DVN-I
Automotive Interior

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Editorial

Supplier Technology At Tokyo Motor Show

In this month's first issue, your DVN-Interior Newsletter focused on the visible part—the automakers' part—of the Tokyo Motor Show. Today we report on the supplier side. In contrast to the relative lack of diversity in automaker nationality, there was significant presence of major international suppliers—Faurecia, Schaeffler, Mahle, Continental, and Bosch, for example. And the Japanese supplier industry was, of course, robustly represented. Find more detail in the extended in-depth report in this issue.

Attendance figures have been released, and it looks as though the "re-invention" of the show by Toyota boss Akio Toyoda is a big success: more than 1.3 million people visited the show over 12 days' time, a 70 percent jump over the 771,200 who attended the biennial show in 2017.

With new mobility—city planners, lifestyle technology, fun cars, drive-and-park demos, autonomous demo, not to mention the wide array of sideshows and attractions offered this year at Tokyo—this new kind of show is rather like an amusement park, and people are interested again. We're looking forward to more reconceived auto shows, such as the first Detroit show in over three decades to be held in June rather than January

While announcing the figures, Toyoda said "You may have felt something a little different from usual this time…if you found yourself happy to come this time, please look forward to the 2021 Tokyo Motor Show. We would like to propose something far beyond my imagination at the next motor show two years from now". We can't wait! We'll be releasing a comprehensive DVN-I Report in December—including a thorough introduction of the Japanese interior supplier ecosystem and market to complement this week's in-depth.

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 January with the rubric "Automotive Interiors: New Technologies for New Usages". workshop.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Lighting Technology

DVN-I at the Tokyo Motor Show—Part II

The 46th Tokyo Motor Show gave strong visibility to the Japanese automotive supplier industry, of course, and international suppliers were there, as well. We paid close attention to the Japan-based suppliers, through the two big halls where approximately 100 suppliers were presenting their new technologies and the shape of the ecosystem overall. It was surely interesting to see all synergies between the different Toyota family suppliers, for example.

Toyota Boshoku

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The car-using public's expectations are rapidly changing, and the Toyota Boshoku is leveraging the technical know-how within the Toyota Group companies to propose an interior space concept based on an autonomous driving scenario. Toyota worked in close collaboration with the likes of Aisin Seiki, Denso, Toyoda Gosei, and Tokai Rika to incorporate numerous advanced systems in its future interior concept called MX191.

Under the theme of **"More comfort, more safety, and more enjoyment"**, the *MX191*forecasts a new kind of mobility space during autonomous driving. It bristles with advanced technologies like unique seat arrangements, next-generation safety systems integrated into seat and cabin, and an intelligent cabin environment that uplifts occupant status to be refreshed, relaxed, or awake.

The MX191 knows in advance what is needed for the passenger and provides a kind of concierge service in the cabin space when it is needed. When the autonomous era arrives, there will be a huge change in what travelers can do inside the car; conversation, leisure, entertainment, relaxation, work…!

The concierge service starts before boarding the vehicle. When the driver gets ready to depart, he sends the destination information from the house. While still plugged in for charging, the system disinfects cabin air, turns on the HVAC and makes the cabin environment comfortable and fresh.

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When the passengers approach the vehicle, the e-glass that was protecting the privacy becomes transparent, and the door opens as the front seats rotate outward to welcome the passengers.

After the passengers are seated and brought into the cabin, the seat belt and buckle reach out forward and up, so that it is easier to grab the belts and buckle up. In autonomous mode, the front seat can move in multiple directions to utilize the entire cabin space through extended adjustment travels. The seat belt is integrated on the seat without depending on a body mounting. There's also a third airbag integrated into the safety belt to ensure passenger safety wherever the seat is located. Integrated thermal systems can be individually controlled for each seat and passenger; a new HMI can control all the comfort related functions in any sitting position, through the control panel and touch pad located on the armrest.

Systems operate by monitoring the vital signs of the occupant's body and providing the appropriate sensory-related stimulations, such as sound, ventilation, vibration, and illumination, to elevate the emotional or comfort state of the occupant. The system helps to maintain the driver's alertness during manual driving, by seeing to the music.

When three people ride together, a larger space can be created to face each other. While the front seat is in rotation, the safety monitoring camera watches the movement and stops when there is something in the path.

With six concierge systems, the MX191 demonstrates a future interior cabin "looking after the space to look after the people", as Toyota puts it.

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  Toyota Alphard/Vellfire, Executive Lounge Seat

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Toyota LQ seats

The Executive Lounge Seat in the Toyota Alphard/Vellfire has a power ottoman, is 10 cm wider than a conventional single rear seat, has a built-in belt for best safety no matter what the chair position, and all kinds of other features— stowable tray, in-armrest cupholders, smart phone, file holder. It's wrapped in semi-aniline leather with a superior quality feeling. This very spacious seat is designed to offer the best relaxation and comfort in the industry; in relax positions it supports deep breathing, pushing under diaphragm with lower back massage; or energy massage mid back, to stretch your upper body.

