DVN-I
Automotive Interior

Thu, 5 December 2019 Weekly Newsletter **NEWSLETTER #16**

Editorial

Technology At The LA Auto Show

After two DVN-I editions focusing on Japan, this week we're changing continent and culture to bring you an in-depth look at what and how interior innovations are developing on the American West Coast, traditionally the place where the American, Asian, and European automotive cultures overlap.

Los Angeles this year was a very EV-oriented show, but by no means exclusively so; SUVs and sedans were prominently present. New interior technologies were integrated in all kinds of vehicles with all kinds of powertrains. And the EVs making the biggest buzz weren't small eco-focused items—the Tesla Cybertruck probably weighs several tons, and the Ford Mustang Mach E, no featherweight itself, is positioned as a sporty, high-performance car. In both cases, the new EV is probably not the most conservation-minded way to use energy for travel. No surprise; the U.S. market plus EV technology would have to equal something other than Kei cars!

Through these DVN-I newsletters, we're showing you where safety is improving—front center airbags, for example. We're highlighting new ways of reducing the environmental footprint automobiles—sustainable coatings, apple skin leathers. We're showing how comfort is being catered for through active seats…how in-cabin noise is reduced…interior air quality is monitored and improved…and how smoking is automatically detected! Every aspect of our field is on the scene, but scattered across many different cars and applications. We're not yet seeing convergence, cost being an obvious limiting factor. DVN-I's broad technology perspective on occupant health and wellness is deliberate, in recognition of today's scattered evolution of automotive interior technology and technique.

If you haven't yet been to the new **DVN-Interior website**, do give it a look; there's a convenient subscription button, and you can easily **register** for the DVN-I Munich Workshop taking place next month with the rubric "Automotive Interiors: New Technologies for New Usages". There are still seats available as this issue of DVN-I goes live, but they're likely to get snapped up in a hurry, so you'll want to act now.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Lighting Technology

DVN-I at the Los Angeles Auto Show

For many years, the top-tier auto show circuit included Frankfurt, Geneva, Detroit, Paris, and Tokyo. And for quite a long time, stretching back before emergence of China and CES, the LA Auto Show has been different. It's had a longstanding focus on innovative concepts up and down the scale, from whole vehicles down to the smallest parts concepts. It's where the Green-Car-Of-The-Year award winner is chosen, in California's easygoing, sunny atmosphere. As auto shows around the world struggle to stanch sagging attendance, Los Angeles has held on remarkably well, continuing to cater for a public who can't resist its huge media market and thriving, multifaceted car culture.

With the whole industry going through a transition to electrification, the LA Convention Center was filled with electrics and hybrids, though there were still some petrol-powered SUVs and even a few sedans from automakers willing to test this multicultural Californian market where Asian, American and European car cultures are exposed head-to-head. Let’s have an interior-focused tour of the vehicles at Los Angeles.

The stirred-up buzz was mainly focused on two unusual vehicles: The Ford Mustang Mach E (reviewed this week in the Design Lounge) and the Tesla Cybertruck, which was presented in parallel to the show, as Tesla decided not to have a booth at the show.

Tesla Cybertruck

The Tesla Cybertruck was unveiled by a boastful CEO Elon Musk, who described it as offering better utility than any other truck, with more performance than a sports car.

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He also talked up what he called the truck's "shatterproof" glass, which promptly shattered both times Tesla's design chief Franz Von Holzhausen threw a metal ball at it. Musk was shocked into saying the F-word into his microphone amidst the theatrical fog and special-effects fireballs heralding the Cybertruck on stage.

Shatterproof glass or no, the Cybertruck certainly bears an unusual design. Is it a flop-in-waiting, or Tesla's next rule breaking success? It's too early to tell. Meanwhile, a look inside shows its 5-seater interior to be in line with Tesla's others: a minimalist instrument panel with 17” tabletlike screen, extensive massive/edgy design cues, front seats with integral head restraints, a huge center console/armrest, a video rear view mirror, and a big glass roof.

