DVN-I
Automotive Interior

Thu, 2 January 2020 Weekly Newsletter **NEWSLETTER #18**

Editorial

From DVN-I To You: Happy New Year!

2019 was a terrific year as far as we're concerned; that's when DVN-I came to be! Launched via the sturdy platform of its parent company DrivingVisionNews, DVN Interior started publishing early this past May with this rubric:

within the ongoing automotive transport revolution bringing connected, autonomous, shared, and electric vehicle, mobility use cases are changing drastically—and car interiors are becoming a stronger-than-ever product differentiator, facilitating new activities for vehicle occupants: relaxing, working, phoning, watching movies, and other suchlike.

Since that opening pitch, DVN Interior has developed a strong and growing network of subscribers. The bimonthly DVN-I Newsletter is gaining readers and generating positive reactions. The first **DVN-I Report** was published on auto shows and interior lighting. We think that's a good, solid first year's work, judging by the feedback you're sending us. Building on that foundation, we're busily working to organize the first DVN-I Workshop for next Spring.

That's the scope of DVN Interior. That's why we're here: to actively develop and grow the community of car interior experts and facilitate communication, information exchange, and the realization of innovations. The DVN-I Newsletter, Reports, and Workshops are all aimed at consolidating and presenting pertinent news, to help DVN-I members stay efficiently and easily informed and up to date without having to chase widely-scattered, difficult-to-find articles in dozens of sources. We do it by identifying and describing the links among the automotive market, design trends, new technology, and new mobility services to present and explain relevance in the car interior realm. Technology and services are the building blocks of today's and tomorrow's vehicle user experience, and we cast our gaze both wide and long to keep track of emerging innovation and ideas. We also keep tabs on new mobility models, as mobility service providers will brand their services through a unique travel experience, with the interior as a major pillar. New mobility will drive new interiors, and vice versa.

We take the opportunity with this newsletter to summarize the highlights and the main learning points of the year for automotive interiors features, technologies, and design.

May your 2020 be full of joy, peace, happy surprises, and success. We're hard at work to ensure a steady supply of enjoyable, informative reading in the DVN Interior Newsletter! We're glad you're here, and we thank you for your support.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Lighting Technology

2019: The Year in Automotive Interiors

What were the highlights of 2019's auto interior innovations and presentations? What new ideas, features, and phenomena emerged? Which ones look set to gain traction? Which one's merit special attention? A top-level list, not an exhaustive one, might include EVs and AVs with strong focus on interiors at motor and technology shows, buyer and driver resistance to new technology, driver monitoring, smart functional surfaces and plastronics, motion sickness countermeasures, passive safety upgrades, voice user interfaces, new kinds of interior lighting, lightweighting, leather alternatives, and interior air quality.

The roster of relevant events DVN-I covered in 2019 presents a wide array of new interior aspects in both production cars and concept previews of what transport might look like in the near (or far) future. All of this is in context of rapidly changing topography in the world of automotive transport: established automakers feel increasingly urgent pressure to prove they are relevant, leading runners in the race for new mobility. New participants in the field, including digital outfits, want to be recognized for the innovative products and services they offer. Meanwhile, the general perception—perhaps fueled by popular media—is that fully autonomous, self-driving cars are just around the corner, coming soon.

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  Rivian R1T pickup truck

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  Honda e

Reality is very different. At the big auto shows, EVs are central. Practically every exhibitor presented EVs or components and systems for EVs. From an interior perspective, electric vehicle power is not (yet?) a key discriminant, except as whole-vehicle reconfiguration for

electric motivation—battery and motor instead of fuel tank, engine, exhaust system, etc—alters the spaces available for the interior. New open body architecture on modular platforms could create much more opportunity for interior architecture, along with the tunnel-free underbody.

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Mercedes Urbanetic

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Kia's Read Emotion concept

CES was a bit different: it was mostly dedicated to car interiors within the context of connected and autonomous vehicles, with occupants unleashed from the driving task and able to do more or less whatever else they want. Occupant experience is the key within car interiors; the space is at a new crossroads of comfort, connectivity, entertainment, gaming, and everything else to use time previously lost to driving.

