

Automotive World MAGAZINE

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Auto industry braces for a post-COVID world

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Editor's note

The auto industry braces for a post-COVID world

It's difficult to imagine right now, but there will be a time after the pandemic. And when that time comes, and we reflect on the devastation caused by COVID-19, what will be the image that best illustrates its impact on the automotive industry? Ventilators? Facemasks? Empty dealership forecourts? A strong contender will be the fleets of stationary oil tankers floating near shorelines, many queuing to dock after months on the water, others serving no purpose other than to store surplus oil.

With cars unused, planes grounded and factories barely operational, oil demand has plummeted, reserves are overflowing, and toilet paper and flour are currently more valuable commodities. The glut has underlined the world's thirst for oil and the fragility of an industry led by supply rather than demand.

As the world emerges from coronavirus lockdown, factories will restart, vapour trails will return to the skies, roads will fill up, and fossil fuels will flow again, but a surprise announcement by two of the world's largest truck manufacturers has changed the debate over future propulsion. A Daimler-Volvo fuel cell truck joint venture is a major bet on FC technology; it also underlines the challenges of bringing FC vehicles to market—it's not easy, not cheap, and not something either felt it could do viably or quickly on its own. Most significantly, it speaks volumes about the work that has been done—and is yet to be done—by a certain Utah-based truck maker.

There will be a time after the pandemic, and it'll be a time of altered attitudes and different behaviour. The automakers, suppliers and others with their sights set on future mobility—such as Nio, Lynk & Co and Havn, all featured in this issue—need to work out how to get through today, in order to be ready for a new tomorrow.

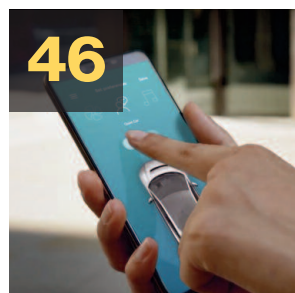
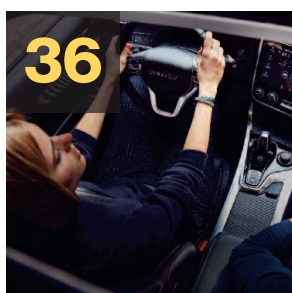
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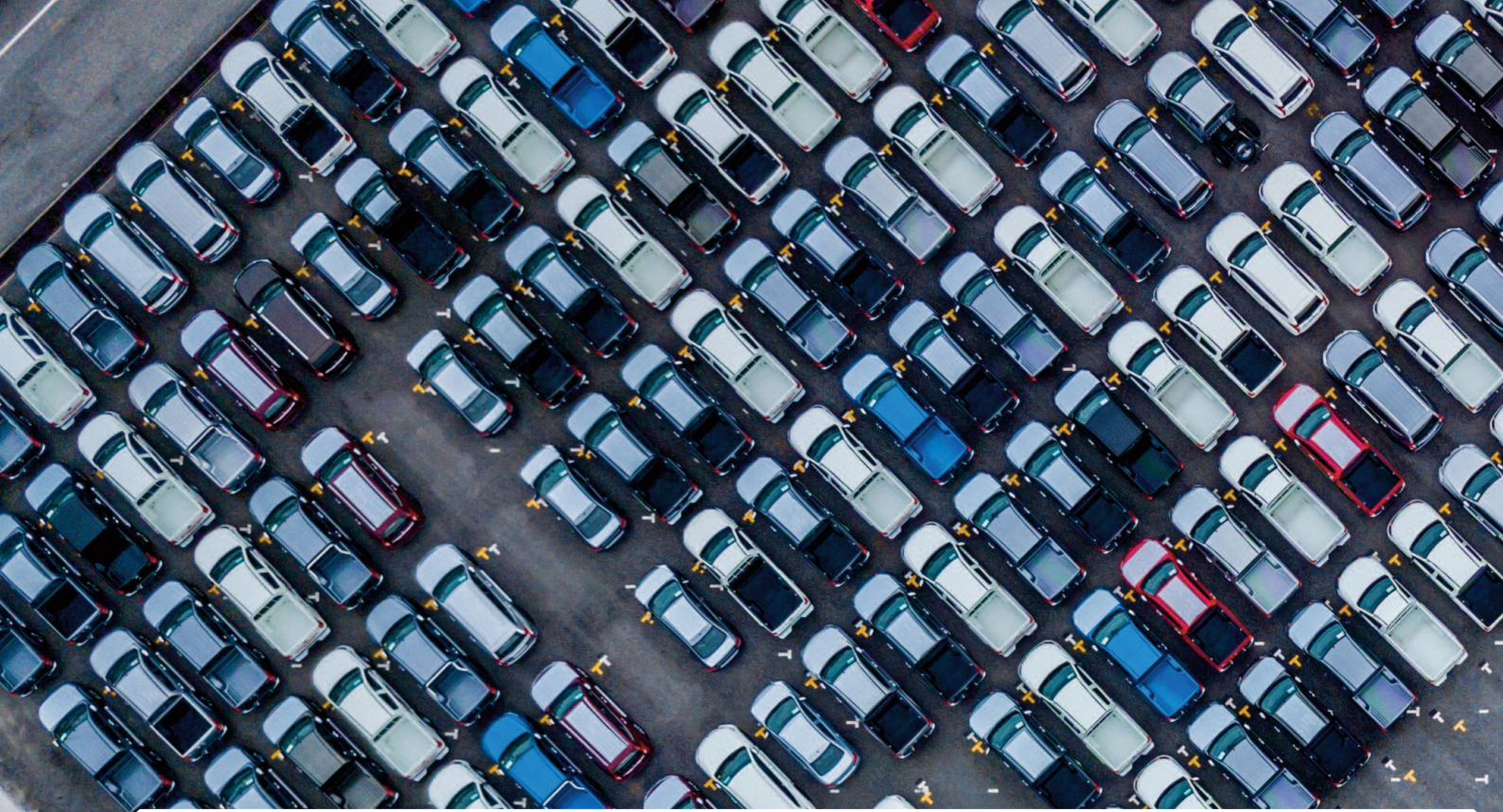
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COVID-19 could result in at least 20 million lost vehicle sales

The impact of the coronavirus on the auto industry will be severe, according to AlixPartners. Auto execs should prepare for impact—and for a post-COVID-19 world.

By Martin Kahl



The impact of the novel coronavirus (COVID-19) on the automotive industry is likely to result in at least 20 million units of missed car sales—and quite likely many more. That’s according to automotive industry experts at AlixPartners.

In China, a lengthy production stoppage followed the planned factory shutdowns in February for new year celebrations, resulting in millions of units of lost production. Most factories in China have resumed production, with one automaker, Polestar, even starting production of an all-new model, but this restart came just as factories in Europe and then North America and elsewhere in the world began to fall silent. Ambitious restart dates have been suggested by various automakers, with Renault one of the only companies to firmly state that its operations in France at least would be suspended until further notice.

A beacon of hope?

The resumption of production in China has sent an upbeat message to industry in the rest of the world, and the automotive industry in particular, but restarting production after an unplanned break is a slow process. For a variety of reasons, [it can take a considerable length of time to get a factory back to full speed](#), especially when the shutdown is not limited to just one company or one country, but effectively the whole world.

Understanding what lies behind news of Chinese factories starting up again is important, notes Andrew Bergbaum, a Managing Director at AlixPartners. “We know the Chinese car plants are back up and running, but it is clear that the ramp-

up is less steep than others would have liked. A number of our clients who have Chinese production and supply to the Chinese assembly plants say the orders they are getting and the call-offs they are receiving are at rates below full production takt time.”

Reasons for a slow restart include the need to implement social distancing within the factory, supplier parts being in the wrong place or not available at all, and the fact that there is no on-off switch for a sudden production restart. “Add to this the fact that this involves global shutdowns,” notes Sean O’Flynn, a Managing Director at AlixPartners. “The suppliers’ build-up plans were based on restarting production in China, but now production also needs to be restarted in North America and Europe.”

Bergbaum reveals that early feedback from Tier 1 suppliers in China suggests that while the market appears to be picking up in terms of vehicle sales, the plants are currently operating well below capacity. “We believe that production ramp-up is going to be slightly slower, even in China,” he adds, “which of course then means it will be slower everywhere else. Production will restart with destocking, as consumers come back in and plants take a while to get back up again.”

Two scenarios

Two scenarios have been identified by AlixPartners to predict the impact of COVID-19; the first, ‘Global decline 2020’, would result in a minimum 16% decrease in global sales, while the second, ‘Global recession 2020/21’ would see global sales slip by at least 22%. To put that into perspective, during the 2008/9 financial

crisis, global sales dropped 8.2%, but car dealerships stayed open, sales continued, and most production lines remained operational.

The situation is such that the impact of COVID-19 could lead to around 20 million units of missed car sales, notes Bergbaum, adding, “And certain feedback we’re getting is that this is too conservative.”

Those missed car sales are a result of falling demand and disrupted supply. “Access to new cars was not a problem during the financial crisis. Today, in many countries, you cannot place an order for a new car, and it may be that way for three weeks or more. People cannot leave the house to go and buy a car.”

Add to that the uncertainty that this pandemic has created around general job security, and the impact that this will have on vehicle sales, adds O’Flynn. “People are concerned about their own personal income and liquidity, and that has an impact on sales. This is then further impacted by the inability to access the car market, and car and supplier factories being forced to close by governments.”

Bergbaum points out that growth of the global vehicle market since the 2008/9 financial crisis has been such that “a three-week

global production shutdown now takes out more vehicles from the market than the entire two-year dip between 2007 and 2009—and most of the plants are expected to be closed for around that length of time”.

It’s all about liquidity

Convert those lost sales into financial terms, and the numbers are eye watering. “Our estimation is that for every 1 million reduction in vehicles, €5bn (US\$5.5bn) in cashflow is taken out of the system for the automakers,” notes Bergbaum. It goes without saying that the industry as a whole can ill afford to lose €100bn of investable cash, hence the speed with which automakers are prioritising liquidity management, fortifying balance sheets, and seeking to secure multi-billion-dollar credit lines. “And a typical supplier operating at around 3-6% profitability, and managing cash well, will break even after one or two months of lost production.”

This leaves automakers in the difficult situation of needing to decide how to prioritise volume and value products and schedule output once production resumes. The safety and health of the workforce of course should be the top







Jaguar Land Rover initially planned to resume production in late April, although it acknowledged that this would be subject to rapidly-changing circumstances

priority, but assuming a restart is safe, the focus should be on cash, says Bergbaum. “Companies need to ensure they have liquidity. Whether it’s high value or low value, it is about ensuring that cash comes into the business, and optimising production for cash flow and liquidity.”

The socio-economic impact

An additional factor for consideration is the wider societal and socio-economic impact of this global health crisis. US unemployment figures at the end of March and the start of April hit a record high, ten times higher than the country’s previous unemployment record; and although the US numbers

are particularly high, other countries will also be hit hard.

One factor behind the particularly high numbers in the US is the country’s open labour market, explains Bergbaum. “In Italy, Germany, France and the UK, the regulations surrounding terminations are long standing and getting tighter, so as long as the employers continue to exist, workforces will continue to be employed.” It is easier in the US to implement a large redundancy programme, and then re-hire when required, he notes. “Are we going to see a similar level of unemployment to the US with continually liquid companies in Europe? It is unlikely—but we are in uncharted territory. What is clear is that we need to do

everything we can to help companies stay afloat.”

Survival guide

The AlixPartners mantra is that restructuring is always better than liquidation. Nobody knows how to deal with a global pandemic that causes global shutdown; how, then, can this mantra be applied to what the world is now experiencing?

“On our ten key pillars to address COVID-19 disruption, liquidity conservation and cash flow management is clearly critical,” explains Bergbaum. “Accessing funds from lenders is also key. By now, most firms have drawn down on their easy-to-access funds. Some are also doing a deep analysis of their current

lender agreements and capital market conditions. Having a solid 13-week rolling forecast of cash needs, a revised business plan, and an understanding of a desired revised capital structure will accelerate any negotiations with lenders.”

This, of course, raises the question of what happens when companies cannot afford to survive the crisis, particularly with no end in sight to social distancing and stay at homes orders. What can we expect to

second point about buying distressed assets is fascinating. There is still investment potential, with private equity houses and tech companies sitting on large war chests.”

Going into 2020, macro trends were already creating pressure within certain parts of the automotive supply chain as companies responded to reductions in the top line and the development of new technologies, notes O’Flynn. “Many investment funds were

under threat from technology trends, but are still cash positive in the short to medium term. “These were the kinds of targets such investors were looking at in the automotive industry. What COVID-19 has done is to effectively accelerate that situation for some of those assets. A number of funds, many of which are our clients, are very actively looking at these assets to see where they can find fundamentally good businesses that, with capital being made available to them, will get through the crisis situation.”

“

The impact of COVID-19 on the automotive industry is likely to result in at least 20 million units of missed car sales—and quite likely many more

see in terms of M&A activity, and should we expect to hear about the re-emergence of crisis restructuring?

“There are two separate points here,” notes Bergbaum. “M&A activity for maximising shareholder value will be reassessed; and if a company had an M&A strategy that suggested divestiture at a certain price, that will need to be completely reassessed. The

already looking at investment strategies, particularly on the lending side, because with bank lending into the automotive market slowing, this created an opportunity for things like special situation funds to lend in there.”

This, he explains, means assets where they might have a reduced top line but were still fundamentally profitable and in need of recapitalisation, or assets where longer-term viability was

Be prepared

Liquidity aside, the key message from AlixPartners is that preparedness is essential for surviving the coronavirus pandemic. In a briefing note in which the organisation explained why it had decided to abandon as unrealistic an earlier third scenario, which proposed a Chinese-style V-path to recovery for Europe and North America, AlixPartners urged automotive executives to prepare for the rebound—and to be bold: “There is no doubt that a current focus on staying afloat, a flexible mindset, and preparedness for when operations pick back up will be the keys to survival and resiliency. Use this as a chance to challenge areas that you may not have been willing to question in the past.”

The actions that automotive executives take now will define how their companies—and how the industry—will look and function in a post-COVID-19 world.

COMMENT:

To succeed at CASE, automakers first need to succeed at COVID-19

Liquidity is key, and cash is king; as the coronavirus pandemic goes on, automakers will have increasingly difficult decisions to make about future technology investments, writes Martin Kahl

Now well into the second quarter of this year, the challenges that lie ahead for the automotive industry are becoming alarmingly clear, and quarterly earnings illustrate the difficult position from which the automakers will be operating.

Much is being made of car and truck factories starting up again in Europe and the US, but automakers are approaching any restart in very different ways, from the bullish to the sheepish; just as China's restart has been slow, those factories now turning the lights back on are still far from getting back to normal production and will rely heavily on a number of factors, including sufficient demand, supply chain readiness and supplier survival.

The sudden and unplanned suspension of production and sales has seen automakers and

suppliers hemorrhaging cash as reserves quickly dried up—it turns out the sums involved in not producing and not selling cars are eye watering, and automakers are doing all they can to secure the credit lines that will help them through the crisis. Liquidity is key, and cash is king; as time goes on, companies that had already begun bolstering the core aspects of their businesses will have some difficult decisions to make.

Challenges are coming from all angles. At a macro level, [stock market volatility and the oil price crash](#) have added considerable uncertainty to markets already confused by mixed messaging about essential and non-essential business. At a factory level, management faces the complexities of balancing vehicle assembly with social distancing, and the question of how to put more vehicles through already blocked finished vehicle

pipelines, with imported cars stacking up in European and US ports.

The gradual reopening of car dealerships in key markets such as the US and Germany provides a vital lifeline to automakers desperate to see sales restarted, but demand will need to be stimulated, and it looks increasingly likely that various markets will opt for some kind of scrappage scheme to generate interest in new vehicles.

Producing a confident outlook for 2020 at this time is challenging at best. No-one wants to put a number on a global forecast for the full year, but automakers and analysts have begun suggesting a decline in global vehicle sales of around 25%. Writing in the latest issue of '[The automaker data book - Q1 2020](#)', *Automotive World's* quarterly review of automaker business operations,



Jonathan Storey notes: “At this stage of the pandemic, it is already clear that the automotive industry will take a major hit in 2020. The major automakers are all likely to report a loss for the year and global sales will be substantially below the 2019 level. Without government assistance, some automakers could go under as a direct result of the pandemic, and there will be material disruption to the automakers’ ability to develop and launch new models and technology.”

Reports of a recovery in US sales are encouraging—but any sales that follow no sales are by their very nature a recovery. There’s never a good time for a crisis, and the automotive industry has been particularly hard hit at a particularly challenging time.

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There will be a time after the pandemic, but succeeding at CASE means first succeeding at COVID, and that means making and selling cars


Already financially stretched as they scramble to reinvent themselves for a new era of mobility, automakers now need to justify continuing to fund untried, untested technologies and business models, and pull the plug if they cannot. Consider here GM’s quiet termination of Maven, and how easy the decision would be for companies to reassign R&D priorities if economic pressure eases or delays the introduction of

emissions targets in key markets such as China, Europe and the US.