Premium EVs

All premium brands are feeling pressure from the likes of Tesla, and they're responding in spectacular fashion. Audi unveiled their e-Tron Sportback version of their e-Tron crossover, with more aggressive rear styling.

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Audi e-Tron Sportback

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Audi e-Tron Sportback interior

BMW showed a pair of electrified cars as well. Their X3 xDrive30e plug-in hybrid crossover is a plug-in version of BMW's best-selling model in the U.S., while the redesigned BMW 330e plug-in hybrid gets a performance and range boost. Mercedes didn't highlight anything electric at the show, but Lexus displayed their futuristic LF-30 EV concept that debuted at the Tokyo auto show.

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Lucid Air

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Lucid Air Interior

And California startup Lucid gave rides in a prototype of their Air, on the streets around the Los Angeles Convention Center.

VW ID Space Vizzion concept

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Volkswagen showed an EV wagon-shaped concept called the ID Space Vizzion, which is based on the VW Group's MEB architecture and teases the design of what is likely to become the seventh model in the ID family, following the original ID Crozz crossover, ID Buzz electric microbus, ID Vizzion luxury sedan, ID Buggy electric dune buggy, and the ID Roomzz three-row SUV.

The concept has two-row seating but can accommodate a third row. The cabin features what Volkswagen calls an "augmented reality head-up display", a 15.6-inch touchscreen that displays infotainment and controls comfort, connectivity, and other vehicle settings. The shifter is a stalk on the right side of the steering column in the all-digital cockpit.

A thin light strip between the A pillars, which VW calls the ID Light, interacts visually with the driver with greetings, navigation information, and brake instructions in concert with audible interactions.

The ID Space Vizzion has seats and surfaces made of Appleskin, a leatherlike material developed in-house by Volkswagen from apple juice production waste. VW says they can already replace 20 percent of polyurethane in a vehicle with the new material, and that a future version of it will present "a metallic surface illuminated by ambient lighting".

Hyundai Concept T

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Hyundai's concept T is a plug-in hybrid SUV with a futuristic design likely foreshadowing the new Tucson, perhaps in addition to other forthcoming models. We would like to have seen the interior, but it was deliberately hidden, so we will have to wait. Hyundai also gave a first-in-the-US look at the refreshed 2020 Ioniq sedan, the pure-EV version of which has a bigger battery for greater range.

Production cars

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The new BMW 2 Series Gran Coupé, coded the F44-type, is the second compact model to be built on the new FAAR front-driven platform, after the F40-type 1 Series. The F44 reinterprets the design theme of the BMW hatchback and adds a more premium feel to the overall design, characterized by the sloping roofline and the sharper silhouette. The new compact four-door coupé fairly bristles with digital content.

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The Toyota RAV4 will gain a plug-in powertrain option for 2021, but Toyota didn’t give any specifics about it—nothing about its battery pack or its range. Nor did they reveal anything about the interior. Here again, we're going to have to wait.

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The Corsair replaces the MKC as Lincoln's smallest SUV, now with a plug-in-hybrid Grand Touring model. Interior fit, finish, and fixtures are in line with the car's price and positioning, and the acres-deep dashboard has an interesting shelf effect.

Augmented reality

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HondaLens in the new Accord

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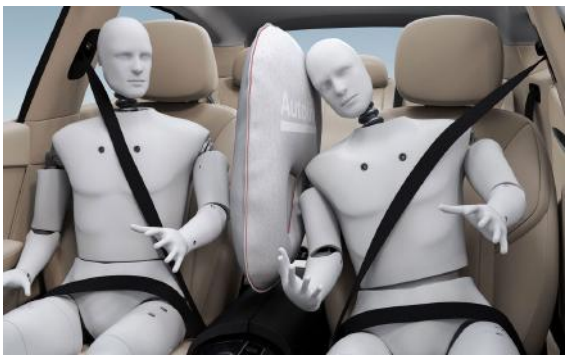
Navion from WayRay

Virtual and augmented reality are making their way into cars, garages, and dealerships alike. Honda is using what they're calling "HondaLens" to walk potential buyers through the features of the new Accord. During the HondaLens experience, the car's controls and even its engine appear to float in midair, in bright colors.