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Toyota Boshoku MX 191
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Marelli Human-Max Cabin

At the Tokyo Motor Show there was significant presence of major international suppliers—Faurecia, Schaeffler, Mahle, Continental, Marelli, and Bosch, for example. And the Japanese supplier industry was, of course, robustly represented (Toyota Boshoku, Tokai Rika, Toyoda Gosei, Denso, Aisin, Jteckt, TS Tech, et al) with numerous interior components and demonstrators on interior space concepts based on autonomous driving.

From all these demonstrations, we infer some salient points, categorized here:

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Driver and technology

Drivers still want to drive, and are a little skittish about new technology; they prefer driver assistance rather than giving up the whole driving task. Overall that’s the result of many independent surveys we've reported along the year. So the mobility revolution faces stiff headwinds of consumer behavior and preferences deeply ingrained by long habit and

resistant to change. Shared mobility may attract people, especially younger ones, but overall about half the surveyed population said they expect not to change how they interact with vehicular transport over the next three years. In that context, are Lyft and Uber and other such services sustainable, or will they prove to be just a fad? The answer isn't necessarily obvious; surprisingly, regular use of ride-hailing services has decreased in the last two years all over the world. Use of multimodal mobility remains occasional, except in Asia where it accounts for 30% of trips taken.

Overall, then, there is a major opportunity and a real need for automakers, suppliers, mobility providers, and regulatory authorities to help educate consumers and further develop acceptability of these technologies. It suggests the auto industry should invest more in perfecting ADAS, interior convenience, and services to help drivers and occupants to feel relieved from tasks and cognitive load.

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New Car Tech Will Aggravate—and Ameliorate—Motion Sickness

The mobility of the future is changing, and so are the needs of passengers. This is why already today new interior concepts are needed to mitigate problems amplified by new mobility scenarios. Motion sickness is caused by repeated motion, as from a vehicle, that agitates the fluid in the inner ear. Prolonged stationary travel is another increasing issue Due to the increasing variety of mobility options and constant viewing of smartphone screens; the issue is rapidly growing more relevant. When autonomous vehicles become common, the percentage of passengers will increase because of drivers becoming passengers who no longer need to keep eyes on the road, and vehicle occupancy will likewise increase because of shared mobility.

Many companies and outfits—including Daimler, Faurecia, ZF, Visteon, Yanfeng, and UMTRI—presented ideas in 2019 to reduce the feeling of motion and allow occupants to see more of what is happening outside the vehicle. 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.

Driver Monitoring

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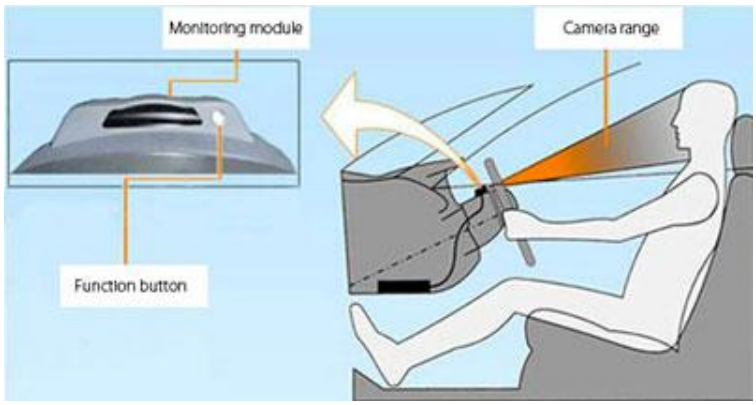
vehiclevideocameras.com

- 

BYD Auto

DMS (driver monitoring systems) have been getting a lot of developmental attention lately to cater for safe and easy handoffs between human and autonomous driving required in L3 vehicles. DMS could also offer other benefits in managing fatigue, cognitive load, personalization, and health monitoring. Stereo cameras can offer more data points and improved functionalities, making them a natural choice for adding more DMS functions. Automakers and suppliers are expected to enter into more partnerships with medical companies, universities, and technology firms to identify new opportunities and technologies in the DMS space. Drivers already need to be monitored to avoid drowsiness and cars are increasingly connected, at least through a smart phone. Sensors in the car will monitor changes in the physical movements of both the driver and the car to determine if an intervention is required. Cameras focused on the driver's facial features will sense changes to pupil dilatation and whether the eyes are open. Sensors on the steering wheel can tell how reactive the individual's hands are behind the wheel. Other sensors fitted to the car itself will sense whether the car is moving erratically. AI will detect phone usage, smoking while driving, and blood alcohol level before driving.

