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When I talk to OEMs, they all tell me that the current trends are dominated by the push for alternative fuels, connectivity and the ambition to produce autonomous vehicles. Meanwhile, what I have observed over the past 10 years is that there is a lot more collaboration between market players. It is not just big companies gobbling up smaller players that may have some interesting new tools or inventions, but large MNCs that join forces. Of course, there are still mergers and acquisitions and in this issue you will read about a few of them. Hopefully, our publishing cycle can keep up with the developments as there is a lot going on. Perhaps it is time to also give you a bi-monthly magazine, just as we did with Asian Trucker?

In this issue we bring you the highlights of many events in the region. With great anticipation we have been waiting for the first Busworld to be hosted in our region and it has been an outstanding success. Volvo took the opportunity to re-launch their chassis. In the meantime, Automechanika was hosted again in Kuala Lumpur and their evening program was something worth a bus ride to the venue! Travelling near and far we also visited CAPAS again. Unfortunately, my lack of Mandarin language skills prevented me from going as our sponsors insisted on someone that masters the lingo. While travel has become much easier, there are still some barriers that we need to overcome.

Shaping the Future of Transportation

Speaking of overcoming obstacles, Volvo Buses in Singapore is worth another mention as they are celebrating their 40th anniversary this year. Surely, they will have had some obstacles and tough times to face. I am sure there are some nuggets of wisdom when they tell their story on this. Interestingly, Volvo Trucks in Malaysia just celebrated their 50th anniversary. Whenever I am getting involved in such stories, I am very excited as these are companies that have managed to stay relevant for a long time. In this issue we have such a story about their latest innovation. Above that, these are organisations that continue to innovate in order to ensure that they are paving their future.

An interesting ride I took was in Thailand where I was privileged to be part of the handover ceremony of a Hybrid bus by HINO. Although the city of Nakhon Ratchasima may not be the biggest in the country, it is encouraging to see that efficiency in transportation and the protection of the environment are crucial aspects of the administration. Riding along with local media, this 10-hour tour also gave me a good impression of the countryside around Bangkok. Not something that a regular tourist would do.

Back home, the introduction of Hino's Poncho may address the woes of many commuters. Personally, I would really love to use more public transport, but getting to it proves to be an issue. Hino is hopeful that their vehicle is the right fit to get more people to and from the transportation hubs so that the roads are unclogged and train capacity filled up. No matter where you are reading this, I hope that your bus trip is one that is smooth and comfortable.

Drive safe and see you soon!

Stefan Pertz
Editor, Asian Buses



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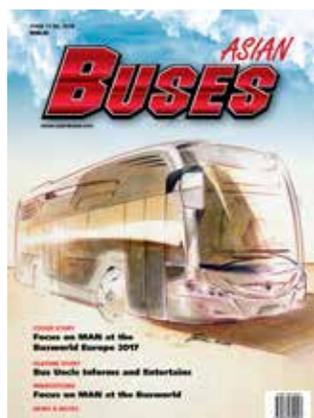
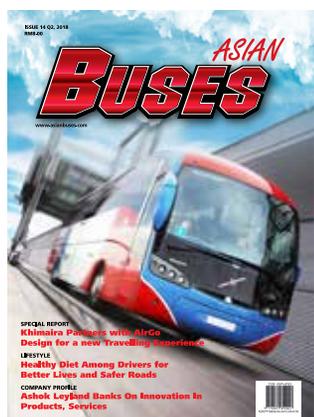
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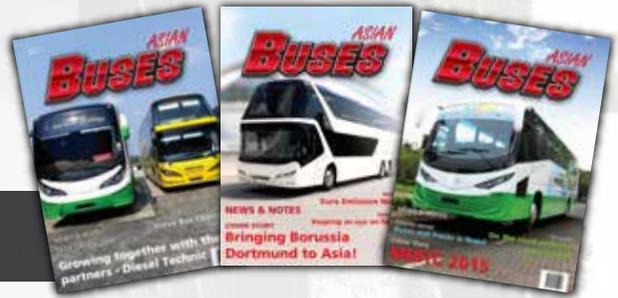
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Luxury Coach Service Adds Five New Scania Coaches

As the luxury coach business in Singapore continues to grow, local companies look to Scania to provide them with comfortable, safe and reliable vehicles.

Luxury Coach Service, a tourism and transport company in Singapore, has taken possession of five new Scania coaches adding to the 50 coaches the company already has. Of that growing fleet, 30 of the buses are Scania. The new coaches – comprising three double-deck Scania K410 IB 4x2 and two single-deck Scania K360 IB 4x2 with Euro 6 diesel engines – are expected to set new standards in passenger comfort.

Scania Value

"We are a satisfied customer!" said Mr Vincent Lee, Managing Director of Luxury Coach Service. "After about 20 years, we are still happy to continue using Scania coaches for their great value. I started this company in 1981 after watching my father work as a school bus operator. I decided to go into premium chartered tourism buses. We service Singapore, Malaysia and beyond."

"The Scania buses and coaches are designed for fleet owners to enjoy the best possible operating economy and uptime," says Mr Anders Liss, Country Manager of Scania Singapore. "Luxury Coach Service has given Scania a consistently resounding endorsement over two decades that our sustainable transport solutions have delivered real business value: profitability for the long term."

Technically Sound

The Scania K-series coach features a powerful engine with high torque for best fuel economy. Its Scania Opticruise gearbox provides the most optimised gear changes for further fuel economy and comfort, while reducing clutch and synchromesh wear. The K-series coach is also equipped with the Electronic Braking System, Scania Retarder, Hill Hold and Traction Control to ensure high levels of safety.

"The reason I keep buying Scania buses is because they are very reliable, fuel-efficient and well-designed. The vehicles are safe and comfortable for our passengers and drivers. An important point for us is the service support provided by Scania, including 24-hour service assistance in both Singapore and Malaysia. The people at Scania are very friendly, and they are there to help us 24/7 whether we are in Singapore or Malaysia. That means a lot to us," Lee added.

Passenger Comfort

"Our new generation of Scania coaches have been built with luxury and comfort in mind," Lee noted, "to distinguish us from our competition. We are featuring a brand-new body design with premium interiors for the comfort of our passengers, especially those on long-distance travel."

For the first time, Luxury Coach Service has worked with bus body-builder Supportrans Sdn Bhd from Malaysia as the company was looking for European-inspired designs for the new coaches. Apart from featuring stylish exterior body designs, the new coaches have more comfortable interiors. The double-deck coaches have also been customised with Vogelsitze business-class seats with butterfly-back support.

Serving Popular Routes

The new coaches will be deployed on western and eastern routes in Malaysia for premium customers from Singapore.

Luxury Coach Service has been using premium coaches to serve incentive groups and offer chartered transport services between Singapore and Peninsular Malaysia for more than 25 years. The business is still growing tremendously with an increasing demand for regular coach services to Malacca, Kuala Lumpur, Genting Highlands and Penang. ■



Bridgestone Continues Advancing Sustainability and Transparency

Policy, training, supplier acknowledgements and third-party assessments underscore company's commitment and progress toward sustainable procurement practices.

Bridgestone Group has announced steady progress in implementing its Global Sustainable Procurement Policy – which aims to create thriving and sustainable supply chains – and ultimately ensure alignment with the company's use of '100 percent sustainable materials' by 2050 and beyond. The Group defines sustainable materials as materials that come from resources with a guaranteed continual supply, that can be used as part of the business over the long-term, and finally that have a low environmental and social impact over the lifecycle from procurement to disposal.

Need to Improve

Through a 2018 partnership with EcoVadis, a leading provider of sustainability, risk and performance ratings for global supply chains, Bridgestone is assessing suppliers' current sustainability practices, as well as the possible support needed to improve performance.

Together with EcoVadis, the company is monitoring and rating the environmental, social and ethical performance of Bridgestone's suppliers to help identify and evaluate qualified suppliers, promote best practices, and serve as a communication and improvement tool for the industry overall.

"We stand behind our commitment to sustainable procurement practices and have reinforced our efforts over the past year to understand how our suppliers are performing against our expectations for ethical, environmental, social and quality standards," said Christine Karbowski, Chief Administrative Officer, Chief Risk Officer. "Real improvements in sustainability come when we work with collaborative partners across the supply chain. In addition to our work

with EcoVadis, another great example is our participation as a founding member of the Global Platform for Sustainable Natural Rubber (GPSNR) – an independent platform that will lead improvements in the socio-economic and environmental performance of the natural rubber value chain."

Third Party Assessments

Intensive new efforts by Bridgestone have been underway in all regions globally since the release of the Company's policy in February 2018. To date, acknowledgement of the policy has been completed by 98 percent (~1 600) of the company's Tier 1 tire material suppliers and the majority are in the process of completing third-party assessments with EcoVadis. Additionally, the company has trained hundreds of procurement, legal, technical and customer-facing teammates, among others across the enterprise.

"Bridgestone is a great example of an organization that is leading in sustainability by increasing their focus on responsible procurement practices," said Pierre-Francois Thaler, Co-CEO of EcoVadis. "Proactive collaboration with suppliers is the best way to improve performance across all corporate social responsibility indicators and drive positive change in the communities from which they source. This partnership will help Bridgestone build on their existing efforts and make a real, lasting impact."

Our Way to Serve

Bridgestone's Global Sustainable Procurement Policy reflects the Company's commitment to creating a thriving and sustainable supply chain, including natural rubber. Guided by the Group's global commitment to corporate social responsibility, Our Way to Serve, the policy sets expectations for business partners and suppliers to operate with Respect of Human Rights, Environmental Standards and Product Quality while including additional requirements for Land Conservation and Rights, Point of Origin Traceability and Resilience.

In 2019, Bridgestone is focusing on reviewing assessment findings, addressing immediate concerns and developing the go-forward strategy toward industry best practices for supply chain sustainability and transparency. ■



NFI Group acquires Alexander Dennis

Merged entity to create market-leading global bus and coach manufacturer.

The world's biggest manufacturer of double deck buses and leading British bus and coach builder, Alexander Dennis Limited (ADL), has been acquired by NFI Group Inc. (NFI), North America's largest and most diversified bus and coach manufacturer.

The transaction creates an independent global bus and coach manufacturer with market leading positions in the United Kingdom, North America and Hong Kong plus a growing footprint elsewhere in Asia Pacific, Latin America and Europe. ADL's proven products and track record of entering and growing new markets will complement NFI's product offering, diversify its business model and create a platform for international growth, accelerated technology development and innovation.

ADL will retain its own brand and Chief Executive Colin Robertson, who has led the growth and internationalisation of the company over more than ten years, and Chief Financial Officer, Michael Stewart, will continue to lead ADL. They will also be tasked with driving NFI's international growth ambitions.

ADL is one of the world's leading independent bus and coach manufacturers offering Alexander Dennis single and double deck buses and Plaxton coaches with a history and heritage of design, engineering and manufacturing excellence that spans more than a century. Headquartered in Scotland, ADL employs over 2 500 team members with over 31 000 vehicles in service and operations in the Europe, Hong Kong, Singapore, Malaysia, New Zealand, Mexico, Canada and the United States.

NFI is North America's largest and most diversified bus manufacturer providing market leading transportation solutions. With over 6 300 team members, operating from facilities across Canada and the United States, NFI provides accessible mass transportation solutions under the brands: New Flyer (heavy-

duty transit buses), ARBOC (low-floor cutaway and medium-duty buses), MCI (motor coaches), and NFI Parts (parts, support and service).

The two companies share similar cultures and values regarding quality and customer experience, as demonstrated in their prior joint venture in North America. There is a clear alignment in management strategy, market outlook, and electric vehicle adoption expectations. The objective is not to cut jobs or rationalise, but to focus on collaboration and best practice sharing. ADL will continue to pursue its strategic plans.

NFI Board Chairman, the Honourable Brian Tobin, P.C. O.C. added, "ADL is a company we know very well, and this acquisition presents a compelling opportunity to make NFI a more diversified and robust business while creating immediate value for our shareholders. NFI's management team has a track record of delivering accretive acquisitions and prudent capital management which we expect to continue through the addition of ADL."

ADL Chief Executive, Colin Robertson, says: "We are incredibly proud of the growth and success we've had building Alexander Dennis over the past 15 years, and I'm excited to have the ADL team join NFI – one great bus company joining another. We believe our consolidated businesses will enhance NFI's market leading position in North America, while improving NFI's offering through combined engineering expertise, supplier partnerships, electric vehicle know-how and aftermarket platforms."

Since it was formed in 2004, ADL has gone from strength to strength and demonstrated a track record of consistent growth. In 2018 ADL generated revenues of £631 million, having grown at a compound annual growth rate of 10.5 percent since 2010, and delivered more than 2 500 buses and coaches across its domestic UK market and multiple international territories.