The need to prepare for a new era of mobility has been usurped, for the foreseeable future, by a need to get back to something resembling the old era of mobility. There will be a time after the pandemic, but succeeding at CASE means first succeeding at COVID, and that means making and selling cars.

The Automotive World Comment column is open to automotive industry decision makers and influencers. If you would like to contribute a Comment article, please contact editorial@automotiveworld.com





Fortified balance sheets essential for auto industry's coronavirus survival

Automotive companies are tapping liquidity, protecting cash reserves and battening down the financial hatches as survival mode kicks in, writes Megan Lampinen

The novel coronavirus has paralysed much of the world's automotive industry, sending automakers and suppliers scrambling to bolster their balance sheets and shore up enough of a cash cushion to see them through the worst of the crisis. Sales are all but paralysed and production is halted—and that can be financially devastating. AlixPartners estimates that every 1-million-unit reduction in vehicle sales hits takes €5bn (US\$5.5bn) out of automaker cash flow. Given the scope of the potential downturn, the impact could be huge.

“The reality is that we’re looking at somewhere in the

region of 20 million units of missed car sales, and certain feedback suggests that this is too conservative,” said Andrew Bergbaum, Managing Director at AlixPartners.

Volkswagen Group is reportedly burning through €2bn a week in fixed costs. VW is one of the luckier companies, as it entered the crisis with a relatively strong balance sheet, having ended 2019 with a €10.8bn net cash flow and net liquidity of €21.3bn. Even so, Group Chief Executive Herbert Diess posted a warning on LinkedIn that the company may find itself resorting to “drastic measures to protect liquidity.”

It’s a similar story for the commercial vehicle players, most of which have withdrawn their financial outlook for 2020. CNH Industrial, Iveco’s parent company, has said it is currently evaluating “all possible actions to reduce costs and protect its financial position and liquidity.” Traton has warned that pinning down a forecast at this stage would be “impossible”, but said it was confident that its solid financial base would see it through. “In this situation that is weighing on the economy as a whole, the fact that we are able to lean on a sound balance-sheet structure is to our advantage,” observed Traton’s Chief Financial Officer Christian Schulz.



Volkswagen Group Chief Executive Herbert Diess has warned that that the company may need to resort to “drastic measures to protect liquidity”

In March, General Motors confirmed that it would draw down approximately US\$16bn from its revolving credit facilities, adding to its previous cash position of between US\$15bn and US\$16bn it expected to report at the end of March

Leverage support that's offered

“The key point in this is survival for automotive companies,” Bergbaum told *Automotive World*. “They are being super smart with cash, tapping everything that’s available to them—from short working grants to government guarantees.”

Several markets are offering or preparing to offer economic stimulus programmes to see companies through the worst. “I would advise companies to leverage the opportunities available to them, though these vary by market,” said Randall Miller, EY Global Advanced Manufacturing & Mobility Leader.

The UK announced various forms of support for businesses impacted by COVID-19, including a loan support scheme, a job retention scheme, deferral of VAT and self-assessment payments and a statutory sick pay relief package for small and medium sized businesses. The US recently approved a US\$2tr stimulus package, under which vehicle and parts suppliers could benefit from a 50% employee retention tax credit and suspension of the employer share of payroll taxes.



Segment players should also benefit from government loans. However, with the 2009 government bailout still fresh in their memories, US companies have been loath to request industry-specific aid. Instead, there have been more general calls that the whole economy needs urgent access to liquidity.

The supplier segment is pursuing similar strategies. “Relaxing state aid rules and providing tax breaks, investment guarantees, loans and other means are essential to help ensure the survival of many healthy companies which are hit by the crisis,” commented Sigrid de Vries, Secretary General of the European Association of Automotive Suppliers (CLEPA). Recent research by CLEPA in collaboration with McKinsey found that 95% of suppliers surveyed want to see fiscal support from various governments; 76% have called for measures to increase access to liquidity.

Steel giant ArcelorMittal had been transparent in its intention to pursue government support. “In order to mitigate the impact of the lower level of production we are implementing significant measures to preserve cash and reduce costs in-line with reduced production levels,” a company statement reads. “This includes accessing measures introduced by governments to support companies throughout these unprecedented times. We are thankful to all governments for their swift introduction of such measures which will be critical to many industries as we navigate this period.”

Low-hanging fruit

Another form of low-hanging fruit is salary costs, and the Big Three are all taking action on this front. Fiat Chrysler (FCA) is asking salaried employees to take a 20% cut in pay for a few months, while FCA’s Group Executive Council accepts a 30%

cut. Chief Executive Mike Manley is taking a 50% cut, while Chairman John Elkann and the board of directors have agreed to forgo the rest of their 2020 compensation. “Protecting the financial health of the company is everyone’s responsibility and naturally starts with myself and the leadership of FCA,” Manley wrote in a memo to employees.

When it comes to the automotive value chain, nobody is immune from the virus fallout. “Up and down the value chain there is a huge challenge around financial conditions,” emphasised EY’s Miller. “Virtually every conversation we have with companies is focussed on how to make sure they have enough liquidity to make it through the

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Coronavirus is here now, but there will also be a time after coronavirus. When that time comes, companies need to be ready

Similar steps are under way at other automakers. General Motors has also reportedly warned thousands of employees that it will need to shave 20% off their salaries for a short time, while Chief Executive Mary Barra will take a 30% cut. Ford’s top 300 executives will defer large chunks of their salaries, between 20% and 50%, for at least five months. As of May 2020, Bill Ford, Chairman, will defer 100% of his salary until at least September, while Chief Executive Jim Hackett, Chief Operating Officer Jim Farley and Chief Financial Officer Tim Stone will defer half of their salaries. Even smaller players are at it: lubricant specialist Liqui Moly’s Managing Director has said he would be willing to waive his entire salary if necessary.

shutdown timeframe and the impact of COVID-19 itself.”

AlixPartners has whittled down its advice to companies into ten key pillars, one of which is to ‘prevent liquidity shortages and manage working capital and inventory’. “This aspect is clearly critical,” said Bergbaum. “Accessing funds from lenders is also key. By now most firms have drawn down on their easy-to-access funds. Some are also doing a deep analysis of their current lender agreements and capital market conditions. Having a solid 13-week rolling forecast of cash needs, a revised business plan, and an understanding of a desired revised capital structure will accelerate any negotiations with lenders.”

In response to the coronavirus pandemic, Daimler has secured a €12bn loan facility with four banks, in addition to a previously agreed €11bn revolving credit facility that runs until 2025

Daimler has secured a €12bn loan facility with four banks, in addition to a previously agreed €11bn revolving credit facility that runs until 2025. In late March, General Motors confirmed that it would draw down approximately US\$16bn from its revolving credit facilities as “a proactive measure to increase GM’s cash position and preserve financial flexibility.” The company said it regarded the cash position at the end of March, which stood at between US\$15bn and US\$16bn, as strong. “We are aggressively pursuing austerity measures to preserve cash and are taking necessary steps in this changing and uncertain environment to manage our liquidity, ensure the ongoing viability of our operations and protect our customers and stakeholders,” Barra stated.

Investment strategies

In the rush to conserve cash, some companies are scaling back capital expenditure. Ashok Leyland has slashed its planned capex this year by 40%. It took a similar step late last year in light of the slowdown in India’s

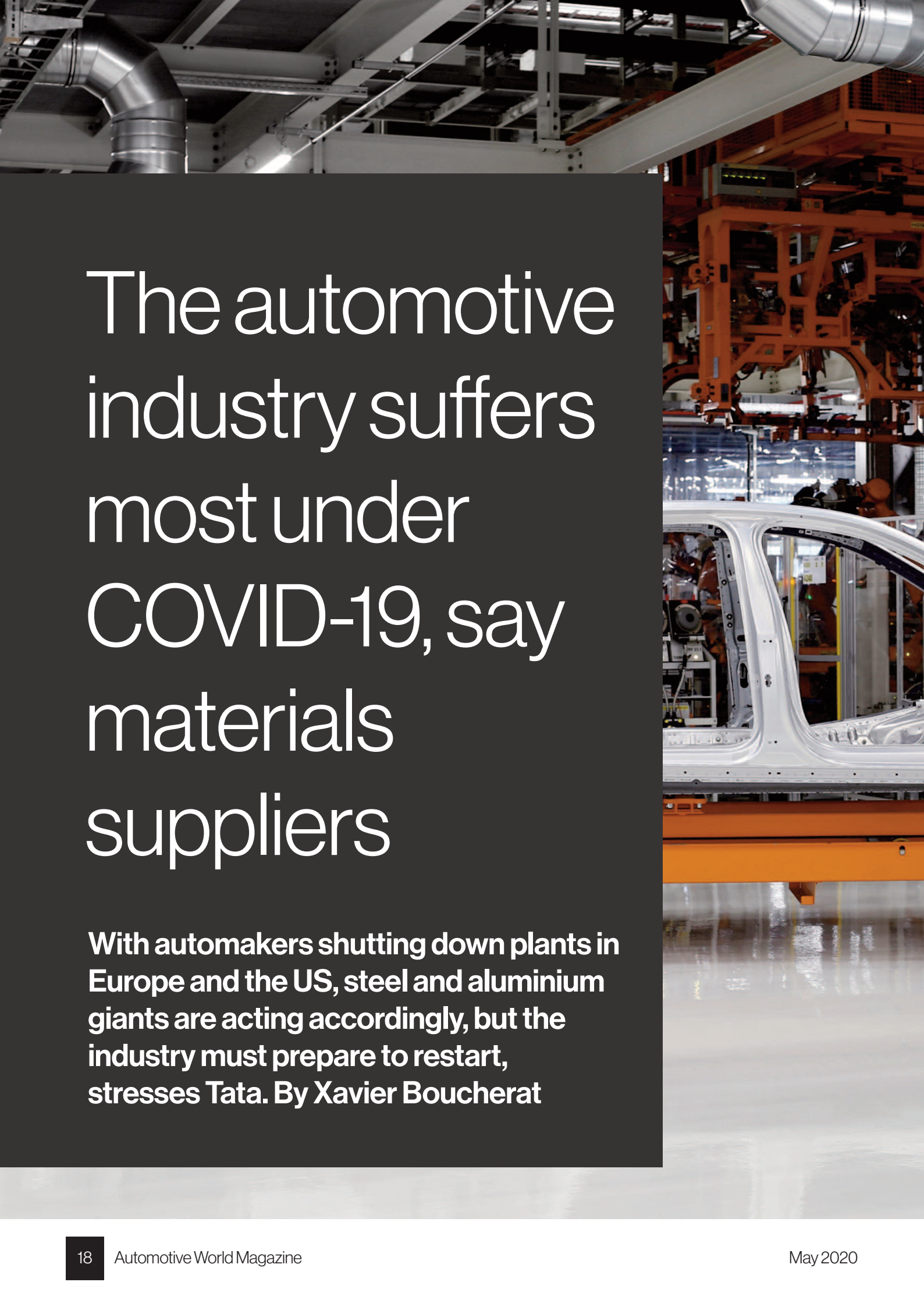


commercial vehicle sector, but the pandemic has prompted another reduction. One of AlixPartners’ ‘top ten pillars’ advises companies to “continue selectively investing and dynamically manage capex and expense budgets”. Plenty of others are doing just that. FCA recently secured a €300m loan for R&D projects around electrification while BMW confirmed plans to invest €30bn on future-oriented technologies. Both of these announcements coincided with widespread plant closures by both automakers across Europe. “Coronavirus is here now, but there will also be a time after coronavirus,” commented BMW Group Chief Executive Oliver Zipse. “When that time comes, companies need to be ready.”

For some, that means divesting non-core businesses or acquiring new areas of expertise. “[Before the crisis hit], macro trends were already creating pressure within

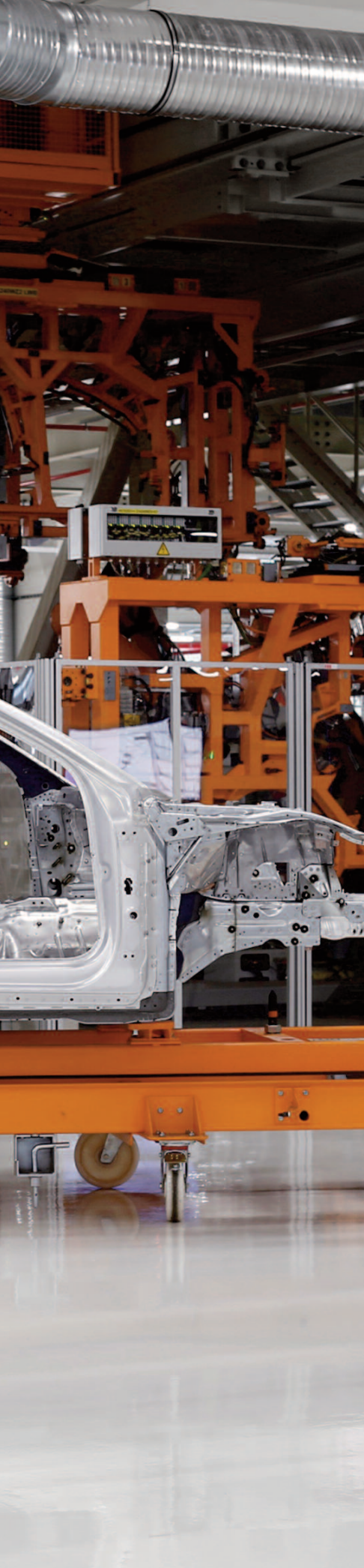
certain parts of the automotive supply chain as companies responded to reductions in the top line and the development of new technologies,” said Sean O’Flynn, Managing Director, Automotive and Industrial Goods at AlixPartners. That means that many investment funds were already eyeing assets that might have a reduced top line but were still fundamentally profitable and in need of recapitalisation. “COVID-19 is effectively accelerating that situation for some of those assets,” O’Flynn added. “A number of funds are very actively looking at these assets to see where they can find fundamentally good businesses that, with capital being made available to them, will get through the crisis situation.”

Bergbaum backed this up, adding: “On the one hand our clients are thinking about how they survive and on the other they are thinking about who they might want to buy.”



The automotive industry suffers most under COVID-19, say materials suppliers

With automakers shutting down plants in Europe and the US, steel and aluminium giants are acting accordingly, but the industry must prepare to restart, stresses Tata. By Xavier Boucherat



Shutting down a car factory is one thing. Shutting down a blast furnace is an entirely different matter, a complex and largely undesirable process which can take weeks and prove extremely costly. Getting a furnace back online can similarly take weeks, and those producers who go ahead with a shutdown risk missing an upturn in the economy. In short, it is something that nobody wants to do.

(COVID-19) pandemic that the situation is under regular review, but as Haider explains, modern steelmaking means that a shutdown remains entirely unlikely.

“To reduce the output of a blast furnace, there are different instruments,” he says. “You can reduce daily output and, in effect, idle the furnace to avoid completely shutting it down. We need to do this so that when the

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Governments must soon consider easing restraints such that automakers can restart production. The situation is changing daily, but discussions are already under way, and we currently see a partial return to capacity after Easter

Karl Haider is Chief Commercial Officer at Tata Steel Europe. For now, he says, Tata’s order books are such that production at both its major sites in Europe—Port Talbot in South Wales, UK, and IJmuiden in the Netherlands—can continue. Such is the rapidly changing nature of the novel coronavirus disease

market starts to pick up again, we can ramp up production to meet mass market demands. This is something we are prepared for.”

The shuttering of vehicle plants around the globe spells turbulent times for the supplier, with around 26% of its business focused on the

Demand in the food packaging industry remains strong, but the automotive sector has already proven to be one of the most vulnerable to COVID-19



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The industry would struggle to cope with another three months of this,” Haider says, “and governments must soon consider easing restraints such that automakers can restart production

automotive sector for body-in-white, structural and other applications. With advanced, lightweight steel solutions certain to play a key role in meeting stricter emissions targets and enabling widespread electrification, Tata is convinced that steel will remain the material of choice for automotive manufacturers, and will therefore be keen for a timely restart.

Tata is not alone. ArcelorMittal, the world’s largest steelmaker, has also announced it will respond to automaker shutdowns, going so far as to idle a blast furnace at its Indiana Harbour West facility for integrated flat-rolled products.

