Keep on trucking!

Industry stakeholders consider the truck of the future

How will trucking change over the next ten years? We talked to Scania, Continental, Delphi, Torotrak, Walmart and leading industry consultants to find out whether we should prepare for fully autonomous electric mega-trucks, or a more gradual evolution

By ***Martin Kahl***

In December 2013, the European Automobile Manufacturers' Association (ACEA) hosted an event in Brussels aimed at defining 'The Truck of the Future. The day was opened by Erik Jonnaert, Secretary General of ACEA, and featured among its speakers Dr Wolfgang Bernhart, the head of Daimler Trucks. The truck of the future will be innovative, fuel-efficient and safe was the event's sub-title and conclusion.

2014 has seen the topic of the truck of the future make headlines, led by a series of announcements from OEMs, suppliers and even fleets offering up their own visions of the truck of the future.

Daimler's Future Truck 2025 has been perhaps the most widely discussed, but also of note were ZF's Innovation Truck, the Walmart Advanced Vehicle Experience concept truck, and more application-specific concepts like DAF's CF Silent.

To understand a little better the direction the truck industry is taking as we head towards the future in which those trucks might operate, *Megatrends* interviewed a number of stakeholders from across the industry, using a set of specific topics to form the basis of the discussion. On the understanding that this could only scratch the surface of the subject, we present the highlights of those discussions.

What we learned was that the truck of the future will do a job largely unchanged from today – people will still want stuff, that stuff will still need to be moved, and there's nothing better to move that stuff than a truck. That truck will be application-specific, cost and energy-efficient, safe and connected; it will be capable of using a variety of fuels in conjunction with electrification technology, and it will be longer and lighter than today's trucks enabling a much-increased payload when compared with current freight movement. A human will still be needed in the cab, but the role will be in transition from driver to operator, frequently ceding control to the self-driving vehicle technology, especially for activities like platooning and parking.

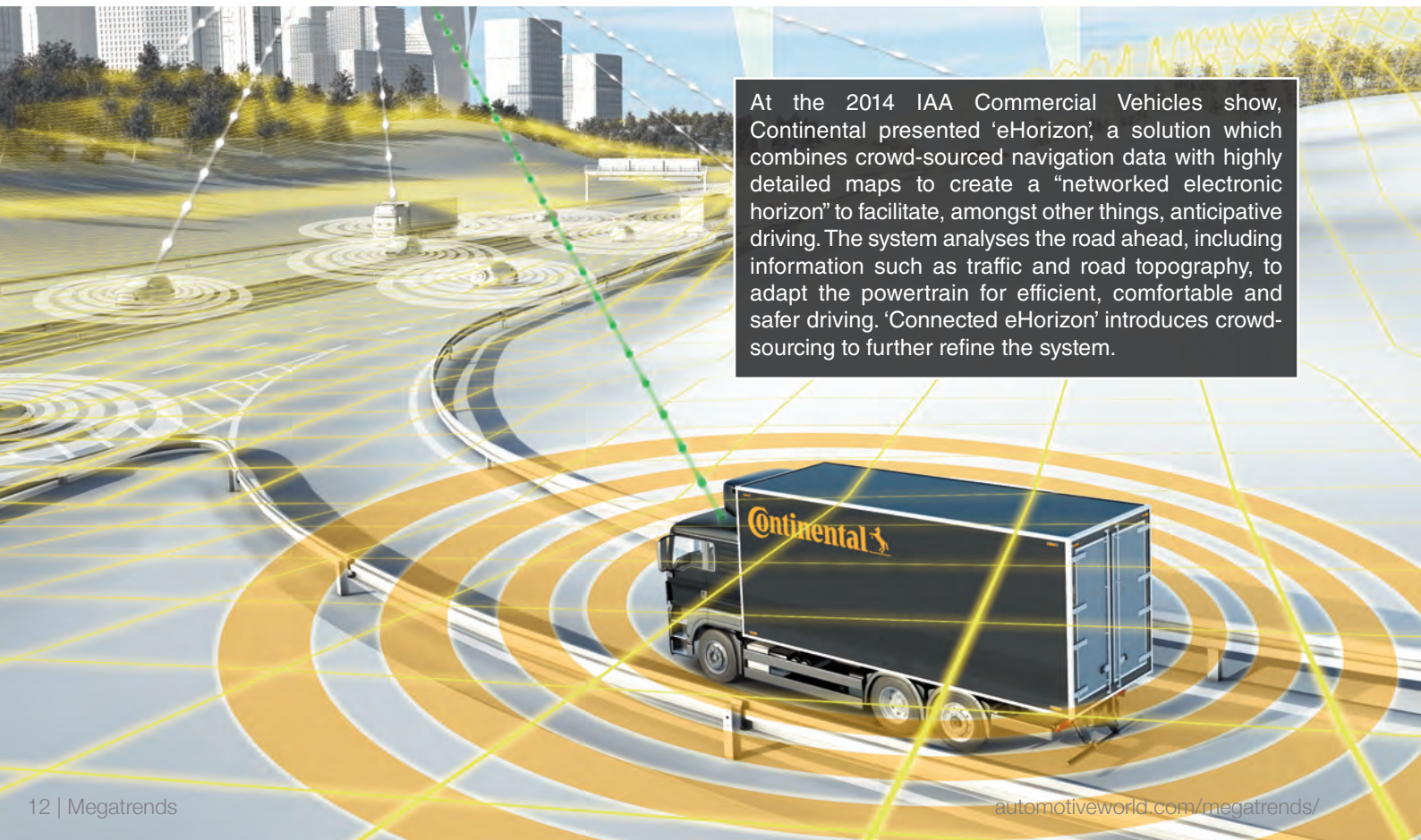
Defining 'the truck of the future'

