners together with their drivers. Workshop facilities are mostly used by the driver for the purpose of managing the business owner's assets. Such visits are important for business

owner as it affords them with a better understanding of how their drivers work and what they require in order to consistently perform at their best.

### Digital Services

Besides the physical premises being signifiers for the commitment of Scania, the other part is the push for digital services. Both, A Good Company and A Good Driver are initiatives based on data that Scania harvests in collaboration with clients. Being relatively new concepts, Tan opined that Scania's customers may not have fully embraced the full potential of digital services, transforming them to data-driven businesses. Data, managed properly, can provide invaluable insights into how to improve businesses when converted into information. "You can have very little data, or a lot. In either case, asking the right questions will give you leverage." The possibilities are infinite in his view, and he would want to encourage Scania's customers to really embrace data-driven logistics. With the data on hand, one can have the right discussions: nowadays when people are very concerned about fuel consumption, the information gleaned from the Scania Digital Services can make a difference."

Among the digital services, the Scania Driver app stands out as it is a demonstration of Scania's understanding of how a transport business operates. Typically, reports are generated and discussed at the end of the month. The fleet manager may have access to daily data, however, this is most often not part of a daily review with the driver. Letting drivers know at the end of a month on what they would need to do in broad terms may not result in any behavioural changes. "Simply put, the monthly results are not tangible for the driver."

The ProDriver digital coaching feature gives drivers immediate feedback on their driving with actionable insights. For instance, the app would tell the driver to idle a certain amount of time less each day in order to improve their ranking. Drivers are ranked against a global population of Scania ProDriver users. Gamification allows for drivers to compete in a meaningful, yet engaging way with the app. 🚛





# Market Differences Create Opportunities for MAN

*Being on the ground, on site in sales markets helps MAN's Mehmet Sermet to identify opportunities for the brand.*



**W**hile on a specific mission to Malaysia, Mehmet Sermet, CEO, MAN Türkiye and Head of Bus Production, MAN Truck & Bus SE, took time out of his busy schedule to meet with Asian Buses to provide an update on MAN's bus business in Southeast Asia. When asked about the purpose

and reason behind his visit, Sermet's response may surprise some as it is somewhat different.

As the Head of Bus Production, he sees overseas markets and their respective MAN colleagues as customers. With this thinking in mind, he approaches each market in a manner that he would describe as customer centric and his strategies derive accordingly. He described his recent visit to Malaysia as one that a supplier would conduct in order to better understand a customer and to gain insights into the market for him to bring back to the HQ.

## Heading a Production Network

Being born in Türkiye, Sermet has had a long career with MAN thus far. Over the past 23 years, he has risen through the ranks from engineering to production engineering and now heading the bus production for the German brand. His responsibility covers three production plants, located in Türkiye, South Africa and Poland.

Briefly introducing the production sites, Sermet said that Ankara is producing 19.6 units per day, being a complete bus production. “And we are producing city buses, intercity buses, coaches and also premium buses. Neoplan buses are produced there as well.” MAN is producing CNG buses, combustion engines and E-buses as well in Ankara.

Ankara, the home of MAN's bus product development centre, employs about 4,600 staff of which about 1,000 are engineers.

•Starachowice in Poland, is MAN's city bus factory. “We are producing all types of city buses, including CNG combustion engines and electric buses. With a 3,300-strong workforce, the plant produces 11 units of complete buses daily.” It is here, where Sermet also oversees the chassis production.

The third, and comparably small plant is in Johannesburg, in Olufensfontein, South Africa. It is producing one complete bus a day.

### **Product Focus: Neoplan vs Chassis**

NEOPLAN is a German premium bus and coach manufacturer founded in 1935, now a subsidiary of MAN Truck & Bus SE. It is famous for its “Sharp Cut” design and luxurious, high-end travel coaches. Buses bearing the Neoplan brand are fully build-up, complete buses. “In contrast, here in Malaysia and surrounding countries, the business model is based on selling chassis though,” Sermet said. Neoplan buses offer ready designs with all aspects of the interior fit-out and exterior design pre-defined.

In accordance with market needs, MAN is not offering Neoplan buses in Malaysia. “What we found is that there is a lot more customisation required to meet the local needs. This we achieve by working with local bus body builders.” Sermet stressed that these local body builders are vital partners for MAN and that they are able to produce top-quality buses, using MAN chassis.

### **Electrification of Asian Markets**

MAN is among the pioneers in electric transportation. Sermet pointed out that MAN had electric buses in operation in Germany as early as during the 1972 Olympics. “We were the first to deploy such vehicles back then.” However, he explained that the circumstances since have not been favourable for a rapid expansion of this technology.

However, with modularisation and longer-lasting batteries, this driveline technology is now feasible. “In Europe, we already have a well-established charging network. In addition, we are in partnerships with other brands, especially those under the Traton brand, to further develop charging infrastructure and technology.” With modular approaches, MAN's offering today would support a number of applications using electricity as a power source. Sermet added that the expertise of MAN is evident in the fact that it is MAN that has put the first e-Coach onto the roads in Europe.

The MAN Lion's Coach E is a groundbreaking, award-winning electric coach, named “Sustainable Bus of the Year 2026” at Busworld Europe. As the first fully electric touring coach from a major European manufacturer, it offers a range of up to 650 km, combining long-distance capability with, high-comfort passenger travel and 330 kW continuous output.

Bringing electric buses to Malaysia is of course on the agenda of Sermet and his colleagues. As pointed out, the infrastructure needs to be ready first, as it is in Europe, before electric buses could be deployed. He opined that cities could be ready for electric vehicles. “In Malaysia, we have body builders that are experienced in producing electric



MAN's Lions Coach E

buses using our chassis. City buses are certainly an option to consider.” Meanwhile, coaches may need to be powered using conventional ICE technology while the infrastructure is being put in place.

Sermet elaborated that the introduction of a new technology is a complex matter that requires careful consideration in many ways. For instance, battery recycling, their second and third life, has to be addressed. For most countries in Southeast Asia, these are still pending topics, which have yet to be fully worked out.

**Challenges in SEA**

Sermet also spoke about the challenges that bus manufacturers are facing in Southeast Asia. “Let us not talk about the price of the vehicles in this context,

MAN is ready to serve markets with a wider and deeper product range. “However, we need to make sure that the products can be used to their potential.” Cost of inputs are items that have a huge impact on transport operations. Long term financial planning with respect of the vehicle purchase is easy as that is fixed. However, Sermet has seen it time and again that transporters will be burdened by fluctuating operating cost. For instance, if one cannot plan the cost of fuel with a high level of confidence, then one runs the risk of misjudging financial performance. “We have now seen the cost of Diesel going up, doubling. How can an operator plan for such events?”

**Opportunities in SEA**

These challenges also give way to opportunities. What Sermet has observed during his visit to Malaysia is that local businesses deploy different business models from those common in Europe. “Simplistic, we see companies here that build, sell and operate buses, while others just operate them. There are many different ways of doing business here, which tells me that companies here are looking for opportunities.”



**Meet Mehmet Sermet**

CEO, MAN Türkiye and Head of Bus Production, MAN Truck & Bus SE Mehmet Şermet started his career at MAN Türkiye in 2003 as an engineer and was appointed in 2019 as the plant manager of the MAN Truck & Bus SE production plant in Starachowice, Poland, after holding management positions in various departments. During his tenure, he was able to significantly improve the performance and operational excellence of the plant. He is a graduate from the Faculty of Engineering at Trakya University (1996 to 2000) and received an Executive MBA from Bilkent University (2009 to 2011). The MAN plant in Ankara provides a great insight into the future of bus transportation. It not only produces city, intercity buses and coaches for the MAN and NEOPLAN brands – the company’s engineers are also developing the models of tomorrow and beyond in the adjoining Product Development Center. The transition to electric drives is just one of the major trends in the industry. Added to this is the growing number of digital assistance systems that will make bus transportation even safer and more comfortable in the future. The MAN Lion’s City E city buses, which are successful throughout Europe, began rolling off the production line in Ankara in mid-2025, and a battery-electric coach – the MAN Lion’s Coach E – the first from a major European manufacturer, is due to be added to the range in 2026. MAN has prepared production and employees in Ankara for the requirements of electromobility and gradually converted the site to focus on eMobility.



because that is always a consideration. Instead, we need to look at other factors.” Citing infrastructure again, Sermet stated that it is oftentimes the infrastructure that is limiting the possibilities a transport owner has.

Another growth opportunity for bus makers would be the push of many countries for more public transport. Citing the situation in Istanbul, Sermet has seen how the implementation of dedicated bus lanes can even boost the economy. By having dedicated bus lanes, public transport moves faster, giving an advantage over personal transportation. “Eventually, people will switch. However, for that to happen, there needs to be a sufficient number of buses in operation so that a lot of people move quicker than by car.”

A growing number of Gen Z adults (born 1997–2012) are bypassing driver’s licenses and car ownership due to high costs, environmental concerns, and urbanization. Data shows a 27 percent drop in 16-year-olds with licenses between 2000 and 2022, with many preferring ride-hailing, public transport, or walkable city living.

A third opportunity lies in the fact that tropical climates offer a year-round environment for tourists to visit Malaysia (as one example). Those visiting Malaysia can easily explore the country by bus. E-Coaches could be an option



here too, considering certain routes that would support the current range of such vehicles and the infrastructure already present.