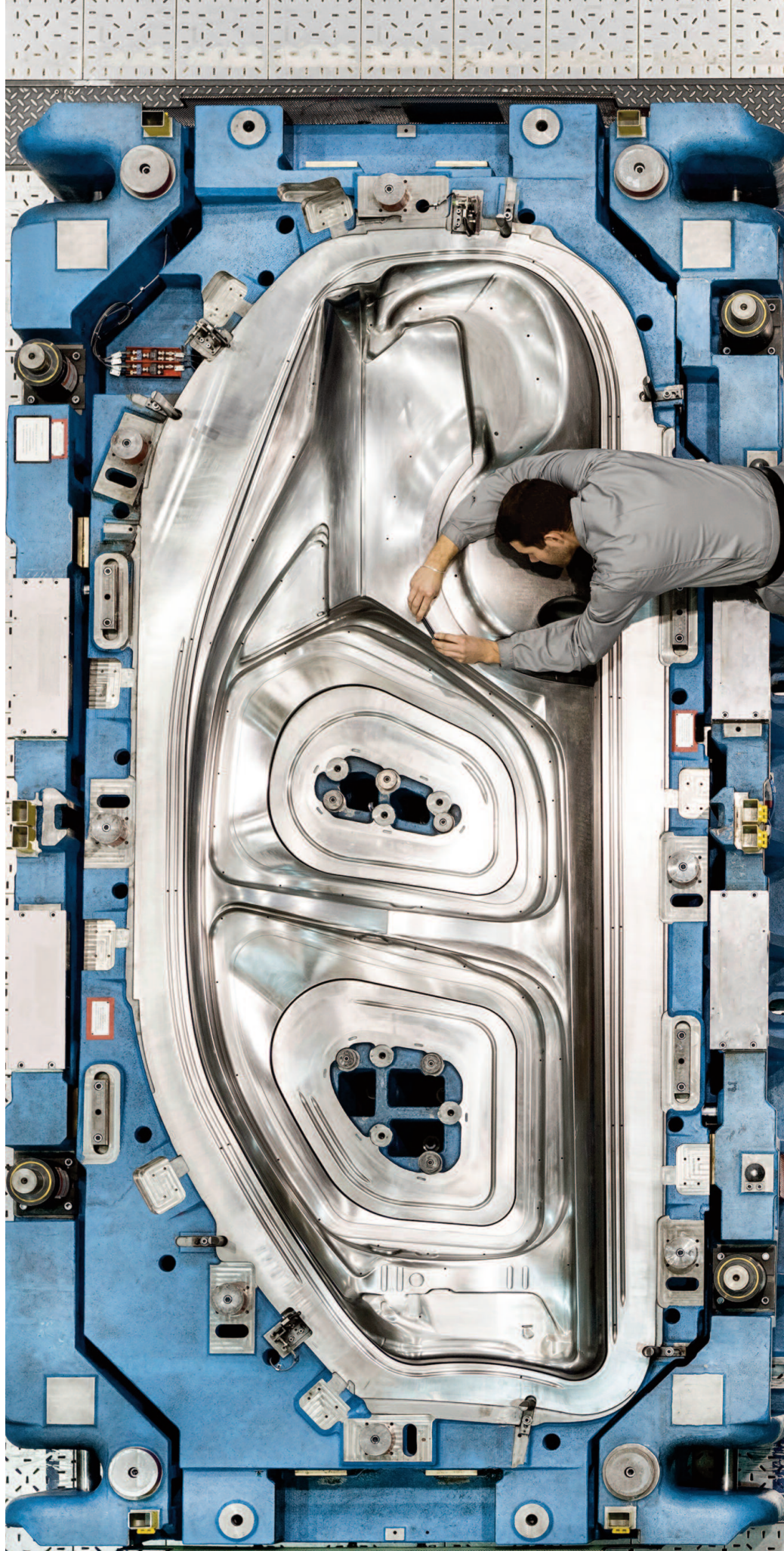
This leaves only one blast furnace operational at the site, with another furnace having been idled in November. In addition, it has implemented production stoppages at its facilities in Spain, with the Aviles mill operating at half capacity and the Sestao plant shutting completely.

“The global escalation of COVID-19 and the measures introduced by governments to contain the virus are negatively impacting economic activity and industrial supply chains in many parts of the world,” said the company in a statement. It also stressed the non-uniform nature of the global pandemic, meaning that actions taken will differ by market.

Haider agrees. “Tata Steel feels the impact,” he says. “It changes slightly depending on the industry and the region of Europe. In this situation, sector and geography are important considerations.” Demand in the food packaging industry, for example, remains strong, but the automotive sector has already proven to be one of the most vulnerable.

Alternative metal

Meanwhile, competitors in the aluminium sector are also feeling the pinch. Novelis, which supplies the likes of Ford among others, has partially shut down production at its plant in Scriba, New York. The facility will continue to serve the beverage can and



To help industry get back up to speed as quickly and safely as possible, restrictions will have to be eased, but only when the time is right



speciality markets. Like companies the world over, Novelis has enforced social distancing policies, including teleworking, employee monitoring and limiting the number of workers on site. Alcoa has implemented similar policies, including a global ban on non-essential travel, but reports that all of its facilities remain open.

Norway-based producer Hydro is idling two recycling plants in Europe, as well as close extrusion plants in France, Spain and Italy. In a statement, the company agreed that the impact of COVID-19 is most visible in the automotive segment. Like in the steel

industry, demand across other segments such as beverage packaging is still relatively stable.

Back to it

Much remains uncertain about COVID-19, but one thing that is clear is that major markets will eventually recover, and vehicle production will recommence. Haider says governments need to start preparing for this now, to aid in as speedy a recovery as possible. Already in China, some production capacity is coming back online: SAIC, BMW, Daimler, Volvo and Toyota have all resumed operations in the country.

The ramp up to full capacity will be gradual, however. Sales in China were down 80% year-on-year in February, and much of the country remains under restrictions to prevent the spread of the virus. In order to help the industry get back up to speed as quickly and safely as possible, restrictions in place will have to be eased, but only when the time is right.

“The industry would struggle to cope with another three months of this,” Haider says, “and governments must soon consider easing restraints such that automakers can restart production. The situation is changing daily, but discussions are already under way, and we

Around 26% of Tata Steel's business is focused on the automotive sector for body-in-white, structural and other applications

currently see a partial return to capacity after Easter.”

It is unclear if European markets have seen peak infection, but there are some signs that badly affected areas may be getting a handle on the situation. Despite the extension of lockdown conditions to 13 April, health officials in Italy believe the infection rate is slowing. The country's death toll—13,155 at the time of writing—is the highest in the world, but the daily figure is dropping. Health Minister Robert Speranza urged caution, however: “It would be

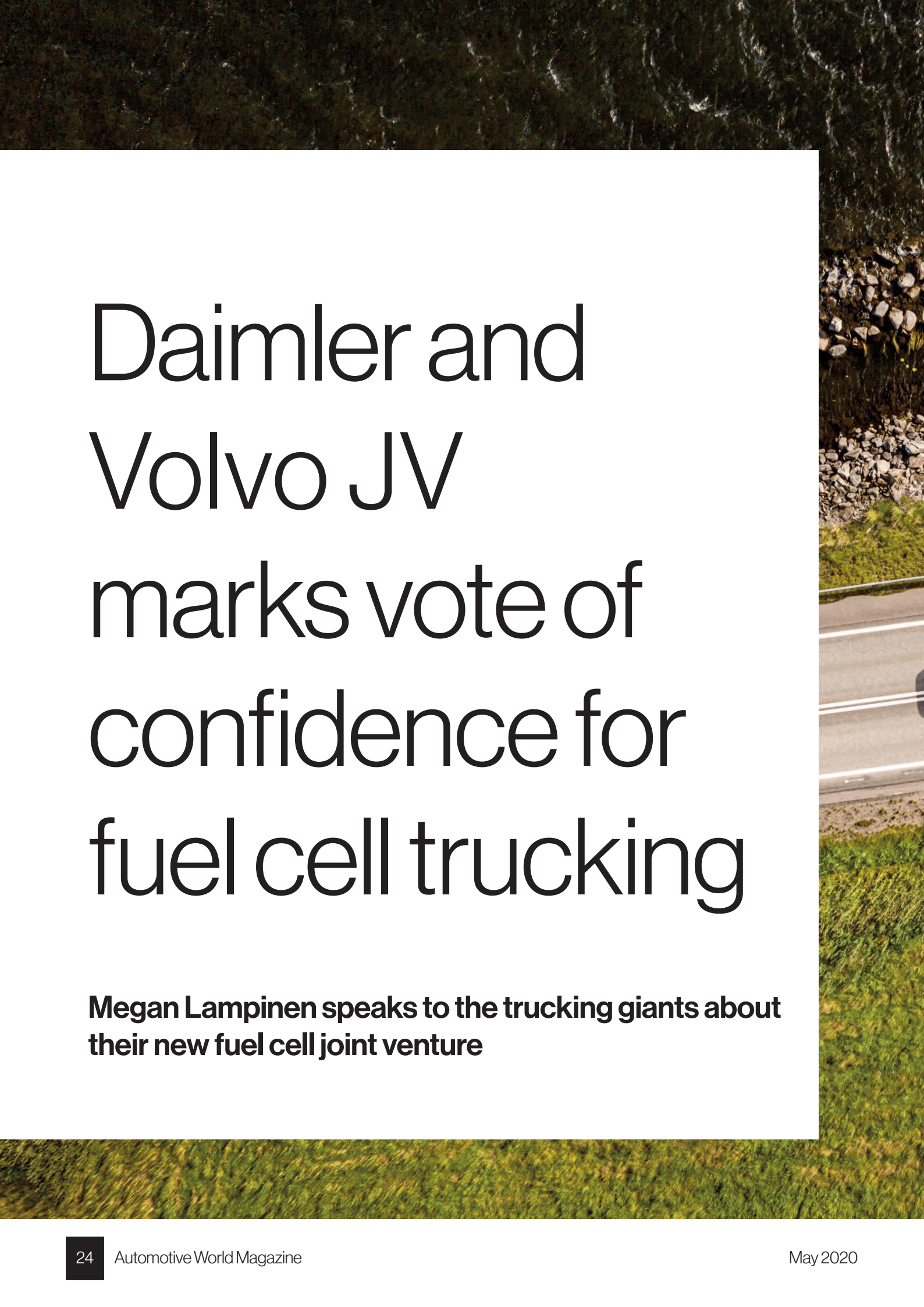


“

Tata feels the impact. It changes slightly depending on the industry and the region of Europe. In this situation, sector and geography are important considerations

unforgiveable to assume this was a definitive defeat of COVID-19”, he said in a statement, and warned the country it was in for a long battle. VW Group and FCA are among automakers who have shuttered plants in the country.

In addition, says Haider, governments will need to continue providing financial support. In China, he points out, the country is already pouring billions into infrastructure products to kick-start the economy and return to business as usual. Not every country will have the means to enact this, admits Haider, but Tata is encouraged by what it sees in the UK, the Netherlands and other markets where it has manufacturing operations.

An aerial photograph showing a road winding through a landscape with green grass and rocky terrain. The road is visible on the right side of the page, curving downwards. The overall scene is captured from a high angle, looking down on the terrain.

Daimler and Volvo JV marks vote of confidence for fuel cell trucking

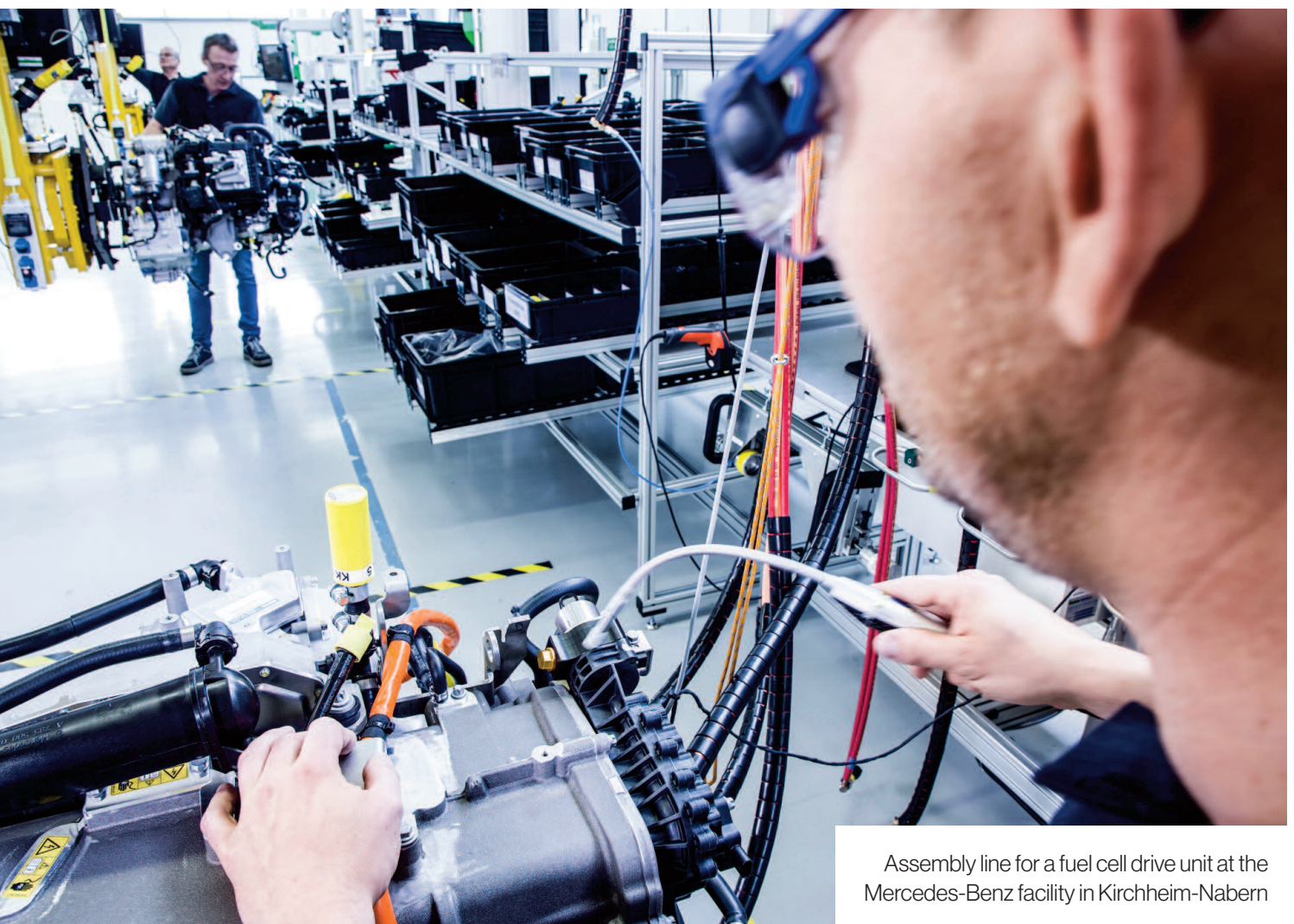
Megan Lampinen speaks to the trucking giants about their new fuel cell joint venture



The truck industry has run predominately on diesel for years, but societal and regulatory pressures to clean up emissions are forcing automakers to invest in alternative technologies. Under the European Green Deal, the region aims to become carbon neutral by 2050. Electrification of road transport is a key element of that. For trucks, this comes in two forms: batteries to store electricity or hydrogen fuel cells to generate electricity. While battery electric configurations are proving popular in return to base applications and light commercial vehicles, hydrogen is seen as a better fit for long-haul applications.

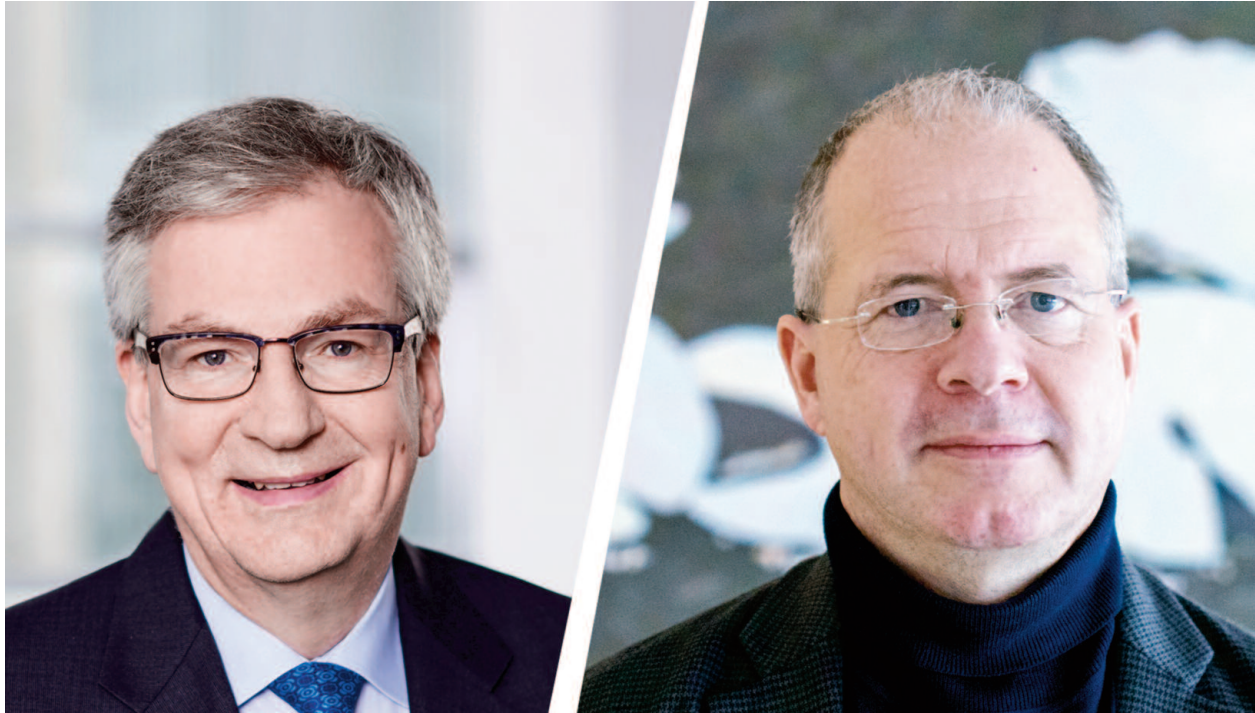
The technology just received a massive vote of confidence in the form of a new joint venture between two industry heavyweights. Daimler Trucks and Volvo Group are pooling resources to develop and commercialise fuel cells for trucks and stationary applications. Daimler Trucks Chief Executive Martin Daum hailed this as an “historic day in trucking” and the highlight of his 30-year career.