We begin with a general and deliberately open-ended question: Looking at the world of trucking in 2025 and beyond, what will define 'the truck of the future'?

The truck of the future will be longer, heavier, cleaner and much smarter, said Örjan Åslund, Product Affairs at Scania; Åslund expects the truck to be part of a wider logistics network that is "masterminded" by a body that collects and shares information between all stakeholders involved.

"Should the fast paced development of driver assistance functions and respective software and hardware continue as expected, we will see trucks with the first fully automated driving functions on the road by 2025," said Dr. Michael Ruf, Executive Vice President Commercial Vehicles & Aftermarket at Continental. "There will still be further enhancements to cover even more situations where trucks will drive autonomously. The degree of autonomous driving will steadily increase. This will lead to safer and more efficient trucks as well as a significant reduction in CO2 emissions. Connectivity, new driver information and advanced driver assistance systems will enable this. The trucks of the future will be able to see beyond the line of sight and thus prepare for road and traffic conditions."

Mike Roeth is the Executive Director of the North American Council for Freight Efficiency (NACFE). "I think it will be fuelled with renewable fuels, and be much more efficient, no matter which fuel," he told *Megatrends*. "Traffic will be organised, with platooning, dedicated truck lanes and scheduled deliveries and pickups. Intermodal transportation will continue to grow, with an emerging intermodal concept utilising more purpose-built trucks for different segments of the route, resulting in increasingly efficient movement of goods from one truck to another.



At the 2014 IAA Commercial Vehicles show, Continental presented 'eHorizon', a solution which combines crowd-sourced navigation data with highly detailed maps to create a "networked electronic horizon" to facilitate, amongst other things, anticipative driving. The system analyses the road ahead, including information such as traffic and road topography, to adapt the powertrain for efficient, comfortable and safer driving. 'Connected eHorizon' introduces crowd-sourcing to further refine the system.

The overriding trend driving the industry is globalisation, believes Richard Green, Business Line Manager at Delphi Diesel Systems. "I see this leading to platform strategies in vehicles and in technologies just as it has with passenger cars," he told *Megatrends*. Delphi has launched a new fuel injection system for heavy duty applications, which it describes as highly advanced. "We designed it so that the same engineering platform can be used to create simplified systems for developing markets," said Green, adding that although lower cost, they are not lower tech. "They simply offer the right level of performance for each market using the best technologies available worldwide."

Green expects the next decade to see a dramatic improvement in truck operating costs and in safety. "The world economies still seem a little fragile, and truck operator margins continue to be slim, so using technology to keep their costs down will be vital," he said. This includes light weight and more efficient engines, as well as active safety, with mandated fitment in Europe that exceeds that in the passenger car market. "We're working closely with the truck manufacturers to introduce these vital life-saving technologies, and my feeling is that we will see substantial growth in fitment across the developed markets by 2025."