In general, people are more active travelling, within cities or inter-city. Mobility is becoming more and more important: commuting, visiting friends, relatives or going on weekend trips see increased demands. Here again, the situation would favour MAN as European maker of chassis and buses as they are more comfortable. Ultimately, comfort on a bus ride is crucial, no matter how short or long the ride. ■

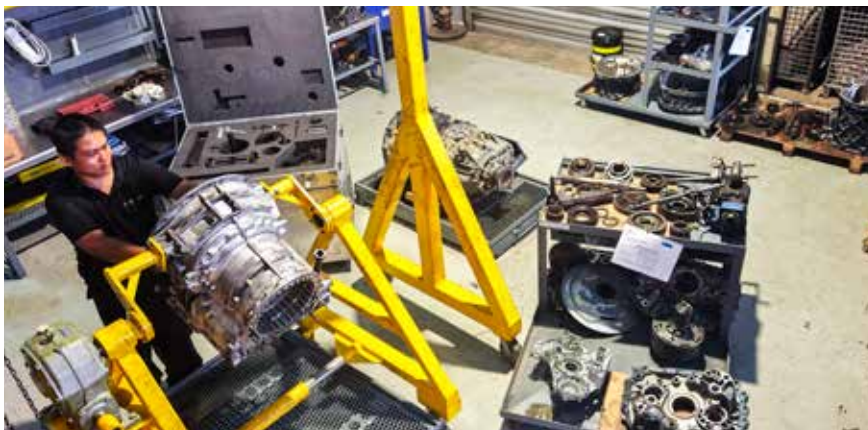


E-bus production in Ankara



# Allegiance Malaysia Presents New Business Direction

*Presenting themselves with a different mission, Allegiance Malaysia is emerging from an extensive evolution of their business.*



Starting out as a workshop, Allegiance Malaysia (Allegiance) used to offer repair and maintenance services to commercial vehicles. Primarily focused on European brands, the team would be handling standard servicing, replacement of oil, replacement of filters and other tasks of this nature. Over time, small diagnostics, maybe a replacement of parts, like shock absorbers, were added to the offering. Today, Allegiance emerges with a new mission, one that positions the business as a very different service provider. Asian Trucker met with Jason Soyza, Assistant GM-TE Division at Allegiance to learn all about this.

"In essence, instead of just replacing parts and components, we want to become a highly competent partner that diagnoses and repairs complex components." Soyza explained that this would include gearbox components, engine components, complete engines, complete gearboxes, complete drive train items like differentials and axles. "For example, air dryers are another complete assembly item we will be handling."

In order to become such servicing partner, Allegiance depends on the support of the OE suppliers. Already an authorised dealer for a number of OE brands, stepping up in the service level provided is even encouraged by these suppliers as they themselves will be able to offer a wider service network by working with Allegiance. Most importantly, Allegiance has added competences in diagnostics as it is becoming even more and more difficult to do conduct basic diagnostics or troubleshooting.

By combining the expertise about spare parts, being a stockist and the diagnostics tools, Allegiance proposes they repair and remanufacture components instead of just selling them. With the cost of maintaining a vehicle is going up, customers are exploring new ways to reduce the cost. Buying a new, genuine OEM component means paying premium. However, certain items like the gearbox, will be too costly and the purchase of a new one prohibitive. “Alternatively, you can take down your gearbox, send it to us, and we carry out the complete remanufacturing. That way, you have a genuine component, complete with new parts, set up to OEM specifications, at a lower investment level.”

Instead of buying a used one, Allegiance recommends this practice as it would give the fleet owner peace of mind. As one would not know what happened to a component purchased from a third party, there is a lot of risk involved. Maybe within a week it breaks down, putting the owner back to square one again. Sending the whole gearbox, the whole engine, even the whole drive axle to Allegiance for remanufacture would ensure the assembly is as good as new.

An interesting option is to have a spare unit on hand. When decommissioning a vehicle, one may want to assess certain components, like the gearbox or axles, and have it refurbished by Allegiance. That way, a spare unit can be on hand should another truck break down. Looking at it from another perspective, the new approach is supporting the ESG efforts of local transporters as well: Lifespans can be expanded, wastage reduced, and components salvaged.

Besides the move towards being a solutions provider, Allegiance is now also able to widen the service offering. Being a trusted partner means that Allegiance will be able to service all brands using components from certain OEMs. For instance, ZF components are no longer just used in European trucks. Initially, Allegiance focused on the European marques, whereby nowadays, their expertise also includes Chinese and Japanese brands and vehicles. “So, we’re not limited in terms of what brands we want can handle any more. We can offer our services as long as any of these OEM products are produced by any of the big manufacturers.”

With the evolution from being a workshop to an integrated systems provider must come a different mindset as well. Allegiance has spent significant time and effort to inculcate a new culture in their operations, moving away from the approach to replace parts and components to offering sophisticated solutions that require technical finesse as well as different skills. Thanks to years of experience with spare parts, this has been a transition that many thought was rather easy as it builds upon existing skills.

In parallel, there needs Allegiance needs to shift their attention to different customers as well. Nowadays, it is getting increasingly harder to repair a commercial vehicle within the restricted workshops that fleet owners may operate themselves.



More and more, repairs depend on highly sophisticated and expensive equipment, which Allegiance invests in. It may no longer be feasible to repair a modern vehicle in house and thus, a partner like Allegiance will need to be on the supplier roster.

In advancing the business, Allegiance also shifts out of a red ocean, where many compete on price for the limited business that is going around. “There will still be a need for simple swaps of parts and components, however, we will now move out of this space and advance into what could be described as a blue ocean.” Soyza believes that many common workshops are not able provide the depth of repairs offered by Allegiance. He said that “for one thing, they will likely not have access to all the technical documents related to these components and products.

In terms of hardware, Allegiance has enhanced their capabilities in tandem. Now boasting three Kardex storage systems, the warehouse has seen a boost in efficiency too. Thanks to the space-saving design of the storage system, Allegiance is now able to utilise freed-up space to further deepen and widen the range of parts on offer. In addition, the high-tech storage reduces the risk of dispensing wrong parts while at the same time keeping track of the inventory.

Meanwhile, the office space has also seen a make-over: an open space with hot desking for the sales staff now dominates the premises in Shah Alam. Modernising the office was needed in order to accommodate the new working style, in line with the new direction of the business. “We hope that many of our customers would also like to come and pay us a visit, have a chat and spend time here so that we can better understand their needs. Hopefully, we have managed to create an inviting atmosphere here.”

# Mitrans at UiTM: Where Mobility Meets Safety, Sustainability, and Professional Purpose



Asian Trucker sat down with Profesor Madya Dr. Wan Mazlina Binti Wan Mohamed, Director of the Malaysian Institute of Transport (Mitrans) at Universiti Teknologi MARA (UiTM), and Ir. Ts. Dr. Ahmad Khushairy Bin Makhtar, Head of Training and Continuing Professional Development (CPD), to explore how the institute is shaping campus transport and nurturing future talent. Engaging, professional and genuinely enthusiastic about their work, both leaders shared deep insight into the practical and strategic thinking that guides campus mobility at UiTM.

## Engineering Minds in Motion

Professor Dr. Wan Mazlina's path to transport leadership is rooted in technical precision. With degrees in aircraft maintenance engineering and aerospace engineering, and professional experience in aviation planning and engineering management, she brings analytical clarity to Mitrans. "Transport systems are living networks," she told Asian Trucker, "and on campus, every route, schedule and vehicle choice affects students' access to education and safety."

Ahmad Khushairy, trained in mechanical engineering with postgraduate research experience in Japan, complements that vision with a focus on operational excellence and people development. "Mobility is not just movement; it is about service design that respects safety, reliability and the needs of the community," he said with a candid, thoughtful smile.

## The Mobility Challenge of a Large Campus

UiTM's Shah Alam campus is home to more than 33 000 students, with about 13 000 living on campus. First year students are typically restricted from bringing private vehicles, making reliable transport essential for day to day life. For students living off campus, links to public transport are equally vital.

Mitrans has responded by coordinating with verified services such as Rapid KL, which connects the campus with major transit points, and scheduling internal shuttles timed to class and exam schedules. "We aim to integrate public transport with campus services, so students and staff have dependable options without relying on private vehicles," Wan Mazlina explained. "This reduces congestion, supports sustainability, and improves quality of life."

## Safety as Strategy, Not Reaction

Safety is woven into Mitrans' operational DNA. In response to past traffic incidents involving campus commuters, Mitrans tightened safety protocols, refined routing, and enhanced training for drivers and operational staff. Micro mobility devices such as scooters are restricted on campus due to terrain and risk assessments; careful evaluation is required before any low speed electric vehicles are introduced.

"Our goal is straightforward," said Khushairy. "Students and staff should start their day safely and return home safely." Their rigorous approach to risk management ensures that campus transport is designed first and foremost to protect people.

## Sustainability That Shows Measurable Results

Sustainability is not a slogan at Mitrans; it is a measurable objective. The institute tracks the deployment of electric and renewable energy vehicles and monitors how transport planning contributes to broader environmental performance.

UiTM's efforts contribute to its strong showing in sustainability assessments. In the University Impact ranking, which evaluates institutions globally on sustainable development goals, UiTM



Shah Alam placed 97th out of 2 000 worldwide, up from 107th the previous year, and sixth among Malaysian universities. Transport planning and eco friendly vehicle integration were key contributors to this result.

“We don’t pursue green initiatives for optics,” Wan Mazlina said. “Our sustainability strategy is grounded in operational planning, energy efficiency and measurable impact.”

### **Professional Development and Certified Programmes**

Mitrans also plays a vital role in professional education. Its Continuing Professional Development (CPD) courses are designed to upskill industry practitioners in transport and logistics, safety management, operational planning and related disciplines. These offerings include structured short courses, workshops, and specialised training that connect theory with real challenges in the field.