The Toyota LQ interior—it's a car for the upcoming 2020 Olympics—includes seats with functions to keep travelers relaxed and awake, with multiple built-in bladders and air conditioning to help monitor driver state of wellbeing.

The interior has illuminated floor mats that change color as the mode changes from manual driving to autonomous. Kenaf fiber-based material is used in door and pillar trims as a lightweight (-20%), highly rigid, natural selection.

In the Future Expo area, Toyota Boshoku also presented a new comfort technology seat with more than 100 little rubber blocks, each mounted on individual free pivot, to follow perfectly the shape and position of any occupant.

Tokai Rika

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Tokai Rika, focused on human interface and safety technologies, showed proposals for the forthcoming mobility society through a future cockpit mockup and some of their latest products.

Their future cockpit mockup demonstrated a UX-centered interactive interface between people and mobility, realized through sensory communication. It includes an armrest-integrated touch pad, to ensure stable operation while driving and convenience in various situations.

The safety concept is built around an automatically adjustable seat belt, through motors to achieve a better fitting, and ensures safety through notifications and warnings to occupants.

Personalization comes by dint of a door entry image recognition system combining smartphone key technology with image recognition. It also supports smooth entry into the vehicle by allowing users to open the door using gestures.

Toyoda Gosei

TG specializes in rubber and plastics automotive parts including sealing, ducts, instrument and door panel components, consoles, and safety systems, airbags (front, side, knee, cushion, curtain,) and steering wheels with built-in airbags.

In the field of CASE Technologies, Toyoda Gosei's strategy is to provide new mobility modular products which combine electronics (sensors) and safety technologies with plastic molding and decorative technology; such as e-Rubber, a next-generation rubber that moves with electricity.

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A next-generation safety system was presented with airbags integrated into seats to accommodate the more diverse occupant postures that are expected with autonomous driving. These seats equipped with these airbags are the ones equipping MX 191 concept of Toyota Boshoku.

There was a steering wheel module demonstrator with human machine interface functions added for coordinated vehicle operations between humans and systems. Driver monitoring functions sense the condition of the driver with cameras and sensors, and information functions convey information with light and vibration. This operation is achieved through linkage with the steering systems of Jtekt.

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Flesby III is an interior and exterior concept model of compact mobility for around the year 2030. It could be compared to a Renault Twizy. By combining a soft body achieved with rubber and plastics technology with artificial intelligence, Flesby communicates through touch and light on the whole interior surface, within the reach of the driver.

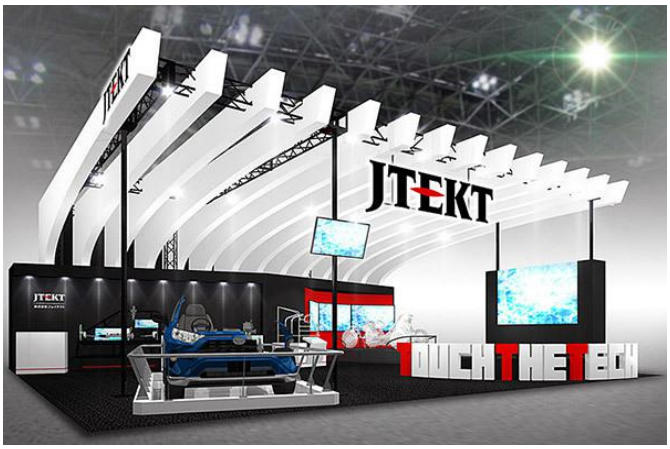
This exterior concept includes a safety function that absorbs shocks in the event of contact with a pedestrian, and an energy-saving function that optimizes the vehicle shape according to the driving situation.

The interior concept has a “first class” function that creates a feeling of calmness with a softly enveloping sheet and LED lighting that changes color depending on the scene.

Commu-Touchpad

This is a haptic technology that simulates various tactile sensations using the vibration of e-Rubber, a next-generation rubber that expands and contracts with electricity.

Jtekt



Jtekt came 10 years ago as the result of a merger between Koyo Seiko and Toyoda Machine Worksto manufacture and sell steering systems, driveline components, bearings, machine tools, electronic control devices, home accessory equipment.

The collaborative technologies Jtekt has been developing—such as steer-by-wire and in-wheel motors—were presented in a fuel-cell vehicle simulator with retractable steering column module strongly pointing at high-level autonomous driving. Toyoda Gosei and Jtekt designed the cockpit concept as a forecast of 2030's vehicles leveraging the companies' strengths. Based on this concept, Jtekt proposes future mobility with left and right independent steer-by-wire and other features that augment the safety, comfort, and efficiency of tomorrow's reimagined automobiles.

