Thu, 18 May 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #161

Editorial

DVN Interior Workshop – Key Takeaways

DVN IMAGE

Spring is well under way—some places already feel like summer—and we're glad you're with us. We published a quick first look two weeks ago, and today we précis the major trends this workshop reflected.

The next upcoming DVN-Interior event is a Deep Dive session, in parallel with the US DVN Workshop in San Francisco, California on 29-30 August. If you're up for participating in the interior lighting session, please **let us know**. The Deep Dive will be focusing on how interior lighting contributes—and interacts!—for user experience; safety, and comfort in the car. We're looking forward to seeing you there!

This week's Coffee Corner reports on mobility from the Farnborough Festival of Electrification!

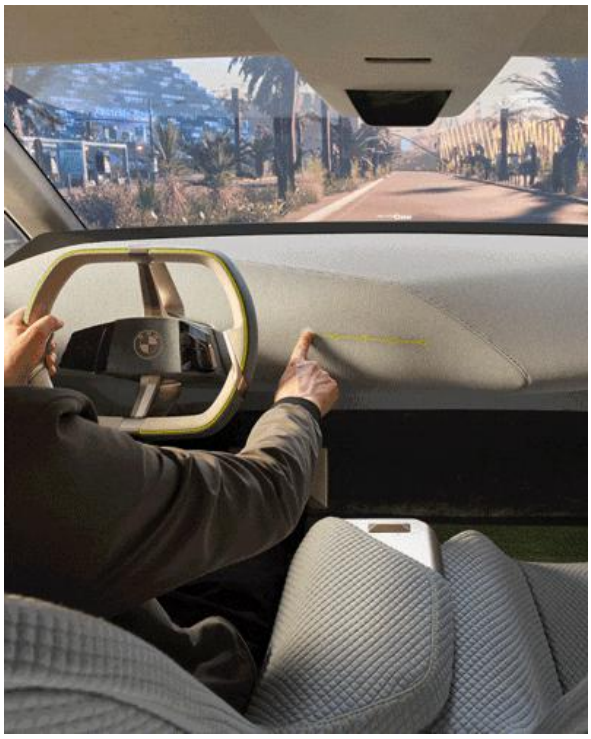
Sincerely,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Takeaways from DVN Interior Köln Workshop

The DVN Interior Workshop gathered more than 160 attendees at the central Pullman Hotel in Köln. The lectures; strong Q&A discussions and exhibits covered the most important automotive interior directions: user experience; safety; comfort; HMI and 'smart' surfaces; driver monitoring systems; interior lighting; materials, and sustainability. Today we present key takeaways from the three keynotes; 23 lectures; 10 expo booths, and numerous Q&A sessions and side talks.



BMW DEE MIX REALITY SLIDER (BMW IMAGE)

Technology is there, but not preëminent

In his opening keynote, BMW's Martin Enders helped the community understand what the future could hold. It is not a deterministic perspective, but more like possibilities which could be unlocked by touch technology for human interaction. The analogy of smartphone evolution with car interior HMI is very apt, and it demonstrates that human can adapt to very advanced technology.

The BMW DEE (Digital Emotional Experience) revealed in Las Vegas during CES this past January, is a good carrier of this future vision. It integrates voice interaction; the BMW Mixed Reality Slider, and the advanced BMW Head-Up-Display, which brings virtual worlds into the car and opens new levels of interaction.

The BMW Mixed Reality Slider displays content in five different levels, ranging from analog to driving-related information, to the contents of the communications system, to augmented-reality projection, right up to entry into virtual worlds. In this way, it demonstrates the huge potential of projection technology, and advanced Head-Up-Display could also be used in the future for the display and operating concept.

In the opening keynote of day two, Andreas Wlasak and Tony Allison stated that car interior is becoming a third living space. Forvia created “Lumières” as a concept interior show car, presented at CES 2023, whose target is to provide mobility experiences that matter to people, simply because people pay more for products they like.

The analogy with Hyundai's Ioniq 7 concept was in the background to illustrate this interior trend.