“Our CPD programmes equip professionals with practical skills for transport, logistics and safety,” Khushairy explained. “It’s about developing the capacity to make better decisions in complex environments.”

In addition to CPD training, Mitrans delivers certified Halal Supply Chain and Halal Logistics courses accredited by the Halal Professional Board. These programmes cover halal audit processes, supply chain integrity, and compliance systems, ensuring that transport and logistics professionals understand how to maintain ethical and culturally compliant practices throughout operations.

“Halal is not confined to food,” Wan Mazlina said. “In transport, it means maintaining integrity at every stage; in equipment handling, service delivery and operational protocols.”

The institute also supports postgraduate research degrees (Master’s and PhD) in transport and logistics, preparing graduates to lead in academia, industry and public policy.

### **Human First, Mobility Always**

What makes Mitrans distinctive is not just its technical rigour but its people centred philosophy. Both leaders bring a blend of expertise and approachability that resonates with students and



transport professionals alike. In conversation, they are approachable, articulate and quick to highlight student perspectives, operational realities and the value of continuous learning.

As Khushairy summarised: “Our work connects mobility with purpose. We want students and staff to move confidently and safely, and we want our programmes to prepare professionals who will shape transport systems for years to come.”

Through strategic partnerships, data led planning, sustained investment in training, and a commitment to safety, sustainability and cultural respect, Mitrans at UiTM offers a model of how campus transport can meet present needs while anticipating the future.

Khushairy explained the rationale: “Our CPD programmes are designed to equip professionals with practical skills that address real challenges in safety, logistics and planning. It’s about developing the capacity to make better decisions, whether you’re in industry or academia.”

### **Halal Principles Beyond Food**


Transport and logistics often intersect with cultural and ethical concerns. Mitrans incorporates halal compliance principles into its training and operations, ensuring procedures and protocols respect cultural expectations and regulatory frameworks. “Halal is not confined to food,” Wan Mazlina said. “In transport, it means maintaining integrity at every stage; in equipment, handling methods, and service delivery. Our training reflects that broader understanding.”

### **Tracking Impact, Planning Ahead**

Mitrans does not just design services; it measures outcomes. Ridership trends, incident reports, simulation modelling and satisfaction surveys inform iterative improvements. These real world results feed back into planning cycles, enabling continuous refinement and responsive adjustments.

Looking ahead, both leaders emphasise that transport strategy must remain dynamic. Plans include further integration with regional transit systems, expanded electric vehicle fleets, and enhanced professional development offerings that connect academic insight with practical industry needs.

“Our work connects mobility with purpose. We want students and staff to move confidently and safely, and we want our programmes to prepare professionals who will shape transport systems for years to come,” Khushairy said.

Through strategic partnerships, data informed planning, and a commitment to safety, sustainability and professional excellence, Mitrans is not simply managing campus mobility; it is reimagining it for a generation that expects more from its transport systems. 

# The Evolution of Braking Systems



The 79000 Series Axles for 35-60 Transit Bus & Motorcoaches from Cummins

The braking systems used on buses today are the result of decades of continuous engineering development. What began as simple mechanical linkages has evolved through pneumatic actuation, friction material advances, electronic control, and most recently, regenerative energy capture. This article traces that technical evolution, examining the key developments, when they occurred, who led them, and what each change meant for the vehicles themselves.

Early bus braking systems relied on mechanical actuation. Cables, rods, or linkages transferred force from the driver's pedal to the wheel brakes. While this approach was adequate for lighter vehicles, it required significant driver effort and produced uneven braking force distribution as vehicle weights increased. Hydraulic systems emerged in the early to mid-twentieth century, using fluid pressure to multiply pedal force. These systems offered improved actuation compared with mechanical linkages. However, hydraulic systems presented two limitations for heavy bus applications. Brake fluid could boil under sustained heavy braking, leading to loss of braking force. Additionally, no fail-safe mechanism existed if hydraulic pressure was lost.

## Same Goals

All modern braking systems aim to achieve the same goals: faster braking, safer handling, and reduced brake fade. Brake fading is a significant safety issue; it is a focus in the development of brake systems. Brake fading is the temporary, sudden reduction or loss of stopping power caused by excessive heat buildup in the braking system, typically during heavy, repeated braking or long downhill descents. It occurs when brake pads overheat and produce gases (pad fade) or when brake fluid boils (fluid fade), resulting in a spongy pedal and longer stopping distances.

## Air Brakes

Compressed air systems became the standard for heavy buses in the mid-twentieth century. An engine-driven compressor charges air reservoirs, storing compressed air for repeated braking cycles. When the driver applies the brake pedal, air pressure actuates diaphragms or pistons in brake chambers, applying friction at each wheel. Spring brake chambers represented a critical advancement in fail-safe braking. These chambers contain large mechanical springs held compressed by air pressure during normal operation. If the system pressure drops below a safe threshold due to a leak or compressor failure, the springs apply the brakes automatically. This principle became a fundamental safety standard for heavy vehicles globally.

Drum brakes were the standard friction hardware throughout this period. The enclosed design of drum brakes made them simple to manufacture, but heat buildup during repeated heavy stops could reduce braking effectiveness.

## Disc Brakes

Disc brakes began replacing drum brakes on bus applications in the late twentieth century. A ventilated rotor exposed to airflow provides superior heat dissipation compared with enclosed drums. This results in more consistent stopping

performance, particularly under repeated heavy braking conditions that are common in urban service.

Knorr-Bremse, Meritor and WABCO were among the primary suppliers that adapted heavy-duty disc brake technology to commercial vehicle applications. Front axles typically converted first, followed by rear axles as the technology matured. Maintenance procedures for disc brakes differ from drum brakes, with pad replacement requiring less time than drum brake relining.

Disc brakes have become quite common. However, the development from Frederick W. Lanchester's patent for the disc brake in 1902 for early automobiles, to modern systems used in commercial vehicles, only took off over half a century later. Air disc brakes for heavy commercial vehicles were first developed in Europe during the 1970s and 1980s, with companies like Knorr-Bremse, Meritor, and WABCO leading the way for trucks and buses. Knorr-Bremse introduced hydraulic disc brakes on Setra S200 buses in 1973.

By the 1990s, companies like Knorr-Bremse, Bendix, and Wabco were standardizing air disc brakes (e.g., SB7 type) on trucks and buses. Due to the higher cost of disc brakes, commercial vehicles and trailers can often be found to have been designed with drum brakes on rear axles.

Comparing disc brakes to drum brakes, the most significant differences are the superior stopping power of disc brakes, excellent heat dissipation, and better performance in wet conditions. These attributes make them ideal for driving

at higher speeds (highway applications). However, they are more expensive. Drum brakes are durable, cheaper to manufacture, and suitable for rear wheels. They are often used on trailers. Drum brakes are prone to overheating and fading.

### Anti-Lock Braking Systems

Bosch commercialised anti-lock braking systems (ABS) for heavy commercial vehicles in 1981. ABS uses wheel speed sensors to monitor individual wheel rotation. When a wheel decelerates at a rate indicating impending lock-up, an electronic control unit modulates brake pressure via solenoid valves. This allows the driver to maintain steering control during full brake application.

ABS became standard equipment on many bus models throughout the 1980s and 1990s. The system is particularly effective in wet or low-traction conditions where wheel lock-up is more likely to occur.

### Retarders and Intarders

Hydraulic and electromagnetic retarders provide another form of auxiliary braking. These devices mount on the driveline or transmission output shaft and generate retarding force independent of engine speed. Several manufacturers developed these technologies for commercial vehicle applications.

Retarders reduce the workload on foundation brakes, extending the service life of brake linings, drums, and discs. They also provide additional braking capacity on long descents where sustained brake application could otherwise lead to fade.

Although the widespread use of retarders occurred much later, the first patent was filed in 1903. French engineer Steckel filed the first patent for a retarder utilizing Foucault currents (eddy currents). Three decades later, in 1936, French engineer Raoul Roland Raymond Sarazin developed the first electromagnetic retarder application on vehicles, using a single central induced disk. This marked the first vehicle application.

The first commercialisation is registered in 1946: the 450-model electromagnetic retarder was marketed in France for vehicles up to 18 tonnes, developed by Raoul Sarazin. During the 1950s, the ELMA company (later Telma) perfected electromagnetic retarders, allowing trucks to manage steep descents. An example of these slopes is the 14-17 per cent grade of Laffrey in France, which was driven without using friction brakes, leading to widespread adoption in Europe for trucks and coaches.

While electromagnetic systems were developed in Europe, the 1960s saw the advancement of hydraulic (hydrodynamic) retarders by Voith and Allison in 1965 and Telma introduced the "Telmatic" water-cooled electromagnetic retarder (1970), and ZF began developing the integrated "Intarder" concept.

Based on the same idea but using different approaches can be found in the Electromagnetic Retarder created by Telma and the Hydrodynamic Retarder (Voith/ZF). The former uses Foucault currents generated by electromagnetic fields to create braking torque without physical wear. Meanwhile, the latter utilizes oil (or water) between a rotor and stator to create drag, transferring kinetic energy into heat for dissipation through the vehicle's cooling system.

As an example of the effectiveness of such systems, one can look at the Swedish brand Scania. In 1993, their unique Retarder was launched. Controlled by a dash-mounted lever or via the brake pedal, the automatic downhill speed control was an innovation much appreciated by drivers. Use of the wheel brakes could be reduced by up to 75 per cent.