ADL's primary shareholders, including Colin Robertson and Michael Stewart, retain an equity interest in the business, having been issued shares in NFI Group Inc. as part of the transaction. ■

Smart Bike Helmet Signals Impending Danger

“We’re introducing the cyclist as an equally important road user” is Scania’s approach to improving road safety for all.



New safety helmet can make bike riders such as Stefan Larsson safer on the roads.

Scania has joined a research group that has developed prototypes for bike helmets that communicate with surrounding traffic and provide users with alerts four to seven seconds in advance of potentially perilous situations.

When Vehicles Communicate

Following the rapid technological advances in driver assistance systems aided by sensors, radar and cameras, the auto industry is taking initial steps towards connected vehicle-to-vehicle communications and, by extension, to connected vehicle-to-infrastructure communications. When vehicles communicate and relay data to each other in real time, road safety will be even further enhanced.

But one significant road user has, so far, largely been overlooked – cyclists. “Nearly all attention has been devoted to cars, trucks and buses,” says Johan Fagerlön, Project Manager at Research Institutes of Sweden (RISE). “We’re introducing the cyclist as an equally important road user.”

The research has been carried out with support from the Sweden’s Strategic Vehicle Research and Innovation Programme and, in addition to RISE, includes Scania, POC Sports, Kapsch TrafficCom, Volvo Cars and the Swedish biking interest group, Svensk Cykling.

Auditory Alerts

Each helmet is equipped with auditory alerts that – based on the gravity of the situation – warn cyclists of imminent danger. The potential crash scenarios are based on actual data from accidents with bikes. The warning can be conveyed as a vibration, from left or right in accordance with the direction of the threat. This can be

supplemented with a warning sound and a voice outlining the nature of the threat, such as “car approaching from left”.

Scania, with its ample experience of developing warning signals and sounds, has been highly engaged in evaluating sounds in user tests. In the project, all three warning modes have been evaluated with regard to user acceptance and effectiveness in averting collisions. “The conclusions are similar to all traffic applications, namely that the information must be perceived as relevant by users and that users find false warnings irritating,” says Stefan Larsson, Sound Designer at Scania.

The Three Most Common Accidents

The assessment of when warnings are activated have been based on available data on accidents involving cyclists. The project particularly focuses on three common accidents: Cyclists and motorised vehicles colliding while travelling in the same direction. This type of accident often leads to severe injuries or fatalities since both vehicles are travelling at relatively high speeds.

The second common accident is straight crossing when cyclists and motorised vehicles collide head on and the third is ‘dooring’ when drivers fail to observe approaching cyclists that then crash into opening doors.

Two Different Solutions

Two different prototypes have been developed: one using the 5.9 GHz vehicle-to-vehicle frequency and one with mobile phone cloud-based communications. The two technologies can be considered complementary where less time critical safety-related information can be widely disseminated through a cloud-based solution and the peer-to-peer based 5.9 GHz communications channel can be used for highly dynamic collision avoidance applications.

More research is needed but the project has shown that cyclists can viably be included in the coming connected traffic environments. “Considering the fact that cyclists in many cases are most vulnerable in traffic and have the most to lose, that’s important,” says Larsson. ■



HINO Poncho set to take the Local Bus Segment up a Notch

Asian Buses recently caught up with HINO Motors Sales Sdn Bhd Division Head of marketing strategy and product planning division Andrew Lee in an exclusive interview at the Malaysia Commercial Vehicle Exhibition 2019 to see what the buzz is about the HINO Poncho.

HINO introduced us to the “Little Monster”, the HINO500 Series truck known for their world-class durability, at MCVE 2017. The Japanese-based firm continued to impress its audience by unveiling a low-floor minibus, the HINO Poncho, which made its anticipated Southeast Asia debut here in Malaysia.

Asian Buses: Tell us what HINO Poncho is all about?

Andrew Lee: HINO Poncho caters to the missing segment in the current public transportation in Malaysia. Out of the four types of buses available in the country, the HINO Poncho is the smallest low-floor minibus which can cover a segment which is lacking in the Malaysian market, by providing a smarter, more accessible, safer community transport. Previously at MCVE 2017, we showcased the Dakar Rally truck, so basically the concept here is to introduce the QDR of the HINO product line which is quality, durability and reliability. This year our main focus will be the HINO Poncho.

AB: Is this the first time, the HINO Poncho has been introduced into the market?

AL: The HINO Poncho is a very cute minibus from Japan. The first country to bring in the minibus onto its roads, outside Japan, is Australia. Hopefully, Malaysia will be the second country to introduce this bus and for the benefit of the Malaysian market we want to attract potential customers such as Rapid KL, Mara Liner and some operators that may need a minibus with an “OKU” (Persons With Disabilities) access.



AB: What are some of HINO Poncho’s features?

AL: Apart from being “OKU” friendly, the low floor is the special feature of the HINO Poncho. In the Malaysian market we have buses that are 12 and 10 metres with low floors. But the minibuses here have a two-step entrance, meaning you still have an



extra step to climb to get into the bus. However, with the HINO Poncho, it's entirely different. This is the only minibus in the Malaysian market that has a low-floor entry. No other manufacturer has this in their fleet. Which is why we featured it at MCVE 2019 and we want to do a trial with major fleet operators in Malaysia.

AB: Why introduce a minibus in Malaysia?

AL: This is a very unique bus. We have had requests from operators to bring in a smaller bus to cater to the rural areas across the country. This bus works well in cities. For example, in Penang it is sometimes hard for a 10-metre bus to manoeuvre along its roads, while a 12-metre bus will be too long and occupancy rate would not be much. The HINO Poncho should fit perfectly as a feeder bus between LRT stations and bus stops as well as ferry passengers in rural areas where the roads are narrow and a 10-metre or 12-metre bus would struggle with the turning radius. Hence we've been liaising with Japan if it is possible to bring this kind of bus to Malaysia, and here we are.

HINO Poncho will begin a one-year testing phase, where it will be field tested by leading operators in the country. Upon constructive feedback, and approval by the authorities, the minibus is set to take on the Malaysian roads some time next year. 🚩



HINO PONCHO Specifications

Overall length	: 6,990mm
Gross vehicle mass	: 7,710kg
Engine, J05D	: 5L (Euro5)
Max Output	: 180ps/2,800rpm
Drive configurations	: 4 x 2
Max Torque	: 490Nm/1,600rpm
Transmission	: Automatic
Suspension	: Air

KEY FEATURES

- Ultra low floor
- Kneeling Function
- Wheelchair access
- Full automatic transmission
- Small turning radius
- Compact rear engine



Geely New Energy Commercial Vehicle Group's (GCV) subsidiary brand, Yuan Cheng, launched two new zero-emission buses at a ceremony in Beijing, the F12 hydrogen fuel cell bus and C11 pure electric bus on May 29 in Beijing, China.

Leveraging Experience in Passenger Cars and Advanced Intelligent Technologies

Utilizing Geely Holding Group's experience in design, R&D, and supply chain management for passenger vehicles, GCV was able to develop the C11 pure electric bus to meet the diverse needs of different users. The electric bus utilizes Geely's advanced lightweight technologies, perfectly meeting the operational needs of urban commuting, tourism, and chartered buses.

The C11 fully utilizes Geely's suite of intelligent technologies such as AEBS (Automatic Emergency Brakes), ESP (Electronic Stability Program), Electronic Rearview Mirror, AutoHold Automatic Parking Brake, EPB (Electronic Parking Brake), DMS (Driver Fatigue Management System), etc. In terms of intelligent safety, the AEBS (Automatic Emergency Brakes) on the C11 help drivers monitor the road and keep pedestrians safe. Together with LDW Lane Departure Warning, these features help reduce traffic accidents by 80%. Optimizing battery energy consumption, the C11 is equipped with an IECS (Intelligent Energy Control System) which improves the energy efficiency of the vehicle by 16 percent.

Focused Development Strategy, Leading the Way in New Energy Commercial Vehicles

Geely commercial buses are produced in two plants in Nanchong, Sichuan and in Jinzhong, Shanxi, which can meet the production needs of products in Northern and Southern China.

From years of research and development and the launch of multiple new energy commercial vehicles including new energy light trucks, methanol heavy trucks, and smart buses, GCV have always adhered to the development of new energy and upheld its social responsibility of protecting the environment. 🚗

Geely New Energy Commercial Vehicle Group Unveils Hydrogen Fuel Cell and Pure Electric City Buses

The F12 is Geely's first commercial vehicle which utilizes hydrogen fuel cell technology and after a 10-minute refueling can run over 500km. Hydrogen fuel cell only emits water and is considered a zero-emission technology. The C11 pure electric bus is made for a variety of operational scenarios such as city commuting, tourism, and public transportation. Along with a high passenger capacity, the two new models also have the advantages of being quiet and economical.

As a provider of safe, intelligent, green public transportation solutions, Yuan Cheng provides a full range of pure electric, range extended, hydrogen, and methanol smart buses between 6 and 12 meters long. Along with a wide variety of products designed to meet different operational needs, Yuan Cheng also provides training, after-sales service, parts, charging services, financial services, and other comprehensive services as part of Geely's future smart three-dimensional travel ecology.

Zero Emission Mobility Powered by Hydrogen

The new hydrogen powered F12 city bus was developed by GCV in response to China's national new energy policy and as part of Geely's continuing R&D into fuel cell technologies. Hydrogen fuel has several major advantages including diverse availability and environmental friendliness. Hydrogen fuel can be extracted from fossil fuels, generated as a by-product of chemical production, and from electrolysis.

The F12 bus adopts world-class fuel cell stack technology. In real world operational tests, it had an energy consumption rate of 7.5 kilogram of hydrogen per 100 kilometers. A full tank is enough for all-day operation. Through extreme environmental test such as extreme heat, cold, and high altitude, hydrogen fuel cell technology has been proven to be very adaptive.

In addition to its advantages of zero emissions and low energy consumption, the F12 also comes with attractive design, comfortable interior, and multiple smart functions. The model is available in both 12-meter and 10.5 meter long versions, providing a comfortable ride experience and bright interior. In terms of smart functionality, the F12 bus comes with real time remote monitoring, road condition warning, remote fault diagnostic, and other intelligent features to assist companies in scheduling and fleet management.

Automechanika Kuala Lumpur 2019



Achieving 20 000 KM Oil Change (sic) with B20 Biodiesel' amongst others. Participants were reportedly very satisfied with the content of the Fleet Management Conference and said the conference allowed them a different insight on how to manage their fleet.

The newly introduced Truck Zone at Automechanika Kuala Lumpur shed a light on the fast-growing commercial vehicle sector and was one of the busiest place at the fair. The Truck Zone was introduced as a result of the sector's growth potential in both Malaysia and throughout the region. The zone saw an impressive amount of exhibitors ranging from manufacturers, auto parts and tyre dealers such as Acmar, Biosurge Asia, CPC Tyre, Hinsitsum Ten Ming and Yamamoto which displayed their latest solutions, products and services. The Truck Zone was strategically placed next to the IOT Zone in order for visitors to utilise the interconnected technology between both sectors.

The number of country and region pavilions has reportedly increased two-fold, displaying a significant spike in international participation. The 2019 pavilions include China, Europe, Korea, the Middle East, Singapore, Taiwan and Thailand. Organisers of the event said this increase in international participation will encourage local businesses to connect and network with some of the most influential names in the global industry. 📌

The 11th edition of Automechanika Kuala Lumpur opened from 21 to 23 March.

Automechanika, a leading automotive trade fair in the ASEAN region took place at the Kuala Lumpur Convention Centre (KLCC) from the 21st to 23rd March 2019. The fair saw 293 exhibitors from all around the world, an increase of 19 percent from the previous edition all housed in 9710 square metre of space across five halls.

"As the automotive industry evolves, so does Automechanika Kuala Lumpur. The vision of becoming a platform for 'Sourcing, Training and Entertainment' has been a driving force behind the scenes. We believe that the show's direction will attract new audiences from the commercial vehicle sector, Malaysia's tech industry and auto-lifestyle fanatics. The vision also transcends through all the fringe programme events. Visitors can embrace global trends through entertaining and auto-cultural experiences, as well as hands-on learning opportunities," said Ms Fiona Chew, Deputy General Manager of Messe Frankfurt (HK) Ltd.

Visitors of the fair took the opportunity to participate in the value-adding fringe programmes Automechanika Kuala Lumpur had to offer. One such event was the Fleet Management Conference, specifically tailored to meet the educational needs of fleet operators in the commercial vehicle segment. Speakers at the conference include IR Zuhairi (COO of Aeroline Autotech (M) Sdn Bhd), David Lantz (Sustainability Manager at Scania Southeast Asia) and Mohamad Azhar (General Manager of Kit Loong Commercial Tyre). All speakers at the conference shared their insight and experience which proved to be beneficial to the participants. Topics discussed about at the conference 'Fleet Maintenance: Outsourced vs In-House', 'The Pros & Cons of Biodiesel &



Daimler Buses keeps an eye on sustainability: the buses from the Mercedes-Benz and Setra brands are an indispensable part of local public transport and play an important role worldwide in reducing the impact of traffic, pollution, and nitrous oxide emissions on our roads.



