

THE FUTURE OF TRANSPORT

To prepare for wide-ranging changes in the transport industry brought about by the exponential growth of smart technologies, big data and artificial intelligence, ComfortDelGro has been investing in technology – and the creativity of its people.







FOR THE TRANSPORT INDUSTRY, THE FUTURE IS NOW.

Significant disruptions in business models have come from aggressive newcomers with new technologies. Old realities are giving way to nascent but increasingly powerful new business forms.

Companies such as Uber, Grab, Gett and Didi Chuxing provide new and well-funded competition in the marketplace. With attractive rental rates for drivers and hefty fare rebates and promotions for passengers, they have shaken up the taxi industry worldwide. Many are able to thrive in markets by exploiting regulatory loopholes — including being exempted from getting vocational licensing.

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As regulators around the world grappled with how best to balance the demands of the commuting public with the need for a level playing field, we looked at new and innovative ways to compete. In Singapore, for example, we introduced flat fare booking in April 2017 which proved extremely popular with customers. In the first 10 days of its launch, the number of flat fare bookings crossed the 100,000-mark.

We also explored ways to work with the competition — and in December 2017, entered into a joint venture with the world's largest ride-hailing company — Uber Technologies, Inc.

The agreement was for the acquisition of a 51 per cent stake in Uber's Singapore car rental subsidiary, Lion City Holdings. Under this plan, the private hire cars will come under our strong fleet management capabilities while our fleet of taxis will benefit from being on Uber's world-class app. This potential alliance not only strengthens both partners but also offers customers more choices, shorter waiting times and greater reliability.

And while the agreement is currently confined to Singapore, it marks a turning point in our history as we leap-frog into the private hire ride-hailing business.

Another significant trend in the transport industry is the move towards greener vehicles. Vehicles that run on alternative fuels will become increasingly popular, whether these are electric, hybrids, whether they run on fuel cells or compressed natural gas (CNG). This push is being led by consumer demand as well as government regulation. The German parliament, for example, has called for a ban of diesel vehicles by 2030 while Britain and France have reported that they will ban new petrol and diesel cars from 2040. China, the world's largest car market, has set a target for electric and hybrid car sales to hit at least 20 per cent by 2025.

According to Morgan Stanley, by 2050, half the cars on the road globally, a billion in total, will be battery powered, of which 90 per cent can be charged at home.

SPARKING MOBILITY: ELECTRICITY IN GOTHENBURG

Route 55 is a small drive into the future.

In the Swedish town of Gothenburg lies Volvo's innovative, all-electric bus route, running from Lindholm to Chalmers in the City. The route is 7.6km long and takes 25 minutes end-to-end.

Quiet and emission-free, it is a public bus system that threads into the very fabric of life in the town. One of the end charging stations is in a working library, complete with a cafeteria.

Amidst patrons drinking coffee and eating breakfast, a clean and quiet bus takes a three-minute pause in its journey to complete charging. The electricity also powers free Wi-Fi and USB chargers on board the bus.

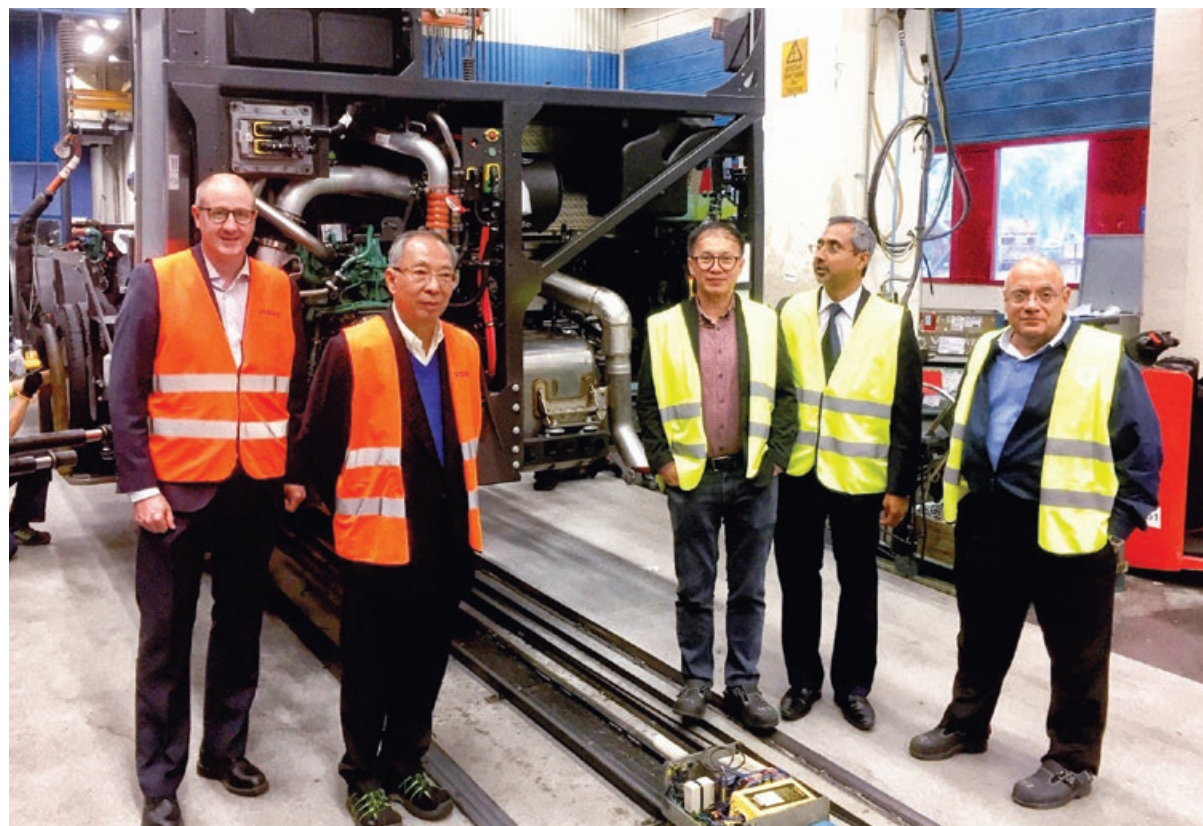
These buses have been in operation for 16 months and have already attracted over 1.7 million passengers.