Credited with the invention of the integrated retarder is the ZF Friedrichshafen AG (ZF Group). Nowadays, commonly known as the Intarder, the company first introduced this wear-free brake system in 1992. MAN Truck & Bus was the first manufacturer to implement the ZF-Intarder in its commercial vehicles

In contrast to retarders, an Intarder is integrated into the transmission in a space-saving way. Consequently, it can be attached to manual and automatic transmission



**Modern Brake fluid is highly evolved**

systems more easily. This also allows for optimal integration into the vehicle's brake management, including the cruise control function.

The Integral Retarder handles a sizeable portion of the braking demand, thereby reducing the frequency of brake maintenance. And since there is no mechanical friction or wear to shock the drivetrain, the Integral Retarder extends the life of your brakes and lowers maintenance costs.

The Integral Retarder from Allison Transmission, for example, is a key component designed to enhance braking performance in your vehicle. The Integral Retarder uses the vehicle's transmission fluid to create resistance and absorbs the energy through the drive shaft, delivering braking power to the wheels. This resistance converts energy into heat, which is then dissipated through the cooling system.

### Regenerative Braking

Regenerative braking entered production bus applications with hybrid and battery-electric models. During deceleration, the traction motor operates as a generator. Kinetic energy converts to electrical energy and charges the battery system.

Blended braking systems use electronic controllers to distribute braking demand between regenerative torque and friction brakes. Friction brakes typically handle low-speed stopping, emergency events, and situations where battery charge limits regenerative capacity.

Regenerative braking changes maintenance patterns for bus fleets. Friction brakes on electric buses



**MANN+HUMMEL's particle filter catches brake dust**

experience reduced wear compared with conventional vehicles, extending replacement intervals. However, new service procedures are required for high-voltage components and brake-by-wire systems.

**From Fluids to Braking by Wire**

Brake fluid is one of the most critical yet often overlooked elements in vehicle safety engineering. Its evolution mirrors the increasing complexity of braking systems. Brake fluids have progressed from rudimentary oil blends in early hydraulic brakes to today's highly specialized synthetic formulations engineered for electronically controlled braking architectures.

In the early 1900s, the first hydraulic brake systems relied on simple mixtures of castor oil, ethanol, and butanol. While innovative for the period, these fluids suffered from low boiling points, rapid oxidation, and poor chemical stability, making them unsuitable for sustained braking loads. Under repeated braking events, especially in heavy-duty applications, fluid vaporisation often led to inconsistent pedal feel and early forms of vapour lock. Here again, heat development in braking systems is a major contributing factor to safety in commercial vehicles.

The subsequent introduction of mineral oil-based fluids improved oxidation resistance and general fluid stability. However, these formulations revealed a major material compatibility issue: they caused elastomer seals and rubber hoses to swell, soften, and eventually fail. This limitation accelerated the industry's search for more chemically stable and seal-compatible alternatives.

A major turning point came with the introduction of Department of Transportation (DOT) standards in the 1960s, which established performance benchmarks based on boiling point, viscosity, and chemical compatibility. This standardisation laid the foundation for the widespread adoption of glycol ether-based DOT 3 and DOT 4 fluids, which remain the backbone of modern braking systems. Their superior dry and wet boiling points, combined with excellent compatibility with seals and hydraulic components, made them ideal for both passenger and commercial vehicles.

The development of DOT 5 silicone-based fluid marked a different engineering direction. Its hydrophobic nature prevents moisture absorption, reducing internal corrosion risks and preserving painted surfaces in the event of spills. However, DOT 5's higher compressibility and tendency to aerate under rapid cycling make it unsuitable for ABS-equipped systems, limiting its use primarily to military, collector, and specialty vehicles. In this context, it is important to point out that the DOT ratings are meant to be used with specific applications and are not to be interchanged.

To bridge the gap between high-temperature performance and system compatibility, DOT 5.1 was introduced as a synthetic glycol-based fluid. While offering boiling points comparable to DOT 5, it retains full compatibility with DOT 3 and DOT 4 systems, making it highly suitable for performance-oriented and electronically managed braking platforms.

Today's braking systems demand even more advanced fluid characteristics. Modern vehicles equipped with ABS,



**Gripping - Brembo commercial vehicles brake disc**

traction control, Electronic Stability Control (ESC), and Advanced Emergency Braking (AEB) require low-viscosity brake fluids, commonly designated as DOT 4 LV or DOT 5.1 ESP. These formulations are engineered for rapid hydraulic response, enabling high-speed actuation of valves and pumps within electronic brake control modules.

A defining characteristic of modern glycol-based fluids remains their hygroscopic nature, meaning they absorb atmospheric moisture over time. While this helps prevent free water accumulation and localised corrosion, it progressively lowers the fluid's wet boiling point, making scheduled flushing intervals essential for maintaining braking performance.

Equally important are modern additive packages, which now incorporate anti-corrosion inhibitors, oxidation stabilisers, and lubricity enhancers to protect valves, pistons, seals, and electronic hydraulic modulators. These chemical advancements ensure reliability under increasingly demanding thermal and operational loads.

The evolution of brake fluid is therefore not merely a chemical progression, but a direct response to the transformation of vehicle braking systems from purely hydraulic mechanisms into fully integrated electro-hydraulic safety systems.

To address the critical issues of brake fluids, Brake-by-wire (BBW) systems in commercial vehicles start to replace mechanical/hydraulic connections between the pedal and brakes. By way of electrical signals, they are improving efficiency, safety, and packaging. Key developments include electro-hydraulic/electro-mechanical actuators, enabling faster response times, integration with regenerative braking, and 25 per cent weight reduction. Major launches by suppliers like Bosch can be expected in the coming years, enhancing autonomous driving and vehicle stability.

**Not Stopping Here**

The integration of Brake-by-Wire (BbW) technology into heavy-duty axle systems marks a decisive transition in commercial vehicle engineering. Moving beyond conventional pneumatic and hydraulic braking architectures, the industry is now advancing toward electronically

controlled, software-defined braking systems capable of meeting the demands of high-load transport, electrification, and autonomous logistics operations.

In traditional heavy-duty trucks, braking systems rely on air brake architectures, where response time, modulation accuracy, and system latency are inherently constrained by pneumatic actuation. The introduction of Electronic Braking Systems (EBS) has significantly improved this paradigm by digitising brake commands, allowing faster signal transmission and more precise brake force distribution across tractor and trailer combinations.

Modern BbW-integrated axles build on this foundation by relocating actuation intelligence closer to the wheel-end. This enables high-speed, axle-level control of braking forces, reducing stopping distances and improving stability under dynamic load conditions. This is particularly critical in Southeast Asia's mixed terrain, urban congestion, and long-haul downhill operations.

A key transitional technology in this space is Electro-Hydraulic Braking (EHB). While more commonly associated with passenger vehicles, its principles are increasingly influencing heavy-duty applications, especially in electrified trucks. By replacing traditional boosters with electronically controlled pressure generation, EHB enables faster brake response, improved blending with regenerative braking, and more consistent pedal feel, even under varying payload conditions.

Looking ahead, Electromechanical Braking (EMB) presents a transformative opportunity for heavy-duty platforms. By eliminating compressed air systems, hydraulic circuits, and fluid maintenance requirements, EMB introduces a fully electric braking architecture where actuators at each wheel deliver clamping force directly. For fleet operators, this translates into reduced maintenance complexity, fewer wear components, and improved system diagnostics.

The implications for EBS trailer integration are particularly significant. In current configurations, EBS ensures synchronised braking between tractor and trailer, but latency and calibration differences can still affect overall stability. With BbW-enabled axles and advanced electronic control, braking commands

can be coordinated across the entire vehicle combination in real time, optimising brake force distribution based on axle load, articulation angle, and road conditions. This results in enhanced anti-jackknife stability, reduced tyre wear, and improved braking efficiency across multi-axle configurations.

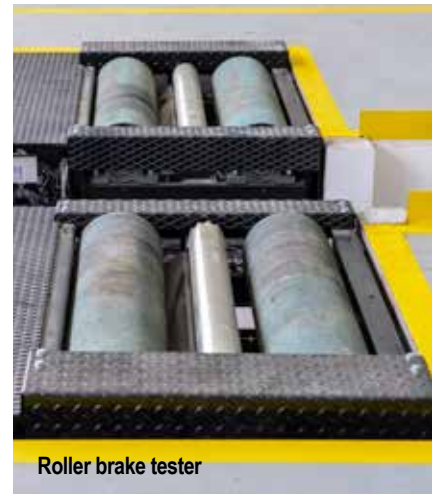
From a systems perspective, the evolution toward centralised Vehicle Motion Control (VMC) is equally critical. By integrating braking (longitudinal control) with steering and suspension systems, trucks can achieve predictive stability management, particularly valuable for high centre-of-gravity loads and hazardous cargo transport. This level of control becomes indispensable in autonomous and semi-autonomous logistics applications.

For electric and hybrid trucks, BbW systems also play a vital role in regenerative braking optimisation. By precisely managing the interaction between friction braking and energy recovery systems, operators can maximise battery efficiency while maintaining consistent braking performance. Total cost of ownership (TCO) has become an important aspect in improving fleet performance, and this is where BbW will help improve the bottom line.

However, the transition to fully electronic braking introduces stringent requirements for redundancy and fail-operational safety. Unlike traditional air brake systems, which provide inherent mechanical fallback, BbW architectures must incorporate dual-channel electronics, redundant power supplies, and fault-tolerant communication networks to ensure continuous braking capability under all conditions.

A pragmatic industry approach is the emergence of hybrid braking architectures, where electronically controlled pneumatic systems (EBS) coexist with partial BbW functionalities. This allows manufacturers and fleet operators to incrementally adopt new technologies while maintaining compatibility with existing trailer fleets and regulatory frameworks.

