DVN-I
Automotive Interior

Thu, 8 October 2020 Weekly Newsletter **NEWSLETTER #38**

Editorial

Inaugural DVN-Interior Online Conference & Expo

Two weeks ago, we put on our first-ever fully online Workshop, with the rubric Car Smart Interiors. It was a fabulous virtual workshop with more than 200 attendees from 100 companies following three great keynotes by Valeo CTO Geoffrey Bouquot on Smart Technology for Smart Interiors; Faurecia CTO Christophe Aufrere on Cockpit of the Future, and Streetscope VP and Mobility Futurist Dave Muyres on future mobility's challenges. There were 20 lectures in five sessions including one about interior lighting, and 12 exhibitions. We present an overview of some of the best content from the Workshop in this week's in-depth section.

Videos are still available on the **platform** until the weekend, and later through our website with privileged access for DVN-I members—another good reason to **subscribe**!

Life of interior development goes on in parallel. We've got a lot of news for you this week, and in the Design Lounge we use the opportunity of VW's ID.4 introduction to probe VW Group's MEB Platform and interior strategy.

We're dedicated to bringing you all the relevant news, views, and analysis, and we're glad you're here.

Sincerely Yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Trends and Technologies at DVN Smart Interior e-Workshop

The three Keynotes, with their presenters' personal visions of where the industry is headed, provided a vivid backdrop for discussing the future of automotive interiors.

Safe & Together

Valeo CTO Geoffrey Bouquot positions the car interior as the third living space—after home and office—where we will move, work, relax, and get entertained. This leads to a complete redefinition of the interior space, with a motto being "Safe & Together".

CASE with Health and Human Protection

Faurecia's approach, presented by CTO Christophe Aufrere and called Cockpit of the Future, is driven by automotive megatrends, such as CASE (Connected - Autonomous - Shared - Electric), with emphasis on a care layer for health and human protection. It has to be versatile, connected, predictive, and personalized. Consumer trends are completed by technology trends, such as energy usage, data management, HMI, Biotech, and new and smarter materials.

New Mobility is in the Interior

RENAULT 2018 STUDY FOR RIDE HAILING

Streetscope Mobility Futurist Dave Muyres completed the picture with his independent perspective. The automobile as an assemblage of parts and pieces belongs to the past; now their build-up comes from design and user experience. Trends like EV ascendancy are creating interior packaging opportunities through new car architecture and autonomous driving, even though in these early stages it's difficult to realise with appropriate safety and cost. Mobility services are driving the industry into new business models, and the interior is where new mobility services are centred!

Tier-1 System Perspective

For Valeo, occupant safety has always been a key performance element of car interiors. The pandemic makes it even more important; everybody demands a safe environment to be in, as an extension of home. In that respect, personalization is crucial.

These customer expectations are then transformed into valuable user experience, with a broad portfolio of tier-1-supplied solutions such as HUDs, pillar-to-pillar interactive surfaces, invisible displays, interior lighting; gesture-, voice-, and gaze-activated controls, IAQ (interior air quality) management, and occupant health monitoring—just to name a few.

Bouquot quoted a McKinsey survey finding that during the pandemic, 81% of consumers in seven major markets consider private cars as the safest transport mode, versus just 7% considering public transport as the safest. After the first pandemic wave last Spring, driving picked up much quicker than public transport (or even walking!) in major cities as London, New York, and São Paolo. A survey in China shows that the two preferred consumer interior features are A/C systems with germ filters, and health monitoring systems.

Valeo's portfolio with Safety, ADAS, DAS, AI, smart lighting, and cleaning functions are all contributing to a safer vehicle environment, while features like new interior lighting and driver monitoring are also bolstering occupants' perceptions and feelings of safety.

A special mention for Valeo's "Smart Cocoon" interior solution targeting personalized thermal comfort, energy optimization (-30%); noise reduction (-20 dB), and mechanical, chemical, and UV air filtration and purification. It's already in operation in buses in Brazil. A lecture on the topic was presented by Georges de Pelsemaeker, Valeo Thermal Systems' Health and Wellbeing Director.

Smart Cocoon includes individualized per-occupant zones with a new air distribution architecture, and radiant and contact elements closer to the occupant. Each one is measured through camera and bio-sensors to optimise heating and cooling (with cold air jet modules). With such polyvalent flexibility, the challenge becomes attaining and maintaining the right balance between digital intensity and vehicle occupants' comfort and pleasure.

Health monitoring uses metabolic indices like heart rate and respiration rate, combined with context data of age, gender, height, and even clothing of occupants, with biometrics measured through camera-based facial recognition. The information is processed and acted upon based on a comfort model, including individual metabolism evaluations.

Biosensors extend comfort evaluation to emotional comfort, including cognitive state of an occupant.

Faurecia's Cockpit of the Future includes seating, interior and electronics built with core Faurecia modules augmented by new technology bricks, and engineered within a specially developed new eco-system including acquisitions, partners, and startups, while respecting the still-existing old automotive constraints—cost, comfort, safety, packaging, and suchlike.

Use cases and user experience are identified starting from today’s consumer pain points. Five HMI experience points have been prioritized:

- Optimal first-time experience;
- Interaction with human avatar (for example, Nio's Nomi system we reported on previously);
- Seamless interface between car and nomadic devices such as smartphones;
- Real Time adaptive HMI, and
- Ageless HMI.

Technical solutions are all based the same closed loop logic of measure-correct-adapt. Collected data are combined together, when appropriate, for data fusion to get a more reliable evaluation through correlation. Data come from multiple sensors, such as functional surfaces, cameras, air quality sensors, temperature, etc.

For all automotive history humans had to keep track, adjust, and adapt to the car's state. Now the opposite case dawns: the car keeps track, adjusts, adapts to the state of the human occupants!

Among a broad solution portfolio, it's interesting to mention personalized climate and IAQ, immersive sound experience—including the likes of active noise control, especially in EVs, seamless transitions between displays and surrounding smart surfaces for visual and functional continuity, multi-view screens with real-time adjustment, image processing based on context (daylight or darkness, human specifics, etc), and Faurecia's type of app store (Faurecia Aptoid Automotive).