Meanwhile, Swiss company WayRay was named the winner of the Automobility LA (the tech trade show attached to the auto show) Automotive Startups Competition for its holographic displays for navigation systems.

Interior News

Autoliv's New In-Between Airbag



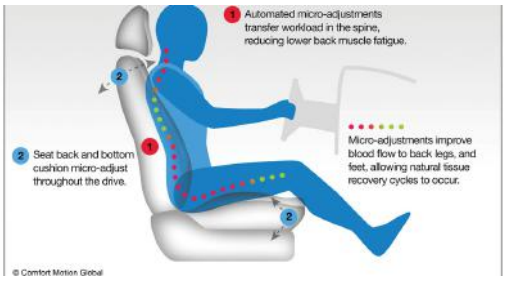
The new Autoliv Front Center Airbag helps avoid driver-to-interior and driver-to-passenger impact. The inboard seat mounted airbag deploys in the space between the driver and front passenger, preventing colliding during a side impact, and reduces risk of trauma to head, shoulder and chest, especially (but not exclusively) in side crashes.

The head is one of the most frequently injured body regions in any road collision, obviously bringing the potential for long-term consequences to the victim. And in collisions from the far side, the passenger may hit the vehicle interior, sustaining injuries to the head and chest. To improve protection from these injuries, EuroNCAP has introduced the far-side load case in the rating program from January 1, 2020.

Autoliv VP of Development Scott Dershem says "Research indicates that the new Front Center Airbag can reduce injuries caused by passengers colliding with each other by up to 80%. If there is no one in the front passenger seat, the airbag will offer enhanced driver protection from a far-side collision". The new bag will be introduced in 19 car models in 2020.

"Motion Seating" for Tomorrow's Cars?

Comfort Motion Global's (CMG) motion seating technology is a new approach for automotive, commercial trucking and aerospace seating. With a focus on health, wellness, and safety,



CMG says their motion seating technology promises scientifically proven benefits that make time spent in the car more enjoyable.

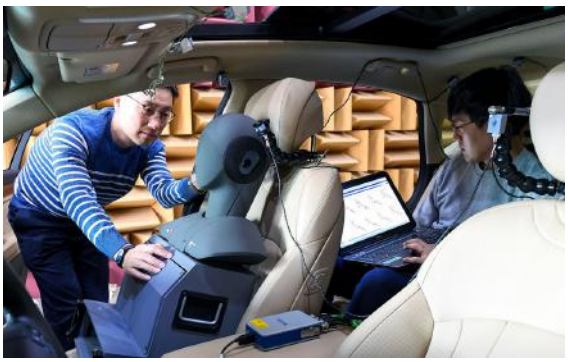
Health and wellbeing are on the radar of car buyers and users now more than ever, and usage scenarios are becoming different with Level–4 and –5 autonomous cars on the horizon. Occupants may be spending more time in their driverless cars, enjoying a much wider range of interactions and a lot more time in cars than has been possible before.

A key feature of health and wellness in the car is to decrease the negative impact of repetitive or prolonged sitting. The introduction of motion—not just massaging—to automotive seating could be a significant advance in protecting the occupant from the negative health impact of remaining seated and stationary.

CMG's 'Proactive' motion seating technology is designed to preempt tissue fatigue and reduce related discomfort, compared with massage seating that treats the pain resulting from sitting in a static position—and requires additional hardware such as mechanical rollers and pneumatic bladders, besides. Motion seating software can be programmed into any memory seat without adding any additional hardware or weight to the vehicle, and has a number of advantages that can benefit automotive consumers. Those benefits include redistributing the occupant's body weight in the seat, improving the circulation in the tissue under compressive load and in general to the legs and feet, and having a positive impact on driver alertness and reaction times.

The first vehicles with CMG's Comfort Motion technology will be the Mercedes GLE, GLS, A-Class, and B-Class vehicles—with more models to be announced soon.