Global suppliers such as ZF and Continental are actively developing scalable BbW solutions for commercial vehicles, with increasing focus on Asia as a key growth market. The



Roller brake tester

region's rapid adoption of logistics automation, combined with the push toward electrification, is accelerating the deployment of these next-generation braking systems.

Ultimately, Brake-by-Wire axle integration is not merely an incremental upgrade. It is viewed as a core enabler of the future heavy-duty transport ecosystem. From improving braking precision in fully loaded prime movers to enabling synchronised control in autonomous truck platoons, BbW technology is set to redefine safety, efficiency, and operational intelligence across the commercial vehicle sector.

### **Last Stop: At a Glance**

The evolution of braking systems for commercial vehicles represents a progression of distinct technological phases. Air brakes with spring chambers provided a fail-safe foundation that allowed buses to grow and weight. Disc brakes solved the heat dissipation limitations of drums. Electronic controls added precision, diagnostics, and integration with other vehicle systems. Retarders reduced friction brake wear and added safety on long descents. Regenerative braking tied deceleration to energy recovery, fundamentally changing how braking systems interact with vehicle powertrains.

Each development responded to specific limitations in what came before. Each was driven by component suppliers and vehicle manufacturers adapting technology to production platforms. And each changed what a bus braking system could do, moving from a simple stopping mechanism to an integrated system that manages safety, durability, and energy efficiency. ■

# Hengst SE: Advancing Filtration Solutions as Enablers of Alternative Drivetrains

**F**ilters are often underestimated in modern powertrain systems, yet they play a decisive role in ensuring engine performance, efficiency and durability. For more than 65 years, Hengst has served as an original equipment (OE) partner to leading on- and off-highway manufacturers. Today, the company is setting new benchmarks in filtration for alternative fuels, hydrogen applications and hybrid systems as well. With a comprehensive portfolio and modular system solutions, Hengst supports OEMs on their path toward climate-neutral mobility.

Hengst continuously and consistently demonstrates that technical excellence, innovation and OE expertise go hand in hand. In modern mobility, filtration is no longer a passive component, but a key enabler of efficiency, safety and sustainability in the commercial vehicles of tomorrow.

## Expanding OE Competence Globally

Hengst has significantly strengthened its OE position in recent years. In the European commercial vehicle sector, six of the seven leading truck manufacturers rely on Hengst filtration systems. Internationally, the company continues to expand its footprint. Recently, operations in Indonesia and India have opened their doors, bringing the brand closer to their customers in the Asian region.

A notable example is the oil filter module for MDEP engines produced by Volvo-Eicher in India. Within just six months of the plant opening in Bengaluru, the site received a Supplier Award for outstanding performance and customer focus. It is underscoring Hengst's ability to operationalise new facilities quickly and efficiently.

Globally, Hengst delivers modular fluid management solutions for various engine families from manufacturers such as Daimler, MAN, Deutz, DAF and Weichai. By integrating multiple functions into compact modules, Hengst provides not

Oil module HDEP



Volvo MDEP



Cabin Air Filter Blueion



just components, but system-level expertise. Rooted in their expertise in Diesel-powered drivetrains, Hengst now increasingly advances in new fuel technology as well. Alternative fuels, like Hydrogen are relatively new as energy source, however, they there is a need for advanced filtration as alternative fuels would fail without them.

## Meeting the Challenges of Alternative Fuels

The mobility landscape is undergoing a profound transformation. Climate targets and regulatory frameworks are accelerating the shift from conventional petrol and diesel engines toward a diversified mix of electrification, fuel cells, synthetic fuels and biofuels such as HVO and FAME.

These new energy carriers impose significantly higher demands on filtration systems:

- Biofuels can form aggressive acids that attack filters and seals.
- Synthetic fuels require adapted material characteristics.
- Hydrogen introduces entirely new requirements for crankcase ventilation and air filtration.

Hengst addresses these challenges with advanced filtration concepts designed to ensure maximum efficiency, safety and service life.

## High-Performance Fuel Filtration

For commercial vehicle and off-highway applications, Hengst has developed the modular Blue.maxx fuel filtration system. It is engineered for compatibility with current and future fuels. Whether fossil-based, synthetic or bio-derived user can be sure that their most valuable assets are protected.

At its core is the Energetic fuel filter element, featuring a metal-free, thermally recoverable design with integrated installation protection to enhance service safety. Effective water separation is a key strength of the system. By removing water efficiently, it protects sensitive injection systems, prevents microbial growth and supports long-term operational reliability.



**Hengst Bluemaxx**

Thanks to its modular design, Blue.maxx can be configured as a pre-filter, main filter or combined system with integrated water separation, thus ensuring flexibility and future-proof application. Uptime and Total Cost of Ownership (TCO) are concepts that more and more operators embrace. An investment into Hengst's filtration technology has proven time and again to be adding to the bottom line.

### **Oil and Engine Filtration for New Powertrains**

Alternative fuels also influence oil ageing and exhaust gas composition, requiring adapted oil filtration solutions. Hengst has further developed filter media and sealing materials to withstand these new chemical stresses.

For hybrid vehicles and engines operating on HVO fuels, fully synthetic filter media are used to prevent the accumulation of aggressive acids such as nitric acid.

### **Cathode air filter with air**



With the Blue.tron Compact system, Hengst has also elevated engine ventilation technology. The compact disc separator can be integrated directly into the cylinder head cover, improving separation efficiency and ventilation performance. This is particularly critical for engines running on renewable fuels, where optimised crankcase ventilation contributes to durability and operational stability.

### **Hydrogen: Filtration for the Energy Carrier of Tomorrow**

Green hydrogen is widely regarded as a key enabler of CO<sub>2</sub>-neutral mobility. In fuel cell systems, filtration is mission-critical: even minimal contamination can irreversibly damage sensitive components.

Hengst provides Blue.netic cathode air filters and Blue.iox ion exchangers that effectively remove both particulate and molecular impurities. For hydrogen combustion engines, the company has developed active crankcase ventilation systems using disc separator technology. These reduce hydrogen

concentration in the crankcase to safe levels while reliably separating oil particles.


Alternative fuels dramatically increase filtration stress. Hengst has engineered specific solutions to address this. The result: enhanced safety, efficiency and longevity for hydrogen-powered drivetrains. In practical terms, Hengst is reducing risks for operators, giving them peace of mind and the assurance that their fleets will offer high dependability customers can count on.

### **Looking Ahead: Modularity, Efficiency and Sustainability**

As electromobility, hydrogen and alternative fuels continue to gain traction, filtration systems must become increasingly modular and adaptable. Hengst responds with scalable modular platforms tailored to specific engine and vehicle requirements.

The portfolio includes:

- Modular filter elements for oil, fuel and air
- Flexible assemblies for pre- and main filtration
- Advanced separator and air filtration systems
- Sustainable materials and CO<sub>2</sub>-optimised production under the Blue.on green line initiative

In addition, Hengst places strong emphasis on environmental protection and health. High-efficiency cabin air filters remove particles up to 40 times more effectively than conventional systems, while hydrogen and fuel cell filtration solutions ensure maximum operational safety with minimal environmental impact. 

### **Ion exchanger Blue.iox**



# Conventional Drive Systems for Buses Offer Sustainable Transition to the Future



maximum availability, increasing the cost efficiency of the entire vehicle fleet – for reliability without compromise.

Especially for buses, the DIWA NXT automatic transmission serves to bridge the technological gap between diesel engines and alternative technologies. Whether for diesel, CNG, HVO, B100 or H2 drives, the figures speak for themselves. Because to date, a total of more than 400,000 city and intercity buses have been fitted with DIWA automatic transmissions. And these numbers are set to increase.

## The right gear at the right time

The great benefit of the DIWA NXT is its optimized efficiency. It features seven gears, a frequency inverter, and a secondary retarder. The optional central recuperation unit (CRU) transforms the DIWA NXT into a fully functional 48 V mild hybrid system, improving fuel efficiency, enabling electric-assist functions, and recovering braking energy – in both city and intercity buses. What's more, the DIWA NXT offers other practical features like stop-start functionality, coasting, regenerative braking, and boost support. The entire system is developed and manufactured in accordance with the latest automotive standards, including ISO 26262.

Efficient and eco-friendly drive solution  
“Ultimately, all these factors make the DIWA NXT the ideal transmission system that is capable of meeting highly diverse requirements across global markets. Furthermore, it is Driventic’s logical response to the steadily growing demand from manufacturers and fleet operators for efficient and environmentally friendly drive solutions,” explains Dr. Wiche. They are perfectly complemented by other products and systems from the Driventic portfolio that are also redefining efficiency and sustainability in the bus sector. These include world-leading air compressors and the highly elastic vibration damper Hydrodamp. ■

To be a key driver of the mobility transformation with groundbreaking drive solutions is an ambitious commitment that Driventic lives up to every single day. Not just as the independent successor to parts of the drive systems division of international technology group Voith – but above all as a specialist for efficient drive technologies in the commercial vehicle segment, innovative driving force, uncompromising trailblazer, and active partner. This position is grounded in a forwardlooking, customer-driven product portfolio for buses, trucks and off-highway applications, individually tailored to the respective requirements of manufacturers and fleet operators and in keeping with the company’s guiding principle: ‘Mobility beyond today’.