The aim of Daimler Buses is to enable more efficient mobility in urban areas and help reduce the strain caused by traffic, particularly in urban areas. Products from Daimler Buses are not only environmentally friendly, they also enable mobility for a large number of people.

Climate Protection and Clean Air

With this background, Daimler Buses pursues the aim of reducing the CO2 emissions of its city buses and overland coaches weighing over 18 tonnes in real use (Tank to Wheel) by 20 percent by 2020 in Europe. A further aim is to reduce the nitrogen oxide emissions of buses in real operations by 75 percent by 2030.

In order to lower CO2 emissions even further, Daimler Buses focuses on buses with low-emission and emission-free drive. One example of this is the Mercedes-Benz Citaro hybrid, which was awarded the Sustainability Award 2019. Besides efficiency and sustainability, the jury looked at criteria like safety, comfort, noise emissions, re-usability of components, environmental conservation, and efficiency.

Emission Free

Since the launch in 2018 of the all-electric Mercedes-Benz eCitaro, Daimler Buses has been able to offer a locally emission free urban bus for environmentally friendly public

Daimler Buses Contributes to Responsible Local Public Transport

Daimler Buses contributing to efficient mobility and reducing traffic impact in urban areas and assist towns making the switch to electromobility.

An improved environment, dynamic growth and quality of life – these were the predominant topics at the Global Public Transport Summit (GPTS) from 9 to 12 June in Stockholm. A clear vision for the future and further development of local public transport were at the heart of the UITP Global Public Transport Summit. Daimler's bus segment contributes to this vision in many ways, with one of the aims of Daimler Buses to shape and develop the future of global (bus) mobility in a responsible way.

Efficient Sustainable Urban Mobility

As a bus pioneer, Daimler Buses stands traditionally for the safety, efficiency and comfort of urban and long-distances buses and coaches. Furthermore,



transport in cities and urban areas. The battery-electric eCitaro is already in series production. Products like the eCitaro provide a substantial contribution towards clean air in urban areas.

To assess the environmental compatibility of a vehicle, Daimler Buses looks at the emissions and resource consumption over the entire life cycle. This is done by means of a life-cycle assessment, which covers the main environmental impacts – from raw material extraction to production and use through to recycling. In 2018, Daimler Buses examined the fully electric Mercedes-Benz eCitaro city bus for the first time as part of a life-cycle study. For the assessment of the eCitaro, two ways of producing electricity during use were analysed. The eCitaro was more efficient in environmental terms than the conventional Citaro city bus with a diesel engine – depending on the method of electricity production used – by 38 percent (for the European electricity mix) or by 86% (for hydro-electric power).

Daimler Buses eMobility System

The eCitaro is part of the overall eMobility system from Daimler Buses. The eMobility Consulting Team advises customers about different operational possibilities, accompanying them in their switch to e-mobility. Aspects like route length, passenger numbers, energy requirements, range calculation and charging management are considered. EcoTraining courses are also offered for bus customers and their drivers, to encourage environmentally friendly driving. All these elements demonstrate the contribution made by Daimler Buses on the topic of “The Art of Public Transport” at this year’s UITP summit.

Intelligent Mobility

A fundamental part of tomorrow’s mobility solutions, and of increasing importance, is Bus Rapid Transit (BRT), a sustainable mobility concept currently in use in over 160 cities around the world. Mercedes-Benz buses are in use in 41 of these cities. The features of these systems are above all separate bus lanes, special stops and priority at junctions, enabling passengers to reach their destinations swiftly and in comfort and safety.

Daimler Buses has a holistic approach in the field of Bus Rapid Transit. For the introduction of BRT systems, Daimler offers authorities vehicles and advice and financing services. Together with different partners, and in close cooperation with municipal authorities, Daimler accompanies the development and planning of BRT systems. These are already showing impressively high eco-friendliness, short planning and manufacture times, and low investment costs.

Safety Always Has Right of Way

Another main focus by Daimler Buses is on safety. With modern driver assistance systems and vehicle protection systems, the bus segment of Daimler aims to considerably improve road safety, with the final aim of being accident-free mobility. With this aspiration, the business area contributes towards achieving the European Union’s target of reducing the number of road deaths to almost zero by 2050.

Examples of standard safety and assistance systems are the emergency braking assistance system Active Brake Assist 4 which not only automatically initiates full braking in the case of stationary and moving obstacles, but which also warns the driver of a possible collision with pedestrians and at the same time initiates partial braking. Preventive Brake Assist, the brake assistant for regular-service urban buses, warns of collisions with moving pedestrians or stationary or moving objects and automatically initiates partial braking in the event of the risk of a collision. Sideguard Assist, the first radar-based turning assistant for buses to detect people, supports the driver in critical situations when turning right. 

SOUTH EAST ASIA
JAKARTA



“Making Bus Transport Systems Attractive,
Efficient and Affordable in South East Asia”



Ribbon cutting ceremony by VIPs to mark the opening of Busworld SEA, Jakarta, Indonesia.

Busworld South East Asia

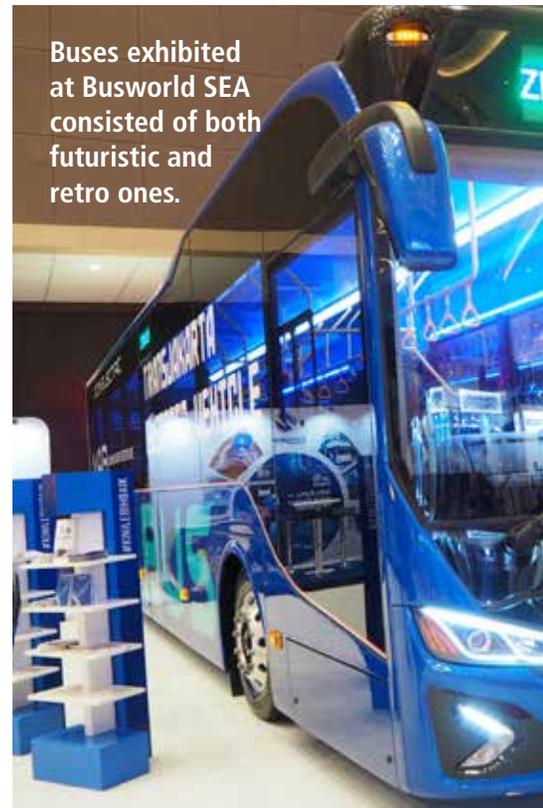
For the debut of the South East Asian edition of the Busworld, Farezza Hanum Rashid went to get the inside scoop at the show.

Busworld made its South East Asian debut in Jakarta, Indonesia in March 2019. After more than 40 years, it made perfect sense that the world's oldest and most famous bus and coach exhibition chose Jakarta as its first venue in the SEA region.

A projection of growing bus sales in Indonesia alone is about 6 700 new vehicles in 2020, from 6 100 new vehicles reported in 2015. This supports Indonesia's development of tourism with double decker buses which kicked off in 2016. Indonesia's current buses are old. Indonesia will regulate bus and coach age where a bus's maximum age is 25 years and tourism bus (coach) is 10 years. According to police records, there are over 500 000 units of buses on the road that are over 20 years old therefore the country will need over 200 000 units of new buses to replace the old ones. On tourism, Indonesia is aiming to attract 20 million visitors by the end of the year. To accommodate that number, travel companies are planning to add 5 000 new coaches.

During the opening ceremony, PT Global Expo Management (GEM) Director, Baki Lee said: "As a country with a huge population of 260 million, or 40 percent of SEA population, hosting Busworld creates big opportunities for bus manufacturers to renew aged buses and for tourism. The latter is an industry that Indonesia currently needs now. We have projects for tourism where buses are needed nationwide."

Buses exhibited at Busworld SEA consisted of both futuristic and retro ones.



Indonesia Welcomes Busworld

Busworld South East Asia opened its curtains with a Balinese dance called "Cenderawasih," to welcome industry players from all over the world to a region yet to be explored by them.

Didier Ramoudt, President of Busworld International, donned the traditional Batik shirt at the opening ceremony where he told attendees that bringing Busworld into SEA was very challenging but with the right people from the industry and authorities coming together, Busworld SEA became a reality.

"Indonesia is a huge country with its cultures and traditions, but we did it. We would like to thank the exhibitors who took up the challenge of participating in this first Busworld in South East Asia. From a small Belgian town in 1971, Busworld is now in Russia, Turkey, India, South America, South Africa, going to China next year and the United States of America in 2021," he said.

Baki Lee, in his speech said the people of Indonesia, particularly Jakarta, were very honoured to host the global event, which was already well known especially in Europe. "Being the first one in the region, this offers a lot of opportunity in our bus and coach industry as exhibitors present high-quality products and services to potential customers.

"Also, as with previous Busworld events, we have the Busworld Academy sessions where we share and exchange information about the bus business around the world, as well as our goals for SEA," he said.

Chairman of the Young Bus Entrepreneurs Association of Indonesia (IPOMI) Kurnia Lesani Adnan hoped the event would be a good kickstart for the bus scene in the country to move forward. He also said it was an important platform for members of the public to get information on buses from technical updates to accessories.

Speaking in behalf of the Indonesian Carrosserie Association (Askarindo), Sommy Lumadjeng said 500 of Askarindo members will always support Busworld if it decides to come back to Indonesia. "When I first heard the news that Jakarta will be hosting Busworld, I thought I was dreaming, and now I am seeing it happening before my eyes," he said. Sommy added that bus builders also need the government's support to export local products, not only import, because their products are of good quality.

Prof. Sutanto Soehodho, Jakarta Deputy Governor for Industry, Trade and Transport said with the Busworld Academy sessions, Indonesian speakers and delegates could take the the opportunity to discuss and get insights of how to move forward in the bus industry. The theme of the event was "Making Bus Transport Systems Attractive, Efficient and Affordable in South East Asia."

"We will explore how to provide attractive bus services for the traveling public. Even with the new MRT service in Jakarta, feeder buses are needed. We also need to combat the growing number of motorcycles. There are over 2 million motorcycles on the road in Jakarta, creating massive congestions. Travelling by motorcycle is cheap so we have to make buses more affordable, too," he added.



A Tour with TransJakarta

On the second day of Busworld SEA, members of the international press were taken on a tour of the TransJakarta bus rapid transit (BRT) system, led by Institute for Transportation and Development Policy (ITDP) Urban Planning Associate, Deliani Siregar.

The first BRT system in Asia, TransJakarta commenced operations on 15 January 2004. The buses run in dedicated lanes where the buses travel at a maximum speed of 50km/h and ticket prices, which have not been changed or increased for 15 years, are subsidised by the regional government. As of 2018, TransJakarta has the world's longest BRT system (251.2 km) with a total of 155 routes as of January 2019 (corridor, cross routes and feeder routes). This is a significant increase from 41 routes in 2015. The number of TransJakarta buses has also increased dramatically, from 605 buses in 2015 to 1 500 buses in 2017 and plans to double that number to 3 000.

The latest feature of the BRT is an elevated corridor. There are some old buses, like the mini bus, still operating either by other companies or individual operators and with the new MRT, there are talks to integrate all land public transportation under TransJakarta.

"Public buses used to be very unpopular. People did not like taking the bus because of very limited access and the buses were not comfortable to travel in, especially with other people, as there was no air conditioning. Some buses were really old, too, around 15 years old," Deliani told us. She had us strolling along the sidewalks of Jakarta so we could see the different types and ages of the buses plying the roads of Jakarta city. True enough, a variety of bus sizes, old and new could be seen. The newer buses, Deliani added, were no more than five years old. "These new ones, mostly from Hino, Volvo or Scania, have better maintenance and good buses lead to good operations and mobility. The old buses are individually run, not big companies," she said. In 2018, there was an improvement in mobility from private to public transportation.



TransJakarta control centre.



TransJakarta has school programmes where kids are taught about public transportations.

TransJakarta started segregating men and women on its buses since 2010 where women travelling without male companion sit in the front half of the bus while men, or groups of mixed genders, sit in the back. There is an onboard staff on each bus and CCTV cameras to monitor this gender segregation. In 2016, TransJakarta launched the pink bus, only for women commuters. These efforts are to avoid sexual harassments.