Smart Functional Surfaces in Tomorrow's Interiors

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MacDermid Enthone XtraForm

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Canatu

Automakers and suppliers are having to prioritize the driver and passenger experience in whole new ways, and HMI, the human-machine interface, is central. Yesterday's knobs, dials, buttons, switches, and other physical controls are rapidly giving way to touch screens, and futuristic further developments like holographic, gestural, and really good voice controls are in development to better integrate human/machine interactions into the occupant experience. More broadly, smart surfaces can integrate a variety of technology including coatings, films, multifunctional transparent surface treatments, OLEDs, backlighting, metal mesh touch sensors in plastic, integrated touchscreen film technology, haptics through polymer transducers, integrated heaters, and printed electronics. Functional surfaces are also an entry point for reconfigurable systems which ease customization by brand, model, and individual preference.

Plastronics—the integration of electronics in plastic—and plastic parts decoration, including touch and backlighting, are bringing a perfect union of form, design and functions to the new interior surfaces.

Passive Safety upgrades

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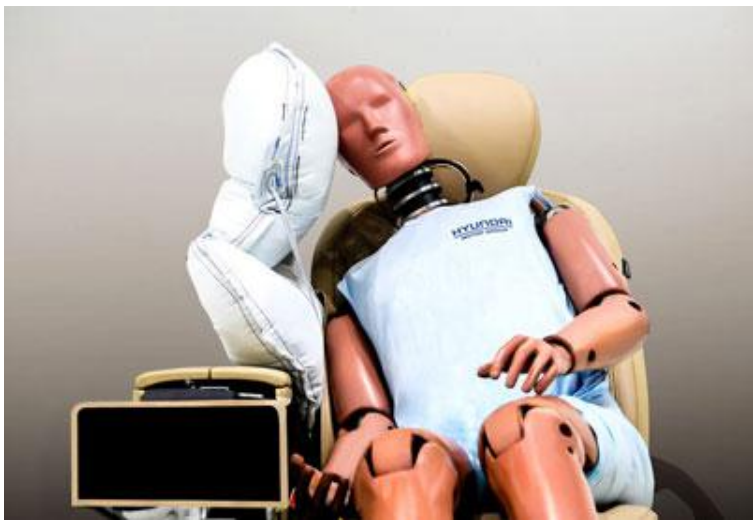
- 

Safety is growing more complicated, not just because of increasing demand for better safety performance, but also because of more automated vehicles and more driver assistance systems. Due to the increasing variety of mobility options, occupant positions and activities, and constant viewing of smartphone screens, the safety issue is rapidly growing. When autonomous vehicles become common, the percentage of passengers will increase; drivers will become passengers who no longer need to keep eyes on the road, and vehicle occupancy will likewise increase because of shared mobility. Industry is innovating to protect occupants in their new use cases:

Autoliv, for example, has developed a new "life cell" airbag, which provides protection regardless of how a driver or passenger is seated. Additionally, a new Autoliv front center airbag helps avoid driver-to-interior and driver-to-passenger impact; the first commercial application is with Hyundai.

ZF, meanwhile, showed their SHI Cockpit (for "Safe Human Interaction") made in partnership with Faurecia. In it, advanced assistance systems and automated driving functions communicate with the driver as simply and efficiently as possible.

Honda co-developed a new four-zone airbag with Autoliv. It has a center chamber, two outward-projecting side chambers that create a wide base across the dashboard, and a "sail panel" that stretches between the two side chambers at their outermost edge. Honda describes it as a "catcher’s mitt" where it's targeting at an off-axis, 20° to 30°, where now the occupant isn’t coming straight into the restraint system. That's because in self-driving cars the passenger is likely to be out of a traditional seated position—with seats swiveled into a conversation mode, for example.

Hyundai Mobis has developed a new safety technology for protecting passengers through interworking with the autonomous driving sensors. It's called the Safety Integrated Control Module, and it combines two ECUs for airbags and electronic seatbelts into a single unit.