CEO Dr. Gregor Wiche points out that, alongside the continuous optimization of the VEDS electric drive system, “the company aims to strengthen and grow its strong market position in conventional solutions, to provide customers with as broad as possible a product range and futureproof solutions across both technology domains”. This approach ensures an ideal combination of openness to innovative technologies, established expertise, and state-of-the-art concepts. Because in the commercial vehicle environment, conventional drive systems continue to provide a reliable, efficient, and cost-effective mobility solution. This generally applies wherever a combination of range, performance and availability is required.

Optimum performance even under the toughest conditions Whether in the city or the countryside, Driventic’s conventional drive systems consistently meet the most stringent quality standards and deliver peak performance even under the toughest conditions – from powerful acceleration in urban traffic to superior staying power on long routes. Mature and innovative technologies ensure

## Now, What do We do (With the Buses)?

The current energy crisis (read Diesel price hike), as the outcome of the war in the Middle East has manifested itself, is of course something we need to talk about. A few things have happened: bus operators along the east coast and northern states of Malaysia have signalled that they may falter under the burden of higher Diesel prices. A number of bus lines have been deleted in the Klang Valley while brave operators have expanded into East Malaysia, offering novel services, using new buses. The Visit Malaysia Year campaign is in full swing, however, globally, travellers are cautious, some even cancelling already booked trips. Adding to that is the seemingly ever worsening traffic jam in the city centre.

In the context of the energy crisis, the idea of working from home may seem like a logical answer. However, we may deprive the bus operators yet again of paying passengers. We should indeed, encourage switching modes of transport. The answer may not lie in driving less, but in moving differently. Businesses are still running and I am sure that it is not possible to skip all travel. Maybe one can opt for a bus instead of a plane? Having experienced the Pan Borneo Highway, I should think that buses are an alternative to both, private cars and flights.

If we cannot fill the coaches with tourists, maybe we can re-purpose them to move passengers in the cities? The government could support this with daily subsidies, which I would support as the net benefit could be tremendous: operators stay afloat, traffic jams could be eased up and passengers may get a taste of what long distance travel by bus would look like. Tourists, local and international, may also be wowed by the luxury of public transport.

I was asked to ditch travel to Europe as that would result in having to traverse said conflict zone (or go around it for a lot of more money). However, we could look East, couldn't we? Let's attract the Australians that would normally go to Bali. Or the Japanese, who enjoy Golfing here. Couldn't we re-direct the efforts of the Visit Malaysia Year 2026 campaign to attract our immediate neighbours? In particular, Japanese should be used to travelling by public transport.

Also, I think we need to promote bus travel much more within Malaysia itself. "My Journey By Bus" is just one example of how glorious bus travel can be. "Fu Fu", the author has done a truly remarkable job with his books, and I wish he could gain even more attention for his work to promote bus journeys. Couldn't we all think of weekend trip to neighbouring towns? If we all took an occasional trip now, perhaps we can tide over a lot of operators. An idea could be a type of SARA aid,



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specifically for bus travel. I am sure that this encouragement could convince people to take the bus; a multiplier effect would come with it.

One thing is clear: we need to ensure that the bus industry gets through this current crisis. Without the many passionate operators, we will lose in many ways: people will lose their jobs, we will not have access to affordable long-distance travel and auxiliary business will suffer too, impacting the economy negatively even more.

I note that there is a lot of news coverage about bus operators having to close their businesses as they cannot sustain their operations. This, in my view, will only make it worse: people may refrain from purchasing tickets as they would be afraid that they cannot be on the bus when the day of travel comes. It may require the intervention of the government to change the narrative to one that signals confidence in keeping these bus operators afloat. ■



# Vietnam's Bus Market: Trends, Performance, and Outlook

## How the Market Performed

Vietnam's bus sector moved through 2024 and into 2025 alongside steady growth in urban mobility, tourism recovery, and continued investment in public transport systems. Activity in this segment reflects long-term planning rather than short-term demand, with procurement shaped by route requirements, fleet renewal cycles, and regulatory direction.

Trường Hải Auto Corporation (THACO) delivered over 1 200 buses in the first half of 2025, with production based at its facility in Chu Lai, Quang Nam Province. The site functions as a central hub for assembly and distribution, supporting both domestic operations and export activity. In December 2025, THACO signed a bus distribution agreement with BJ Mercantile Group in the Philippines, marking a step in expanding the reach of buses assembled in Vietnam.

According to the Vietnam Automobile Manufacturers Association (VAMA), Thaco Bus recorded sales of 127 units in February 2025. During the same period, total commercial vehicle sales among VAMA members reached 4 823

units, representing an 85.7 per cent increase compared to February 2024. These figures reflect broader activity in transport and logistics, where commercial vehicle demand remains linked to infrastructure development and movement of goods and passengers.

Urban Networks and Passenger Movement Public bus operations remain concentrated in major cities, with Hanoi providing a clear example of scale and utilisation. Hanoi Transport Corporation (Transerco) operates the capital's network and recorded more than 3.2 million bus trips in 2025, transporting approximately 240 million passengers. This represented a 2.5 per cent increase compared to the previous year.

Passenger volumes are concentrated along key corridors. The BRT 01 Kim Ma – Yen Nghia route carried more than 11.2 million passengers, the highest among routes in Hanoi. Route 15, operating between Gia Lam and Pho Noi Bus Station, carried more than 4.8 million passengers, while route 54, linking Long Bien and Bac Ninh, recorded more than 4.5 million.

Airport connectivity forms part of the system. Two commercial routes serving Noi Bai International Airport carried a combined total of 364 005 passengers in 2025. The City Tour route transported more than 196 700 passengers, exceeding its target.

Operational adjustments were recorded across the network. Transerco stabilised 44 re-tendered routes, adjusted fleet sizes on 17 routes, and optimised timetables on 37 routes. A branch of Route 20A was introduced to extend services to Minh Chau, Hanoi's only island commune.

Tourism continues to influence passenger movement. International visitor arrivals to Vietnam exceeded 17.5 million in 2024, representing a 39.5 per cent increase compared to the previous year. Of these, 14.8 million arrived by air, 2.5 million by road, and 248,100 by sea. The Republic of Korea and China remained the largest source markets.

Roads, Infrastructure, and Connectivity Infrastructure development continues to support both urban and intercity bus operations. In December 2025, the Quang Ngai – Hoai Nhon Expressway was inaugurated as part of the North-South Expressway. The 88-kilometre section includes three mountain tunnels with a combined length of 4 500 metres and 77 bridges. The project was completed ahead of schedule and improves connectivity across key transport corridors.



Such infrastructure projects support route efficiency, reduce travel time, and strengthen links between cities, industrial zones, and regional centres. They also contribute to more stable operating conditions for intercity bus services.

According to B&Company, currently, public transportation apps in Vietnam, such as BusMap, have made significant progress in linking various modes of transport to create a seamless journey for urban users. These apps are no longer limited to bus information; they have integrated data from both the elevated metro lines (metro) in Hanoi and Ho Chi Minh City, as well as waterbus services in Ho Chi Minh City. The system automatically calculates and provides optimal routes, flexibly combining walking, bus rides, and transfers to metro trains. This clearly reflects the effort to address the challenge of multimodal transport, offering urban residents a more seamless experience.

However, when it comes to interprovincial travel, these apps reveal noticeable limitations. Their primary development focus remains on the urban public transport network in major cities. As a result, providing detailed and comprehensive information about interprovincial bus or train routes between provinces is still not their strong suit. Users who need to travel interprovincially often have to turn to other specialized platforms, such as apps from bus companies or train ticket booking websites, rather than being able to find this information on the same urban transportation app they use daily.

### **Bus and Coach Manufacturing**

Vietnam's bus manufacturing landscape is led by domestic assembly, with THACO playing a central role. The company produces commuter buses, intercity coaches, and minibuses at its Chu Lai facility, supported by continued investment. In 2025, THACO invested approximately VND 3 600 billion in its operations.

Other manufacturers active in the commercial vehicle segment include Hyundai, Ford, Isuzu, Hino, and Toyota, all of which are members of VAMA. The presence of both domestic and international brands reflects a market structure that combines local production with established global manufacturers.

Fleet renewal takes place in stages, aligned with operator requirements and financial planning. This approach reflects the operational nature of bus fleets, where replacement cycles are managed over time rather than through large-scale turnover.





**Local Bus and Coachbuilders**

Key bus and coach builders in Vietnam include these companies.

**THACO**

Vietnam’s largest bus and coach builder, THACO manufactures city buses, sleeper coaches, premium touring coaches and specialty vehicles at Chu Lai. It partners with Hyundai, Volvo and Mercedes-Benz platforms for domestic and export markets.

**SAMCO**

A major state-owned vehicle manufacturer, SAMCO builds buses, coaches and special-purpose transport bodies in Ho Chi Minh City. It is known for municipal buses, airport shuttles and bodying chassis from Isuzu, Hyundai and others.

**Vinamotor**

Vinamotor is one of Vietnam’s longstanding commercial vehicle manufacturers, historically focused on buses, light trucks and public transport vehicles. It has supplied intercity and municipal bus bodies through local assembly partnerships and state projects.

**Kim Long Motor**

An emerging Vietnamese coach and bus builder, Kim Long Motor focuses on modern passenger transport solutions, including intercity coaches and city buses. It has rapidly expanded manufacturing capacity with growing emphasis on regional exports.

**Daewoo Bus Vietnam**

Originally established as the Vietnamese manufacturing base of Korean bus specialist Daewoo, it assembles and bodies large city and intercity buses, particularly for public transport fleets and private operators.

To support this shift, the Ministry of Finance has extended registration tax exemptions for battery electric vehicles until February 2027. These measures influence procurement planning and support the gradual adoption of alternative energy vehicles.