Denso

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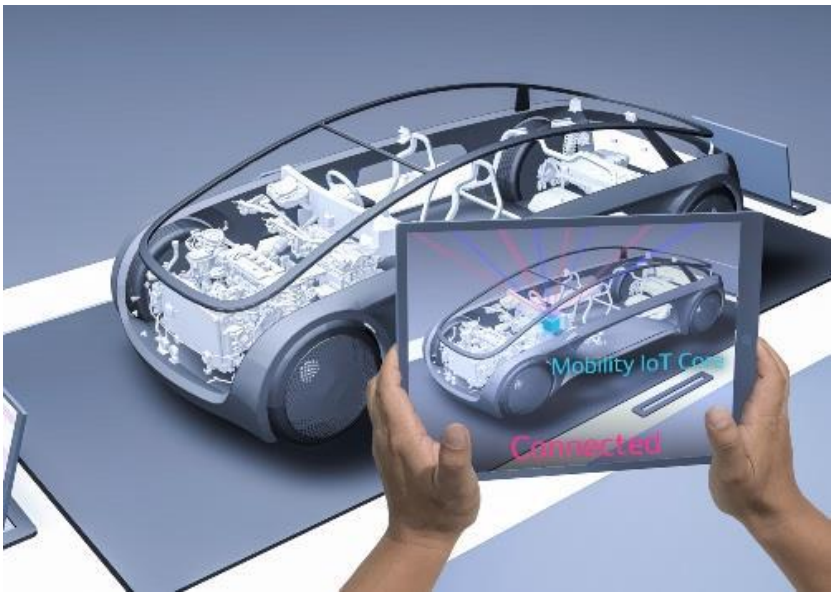
- 

Denso is an auto parts conglomerate partly owned by Toyota. They make a wide array of components for conventional and hybrid vehicle powertrains, climate control systems, instrument clusters, airbag systems, pre-crash radar systems, rotating electrics, and ignition parts. Denso also develops and manufactures non-automotive components, such as household heating equipment and industrial robots.

For this year's show, Denso focused on solutions for security, energy, and the connected-car future to support its show theme of “Implementing Capabilities to Create a Future Transportation Society.” In the Denso Urban Moves connected-car simulator, visitors experienced the promise of convenience and fun of life in three scenarios: travel, business, and everyday life. Moreover, as part of the effort to achieve a safe society without traffic accidents, Denso showed technologies and products they're developing to bring new levels of safety for more conventional new cars, and for vehicles already on the road.

The booth featured a space with only 1 lux of light, that is "moonlight darkness," where visitors could try out Denso's image sensors and millimeter-wave radars using projections and minicars.

Aisin

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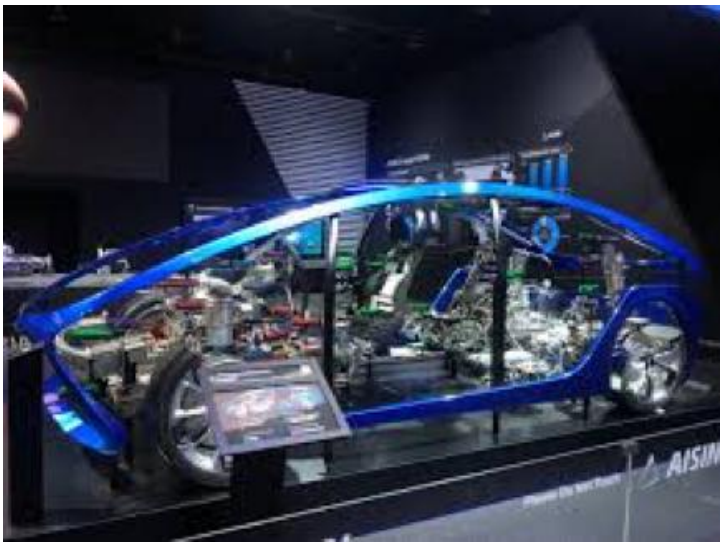
"i-mobility Type-C" (Future)

- 

"i-mobility Type-T" (Present)

Aisin Seiki is another conglomerate partly owned by Toyota. They supply engine, drivetrain, body and chassis, and other parts for major automakers. The Aisin booth presented the supplier's historical and present achievements.

Central to the Aisin display was the "i-mobility Type-C" (Future) equipped with technologies and services that meet various user needs and driving conditions in the new mobility society, and the "i-mobility Type-T" (Present) with an extensive suite of of innovations in the powertrain, chassis, safety systems, body, electronics, and interior.

Visitors scrutinizing the Type-C could view a demonstration of the concept's hospitality for comfortable movement, including opening and closing doors and adjusting seats according to movements and driver and passenger situations, and reminding the driver and passengers of items left in the car.