New Mobility perspective

BOSCH CES 2019 TOMORROW'S SHUTTLE MOBILITY

David Muyres' perspective is concentric with the interior-based anchor points of new mobility services, with priority on use case catering and satisfaction. That's where the Lyfts and Didis of the world beat taxicabs (except perhaps in markets where taxicabs and the service they provide are deliberately held to a very high standard of excellence—London, for example). Consumers have completely changed their default thinking, their mental prototype, of a ride-for-hire car.

New mobility can offer a lower-stress commute, and that's what makes consumers spend money. The new mobility providers don't necessarily need to understand the technology, but must understand the business model, and where this money comes from. In this context, traditional low-profit (5-8%) automotive activity is not very attractive, when new mobility looks much more lucrative!

Key challenges are to real and perceived safety, including cleanliness/hygienicity, cybersecurity, and avoidance of motion sickness—of greater concern because of autonomous driving.

Top 5 Takeaways on new Mobility:

- Time: commuting can be used as time to be more productive, and at lower stress.
- Low-speed driving is normal (and not driving a supercar in the mountains), so that's the central catering case.
- The mobility experience is centered around a 20-foot "first impression" journey, versus today's five-year car ownership model.
- Stakeholders are new—mobility providers, cities, insurance, urban planners, rather than car makers and drivers as before.
- Follow where the money is!

Honda 3 Joys

Honda's Chijimatsu-san, Interior Development General Manager and Senior Engineer, described Honda's philosophy around the three joys: the joy of buying (providing products and services that exceed the needs and expectations of each customer), the joy of selling (dealers and distributors experience pride and joy in satisfying the customer and in representing Honda to the customer), and the joy of creating (Honda associates and suppliers involved in designing, developing, engineering and manufacturing Honda products recognize a sense of joy in customers and dealer

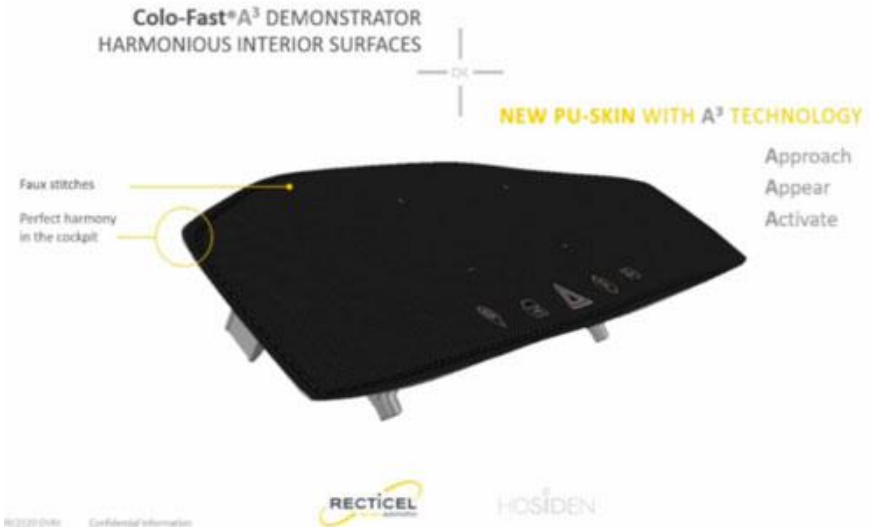
Then, Chijimatsu-san presented the "M/M" idea: Honda's "man maximum, machine minimum" concept is a basic approach to Honda car design calling for maximizing the space available for people and minimizing the space required for mechanical components which will increase the space efficiency of the vehicle. (example: Honda Fit Tokyo Show Oct 2019)

Honda new HMI concept is Honda’s proposal of a new driving environment that makes comfortable and safe driving possible. It includes an image-recognition system that enables automated driving as well as a new interface that combines the strengths of a touchscreen and remote controller. HMI with instant recognition and intuitive operation, including HUD for minimum gaze movement, understandable and usable by anyone, for the most accurate information in the minimum time.

Key lectures summary

PolyIC develops and markets products based on printed electronics, with transparent and flexible metal-mesh touch sensors. Head of Product Management Dr. Wolfgang Clemens demonstrated the flexibility of his company's technology which allows curved shapes, integration and to stay hidden until it lights up, with many different application examples in

the VW ID.3, also Geely's capacitive steering wheel with haptic feedback, the Audi A3 Sportback capacitive rotary knob for sound volume, in-mold decoration for ambient lighting with night/day effect, air duct individual controls, and other suchlike.



Recticel, with Geert Trossaert, Head of R&D, described their Colo-Fast electronics-integrated polyurethane skin, cooperatively developed with Japanese electronic partner Hosiden to functionalize the cockpit surface for HMI, function-on-demand, with tactile feedback. The HMI is based on A^3 logic (Approach/Appear/Activate: your hand approaches the surface, then the function appears, then you can activate it)

There was a presentaion by **Canatu**'sCEO Juha Kokkonenon carbon nanobud-based 3D touch sensors for smart UX, which can be integrated in any non-conductive surface. One application is on the Origo steering wheel, as we reported in DVN-I last 7 May.

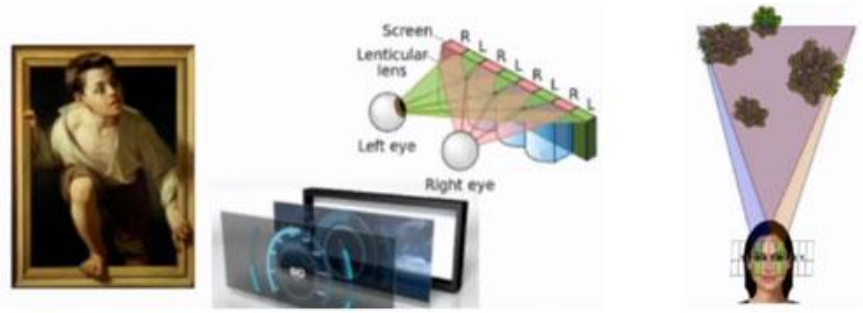
Preh'sDr. Matthias Lust, Head of Pre-Development and Patent Management, explained that company's strategy to giving any surface a switch function and more. 3D overlays to help locate; switch feedback, switch with a force threshold (no activation without intention), hidden function until lighted, all in a console display. And ordinary switches are progressively being replaced by touch surface alternatives. Interesting rotary control, movable along the display!