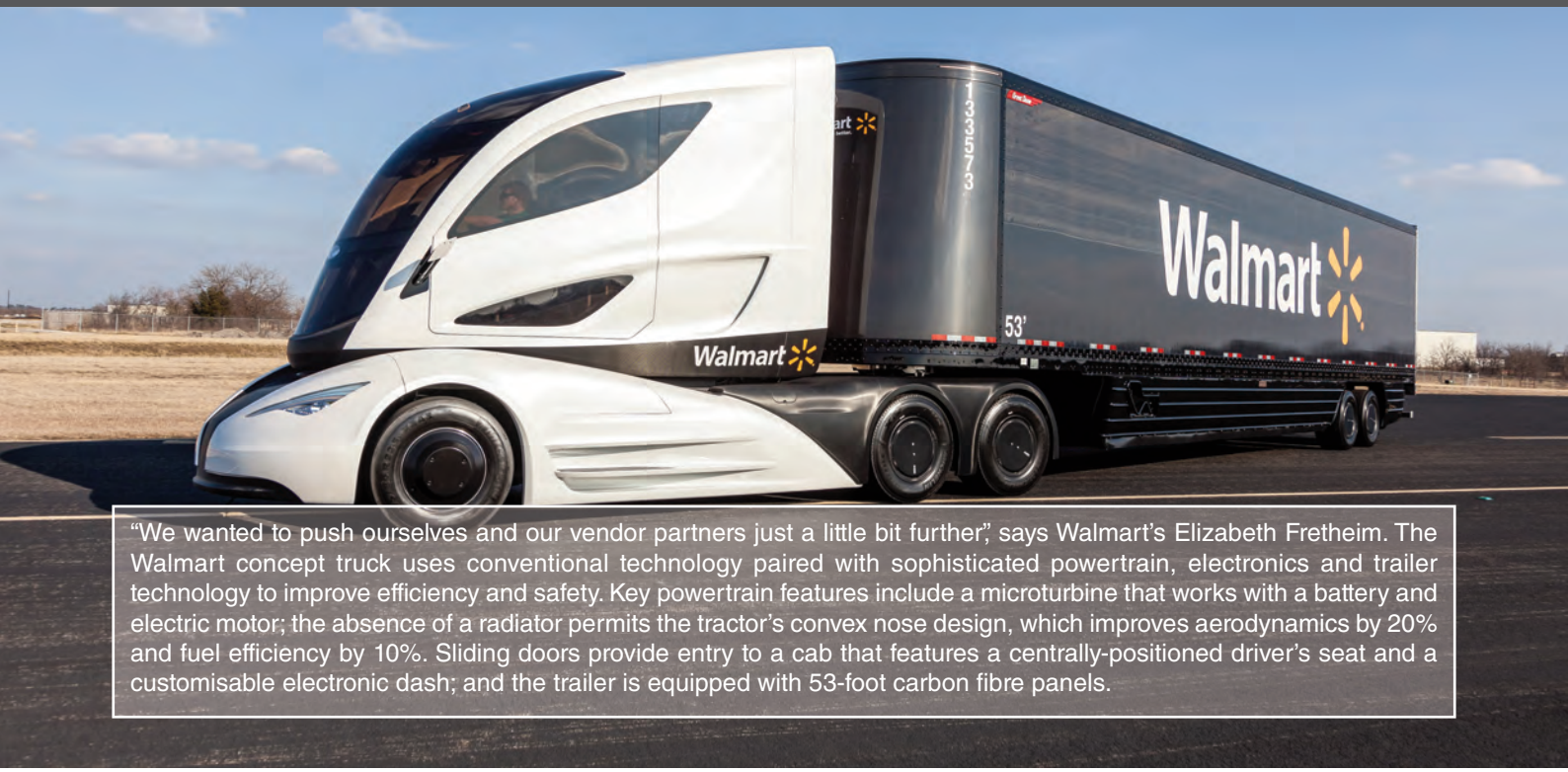
Active safety and efficiency are the top priorities for the truck of the future, as far as Tobias Knichel is concerned. "With Euro VI emissions now largely achieved, and the next phase of regulations likely to be a less dramatic step, we are in a position to try to correct some of the issues that have arisen in the quest for low CO2," says Torotrak's Business Development Director. "That means introducing technologies that are less complex, take up less space, are lighter and, most importantly, improve fuel economy. That will require some new technical approaches across the vehicle and in particular in powertrain architecture."

As mentioned above, retail giant Walmart this year unveiled it vision for the future of trucking. The striking and futuristic Walmart Advanced Vehicle Experience concept truck was developed with Peterbilt and a number of suppliers. In the US, Walmart operates over 6,000 Class 8 tractors and around 60,000 53-foot trailers, where its fleet drives about 700 million miles every year. According to Elizabeth Fretheim, Director of Logistics Sustainability at Walmart, telematics and automation will play key roles in defining the truck of the future. "Telematics could mean trucks talking to trucks, improved efficiency, or trucks talking back to the maintenance shops."