TS Tech

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Seat with high-efficiency ventilation

TS Tech is a Honda family supplier. They presented what they called a “space”, a concept focused on a future car interior to transport people with an experience presented as being beyond comfort. Named Innovage, it included a 4-seat system catering for diverse scenarios including easy ingress and egress (retractable steering wheel), relaxing, communicating, and automatic seat adjustment based on occupant posture. Respiration and heart rate sensors monitor the driver's wellbeing, while footrests alleviate cramping and massaging seats prevent back pain.

TS Tech displayed its Aisareru® ("be loved") seat, bristling with internet-connected sensors to provide new forms of entertainment by using the seat as a controller that senses the movements of an occupant, and making the link with apps on a smartphone or tablet, app which could be sports-, healthcare-, or event-related, for example.


Decorative door trims

TS Tech also showed its high-performance seat system on the new Honda Gold Wing motorcycle, which adjust its firmness based on rider’s physique to disperse pressure, and includes ventilation and heating in accord with ambient temperature.

Marelli

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Human-Max Cabin
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Marelli is a new global Tier 1 automotive supplier created in May 2019 when Magneti Marelli was spun off from FCA and merged with Japanese parts maker Calsonic Kansei, partly owned historically by Nissan. The Marelli booth combined the synergies of the merged companies into five technology areas that will introduce products and services: interior experience, autonomous driving, connected systems, electrification and green technology.

The interior experience area presented the "Human-Max Cabin" concept bringing together interior fittings, electronics, and air conditioning to create a comfortable, personalized space.

Features of interest included eye and temperature tracking, integrated in the mirror, armrest used as a mouse pad, driving info on an upper transverse screen, with long distance focus, and light pass-through signals on the instrument panel to keep track of side obstacles, cyclists, and pedestrians.

Imasen Electric

Imasen, based in Japan's Aichi prefecture, presented its whole product portfolio—including lamps, relays, horns, sensors, and seat mechanisms. The seating demonstration showed off Imasen's range of expertise in making seats that recline, slide, adjust height, and remember various drivers' positional preferences. The presentation was organized around a 3-seater demo car interior.

Delta Kogyo

Delta Kogyo, a seat, seat frame, and seat mechanism supplier based in Hiroshima near their primary customer Mazda, showed off its "Magneto-spring suspension" seat unit, wherein vibration is controlled with very short strokes (up to 4 or 8 cm, depending on model and direction) by a system incorporating positive and negative magnets and metal springs. Adjustment is possible to suit the level of vibration to be absorbed. Lateral suspension strokes are based on the Skyhook theory, similar to zero-gravity seats. It improves comfort by reducing movement of the occupant's upper body.

Also, on display: the company's work on APW (aortic pulse wave) technologies, which can detect the vibrations coming from the cardiovascular system to determine the level of attention and stress of drivers during driving. The device consists of an integrated seat cover with microphones and sensors that record the heartbeat and blood pressure. So far this technology is calibrated to the biorhythm of Japanese people, and Delta Kogyo is working on testing it in a European context.

Faurecia Clarion Electronics

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Last March, Japanese supplier Clarion became a wholly-owned company of Faurecia. The new Business Group, Faurecia Clarion Electronics, combines Clarion with Faurecia's previous acquisitions of Parrot Automotive and Coagent Electronics.

The spun-together company is working to become a global leader in cockpit electronics and low-speed ADAS, and Faurecia Clarion showed progress toward that goal with the array of technologies on display at the show:

Connected Premium Sound: Automatic understanding of the occupant's position and optimization of their sound environment by combining digital technologies and acoustic solutions.

Autonomous pickup: Using an app, a user remotely summons the car. The driverless vehicle uses a map (previously autonomously created while parking) to recalculate its route and uses fusion of cameras and sensors together with detection software to monitor the driving environment and avoid obstacles on its way to pick up the driver.

Quad View HMI: a multi-view HMI interface that eliminates confusing menu structures and gives more flexibility over selecting and managing in-vehicle features. It allows users to bookmark and organize their most frequently used apps or services into an easy-to- access series of options on the top of the display.