We were taken to the Harmoni Station on Corridor 1, which is also the longest in the system and serves as the main hub for commuters to transfer to other corridors. There are 12 routes from this station and has the capacity to hold up to 9 000 people. Due to the growth in passenger numbers, there are many stages to improve the station specially to accommodate peak hours. While we were there, we managed to witness one of ITDP's programmes for school children when a group of small children, accompanied by their teachers and ITDP staff, passed by. These trips on TransJakarta buses are aimed to introduce and educate children on the importance of public transport. We also visited the Gelora Bung Karno Station which is located opposite the stadium. In conjunction of Jakarta hosting the Asian Games last year, the station is sports-themed.



University students checking out a Mercedes-Benz bus chassis.



Mercedes-Benz's New Generation OF 917 was launched at Busworld SEA

We were then brought to see the 23-meter high elevated station which although is complete, is not yet opened. According to Deliani, this particular corridor or Corridor 3, was controversial and not properly thought through. "It is about five storeys high but there are no elevator or escelator to take commuters up. Abled people can take the long climb up the stairs but there is no way for the disabled to access. We are talking to the government to add more facilities and also to integrate it with the new MRT station which is just a few meters away. Hopefully it will be open to the public by next year," she said.

Our final stop was the TransJakarta command centre. This is where the buses, stations and passengers are monitored to ensure the smooth-running of the operations. It is also where staff communicate with the bus captains and take passenger feedback. It is a 24-hour operation where staff work in three eight-hour shifts.

Head of operations at the command centre, Kadir Ardiyansyah said to monitor the operations in each line, they use GPS to know the locations and positions of the buses, and CCTV on the buses and BRT stations to see the congestions. "Our monitoring includes uncommon activities where we will take action and ensure everything runs according to standards. For example, if there are demonstrations or protests, or unscheduled road closures, we act by removing the obstacles, divert routes, tell bus captains to slow down or temporarily close the affected corridors. We take immediate actions and handle the situation to not cause too much delay for our passengers," he said.

During mishaps, they try to evacuate passengers as soon as possible. "If the entire corridor is blocked by a bus and there is another bus coming from behind, we will guide the latter to slowly reverse and reroute. Through a one-way communication, we will also tell drivers if they are exceeding the 50km/h speed limit," Kadir added.

With all the system's advancement and future plans, ITDP is currently reaching out to the public, especially those in rural areas, to educate them on public transportation in general and is aiming to increase bus ridership to 1 million from the current 700 000.

Global and Local Big Players at Busworld SEA

Some industry players took the opportunity to launch some new products and services during the expo, witnessed by their competitors.

PT Daimler Commercial Vehicles Indonesia (DCVI), the official sole sales agent of Mercedes-Benz commercial vehicles in Indonesia, was one of the exhibitors at Busworld South East Asia 2019.

Mercedes-Benz's spirit "The Standard for Buses" manifested throughout the introduction of Mercedes-Benz OF 917 on the first day of the event, on 20 March, along with the display of three latest premium buses Mercedes-Benz OF 1623, O500RS 1836 and OC500RF 2542. Present at the launch ceremony were Christoph Stemmer, Vice President of Sales, Marketing and CSP Mercedes-Benz Commercial Vehicles - SEA, Mercedes-Benz, and Jung-Woo Park, Marketing Director for DCVI.

Speaking at the event, Christoph Stemmer said that Mercedes-Benz focuses on the preference of its passengers and customers. "As the only premium brand with strong legacy and experience in developing cars, vans, buses and trucks, Mercedes-Benz has been devoting its resources to continue setting new benchmark for bus-related mobility solution to answer the need of our passengers and customers. With the advancement of Indonesia road infrastructure, we are very proud to see that in Indonesia, Mercedes-Benz buses can go beyond a mere transportation tool but a solution of connectivity and people's mobility".

Built up to serve tourism sector and city transportation while maintaining the pride of Mercedes-Benz which stands for quality and technology, the improved model of Mercedes-Benz OF 917 maintains its strong characteristics as a leader in its segment with wider total width, full airbrake, better ergonomic driving position and two seat number options. Furthermore, improvements are also made in engine, axle and suspension sectors with result in a safer, more efficient and comfortable bus operation.

In his remarks Jung Woo Park expressed that listening to customers voice and collaborating with them are what it takes to develop a bus model that completely suits the market. "Mercedes-Benz strives to deliver products that offer the best experience to passengers and best value to customers. Mercedes-Benz OF 917 is a proof of looking at every aspect in developing the best product, including listening attentively to the customers' voice". In addition, DCVI also guarantees the sustainability and efficiency operation of all its commercial vehicle line-ups by expanding dealership networks and introducing FleetBoard Indonesia. In 2018, five new dealers serving Mercedes-Benz commercial vehicles were opened including in some cities outside Java Island such as Sulawesi and Kalimantan.

DCVI is also making Busworld South East Asia 2019 a platform to introduce FleetBoard Indonesia to customers. On the second day of the event, customers were introduced to the comprehensive fleet management system powered by DCVI. Special offers were provided by DCVI with five FleetBoard Indonesia systems provided for free to customers purchasing Mercedes-Benz buses during the event.

On March 20 at Busworld South East Asia 2019 Jakarta, **Volvo Bus officially launched their world-famous Volvo B11R and Volvo B8R** chassis for the Indonesian bus market.

Akash Passey, Volvo Bus's Senior Vice President of Volvo Bus Region International, described Indonesia as a very large and modern market for buses which brings significant opportunities for bus operators and bus producers to support the progress of high-quality, safe and environmentally friendly land transportation via buses. "Through a proven track record of over 90 years, Volvo Bus is ideal to meet the demands of bus operators and passengers. We are very pleased to introduce our latest products, Volvo B8R and Volvo B11R in Indonesia. These



buses have proven their performance with various customer demands in several countries and certainly will fulfil the bus market requirements in Indonesia," he said.

Since 2018, more than 100 Volvo B11R buses have been operating as part of the TransJakarta Bus Rapid Transport (BRT) Busway system. This configuration, known locally as "maxibus" which can comfortably accommodate up to 90 passengers and is very popular among users. "Volvo has extensive experience in the BRT system, since pioneering this concept more than 40 years ago in Curitiba, Brazil. BRT is a mass transit solution that is proven to be effective and has high capacity, providing the equivalent performance of metro trains with lower cost and complexity. Volvo Bus is very honoured for the opportunity to be part of the TransJakarta Busway," Akash said.

Volvo Bus displayed two versions of their Volvo B11R chassis at Busworld namely the Ultra-High-Coach and the Double Decker Coach, to meet a variety of long-distance and inter-city transportation needs. Volvo B11R with an 11-liter engine and 430hp engine can provide the best performance and driver satisfaction. Coupled with Volvo Bus's leading I-Shift AMT 12-speed transmission, which is optimised for coach touring, the driver can safely and easily speed up and ensure a smooth and enjoyable trip for passengers. The low-entry Volvo B8RLE model



Akash Passey (2nd from left) at Volvo's launch of B11R.



Sommy Lumadjeng, Director of Marketing & Sales, New Armada.

was also presented at the Busworld SEA exhibition. Ideal for developing cities, the Volvo B8RLE is suitable for high passenger capacity routes that require fast entry and exit activities. The Volvo B8R series is designed to meet the demands of city, inter-city and urban traffic applications. Equipped with a Volvo B8 engine - the most fuel-efficient Volvo engine, the Volvo B8RLE is designed to optimise overall operating costs. "Volvo Bus hopes to build relationships with Indonesian bus operators and focus on building quality improvements and distinctive differences from Volvo Bus," Akash added.

Amidst the participants visitors could also meet with local industry players Indonesia's biggest body builders, Laksana and New Armada at Busworld SEA. Indonesian bus body builder Laksana takes it upon itself to run tests in accordance to the United Nations Economic Commission for Europe (UN-ECE) Regulation 66 Standard to ensure its products are safe, although there are no such regulations binding body builders by the Indonesian government.

Stefan Arman, CV Laksana told panellists at the Busworld Academy recently that Laksana started running the rollover tests last year, based on the abovementioned standard, with the support of various shareholders. "Rollovers are among the top causes of deaths in bus accidents. Test methods we use are computer simulations and tests with actual bus

bodies," he said. They run multiple tests with the computer simulation and based on those results, actual tests are done on the third sections of the buses.

In the future, Laksana plans to also run seat strength tests according to the R80 Standard. This test is to ensure seats remain attached to the bus body during accidents, so that passengers are not thrown to the front of the bus.

On the second day of Busworld SEA, Laksana invited the Minister of Foreign Affairs, Retno Lestari and the Ambassador for Bangladesh in Indonesia, H.E. Major General Azmal Kabir to inaugurate four of their brand new Laksana SR2 XHD Prime Legacy coaches that were about to be exported to Bangladesh. The ceremony took place on the open-air premises in between the Jlexpo halls.

Bangladesh is the third country importing Laksana buses after Fiji Island and Timor Leste. Retno was confident that the Indonesian bus body builders will continue to export to other countries in the future. "This export is just a glimpse of the commitment by both countries when it comes to economic relations. We can export and compete with other countries even in non-traditional markets such as this," she said in her speech during the ceremony.



The four Laksana buses to be exported to Bangladesh.

The 42-year-old body builder makes 1300 buses a year for brands like Volvo, Mercedes-Benz and Scania. The newly launched Volvo B11R is Laksana's Legacy double decker model.

Laksana Commercial Director Alvin Arman told reporters that not only is Laksana concerned about safety, but also the design and comfort of its buses. Laksana recently won a best design award in Indonesia. "We have our own team that does original designs of our buses," he said.

With the new highway that connects Jakarta to Surabaya, Alvin expected more people to be more interested in taking the bus. "Travels that usually took up to 15 hours now take around nine hours. When more people are taking the bus, hopefully there'll be more demand for more buses as well and sale will go up," he commented.

This was echoed by New Armada Director of Marketing and Sales, Sommy Lumadjeng who said that with the new highway, people will change their mindset and they would want bigger buses for comfort.

Like Laksana, New Armada also uses galvanised steel in their bus body productions to protect from corrosion. Although the bodies will be scrapped after five years, the bodies still need to be protected due to the high humidity of Indonesia. "If not galvanised, the steel bodies can corrode in just a month. "We do not use aluminium because for the price, it is not worth it as it will be scrapped after five years," he said. Sommy explained that it is an old trend in Indonesia that bus bodies are changed every five years for cosmetic purposes. "Bus operators want to refresh the looks or models of their buses. After five years, a bus body becomes scrap metal. The chassis may remain, but the body will change. This is an old trend," he added.

New Armada builds small 16-seaters up to 70-seat double deckers. "We were the first to build double deckers in Indonesia. In 2011 we launched a double decker for Mercedes-Benz," Sommy told reporters, adding that 70 percent of production is hand-made which slows down the process but ensures quality.

"We manufacture according to demand. There are constant demands from the private sector, although not in high volume while in the government sector, it is the other way around. It takes us about two months from order to delivery," Sommy said.

In Indonesia, customers would usually buy the chassis first then look for a body builder. There are about 100 body builders in the country.

Busworld Academy

As with previous Busworlds held around the world, the Jakarta edition also had many panel discussions by experts and industry leaders in Busworld Academy. Amidst the excitement and many activities lined up at Busworld, Asian Buses managed to sit in a few sessions at the Academy.

Friendly Access for All by Deliani Siregar, Urban Planning Associate, ITDP

With around 700 000 passengers daily, the Institute for Transportation and Development Policy (ITDP) wants the number to reach 1 million for TransJakarta buses. TransJakarta runs the buses on the first Bus Rapid Transit (BRT) system in Asia, which also has the longest corridor in the world at 208km. BRT is based on the TransMilenio system in Bogota, Colombia.

According to ITDP Urban Planning Associate, Deliani Siregar, the 1 million aim does not come without its issues as Jakarta residents are still ill-informed about the bus service, especially those living in rural areas. "We are now reaching out to 'kampung' folks to not only give them more information about public transport especially buses, but also to learn more about their needs and preferences when it comes to moving around," Deliani said in her presentation.

"We also want to educate them on environmental issues where public transportation plays an important role. Most environmental programmes for the kampungs emphasise on planting trees, they don't touch on public transports. We have learned that villagers who do take public buses, prefer the old ones that do not require the modern cashless payment methods," she added.



Other issues include weaknesses found in the bus services including ease of boarding the buses (for less-able passengers), inadequate lighting at the stations and lack of information at the bus stations as well as on the buses. Despite these challenges, ITDP is confident that the targeted ridership can be achieved as there has been an increase in the past two years. The #cityforall campaign is one of ITDP's efforts to meet people of all backgrounds to promote public transportation.

Sustainable Urban Mobility towards a Sustainable Use of Public Transport by Gina Karina, Country Manager, International Council for Local Environmental Initiatives (ICLEI) Jakarta

ICLEI is a global network of cities, towns and regions committed to building a sustainable future. The international network was established when more than 200 local governments from 43 countries convened at its inaugural conference, the World Congress of Local Governments for a Sustainable Future, at the United Nations in New York in September 1990. Today, the ICLEI network includes more than 1 750 local and regional governments in over 100 countries.