Covestro's Jochen Hardt (Global VP of Automotive & Head Polycarbonate Industrial Marketing) and Florian Dorin (Head of Composites Global Market Development) presented their polycarbonate and polyurethane material portfolio and the approach of developing concept cars to showcase their materials in application since 1967 at the K Fair in Dusseldorf. Their latest demonstrator, presented at K 2019, showed very slim part design as seen on seats and a rear occupant courtesy table. Display materials are under active development with Continental for complex geometries. There was a special presentation for Maezio PC/carbon-fiber composites for structural parts, being lighter, thinner, with a 70% less carbon footprint cradle to grave.

Pierrick Boulayof market researchers **Yole Development** gave a status report on interior UV disinfection, scientifically investigating the effect of different UVED (ultraviolet LED)-based approaches: UV-A for air purification and deodorization, UV-C for air and surface. He covered as well IRED (infrared LED) applications for driver monitoring including gestural control, through bioelectric signals, steering motion, and face monitoring.

FLT Future Technologies founder Bjoern Sobischek showed and described their heated and lighted textiles for seats (also headliner, door trim, etc…) with lighting over the whole surface, and with a very thin thickness for application wherever package is very limited, and contact heating via laminated conductive track for any type of textile. Due to the pandemic, FLT has developed anti-virus materials for masks, which could be now used in seats, as an additional lamination layer into the textile, especially for mobility companies where cleanliness is a strong selling argument.

Marelli started Session 5 (Interior Design / Simulation Software / Electronics) with a lecture about HMI and 3D-displays by François Nivelle, Director of Marelli Electronics Business Unit Innovative HMI & Avanced Engineering for EMEA and NAFTA. He presented the supplier's extensive electronics portfolio and innovations in HMI, HUDs, cybersecurity, connectivity, infotainment, and 3D perception technology as well as body electronics. He set a focus on the Marelli solution of 3D displays and explained why we can see in 3D, examined whether we all have the same 3D perception, and how flat displays allow to see in 3D.



In a comparison of the main technologies for 3D Displays he favored the solution with lenticular lenses; he describes the six keys of Marelli's AS3D solution for a comfortable 3D driver perception in any driving situation, and explained the next steps with eye tracking in 3 dimensions and 3D AR overlays.

Texas Instruments DLP's Ross Schneider gave a lecture aboutDLP technology for display applications. Ross works as an applications engineer in a product group focusing on automotive display applications with the DLP technology, ranging from HUDs and headlamps to transparent window displays. He explained, how to turn any automotive window into an HMI display with DLP technology:

the window display architecture consists of a projector and different film technologies. These can support curved screen shapes, have flexibility of projector placement, and no electronics are connected to the glass. Different film technologies can be employed like 405-nm emissive phosphor films, switchable smart-glass films, transparent MLA diffuser films, and nanoparticle and holographic films.

For window displays there are strong design challenges:
• Regulatory restrictions: regional differences and differences for front, side, and back windows. The regulations for AV are under development.
• Film lamination and auto qualification: environmental testing, manufacturability, transparency, etc.
• Projector size, placement, and brightness for adequate visibility during daylight.

Despite these concerns, automakers are moving forward with window display technologies and film suppliers are working intensively on auto qualification and testing. TI and partners provide small optical designs for different locations in the car with enough brightness. Meanwhile the DLP projection technology is automotive qualified.

Prof. Dr. Karlheinz Blankenbach lectured about the future challenges of automotive displays. Dr. Blankenbach graduated in physics and was appointed as full Professor in 1995 at Pforzheim University in Germany. His main R&D activities are on display systems, display hardware and software, and display metrology. He is a member of the Society for Information Display's automotive display and HMI subcommittee, and SID's International Committee for Display Metrology. He is also chairman of the board of the German Display forum, an industrial network focussing on professional displays since 2011, and he is chairman of the electronic displays conference.

SOURCE: MERCEDES, HARMAN, PANASONIC, HYUNDAI

The market trend worldwide continues to flow toward more, larger, and shaped displays with higher resolutions and frame rates and larger luminance ranges. The challenge for the future is the seamless integration of large displays and smart surfaces. Displays will dominate the future car interior design and will offer new HMI strategies and evaluations. Evolution towards 100 million pixels will need enormous computer power and highest-speed interfaces!

Interior Lighting session:

The session comprised four lectures:
• *Lighting to support future use cases*, by Hella's Dr. Ana Bizal, Head of Interior Lighting Pre-Development

• *Smart Interior Projection*, by Osram Continental's Dr. Michael Rosenauer, Head of Advanced Development
• *Next generation of Smart LED*, by Inova Semiconductors' Senior Application Engineer Stefan Hoffmann
• *Automotive Interior Surface Backlighting*, by DesignLED CTO Dr. James Gourlay.
These lectures were followed by un long Questions/answers discussion

We summarize the session's main takeaways considering interior lighting:

Strong needs of driver and occupants in interior lighting:
- Wellbeing is the first need the driver and passengers of the car expects. Interior lighting has to contribute to give joy and emotion. It means a good atmosphere created by warm colors and soft contrasts. This wellbeing is becoming a must, the driver and passengers search to find out the atmosphere at the office or at home.

Animation is also a great expectation. Lighting allows animation everywhere inside the car, with low and high resolution.