Panasonic

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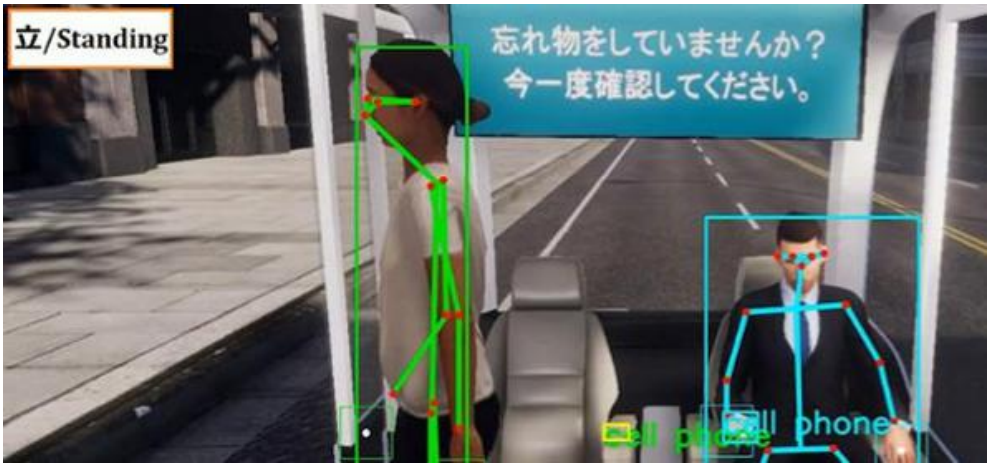
Within "Future Expo", the introduction to the Tokyo Olympics 2020 and to depict the future life, Panasonic is exhibiting an interior demo-car "Space L" by Panasonic. Inside the car, windows and ceilings can be used to enjoy video and sound as an 8K monitor gives people a sense of reality.

"The concept is a proposal for future cabin space and new value around 2030 in the future. When mobility style becomes automatic driving, the way people move and spending space in the cabin is changing. We will propose, for example, space as living room like home, room for relaxing, Movie Theater and place for enjoying with a friend," said Panasonic Automotive CTO and VP of Engineering Naoki Usui.

Seat and space are temperature- and humidity-controlled automatically at the individual-traveller level. In addition, the 180° rotating front seats have a computer and a video phone that can be used in a business situation.

Also on display: a mist jet machine for cooling off without getting wet, presented as a kind of public shower; Panasonic's Kenta Yamada called it a "countermeasure against the heat of summer in Japan…not only for next year's Olympics and Paralympics but also for a large-scale event. I hope people in the world will experience this Japanese technology and feel the coolness".

Yazaki

- 

Human skeleton and objects are recognized with deep learning

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“Watch-Over System” overview

Yazaki is introducing a vision of a new mobility society built around its current technologies for the future. Their booth focused on EEDDS (Electrical / Electronic Distribution & Display System) and data solutions, a wire harness internally connecting in the vehicle, HMI connecting vehicles and people, and data technologies connecting vehicles to a society.

Yazaki proposed an autonomous-driving electric vehicle equipped with a safe, efficient power supply system and secure high-speed communication system, together with a power supply and communication infrastructure system that can be used with various cabins to provide diverse and convenient services including their Cockpit interface Concept, with adjustable display position of HUD and meter meeting the driver’s gaze and face angle, judging driver’s conditions, giving warning, and confirming safety.

At autonomous driving level 2 to 3 mixed manual driving and automated driving, information that ensures safety, security, and comfort can be provided. During manual driving, the system supports safety by augmenting the driver's situational awareness. During automated driving, it caters for new ways to spend a time in a vehicle, mainly with entertainment. When switching between manual and autonomous driving, it provides the needed information so the driver can take on the driving task quickly and efficiently.

The supplier showed their "Watch-Over System" that provides safety and security to passengers and reduces the burden of management operators by analyzing motions of the occupants in ride-share cars driving autonomously at L4 or above. To prevent problems in the car, such as leaving belongings, oversleeping, and tripping, the human skeleton is simulated and objects are recognized with deep learning. The dynamic links between the human skeleton and objects is judged with machine learning and a rule base, and appropriate notification is automatically given to the occupants according to the situation.

Nissha

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Nissha is a multi-industry supplier of things like in-mold decoration (IMD), in-mold electronics (IME), and touch sensors. IMD technology uses a film which allows curved parts to get decorative and functional layers on product surface. IME is a module product which integrates touch sensors, light source heater, antenna, and suchlike into a plastic panel.

Interior News

Fully-Recycled Fabric for Renault's New Zoe

Renault is putting fully-recycled fabric in the interior of the new Zoe. The new material was co-developed by Renault, Les Filatures du Parc, a French company specialized in carded yarn, and Adient Fabrics, the world's leading supplier of automotive seats, with the support of Ademe and the Occitania region in France. It is based on a patented textile product made from safety belts, textile scraps, and recycled plastic bottles. This new, innovative short loop manufacturing process reduces the carbon footprint by 60 % compared to the standard process.

The fabric covers a total area of 8 m² in the Zoe, including seat covers, dashboard coverings, gear lever brackets and door fittings, and meets the high requirements for comfort, cleaning, UV resistance, and durability. Les Filatures du Parc has been able to develop a new industrial defibering line adapted to the robustness of safety belts, an essential step in preparing raw materials and optimizing fiber length. Once cut and shredded, the belt and textile fibers are mixed with polyester fibers from plastic bottles that guarantee the cohesion of the fibers, before undergoing a series of carding operations. The carding technique makes it possible to obtain a new weaving yarn thanks to a system of drums lined with very fine steel tips rotating at high speed. This makes it possible, without chemical or thermal transformation, to disentangle and then divide, stretch, align, and twist the fibers cleared of impurities.