The wider Daimler Group has more than 25 years of experience in fuel cells, and will bring all its assets in this area into the new venture, which will be set up as a separate legal entity. Volvo will



Assembly line for a fuel cell drive unit at the Mercedes-Benz facility in Kirchheim-Nabern

Martin Daum and
Martin Lundstedt



pay €600m (US\$650m) for a 50% stake in that entity. On top of this, the two will each invest around €100m initially, but more will be required down the line. The sums are significant, particularly in light of the current cash crunch resulting from the novel coronavirus, but there's no holding back industry progress.

“While COVID-19 has impacted our everyday lives and our business, we have not lost sight of our long-term strategic objectives for industry and society,” Martin Lundstedt, Volvo Group President and Chief Executive, told media and investors. “The number one issue at the moment is climate change and the need to reduce humanity’s carbon footprint.”

Leading the way, but following Nikola

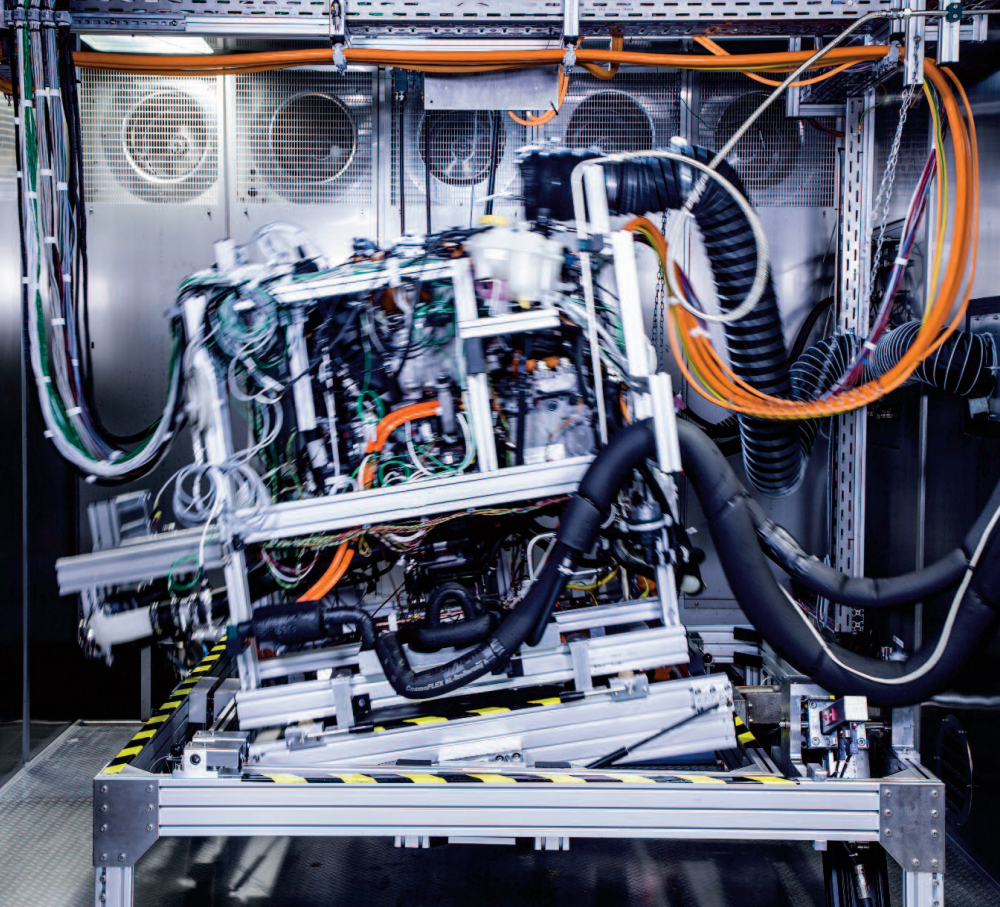
Sustainable transport is a key element in this effort, and with this new project Daimler and Volvo take that up a level. These two automakers see themselves as forging the path in terms of hydrogen technology.

“Partnership is the new leadership,” asserted Lundstedt. It’s also the only way these two players could pull together the necessary financial backing or develop the technology quickly enough.

However, they will not be first to market with a hydrogen long-haul truck. That honour is likely to go to Nikola Motors, which aims to have its initial hydrogen fuel cell trucks on the road by 2023. Most

importantly, Chief Executive Trevor Milton has promised that Nikola’s models will top their diesel equivalents across every metric—from horsepower and torque to cost, range, weight and, of course, emissions. “We have had to overcome many major hurdles to develop a truck that can finally beat a diesel in every category,” Milton asserted.

Can Daimler and Volvo promise the same? The two Martins were much more reserved in their response. “To fulfil the Paris Accord 2050 commitment, we can’t sell any more combustion engines,” Daum told *Automotive World*. “That means work has to start as early as 2040, as trucks have a pretty long lifespan—at least ten years. We have to find a CO2 neutral solution for all types of truck applications. Therefore,



Development tests on the drive unit of the Mercedes-Benz GLC F-CELL in Kirchheim-Nabern

yes, a fuel cell truck has to deliver the same performance as a diesel, for durability, torque, strength, and efficiency. That last area is potentially the most difficult, as for the foreseeable future it will be more expensive. We will have to see how regulations develop.”

Lundstedt was similarly lukewarm in his outlook for how fuel cells might stand up to diesels. The message again seemed to be that this was more of a necessary investment, and not that either party had an ace up their sleeve that was going to revolutionise the industry. “The reason for the JV is to get the right performance for the fuel cell stack,” he explained. “Deployment of that stack will be down to the different parties, whose job it is to make competitive applications in their respective vehicles or other applications.”

Not exactly on par with Milton’s confident assertions that hydrogen advances spell the death of diesel. But unlike Nikola, Daimler and Volvo do not see hydrogen as the only fuel of the future. “Hydrogen fuel cells are an important part of the parcel,” said Lundstedt. That ‘parcel’ will also include battery electric setups. Daum shared a rule of thumb by which the company operates: the longer the route and the heavier the load, the more likely you will need to generate energy onboard the truck, namely, in a fuel cell. The shorter the route and the lighter the load, the more likely you can use a battery. “Fuel cell technology is key to reach the target of CO2 neutrality,” said Daum. “We need this in addition to battery electric vehicles.”

With this in mind, Daum confirmed that the company will not be pursuing fuel cell technology for passenger cars at this time, unless a significant new market opportunity arises. It will, however, leverage all the work done by Mercedes-Benz on passenger car fuel cells and apply it to the new joint venture with Volvo. It’s not a straight transfer, however. “The challenges in the commercial vehicle sector are unique,” a Daimler spokesperson told *Automotive World*. “In fact, it is

The PEM fuel cell is structured like a sandwich

a completely different challenge to develop a one- to two-ton passenger car with a fuel cell drive than it is a 40-tonner with correspondingly high payload and performance. And this alternative drive must also make sense to our customers in terms of acquisition costs, total cost of ownership, service life and payload capacity.”

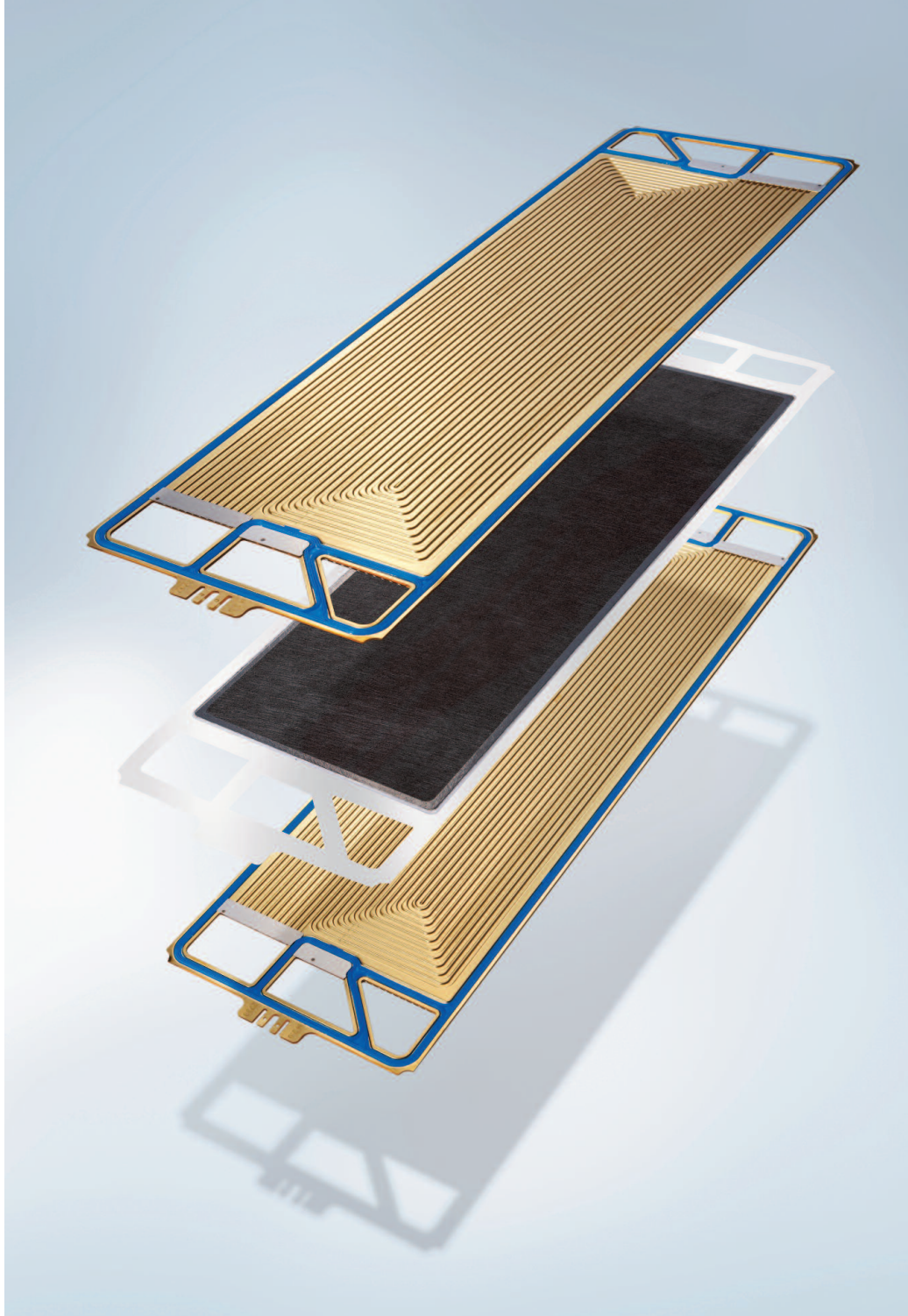
“Most competitive, most capable”

At the end of the day, Volvo and Daimler aim to offer the “most competitive, most capable fuel cell system in the market,” according to Daum. What that means in terms of specifications remains to be seen, but they will be going up against Nikola’s line-up, which at the moment promises a range of 500 to more than 1,000 miles on a single tank of hydrogen fuel. In terms of performance, Nikola says its trucks offer about 1,000hp on the rear four wheels, sending more than 2,000 lbs of torque. That torque range is applicable all the time, from 1rpm to 12,000rpm. In real world driving, that translates into a real advantage. For example, a Nikola truck could travel up a 6% grade pulling a 40 ton load while maintaining a speed of 65mph indefinitely.

Other companies are also at work on fuel cells, including suppliers like Bosch. Daum conceded that, in general, technological developments at other industry players did influence its own strategy: “We put competitive pressure on them as they put pressure on us. It is the essence of the free market and has driven the industry for the last 100 years and will drive it for the next 50

years... I’m not afraid of any other company.”

There is no hard and firm launch date for series production, but Daum said he expects to see “gradual commercial deployment” of trucks with this new technology in the latter part of this decade. For now, the joint venture awaits approval from the appropriate authorities.





One SAFE bet: new US vehicle emissions rule is headed for court

The Trump administration believes the SAFE Vehicles rule makes cars safer and cheaper, but a legal challenge by automakers and US states appears inevitable. By Ian Graig

In late March, the Trump administration released a long-awaited final regulation easing Obama-era greenhouse gas (GHG) emissions and fuel economy standards for passenger cars and light trucks. The so-called Safer Affordable Fuel-Efficient (SAFE) Vehicles rule, which follows an earlier action targeting California's vehicle emissions standards, is scheduled to be published on 30

GHG emissions standards, calling for automakers to make a 1.5% improvement over model year (MY) 2020 standards annually from MY 2021 through MY 2026. The final rule is more stringent than the Trump administration's original preferred proposal, which would have frozen standards at MY 2020 levels, but it is far less stringent than the 5% average annual improvement required under Obama-era GHG emissions rules.



The administration projects that lower prices will result in 2.7 million more new vehicle sales through MY 2029, with those newer and safer vehicles resulting in 3,300 fewer crash fatalities over the lifetimes of vehicles built through MY 2029

April. The rule will be subject to many court challenges, and its fate will remain unclear for months or even years, giving little clarity on the standards that automakers will need to meet in future years. The outcome of the battle over the rule, which could be affected by the outcome of the 2020 US elections, has significant implications for the future of the automotive market in the US.

The SAFE Vehicles rule would ease light vehicle fuel economy and

The Trump administration argues that the SAFE Vehicles rule will reduce the price of new cars, which in turn will lead people to buy newer, safer, and less-polluting vehicles. The administration projects that lower prices will result in 2.7 million more new vehicle sales through MY 2029, with those newer and safer vehicles resulting in 3,300 fewer crash fatalities over the lifetimes of vehicles built through MY 2029. The administration also argues

SAFE Vehicles Rule

OVERALL IMPACT

\$1,400

REDUCED COST
per new vehicle



2.7

MILLION MORE
vehicles sold



PROJECTED SAFETY IMPACT

from making newer, safer, cleaner cars more affordable

3,300

FEWER
crash fatalities



397,000

FEWER injuries
over lifetimes of new
vehicles through MY 2029



PROJECTED ENVIRONMENTAL IMPACT

New vehicles
will still be

SUBJECT to the
Clean Air Act

and to higher pollution standards
than those retired by this rule.



Average required
FUEL ECONOMY
will be

40.4
MPG
by MY 2026.



For more information on the SAFE Vehicles Rule,
check out [NHTSA.gov/SAFE](https://www.nhtsa.gov/SAFE).



U.S. Department of Transportation
National Highway Traffic Safety Administration



14797-033120-v5

that the Obama-era rules were based on economic and market assumptions that no longer apply, including an assumption that fuel prices would be higher and passenger cars would account for a larger share of the light vehicle market.

The SAFE Vehicles Rule is the second part of the Trump administration's effort to roll back Obama-era vehicle emissions standards. In

The SAFE Vehicles rule was praised by many Republican lawmakers and free-market groups, but Congressional Democrats, many state governors, and environmental groups were highly critical. Much of the criticism focused on the analyses underlying projected benefits of the rule, with critics questioning the basis for projections of increased vehicle sales and decreased traffic fatalities. Critics noted, for example, that many of



The fate of the rule is likely to be decided in the courts or at the ballot box, since the election of a Democratic president in November would certainly result in the writing of new and more stringent standards

September 2019, the administration published a final rule, the One National Program, which revokes a federal waiver letting California implement its own GHG emissions standards for light vehicles and its zero-emission-vehicle (ZEV) program. The rule also blocked 14 other states from continuing to implement California's standards, something they are allowed to do under the Clean Air Act provided California has a federal waiver.

the vehicles traded in would be five or fewer years old, and there is not as significant a safety difference between those and new vehicles. The rule itself projects that higher levels of pollution could cause 444 to 1,000 more premature deaths from air pollution, but environmental groups argue that underestimates its impact. Critics also note that the health effects will include an increase in chronic diseases that could make people more

susceptible to viruses like COVID-19. Finally, critics project that a motorist could end up spending about US\$500 more on gasoline over the life of a vehicle as a result of the rule.