Deliani Siregar, Urban Planning Associate, ITDP.

The Jakarta chapter of ICLEI is led by Gina Karina, the Country Manager, who cited that mobility will become a common urban challenge worldwide as there will be 2.9 billion cars in 2050, up from 600 million now. "This is due to an Urban Sprawl, which contributes to the high numbers of cars, distances travelled, length of paved roads, fuel consumption, alternation of ecological structures and the conversion of rural land into urban uses, all of which are unsustainable."

Gina went on to elaborate how unsustainable urban mobility impacts the economy, society and environment. Economic impacts are traffic congestion, mobility barriers, accident damages, facility costs and depletion of non-renewable resources (DNRR). Socially it gives an inequity of impacts especially for the vulnerable population, mobility disadvantaged, human health impacts related to air pollution and community liveability. Lastly, environmental impacts are air and water pollution, habitat loss, hydrologic impacts and again, DNRR.

"Private motorised transport modes such as cars or mopeds emit 3.5 times more greenhouse gas per passenger than public transport," Gina said, adding that today's culture of transport is not sustainable.

According to ICLEI, sustainable mobility solutions are:

1. Policies - a well-defined framework is required.
 2. Public transport (efficient systems to serve different populations) - Public transport holds the key to provide a more economic, flexible and convenient alternative of mobility to residents.
 3. Intermodality - New ways to cope with urban transport have appeared. Car sharing, bike sharing, taxis, car rental as well as walking provide a more complete mobility offer and services.
 4. Integrated land-use and transport - Higher density development offers environmental and economic benefits as well as mix used areas with business, leisure and residential activities along public transport networks.
 5. Technological Solutions
 - To improve information systems and integration: e.g. real-time travel information, integrated urban navigation systems and online journey planners;
 - To provide low-carbon, energy-efficient and inclusive mobility solutions.
- ICLEI also proposed the Avoid – Shift – Improve (ASI) methodology which means avoid or reduce the need to travel, shift or maintain share of more environmentally friendly modes and improve the energy efficiency of transport modes and vehicle technology.

Other presentations included "Building smart, resilient and liveable cities: Role of high valued bus transportation" by Dr Ganesh Raj Joshi, Researcher, United Nations Centre for Regional Development (UNCRD), Japan; "Successful Deployment of Electric Buses in a South East Asian countries – Right Approach" by Nitin Bansal, Associate Vice President & Head, KPIT Technologies Ltd; "CEO Conclave: Futuristic Transportation Solutions for SE Asia" by Akash Passey, Senior Vice President, Volvo; "The future of Coach Tourism in Asian Countries" by Prasanna Patwardhan, President, BOCI, and many others.

There were in total 11 sessions and 35 presentations. To conclude, participants of the Busworld Academy Conference gathered to draft the "Jakarta Declaration" where they declared their commitment to the goals and agenda. It was not legally binding declaration but a voluntary commitment, as they will pursue in their own ways and efforts to meet the challenges that the world is facing. However, these efforts will be monitored. The next time they meet, they will see how much progress was made and how each country modifies their approaches. 📌



A Q&A session at Busworld Academy.



Terus Maju Services Expands Chassis Offering

Participating in the Malaysia Commercial Vehicle Expo for the first time, the company took the opportunity to launch their latest offerings at the event.

Amidst other players at the Malaysia Commercial Vehicle Expo 2019, held in MIECC from 20 to 22 June, Terus Maju Services set up a booth showcasing three of their models. One was a fully build up coach and the other two were their chassis. The latter were launched during the expo. We met up with K K Loo, Executive Director and co-founder of Terus Maju Services Sdn Bhd to learn more about the vehicles on display. When asked what motivated him to participate in the show, he answered that "This is an international show and we use this platform for branding. We want to make our name more visible. Co-incidentally, this year we launched our new chassis and we feel that this is the right place to showcase it."

Express Bus Operator's Favorite

A fully equipped and built-up express bus was the centre piece of the exhibit of Terus Maju Services. It is based on a Scania chassis and featured the signature lights of the coach builder among other style elements. "What makes this model a favourite is the amenities inside. We accommodate two drivers, whereby there is a sleeping cabin in the front." Accessible from the driver's cockpit, there is a comfortable compartment that allows the second driver to rest while his colleague is driving. Inside the compartment there is light, storage space and electricity to ensure that the person using it can use electronic devices, read and pack all items required for the journey. An emergency hatch is located at the end of the compartment and if needed, one can escape through the luggage compartment. A separate door opens from





inside the luggage compartment and allows people to crawl through the rest space and luggage compartment into the open.

One can notice that the bus is slightly higher than models offered by other coach builders. The added head space is giving passengers an extra comfort level. Inside, the ambience is also meant to give the impression of a luxury coach. Seat capacity can be up to 45 passengers, whereby the number of seats depends on the requirements of the customer. Terus Maju Services is confident that the bus will meet the highest demands from customers as underneath it runs a Scania chassis. "When we started our coach building unit, we first used Scania as they have the best safety features and we are still using them for that reason," Loo said.

Alternatives for the Local Market

Listening to the voices of the market, Terus Maju Services has seen a need to add alternatives to their product range. While the Scania chassis caters to the high-end market, more slimmed down alternatives were needed to address the needs of customers with a smaller budget. On display at MCVE 2019 were two chassis that Terus Maju Services is now offering as an alternative. Loo explained that "We noticed that the chassis in the market were either not offering the right safety features or they had engines that were slightly low on horsepower. Consequently, we went to specify our own chassis and we are now collaborating with China for advanced technology." Loo is confident that the specifications his company has defined will meet the needs of his clientele.



At the show there has been positive feedback on the new Midi- and Standard bus chassis and Loo was proud to announce that there had been orders already prior to the event. He is estimating that for the remainder of the year the company will be selling a total of 60 units. Looking ahead, Loo said that at the end of the year there will be another version with automatic gearbox on offer. "We foresee that the bus market is now also moving towards automatic drivetrains, similar to what has happened in the truck segment." ■

Chassis

TMS09



TMS12 / TMS12A (Auto)



Chassis Specifications

Engine			
Bus Model	TMS09	TMS12	TMS12A (Auto)
ENGINE MODEL	YC6J245-30	WP10.336N	WP12.375N
MANUFACTURER	Yuchai, China	Weichai, China	
ENGINE POSITION / FUEL LEVEL	Rear / Diesel		
EMISSION STANDARD	Euro 3		
ENGINE TYPE	6 In-line cylinders , turbocharged & Intercooled		
MAXIMUM POWER (hp / rpm)	245 / 2,500	336 / 1,900	375 / 1,900
MAXIMUM TORQUE (N.m / rpm)	890 / 1,200 -1,700	1500 / 1,200 -1,500	1800 / 1,000 -1,400
DISPLACEMENT (cc)	6,494	9,726	11,596
BORE & STROKE (mm)	105 x 125	126 x 130	126 x 155
MAXIMUM SPEED (km/h)	105 (with speed limited)		
Chassis			
GEARBOX	FAST manual transmission 6 forward gear & 1 reverse gear Air assistance gear shifting system Telma retarder		ZF automatic transmission with Hydraulic retarder 6 forward & 1 reverse gear
STEERING	Integral power steering		
FRONT AXLE	4.2 tons. Free maintenance type	6.5 tons. Free maintenance type	
REAR AXLE	9 tons. Free maintenance type	13 tons. Free maintenance type	
BRAKE SYSTEM	Dual circuit air brake Front & rear disc brake WABCO Anti-lock Braking System (ABS) Automatic brake clearance adjuster		
SUSPENSION	Air suspension, front 2, rear 4 air bellows with dual shock absorber		
TIRE SIZE	10R22.5, Michelin, 6+1	295/80R22.5, Michelin, 6+1	
ALTERNATOR/ BATTERY	165Ah*2/150A 24V Prestolite	195Ah*2/150A 24V Prestolite	
FUEL TANK	200L	200L x 2	
Dimension			
OVERALL LENGTH (mm)	9,050	11,650	
OVERALL WIDTH (mm)	2,480	2,500	
WHEELBASE (mm)	4,680	6,000	
FRONT/ REAR OVERHANG (mm)	1,690 (F) / 2,680 (R)	2,400 (F) / 3,250 (R)	
APPROACHING & DEPARTURE ANGLE (°)	11/9	12.5/10	
MAXIMUM LOAD MASS (kg)	12,700	18,000	

In the case of the pores of filters, bigger is better does not apply. But when there isn't enough throughput, then the engine of your vehicle will be strangled. We take a closer look at filters made by Hengst to learn more about these crucial parts.



Poring Over What keeps Engines Healthy: Filters

For peak performance and protection of the engine, only fluids and liquids that are free from contaminants should be presented to the power plant. While the filtration material can be produced with the tiniest holes, there is of course still the need to allow the filtered substances to pass through in a sufficient amount to enable the engine to run. Similarly, air that is pumped into the cabin of a bus should be free from pollutants but allowing a sufficient flow of fresh air to be supplied to passengers. Hengst shared some insights with us on how filters work.

Air filters let the engine breathe: Purifying the intake air in a highly efficient and reliable way.

The air filter is by far the most important filter both in gasoline and diesel engines. Depending on the power, a commercial vehicle engine sucks in up to 1 500 m³ of air an hour with a particle content of up to 50

mg/m³. Quality filters permanently remove foreign particles from the intake air, thereby maintaining the engine performance. The air filter ensures an optimally metered fuel-air mixture, thus guaranteeing the best possible combustion.

- Modern quality filters achieve efficiencies of almost 100 percent, therefore ensuring effectiveness over the entire maintenance interval
 - Thanks to the high pulsation stability, the filters do not let any dust through even under dynamic engine conditions
 - Particles introduced via the air can accumulate on the air mass sensor without reliable filtration, thereby impairing performance and increasing wear
 - Reduction of intake noise
 - A reliable filtration ensures clean engine operation on a lasting basis and extends the service life
- **Your benefits:**
- Protection against engine wear and a longer service life thanks to
 - tremendous levels of dirt separation
 - High fitting precision and stability ensure 100-percent tightness and
 - permanent functional reliability
 - Flame-retardant filter media prevent engine fires due to flying sparks
 - Thanks to a high-quality impregnation, the filter paper remains stable
 - under pressure and does not tear even during humid weather
 - Special paper embossing ensures maximum filter stability and prevents the pleats from bundling

Nothing runs without clean fuel: Fuel filters provide operational reliability of the engine and injection system

Injection systems for modern gasoline and diesel engines respond sensitively to the smallest impurities in the fuel. Studies reveal that



the amount of dirt particles in fuels recommended by the international associations (less than 24 mg/kg) is often exceeded considerably. Failure to replace the fuel filter at the specified intervals can cause the injection systems to become blocked, thus putting the operational reliability at risk.

Dirt particles are removed highly effectively thanks to a filter fineness of $\geq 2 \mu\text{m}$ (0.002 mm) which means they cannot find their way into the injection system. The filter separates water from the fuel in modern diesel injection systems in order to prevent corrosion damage in the injection system (e.g. high-pressure pump) Inadequately filtered fuel can lead to failure of the injection system The engine can achieve its optimum performance, while consumption and emission values are reduced as a result of finely filtered fuel

Your benefits:

- Hengst fuel filters can withstand pressures peaks of up to 15 bar as a result of precise and high-quality machining
- Optimum filter performance and the highest level of purification thanks to the use of state-of-the-art filter materials such as melt-blown media
- Significantly longer replacement intervals
- The injection units and the engine are protected
- Insensitivity even to aggressive fuels and high injection pressures

Perfection pure and simple: Oil filters need to be specially sturdy, durable and service-friendly.

Modern combustion engines have to perform ever more efficiently – and should therefore always be lubricated in the best possible way. Depending

on the application, several hundred liters are pumped through the engine circulation system every minute so as to reduce the friction of moving parts, thus preventing the premature wear of pistons, con rods and other similar components. Besides the quality of the lubricant, it is essential for the oil filter to function reliably.

- Dust, metal abrasions and other residues down to the smallest particles of $10 \mu\text{m}$ (0.01 mm) are reliably removed from the lubricating circuit
- The risk of damage and wear to engine components is significantly reduced
- Fuel consumption and emissions are reduced as a result of the oil being cleaner and the lubricant acting more effectively
- Only a high-quality oil filter can withstand temperatures of up to 160°C , while demonstrating a static pressure resistance of up to 20 bar
- With over 120 different filter media, Hengst has the right solution for every application



Your benefits:

- Optimum filter performance thanks to high dirt absorption capacity
- Pressure and temperature resistance in all operating situations
- High-quality machining and precise welding of the filter components ensure perfect functioning
- Precise fitting accuracy makes installation easier and guarantees functional reliability
- Damage and wear to engine components is significantly reduced
- Pulsation resistance under extreme operating pressures

Cabin Air filters: Pure air without exhaust gases, pollen and other impurities: Healthy and hygienic air conditions.