Individualization is strongly pushed. Lighting allows the choice of driver/occupant to personalise the interior lighting by color, dynamics, and intensity of the light

The tools to achieve these needs:
• Software. To answer the needs on creative solutions, personalization, animation, software is becoming more and more important.
• Efficiency. This rate has to be optimized to limit CO_2.
• Wire harness: Wireless is more and more used.
• Flexibility. Separate functions are used to reduce development time and investments.
• Functions. Year after year, automakers seek to upgrade the current functions and to create new functions to improve safety and wellbeing.
• HD modules. Modularised lighting has to be improved on volume, weight, cost, light to work in nighttime and also in daytime.
• Smooth and flat surfaces. Many works are done to reduce thinness of light and improve quality of light surface.
• Digitalization. Messages and signs by light will be more and more used
• Increasingly urgent need to prepare for the arrival of autonomous driving by light. Lighting will play a great role in AV and improved and new functions have to be developed.
• To present demo-cars to sell the technologies more than for exterior lighting. More than for exterior lighting, demo-cars are a must to convince automakers on the new technologies and functions.

Four challenges: Cost, space, integration, and power

Virtual Expo (Startups & Sponsors)

The conference was complemented by a virtual exhibition, with many startup and sponsor booths. Herewith, a selection:

Caresys is a startup that develops a non-contact, camera-free passenger monitoring system based on RF technology.

Covestro, the largest supplier of polycarbonate worldwide.

Crispify is a startup with an innovative automotive IAQ monitoring and management system.

DesignLED, an innovative LED lighting technology company developing, prototyping and scaling thin and flexible LEDs.

Elmos develops semiconductors and sensors which communicate, measure, regulate and control safety, comfort, and network functions.

Enroute has a personalized, location-based commerce and loyalty plug-in for mobility companies.

EpicNpoc develops software to enable user-experience set-ups for complex innovative ecosystems.

Grupo Antolin, a global supplier of technological solutions for the car interior.

Inova Semiconductors presented **ISELED**, a technology based on an integrated RGB controller that enables dynamic lighting at lowest cost.

Lyteus brings flexible OLED lighting and new design freedom to ever-present challenges and possibilities.

Mappo is a location-based content application for a unique in-car experience.

Tacto Tek seamlessly integrates printed electronics and electronic components within 3D injection molded plastics.

TITV develops innovative products and new technologies for textile materials to integrated electronic systems.

Interior News

Honda E Starts Production!

INTERIOR NEWS

Presented as a concept at the Frankfurt IAA motor show in 2017, Honda's E is now ready for sales as a production car, and a great deal of the show car's uniqueness has survived to the production version.

Exterior design remains clean and simple: crisp edges with a bit of a toy look: round "eye" lights, no exterior mirrors. As soon as you get in, the interior presents its very attractive pillar-to-pillar instrument panel and screens, and a very special attention to materials. Roominess looks big, thanks to its overall architecture with wheels pushed out to the corners and a glass sunroof as standard equipment.

Five high-def screens are arrayed across the full width of the dash. The outer two display images from the rearview cameras on the doors, the 8.8” one in front of the driver gives all relevant vehicle information, and the other two—a pair of 12.3” LCD touchscreens—handle infotainment. Like a smartphone, the dashboard can be set up to provide exactly the information and functionality one wants, through configurable virtual buttons that activate functions. These functions can also be exchanged between the two screens, either by flicking them across from edge menu presets or by touching a button on the display.

Material choice gives a touch of Japanese class with satin-finish wood on the dash and standalone center console, gray woven seat textile, brown contrast stitching, brown seat belts, and a leather-wrapped steering wheel.

The list of driver assistants includes brake assist, lanekeeping assist, adaptive cruise control, and traffic-sign recognition. Honda's voice-command system, which uses artificial intelligence to hold contextually relevant conversations with the occupants, and wifi hotspot capability are also standard.

Antolín's Retractable Sunshades

INTERIOR NEWS

DRIVER'S SIDE: SUN VISOR DEPLOYED, PASSENGER SIDE: SUN VISOR HIDDEN.

An end to the ageless flip-and-fold? Grupo Antolin's retractable sunvisor has been developed by a multidisciplinary team from different areas of the supplier to allow the visor to disappear when not needed—in line with today's trend of functions appearing only when called for.

Antolín's specialists have rethought the entire visor to be able to incorporate multiple functions by itself or incorporated into a modular ceiling. Now the visor becomes intelligent and has a better anti-glare function, using technologies that will allow it to increase its size to cover a larger area without reducing the driver's ability to see.
Retractable sunshades are hidden behind the roof liner until needed. They can be unfolded or retracted both manually and automatically by pressing a button. Seamless integration into the headliner substrate gives the ceiling a flawless aesthetic with flowing lines and a greater sense of space.

The solution is applicable in any segment and can be used as a differentiator depending on the trim and finishes incorporated. For example, the sun visor can be covered with many materials and textures: textile, smooth plastic, engraved plastic, natural or sustainable materials, decorative seams or backlit materials, among others.

In addition, it offers the possibility of integrating other functions such as the lateral position or the extended function. The automatic version increases comfort and prevents distractions when operating the sunshade.

Yanfeng Shows XiM21 Smart Cabin Concept

INTERIOR NEWS

Automotive interior specialist Yanfeng has shown off their XiM21 virtual reality smart cabin concept. Through a focus on technology and in-depth consumer research, the company claims to have redefined its approach to the concept of smart cabins.

Their previous XiM20 concept from last year presented a long-term vision. This year's -21 concept showcases mostly advanced production-ready technologies, which could be integrated in the next 2-year programs. These product solutions are tailored for unique user experiences such as wellbeing, intuitive interaction, flexible space and personalization.

The concept features a dual 12.3” curved display for the driver, which serves as a cabin central control unit, while an additional sliding 10.1” display in the instrument panel enables the front-seat passenger to engage and interact with the vehicle’s settings and infotainment system. The display also allows the front-seat passenger to keep an eye on children in the back and control the content they watch on their own screens.