Hyundai Hushes the Noise



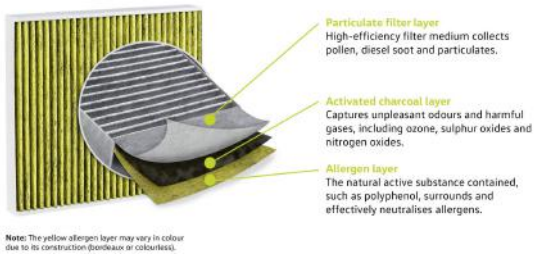
Hyundai Motor Group has announced the development of what they're calling RANC, the world’s first Road Noise Active Noise Control system. It's said to dramatically reduce noise within the cabin of a vehicle and will be applied to an upcoming Genesis model.

RANC builds on the group’s current Active Noise Control (ANC) technology, which actively reduces noise by emitting soundwaves inverse to those of ambient noise. But limitations of noise measurement and analysis technology mean the existing ANC can only handle constant, predictable noise. So, it's mostly helpful for reducing engine noise. The new RANC system, six years in development, can analyze various types of noise in real time and produce inverted soundwaves—including resonant sounds created between tires and wheels, and rumble sounds coming up from the road.

Hyundai says RANC can reduce in-cabin noise by 3 dB, to roughly half the noise level in the same vehicle without RANC. They think this could help them decrease vehicle weight by using fewer sound-insulating parts and dampers.

Partners on the RANC development project included Korea Advanced Institute of Science and Technology, WeAcom, ARE and BurnYoung. The mass production phase was carried out with global car audio company Harman, and Hyundai has filed for patents for the location of the sensors and the signal selection method, the core technology of RANC.

Activated Carbon Filter Now Standard in All VW Models



Volkswagen has announced that all their new models will be fitted with an activated carbon filter to help people suffering from allergies. The technology has been available for a long time as part of the Air Care Climatronic option which filters out pollen, bacteria, fungal spores, and particulates before they make their way through the ventilation system into the interior.

Furthermore, the filter technology with activated carbon layer also converts harmful gases like nitrogen dioxide, improving IAQ (indoor air quality). The majority of VW's older cars can also be retrofitted with the new activated carbon filter with the allergen-trapping layer.

AI Detects Phone Usage, Smoking While Driving

Eyesight Technologies has announced a new AI feature that can recognize when a driver is smoking or using a mobile phone. Preoccupied motorists, especially those absorbed in their phones, are responsible for 1.6 million accidents annually in the U.S. alone, according to Eyesight.

CEO David Tolub says "There's no greater distraction and danger on today's road than mobile phones…looking down at your phone (…) is six times more likely to result in an accident than driving under the influence of alcohol".

Likewise, cigarette smokers are up to three times more likely to cause a crash if they're smoking while driving, according to NHTSA. Eyesight Tech's existing DriverSense monitoring system already analyzes the vehicle operator's facial features, head pose, gaze vector, blink rate, eye openness, for signs of drowsiness and distraction. This new update increases the program's scope, enabling car manufacturers to intelligently alert the driver based on type of distraction.

"Our first priority is the safety of all people on the road, and eliminating the distraction created by our cell phones is a huge step toward a much safer road", Tolub said.

The feature may also have future applications in the shared-car economy, enabling vehicle owners to enforce no-smoking rules in rental cars or autonomous taxis.

Eastman, NB Collaborate on Sustainable Car Plastic

Trēva engineering bioplastic is a new collaboration between specialty plastics provider Eastman, who specialize in specialty polymers and compounds, and NB Coatings, which supplies paint-on plastics for OEMs and Tiers.

The key raw material used to make Trēva is cellulose derived from sustainably-harvested trees. The product is a BPA-free bioplastic that hits the sweet spot of reducing environmental impact without compromising overall performance.

Sourced from sustainably managed forests, Trēva has bio-based content of 42–46%, certified by the United States Department of Agriculture's BioPreferred program. To continue reducing waste and maximizing resources, Trēva benefits from carbon renewal technology, Eastman's proprietary recycling process that recycles waste plastic typically sent to landfills or found as litter in waterways. The claim is that the technology converts the waste to simple molecular components that are then reintroduced in the production of a variety of Eastman products, including Trēva, without performance compromise.