As the world struggles with the effects of noise and air pollution, many cities and indeed countries are now considering a rapid move towards electrification of all passenger transport systems.

Metroline, one of London's leading bus operators, already has several years of experience in operating hybrid buses, with a fleet of over 500 double-deckers. It is also carrying out trials of the world's first electric double deck vehicles, as part of a Transport for London pilot. New trials are coming up in Singapore and Australia.

Together, these experiments give a glimpse of the possibilities as well as difficulties of installing new technologies, and how a large manufacturer such as Volvo sees the future unfolding.

In Gothenburg's 'ElectriCity', we see what happens when stakeholders — commuters, local government, city planners, transport planners, vehicle manufacturers, transport operators and universities — come together. Clean, quiet and affordable mobility — a route that works for everyone.



A small delegation from ComfortDelGro with Chairman Mr Lim Jit Poh, Managing Director/ Group Chief Executive Officer Mr Yang Ban Seng, UK & Ireland Business Unit CEO Mr Jaspal Singh and Metroline Engineering Director Mr Ian Foster, recently visited Gothenburg, where Volvo is headquartered, to see Route 55 first-hand



“A developed country is not a place where the poor have cars. It’s where the rich use public transportation.”

Mr Enrique Penalosa, Mayor of Bogota

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Morgan Stanley



Car manufacturers are responding to this demand. Volvo, BMW and Mercedes Benz are all going electric or hybrid in their new models.

General Motors (GM) will launch 20 models of electric vehicles by 2023 and Toyota has announced that it is unlikely to launch a new diesel model in future.

UBS estimates that electric car sales will outnumber diesel vehicles within five years. We believe that electric vehicles and hybrids are the future and we are already gearing up for it. For example, we have hybrid vehicles in our taxi fleets in Singapore. We introduced Toyota Prius taxis in 2016 and we have started trialling the Hyundai Ioniq, another hybrid vehicle. In China, we have dual-fuelled taxis that run on both CNG and petrol.

In the past, the lack of charging stations, the low battery capacity and the long charging times required for electric vehicles meant that they were not practical. Manufacturers today, however, are promising that their vehicles can now travel for comfortable distances in-between charging. Tesla says that its cars can cover 354km between top-ups while Korea's Hyundai is promising a range of 500km.

Leading the charge in London is our subsidiary Metroline, which unveiled the world's first fully electric double-deck bus in 2016. Five of these buses, which can travel for 306km between charges, are already operating on Route 98 in London, which runs between Willesden Garage and Holborn.

In Singapore, charging stations will soon be set up within our fuel-selling premises as we do what we can to up our Green Quotient.

Autonomous vehicles are another trend that we are monitoring. Developments in machine learning and artificial intelligence, combined with the trend of increasingly faster, smaller and cheaper computer processors, could create computer driven vehicles that will be safer than those driven by humans.

As sensors improve, become cheaper and multiply, as artificial intelligence gains ground and as new



technologies emerge, these will fundamentally reshape the transport industry. Already, carmakers such as Tesla are marketing their Autopilot feature which allows drivers to take their hands off the wheel on stretches of road. GM has a Super Cruise technology that allows drivers to go hands-free on highways.

Full autonomy is probably only a matter of time. Audi has said that in 2018, it will release a car that can drive itself but which will allow the driver to take over in an emergency. Waymo, the self-driving unit of Alphabet (parent company of Google), is developing a system which does not require any human intervention at all.

Trials for autonomous vehicles are taking place all over the world. In Singapore, an ongoing trial for autonomous vehicles in one-north will be expanded to neighbouring areas such as the National University of Singapore (NUS), Singapore Science Park 1 and 2, Dover and Buona Vista.

There are predictions that self-driving buses could be operating on Singapore roads as early as 2020. As it stands, the Land Transport Authority has already inked an agreement with ST Kinetics to develop and trial such buses. The plan is to test two 40-seater electric buses in places such as the NUS campus and Jurong Island before eventually putting them on public roads.

For sure, this is something we are keeping a keen eye on with plans to be a forerunner in its eventual roll-out.

While the smartphone revolution has created new challenges, it also holds new promise. One advantage of the ubiquity of smartphones is that it can be a source of valuable data for transport companies. Given that most commuters are now holding location-aware, always-connected smartphones, this means that transport companies such as ours will be able to harness vast amounts of data about commuter behaviour not previously available.

The availability of Big Data can help us understand how and when commuters travel, enabling us to better adjust our schedules to meet demand. The data can enable us to improve the commuting experience as well as provide new revenue streams, giving us the opportunity to give passengers a better ride and shareholders stronger returns.

As a company, we do not fear technology. We were one of the earliest companies in Singapore to recognise the value of having a location-aware, online taxi booking app.

We are also not afraid of investing in technology either. In 2017 alone, we invested S\$38 million on technology and information technology.

Going forward, we fully expect these figures to grow exponentially.