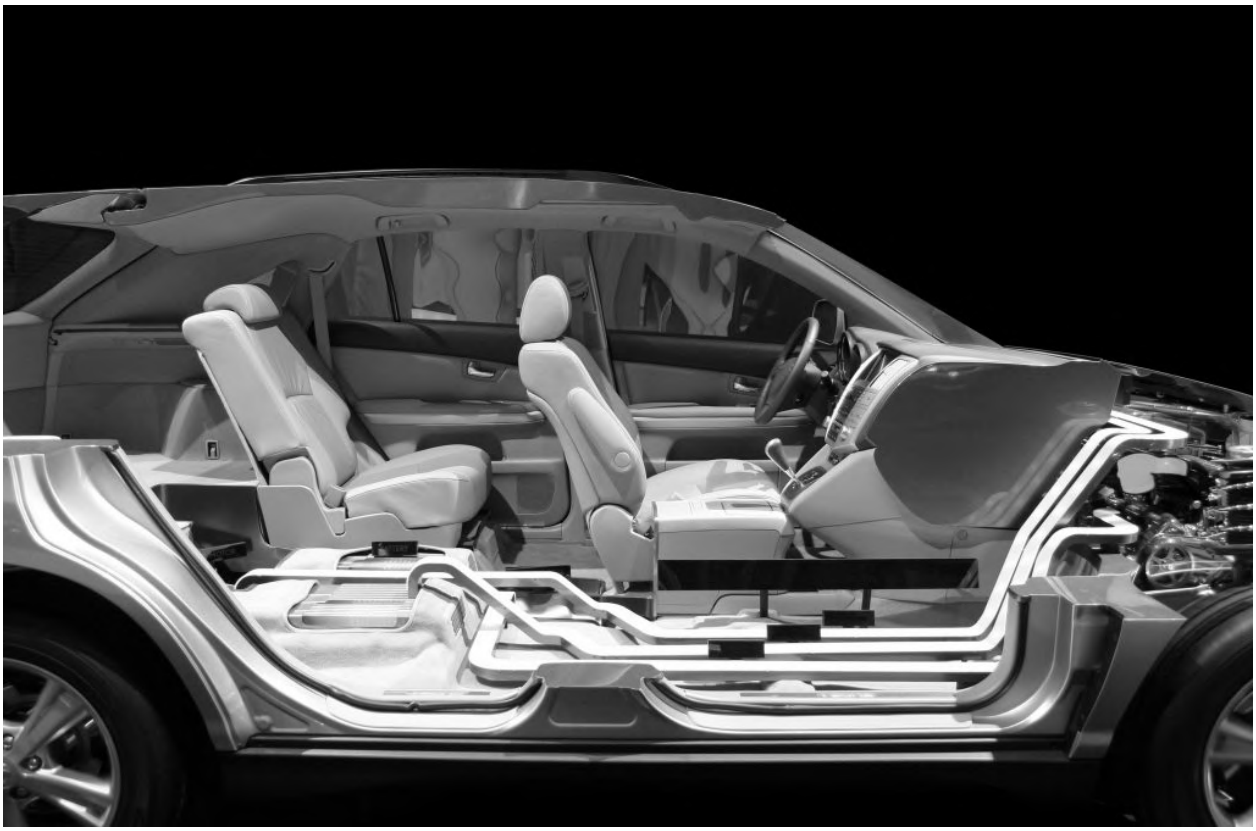
By using pre-set preferences (e.g., personal profiles stored into a mobile app) and real-time adjustment, the cabin tailors itself to its occupants, with an optimized seating and safety configuration.

The app also enables adjustment of the interior’s temperature, fragrance, and ambient lighting so users can pre-configure their vehicle before they get in. A built-in child seat can also be controlled by the app, allowing parents to stow the child seat to create more space in the second row with the touch of a button. This powered child seat can then transform into a footrest for the third-row passenger when not occupied, and can also slide forward to facilitate ingress and egress to the third row.

Flexible space addresses different use cases, with a sliding floor console which can move from front to rear, either via voice command or the touch of a button. For passenger wellbeing, "zero-gravity" seats (occupant spine experiences zero gravity) have been developed.

New Bio-Thermoplastic for Interior Parts

INTERIOR NEWS



Swedish polymer compounding specialist Hexpol has announced the addition of new grades to their Dryflex Green family of bio-based TPE (Thermoplastic Elastomer) compounds.

The supplier says TPEs are particularly useful in automotive interior applications such as floor mats, cup holder liners, fascia, trim and inlay mats. The new compounds contain raw materials from renewable resources such as plant and vegetable crops, for which there is an increasing demand among automotive consumers. The bio-based content can be derived from various raw materials such as polymers, fillers, plasticizers or additives, coming from renewable sources such as products and by-products from agricultural that are rich in carbohydrates, especially saccharides.

According to the company, the materials can usually be used as a drop-in solution for traditional TPEs, without the need for tool modifications. They display mechanical and physical properties comparable to TPE compounds from fossil-based raw materials, as well as good bonding behavior to PE and PP, with special grades for bonding to ABS, PC/ABS and PET.

Alongside their sustainability credentials, materials for automotive interiors also meet requirements—legislative and market-based—for IAQ, odor, fogging and VOCs.

Rolls-Royce Ghost Interior Acoustic Refinement

INTERIOR NEWS

With the recent launch of the new Ghost model, Rolls-Royce has centered the entire car concept around the passenger experience—even though they have always produced cars to be *driven in* rather than to drive.

"Formula for Serenity" is the overall recipe of this model. The acoustic approach is part of it, with focus on noise attenuation throughout the vehicle. It starts with the structure made out of complex shapes, and no flat, resonant panels. The floor is double-skinned, sandwiching composite damping felts to reduce road noise intruding into the passenger suite.

The doors are made from laser-welded aluminum, with high stiffness providing both structural benefits and low acoustic impedance, which the company says benefits interior noise reduction. Larger sections of the architecture have also been created with specific access points for the installation of acoustic damping materials. Air conditioning ducting surfaces have been modified to eliminate even imperceptible sound waves, thus cutting down on wind-type noises from the system.

All components have been tuned to share a common resonant frequency. The seat frames in early prototypes, for example, resonated at a different frequency to the body, so damping units were developed to bring the noise together into a single note. Same logic for the trunk, and the Micro Environment Purification System (MEPS), with sensors to detect ambient air quality, automatically switching fresh air intakes to recirculation mode if unacceptable levels of airborne contaminants are present. This channels all cabin air through a nano-fleece filter, which is capable of removing nearly all ultra-fine particles from the Rolls-Royce's micro-environment in less than two minutes.