Commonly, in South East Asia, operators are using washable filtermats or inserts. This is because the local bodybuilders are using air conditioning units that are adapted to the local weather conditions. However, this results in filtration being not as efficient as specially designed filters.

Hence, Hengst strongly recommends that you replace the cabin air filter regularly if the air-conditioning is to function without fault on a permanent basis: As a rule of thumb, at least once a year or if you drive extensively, twice a year. A replacement not only ensures the air quality in the vehicle, but also protects the motor of the fresh air fan at the same time, as the air stream can flow freely.





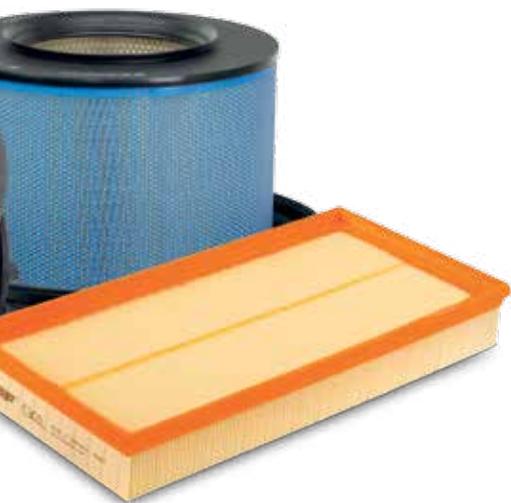
- Pollen, dust, other allergens and unpleasant odours such as exhaust gases are nearly 100 percent filtered out of the air
- Particles down to 3 µm (0.003 mm) are effectively restrained
- The activated carbon layer works similar to a sponge and binds harmful gases – in pores that are 10 000 times finer than a human hair
- Fine dust harmful to health inside the vehicle is reduced on a lasting basis

Your benefits:

- Maximum efficiencies for healthy air inside the vehicle
- Uniform filtration performance during the entire maintenance interval
- The formation of condensation and a film of dirt on the windshield is prevented
- Minimized exposure to odors
- Quick and easy installation thanks to detailed installation instructions

Work smarter.

As original equipment manufacturers and development partners with well-known vehicle and engine manufacturers, Hengst informed us that the company implements the best ideas in the best quality. From the classic filter insert to the sophisticated special application, you will find a full range of service parts of consistently high premium quality. And that pays off for you and your customers. 





Hino Thailand Introduces new Hybrid Bus

Hino Motors Sales (Thailand) Co., Ltd., together with Cherdchai Corporation Co., Ltd., led by Mr. Amnuay Phongkharichit, Executive Vice President, Hino Motors Sales (Thailand) Co., Ltd. and Mr. Surawut Cherdchai, Managing Director of Cherdchai Corporation Limited have presented a new low-fare air-conditioned bus, diesel and electric (hybrid) engine for Khun Vichy. The new model was presented to the governor of Nakhon Ratchasima on April 24, at City Hall, Nakhon Ratchasima. While the engine, chassis and gearbox are supplied by Hino, the remaining components of the bus are sourced or manufactured locally.

These new buses are produced and assembled in Thailand and stylish in appearance. Application of new technology helps to improve the performance of the vehicles. In the presentation, it was highlighted that the new model helps to save fuel, reduce pollution, be friendly to the environment and allows municipals to step into Smart City concepts by targeted city passenger car users (In both Bangkok and major provinces). Furthermore, the buses are suitable for the use of transporting passengers in the airport.

This hybrid Hino bus is an air-conditioned low-fare bus with no steps. The cabin is designed to be extra-spacious. When customers configure the vehicle, they can adjust the number of seats according to usage. The engine is a new generation diesel engine with a capacity of five liters with a maximum power of 260 horsepower, matched with an electric motor. The electric motor is powered by batteries of suitable size to store enough electricity for use at all items. A Hino spokesperson said that the bus is designed to be safe, durable and suitable for use in hot regions like Thailand. The hybrid system uses the electrical energy that is generated automatically to charge back to the battery while reducing speed. This means that there is no need to use an electric charge station. Models shown come with a 6-speed automatic transmission. Engines will shut down for a while when idling causes increased fuel consumption. According to Hino, a fuel saving of between 40-50 percent can be achieved compared to conventional diesel engines (depending on traffic conditions and driver behavior). Being a hybrid bus, CO2 emissions are reduced compared to diesel buses.

The bus is designed according to the universal design concept, providing comfort to passengers of all ages, with a low-floor bus. It is equipped with a bus height adjustment system (Kneeling system) that can be used while parking, picking up and dropping off passengers. Access to and leaving the

bus is made easy for wheelchair users via a ramp. Thanks to the floor layout, space can be used for luggage or the free space can be arranged to accommodate passengers traveling with wheelchairs. When that is not the case, it can be used as a stand for passengers traveling with large luggage

Considering the climate, the buses are more convenient for passengers as they are equipped with an air conditioning system that is powered by the electricity drawn from the batteries. This means that the bus can be fully cooled at all times. Air bag support system and ABS brake system are installed to increase braking efficiency. Other safety features are installed accordance to the announcement of the Department of Land Transport.

The Hino Hybrid Bus will officially available for sale In April 2019. 



E-mobility: Continental Launches First Tyre Optimized for Electric Buses in City Traffic

Increased load index: The new Conti Urban HA3 315/60 R22.5 carries up to eight tons per axle while offering even and slow wear thanks to optimized tread compound and robust casing structure.

Tyres for electric buses need to support a usually high overall vehicle weight due to the heavy electric battery and stand instant torque delivery. To master these challenges, they need to combine grip, robustness, and above-average load carrying capacity. Continental, the technology company and premium tire manufacturer, meets this new need with its new Conti Urban HA3 315/60 R22.5 154/148J (156/150F) tires. These all-axle tyres for the safe electric passenger service feature superb grip and a load carrying capacity of eight tons per axle, 0.5 tons more than the standard for this tyre size.

The Conti Urban HA3 has an increased load index thanks to its extremely robust casing featuring high wire density and thickness. It also has a sturdy and durable tread with a high proportion of natural rubber, which increases resistance to cuts, cracks, chipping, chunking, and abrasion, and leads to a long service life and utilization of the tire's full mileage potential. Its special urban bus tyre contour layout adds to endurance and even wear, while its wide tread width ensures excellent cornering stability and handling for maximum safety in urban traffic. High-density interlocking sipes provide optimum grip and lane holding, even in extremely wet conditions, throughout the tire's service life. The sipes are also staggered in order to reduce noise for increased ride comfort. Reinforced sidewalls ensure that the Conti Urban HA3 reliably withstands frequent curbstone contact. Thanks to its good retreadability, the Conti Urban HA3 allows for multiple service lives. Three Peak Mountain Snowflake tested, the Conti Urban HA3 is well-suited for year-round use in many European regions.

"The new Conti Urban HA3 optimized for electric buses brings to fruition the valuable experience we've gathered from our recent collaboration with commercial vehicle manufacturers and municipal bus companies," says Lutz Stübner, Head of Product Management for Continental truck and bus tires in Europe, Middle East, and Africa. "Thanks to its balanced performance profile, it provides a safe, comfortable, and cost-effective solution for enabling e-mobility in challenging stop-and-go traffic." ■





Launch of World's First Full Size Autonomous Electric Bus

NTU Singapore and Volvo have unveiled the world's first full size, autonomous electric bus while two more Volvo Electric buses will soon begin trials at the NTU Smart Campus.

On March 5, 2019 Nanyang Technological University, Singapore (NTU Singapore) and Volvo Buses launched the world's first full size, autonomous electric bus. The single-deck Volvo Electric bus is 12m long and has a full capacity of close to 80 passengers. At the launch at NTU Singapore passengers on a trial run of the bus included dignitaries from the Land Transport Authority (LTA), NTU Singapore, Volvo Buses, HE Mr Niclas Kvarnström, Sweden's Ambassador to Singapore, various development partners and the media.

Key Milestone Reached

This is a key milestone in NTU and Volvo's development programme under the university's partnership with the LTA to develop and conduct autonomous vehicle bus trials for fixed route and scheduled services, which was announced in October 2016.

"This fully autonomous electric bus will play a role in shaping the future of public transportation that is safe, efficient, reliable and comfortable for all commuters," stated NTU President Professor Subra Suresh. "It will soon be tested on the NTU Smart Campus, which has been home to a number of innovations as a living testbed for technologies that impact the human condition and the quality of life."

Close Partnership

"This research project not only involves cutting-edge science, technology and AI, but is also an excellent example of close partnership among academia, industry and government agencies in translating basic research into products and services for the benefit of Singapore and beyond. And we have a top team of local and international partners in this multi-disciplinary collaboration."

The electric bus has 36 seats and provides a quiet operation with zero emissions. It also requires 80 percent less energy than an equivalent sized diesel bus.

Game Changer

Híkan Agnevall, President Volvo Buses, said, "We are very proud to be showcasing our electric bus featuring autonomous driving technology. It represents a key milestone for the industry and is an important step



towards our vision for a cleaner, safer and smarter city. The journey towards full autonomy is undoubtedly a complex one, and our valued partnership with the NTU and LTA is critical in realizing this vision, as is our commitment to applying a safety-first approach."

"As this bus is electric," Pres Agnevall pointed out, "it makes no noise. And it is pollution free so it will be able to drive right into buildings to provide a high level of service. This will change the way we build buildings." He also noted that the science that is being developed at NTU Singapore will also be applicable to other industries.

Challenges & Opportunities

The complexity of this development is evident in the number of sensors used in the bus. Some of them were developed by the Volvo Bus team working in Sweden while others were developed at NTU Singapore. Pres Agnevall explained that the two layers must be able to talk to each other and so a team was formed to integrate the software. Responding to a question from the media he said, "The integration was not a problem, but a great opportunity to have the two teams to work together and to make it happen. We learn a great from such situations."

The Volvo 7900 Electric bus is equipped with numerous sensors and navigation controls managed by a comprehensive artificial intelligence (AI) system. Ensuring maximum safety and reliability, the AI system is protected with industry-leading cybersecurity measures to prevent unwanted cyber intrusions.

Testing at NTU

Testing the sensors in Singapore provides the opportunity to work in different conditions such as high heat and humidity as well as heavy downpours that could possibly impede the work of the sensors. The Volvo bus is the first of two that has undergone preliminary rounds of rigorous testing at the Centre of Excellence for Testing and Research of Autonomous vehicles at NTU (CETAN).

Plans are in place to test the buses at NTU and to subsequently extend the route beyond the NTU campus.

This is Volvo's first fully autonomous and full sized electric bus in public transportation anywhere in the world. For this trial of a full-size single deck bus, Volvo has chosen NTU Singapore as its global partner. The NTU and Volvo partnership is part of the collaboration between the University and LTA under NTU's living lab platform. The platform assesses technology maturity and road-worthiness, including the certification of technologies for deployment on public roads.

On Road Trials

"The launch of the autonomous bus for on-road trials," noted Lam Wee Shann, Chief Innovation and Technology Officer, LTA, "marks an important milestone in the joint project between LTA and NTU Singapore to develop autonomous buses for fixed routes and scheduled services. It is in line with Singapore's vision of deploying autonomous vehicles to improve accessibility and connectivity for commuters. We will continue to work closely with NTU to facilitate the safe and robust testing of the autonomous vehicles."

The bus is undergoing rigorous tests at CETAN. Jointly set up by NTU, LTA and JTC, CETAN is a centre dedicated to research and testing of autonomous vehicles. It replicates various elements of Singapore's urban road condition, such as traffic signals, multiple bus stops and pedestrian crossings, and tropical conditions such as driving through heavy rain and partially flooded roads. Operated by NTU scientists, CETAN is located on the NTU Smart Campus in the Jurong Innovation District.

Advanced sensors and AI technology

The bus comes with a Volvo Autonomous Research Platform software that is connected to key controls such as its navigation system, as well as multiple sensors. This includes light detection and ranging sensors (LIDARS), stereo-vision cameras that capture images in 3D, and an advanced global navigation satellite system that uses real-time kinematics. This is like any global positioning system (GPS), but uses multiple data sources to give pin-point location accuracy of up to one centimetre.

The system is also hooked up to an “inertial management unit”, which acts like a two-in-one gyroscope and accelerometer, measuring the lateral and angular rate of the bus. This will improve its navigation when going over uneven terrain and around sharp bends, ensuring a smoother ride.

Comprehensive AI

These sensors and GPS platforms will be managed by a comprehensive AI system that was developed by NTU researchers. It not only operates the various sensors and GPS systems on the bus, but also enables it to navigate autonomously through dense traffic and tropical weather conditions.