"Trēva provides a bio-based, sustainable alternative to polycarbonate, ABS and PC-ABS for interior automotive applications at a cost-neutral position", said Chris Scarazzo, Eastman's automotive market segment leader.

Maezio Composites in Covestro's Prototype Interiors

As the ACES automotive revolution gains traction, the car will become a multifunctional, mobile living and working space. This is the guiding principle of a premium interior concept for
future mobility recently unveiled by project lead Covestro and its development partners.

"Modern materials and technologies have paved the way for this," said Jochen Hardt from Global Marketing Mobility at Covestro. "In cooperation with partners, we keep pushing the boundaries of what is possible."

The concept focuses equally on functionality, comfort and design, but also on
efficiency and light weight, including innovative seating concepts, smart surfaces and integrated, personalized lighting. Covestro says its high-tech materials open up a kaleidoscope of new possibilities for many different components.

As the traditional function of the driver's seat is no longer the only one, the car interior can be given a new look and design. Not only should the seats be comfortable, they should also offer enough flexibility to expand the interior space. An individually configurable lighting system is also integrated to ensure comfort and safety and enables car manufacturers to differentiate their brands. In these seats, Covestro's Maezio brand continuous carbon fiber-reinforced polycarbonate composites materials provide a new aesthetic appeal and robust structure, while Makrofol® films combine design and functionality.

Together with partners, Covestro has also developed a lightweight table that is tailored to new usage habits in autonomous vehicles and offering a lot of flexibility. The 2019 prototype is made of Maezio™ composite material and delivers thin-walled construction, aesthetics and stability. The table can be designed to be foldable so that it can be stowed between the rear seats to save space.

Honda's New Civic interior

Honda has revealed a range of upgrades for the 2020 Civic, encompassing exterior styling enhancements and improvements to the infotainment system and cabin materials "to further enhance the car’s usability and premium feel", according to the company.

The interior of the Civic has been upgraded with new textured interior panels designed to reinforce a sophisticated, premium ambience. An electric eight-way adjustable driver's seat is also available on top-of-the-range models.

Usability has been enhanced with physical buttons and dials for the infotainment and climate controls, in response to customer demand. The infotainment system already incorporates Apple CarPlay and Android Auto integration, and can be personalized accordingly.

Maybach SUV Unveiled at Guangzhou Show

The leather-lined Mercedes-Maybach GLS 600 SUV will rival the likes of the Bentley Bentayga and Range Rover, and will feature unique styling cues, a mild-hybrid drivetrain, all-wheel drive, active air-sprung suspension, and an upgraded interior with generous equipment level in accord with the brand's upper-crust luxury positioning.

Inside, the 5.2-meter-long SUV has an upgraded interior with Nappa leather upholstery and unique trim elements. Optional features include reclining rear seats with a massage function and a fixed center console with folding tables and a refrigerator in a spacious four-seat layout that can be further enhanced with a panoramic sunroof.

This new top-of-the-line GLS model is a specially tuned version of Mercedes-Benz’s E-Active body-control suspension. It controls each spring and damper to suppress body roll, pitch and lift. Also included is a curve inclination function that allows the big new SUV to lean into corners to reduce the lateral forces acting on the occupants.


Ultimate Luxury

News Mobility

Lyft's Vouchers for Users Who Sell Their Cars

Lyft says they are launching an offer to users in Los Angeles, San Francisco, and Chicago: sell their cars and get credit on the ride-hailing platform. Those who sell their vehicle through Carvana, an online used car retailer, would receive $250 in Lyft credit and three months of free membership in Lyft's subscription service, Pink.

Lyft Pink membership, which costs $19.99 a month, provides a 15-percent discount on ride-hailing trips and 90 minutes of complimentary bike-share and electric scooter rides in cities with availability.