Voice User Interface

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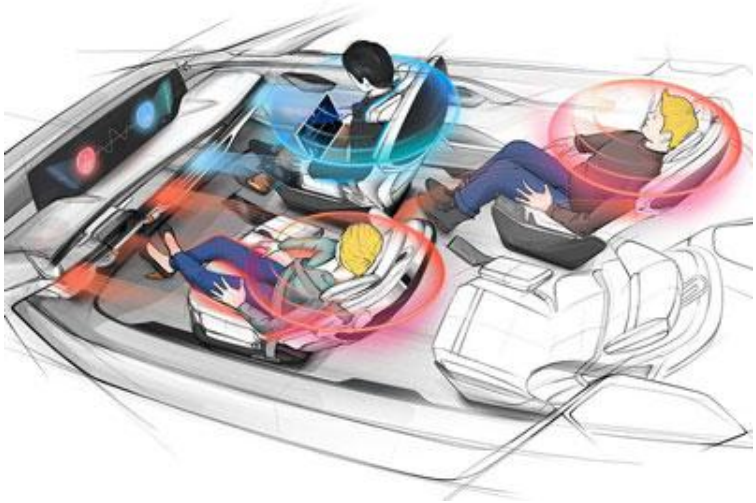
  Ford Alexa

- 
  Faurecia

A VUI (voice user interface) opens the door to spoken occupant interaction, using speech recognition for voice command. Amazon's Alexa is one of the leading technologies in this field, and GM recently signed a major deal to bring Alexa Automotive to a wide array of Chevrolet, Buick, GMC, and Cadillac models. The voice assistant is playing an increasing role in autonomous cars of the future.

But here again, it has to be simple, and must simply *work*—all the time, every time. Experts all agreed that frictionless usability of a user interface, including a voice-command interface, strongly influences usage rate, and eventually take rates. Another point of agreement among experts: today's first equipped models are not yet at that level.

Interior Lighting

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Interior lighting is growing much more centrally important. Light is no longer in the car just to help find things in the dark; now it's central to creating ambiance, providing information, generating alerts, personalizing the cabin according to vehicle occupants' choices…all in all, lighting is playing an increasingly important role in the comfort and safety of everyone inside the car. Many players are coming into that field, including DVN Interior members such as Osram, Design LED, the Interior Lighting open ISELED Alliance (28 members, including Hella, Valeo, Magna…). They're developing intelligent RGB LED technology for automotive interiors and providing innovative solutions for interior lighting.

Lightweighting

Lighter materials, as well as materials allowing miniaturization of components to reduce package space, will continue to be a driving force of vehicle development. This, in turn, is creating opportunity for automakers increase interior space and/or reduce the exterior dimensions of the car for a given cabin volume. With CO_2 reduction getting more and more important, these types of opportunities are crucial to fielding vehicles responsive to today's needs and wants.

Even if such efforts could arguably be called futile in context of the very heavy batteries uniformly found in EVs, we've seen thinner seat structures, IP skins, lighter energy absorbing material, new architecture, extended wheelbase, miniaturization of actuators and lights, and otherwise like that.

Leather Alternatives

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  Polestar 2
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  VW ID Space Vizzion concept

Several new leather alternatives have popped up recently in car interiors. Industry has long regarded leather as the signature of premium car interiors (at least in certain markets), but now pressure to move away from leather is growing: raising cattle and producing leather heavily contributes to greenhouse gas emissions and animal harm—the Vegan movement is now becoming a car selling argument.

Tesla artificial leather, Volvo's Weave Tech coating in the Polestar 2, Aston Martin's cashmere in the Lagonda, the apple-based synthetic leather in VW's ID Space Vizzion concept, Audi's e-tron concepts with synthetic leather, Mercedes Artico, BMW Sensatec, Piñatex synthetic leather based on pineapple leaf fibers, and of course polyurethane leatherette and Alcantara suede.

Interior Air Quality

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  Yanfeng wellness pod

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  Valeo's Oxy'Zen purification system

The industry is progressively recognizing that pollutant levels are often higher inside the car, because cars take in emissions from surrounding vehicles and recirculate them. Studies have found that as much as half of the pollutants inside cars come from the vehicles immediately ahead, especially if those vehicles are heavy polluters such as diesel trucks. Pollutants enter the car cabin through air vents and other openings, because vehicles are not built to be airtight.