Interior Design Evokes Brand Love: VW's Wouda

INTERIOR NEWS

In an interview posted on the VW website, VW Group Future Centre Europe's Design Director explains where the main trends as electric and autonomous, mean for the interior design of the future.

“The design of the interior of tomorrow will be an experience for all the senses.”

His vision is that the interior will be designed exactly the way you want it to be. In the not so distant future, its steering wheel will disappear when you don’t need it. Eventually there will be no steering wheel and no pedals at all. The vehicle interior will become an experience for all the senses, including smell. Virtual and augmented reality will create ever-changing new worlds inside the vehicle.

Everything will be fully personalized (music, video, climate, destination, calendar), and seamless continuity with home/office, like to finish an audio podcast you started last evening.

Brands will further differentiate a car you own from the one you rent for a day. The interior will have a high degree of individuality and solutions catering for specific activities and use cases as well as passenger types (e.g., kids). Car sharing with much higher usage rates and different business models will be renewed.

Wouda’s design vision is focused on the experience that the vehicle has to offer the customer, and the interior plays a decisive role here. The exterior then follows. It’s design from the inside out. But that doesn’t mean that the external appearance is any less important After all, it’s the exterior that we fall in love with. But it is the interior that determines whether we have a brief fling or a lifelong relationship with a brand.

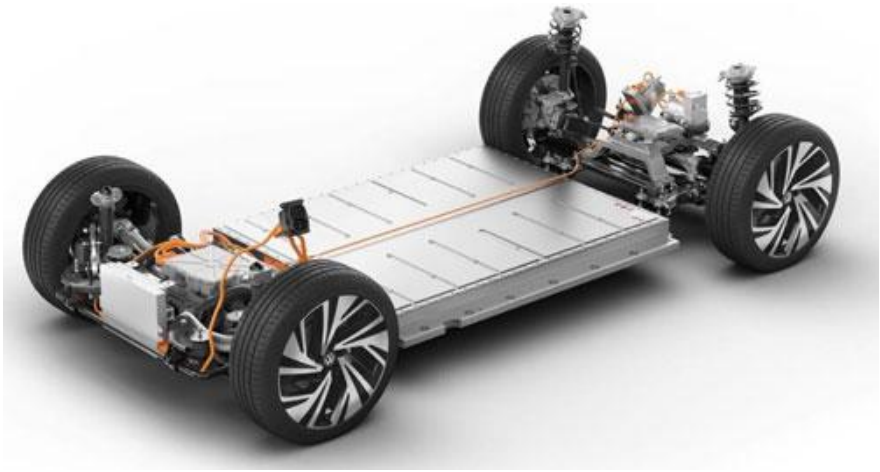
The Design Lounge

VW Group's MEB Platform: ID.3, ID.4, Enyaq… and Beyond

THE DESIGN LOUNGE

2020 has finally seen the introduction of new BEVs (battery electric vehicles) into the marketplace—not just as specific segment entries, but as a completely new model range as exemplified by the Volkswagen Group's MEB platform.

Volkswagen is the first major automaker to create a BEV-specific range since Tesla entered the market. As this platform will be used across many of the Volkswagen Group's brands, let us take a deep dive into the overall architecture and how Volkswagen has defined and differentiated their model lineup.



The VW BEV platform's EV powertrain is a rear-drive ‘skateboard’ style also adopted by most other automakers.

Once overlaid with the exterior outline, you can see the four-wheel drive variant doesn’t intrude into the interior space.

With the BIW (body-in-white) overlaid, we can plainly see how VW has not incorporated a ‘frunk’ (front trunk) into the overall packaging, choosing instead to maximize the interior volume of the vehicle platform.

From this view, we can see the traditional HVAC packaging within the interior space and instrument panel. By utilizing this traditional approach, Volkswagen ensures a reliable interior fit & finish and NVH qualities. This is in contrast with, for exampe, Lucid Motor's decision to split the HVAC into two portions and integrate it under the windscreen and out of the interior packaging.

Let us now compare the Volkswagen Groups initial entries using the MEB platform: Volkswagen ID.3 and ID.4; Škoda Enyaq.

The Volkswagen ID.3 is a Golf-sized vehicle with very short front and rear overhangs and a long wheelbase that maximizes the interior volume.

The ID.4 is based on the ID 3 but with an extended rear overhang that increases the trunk space.

The Škoda Enyaq is based on the VW ID.4, but uses more traditional styling cues that convey the Škoda brands features and value.

Volkswagen ID.3 interior has a bright and airy atmosphere.

ID.4 interior keeps the display formats for the cluster and UX/HMI but with a more toned-down atmosphere.

Škoda Enyaq interior has a more traditional atmosphere and execution of the cluster/displays

ID.3 cockpit with a low floor console

ID.4 cockpit with a raised floor console

Enyaq cabin ha a rising floor console that creates a more cockpit-style, enclosed feeling.

ID.3 cockpit integrates a lighting element between the upper and lower IP.

ID.4 cockpit integrates the light strip below the deco-trim strip.

Enyaq cockpit has the lighting integrated into the deco-trim strip, unlike the VW variants.

For the Volkswagen-brand vehicles, the use of capacitive switching enables a more high-tech, modern feeling seen in the window switch pack.

Škoda opted for the standard corporate VW switch pack.

This high-tech atmosphere is also carried over to the cluster display in Volkswagens with a browless binnacle and integrated shifter.

Although using the same display, Skoda's cluster uses a brow over the binnacle, a secondary display for warning lights at the base of the IP, and has the shifter relocated to the traditional center console location.

The use of these flat capacitive switches is also carried over to the steering wheel controls…

…while Škoda again uses the traditional VW switch packs.

The large central UX/HMI carries over this execution for the Volkswagen versions as an integrated element.

Škoda again uses a standard VW switch pack but locates it under the central vents thus separated from the display unit.

Wireless charging and a sliding lid is used for the Volkswagen variants, seen here in the ID.3…

… the ID.4 swaps the placement of the cup holders and wireless charging location while…

… here you can see the shifter integrated within the floor console for the Škoda model.