Green, safe, connected and smart will define the truck of the future, summed up Sandeep Kar, Global Director, Automotive & Transportation Research at Frost & Sullivan. It will be a green truck, with a reduced emission footprint and higher fuel efficiency than today; it will be a safe truck; and it will be a connected truck, linked to the world outside through telematics for vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) communication. "When you add these three together it becomes evident that the truck of the future will be a smart truck," Kar concludes.

The truck of the future depends on the role of the future truck

Crucial to defining the truck of the future is defining the *role* of trucks in the future. Pinning our discussion on



"We wanted to push ourselves and our vendor partners just a little bit further," says Walmart's Elizabeth Fretheim. The Walmart concept truck uses conventional technology paired with sophisticated powertrain, electronics and trailer technology to improve efficiency and safety. Key powertrain features include a microturbine that works with a battery and electric motor; the absence of a radiator permits the tractor's convex nose design, which improves aerodynamics by 20% and fuel efficiency by 10%. Sliding doors provide entry to a cab that features a centrally-positioned driver's seat and a customisable electronic dash; and the trailer is equipped with 53-foot carbon fibre panels.

the target date commonly used in the industry – 2025 – *Megatrends* began to prod a little deeper, to understand the panel's views on how the nature of trucking might have changed by the end of the next decade.

Interestingly, there was little optimism that the role of trucks will be much changed by 2025, with NACFE's Roeth summing up the general feeling: its role will not have changed as much as we might think. "Goods are goods and need to be hauled."

A number of factors will decide how and whether the role of trucks will change, says Continental's Ruf: the vehicle manufacturer's roadmap, technical and legal requirements, society's acceptance and a measurable benefit for truck fleets. Assuming the introduction of automated driving functions, "trucks will more than ever be seen as a vital means to transport goods, leading to reduced emissions and improved safety. They will thus continue to be viewed as being sustainable, ecological and efficient."

Scania's Åslund agrees: "They will still be the most vital, efficient and flexible means for goods transportation, but integrated in inter-modal systems to a much higher extent."

Oliver Dixon is a truck industry consultant and Principal at West End Companies, a US-EU based boutique analysis firm. He too remains unconvinced that the role of the truck will have changed meaningfully by 2025. "Transportation will remain a derived demand, and it is hard to envisage a situation in which road transport cedes any great part of its market share to any other mode. That said, while the role remains the same, the means by which it is fulfilled will change markedly - and indeed already has. Fundamentally, a truck merely enables revenue, and that we still look upon it as a product in isolation to a broader system is now changing. From this perspective, connectivity and a systems-based approach is the apparent direction in which we are now moving. The product serves to enable the system and needs to be compliant and efficient in so doing, but beyond that it looks to be a homogenised and ultimately commoditised item."

Volvo's FH with I-Shift Dual Clutch gearbox is the first truck to use race car clutch technology; Volvo says I-Shift offers seamless gear changes, improving performance, driveability, comfort and hill climb performance

Frost & Sullivan's Kar believes that by 2025, trucks will be more than just products, they will be solutions, he says. "These will be smart systems that offer supply chain effectiveness and efficiency benefits, and deliver time and mission-critical information to the fleet and the transportation infrastructure. Trucks will still haul freight but freight will be lighter, and so will trucks be. Trucks will enable hub and spoke logistics in large megacities, which means mega-trucks will bring large freight loads to the outer peripheries of cities and smaller city trucks will take the freight from warehouses and transfer points to the inner cores of cities."

The truck of the future will be powered by...diesel?

Driving trucks into cities is becoming more challenging, not only because of congestion, but also because of the introduction of low emission zones (LEZs). With a variety of powertrain solutions being promoted by OEMs and suppliers, *Megatrends* wanted to know what will be the likely dominant powertrain technology in the truck of the future.

Not surprisingly, there was widespread agreement that the diesel engine remains the clear leader, with a qualifying assumption that there will be a role for either alternative fuels or alternative powertrain technology. Scania's Åslund: "By 2025, the diesel engine will still play an important role, but an increasing share of all trucks will be powered with what we today call alternative fuels, such as biogas, biodiesel and bioethanol. Electrification will also play an important role, hybrid trucks will be common and some transport tasks will be performed by trucks running on electrified roads."

According to Frost & Sullivan data, diesel will power 81% of all new medium and heavy duty trucks in 2022, with natural gas expected to fuel 8% of the medium and heavy duty trucks sold that year.