The focus on IAQ (Interior Air Quality) has gained traction everywhere, but especially in China because of heavy air pollution there—and high attention to children, who are more susceptible to poor air quality while their lungs are developing.

For instance, at the Shanghai auto show Valeo showed a variety of IAQ solutions to reduce the impact of ambient pollution on a vehicle's occupants—filters, digital monitoring, air recirculation, and purification. And Yanfeng sanitizes interior air with their "wellness pod".

Interior News

A Curved Dashboard for Modern Cars

The current trend in the design of vehicle dashboards is oriented towards devices with highly customized geometries—even curved ones—with large dimensions and advanced graphics. A curve makes it easier for designers to create vehicle interiors with a greater aesthetic appeal than in the past, which enhances the vehicle and integrates perfectly with it. Ergonomics also benefits, improving legibility by maintaining the optimum distance between the image and the driver's eye.

MTA, an Italy-based electronics group, has a curved dashboard that can be customized on request with shapes ranging from simple corner cuts to more whimsical free shapes. Its software platform has multicore processors that manage different operating systems: Linux for the management of 2D and 3D graphics, and Autosar for the management of vehicle logics. The platform can also support other external displays, like the central stack and HUD.

The electronics development team focused in particular on safety and cybersecurity. The hardware/software platform is safety-oriented and modular to implement ASIL A and B (Automotive Safety Integrity Levels) in accord with ISO 26262. Cybersecurity is implemented both at a software and hardware level with specific modules aimed at verifying the authenticity and integrity of the functions programmed in the dashboard.

A version of the curved dashboard is already in series production for an important car manufacturer.

Mercedes Gives GLA More Room, New Safety Features

Mercedes' second-generation GLA SUV has more interior space and offers more safety technology. The new GLA was launched online—the first time Mercedes has premiered a new model on a live stream. The GLA will arrive in European dealerships in the spring and go on sale in the U.S. and China next summer. It will be a rival to the BMW X2 and Audi Q2 in Europe.

The latest GLA is 10 cm taller than before, and 1.5 cm shorter. There's more headroom in the front and more legroom in the rear. The dashboard is anchored by a free-standing display unit, available with either two 7” displays or two 10.25” displays. It features an infotainment system called MBUX, the Mercedes-Benz User Experience.

The seats can be folded flat to provide a level surface. There are window airbags for improved safety. Comfort features include two cup holders between the third-row seats as well as two stowage compartments at the side, each with a USB port. It’s a 5-seater, with a 7-seater variant also on sales.

News Mobility

Hyundai Mobility Centers on People

Hyundai Motor Group announced that its direction for future mobility will be shaped by a human-centered philosophy. In a keynote speech delivered by Executive Vice Chairman Euisun Chung at the Mobility Innovators Forum in San Francisco, the Group announced its commitment to realize innovation for the progress of humanity. The idea is that technology and innovation should be directed towards serving the needs of people. So this year's theme, "human-centered mobility", was chosen to highlight the importance of designing new mobility concepts that support development of people and their communities.

"Cities and mobility services were developed for humans from the very beginning", Chung said. "That's why we are making a wide range of efforts to study a human-centered future from a broader humanities perspective".

Hyundai has set up the Human-Centered City Advisory Group of experts in engineering, urban planning, and psychology. With input from the advisory group, Hyundai has been developing a blueprint for future cities since early 2019 with the aim of publishing the research results in 2020. They've also been conducting the 2050 Future City Project to make predictions on future cities in different regions to serve as a guideline for future smart city development.

Hyundai wants to transition into a smart mobility solution provider by 2025 with two pillars:

• **Mobility services**—personalized services and contents on an integrated platform. In the U.S., the automaker will test L4+ AV car-sharing and autonomous taxi services. In Europe, the company will first focus on businesses that combine products and services. In Korea, Asia, and Australia, Hyundai will partner with local mobility service providers.

• **Mobility devices** to expand the company's products beyond automobiles to include air taxis, robotics and last-mile mobility. Hyundai is looking at developing flying cars, which could be commercialized ahead of the most advanced self-driving cars.