The AI system is protected with industry-leading cybersecurity and firewall measures to prevent unwanted intrusions for maximum safety and reliability.

Multi-industry Collaboration

As part of the public trials, Singapore’s public transport operator SMRT will play a key role in determining the roadworthiness of autonomous vehicles on public roads. While plans are in place to test the first bus on the NTU campus, a second autonomous 12-meter Volvo 7900 Electric bus will undergo tests at a bus depot managed by SMRT. This will provide a real-world environment to assess the vehicle’s ability to autonomously navigate into vehicle washing bays and park safely at charging areas.

“SMRT is pleased to support the research and development of these eco-friendly autonomous electric buses. As part of the Autonomous Electric Bus trial, we will leverage on



our expertise in operations and maintenance of buses and work closely with our partners to test the command and control system required to operate a fleet of autonomous vehicles. This will help us to stay future-ready with the latest urban mobility solutions to enhance the accessibility and connectivity of our public transport network,” stated Mr Tan Kian Heong, Managing Director, Buses & Roads Services and Senior Vice President, Human Resources SMRT.

Fast Charging

Another partner, ABB, a pioneering technology leader in digital industries and world leader in fast-charging infrastructure for electric vehicles, will develop a smart fast-charging solution. Based on the OppCharge concept, ABB’s HVC 300P fast charge system is ideally suited for autonomous charging in bus depots as well as in running traffic.

Offering a charge power of 300kW via a pantograph mounted on the infrastructure, the fast chargers will recharge a battery in just three to six minutes. This will enable charging during the layover times at the end of the bus route, without impacting normal operations.

Tarak Mehta, President of Electrification Products division, said: “ABB is committed to pioneering technological innovations for a sustainable future. We are extremely excited to collaborate on such a landmark project which marks a positive step toward the electrification of public transport across the region and beyond.”

Pushing the Boundaries

Prof Suresh said, “At NTU Singapore and through this collaboration with Volvo Buses we have pushed the boundaries of innovation which has allowed us to make it a success in such a short period time.”

“The work done through this collaboration between NTU Singapore, Volvo Buses and are many important partners will result in cleaner, smarter and safer cities,” claimed Pres Agnevall. “We are convinced that an electric bus system will have an important role to play in reducing congestion, noise and emissions. Automated electric cars won’t solve congestion problems on their own. We need to travel together into the future.”



Transport demand set to triple, but sector faces potential disruptions

Global demand for transport will continue to grow dramatically over the next three decades. But potential disruptions from within and without could significantly change the transport sector.

Passenger transport will increase nearly three-fold to 2050, from 44 trillion to 122 trillion passenger-kilometres. Global freight demand will also triple, according to projections published today by the International Transport Forum, an intergovernmental think tank.

The impacts of eleven developments that could significantly disrupt the transport sector were also modelled for the ITF Transport Outlook 2019:

- A massive uptake of shared mobility could halve vehicle-kilometres travelled in cities and reduce urban transport CO2 by 30% by 2050.
- Widespread use of autonomous vehicles would likely increase total passenger-kilometres slightly but could still lower urban CO2 emissions - if occupancy rates are high. Self-driving trucks would shift freight from rail and rivers to trucks, with negligible impact on CO2.
- More teleworking could lower the number of urban passenger-kilometres travelled and related CO2 emissions by around 2 percent in 2050.
- More low-cost flights on long-haul routes lead to a 1 percent increase in total non-urban travel and related CO2 emissions.
- More ultra-high-speed rail systems would increase total rail ridership by 1 percent and reduce CO2 emissions from non-urban passenger transport by less than 1 percent.
- Alternative aviation fuels could dramatically reduce CO2 emissions from passenger aviation. Electrification of short-haul flights would lead to a 55 percent drop in domestic aviation emissions.
- A further rapid growth of e-commerce could increase global freight volumes between 2 percent and 11 percent by 2050, depending on the transport mode used. Freight-related CO2 emissions would increase by 4 percent.
- The large-scale uptake of 3D printing in manufacturing and for home use could reduce global freight volumes by 28 percent and related CO2 emissions by 27 percent. A high level of uptake is not very likely, however.
- New trade routes could affect global trade volumes and related CO2 emissions marginally, but can have big impacts for logistics chains and transport infrastructure.
- A large-scale introduction of high capacity trucks could lower road freight's CO2 emissions by 3 percent in 2050. If long-distance road freight can switch to low- or zero-carbon fuels, its emissions would fall 16 percent.

The ITF Transport Outlook 2019 also examines full disruption scenarios in which several disruptive developments coincide between today and 2050. All combined disruptions significantly reduce transport CO2 emissions:

- The combination of shared mobility services, autonomous vehicles, and restrictions on private cars could cut urban transport CO2 by 73 percent;
- The combined introduction of new technologies and improvements in logistical efficiency would lower freight-related CO2 emissions by 60 percent in 2050 compared to current projections.

However, such CO2 reductions will only be achieved with policies in place to guide the disruptive developments. Left to themselves, disruptions would result in much smaller emissions reductions.

Transport CO2 emissions remain a major challenge. In a scenario where current and announced mitigation policies are implemented, transport CO2 emissions are projected to grow by 60 percent by 2050.

Assuming more ambitious decarbonisation policies, they are projected to fall by 30 percent. But even this reduction would not suffice to maintain average global temperature increases well below 2 degrees Celsius above the pre-industrial era, as targeted by the 2015 Paris Agreement.

To master the challenges in the coming three decades, the report encourages transport policy makers to:

- Anticipate disruptions from outside the transport sector.
- Create policy frameworks that foster innovation.
- Set more ambitious policies to stop the growth of transport CO2 emissions.

The full report can be downloaded from <http://asianbuses.com/in-print/bus-specials/2019>



CAPAS 2019 Opens Big

The 6th edition of Chengdu International Trade Fair for Automotive Parts and Aftermarket Services (CAPAS) kick-started at the Chengdu Century City New International Exhibition & Convention Centre in China.

This year's edition of CAPAS was held from the 23rd to 25th May. With an event space of 48 000 sqm comprising of 612 domestic and overseas exhibitors, CAPAS 2019 showcased the promising automotive market of Southwest China.

Ms Fiona Chiew, Deputy General Manager of Messe Frankfurt (HK) Ltd commented on the highlights of this year's CAPAS. She said that "Our deep understanding of current policies and consumer market demands in Southwest China enables us to present the rising trends at CAPAS. The fringe programmes is also set to discuss the latest strategies for overcoming operational challenges. Visitors can sit in on many concurrent conferences, training opportunities and engage in a number of themed activities. In addition, various business matching services will improve overall sourcing efficiency by enabling visitors to find the right type of exhibitors."

Additionally, Vice President of the China Council for the Promotion of International Trade, Sichuan Council (CCPIT-Sichuan), Ms Wang Li commented on the role of CAPAS in China's automotive industry. "CAPAS is able to utilise its position and support the development of China's "5+1" modern industrial system by creating opportunities to match local industry needs, as well as bridge communication between manufacturers and parts suppliers in the Sichuan region. The fair continues to deepen its integration of 'Trade Fair, Industry, Functional Zones and Investment Promotion' by accelerating industry development. In fact, 14 developing cities including the likes of Guang'an, Nanchong and Yibin have joined this year's fair to present their local advantages to attract investment."



CAPAS continued to improve its sourcing efforts by enhancing its themed zones and categories. The seven themed zones for this year included Parts & Components, Commercial Vehicles, Accessories & Customizing, Repair, Supply Chain and Chain Stores, E-mobility & Infrastructure, Made in Sichuan and a Tyres sector. Prominent exhibitors across these zones include EMEI Bus, Hengst, Knorr-Bremse, Petro-Canada Lubricants, Shudu Bus, WABCO, YinLong and ZEV Auto.

The manufacture of new energy vehicles and smart vehicles form one of the 16 developing industries in Sichuan. As such, the E-mobility & Infrastructure Zone played an important role in CAPAS. The zone gathered key players and suppliers for new energy vehicles from Sichuan and across China. The zone also welcomed the new Hong Kong Pavilion for New Energy Vehicles. Led by the Automotive Parts and Accessory Systems R&D Centre of Hong Kong, the pavilion hosted 24 technology-based companies from Hong Kong which showcased green logistics, material and manufacturing products, as well as smart technology and mobility.

This year's edition of CAPAS strived to provide more detailed and personalised services, all whilst upholding the show's mission to support the industry growth in the Southwest region. The exhibition provided a series of visitor promotion activities and seminars in promising Sichuan cities such as Chongqi, Meishan, Suining and Zigong. As a result, CAPAS 2019 saw a 20 percent growth in buyer group participation, with many hailing from repair workshops, fleet and logistics service backgrounds.

The newly launched Business Matching Service for VIP Buyers saw great results at CAPAS 2019. Through their keen knowledge on the specific sourcing needs, the dedicated CAPAS team were able to match buyers with exhibitors based on their mutual requirements. The programme managed to boost the success rate of business deals.

CAPAS is jointly organised by the China Council for the Promotion of International Trade, the Automotive SubCouncil (CCPIT-Auto), Messe Frankfurt (Shanghai) Co Ltd and the China Council for the Promotion of International Trade, Sichuan Council (CCPIT-Sichuan). 



Choosing the Right Coach Tyre

The right choice of tyres can have a huge impact on bottom line and safety. Kenneth Teh of Kit Loong Commercial Tyre Group shares insides and tips with us on how to select the right rubber.

For coaches, which we locally call express buses, safety is always and must be the first priority when it comes to tyre concern. For both, new tyres and retread tyres, the standard of the industry must meet the Malaysia Standard guideline, which is Malaysia Standard MS-1394 for new tyres and MS-224 for retread tyres. However, a certified tyre does not mean that it is safe just as is. Maintenance of the tyre during usage is equally important which involves pressure and the detection of injury.

As a coach fleet operator, one needs to be concerned about more aspect besides safety, which is their running cost. Most of the operators might be confused when it comes to pricing and credit terms. Choosing the right tyre for their buses has always been a challenge in this aspect, as the right tyre will give them the longest milage and provides the most value to the fleet operator. Before any decision about tyre is made, we need to narrow down our list of options on categories of buses. In the market, there are long haul coaches (highway), short haul coaches and city buses. Understanding of the fleet type and routes involved in daily operation is crucial in tyre selection.

There are two different types of compounds for coach tyres: one is meant to be used mainly on highways with the nature of low heat built-up and fast heat dissipation; and the other is designed to be used on regional routes. Oftentimes, regional haul bus operator mistakenly define their bus fleet as highway-running, while doing ring-road touring or even urban city and intercity driving where the tyres have to twist around a lot. However, the latter mentioned regional haul tyre's compound is not to be confused with highway compound as the casing of the regional haul coach tyre is designed to be stronger and have higher resistant.

Assuming the average distance travelled by a highway coach tyre could achieve 250 000 km and the regional coach tyre in regional use could reach 150 000 km,

mistakenly using one for one another, the outcome will vary greatly. For example, the highway coach tyre might be able to achieve 60 000 km only on a regional coach (which is worse than using regional coach tyre on regional coach) and suffer higher damage rates as compared to solely using regional coach tyres, while if the highway coach uses regional coach tyres, the mileage achieved might be 100 000 km only due to high heat build-up in constant high speed as the regional coach tyre is not built for high-speed application. The selection can not be made by just by looking at the tyre's tread patterns as both are designed for road or highway use. But if we factor in casing designated application, there will be a vast difference in term of total kilometers achieved, hence affecting the fleet's tyre cost.

When it comes to retreading, the compound used and the liner pattern must match the original coach tyre's specification and application type. Although the origin of the casing is often not controllable, the quality of the casing grade must be high as it is going to be used on coaches and safety is still the main concern. The variances of performance mentioned so far is crucial, but the maintenance must not be overlooked as well. Coach tends to have six to ten tyres per coach, hence the pressure of each tyre must constantly meet the required pound-per-square-inch (psi). The purpose of the pressure in coach tyres differs from trucks, whereby a truck's tyre pressure is crucial to bear the load, while a coach tyre requires the constant pressure to enable the casing being seated at the right structure. This constant pressure helps coaches to maximize the contact patch of the tyre to the road, bringing out the best grip and reduce hydroplaning (loss of traction which causes instability and higher fuel consumption).

Identifying and choosing the right tyres for the right coach for various kinds of routine is crucial, and for all coach fleet operators, including, but not limited to, actual long haul, semi-long haul and semi-regional, the air pressure of each tyre must be checked daily to avoid unknown pressure loss due to leakage, which is commonly caused by tyre penetration by a foreign object. 