"Conventional battery hybrids will certainly be on the price lists, but the enormous cost will keep market penetration down," says Knichel, who adds that he cannot see a significant move away from diesel internal combustion engines for heavier trucks. As a result, significant improvements are needed in IC technology, including more downsizing, more efficiency and new combustion strategies. "Part of achieving that has to be a move to more efficient transmissions and tighter integration between engine and transmission. Today's gearboxes address this with a growing proliferation of ratios, but the result is cost, weight and packaging volume that are not ideal in this very competitive market."

Continental's Ruf, too, says diesel will remain dominant in 2025, but this will be in conjunction with technologies aimed at drastically reducing CO2 emissions and fuel consumption. He sees related solutions like SCR technologies, downsizing, downspeeding, combustion optimisation or micro-hybridisation as playing a key role. "Especially dominant for future powertrain technology will be the connected powertrain," he adds. "By this, we mean the integration of all available environmental information and data, such as the road topography, other vehicles, traffic and road conditions, into the powertrain controller strategy, leading to an optimisation of the driving cycle, the gear shift point or downhill energy."

WestEndCo's Dixon also believes the fuel status quo will remain unchanged: "If we assume that both diesel supply and legislation remain constant, I find it difficult to see any huge shift away from diesel powering the majority of the parc and natural gas a few niche applications. Of course, the impact of well-meaning if misinformed legislation is well known to the transport industry, and if we are to see a change, my belief is that it will come from this angle."

Fear of change is a factor in the continued dominance of diesel, says Delphi's Green: "Although other energy sources will make some headway, in 2025 I am sure the dominant powertrain technology will still be diesel as it has a high specific energy content. Alternative fuels are interesting, with reliability that is already as good as diesels. They will have a place in 2025 but the industry is conservative and no one likes trail blazing. They also need support; the network needs investment so that workshops can handle gas vehicles, which will also help to solve the residual value issue."

Roeth of NACFE, however, is more optimistic of a significant shift in powertrain thinking. "We will have advanced hybrids and electrification of many subsystems as well as be utilising renewable fuels," he says. "They will be smart, requiring much less human intervention to drive the trucks safely and efficiently."

And providing the fleet perspective on powertrain selection is Walmart's Fretheim, who emphasises the company's public commitment to 100% renewable energy, including the fuel for its vehicles. "As we look forward, natural gas is definitely interesting, even as a transition fuel. There's a lot of focus right now on understanding the poly-fuel market. We need to figure out how to have a powertrain and an infrastructure that supports that, where you can go from one part of the country to another and not necessarily have the same feedstock fuel, but you have an engine and a powertrain that can utilise that fuel."

Self-driving trucks – Independence Day for drivers?

We come now to the headline-grabbing aspect of the truck of the future: the inevitability of self-driving trucks. Much was made of self-driving vehicle technology when Daimler launched its Future Truck 2025 in mid-2014. That vehicle can drive itself in Highway Pilot at up 85kph (53mph), allowing the driver to do things other than driving.

Will, then, self-driving trucks still be making headlines in 2025? Or will they have become the norm?

According to Scania's Åslund, such trucks will be common in 2025. "All premium trucks will be self-driving to some extent, only supervised by the driver, and able to communicate with other vehicles, such as for platooning reasons. On-site trucks, such as in mines, will be capable of autonomous operations, only supervised from control towers."

The CF Silent, DAF's extra quiet distribution truck, will be available from 2015. On the dashboard is a 'Silent' button which activates engine software to limit torque and engine speed. Gears are changed at lower engine speeds, and gearbox encapsulation also helps reduce noise

Frost & Sullivan data shows 1.5-2.0% of all new HD trucks in 2025 featuring this technology. However, whether self-driving trucks will be on the roads is not a question of technology, says Kar. "The challenge is how to package this technology and sell it to fleet managers and owner-operators. Is there a total cost of ownership (TCO) benefit to be had? Will fleets and owner-operators see value in investing in these trucks? That said, technology is progressing fast and certain vocations such as heavy haul dedicated route, port trucks, and so on are warming up to these trucks."

The need for efficient, safe and environmentally-friendly goods transportation will remain unchanged, says Continental's Ruf. "These demands increasingly call for intelligent commercial vehicles. There will still be further enhancements to cover even more situations where trucks will drive autonomously. The degree of autonomous driving will steadily increase, leading to more comfortable, safer and more efficient trucks."

NACFE deals on a daily basis with fleets, OEMs and authorities, and Mike Roeth, believes the industry will take a slow, methodical approach to the introduction of self-driving trucks. "Early adopters will use private, non-public roads and areas with less congestion," says Roeth. "Autonomous operation already exists with some mining trucks and agricultural tractors. The next steps in my mind would be yard spotters, drayage and automated parking. By 2025, we will have certain areas for self-driving trucks that provide a driver a set period of time to regain control, maybe ten seconds. A side benefit to this would be the fuel savings for long distances, through platooning, and more consistent, better routing for urban driving."