BMW–Daimler Ride-Hail Venture Gains Traction

FreeNow (previously "MyTaxi"), the ride-hailing venture owned by Daimler and BMW, expects to double revenue this year and next in a fresh challenge to Uber in Europe and Latin America.

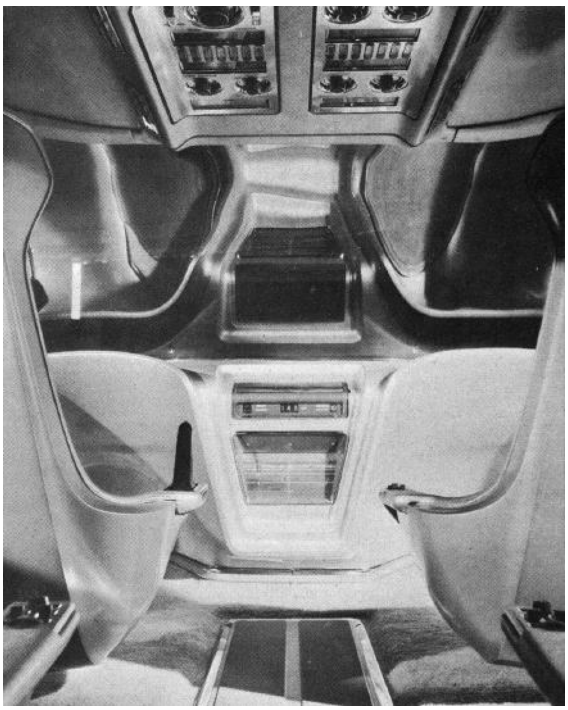
Mobility providers face intensifying pressure to show they can generate profit, as indicated by the low stock performance of Uber and Lyft since their initial public offerings. FreeNow says it's profitable in half of the 130 cities in Europe and Latin America where the company already operates.

Varying transport regulations across regions can complicate efforts to scale up, and authorities worldwide have increased scrutiny of background checks for drivers to address safety concerns. FreeNow is pursuing a collaborative approach with regulators so it can avoid the kinds of legal skirmishes Uber has faced in London. For example, FreeNow requires drivers to present themselves in person to obtain a license and agree to criminal record checks, just like traditional taxi drivers. Business remains very local, since regulation varies a lot from city to city.

The company is exploring options to complement its main business with more private-hire services, short-term rentals, micro-mobility options like e-scooters, and adding public transport services in some cities.

The Design Lounge

Roundup 2019—Year of the Concept?



Traditionally, the auto show circuit was a foundational event used by automakers to signal their strategic directions, gathering feedback on potential model lines and previewing upcoming new models. This has fundamentally changed in the past few years as the traditional auto shows have now been surpassed by events like the Consumer Electronics Show (CES) in Las Vegas. Moving the NAIAS (Detroit auto show) to a new June date, rather than January, finalized this point as now CES will be the first major automotive showcase of 2020.

Now that we are on the cusp of a new decade, it's time to take a look at all of the concepts introduced in 2019. To help identify the key trends, we will only focus on concepts that were introduced during 2019 and broken down into key categories.

Heritage Design and the RestoMod

The introduction of the EV powertrain, along with key connectivity and UI functionality, has recently allowed tuners across the globe to 'resto mod' classic vehicles with a reliable and sustainable EV powertrain that also includes integrating modern UI connectivity and interior features into classic vehicles.

Several automakers have riffed on this theme by building their own 'resto mods' and 'heritage' vehicles. This goes beyond a retro aesthetic; classic cars are rectified with modern performance and feature content.

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Here's the Mercedes Simplex concept, with aesthetics from the early years of the automobile. This EV creates a new niche for such a traditional brand as Mercedes.

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VW's Type 20 concept is an EV resto mod using 3D printed ‘generative design’ structural elements while also integrating modern driver screen displays.

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The BMW Garmisch concept reinvents a classic BMW.

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This Chevrolet E10 EV concept was shown at SEMA (the toy-car and car-toy show in Las Vegas, held alongside the AAPX aftermarket auto parts trade show) this past year. This crate-kit EV also integrated modern display and UI technologies with classic visual appeal.