BMW Mini EV Interior

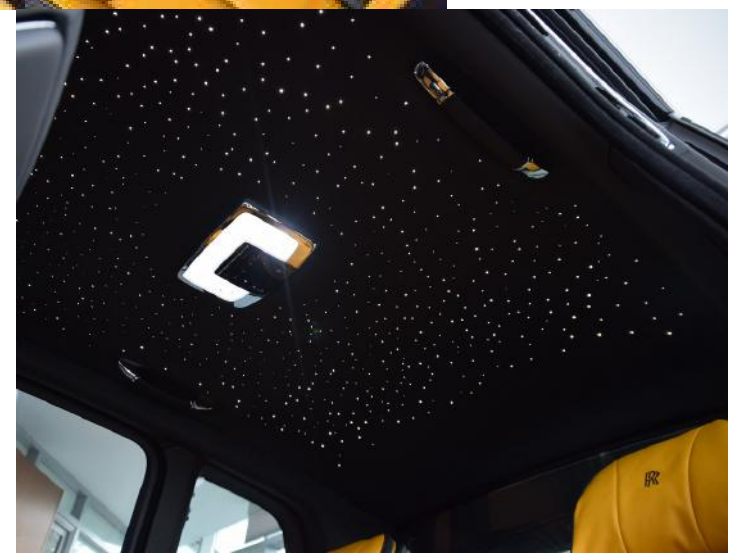
Inside the Mini Electric the main difference compared to the standard car is the inclusion of a free-floating digital screen behind the steering wheel that replaces analogue dials. Information shown on the screen includes power use and battery state of charge. There is a 6.5” touchscreen on the central instrument panel. Cargo space is preserved, even with the battery positioned between the front seats and below the rear seat.

BMW says about 20,000 potential customers have already expressed an interest in the Mini Electric. The car will have a range of 200 km (124 miles) to 232 km (140 miles) under Europe's WLTP test regime. It uses a 32.6 kilowatt-hour battery pack. It is 145 kg heavier than the Mini Cooper S 3-door combustion engine car with automatic transmission, but the center of gravity is 30 mm lower than the combustion engine car, helping with the vehicle dynamics.

Rolls-Royce Cullinan Joins Black Badge Family

Since 2016, BMW-owned Rolls-Royce has offered "Black Badge" versions of their cars, and now the Cullinan SUV is available as a Black Badge model. Unique elements include two-tone rims, carbon-fiber interior trim, and smoked chrome on the grille, dashboard clock, and hood ornament.

Also standard in Black Badge is the Starlight headliner, which uses 1,344 fiber-optic cables woven into the leather overhead to emulate a starry sky. In the Cullinan the headliner can trigger light points in sequence, creating a shooting-star effect.



News Mobility

Navya Joins Korean Esmo

To finance its R & D and commercial development in Southeast Asia, Navya will sell 20% of its capital to the Korean equipment supplier Esmo. The move is expected to bring €20m and augment its commercial and industrial power in South Korea.

The Korean equipment manufacturer Esmo (formerly Nexen Tech), which manufactures cable harnesses for GM Korea and Renault Samsung Motors, will buy €20m worth of bonds from Navya before converting them into shares to acquire approximately 20% of the capital of the French leader in autonomous shuttles. The Korean company will become Navya's second largest shareholder behind Robolution Capital, an investment fund managed by 360 Capital Partners, which holds 37.6% (Valeo and Keolis, a subsidiary of SNCF, each hold 14.3%).

The money raised will be used to strengthen R & D and to deploy commercial and marketing resources, particularly in South Korea where Esmo will be the exclusive arm of Navya and an industrial partner for the manufacture of autonomous shuttles. "We have known Navya and the quality of its technology for several years and are convinced that its autonomous vehicles have key assets to become a major player in its market," Esmo CEO Jeong Hun Kim said.

With more than 270 employees in France (Paris and Lyon) and the United States (Michigan), Navya is developing two autonomous vehicles, the "Autonom Shuttle" shuttle, of which more than 115 have already been sold by the end of 2018, and the robot -cab "Autonom Cab", whose first road tests will start soon.

Nio, Mobileye Partner on Self-Driving Cars

Chinese EV startup Nio and Intel's self-driving car technology firm Mobileye will partner to develop autonomous vehicles in China and eventually other countries.

Under the agreement, Nio will manufacture and mass-produce a self-driving system designed by Mobileye, which will be integrated into Nio's electric-vehicles, the ES6 and ES8, as well as Mobileye's driverless ride-hailing services.