**Transition to Electric Buses** The transition to electric buses is underway in major cities, supported by both policy and operational implementation.

Hanoi Transport Corporation introduced 63 electric buses on four routes in 2025 and installed nearly 300




Policy Direction and Electrification Policy continues to define the long-term direction of the sector. Under Decision 876/QĐ-TTg, issued on 22 July 2022, Vietnam has set targets for all new or replacement buses to transition to electric or green energy solutions. The same requirement applies to taxis by 2030.



The city has set a target to transition the entire bus system to electric and green energy by 2030. Pilot programmes, including the Can Gio District project, form part of this process, supported by phased implementation plans focusing on policy development and operational testing.

Market Context Vietnam's broader automotive market provides context for the bus segment. Total vehicle sales reached 21 606 units in February 2025, including both VAMA members and non-members.

VinFast delivered 12 500 vehicles during the same month, representing a 25 per cent increase compared to January and accounting for 33.7 percent of the total market.

The bus sector operates within this wider environment, where changes in technology, policy, and infrastructure continue to influence development across the commercial vehicle industry. 



charging points to support operations. The city plans to replace approximately 103 diesel buses reaching the end of their service life with electric units in 2026, representing about 5 per cent of the fleet. Hanoi has set a target of converting its entire bus fleet to green vehicles by 2035.

### Challenges of the Market

In a recent report on the Vietnamese market, 6Wresearch summed up the challenges as related to urban planning, emissions standards, and transportation infrastructure. Meeting the growing demand for public transportation in urban areas requires significant investments in bus fleets and infrastructure. Additionally, adhering to emissions standards and environmental regulations is crucial, as reducing pollution from public transport is a priority. Moreover, the market is influenced by changes in urban planning and transportation policies, which can affect the demand for buses. Furthermore, competition from alternative transportation solutions, such as ride-sharing and electric scooters, adds complexity to the market landscape. Lastly, ensuring the safety and reliability of buses is essential for passenger satisfaction and safety, which requires ongoing maintenance and quality control efforts.

Ho Chi Minh City has also expanded its electric bus network. In March 2026, nine routes were introduced using 169 VinBus vehicles. These buses, with seating capacity ranging from 30 to 60 passengers, operate on routes including 32, 38, 45, 53, 64, 93, 127, 140, and 148.

The vehicles are equipped with low-floor access, wheelchair ramps, security cameras, air conditioning, WiFi, and USB charging ports. VinBus also operates three additional routes in the city, namely D4, 33, and 150, supported by a dedicated charging network.

According to the Ho Chi Minh City Department of Construction, the city operates 180 bus routes following administrative expansion. Of these, 66 routes use environmentally friendly energy, including 50 electric and 16 compressed natural gas routes. A total of 1,082 vehicles operate within this segment, accounting for approximately 48 per cent of the network.



# MITA and CAM Malaysia Sign MOU

The collaboration aims to strengthen tourism transport efficiency and to support industry recovery

The MOU focuses on promoting CAM Co-Star mid-sized tourism coach, which offers:

- A standard capacity of groups of 20 passengers
- Flexible seating configurations of up to 22 seats
- A maximum configuration of up to 28 seats

The Malaysia Inbound Tourism Association (MITA) today formalised a strategic collaboration with CAM Malaysia through the signing of a Memorandum of Understanding (MOU). The signing was witnessed by the Minister of Tourism, Arts and Culture Malaysia, YB Dato Sri Tiong King Sing. CAM, a Malaysian brand founded in 2009, specialises in light commercial vehicles under R&A Marketing Sdn Bhd of Sendok Group. Their product line-up ranges from light trucks to 10-18 seats van, minibuses and special purpose vehicle.

According to Ms Mint Leong, President, Malaysian Inbound Tourism Association, the model strikes a balance between passenger capacity and cost efficiency, making it better aligned with present market needs.

### Supporting Local Operators and Enhancing Tourist Travel Experience

The core objective of the MOU is to assist local tourism operators in upgrading fleet standards while elevating the overall travel experience for visitors to Malaysia. Tourism transport is an integral part of the travel journey. Ensuring safety, comfort and professionalism is essential in creating a strong and positive impression of Malaysia among international visitors.

The collaboration marks a significant step towards modernising Malaysia's tourism transport sector, strengthening operational efficiency, and supporting local tourism operators in adapting to evolving market conditions ahead of Visit Malaysia 2026.

To respond to the increased demand during Visit Malaysia 2026, the industry ought to take proactive steps to enhance overall standards, including:

- Continuously modernising tourism fleets and strengthening safety standards
- Encouraging the adoption of greener and lower-carbon transport solutions
- Enhancing service quality and professional industry image
- Strengthening the competitiveness of local tourism enterprises in the international market

### Responding to Structural Shifts in the Inbound Market

Malaysia's inbound tourism landscape has undergone notable structural changes in recent years. Large tour groups of 40 to 44 passengers used to dominate the market. However, the current trend reflects a growing demand for smaller and mid-sized groups averaging between 15 to 25 passengers.

Operators ought to take a long-term approach to ensure that their efforts are sustainable and carry them forward beyond the end of this year.

Present during the MoU-signing was Dato Sri Tiong King Sing, Minister of Tourism, Arts and Culture. He addressed the current market economics by saying that the collaboration initiated during the event is not merely an industry agreement. In his view, it is a strategic move to reinforce the foundation of Malaysia's broader tourism ecosystem.

"We are witnessing an industry-led business initiative. Tourism is an important pillar of the country's economy. And the transportation system is the foundation and core of tourism success," Tiong said.

This shift requires operators to adjust their fleet composition and operational models to remain competitive and financially sustainable.

He elaborated that without a secure, professional and modern transportation system, the tourism industry will not be able to advance to a high-quality level. "We are committed to three goals: First, improving industry standards. Secondly, strengthening security management and thirdly, promoting the modernisation and transformation of the industry. As the Chairman of the Tourism Board, I am well aware that the tourism industry needs to move towards national development."

This, he stated, needs to be driven by green transportation policy. Authorities need to ensure that the industry is able to accelerate. “To ensure safety, accuracy and efficiency, we need to provide low-cost, energy-efficient technology.”

This is an important step in the preparation for the tourism year, whereby industry players jointly bear the responsibility to provide safer transportation for tourism, to build a more professional tourism transportation system for the country, and to create a more modern and environmentally friendly international image for Malaysia.

### **Strengthening Industry Resilience Amid Rising Costs**

With operational costs rising, including fuel, maintenance, financing and manpower, more economical vehicle solutions have become increasingly important.

Compared to conventional large coaches, mid-sized models offer more competitive acquisition costs, enabling operators to:

- Reduce initial capital expenditure
- Maintain healthier cash flow
- Improve profit margins
- Scale operations progressively with lower financial risk

This is particularly significant for small and medium-sized inbound agencies rebuilding and expanding their businesses.

As an industry association, MITA plays not only the role of representing its members but also facilitating practical and sustainable solutions aligned with long-term national tourism objectives.

### **Introduction of CAM EV Electric Passenger Van and Minibus Line-Up**

CAM serves a substantial customer across Malaysia’s tourism industry especially with our Placer-X, Kingo and Co-Star models which runs on Diesel/Petrol engine since our brand launch in 2009. In conjunction with the MOU signing, CAM also introduced its full line-up of Electric Passenger Vans and Minibuses, comprising 12-, 15- and 18-seater configurations, signalling its readiness to support the tourism industry’s transition towards sustainable and green tourism mobility.

Since the launch of its EV line-up, labelled CAM EV in January 2022, CAM Malaysia has been supplying electric panel vans and trucks to logistics companies across Malaysia. Building upon proven real-world operational experience, the company is now extending its electric mobility solutions to tourism operators seeking greener and more cost-efficient transportation options.

The introduction reflects CAM Malaysia’s long-term vision of moving Malaysia’s tourism industry towards environmentally responsible transport solutions while improving operational sustainability for fleet operators.

### **Exclusive Support Programme for MITA Members**

In conjunction with the collaboration, CAM Malaysia has launched a support programme valued at RM200 000 exclusively for MITA members. The programme is designed to assist tourism operators in upgrading and modernising their fleets, providing priority vehicle allocation and dedicated service support to help businesses effectively manage the expected increase in tourist arrivals during Visit Malaysia 2026.

Subject to mutual agreement and resource availability, the Parties may also collaborate in areas such as:

- Industry engagement, knowledge sharing, and awareness initiatives
- Driver training, educational sessions, and operational discussions relevant to MITA members
- Demonstration or evaluation programmes during MITA-endorsed activities
- Exploration of fleet solutions and aftersales support approaches tailored to industry needs
- Participation in initiatives promoting safety, efficiency, and industry sustainability
- Supporting and promoting Visit Malaysia Year 2026

### **Immediate Impact and Long-Term Commitment**

As part of the collaboration, CAM Malaysia has committed dedicated resources and an industry support fund to facilitate adoption programmes and fleet development initiatives for MITA members. The partnership also included the delivery of two new CAM Co-Star 7.7m minibuses to PS Holidays Sdn Bhd, demonstrating immediate benefits to industry players.

The MOU takes immediate effect and will run through 2028, supporting Malaysia’s ambition to position itself as a leading sustainable tourism destination in the region.

### **Launch of Tourism Safety Video Initiative**

During the ceremony, MITA officially launched three dedicated tourism transport safety videos:

- MITA SOP Safety Video
- Bus Safety Video
- Van Safety Video

The videos will be distributed to operators and shared with tourists to enhance awareness of road safety, vehicle compliance and responsible travel practices.