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Peugeot's E-Legend concept, clearly using the heritage of a classic Peugeot and also integrated future technologies such as autonomous driving.

Mobility as a Concept

Moving beyond the traditional automotive segmentation such as SUVs, sedans, coupes, and trucks, many automakers are exploring new segmentations or more specific actions/functions for the automobile to include mobility solutions focusing on the needs and functional elements of the users, whether to carry goods or provide enjoyment. Examples:

Mass Mobility

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Hyundai's Elevate concept is a vehicle that is called for service and not limited to the current road/highway infrastructure.

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The Mercedes Vision Urbanetic concept, a mobility platform that expands the current boundaries between passenger and goods transportation using a potential autonomous infrastructure.

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Suzuki's Hanare concept pushes the mono-volume space to its maximum with a driverless platform.

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Citroën's Ami-One concept bridges the gap between vehicle ownership and car sharing urban mobility.

Outdoor Adventure Vehicles

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The Citroën 19-19 concept is a personal vehicle for outdoor mobility that is not compromised by urban constraints.

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Audi's AI:Trail concept, takes things to a more extreme level and incorporates drone-assisted functions.

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The VW ID Buggy concept: a lighthearted reinterpretation of a classic beach buggy.

The dedicated Race Car

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DS Automobiles X E Tense concept has a drive deck enhanced by UI and EV features for the single purpose of going quickly around a racetrack. Pure driving enjoyment!

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BMW's Vision M-Next concept. By combining a strong heritage for these vehicles, BMW has created an even more driver focused environment.

Premium Luxury and Opulence

The premium and luxury brands are focusing ever more attention to detail to not only material and craftsmanship but also that ever challenging aspect of ambiance and feel. The typical segmentation of these type of vehicles are now blurring to create completely new categories.

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Aston-Martin's Lagonda All-Terrain concept. SUV, tall combi/wagon, or is it a luxurious wagon? It checks all of those boxes.

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The Bentley EXP-100GT concept presents with extreme classic coupe proportions but includes an airy open interior environment with a new interpretation of luxury and premium materials.

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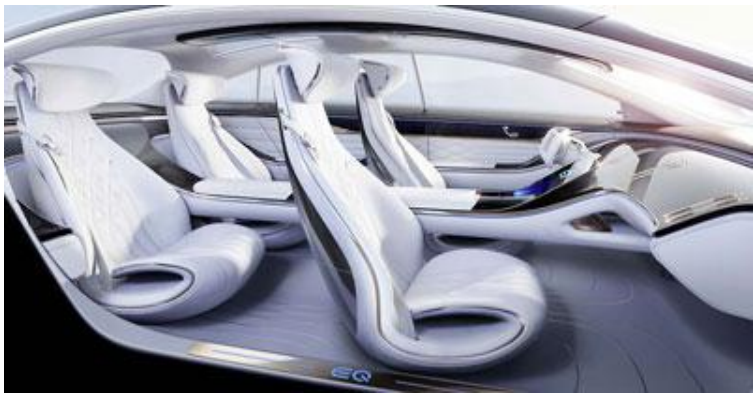
- 

The Mercedes-Benz EQS concept maximizes interior volume without creating a stark mono-volume. Result: an open but luxurious presence.

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Genesis' Mint concept: small car, sports car, city car…? It reconceptualizes a premium package while minimizing its road footprint.

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Infiniti's QX Inspiration concept comprises a peaceful, tranquil lounge that does not rely on traditional materials. Ambience is the critical characteristic.

Enhanced Transportation

By merging the EV architecture along with an autonomous driving mode, these vehicle concepts enhance our current interpretation of the automobile.

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Lexus LF-30 concept: dramatic stance with a full-feature interior.

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GAC's Eno.146 concept uses aerodynamic efficiency that creates a sporty proportion but retains the ability to carry 6 occupants.

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The Kia Imagine concept contrasts a purposeful and strong exterior with an open and airy interior environment.

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Hyundai's 45 concept: a strong and aggressive exterior and an inviting, peaceful interior space.

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Toyota IQ concept: the urban commuter revisited.

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Kia Futuro concept: the sports car revisited.

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VW ID Roomzz concept: the traditional wagon revisited.