The new offer is targeted at people who are already considering giving up their car, said Lyft's senior director for transportation policy, Lilly Shoup. Lyft plans to expand the program to other cities. Carvana will not share any profits from the sale of a car with Lyft, Shoup said, adding that the effort is part of Lyft's efforts to reduce private car ownership and encourage multi-modal transport.

Transport is the fourth-largest household expenditure after healthcare, housing and food, according to the U.S. Department of Transportation, with households spending an average of roughly $9,700 on transport in 2017.

Asked whether Lyft research had shown its alternative transportation offers to be cheaper than private car ownership, Shoup said those calculations are highly personal and dependent on the individual commuter.

Hyundai and Seoul Will Test AVs on City Roads

Hyundai has signed a memorandum of understanding with the city of Seoul to begin testing six autonomous hydrogen fuel-cell vehicles on roads in the Gangnam district beginning next month, according to a BusinessKorea report. The arrangement specifies that six vehicles will begin testing on 23 roads in December. By 2021 there are slated to be as many as 15 of the cars being testing on the roads.

Seoul will provide smart infrastructure to communicate with the vehicles, including connected traffic signals, and will also relay traffic and other info as frequently as every tenth of a second to the Hyundai vehicles. That kind of real-time information flow should help considerably with

providing the visibility necessary to optimize safe operation of the autonomous test cars. On the Hyundai side, they'll be sharing information too—providing data about the self-driving test that will be freely available to schools and other organizations looking to test their own self-driving technology within the city.

Together, Seoul and Hyundai hope to use the partnership to build out a world-leading downtown self-driving technology deployment, and to have that evolve into a commercial service, complete with dedicated autonomous vehicle manufacture by 2024.

Navya Concentrates on AD Technology

After having produced its own autonomous shuttles, Navya follows in the footsteps of Easymile and focuses on autonomous driving technologies—but the future remains to be built. The shuttles are still in an experimental phase, on routes most often protected, for a few kilometers at most, with a handful of devices, and in a rather restrictive vision of complement to transport in common. Current regulations in most of their markets do not allow to move to massive commercial deployments. Will this be enough to create a profitable business in the coming years? Navya and EasyMile agree on this point: it is the withdrawal of security operators, still present in all their tests, which will make their business profitable and trigger massive orders from their customers. They both hope that their technologies and lawmakers will be willing to do without humans on board by 2021

The Design Lounge

Ford Mustang Mach E, and EV CUV

Crossovers and SUVs have replaced the traditional 4-door sedan as the default form factor for the practical family car. Audi's e-Tron, Jaguar's E Pace, Ford's Mustang Mach E, and the upcoming Tesla Model Y have defined the competitive space for a pure electric family vehicle.

With Ford and the Mustang Mach E now entering the market as a mainstream car instead of as a luxury competitor to the Tesla Y, it's appropriate to compare these vehicles directly. We'll leave aside the Jaguar and Audi for now, as they are in a higher price bracket and luxury position.

Ford Mustang Mach E **Tesla Model Y**

With these vehicles, the newest direction from each automaker is on display, as Tesla has specifically targeted this growing and popular segment, and then Ford countered with their first-ever EV.

Tesla, over the past few years and model iterations, has established themselves as the benchmark regarding EVs, specifically focusing on their interior aesthetics as highlighted with the Model 3.

Tesla Model 3 interior

With a large central display, the minimization of traditional vents and buttons, and an open glass roof, the Model 3 epitomizes the new EV aesthetic regarding Tesla as a brand. Their new Model Y further builds on this identity.

Tesla Model Y interior

Tesla Model Y interior and cargo space

Visual elements and features from the Model 3 have been carried over to the Model Y, as Tesla felt no need to define what characteristics are necessary for an EV. Only the translation from a sedan into the CUV class architecture was required.

Ford, on the other hand, was making their first foray into the EV space. By using the Mustang name and identity, this allowed them to reference one of the most recognizable badges in history along with the visually cues required. These were already well established: the triple-vertical-bar taillights and long hood proportion for the exterior along with a split driver and passenger cockpit.