Škoda Enyaq floor console solution

ŠKODA ENYAQ

Based on Škoda's brand positioning as a function-first vehicle, we can see in the following images how they have incorporated many functional storage details within their version of the MEB platform.

This functional usage along with a more traditional aesthetic and form language allows Škoda to position the Enyaq differently than the VW ID series.

ŠKODA ENYAQ

ŠKODA ENYAQ

ŠKODA ENYAQ







REAR


20s

VOLKSWAGEN ID.4

With the ID.4, VW has kept the high-tech elements that are used for the ID.3 while also adding a more sophisticated material execution that is required in this class of CUVs.

VOLKSWAGEN ID.4

VOLKSWAGEN ID.4

VOLKSWAGEN ID.4

Playful, high-tech, modern: the VW ID.3.

Volkswagen ID.3 capacitive lighting and defogging switch pack

The Volkswagen ID.3 rear seat execution highlights the entry BEV execution that focuses on the UX/HMI interface over storage area tidiness.

The next chapter of the MEB will be the highly-anticipated introduction of a BEV VW ‘bus’. Based on what they have introduced to date, it seems VW will have a very well-rounded BEV range to combat Tesla and the new BEV brands entering the marketplace in the coming years.

News Mobility

_Trajectories of Our Mobile Signature

NEWS MOBILITY

SOURCE: HOODMAPS CROWDMAP

(a designer's look at our mobility-centric culture)

8. Digital trajectories_

Mobility, paired with technology in a quasi-tactical way, embraced the new challenge to reboot itself by retracing new corridors of choice. Based on statistic and real time events, with dense broadband network in urban areas, new paths of transportation appeared, conquered rapidly by bicycles and electric kickboards through gamified shared platforms. It is just the introduction of what happens in the wider picture of urban motion over the course of last decade.

Proximity, frequency and density dictated the complex interwoven metropolitan paths, visually represented through advanced digital media, as 'fluid textures', prismatic, psychedelic patterns in all sorts of arrangements. These, real time often animated, portrayals are strong indicators of social fabric, depicted in various compositions according to local trends. Depending on landmarks and framework, they are now replacing previous infographic maps (ie, Metro maps) and overtime become the stylized logo of a district or a city, containing intimate and profound characteristics of its everyday life. Unlike the aesthetic similarity to previous, static, graphic flux representations, the new mathematic models, based on trajectories of mobile objects and people can conduct 'character recognition' and through the choreographic evolution of our motion, generate profiles of behavioral psychology.

With tech filling the gaps of all previous infrastructure blocks, digital paths and traces of mobile subjects add a 4^{th} dimension on our itinerant culture. Through this conversion, density is represented by 'image-size', and we can zoom-in and dial alternative trajectories thus, generate further information that will bias prospect routing. The value of mobile data is arguably greater than its utility! Street view is expressed in megapixels, time in battery autonomy, autonomy itself in megabytes available, connections are infinite, and distance is zero. A different type of proximity brinks together urban communities that often have not much to share with their physical neighbor, other than the same hotspot. This casts another layer of social interaction, just like an interfering trajectory, adding itself into to the big city data, laying its own lines on the canvas of urban life.

An augmented mobile human emerges with individual trajectories, drawn by all previous mechanical means, amplified, multiplied, copied, and memorized in many dimensions into a digital profile. New soft applications of autonomous robotic services and self-activating public devices integrate to our personal path and, surrounding infrastructure becomes an instant mirror of our needs. After two centuries of monumental urban planning, great streamline avenues and fast lane highways, designers internalized the question of a new approach. New design codes are not anymore referring to linear performance but unconfined, crowdsourced events and situations. It is not about conceiving ‘the vehicle’ but, enabling choice.

Uber Commits to Zero-Emission Mobility

NEWS MOBILITY

Uber has committed to becoming a zero-emissions mobility platform by 2040 across 10,000 cities in six continents. By 2025, the firm says, 50 per cent of vehicle-miles (or kilometers) driven on Uber's platform in aggregate across seven European capitals (Amsterdam, Berlin, Brussels, Lisbon, London, Madrid and Paris) will be in zero-emission vehicles.

This will reportedly be achieved with the help of the USD $800m which is available to hundreds of thousands of drivers across Europe, the U.S., and Canada to help them with the cost of switching to a zero-emission vehicle.

Uber will also continue the expansion of Uber Green across Europe—where riders can request a lower emission vehicle for a small surcharge—from 37 cities currently to 60 cities by the end of 2021, covering 80 per cent of their European business.

Uber has signed complementary agreement within various partners such as Renault and Nissan to ensure drivers on the Uber app have access to affordable electric vehicles in Europe, including the UK, France, Netherlands and Portugal. Power Dot will also provide exclusive access to four charging hubs to drivers in Greater Paris and Portugal, as well as a 20% charging discount. In the UK, Uber and BP have signed a deal to provide drivers with new dedicated charging hubs in London, and a discount on a network of 7,000+ charging points. In France, a partnership with EDF will provide discounts to a large network of rapid charging infrastructure, as well as discounts for home-charging installation.

Hyundai's New Ultimate-Mobility Division

NEWS MOBILITY

The Hyundai Elevate walking vehicle concept raised eyebrows at CES in 2019. The vehicle appeared to be closer to Star Wars than to a conventional automobile. But the concept becomes slightly less weird with the recent announcement that Hyundai has established a new unit to develop what they're calling Ultimate Mobility Vehicles, and that the Elevate will be the first among them.

Hyundai's New Horizons Studio "furthers Hyundai Motor Group's vision to shape the future of mobility," the company said in an announcement. "Using a combination of robotics and wheeled locomotion technology, Elevate and other vehicles by New Horizons Studio are expected to redefine vehicular mobility."

The battery-powered Elevate concept features moveable legs with wheels on the bottom, theoretically making it able to traverse extreme terrain. Hyundai states that the Elevate or a similar vehicle could be sent into a natural disaster zone, for instance. Or that a car with similar capability could enhance mobility for the disabled.