Environmental groups also expressed concern about the SAFE Vehicles rule's potential impact on the market for electric vehicles (EVs), since the rule is projected to slow growth in the EV market because automakers will face less pressure to produce and sell EVs to meet the slower annual rates in fuel economy improvement. The effort to block California from implementing its ZEV program would merely

California air districts, and environmental groups. Minnesota and New Mexico have announced they will adopt California's standards despite the actions by the Trump administration. The One National Program rule split the automotive industry: a large group of automakers supported the Trump administration's action, but four other automakers (Ford, BMW, Volkswagen, and Honda) stood by an earlier deal with California for a 3.7% annual increase in GHG emissions standards starting in MY 2022. Volvo recently joined that group.



Critics project that a motorist could end up spending about US\$500 more on gasoline over the life of a vehicle as a result of the rule

compound this issue, since California is the largest EV market in the US.

The One National Program rule has been embroiled in court cases since it was published last year, with legal challenges brought by California and a coalition of 23 states and localities, several regional

California and other states and localities, environmental groups, and potentially some companies will now bring legal challenges against the SAFE Vehicles rule as well, potentially creating years of regulatory uncertainty for the automotive industry. As the legal process continues to unfold, California may choose to adopt different



measures and attempt to prohibit the sale of non-compliant vehicles within the state to enforce its standards—actions that would no doubt be challenged by the automotive industry.

The Alliance for Automotive Innovation, the largest US automotive industry group, noted that the SAFE Vehicles Rule does establish some “near-term compliance obligations” for the industry, adding that the biggest opportunity for environmental benefits “will happen as we look to longer-term policies beyond 2026”. But the final rule leaves the automotive industry in a difficult position, caught in a policy war between state and federal regulators that will increasingly be fought in the courts.

While automakers called on President Trump to ease the Obama-era standards soon after he was elected, the administration’s two regulatory

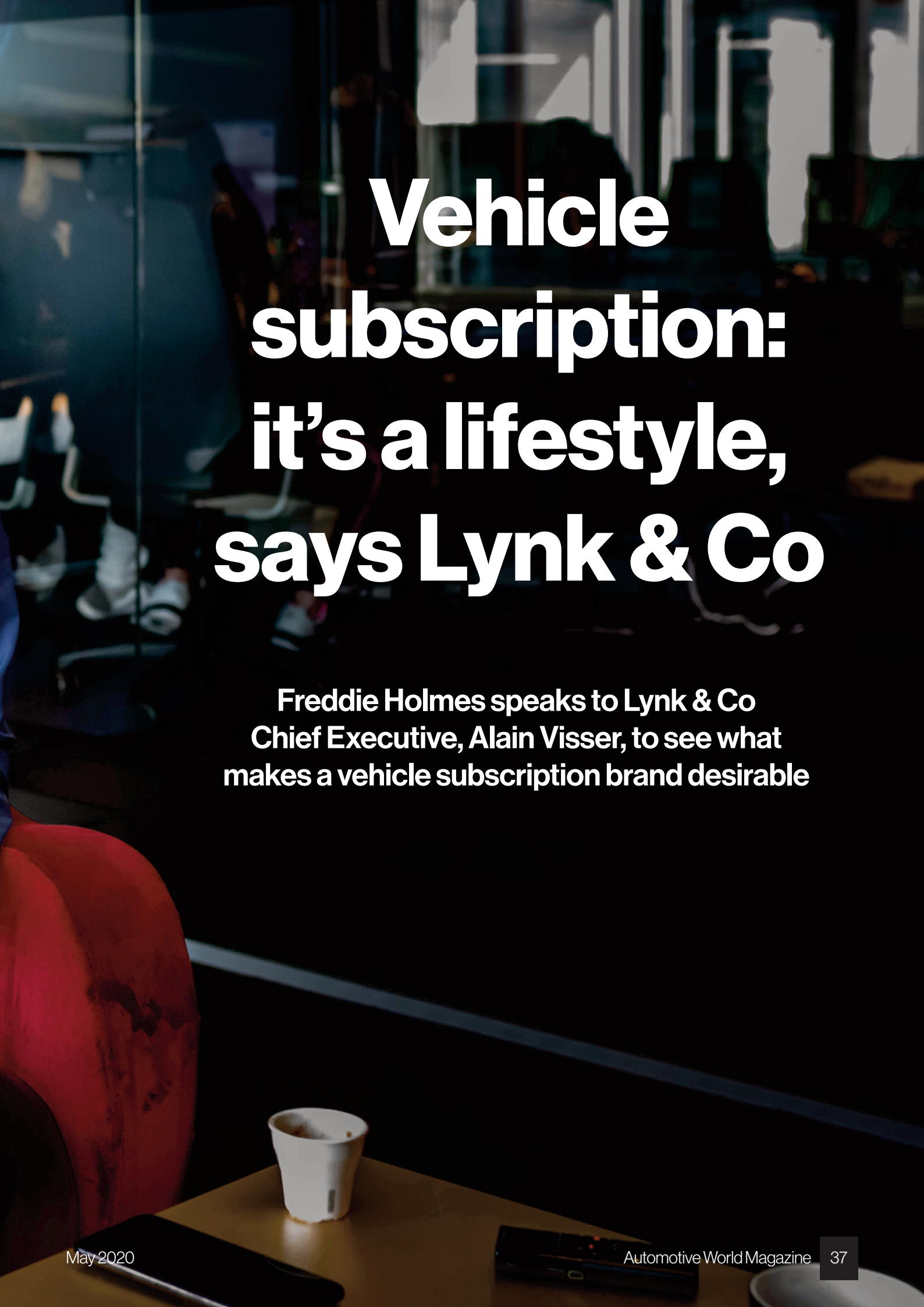
initiatives go further than the industry expected, and leave automakers with little clarity about what specifications they will need to meet in the years ahead.

Automakers are also looking at the possibility of having to meet two different sets of standards and potentially producing different vehicles aimed at federal and California markets. The industry is also facing a divergence in global standards: while many major automotive markets in Asia and Europe are moving to implement more stringent GHG emissions and fuel economy rules, the US is easing such standards.

In the end, the fate of the rule is likely to be decided in the courts or at the ballot box, since the election of a Democratic president in November would certainly result in the writing of new and more stringent standards.

About the author: Ian C. Graig is Chief Executive of the Washington-based policy research consultancy Global Policy Group





Vehicle subscription: it's a lifestyle, says Lynk & Co

**Freddie Holmes speaks to Lynk & Co
Chief Executive, Alain Visser, to see what
makes a vehicle subscription brand desirable**

At this early stage, it can be difficult to decipher between a short-term lease and the emergence of a vehicle subscription. Both models come with fixed monthly payments for access to a vehicle, and in both cases the customer never owns the product outright.

Gothenburg-headquartered Lynk & Co was one of the first to make a splash in this arena. Its Belgian Chief Executive, Alain Visser, coined the phrase ‘Netflix for cars’ back in 2016—an expression that others have begun to leverage for similar services, he says. [The edgy Geely subsidiary](#) sits between the electric Polestar brand and the premium Volvo Cars marque, making use of existing Volvo Cars platforms and technology. All visible elements of its vehicles, from exterior styling and cockpit design, are curated in-house. Today it produces the 01, a compact SUV, the 02 crossover and the 03, a compact performance sedan. The 04 hatchback is set for a European launch in 2020, while the 05 crossover is a China exclusive.

Estimates vary, but privately-owned vehicles generally sit stationary for more time than they are in use. By becoming a Lynk & Co subscriber, drivers can gain access to a car when they want one, and send it back when they don’t. Users pay a fixed amount each month like a traditional lease, but with a minimum one-month contract. This pays for access to the car as usual, but also includes tickets for concerts, events and even

A Lynk & Co subscription provides a car when you need it



gym memberships. The vehicle can also be rented out to other Lynk & Co subscribers looking for access to a ‘used’ car when the original owner does not need it.

The company is taking on big names in the automotive industry, which have already tried—and in some cases failed—to launch their own vehicle

subscriptions. Porsche Passport and Audi Select both sit as high-end subscription services, charging US\$3,100 and US\$1,395 a month respectively. Book by Cadillac initially charged US\$1,800 a month for access to the automaker’s portfolio of premium models.

All things considered, vehicle subscription is not a particularly



congested market at this stage, but is there a valid reason for that?

Supply and demand

With most people home-bound due to the novel coronavirus (COVID-19) pandemic, logic would suggest it is a bad time to be a vehicle subscription

company. However, Visser is surprisingly upbeat when discussing the outlook for Lynk & Co as it nears its European launch this year. “The pandemic has probably opened peoples’ eyes to a model where you do not need to own a car if you don’t use it,” he explained.

Rather than continuing to pay a lump sum each month as the car

gathers dust, a Lynk & Co subscription can simply be paused or cancelled, removing any fixed costs during a period of economic difficulty. Naturally, that has fairly obvious implications to the company supplying those cars. “A business model like ours helps during periods like this as it shoulders the cost of vehicle ownership that is now a big issue for many families,” said Visser. “Of course, the issue then is that if you have many vehicles out on subscription, they would all come back on our books.”

Ultimately, he believes that while the impact felt during rare instances such as the COVID-19 pandemic will be significant, the company’s otherwise lean business model balances any dip in revenue. “From a cash flow point of view, having those cars return to us would be the major disadvantage,” he conceded, “but you could argue that other car brands—with a very high cost structure—would not be selling vehicles either. It’s difficult to say which scenario is better, but we believe this situation will show that owning a car may not always be the best formula.” Although discussions are at a very early stage, Lynk & Co management is considering whether its vehicles could be offered to businesses or emergency services during periods of low consumer demand.

It is also worth highlighting that alongside its subscription model is a ‘direct to consumer’ sales model in China. This has provided a much-needed stream of cash during the pandemic,

Chief Executive Alain Visser coined the expression 'Netflix for cars'



and will prove useful during periods of reduced demand in general, says Visser. By removing the dealerships, it avoids a significant bulk of fixed costs. By comparison, VW reported in March 2020 that it was burning through €2bn (US\$2.2bn) a week.

For now, the company remains on track to launch its subscription model in Europe by the end of the year. “We are trying to make sure that everything we do sticks to the timeline we have defined,” said Visser in March. “In all honesty, that may change depending on how things evolve in Europe over the next four weeks.” Plans to launch the first European Lynk & Co store in October 2020 also remain on track.

At the time of writing, European pricing is yet to be officially confirmed, but the company often cites monthly subscriptions as being

‘comparable with a premium SUV lease’, which could ‘hypothetically’ be around €500 per month or so.

Baby steps

Revamping the tried and trusted vehicle sales model is a big risk, but the company has carried out research into both historic trends within the car industry and emerging social trends. While many consumers still want to own a vehicle, a growing proportion simply wants access to mobility with no strings attached, Visser says.

“We are not saying that all Europeans do not want to buy cars anymore, but an increasing number of Europeans now feel that way. Demand is at a high enough percentage to say that the volume potential is huge, even if just 10% of



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In almost all cases, other services being marketed as a subscription are not a subscription

car buyers today want to rethink vehicle ownership,” he explained. Research so far indicates that percentage is in fact well above 10%, he added. “We know that a high percentage of people would be willing to opt for a model to use a car as opposed to owning a car.” With an increase in vehicle leasing across Europe, many have already taken baby steps toward a vehicle subscription, he says.

Join the community


Lynk & Co is trying to position itself as a lifestyle brand as opposed to a car company—a difficult feat given that it manufactures and distributes new vehicles. However, Visser believes that the bonus of

lifestyle-oriented perks such as cinema tickets, restaurant discounts and priority status for events will resonate with consumers looking for an enhanced experience.

The goal is to create a community where subscribers might share news of new bar openings, sports events or art gallery showings in the area with other members. They would also be able to share their vehicles with others when not in use. With this in mind, some automakers have latched on to the term ‘subscription’ but offer little more than a glorified lease, Visser says. “Perks are one of the key ingredients of our subscription, which is why we believe that, in almost all cases, other services being marketed as a subscription are not a

subscription,” he observed. “A subscription does not come with a long-term commitment. In our case, the minimum period is just one month. You could say it is like a long test drive.”

Other companies have successfully launched short-term mobility solutions as well—Uber, Lyft and Didi, for example—but Visser makes the distinction between a brand that is popular for its convenience, and a brand that is desirable. “With many mobility companies, there is no loyalty or emotional attachment to the brand in question,” he concluded. “Customers don’t care whether they order a Bolt taxi or an Uber, and we want to make sure that Lynk & Co is not a convenience brand. Subscribers will truly become part of a wider community and lifestyle.”



For Nio, seamless functionality is key to autonomous vehicle success

Nio Europe's Vice President, Hui Zhang, tells Jack Hunsley how the Chinese automaker is designing the future autonomous vehicle user experience

If and when the autonomous vehicle (AV) becomes the norm, profound changes as to how people get from A to B can be expected. The same also applies to how those commuters interact with their vehicles while on the move.

For traditional automakers, that could prove quite the challenge. Even since the very earliest mass-produced vehicles, seating layout and interiors have all been cut from pretty much the same cloth—two or three rows of forward-facing seating, and a steering wheel and pedals at the front. Given that an AV does not necessarily require human input to manoeuvre, it doesn't necessarily have to follow the same ruleset.



A new 'standard'

In part, this potential for a 'new standard' is what has allowed new players to enter the automaker-market. Dozens, especially Chinese manufacturers, have begun to tease Level 2, 3 and even Level 4 AVs that could soon be hitting the streets. Nio is no exception, having pencilled in a 2022 release date for its Mobileye-enabled AV.

"In the age of the AV, we will see a major difference inside the car compared to today because, at the end of the day, you will not need to drive yourself. How you spend that time on your journey will become much more important," said Hui Zhang, Vice President, Europe at Nio. "When it comes to designing an AV, we

are following our four design principles: pure, human, progressive and sophisticated. That is the new design language which will be applied to Level 4 and 5 vehicles."

Exactly how these four principles will look combined, however, is still yet to be cemented. Obviously, without a need to drive a vehicle there is huge potential to completely overhaul traditional layouts—could a future AV interior look like that of cinema, a gym or a first-class seat on an aeroplane? What is known, however, is that consumers will eventually come to expect certain currently emerging functionalities as standard.

"Today we're already starting to offer roaming services for our users and we are also integrating

more infotainment offerings and apps into the central screens. With our AI-enabled devices, sophisticated voice control will also become a standard feature," said Zhang. "Last but not least will be a big screen. That will be an extremely on-trend feature to have because, unlike in a traditional vehicle, those internal screens are not just there to help the driver, but to cater for every passenger in the vehicle."

There is also scope to introduce 'premium' features on top of standard offerings. In Zhang's view, one example could be in-vehicle payment—"that will be a signature feature for some automakers," he added. However, there is also scope for automakers to use the data these vehicles generate to introduce more complex products.



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Aesthetics are important, but so is safety

*Hui Zhang,
Nio Europe*

“Premium features will rely on the additional volume of data we can provide and how we use that to provide more content,” said Zhang. “The content should also be linked to other devices, such as smartphones, which are also connected to the car. We will need to provide a premium audio experience, too.”

Soft-lay features

Bundling this new broad array of offerings into a single, practical product, however, will be far easier said than done. From Nio’s perspective, ensuring these new offerings are ergonomic is a crucial part of the automaker’s gameplan. One key example is the new large central screen. Not only do technical restrictions need to be catered for to maximise resolution without limiting computing performance, but the screen must also fit naturally into the AV interior.

“The most challenging part in integrating a screen is to make it look as part of the interior, not as an additional feature. It is vital that we ‘soft-lay’ that screen to make it look like a holistic part of the integral design,” said Zhang. “Our competitors such as

Mercedes have had to use two screens to make that work. Some other Chinese companies need to use three or four. However it is done, it must look like one consistent product once it is integrated into the dashboard.”

This is also important from a safety perspective. High-level AVs are unlikely to require any human input to drive, but as the industry develops towards Level 5 autonomy, humans will be asked from time to time to retake the wheel in Level 2, 3 or 4 AVs. Automakers will need to ensure that these infotainment offerings are installed in such a way that they do not distract a driver if the AV calls upon them.

“Aesthetics are important, but so is safety,” Zhang added. “Even once we get to Level 4 or 5 it is going to be very different because we still need to integrate external sensors seamlessly,”

A shared, but personalised experience

A final, huge consideration for automakers could also be raised by a shift in ownership models. Today, private vehicle ownership



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A big screen will be an extremely on-trend feature to have because, unlike in a traditional vehicle, those internal screens are not just there to help the driver, but to cater for every passenger in the vehicle

*Hui Zhang,
Nio Europe*

still dominates, but, as Mobility as a Service (MaaS) transitions from commuter luxury to a viable alternative to the personal vehicle, automakers will need to ensure that their shared vehicles can still offer a personal experience. In an AV, where humans perhaps will only interact with infotainment units, ensuring that commuters feel comfortable, catered for, and in control of a shared vehicle is critical.