This initiative reinforces the industry’s commitment to cultivating a strong safety culture within Malaysia’s tourism ecosystem and strengthening the country’s position as a safe and reliable destination.

### **Building a More Efficient and Sustainable Tourism Ecosystem**

The MITA–CAM Malaysia collaboration sends a clear message that Malaysia’s tourism transport sector is moving forward towards a more efficient, flexible and sustainable model.

With supportive policy direction and close cooperation between government and industry stakeholders, Malaysia is positioning itself to remain competitive, resilient and prepared for increased visitor arrivals leading up to Visit Malaysia 2026.

MITA remains committed to working closely with all stakeholders to strengthen industry standards, support local operators and deliver higher-quality travel experiences to international visitors. ■

# 5G Powers Malaysia's Autonomous Bus Ambition



Malaysia's digital transformation agenda took another visible step forward with the latest autonomous bus showcase led by Digital Nasional Berhad, eMooVit and Ericsson, highlighting how 5G connectivity is becoming a critical enabler for next-generation public mobility. In a development that aligns closely with Asian Trucker's focus on technology-led transport efficiency, the demonstration underscored how autonomous vehicle systems are moving from concept to practical deployment in Malaysian operating conditions.

The event also reflected strong cross-ministerial commitment, with the presence of Anthony Loke reinforcing the shared vision between the Ministry of Transport and the Ministry of Digital. The initiative was presented as a "Whole of Government" approach, where digitalisation efforts extend beyond individual agencies to deliver people-centric services. For the commercial vehicle and public transport ecosystem, this signals faster regulatory alignment, infrastructure readiness and policy support for advanced mobility systems.

At the heart of the showcase was the autonomous bus developed by local technology specialist eMooVit, demonstrating how Malaysian engineering talent is localising global autonomous transport concepts. Unlike generic off-the-shelf systems, the vehicle's autonomous stack is calibrated for Malaysian road layouts, traffic behaviour, passenger flow patterns and legal frameworks. This localisation is crucial, as successful deployment depends heavily on adapting to real-world route complexity, urban density and mixed traffic environments.

From a technical standpoint, the autonomous bus integrates LiDAR, multi-directional cameras, advanced sensors and AI-based processing to continuously map its environment. The system analyses surrounding traffic, cyclists, pedestrians and roadside obstacles in real time, enabling dynamic route planning, collision avoidance and safe manoeuvring. For operators, this means a transport asset capable of delivering more predictable, data-rich and safety-oriented service performance.

The decisive differentiator, however, is 5G. With ultra-low latency and high bandwidth, Malaysia's 5G backbone enables real-time communication between the bus, fleet control centres and potentially surrounding smart infrastructure. Faster

data transmission shortens hazard response times, supports remote intervention in emergencies and strengthens the overall operational safety architecture. In practical fleet terms, this creates the pathway for centralised supervision, predictive fleet management and service optimisation.

Beyond vehicle control, the data layer offers broader planning value. Passenger density, cyclist frequency and pedestrian movement along routes can now be measured with unprecedented granularity. Such intelligence allows local councils and transport planners to redesign bus stops, improve first-mile and last-mile connectivity, expand walkways and create safer cycling corridors. The result is a public mobility ecosystem driven by evidence rather than assumptions.

The passenger experience also stands to improve significantly. 5G-enabled CCTV, onboard infotainment, broadband connectivity and real-time route updates transform the bus from a simple transport unit into a connected mobility platform. Reliability and punctuality benefit from live route optimisation, while passengers gain a safer and more comfortable journey.

With DNB's 5G coverage now reaching 82 percent of populated areas, the infrastructure foundation is already in place for broader transport and logistics applications. For Asian Trucker readers, the implications extend beyond buses: the same 5G architecture can accelerate autonomous yard trucks, port shuttles, depot vehicles and logistics corridor solutions.

The collaboration between eMooVit, Digital Nasional Berhad and Ericsson demonstrates how Malaysia is not merely adopting global mobility trends, but building its own roadmap for safer, smarter and more resilient commercial transport systems. ■

## Higer Posts over 14 000 Units Sold in 2025

In 2025, Higer sold a total of 14 246 complete vehicles. According to data from Chinabuses.org, Higer topped the Chinese bus sales charts in both January and February 2026, with total sales of 3 417 vehicles. It is worth noting that to date, Higer has sold a total of 55 714 new energy buses worldwide. In Europe, its products are available in nearly 30 countries, with 80 percent being new energy models, and it plans to unveil a new generation of zero-emission buses in Europe in 2026.

Higer's European strategy is to continue advancing its localization efforts, consistently expand cooperation with local distributors, and establish a more expansive market

network. In 2025, Higer and a Portuguese distributor won bids for TRANSDEV and other projects.

At Busworld Europe held in Belgium in October of the same year, Higer and British distributor Harris inked a procurement agreement for 180 buses, with the first batch already delivered, marking a noteworthy milestone in Higer's foray into the UK's high-end market. In January 2026, Higer and a Croatian distributor jointly won a bid for an order of 60 pure electric buses. Currently, Higer's pure electric products are present in numerous European countries, including the UK, Ireland, Italy, Iceland, Portugal, and Croatia. 🚗

## The World's First Four-axle Double-decker Coach is by Marcopolo (on a Volvo chassis)



Designed for the South African market, Marcopolo has developed the world's first double-decker coach with four axles (and right-hand drive).

The four-axle (8×2 configuration) Paradiso G8 1800 Double Decker with right-hand drive (RHD) is the first Marcopolo model in the world to combine these features. Built on a Volvo B510R Euro 6 chassis, the vehicle was developed in an 8×2 configuration to accommodate 80 passengers, featuring a new interior layout and an 800-litre fuel tank, meeting the technical and regulatory requirements of the South African market as well as the customer's operational needs. 🚗

## Daimler Buses sold 26 991 buses in 2025

Daimler Truck finished the 2025 business year with its strongest quarter in unit sales this year, totaling 422 510 trucks and buses at Group level (2024: 460 409). The segment Trucks North America contributed 141 814 units to the Group's overall unit sales (2024: 190 727). With 159,871 units sold, Mercedes-Benz Trucks came in on prior-year level (2024: 159,540). Trucks Asia slightly increased its unit sales to 107 055 (2024: 102 870). Daimler Buses sold 26 991 units (2024: 26 592). Sales of battery-electric vehicles rose by two-thirds to 6,726 (2024: 4 035) units in 2025.

In Q4 2025, Daimler Truck reported group sales of 117,974 units (Q4 2024: 124 386). While Mercedes-Benz Trucks

registered a significant increase in its sales to 48 841 (Q4 2024: 43 806) units, Trucks North America sales of 34,017 units continued to be impacted by difficult market conditions in the US (Q4 2024: 46 906). With 30 325 units in Q4, Trucks Asia was on the level of prior years' Q4 (Q4 2024: 30,298). Daimler Buses Q4 unit sales came in at 7 315 units (Q4 2024: 7,624).

As of January 1, 2025, Daimler Truck integrated its business in China and India into the Mercedes-Benz Trucks segment. The presentation for the 2025 sales figures and the restated prior-year comparison is based on the new segment composition. 🚗

# Solaris Presents Urbino 10,5 Electric with Modular Drive



Solaris presented its newest zero-emission bus, the Urbino 10,5 electric, at the Mobility Move 2026. The model is developed around the manufacturer's modular drive concept and was recently recognised with the Sustainable Bus Award 2026.

Solaris showcased a zero-emission model Solaris Urbino 10,5 electric – a compact midibus designed for routes where a standard 12-metre vehicle is not always the optimal solution. With a length of 10.5 metres, the model combines manoeuvrability with high passenger capacity and full operational performance.

The vehicle is built on Solaris' modular drive concept, enabling efficient integration of drive components and eliminating the traditional engine tower. This architecture maximises the available passenger space and allows the bus to carry up to 85 passengers, including up to 33 seated – one of the highest capacities in the midibus segment. A turning radius of under 17 metres makes the Urbino 10,5 electric particularly well suited for dense urban areas, historic city centres, and feeder routes.

Powered by a 240 kW electric motor and high-energy batteries with a capacity of up to 400 kWh, the bus can operate for a full day without intermediate charging. The model supports both plug-in and pantograph charging solutions and complies with the latest GSR2 safety standards and can also be equipped with additional driver assistance systems. The bus is fitted with an energy-efficient CO<sub>2</sub> heat pump.

## 34 Yutong E9 Battery Electric Buses Roll Out on Karachi Route, Boosting Green Mobility



In a significant step for China-Pakistan transportation cooperation under the Belt and Road Initiative, Yutong has delivered 34 battery-electric E9 buses to Pakistan. The vehicles have entered service on a new EV bus route linking Gulshan-e-Maymar to Tower, launched by the Sindh Mass Transit Authority and the provincial Transport Department. The route offers convenient, safe, and affordable travel for communities in Gulshan-e-Maymar, Surjani Town, and surrounding areas.

Senior Minister Sharjeel Inam Memon, Karachi Mayor Murtaza Wahab, Deputy Mayor Salman Murad, and MNA Shahida Rehmani attended the inauguration, underscoring the government's commitment to upgrading urban mobility.

The deployment marks the latest achievement in Yutong's 17-year presence in Pakistan. Since entering the market in 2008, Yutong has adhered to a long-term strategy, combined localized market insight and tailored product development to become a leading bus supplier, breaking the long-standing dominance of Japanese and Korean brands. Yutong began bulk sales in 2015 and has since delivered more than 3 500 buses, capturing over 70 percent of the premium bus market.



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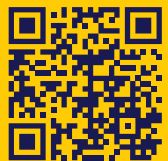
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