A further note of caution comes from WestEndCo's Dixon, who warns not of technological and legislative challenges, but of the much more fundamental opposition to self-driving trucks that could come from the general public. "The automotive industry was made to look plain foolish by Google and its driverless car prototype, and my sense is that much of this current interest is a hedge against that happening with trucks. The truck industry can be certain of one thing, and that is that it is heartily unloved by the public that benefits from its presence. If the public regards driven trucks that deliver most of their modern existence as diabolical things, then I'd argue that the prospect of the same but without human control will prove very difficult to drive through in terms of legislation."

Delphi's Green agrees. Most of the technology already exists, he says; the challenge lies in unanswered legislative, liability and consumer acceptance questions. Rather than self-driving trucks, which Green believes remain decades away, much closer are "trucks that offer a very high level of driver support, or which can drive themselves with operator supervision in the cab."

Whether trucks will be fully automated or not, there's agreement that they will be capable of controlling certain tasks such as platooning and parking. "I don't think we're going to see self-driving trucks, not in the next ten years," says Walmart's Fretheim, "but we will see automation that assists and improves the safety and efficiency of the trucks, where the truck understands the operating environment that it's in and changes its parameters to operate more effectively."

Interestingly, Fretheim believes there will be a regional difference in response to and acceptance of self-driving truck technology. "Definitely in the US I don't think it will be the norm, not in ten years, although you may see further developments in Europe than we will in the US. I don't think the regulations or the necessary infrastructure or public support, or even the technology, will move that fast. I think you'll see movement towards that with things like Collision Avoidance or Lane Keeping, but a full self-driving truck? I don't think you'll see that in ten years."

The long and heavy debate over weights and dimensions

The Freight Transport Association in the UK, Germany's VDA, which represents the interests of the country's automotive industry, and ACEA, the organisation which represents vehicle manufacturers in Europe, have all called for rules to be changed to allow larger, longer trucks. There are senior executives in the European Commission, for example, who support longer trucks and road trains, but who also acknowledge the sensitivities caused by differences in national legislation in Europe - and similarly, state legislation in the US. Given that the issue of truck weights and dimensions is so contentious, primarily in Europe but also in many other trucking regions, the question is, will it still be a concern in 2025? Or can we expect mega-trucks to be the norm?

Those we spoke to appeared to agree that longer and larger trucks will be on the roads a decade from now, but as part of an application-specific approach. As Scania's Åslund put it, "where it's appropriate...since the benefits regarding transport capacity and reduced environmental footprint are so obvious." Such trucks, says Kar, will not be the norm, but will be used where necessary in certain regions for certain duty cycles and certain vocations. "Growth in the global CV market will continue coming from non-Triad markets," he added, "and in these markets mega-trucks will not be highly relevant or applicable."

Since this discussion was limited to industry stakeholders and not consumers, it should come as little surprise that the respondents' views were positive towards longer, larger trucks. They all acknowledged, however, that the strings are pulled by the regulators. Dr. Michael Ruf, Continental: "The political decision makers will have the final say on this. From a technological point of view, mega-trucks are an option for certain long distance, overland haulage. Mega-trucks might have increased requirements regarding safety systems to further improve the already high safety standard or only be allowed on certain roads."

"Fewer larger trucks would ensure environmental sustainability," says WestEndCo's Dixon. "Against this, however, we must place the fact that any debate surrounding this issue will be led by people with a lack of understanding of modern trucking. To many people, all trucks are bad, and thus bigger trucks will be worse, and no trucks would be good," he adds.

"We as engineers have to find ways to use the space more efficiently," says

Daimler's Future Truck 2025

Daimler combined technology and design for its Future Truck 2025, the concept truck it launched in July 2014.

The absence of headlamps (hidden) and mirrors (replaced by cameras) is most obvious, as is the changing colour of the LED lighting at the front of the streamlined cab to indicate whether the vehicle is in manual or autonomous drive mode; behind the cab, the trailer design is 18% more aerodynamic than existing solutions, equating to a saving of up to 4.5% in diesel fuel.