At a smaller scale, it could feature an humanoid delivery machine, to extend autonomous delivery in the last meters.

In general, Hyundai remains extremely vague on the contours and the real objectives of this division. But they seem decisively engaged in broader thoughts on the development of new means of mobility, whether it is with these ultimate vehicles or with urban air mobility.

General News

VW's Car.Software Acquires Camera Software from HELLA

GENERAL NEWS

Hella has sold their front-camera software business to Volkswagen to raise around €100m.

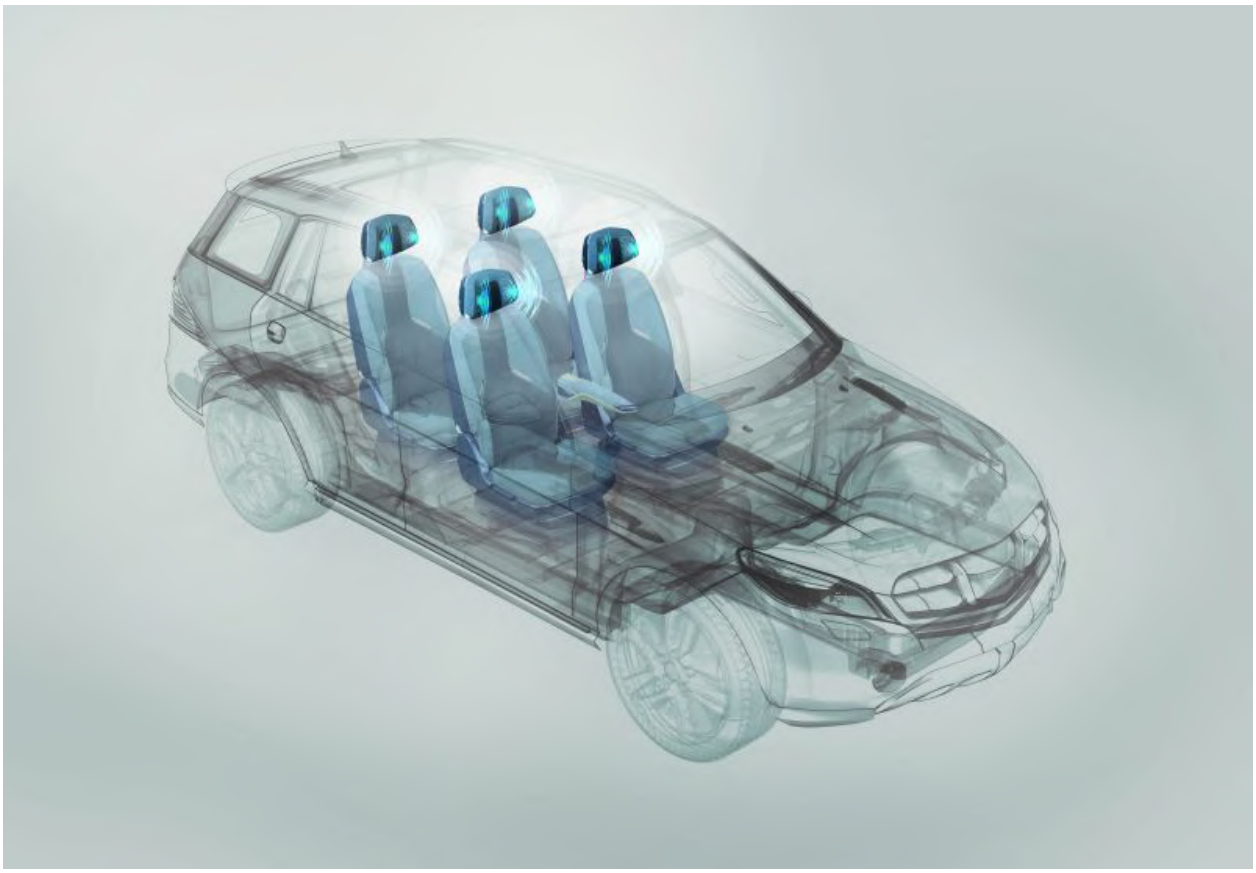
Hella suffered punishing consequences from the pandemic in the first quarter of their new 2020–21 financial year, and had already felt the effects of softening car markets in the previous financial year. CEO Rolf Breidenbach (photo) justified his company's exit from the front camera software business with the fact that the group always has the strategic of technology leadership, market leadership and the fulfillment of certain financial indicators in mind; he says: "In order to achieve our goals in the long term, we would have had to make extraordinarily high investments in the area of front camera software combined with a high entrepreneurial risk. The exit from the business with front camera software is based on stringent portfolio management".

Other business activities of the subsidiary Hella Aglaia—energy management, lighting control and people counting devices (people sensing)—woill not be affected by the sale, and Breidenbach says the group will continue to invest in electromobility, automated driving, software and digitalisation. Half of the employees previously employed at Hella Aglaia will move to VW's new "Car.Software" venture.

The acquisition, which is still subject to approval by the anti-trust authorities, is expected to be completed at the beginning of 2021.

Grammer, Harman Partner for Sound Headrest

GENERAL NEWS



The Grammer Group announced recently a long-term partnership with Harman International Industries, a wholly-owned subsidiary of Samsung Electronics which designs and engineers connected products and audio solutions. Grammer is specialized in developing and manufacturing components and systems for car interiors as well as driver and passenger seats for off-road vehicles, trucks, buses, and trains.

Together, they will be offering integrated audio solutions for the passenger car market in the future. The preliminary designs are to be presented to the industry as early as next Spring.

Looking forward, it will become increasingly important to personalize in-car multimedia. “Sound zone technologies and noise cancellation are just a few of the technologies that can be integrated into existing interior solutions in a design-optimized way through this partnership,” says Dr. Michael Borbe, Grammer's R&D Vice President.

One key element of this, the integration of audio components in the headrest, will enable individual audio programming for each passenger during the journey. This will improve the clear and direct communication between individual passengers, the individualized use of different audio services by each passenger and also offers the possibility to pass on specific signals of the vehicle acoustically only to the driver.