Ford Mustang Mach E cockpit

With the background reference of the Mustang identity in place, Ford then could focus on what features were needed to compete with Tesla. The large central touch screen was centrally crucial, for example.

Ford Mustang Mach E

Ford also incorporated a driver display, but instead of following a more traditional hooded brow, they decided the tablet æsthetic that mimics the central display was more in keeping with the EV technical look-and-feel that was established by Tesla.

Keeping a traditional position for this display but eliminating the brow behind the steering wheel creates a driver–focused environment without overpowering the tech elements of the large central screen.

General News

Preh, Joyson Roll Connectivity, Infotainment into Independent Division

The Joyson Electronics Group, of Ningbo, China, plans to bundle its connectivity and infotainment activities into a new unit. Preh Car Connect (PCC), of Dresden will be merged into a company with its Chinese sister company Joyson Preh Car Connect (JPCC) in Ningbo. The new joint venture, Joyson Car Connect (JCC) means that a strong connectivity specialist will be created under the umbrella of Joyson Electronics with the main aim of serving the strong growth in the Chinese market. Preh, for its part, will focus on its traditional HMI and E-Mobility business areas with German Premium OEMs, which are also experiencing dynamic growth.

With the creation of this independent company for connectivity and infotainment, the Joyson Group is recalibrating its setup to make better use of the growth opportunities in China in an increasingly difficult industry environment. PCC’s Chinese market is already of great importance, and there is also great potential for new business in the future. In addition to the growth in the classic HMI sector, Preh GmbH will increasingly focus on the dynamically growing market for electromobility, where the company has achieved great success recently. "The strong growth over the last four years has required Preh and PCC to focus on their respective core business, leaving little room for joint projects. The new set-up will enable both divisions to concentrate fully on their own growth from now on", says Dr. Michael Roesnick, who is currently interim CEO of Preh.

Founded in 2004, Joyson Electronics' main products used to be automotive functional components. Since 2011 the company has bought several others, including robotics companies IMA and QUIN in Germany; American global automotive safety system supplier Key Safety Systems; German smart car connect industry leader TS, and troubled Japanese seatbelt-and-airbag maker Takata.

Waymo AVs Under Construction in Detroit

John Krafcik, CEO of Google self-driving affiliate Waymo, says his company's Detroit plant is operating and outfitting fleets of vehicles with autonomous driving hardware and software. The milestone allows the Alphabet subsidiary to put its automated "driver" into vehicles at mass scale. Doing so will help Waymo to test its technology and expand its robo-taxi service.

"We've just opened the world's first dedicated autonomous plant," Krafcik says. "We call it a factory."

In April, Waymo said it was acquiring a plant previously owned by American Axle & Manufacturing Holdings on its Detroit headquarters campus bordering Hamtramck. The $14m investment puts the Silicon Valley tech company at the center of the North American hub for automakers, suppliers and engineering talent. It also sits across the Detroit River from the assembly plant in Windsor, Ontario, Canada that produces Chrysler Pacifica hybrid minivans used in Waymo's self-driving fleet.

For now, the Detroit factory is focusing on integrating Waymo's fifth-generation driver technology, with the help of Canadian auto supplier Magna, into the electric Jaguar I-PACE SUVs, which come from Austria. The factory has outfitted 30 vehicles that are now in California for development and testing.

Waymo has contracts to buy up to 62,000 Pacifica Hybrids from Fiat Chrysler and 20,000 vehicles from Jaguar. Waymo's technology, very visible on top of the vehicles, includes a new sensor kit developed in-house with lidar, radar, cameras, and one other sensor modality that Waymo has not disclosed publicly, Krafcik said. A computer package also sits in the trunk.

The vehicles made in Detroit eventually will be put to work in Waymo's self-driving robo-taxi fleet called Waymo One. The service launched in December in Phoenix to a few hundred customers. "We're not a car company," Krafcik said. "We're not a self-driving car company either. Our mission is to build the world's most experienced driver". Waymo also has an office in Ann Arbor, Michigan, and a small technical center in nearby Novi that opened in 2016 to test its fleet in Michigan's winter weather conditions.