The self-driving componentry provided by Israel-based Mobileye includes the vision processing chip, camera, radar and lidar sensors, as well as safety and mapping software.

Nio will also develop a version of self-driving electric vehicles that Mobileye will deploy as robo-taxis for ride-hailing services in global markets.

The companies plan an initial release in China beginning in 2022, Mobileye CEO Amnon Shashua said, noting "The deal with Nio will also enable us to harvest data in compliance with Chinese regulations and improve mapping to support autonomous driving". Shashua said his company also has "strategic partnerships with a number of Chinese carmakers" to work on autonomous cars, without elaborating further.

The Mobileye CEO added that a rollout in China is more efficient as the regulatory environment was centralized and the Chinese government is working on standardizing Mobileye's safety model for self-driving cars into law.

This agreement shows a development direction towards more advanced driver assistance system (without being fully automated self-driving systems), and to share components to reduce costs and increase production volumes—a coping strategy for many companies as they proceed through the complex, costly path toward AVs.

NIO ES8 interior

VW EV Microbus to Launch New Silicon Valley Center

VW is renaming its Electronics Research Laboratory in Silicon Valley as the "Innovation and Engineering Center California", which will be VW's largest R&D facility outside Germany. To commemorate the occasion, they've put forth a battery-electric concept vehicle built from a 6-decades-old, 11-window Microbus to show off some of the global automaker's latest developments for future mass-market vehicles.

The Type 20 concept uses the body of a 1962 Type 2 Microbus as its base, but the combustion engine has been replaced with a 120-hp electric motor and small 10-kilowatthour battery with a 2,500-watt onboard charger. A pneumatic suspension system was borrowed from Porsche to adjust the vehicle's ride height via software, including when the driver approaches the vehicle.

Inside, the Type 20 includes an experimental facial recognition system that employs a high-definition camera in the driver's-side door window to allow access. Three integrated directional microphones, including one on the exterior, allow the driver to interact with the Type 20 similar to how one might interact with a digital assistant. On the exterior, the vehicle responds to driver commands via flashes of its LED headlamps and its illuminated VW logo.

In homage to the Microbus' historical role in California's 1960s counterculture, VW's designers integrated a "Looking Glass II" holographic display in the dashboard, generating 3D images that can be viewed without the need for special glasses.

Some of these advanced features could maybe be integrated into the upcoming ID Buzz, which VW hopes to launch in 2022.

The Design Lounge

New Design Direction for Nissan AVs

The Japanese rollout of Nissan's ProPilot 2.0 technology shows how the automaker is thinking about new design directions for the futuristic self-driving technologies. Design chief Alfonso Albaisa says the front fascia of the Nissan Skyline sedan—the basis for the Infiniti Q50—had to be extended and smoothed to accommodate all the new sensors needed for ProPilot 2.0, for sensors under the sheet metal don't see well through fancier creasing and more angular styling.

"We had to change the outside because of the inside," Albaisa said. "There's a lot of technology in the front of this thing."

The Skyline is the first model getting the ProPilot upgrade that enables truly hands-free, auto-navigating highway driving. The changes to the front styling are barely noticeable but necessary for making the technology work seamlessly.

"What happens with a lot of these sensors is they don't like creases, and they don't like undercuts, because it diffracts their wavelengths," Albaisa said.

"You'll find that on a lot of the cars coming, probably on all brands, to be honest. It prefers clean surfaces so the sensors and the lidar and everything can send out very clean waves."

More design changes will occur inside the self-driving vehicles. A pod like infrared camera sits in the middle of the Skyline's dashboard. It monitors the driver to make sure the person behind the wheel is alert and ready to take command in an emergency, even when the vehicle is driving itself.

Mazda's Move Toward Premium Design

As a brand, Mazda has been moving away from its focus on inexpensive performance—marketed since 2000 with the "Zoom-Zoom" tag line—to what it calls Mazda Premium under the latest "Feel Alive" slogan.

Mazda first introduced the award-winning Kodo—Soul of Motion design language with the Shinari concept sedan in 2010, when the company sought to take an entirely new direction for vehicle design. The idea was to bring vehicles to life through a sense of motion and speed, even at a complete standstill.

Further developing on the design cues set in place by the RX-Vision, Mazda unveiled the next generation of the Kodo design language with the Vision Coupe concept model at the Tokyo Motor Show.

“The reflection of light over the surface flows linearly with the movement of the car, creating a vehicle that seems truly alive,” said Ikuo Maeda, Mazda's global design chief. “The predominant highlight on the body shoulder is strong and sharply-styled…while softer, more elegant light patterns shimmer across the empty spaces extending over the vehicle.”

The Vision Coupe, a large grand touring vehicle, highlights “Mazda Elegance,” a term used to complement the “Mazda Premium” direction the brand is taking, as it elevates its vehicles and its positioning. It involves distilling lines to just what is essential, letting the light interplay with the body of the car.