This partly comes down to how effective human-machine interactions can be made, such as by refining voice control offerings to introduce a less ‘frustrating’ experience—“voice control is definitely one thing that everyone wants to have,” added Zhang. However, another

element is being able to personalise a shared AV to any specific commuter’s taste. Again, this will be a considerable challenge.

“That’s not easy to integrate because it requires very solid software architecture,” Zhang told *Automotive World*. “We may be able to make shared AVs more convenient to use, but in the shared AV we’re going to be reliant on different content providers and the content they offer.”

Differences are also likely to emerge in how interiors are designed, with there being a potential for shared AVs to have a more ‘white goods’ feel about them. “There will be a slightly different setting for the shared

AV compared to a privately-owned AV, because not every feature can be personalised,” said Zhang. “What will be the same for the shared and private AV will probably be infotainment offerings and practical offerings such as in-car payment and chat services that make sense for MaaS.”

Of course, much could still change on the industry’s autonomy journey. Today’s players are hovering around Level 2—Nio, for example, describes its maturity level as ‘Level 2.5’. Much still needs to be learned about how the general public will choose to interact with this future technology. However, the advances and concepts put forward today do offer a glimpse at what could be possible.



JLR's all-electric Havn service adds premium touch to ride-hailing

**Freddie Holmes learns more about
the zero emissions mobility service
that aims to replicate a spa
experience**

In March, a new zero emissions chauffeur service launched in London. The fleet of fully electric Jaguar I-Pace SUVs is operated by Havn, a new company borne from InMotion Ventures, Jaguar Land Rover's independent venture capital arm.



While start-ups around it pursue next-generation driverless robotaxis, Havn is very much a human-in-the-loop service. And by design: vehicles booked through the Havn app are driven by professional chauffeurs that are employed by the company itself. These drivers ensure the vehicle

interior is spotless between journeys, and even add a spray of Havn's signature fragrances in the cabin. The service has been designed to replicate a health spa, a stark contrast to some other ride-hailing experiences.

Indeed, Havn is far removed from most other on-demand mobility services that have emerged in recent years. The company's Managing Director, Joseph Seal-Driver, does not shy away from the fact that this is a premium service that will not cater to the masses. Among other applications, he sees the service as a clean, quiet and comfortable airport shuttle for those travelling on business; an 18-mile ride from King's Cross train station in North London to Heathrow Airport on the outskirts costs around £75 (US\$93).

Speaking to *Automotive World*, Seal-Driver explained in more detail why the company was launched and where it plans to go from here.

What was the idea behind Havn?

The innovation that Uber, Lyft and others brought to market back in 2008 really changed the mobility landscape and consolidated several different mini-cab offerings. That left a space at the top of the market which wasn't being filled. With the I-Pace coming out, we thought that there was a space for it in the chauffeuring and executive travel, private hire world.

The service is called Havn because we want it to be your haven when you get in: it's quiet, spacious, you've got the panoramic roof, you can select your own music. It's a place where you can work or relax between longer journeys or meetings. Havn is built on three pillars: sustainability, personalisation and consistency.

Who is the Havn customer?

There isn't a simple answer to that. There are three main categories: B2C, B2B2C and B2B. In the middle category—business to business to consumer—you're probably using Havn for work but expensing it via a consumer account. When we came to market, we wanted to offer the ability to book for other people via a B2B platform.

We're still finding our feet as to who the customer types are, but we are predominantly serving pre-booked journeys, airport journeys, airport transfers and B2B clients, however you classify that.

How does Havn differ to other vehicle-on-demand services?

We're a pre-booked service that requires at least half an hour's notice; we are not trying to offer a "we will be with you in five minutes" kind of model. We also work with modelling agencies, banks and celebrities, and sometimes journeys are directed on the fly where they have multiple appointments in one five-hour long booking. Other



Havn aims to provide more of a premium experience

times a booking will simply be a 45-minute airport transfer.

We've seen a really strong reaction from customers. They are coming back to us, and we have a great approval rating of 4.9 out of five. We're very encouraged by what we've achieved so far.

Why is Havn a 'zero emissions' chauffeur service specifically?

No one else has a completely electric fleet in London. Even the current electric taxi services in place use range extenders or are plug-in hybrid. We're 100% electric, and I do think that matters. A growing number of people are concerned about air quality in the city, so we are going after that with a new all-electric offering.

What is the charging strategy for the current fleet in London?

Charging isn't a problem for us by virtue of the fact the I-Pace has such a good driving range, but we have a Central London depot where we can charge overnight, and there is always downtime to charge during a shift.

In addition, all of our chauffeurs are equipped with the variety of charging cards that one needs to

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No one else has a completely electric fleet in London. Even the current electric taxi services use range extenders or are plug-in hybrid. We're 100% electric, and I think that matters

The I-Pace has a usable range of anywhere between 250 and 290 miles —plenty for a day's shift

access the different charging networks in and around London and further afield. They also have a pre-loaded cash card they can use if they ever reach a charging point they are not a member of. But the reality is that the chauffeurs are empowered; they know where charging points are and they are encouraged to charge on their breaks and between jobs, so the vehicles are consistently topped up as they go.

We also have preferential rates with a number of charging providers—if you look at some rapid chargers, I personally wouldn't be very happy if we're spending £30 on a charge. Broadly speaking, we have noticed that the charging points in London are getting busier, so I think there is a need for the number of charging points to match the rise of electrification.

What are the benefits of having Havn drivers in-house?

We saw that there was a space in the market for a service with consistency, and we can get that consistency through employed drivers. Between every journey they wipe the car down, make sure the iPad in the car is ready for the next customer and check that the water and mints are replaced. They also spray the Havn scent in the car and

prepare for the next job—it feels and smells like you're in a spa.

The consistency of the service is also helped by the fact that our prices are fixed. With airport pick-ups, for example, the price on the website is all-in, with complimentary wait times, tax and parking fees all included as a flat rate. As such, it's a very consistent level of service and you know what you're getting—there are no surprises.

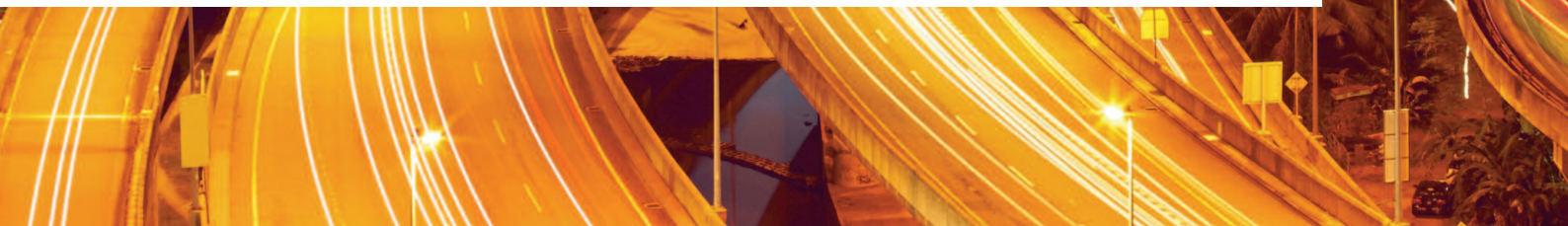
Does Havn face any direct competition?

We stand quite apart in London and in the UK. There's no other service that has the backing of an organisation like Jaguar Land Rover, nor a 100% EV fleet or first aid-trained and etiquette-trained drivers. But we also welcome competition; it would be fantastic if all chauffeur services and ride-hailing services were electric as it is far better for the health of cities.



Artificial intelligence: the spanner in the works for AV liability and regulation?

As things stand, legal systems in the major markets are not fit to handle the self-learning AI which will power autonomous vehicles.
By Xavier Boucherat





A 2019 report from the European Commission’s Expert Group on Liability and New Technologies—specifically the ‘New Technologies Formation’—emphasises the need for safeguards in the rollout of potentially transformative technologies, including artificial intelligence (AI) in autonomous vehicle (AV) applications. However, it also acknowledges that regulations cannot completely rule out the possibility of damage arising from their use.

Naturally, anyone coming to harm will seek compensation under liability rules which, in the EU, are largely determined by the member state itself, but AI’s characteristics mean that such claims may not be so straightforward: “Complexity, modification through updates or self-learning during operation, limited predictability and vulnerability to cybersecurity threats may make it more difficult to offer these victims a claim for compensation in all cases where this seems justified,” the group writes.

Paul Keller, Partner at Norton Rose Fulbright, a US law firm, believes the situation is similar in the US. Writing in the *Journal of Robotics, Artificial Intelligence & Law* in 2018, he notes that whilst current law is flexible enough to address many issues around AVs, some legislatures, from local to federal, are considering their own specific laws for the technology. However, for many, this remains new territory. “Policymakers refer to goals such

as ‘transparency’ and ‘audit trials,’” he writes, “but these goals are not necessarily compatible with AI technology.”

Therefore, in the age of AVs, liability regimes will need to be built around AI and its capabilities. Among the group’s recommendations are a call for manufacturers of products to still be held liable for damage caused by products, even if a defect was caused by changes to the product after its appearance on the market. In addition, potential victims must be assisted in producing proof for their claims, as is often a requirement under law, and which could prove difficult thanks to AI’s complexity. Logging features should be standard, for example, and where necessary, a failure to log should result in the reversal of the burden of proof in a claim.

Christian Theissen, a Partner at White & Case LLP, agrees that from a regulatory perspective, AI presents challenges. “Consider legal frameworks today, established over hundred years, which hold individuals liable for their actions: if that individual programmes a machine which can learn and act on its own, that’s something which current legal systems aren’t suited for.”

AI is, in effect, the complicating factor. Current systems on the road in which the vehicle takes partial control of the driving task, such as autopilots which combine adaptive cruise control with lane-keeping, are a relatively simple matter. “These are not autonomous in the sense

that they learn on their own,” he says, “and in many jurisdictions, the responsibility would lie jointly with whoever programmed it and put it on the market.” But as previous high-profile cases in the automotive industry have shown, this is by no means novel. Often times, in autonomous driving projects, a shared responsibility is agreed internally between the suppliers/technology companies and the automaker.

most legal systems would still try to hold that pharmaceutical company liable because they put risk on the market.”

In the same way, they would likely try to keep automakers and their partners liable, possibly thanks to inefficient safeguarding of vehicle AI to prevent it from drawing the wrong conclusions, or learning the wrong things. This may be a simplistic view of things, and the introduction of AI

ushering unprecedented levels of cooperation in the automotive industry. The incumbent automakers’ relative lack of digital competencies explains why they are teaming up with technology giants or providing billion dollar backing to start-ups.

This could change things as far as liability is concerned. “Autonomous driving presents a challenge the industry has not



Consider legal frameworks today, established over hundred years, which hold individuals liable for their actions: if that individual programmes a machine which can learn and act on its own, that’s something which current legal systems aren’t suited for

Current frameworks may even function well in the short- to mid-term as higher level systems reach the road. However, in time, self-learning technologies will require that new concepts are introduced to ensure manufacturers and their partners—which in this case could be the tech giants involved in AI development—remain liable. Theissen believes this is a likely outcome. “Consider a pharmaceutical company that develops a vaccine, and puts it on the market,” he says. “In time, that vaccine might develop into something dangerous by itself, but

will make auditing in particular a challenge, “but to return to the vaccine analogy,” he says, “most legal systems would likely try the following approach: if you develop something and it becomes a monster, you are liable for having set that free in the first place.”

New liability dynamics

Advanced AI development for potentially risky decision-making applications like self-driving is

encountered before, which requires them to bring together as many people as possible and come up with a solution,” explains Theissen. It is no longer simply a case of automakers telling a supplier what it needs, paying an amount and leaving suppliers with the responsibility around risk. New development agreements, he says, will see companies share risk based on the potential margins to be made. There will also be a change in bargaining power, in which big technology companies could gain an edge over

automakers dependent on external knowhow to compete.

Growing automaker role

Theissen says that there are signs the EU is moving proactively on effective law around AI and AVs. Regulations set to come into effect in 2020 will continue to allow exemptions for type-approval of new technologies not foreseen by EU rules. Vehicle

meet safety requirements, these new technologies can then be granted type-approval. It means that automakers will play a greater role moving forward.

“Type-approval authorities will still scrutinize the information received from the automaker,” explains Theissen, “but they need it for their assessment. Given that only a few AV masterminds exist globally, it is very unlikely that an individual country’s motor authority will have someone who,



Consider a pharmaceutical company that develops a vaccine, and puts it on the market. In time, that vaccine might develop into something dangerous by itself, but most legal systems would still try to hold that pharmaceutical company liable because they put risk on the market

type-approval requires the go-ahead from expert authorities, which could present enormous challenges for AVs. Assessing exactly what an AV could do, says Theissen, would take years, and cost many millions.

While the EU system of type approval is far away from self-certification like in other jurisdictions, the authorities will need to rely on the test descriptions and results provided by the automaker. Providing they

in a very limited time, fully comprehend a highly complicated system that has been developed over years. And so the role of the carmaker will increase, because authorities will be dependent on their test results.” The risk-averse nature of most automotive industry giants could mean an even more cautious approach moving forward: potentially a wise step, given AI’s infinitely complex character.





Real-world insight will shape the autonomous experience, says Renault

From robotaxis to conditional automation, the automaker is investigating what riders may need both inside and outside the vehicle.

By Freddie Holmes

At the 2017 Frankfurt IAA, Renault introduced a working autonomous vehicle concept that had been designed for ‘mind off’ driving. In fact, the automaker went as far to label the prototype as ‘the vision of the future of mobility.’ But it was more than just an opportunity for buzzwords; the technology was taken out on French roads and even navigated a complex highway toll without issue.

Bearing the appearance of a squashed Renault Scenic people carrier, [the Symbioz featured a fairly straight-forward cabin arrangement](#): two rows of individual forward-facing seats, a steering wheel, pedals, and a digital dashboard and touchscreen. Developed with the help of interior designers, the rear seating arrangement also featured a sculpted ‘alcove’ that aimed to provide more of a defined personal space. Once stationary, the front seats can be spun 180 degrees to form an ‘extra mobile, modular and multi-purpose room.’ Marketed as a Level 4 solution, the fully electric vehicle had been developed for highly automated driving on pre-approved highways and dual carriageways.

In March 2020, Renault revealed the Morphoz in a bid to promote a Level 3 user experience, which it says could become a reality by 2025. Styled as a sleek SUV crossover, the vehicle has a party trick: it is able to stretch or shrink in length like an accordion according to the number of passengers. Longer drives with a family might





The Morphoz concept can stretch or shrink according to the number of passengers

require more space, while a solo drive in the city only needs a compact vehicle. “Imagine a vehicle that can transform itself like never before,” states one marketing video.

In accordance with recommendations from the United Nations Economic Commission for Europe (UNECE), the Level 3 system in the Morphoz is limited to highway and expressway driving at speeds of up to 60kph (37mph), and does not perform automated lane changes. The Society of Automotive Engineers (SAE) defines a Level 3 system as providing ‘conditional automation’, a subject that has been a bone of contention for many in the industry. Criticism of the user experience tends to focus on the lack of clarity on what is required of the driver, and what exactly the system can cope with. [Some manufacturers have even voted to jump straight from Level 2 to Level 4.](#)

According to Luc Bourgeois, Expert Leader ADAS/AD systems at Renault, Level 3 systems enable ‘eyes off, hands off’ driving. “This allows the driver to delegate driving in defined situations and on authorised lanes, such as highways or in traffic jams on expressways,” he told *Automotive World*. There are some safeguards in place to ensure the driver is best placed to take back control of the vehicle. For example, the steering wheel always remains in place, even when the 10.2” screen on the dashboard has been retracted for ‘autonomous’ mode. “Embedded artificial



A purpose-built urban robotaxi, the Renault EZ-GO concept unveiled in 2018 is boarded via a large central 'hatch' at the front of the vehicle, and features a U-shaped seating arrangement



intelligence (AI) also helps the driver visualise the surrounding environment through real-time processing of the data coming from external sensors and the images from the vehicle's cameras, including those that replace outside mirrors," added Bourgeois.