Always on, always connected, the truck can operate in autonomous Highway Pilot at up to 85kph (53mph), during which the driver can rotate his chair 45 degrees and do things other than driving. Highway Pilot does this by combining camera, radar and Wi-Fi V2V and V2I technology with existing technologies like Proximity Control Assist, Stop-and-Go Assist, Active Brake Assist 3, Lane Keeping Assist, FleetBoard telematics and 3D maps for the Predictive Powertrain Control system. "We need national law makers to take action," said Wolfgang Bernhard, head of Daimler Trucks, at the truck's unveiling. "Other countries are ahead of Europe. States like Arizona, Michigan, California and Nevada have already put legislation in place. We need dialogue between policy makers and society to make these things happen. We need this discussion as soon and as open as possible."

Torotrak's Knichel. "Saving volume and weight in the technical package translates directly to increased payload. In a sector where operator margins are thin, a vehicle manufacturer with clever solutions will have a more competitive product." Solutions will come through evolution, not revolution, says NACFE's Roeth, adding, "I really see this being a continued discussion point."

Truck buyers – the fleets – could hold the balance of power

When all is said and done, however, what happens in 2025 comes down to decisions made by the regulators and the fleet buyers. Legislation is slow and cumbersome; while fleets can make a decision from one day to the next, to which the OEMs and suppliers can quickly respond. We wrap up by asking, what will be the key megatrends shaping truck buyers' decisions in 2025?

Not surprisingly, the key themes to emerge are connectivity, safety, fuel economy, and driver health, wellness, and wellbeing. At the top of the list, though, is cost, summed up succinctly and eloquently by Torotrak's Knichel: "The top three factors will be operating cost, followed by operating cost, and then operating cost."

Given the importance of efficiency to truck buyers, any solutions will ultimately need to pay off in order to be accepted by the industry, says Continental's Ruf. "They need to save money or time and offer a reasonable return on investment. The buying decision will also be influenced by the legislative boundary conditions valid in the respective regions. Governments are especially keen on increasing vehicle safety and reducing the CO2 emissions. Vehicles which fulfil this could possibly be incentivised, which could motivate truck buyers."

Much of what shapes buyers' decisions in 2025 comes down to who will be doing the buying, says Dixon. "By 2025, I suspect that the business will be comprised of three parts: equipment suppliers, equipment providers and equipment users, each possessed of unique core competencies. A truck OEM can leverage its supply chain and design and production capacity; an equipment supplier can leverage its ability to manage and control the equipment trading cycle; and the user can optimise its utilisation of that same equipment." Furthermore, the chances of the truck user being the owner could also be numbered, he says. "Increasing vehicle complexity and a trading cycle that is all too easy to get on the wrong side of suggests to me that with the exception of the largest transportation organisations, no one will want equipment as anything other than a line item."

Legislation moves notoriously slowly; technology moves notoriously quickly. And somewhere in between the two is the speed at which business models change. "A key megatrend developing is the complete shift in balance of power which will see not so much a change in the nature of the job - stuff will still get moved from A to B - but in the roles played in order to facilitate that," concludes Dixon. "By 2025, I suspect that some of the big transport operations will be in a position to wield huge control over the transportation industry and the OEMs must now be wondering if they should look to the leasing companies as a potential customer or as a potential threat."

Self-driving vehicle technology is already here; the concepts that have been shown by leading OEMs, Tier 1 suppliers and fleets have combined existing solutions with highly plausible next-generation technology. What's clear, whether for trucking or for passenger cars, is that the next step - creating the legislation - will define how long we have to wait until the truck of the future becomes the truck of today.

COMMENT:

Automotive cyber crime is a clear and present danger

By **Martin Kahl**

Picture the scene. It's rush hour in London, on a Tuesday in the not too distant future. All of a sudden, hundreds of cars grind to a halt, and cannot be moved. There are hundreds of instant collisions, with the knock-on effects of pile-ups, traffic chaos and millions in lost business.

It's a Saturday morning, about a month later. The web is buzzing with reports that tens of thousands of cars in Tokyo have been involved in left turn collisions.

The next morning, headlines focus on reports that thousands of cars in Los Angeles appear to have been started up during the night, seemingly of their own accord.

A month later, there's a spate of collisions in several major cities caused by sudden unintended acceleration. Speculation begins to connect these occurrences to the seemingly unrelated hacking of drivers' credit card details, social media and music streaming accounts.

Investigations get under way, and eventually it's confirmed as the work of a hacker. Amidst the ensuing panic, it's reported that every car with voice control technology has had the in-car microphones in a constant state of activation for months; unofficial sources suggest that thousands of hours of intimate and politically sensitive conversations have been recorded.

> *"Cyber security could be a turning point for the automotive industry, the key automotive issue in 2015. This is no Millennium Bug; there's a clear and present danger*

The source is tracked down, but identity and motive are withheld, with several governments citing national security.

Naturally, conspiracy theories abound.