Celebrating the freshest, most creative and most beautiful concept cars—as chosen by a jury of prominent designers working in fashion, architecture and other industries—The Mazda Vision Coupe was named the “Most Beautiful Concept Car of the Year” at the 33rd Festival Automobile International in Paris; an award earned just two years prior by the RX-Vision, making a double victory for the two concept models that are guiding the design of Mazda’s next-generation vehicles.

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Mazda MX-30 SUV EV Tokyo 2019
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Mazda MX-30 luxury eco-responsible interior

“What sets Mazda Design apart from other brands is an obsession with ultimate form of beauty,” Maeda said. “I’d say that’s also our strength. We’re obsessed with the power of human hands and artistic forms that can only be shaped by human hands.”

General News

GAC-Fiat Partnership Ends

As a consequence of the potential FCA-PSA merger, the GAC-Fiat partnership will end. PSA has Dongfeng as a partner and shareholder, and has also ended the DS partnership with Chang'an.

The GAC group does not belong to the Chinese state, and they have developed a unique dynamism in this market—especially in EVs, through its new brand GAC NE (for New Energy) whose Aion S (sedan, a Tesla 3 competitor) and Aion LX (SUV) are considered among the most attractive on the Chinese market. GAC is a regular partner of the world's largest automobile groups, having forged strong ties with Toyota, Honda, Mitsubishi, FCA and Isuzu, more than any other Chinese brand. GAC reacted to the announcement of the PSA-FCA merger stating that it "respected the decision of its partner FCA to merge with PSA" and that it will seek to deepen its cooperation with the new group.

Pictures show the Aion LX's interior is wrapped in a large area of leather material, the overall design giving a strong sense of luxury. The center console area is designed to be smooth and layered, with the **twin 12.3”** LCD instrument and the central control panel connected by a curved screen, which adds a strong sense of technology to the interior. In addition, the new car’s switchgear will be automatically lifted as the vehicle starts.

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Honda, Hitachi Form New Global Mega Supplier

Honda has agreed to merge three affiliated suppliers with Hitachi Automotive Systems to create a new global mega-supplier and better leverage R&D resources for developing next-generation technologies.

The agreement combines Honda affiliates Keihin, Showa, and Nissin Kogyo with Hitachi Automotive Systems into a new company that will manufacture everything from electrified vehicles, electronic control units, and chassis parts to electrical systems, engine components, shock absorbers, brakes, and steering systems.

The new company, which will tentatively be called Hitachi Automotive Systems (HAS) will have combined annual revenue of $20bn and a workforce of 75,000 people, Hitachi Automotive CEO Brice Koch said while announcing the deal. “The automotive market is seeing a major transformation,” Koch said, citing new pressures to develop electrified drivetrains, autonomous driving systems and safety technologies. These requirements from the market require strong stronger technologies, require a more global footprint and require much more talent to come together”.

Japanese media said the new entity will leapfrog rival suppliers to be Japan’s third-largest automotive supplier behind Toyota Group’s most favoured Denso and Aisin Seiki. HAS will have a customer list spanning Nissan, Ford, General Motors, Toyota, Honda, Suzuki, Subaru, Mitsubishi and Mazda.

By combining, the companies aim to secure № 1 or -2 market share positions in certain segments. Koch said the new company will be a global № 1 in electrification and in the top two for chassis control, and will also have a top position in safety systems with sensors and control units.

Under the agreement, Honda will first take full control of the three suppliers and merge them into one company, then integrate them with Hitachi Automotive into the new company. Hitachi will own 67% of the new company, while Honda holds 33%.

Faurecia Team With Aptoide for Automotive Apps

Faurecia, and Aptoide, one of the largest independent Android app stores, have announced a 50/50 joint venture to develop and operate Android app store solutions for the global automotive market.

This joint venture offers OEMs an affordable and secured automotive apps market,available worldwide with adaptable content per region. The Aptoide app store offers a million Android apps for gaming, navigation,content streaming services, point of interest recommendations, parking, and more. Aptoide also offers an integrated secure payment mechanism supporting OEM strategies for service monetization, whilst securing the vehicle and occupants' data privacy.

Within the joint venture, Aptoide brings a unique ecosystem offering a wide range of Android apps and distribution expertise. Faurecia brings a broad customer portfolio,systems integration capabilities in In-Vehicle Infotainment (IVI) and cybersecurity expertise.

Faurecia CEO Patrick Koller says he is "delighted to partner with Aptoide to provide new digital experiences to consumers and allow our OEM customers to create new business models through this flexible solution".

For his part, Aptoide CEO Paulo Trezentos says "Connectivity is one of the automotive megatrends. This partnership between Aptoide and Faurecia will combine innovation and industry expertise to deliver the best Android auto app store solution to manufacturers all over the world".