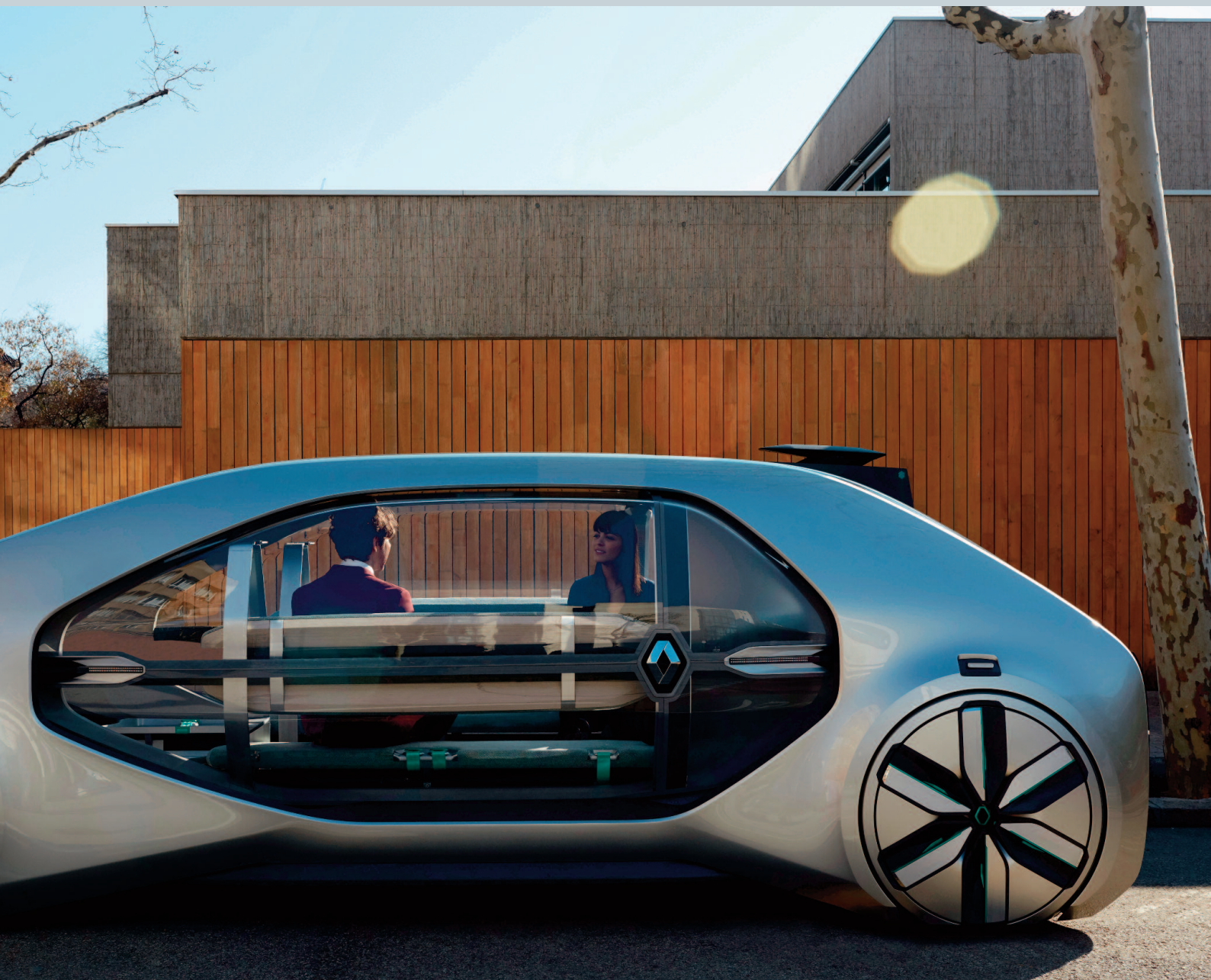
To better understand the challenges of 'driving delegation' during conditional automation, Renault is a member of various collaborative projects. It also runs its own in-house

experiments to "understand the feelings of drivers when driving is delegated," said Bourgeois. For example, Renault is a stakeholder in the European research project 'L3Pilot' to evaluate Level 3 and Level 4 systems. "This project is testing the viability of automated driving as a safe and efficient form of driving on public roads," said Bourgeois.

The experiment puts drivers in real-life situations in order to perform scientific analysis of

their behaviour. "For Groupe Renault, this is about testing the behaviour of drivers in autonomous vehicles when in the situation of delegated driving," he added. "These tests will provide valuable data for analysing user behavior in delegated driving situations and assessing their acceptance of autonomous systems."

While its latest Morphoz concept aims to emphasise the opportunities of Level 3—and perhaps challenge criticism of



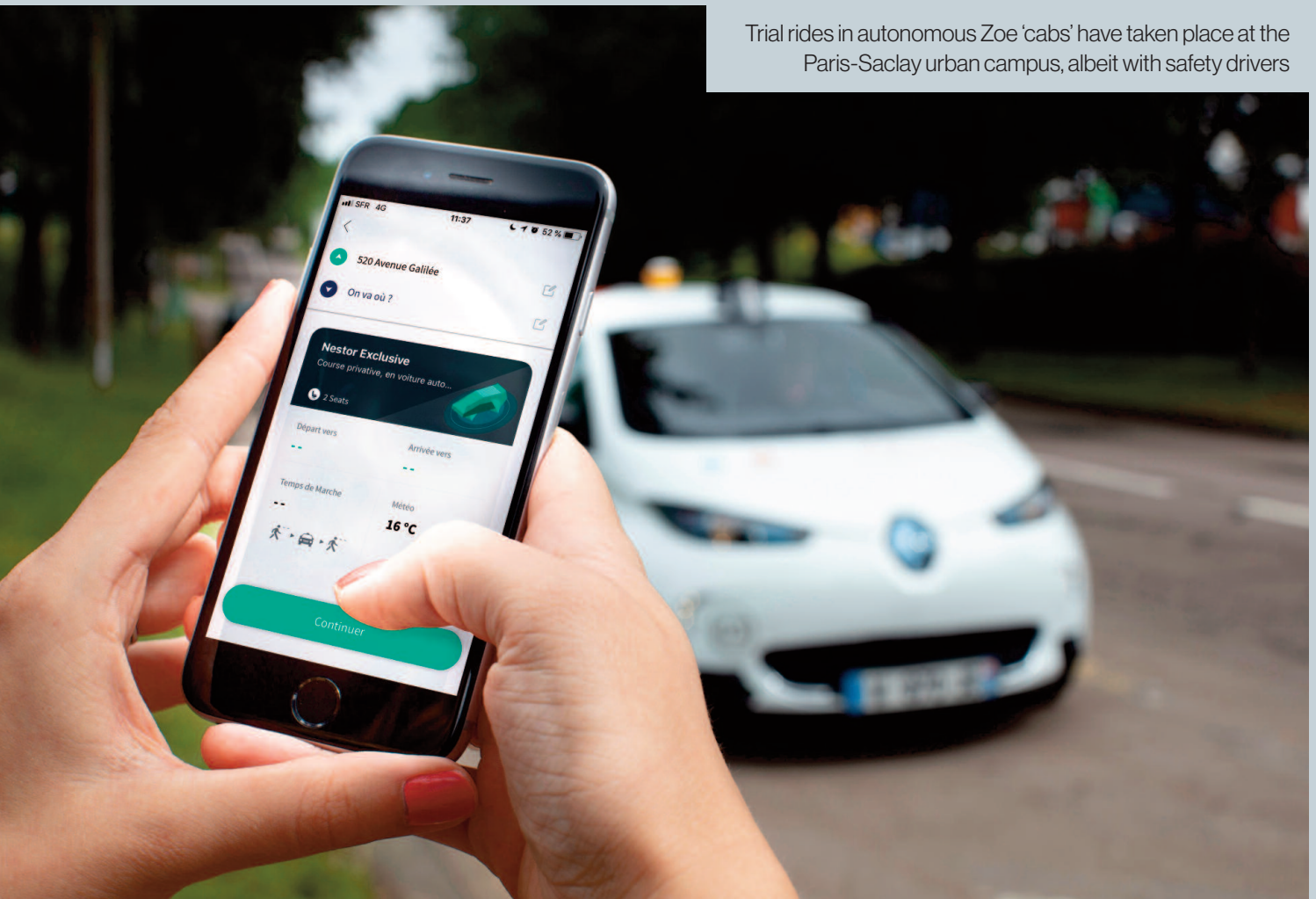
the approach—Renault aims to become one of the first automakers to offer Level 4 automation in vehicles that transport both people and goods.

Following the Symbioz was the Level 4 ‘EZ-GO’ concept in 2018. A purpose-built urban robotaxi, the EZ-GO is boarded via a large central ‘hatch’ at the front of the vehicle, and features a U-shaped seating arrangement. Panoramic windows line each side of the vehicle, and an exit ramp extends to assist those with

wheelchairs or strollers. This improves the user experience not only in terms of comfort, but also safety. “The Renault EZ-GO actively bolsters its users’ safety thanks to its wide front opening, which is safe and away from the road for passengers getting in and out,” said Bourgeois. “A light marks the ground outside to indicate where the platform will land, and large curved glass windows on the sides and along the entire length of the roof allow riders to see both inside and outside the vehicle.”

A greater focus is also being placed on ergonomics. At its autonomous labs in Rouen, Normandy and Paris-Saclay, Renault is investigating how entry and exit of an autonomous vehicle can be optimised. A modified Zoe ‘cab’ has been developed with a larger rear door that is designed for safer access from the sidewalk, for example. A redesigned interior also allows for the front passenger seat to be flipped around so riders can sit face to face if preferred. “The safety driver’s zone is isolated from the

Trial rides in autonomous Zoe 'cabs' have taken place at the Paris-Saclay urban campus, albeit with safety drivers



passenger compartment in order for users to be truly transported to the experimental future of autonomous and driverless mobility,” explained Bourgeois. “We also wanted passengers to feel like they are in their own little world with individual screens, sound and USB plugs.”

Trial rides have been offered to willing members of the public at the Paris-Saclay urban campus since May 2019. Full results of these public trials will be shared later in 2020, but initial feedback from October seem positive; most riders felt apprehensive at first but eventually settled in. It is worth highlighting that a safety driver remained behind the wheel during these tests,

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The challenge is to offer solutions that provide security, peace of mind and comfort while taking part in regulatory changes concerning pollutant emissions and CO2



Trial rides in a modified autonomous Renault Zoe 'cab' have been offered to willing members of the public at the automaker's Paris-Saclay urban campus since May 2019



which would provide more immediate reassurance for first time riders.

A similar initiative is in place through a partnership between Renault, Nissan and Waymo that was signed in June 2019. The trio will investigate autonomous mobility services to transport both people and goods in France and Japan. "Such studies aim to understand what users need in order to feel safe and comfortable when using a shared autonomous mobility service: from ordering the car via the app and the arrival of the vehicle, to the boarding of other passengers and arriving at the final destination," Bourgeois advised.

Renault has stressed that a robocab should feel no different to a traditional taxi, but the automaker is investigating other ways to enhance the user experience. "We are also testing virtual reality (VR) in these kind of services, and adaptations to the human machine interface, interior design and car itself may also be expected by customers when using an on-demand service provided by an autonomous vehicle," said Bourgeois.

All these experiments enable the automaker to gather information that can optimise the design of both vehicles and the eventual services. Carrying out this kind of work and the investments in R&D that come with it is not easy alongside typical business activities. As Bourgeois concluded: "The challenge is to offer solutions that provide security, peace of mind and comfort while taking part in regulatory changes concerning pollutant emissions and CO2."



Distribution yards 'ripe' for autonomous trucks

Megan Lampinen takes a closer look at the potential for automated, zero-emission yard trucks

Autonomous drive technology could revolutionise the logistics industry. With no need for Hours of Service restrictions, truck fleets could ply the highways of the world almost around the clock. While developments on this front are promising, a heavy truck capable of running long-distance routes without a driver will not be

roads and factories. The aim is to keep these yards moving efficiently, and there is plenty of room for improvement.

With a typical distribution centre where trucks come to drop off or pick up a trailer, congestion is common and equipment is easily damaged. Drivers frequently waste time searching for the right place to drop off their trailer. If a

investigating autonomous driving potential in these domains. Colorado start-up Outrider is also pursuing this path, but ties in electrification at the same time. The company takes third-party electric yard truck platforms and turns them into fully autonomous vehicles. “Logistics yards are ripe for improvement,” states Andrew Smith, Chief Executive of



Outrider's vehicles can couple tractor to trailer and manoeuvre between dock doors, parking spots, and areas for over-the-road pickup

commercialised this year. What could happen, though, is the introduction of geofenced, speed-restricted autonomous freight applications, particularly in the form of yard trucks.

In the US alone, trucks move more than ten billion tons of a freight every year, and most of it will pass through one type of distribution yard or another. The same is true for other major regions around the world—freight yards everywhere serve as transition points between public

trailer is misplaced, the goods inside it will not be processed properly, or at all, in the supply chain. And all these distribution centre operations are almost universally carried out by highly inefficient diesel trucks, which spend considerable time idling.

Spotlight on Outrider

A handful of companies, including big name players like ZF and Volvo Trucks, are actively

Outrider. “These yards are well-defined environments, in which repetitive tasks take place on a daily basis. They are real pain points in the supply chain”—pain points that could be alleviated with automation and electrification.

The company, formerly known as Azevtec (Autonomous, Zero-Emission Vehicle Technologies), is on a mission to deploy the most efficient, safe and sustainable distribution yard ever—with electric propulsion at

its heart. An electric yard truck platform can be charged on site, entails lower maintenance costs than diesel and is easier to integrate with an autonomous system. It also makes for a better working environment. “We want diesel emissions to shift away from factories where people are working,” he says. “At the same time, it is completely outdated to talk about automating diesel.”

On the automation side, Outrider has developed a software-as-a-service (SaaS) solution to help fleets automate their yard vehicles. “We focus from the start on an integrated solution that allows autonomous vehicles (AVs) to create value for our enterprise customers,” Smith tells *Automotive World*. “We do not just automate the truck—we automate all aspects of the yard.”

Outrider’s system draws on radar, cameras, and LiDAR sensors to couple tractors to

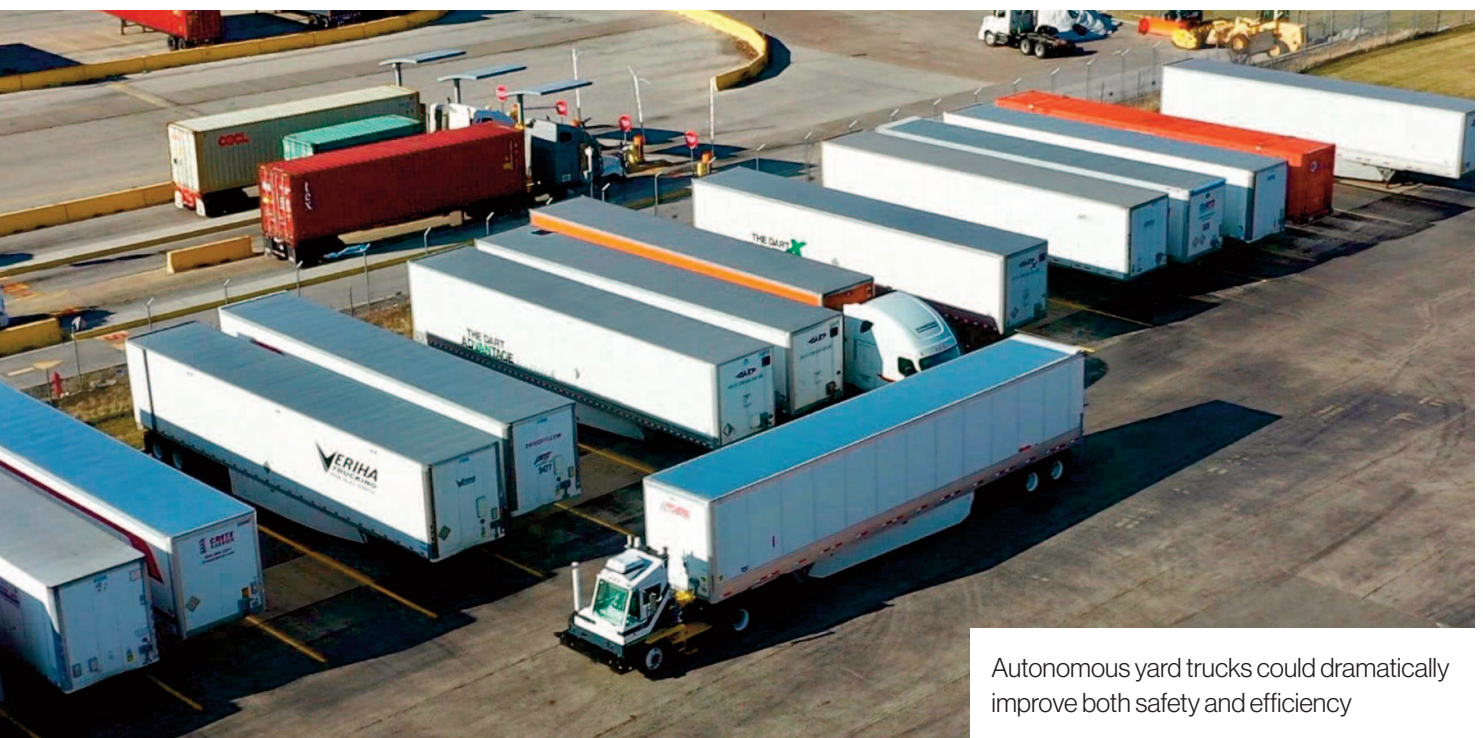
trailers and precisely manoeuvre between dock doors, parking spots and areas for over-the-road (OTR) pickup. While the yard trucks do not require a human driver inside them, the set-up still needs a human overseeing operations. The software comes with a user interface that allows operators to dispatch a vehicle with the click of a button. Outrider has been working with Georgia Pacific and four other as yet unnamed Fortune 200 companies on pilots. “Our application is now operating in specific areas of yards with the objective to take over entire yards,” explains Smith.