Some say it's government-sponsored international terrorism; others are sure it's an act of so-called hacktivism, by an organisation with a point to make and a savvy IT team. Some believe the hacker's route in to all these cars was via an Internet of Things connected appliance; the tabloid press blames a combination of connected fridges, connected heating, and even a weakness in smartwatch-based security protocols. Not so, say others still - it was just a kid who found and exploited a worm hole in a piece of code and wanted to make a name for himself, without realising the true consequences: lost lives, countless injuries, massive repair costs to cars and surrounding buildings, and billions wiped off stock market values.

Fiction? Fantasy? Paranoia?

Maybe not. Ask the hackers - those on the legitimate, hackathon side of the fence, of course - and their anecdotes will give you goose bumps. Ask the OEMs and the suppliers, and they'll point to their security and information executives and their cyber security teams. Ask the owners of cars that have needed over the air update patches to fix security glitches. Ask the governments setting up task forces to ensure that cyber crime doesn't become the issue that derails their V2V and V2X plans. Ask even the organisers and delegates of the growing number automotive cyber security-focused conferences.

Cyber security could be a turning point for the automotive industry, the key automotive issue in 2015. This is no Millennium Bug; there's a clear and present danger. Get it right now, and it can set up the connected car of the future. Fail to secure the connected car, and we risk everything that this technology can offer.

The move to mass connectivity is well under way. The quest for the autonomous car occupies engineers at every OEM and supplier. But can we have autonomous cars - can we even consider autonomous cars - if we haven't resolved the issue of automotive cyber security?

***Martin Kahl** is Editor, Automotive World*

The AutomotiveWorld.com 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

COMMENT:

Tumbling fuel prices - buy now, pay later

By **Martin Kahl**

How do you tell the people filling up their cars at your local fuel station that the attractive low prices aren't as great as they might think?

Tumbling oil prices over the last six months, culminating in OPEC's decision to maintain a production ceiling of 30 million barrels, are effectively flooding the market with cheap oil - a decision that has seen crude tumble from over US$100 a barrel earlier in the year to a five-year low of below US$70. Great news if you're out of gas right now - but check out the newspaper headlines as you walk from the pump to the checkout.

The surprise decision by the oil cartel came in the same week as Black Friday, which is being credited with helping OEMs report strong November US sales. The ever-decreasing number on the gas station price boards that those new vehicle buyers passed on the way to the dealerships had a major impact on their vehicle purchase decisions: as fuel prices fall, sales of larger vehicles rise. Full size pick-up sales are up by around 4.3%, according to Kelley Blue Book's Alec Gutierrez.

Cheap oil, and by extension cheap fuel, though, are seen as a positive for the economy. Spend less on fuel, spend more on shopping. Spend less at the pump, spend more on a new, bigger car.

New SUVs and pick-ups are the most efficient they have ever been. That will be of some comfort to those using current fuel prices to guide their buying decision; rapid dips in oil prices are usually followed by rapid spikes in oil prices, meaning that big sedan / pick-up / SUV might be a more expensive proposition longer term, if not already by this time next year.

> "The spend-now-worry-later approach overlooks the impact on the invest-now-benefit-later strategy employed by those developing alternative technologies in anticipation of potentially unaffordable fossil fuel costs

There's confusion right across the energy sector. Fast-flowing oil is good news for refineries and pipeline suppliers, but ratings agencies are looking at downgrading the oil companies. Equities markets are riding the oil rout, but commodities have been hit hard. Gold has fallen and rebounded; we've seen copper slide to a four-year low; and currencies have been hit. As the *FT*'s John Auther points out, cheap oil means strong dollar, and strong dollar usually means hard times for emerging markets. Russia's unusually frank admission that it expects to slide into recession next year was the result of a sinking ruble, economic sanctions and the falling oil price.

Still, the Fed isn't worried. Stanley Fischer, Vice Chairman of the US Federal Reserve, and New York Federal Reserve President William C. Dudley have welcomed the lower oil prices; they're good for business, they say, as everyone will be better off and will spend, not save that extra cash.

The spend-now approach sees an instant boost to the economy; but the spend-now-worry-later approach overlooks the impact on the invest-now-benefit-later strategy employed by those developing alternative technologies in anticipation of potentially unaffordable fossil fuel costs. The unexpected decline in pump prices has hit the cost side of that equation hard. Those who expected to see a return on investment in US shale extraction and natural gas will be wondering when they will see their money.

Tell that to the smiling folks walking out of the fuel station kiosk.

Martin Kahl *is Editor, Automotive World.*

The AutomotiveWorld.com 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.