That's not what You should Do as a Specialist

When I am doing interviews, I often ask: "What is it that your company does?". What I am looking for is a unique description of what the business is all about. For example, if you ask Disney, they don't tell you that they make movies or operate theme parks. No, they aim to entertain. In our field, I often get a variation of "To be the leading integrated transport company...". Which means that the company that is behind this should be really good in providing transport solutions.

To provide this type of service, companies we feature have a fleet of trucks. Some have few, others a great number; such fleets might be a mix of brands and sizes or just the same vehicle times 15. And while these trucks are absolutely crucial, such companies usually also handle a lot of other things. For instance, they have a workshop to ensure that the truck fleet is always maintained and repairs can be done quickly.

However, repairing trucks is a skill that is different from those needed for the actual transportation of goods. Would it not be better to have a specialist handle the upkeep of the vehicles? Many of us can relate to football. The job of the players is to score goals (or to prevent the other team from scoring), not to be responsible for their equipment. Unfortunately, I only know the German term for the guy that does that: Zeugmeister. This person is actually responsible for the shoes and other equipment of the players. He ensures that laces are in good condition, the shoes are clean and greased. He is an expert on how to keep shoes in perfect working condition. So that the players can concentrate on what they are being paid (a lot) for: scoring goals.

The same can be said about tyres. Whenever we discuss tyre management with tyre makers, we realise that in theory this is simple. But in reality, there is a lot more to tyre management than just ensuring the right pressure once a week. It is almost like a science. And when you think of the tyres as being the one consumable

that contributes the second highest amount of cost, then one realises that this is truly an important aspect when looking at the bottom line. One of the issues that concerns tyre management is documentation: just checking tyre pressure randomly doesn't do much and one needs to be more organised around this. Tyre management itself has become such a specialised and complex field that transporters may no longer consider this as part of their jobs. Maybe here too, it is time to divest this activity and get professional help to manage this aspect if you want to be a transportation specialist and not a tyre expert.

Lubrication has also become a very complex area of running a fleet. Each moving part of a truck may require very specific lubrication and using the right brand and specification may make a big difference to performance. The current practise seems to be that lubricants are purchased based on price, rather than on quality. Given that among the engine oils one needs for a fleet that is constantly running, this may seem like a good idea *prima facie*. The wrong specifications of lubricants however, may result in loss of performance, increased wear and tear and higher fuel consumption. Most of the providers of lubricants I have spoken to are happy to offer consultative services to fleet owners in order to improve the performance of the vehicles by means of sharing their knowledge on lubrication.

Perhaps it is time that we employ more specialists in transport operations. People that really know their trade, which may be part of keeping a fleet running, but is not the core business. After all, transporters don't get involved in construction of roads. Experts in their field build them so transporters can focus on their job of transporting goods. ■

Cummins Takes a EURO VI Step Ahead with Phase-D Certified Clean Diesel



Cummins is ready to meet the next step of Euro VI emissions control with clean diesels now certified to the more stringent Phase-D regulation, following a two-year development and test programme. The B4.5, B6.7 and L9 engines with a 150 to 400 hp (112-298 kW) range for bus and coach applications will move to full production status at the Cummins Darlington facility in the UK before Phase-D takes effect on Sept. 1, 2019.

Introduced by Cummins at the UITP Global Public Transport Summit taking place in Stockholm, Sweden (June 9-12), the Euro VI Phase-D engines achieve nearer-to-zero emissions, representing an incremental step towards Euro VII regulations, anticipated to take effect after 2025.

The Phase-D regulations are particularly relevant for bus operations, as they focus on tighter control limits for Oxides of Nitrogen (NOx) emissions during lower speed city operations, as well as under cold engine start conditions.

In addition to emissions test cell verification, the Phase-D regulations require on-road testing to capture real-world measurement. Duty cycle-based testing using high precision Portable Emissions Measurement systems (PEMS) installed on Cummins-powered buses has indicated a 25 percent reduction in NOx emissions, compared to the Phase-A engines when Euro VI was first introduced in 2015.

The nearer-to-zero emissions benefit of Phase D certification will extend to the hybrid-adapted versions of the widely used Cummins B4.5 and B6.7 engines, continuing to help bus manufacturers across Europe on the road to electrification and fleet decarbonization. When integrated within a diesel-electric driveline, the 4.5- and 6.7-litre clean diesels can reduce fuel consumption and related CO2 emissions by as much as 33 percent.

For conventional diesel bus drivelines, Cummins engines featuring Stop/Start technology will also move forward to Phase-D, saving fuel and greenhouse gas emissions by virtually eliminating engine idling at bus stops. ■

SC Auto Roll Out Asia's First Integral Bus from its Myanmar Plant

Singapore's home-grown company, SC Auto, launched Asia's first integral game-changing bus, SC Neustar in Yangon on May 28. The ceremony was attended by H.E. U Thaung Tun, Union Minister, Ministry of Investment and Foreign Economic Relations, Chairman, Myanmar Investment Commission, H.E. U Phyo Min Thein, Chief Minister, Yangon Region Government, H.E. Vanessa Chan, Ambassador, Embassy of the Republic of Singapore to Myanmar, Mr Tan Siow Chua, Chairman, SC Auto.

This step not only highlighted the completion of its bus manufacturing plant in Myanmar but also marks the arrival of SC Auto's new generation complete bus, for Myanmar, SC Neustar, designed with SC Auto's proprietary Euro 3, the latest technology in the bus manufacturing industry, to deliver the complete transport solution, setting regional benchmark in terms of higher performance, greater efficiency and better economy. Mr. Tan Siow Chua, Chairman of SC Auto said, "SC Auto's manufacturing plant in Myanmar, which we inaugurate today, is yet another milestone in our strategic plans for Myanmar. I believe SC Auto will deliver remarkable change and hope to both the long-

distance express bus market in Myanmar and SC Auto. We are here to build more than just new generation of buses. The vision for SC Auto is clear – it is a world class facility serving both Myanmar and Singapore market and becoming a hub for exports to other markets in the world. As Asia's first and only integral bus OEM, we aim to set the new standard of express bus lifestyle experience by providing local consumers with our products and services, but also deeply engaging with them and giving back to the community whenever it is possible. Myanmar represents a significant role in expanding SC Auto footprint in Asia and today feels like the start of another chapter in our SC Auto success story".

Since 2014, SC Auto has invested more than S\$6 million in research and development to develop innovative automobile technology to build greater efficiency, economy and performance bus, next generation of the company – SC Neustar. It is built and certified in accordance to the global standards and has been durability tested under all weather conditions over thousands of kilometers across one of the world most challenging test tracks in Europe. ■

Allison Transmission Unveils the Most Compact, Powerful Electric Propulsion Solution for Low-Floor Bus Applications

Allison Transmission has launched the first e-axle system advanced ultra-low floor electric bus powertrains in the market. The ABE Series e-axles are one of the world's most powerful and compact fully integrated electric axle for the transit bus market.

The ABE Series integrates dual electric motors, a single or multi-speed gearbox (depending on e-axle model), oil coolers, pumps and power electronics into a bolt-in system that replaces the entire traditional powertrain within the existing frame.

It meets the power and space demands of the transit bus industry, including heavy double-decker, articulated and 3-door buses. The Allison ABE Series can operate without restrictions at regular highway speeds, and on all allowable grades. The system can handle 100 percent torque in regenerative braking. With an axle rating up to 28 660 pounds (13 tons),

the system provides more power and torque than any other e-powertrain system in its class on the market.

With a dual motor, it has continuous axle output power of 536 horsepower (400 kilowatts) and peak output power of 738 horsepower (550 kilowatts). A single speed e-axle option also is available. Its proprietary cooling allows for industry-best continuous motor power and allows the vehicle to run closer to peak power for longer durations.

An attractive feature for bus manufacturers is the system's compact design. The bolt-in ABE Series fits existing bus frames and suspensions, creating more space for battery packs and other critical electric vehicle components. The standard system is configured for a 70cm. walk through, but has an optional 11metre configuration. This makes the system applicable for 12-metre low-floor city and double-decker buses, 18-metre articulated buses and 3-door buses. 

IVECO Appoints New Business Director for SE Asia

(Bangkok) Michelangelo Amelia has been appointed IVECO Business Director for South East Asia. He takes over from K. Koray Kursunoglu who has been assigned the role of Head of High Growth Markets Asia, Africa and Middle East (AMEA) for IVECO. Mr Amelia joined CNH Industrial in 2014 as Business Director and Brand Leader for IVECO's sister brand FPT Industrial in China and SE Asia. In addition to his new responsibility for IVECO, he is also in charge of the commercial operations for CNH Industrial's powertrain business in South East Asia.

Mr Amelia brings more than 20-years experience gained across the Asia Pacific region. Prior to joining CNH Industrial, he held senior management positions in the powertrain and automotive industry, in financial institutions and in manufacturing. He holds a Master's Degree in Accounting and Financial Control for Large Companies and a Bachelor's Degree in Economics. In his role as Business Director Mr Amelia will support IVECO's business operations in the region with the aim of strengthening the brand's presence in the markets.

"I see a lot of opportunities to further grow the IVECO brand in South East Asia. This is a fast-growing and challenging region where the



demand for trucks, buses and vans continues to rise. At IVECO, we are determined to participate in this growth together with our partners." Mr Amelia will be based in Bangkok with responsibility for Thailand, Malaysia, Indonesia, Papua New Guinea, Vietnam, Philippines, Taiwan, South Korea, Japan, Singapore, New Caledonia, French Polynesia, Myanmar, Laos and Cambodia. 



Volvo Meets PEMBAWA



On April 30th, Volvo Buses organised “A day with Volvo Malaysia Bus Association Members PEMBAWA (Persatuan Pengusaha Bas Ekspres Melayu Semenanjung Malaysia) at Volvo Group Malaysia Shah Alam office.

18 bus operators from across the country joined this event and were given the opportunity to understand and experience Volvo’s latest products and services offerings.

The three key topics discussed were:

- Introduction to Volvo Brand and Volvo Buses Malaysia.
- Aftermarket offering and solutions.
- Product line up in Malaysia.

“Volvo Buses always strive to enhance the aftermarket support and solutions for our customers as it plays a big part in their operating costs. We are excited to showcase our services offerings such as; Telematics, i-Coaching and the Gold

Service Agreement, which supports our customers on fleet management and reducing total cost of ownership” said Aftermarket Manager, Ahmad Zuhril.

In Malaysia, Volvo Buses offer the Volvo B11R, with 430hp and 370hp and the Volvo B8R, suitable for city, intercity and coach applications. Subramaniam Vikneswaran, Sales Manager, said “Our products have long service intervals - up to 60,000km. It is my pleasure to present our product line to all PEMBAWA members and share the success story of our presence in Malaysia and globally. At Volvo Buses, we always keep customers business in mind”.

“This session allows us to provide a complete simulated experience about our product and offering to all PEMBAWA members. We believe knowledge sharing with our customers is key to reach optimal success” concluded Mahadevan Santhanasamy, Country Manager of Volvo Bus Malaysia. ■



MIROS and Virginia Tech Transportation Institute Sign MOU

A Road Safety Symposium for Postal, Courier and Logistics Industry (POSCAL) 2019 was held on the 25th of June at the Palm Garden Putrajaya Hotel. The symposium, which was attended by participants from the postal, courier and logistics industry in Malaysia, was aimed at providing exposure on road safety situations, especially those involving the industry. During the program, the impact of the program Sampai Dengan Selamat (SDS, Arrive Safe Program) was presented. The symposium was also attended by the Chairman of the Board of Directors of MIROS, YBhg. Datuk Suret Singh, Director General of MIROS, YBr. Dr. Siti Zaharah Binti Ishak, Head of Post and e-Fulfillment, Puan Rafidah Binti Haji Ismail, Director of Bus and Truck Safety Center, Virginia Tech Transportation Institute (VVTI), USA, Dr Richard Hanowski and President of the ‘Association of Malaysian Express Carriers’, Mr Bernad Yeoh.

Continuing to aspire to collaborate with international partners, MIROS partners with the US-Based institute to conduct research into all areas of road safety.

MIROS has also signed a Memorandum of Understanding (MOU) with the Virginia Tech Transportation Institute (VTTI), the United States of America. VTTI is a US transportation institute with specialized expertise in bus and truck safety research. Proper and proven effective research and intervention capabilities when conducted in the US can be adopted and implemented in Malaysia to enhance the safety of logistics operations especially those involving heavy vehicles. The Memorandum of Understanding was signed by the Director General of MIROS, YBr. Dr. Siti Zaharah Binti Ishak and Director of Bus and Truck Safety Center, Virginia Tech Transportation Institute (VVTI), USA, Dr. Richard Hanowski, witnessed by Deputy Transport Minister of Malaysia, YBhg. Dato ‘Haji Kamarudin Bin Jaffar and MIROS chairman, Datuk Suret Singh. ■

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