Strengths and weaknesses

The benefits of this technology include improved efficiency, increased profits and decreased emissions, though Smith says it is too early to share specific

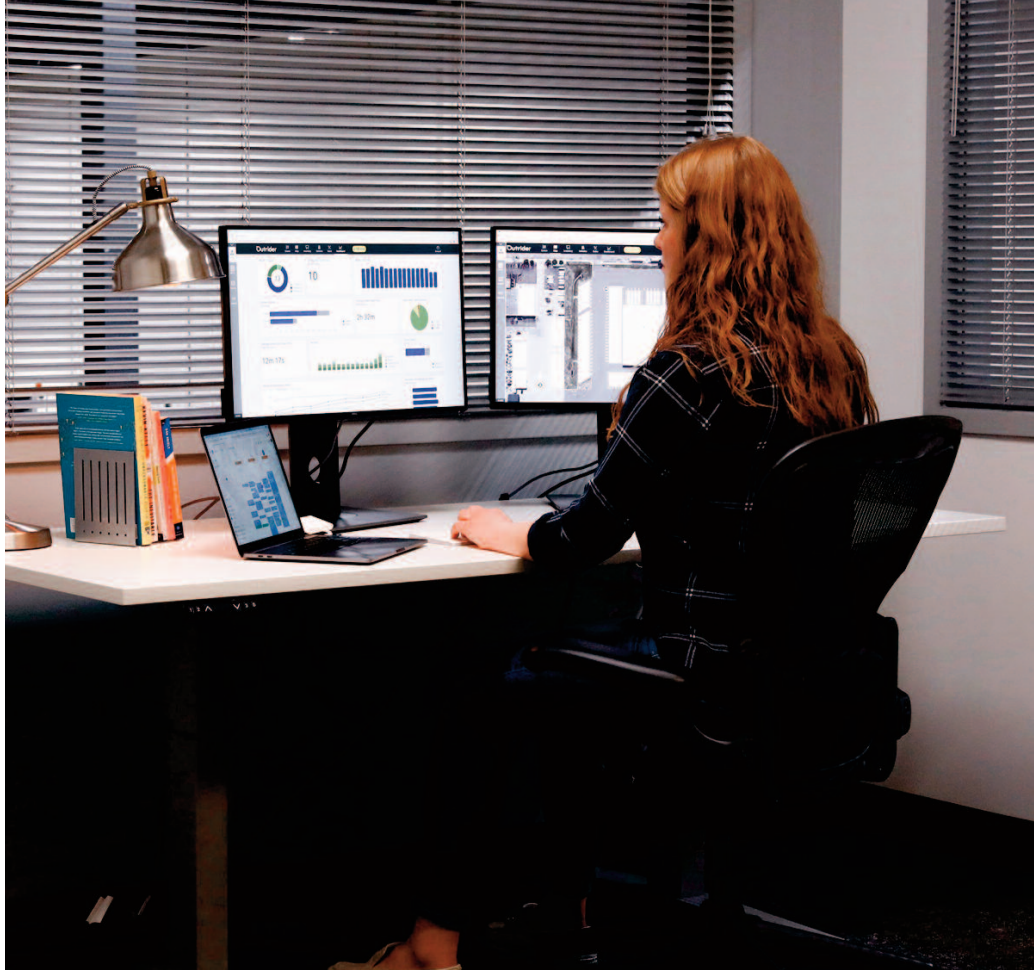
statistics on these fronts. The biggest benefit, though, could be in terms of safety. “Safety is core to our mission,” he asserts. “These yards are extremely dangerous environments, where people are walking around next to 80,000 lb pieces of moving equipment, which frequently operate 24 hours a day in all weather. Safety here is all about getting people away from this heavy equipment.” Indeed, the only human in the yard under Outrider’s system could well be the operator sitting in the office, overseeing movements from the computer.

The ‘all weather’ aspect of these applications may see further improvements down the line. Heavy rain and snow, for instance, can impact the performance of pivotal system sensors. While Smith confirms that the systems can function in challenging weather, he concedes that “weather does



Autonomous yard trucks could dramatically improve both safety and efficiency

A human needs to oversee operation of the AVs



cause the systems to slow down. It's simply not an option, though, to shut down the supply chain due to inclement weather." The company relies on a mix of sensors to see the system through challenging conditions.

"Part of the team we brought includes engineers that led the Department of Defense ground vehicle automation programmes over the last decade," notes Smith. "They are accustomed to working with large, heavy military vehicles operating in adverse conditions." Outrider is harnessing that background and understanding on fusing sensor data and technical solutions.

A multi-billion dollar industry

The segment that Outrider is targeting may not be the most glamorous in the automotive industry, but it is one of the most promising for near-term opportunity. "The promise of

autonomous vehicles is huge, but there are certain applications where they can create considerable opportunity today and this is one of them," he emphasises.

Smith regards this as a logical progression from automation inside the warehouse. For more than half a century, manufacturers have been deploying various forms of automated guided vehicles (AGVs) to move heavy or bulky materials within warehouse settings. "Companies spend billions of dollars automating their warehouse. The environment outside the warehouse is an absolute no-brainer next step for autonomy. Having an automated warehouse but an inefficient and unsafe yard outside is a little like having a nice shirt but no trousers."

At the moment, at least, Smith is not interested in taking this yard-based system any further, such as onto public roads: "The team we assembled have all the capabilities to address OTR automation challenges, but the opportunity we are looking at now is an immediate opportunity for the promise of automation. These distribution yards represent a multi-billion dollar industry. The US alone has thousands of distribution centres, with multiple vehicles in each of them. They can create immediate value."

In this, Outrider is determined to live up to its name, which Smith translates roughly as 'one that goes in advance to clear a passage'. "In this case," says Smith, "that's to clear the way for the responsible deployment of AVs."



COVID-19 sullies otherwise positive trends in Brazilian trucking

Roberto Cortes, Chief Executive of VW Caminhões e Ônibus, tells Freddie Holmes that Brazil's truck market is in an 'unprecedented' scenario



Brazil has proven to be a volatile market for truck manufacturers, with both significant downturns and periods of prolonged stability. While the first couple of months of this year showed promise thanks to gradual economic recovery, results for 2020 have now been all but written off.

truck business had been particularly successful in Brazil during Q4. Chief Financial Officer Jan Ytterberg echoed the sentiment, noting a “remarkable increase” in truck deliveries. In February, Cummins advised that truck production had increased by 8% in Q4 2019 compared to the same quarter a year previous.

Ônibus (VWCO) explained, it has suddenly become a difficult time to gauge the current health of Brazil’s new truck market. “Right now, we are facing an unprecedented scenario, so it is still not possible to comment,” he told *Automotive World*. “What I can assure you is that in the first two months of 2020, the industry registered an average of



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We are facing an unprecedented scenario

Roberto Cortes,
VWCO

In January, Paccar Chief Executive Preston Feight described Brazil’s heavy-duty truck market as “relatively stable”. For CNH Industrial, which owns Iveco, demand for trucks in Q4 2019 was up 13% year-over-year against a “flat” market in South America overall. In January, Volvo AB’s Martin Lundstedt advised that the heavy

Figures from the Associação Nacional dos Fabricantes de Veículos Automotores (ANFAVEA) show that new truck sales in 2019 grew 33.3% year-over-year to 101,335 units, with buses up 38.8% to 20,932 units. All in all, things were on the up.

But as Roberto Cortes, Chief Executive of VW Caminhões e

daily vehicle sales greater than the same period in the past years.”

This, he said, is mostly due to Brazil’s on going economic recovery in general, which has had significant benefits for the truck industry. The country relies on truck freight; most goods that come into the country

are transported by truck due to a relatively underdeveloped rail network. Statistics from the Instituto Brasileiro de Geografia e Estatística (IBGE) show that the transport sector contributed Real 8.6bn (US\$1.69bn) to GDP in Q4 2019 alone. According to a 2013 report by PwC, 58% of all transport in Brazil is carried out through the country's 'crumbling' road system.

In February, Adolfo Sachsida, Brazil's Economy Policy Secretary, advised that forecasts for 2.4% GDP growth in 2020 would be cut slightly as a result of the novel coronavirus pandemic. The expectation is that GDP will now grow by 2.2% despite the disruption the virus has caused globally. Gustavo Rangel, Chief Economist for Latin America at ING, wrote on 16 March that "the impact on economic activity is likely to be substantial," but that any damage would probably be temporary.



For VW Caminhões e Ônibus, total sales volume—including buses and exported vehicles—hit 41,900 units in 2019. Early signs

for 2020 had looked positive. "In the first two months of 2020, we saw truck sales increasing," reiterated Cortes. "The overall background was of economy recovery, but now it is too early to comment on the industry's performance."

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Going clean

Despite the global crisis, manufacturers must continue to invest in new technologies. The push to reduce transportation-related pollutant emissions in Brazil has lagged far behind most other markets. The current PROCONVE P7 standard mirrors Euro V, and the move to P8 (Euro VI) is scheduled to come into force from 2023.

Kate Blumberg, Managing Director, San Francisco & Director for Latin America at the International Council on Clean Transportation (ICCT), says that Brazil's truck market has an opportunity to slash harmful emissions. "A Euro VI standard will reduce particulate matter by virtually 100% and NOx emissions by 95% compared to Euro V," she told *Automotive World*. A cost-benefit analysis carried out by the ICCT in 2016 showed that 74,000 lives over 30 years could be saved in Brazil if Euro VI was implemented in 2018.

Euro VI standards could be challenging for some truck makers in Brazil due to the introduction of new technologies, but as Cortes pointed out, this is nothing new. "Any new technology requires investments in its development," he said. VWCO is "already working to meet the Euro VI technology emission standard," he advised.

Today, Brazil's truck fleets run almost exclusively on diesel or ethanol. While these trucks contribute very little in terms of CO2 emissions—which are currently unregulated at a national level in Brazil—VWCO is also taking steps to introduce electric vehicles (EV). [In December, VWCO made a push to ramp up the development of its e-Delivery medium-duty truck.](#)

"The company has been moving ahead rapidly with the development of electric mobility in Brazil and is pioneering this with vehicles that have been locally developed, and the



The Volkswagen e-Delivery truck is set to roll off production lines in Brazil in 2020

creation of a business model for the electric truck that covers everything," he explained. The so-called 'e-Consortium' tackles all areas, from manufacturing and assembly to recharging infrastructure and battery lifecycle management, "leveraging the commitment of the whole supply chain to an integrated system," he continued. "We are well ahead in the development of our electric vehicle portfolio. We have thoroughly matured the modular concept for electric vehicles, which will ensure that we deliver the operational performance demanded by our clients."

The next phase, he says, will be to validate the "structure,

durability, and other functional requirements of such vehicles" in order to expand testing programmes with its customers. Aside from engineering tests, one of the e-Delivery prototypes is already being tested in real conditions, distributing beverages for Anheuser-Busch Inbev in São Paulo. Over a year, the vehicle has driven more than 15,000km of engineering testing under real conditions, saving more than 11 tons of CO2 and more than 3,300 litres of diesel.

Alongside the e-Delivery is the e-Flex hybrid bus, which is currently being tested at VWCO's plant in Resende. "It is already demonstrating its efficiency, while improvements are being



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The company has been moving ahead rapidly with electric mobility in Brazil and is pioneering this with vehicles that have been locally developed

*Roberto Cortes,
VWCO*

made on the basis of data collected during the testing of the e-Delivery truck, thanks to the sharing of components and the company's flexible architecture,” said Cortes.

In the meantime, VWCO is taking steps to improve efficiency by means that do not require vehicle upgrades. “We offer our clients the opportunity to train their employees for fuel efficient driving, which influences the total cost of ownership,” Cortes explained. Like most markets around the world, driver employment and retention is another significant issue, and VWCO is trying to curb the trend by making trucks more attractive for daily use.

“This directly affects our business and products,” says Cortes, and is responsible for the adoption of features like automatic transmissions and other features that make driving more comfortable. “VWCO is keeping its eyes on this movement and is ready to meet all customer requirements that can support them in retaining their drivers,” affirmed Cortes.

Safety

A more pressing issue may lie in Brazil's road safety standards, described by Latin NCAP as being ‘decades behind’ other markets. What steps can the industry take to not only

protect occupants in the event of a crash, but also to prevent a crash in the first place?

This is perhaps more an issue of road culture. “Brazil has its particularities; it is a country with continental dimensions, fed mainly by road transportation, and a huge amount of non-paved routes. Thus, this reality by itself already brings many challenges to safety,” conceded Cortes. “But as a major player in this industry, VWCO keeps advancing to adopt further technologies in its vehicles—such as brake systems—and we continuously study other features to implement.”

COMMENT:

With crude prices in negative territory, what will be ‘the new oil’?

What began in March as an unofficial oil price war between Saudi Arabia and Russia has spiralled into a defining moment in the coronavirus crisis, writes Martin Kahl

Farewell, then, to the phrase “...is the new oil”—at least as a reference to anything of value. As the price of the black stuff crashed yesterday into negative territory for the first time ever, oil traders, analysts, economists and politicians scrambled to comprehend the magnitude of this historic event.

What began in early March 2020 as an unofficial price war between Saudi Arabia and Russia has spiralled into a defining moment in the coronavirus crisis. When both countries refused to cut production—and later even increased output—the informal coalition of OPEC and non-OPEC oil producing nations known as OPEC+ collapsed. Created in 2016 to halt over-production and falling

oil prices from the heady heights of US\$110 a barrel in 2014 to below US\$30 two years later, OPEC+ even managed to steer prices back up to well above US\$60 in early 2019. With the fragile peace in tatters, prices spiralled into a race to the bottom that went from figurative to literal. The stock market crashes in the first weeks of March raised the alarm, as traders panicked in the face of oil price wars and what was then still an impending coronavirus pandemic.

So why now? The massive Q1 drop in demand in China—the world’s largest net importer of oil—due to coronavirus lockdown measures, was followed by falling demand in Europe, North America and Asia. Add to this the impact of a likely 25% drop in global oil demand in

the second quarter, the halving of transportation use, a sector which accounts for around 60% of oil demand, and the quirks of monthly oil contract expiration dates, all of which came to a peak—or rather, a nadir—on 20 April, when oil prices imploded and panic selling caused oil to end the day at around -US\$37/barrel, a slight recovery from a -US\$40 low.

West Texas Intermediate (WTI) was hardest hit, the US oil price benchmark reflecting the country’s saturated market; at the end of the previous week, WTI was still trading at around the relatively healthy but otherwise disastrous US\$18 mark. The US—already a shrinking market thanks to the burgeoning domestic shale oil industry which has made the country the largest oil producer—now has an oil surplus. Reserves previously hailed as a strategic asset are now overflowing and losing value.

Elsewhere, for now, prices remain in the positive, although Brent—the international benchmark for



North Sea oil—is down to an 18-year low at US\$18/barrel, and faces a similar fate. Reports of oil producers paying to give away supplies, and hiring tankers to store crude oil underline the costly and cumbersome process of shutting oil rigs and closing wells. Active contracts are still in positive territory; it was this week's expiration date for May delivery contracts that led to traders abandoning next month and focusing on June, July and August deliveries, which are just about holding their value—for now. Note that although oil prices are negative for the first time ever, it is not the first energy commodity to suffer negative pricing, a phenomenon which most recently hit natural gas sales.

The oil price crash puts millions of oil refining jobs at risk, smaller oil producers are likely to declare bankruptcy, and the future of the US shale industry looks very uncertain. Analysts warn of oil-related economic and financial

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Low and volatile prices are likely to be a feature of the market for the foreseeable future, leaving petrochemical giants desperately trying to work out what will be “the new oil”

crises, and a heightened risk of corporate and sovereign defaults. The situation also fails to translate into a consumer win: the price of crude is only reflected three months or so later at the pumps, and it is difficult (although not impossible) to imagine retail prices—already low—falling much further.

Despite new oil-led panic in the financial markets, a steadying of consumer markets would help calm oil markets, settle traders' nerves and restore market confidence—something that could happen once US states and European countries return to trading and manufacturing. Remember, though, that although a significant part of the global economy could pick up in the second half of the year, the slump in this second quarter comes with a major hangover. Consumer spending is crashing, US unemployment is skyrocketing, vehicle miles travelled are plummeting globally, and a return to full economic activity cannot be expected until a vaccine is found, something which could take many months. Low and volatile prices are likely to be a feature of the market for the foreseeable future, leaving petrochemical giants desperately trying to work out what will be “the new oil”.

The Automotive World Comment column is open to automotive industry decision makers and influencers. If you would like to contribute a Comment article, please contact editorial@automotiveworld.com