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Here's the Fiat Centoventi concept, with a lighthearted, fun, functional space.

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Aiways U7ion concept: function and luxury in balance.

2019 was noteworthy by just the volume of concepts produced by the automakers worldwide. As we head into 2020, the first major autoshow-like event of the year will be CES in January. Already we see automakers clamoring to explore new mobility, premium and heritage aspects. And their latest efforts will be on display along with all of the new technologies that CES is known for.

We hope you enjoyed our highlight-spotlight on 2019. 2020 looks to be at least as exciting!

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Honda Augmented Driving concept, 2020 CES introduction

General News

Antolin's New Strategy

Spanish automotive components supplier Grupo Antolin— the second-largest injection molder in North America, according to Plastics News rankings—is launching a new strategic plan in 2020 that will tap into the opportunities offered by new mobility trends.

The plan is aimed at strengthening the company's position as a manufacturer of vehicle interiors and will by and large pursue Antolin's existing smart-integrator strategy, which targets higher added value through the integration of technology, electronic and lighting solutions. These include the company's partnerships with the Chinese group Hi-Rain in lighting solutions and with Walter Pack for decorative automotive interior parts.

Having intensified its focus on EVs, such as by the opening of its new lighting facility in Bamberg, Germany, the company has now begun to supply components for a number of EV models including the new ID.3, the first model on VW's new electric car platform. Antolin is also producing instrument panels, interior ambient lighting, decorative films and door panels for the Audi e-tron.

And Antolin supplies parts, including storage systems, to Chinese EV models such as the Byton M-Byte, the Aiways U5, and the Nevs 9-3; as well as the Volvo XC40 electric.

Antolin Concept Car

Some Chinese Car Safety Ratings Improve, Others Don't

In 2010 the first Chinese vehicle tested by EuroNCAP, the Jiangling Landwind CV9, got an awful two-star rating in crash tests. Ten years later, Chinese maker SAIC has just obtained 5 stars for two compact SUVs, the MG ZS electric and the MG HS 1.5. EuroNCAP stated that "with an impressive list of safety equipment and good crash test performance, the two cars are up to many European, Japanese and Korean models".

But another electric SUV made by SAIC, the Aiways U5, garnered only three stars due to poor side-crash performance. The maker hopes to correct the problem quickly so that it can retake the tests and arrive on the European market in 2020 as planned.

The MG ZS electric SUV is already available in the Netherlands, and will be available more widely in Europe early in 2020, according to the maker. It has a 143 hp electric motor and a 44.5 kWh battery—smaller than its competitors—which gives it a range of 262 km (per the WLTP), but which allows a low price. This model will be marketed online, without traditional dealers but still relying on a network of national or regional distributors, to ensure vehicle testing and delivery. Pieter Gabriëls, Vice-President of SAIC Motor Europe, planned this distribution format two years ago. "The Internet is already the most used information channel and it will also become the most common platform for buying mobility in any form," he said.

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(SAIC) Aiways U5

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(SAIC) MG ZS EV

GST is Back in Leather Biz

After decades in the automotive leather business, GST was bankrupt by the end of 2017. But two years later, they're back—winning new vehicle programs, proposing new approaches to create leather auto interiors, and growing into a lean global competitor.

The company's leather surfaces can be found in the Kia Telluride and the vehicles being built by Ford's joint venture with Jiangling in China, as well as the new Mercedes GLE, the Lexus RX, and the Ram pickup truck.

The company embraced the Toyota Production System management approach, known throughout the industry as lean production, in an effort to standardize every aspect of its operations. At the same time, GST is repositioning itself away from leather as a vehicle commodity. The company said this year that it is "no longer a supplier of flat hide leather." That essentially means that GST's products will move up a notch in the automotive supply chain, including new R&D center in suburban Detroit, able to advise best seating materials and constructions.

Industrywide, auto leather sales are forecast to be $3.2bn this year, 29 percent less than five years ago. The rise of synthetics is growing as a leather substitute in vehicles as burgeoning consumer trends for things such as "vegan interiors" contribute to the decrease, while price competition in China and other Asian markets has pushed leather seats off the option list for many models.

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  Nissan Maxima
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  Jeep Grand Cherokee