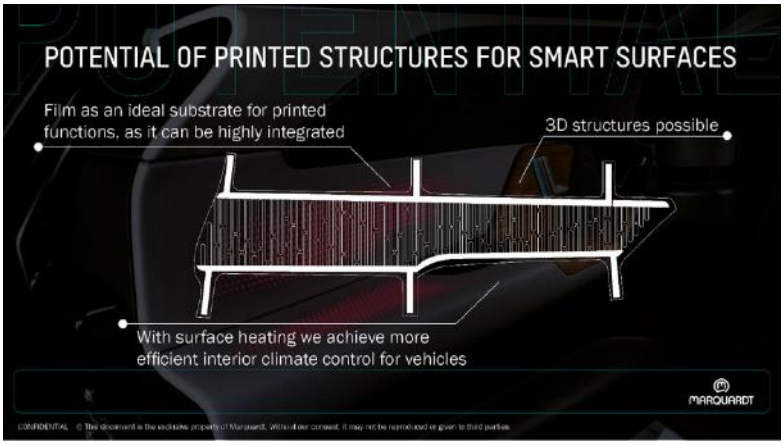
This "third place" idea covers home; work, and social, and was the original intent of Starbucks. That’s done through interior lighting, convergence of surfaces and HMI, and HMI and software, personalized space, helping creating a safe and calm space, that for instance keeps kids occupied on their way to school while the adults experience the music they like.

The future of interior is a place where technology is there, but almost invisible. Individual preferences in any situation are the only target, and the car is the ultimate retreat where you can be yourself.

Convergence of Surfaces for HMI

Antolin presented a 'smart' surface that combines decorative; lighting, and touch elements into a fully functional HMI System, including functional lighting for the touch To allow an easier installation of the capacitive foil, they mount a capacitive film to a silicon body which allows easier installation to the main assembly. The silicon is mounted slightly pre-compressed between reflector and fascia, ensuring permanent contact of the antennas to the B-side of the foil. This patented solution, which is allowing a robust integration with reduced capex and scrap rate, is soon to start production for an Indian automaker.

Antolin also presented a spectacular metallic faceted decoration, emulating a crystal see-thru effect with a smooth-touch feel.



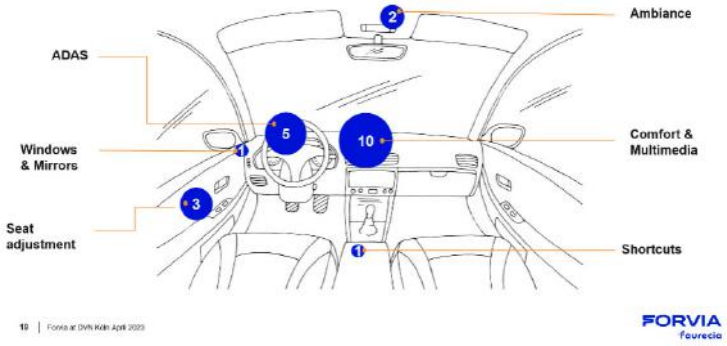
MARQUARDT IMAGE

Marquardt talked about printed technology, using transparent carrier for homogeneous illumination and heating, as the enabler for smart surfaces. This technology adapts to any shape, and solves heating issues, especially in the context of EVs. It brings a solution that balance visual and tactile effects, while minimizing energy usage. It has been showcased in their recent Marquardt demo car.

Poly IC presented their PolyTC® touch sensors produced in a roll-to-roll manner, based on silver metal mesh (and PEDOT, a conductive polymer) with customized integration solutions especially for in-mold electronics decoration and sensor integration. That's another way to transform plastic surfaces into smart touch sensor surfaces.

PolyTC touch sensors for capacitive switches are already in the likes of the VW MEB/MQB; Cupra Born and Tavascan; BMW i7 and iX1; Audi A3 eTron, and at least one Lynk & Co model.

concepts with infotainment; decor, and lighting



SMART LOCALIZATION MATTERS (FORVIA IMAGE)

Forvia, in their second talk by Patrick Nebout, took us on a journey to efficient HMI. Trends are that display size is increasing, when mechanical interaction points are being reduced, and shy tech is deploying (technology visible only when needed)

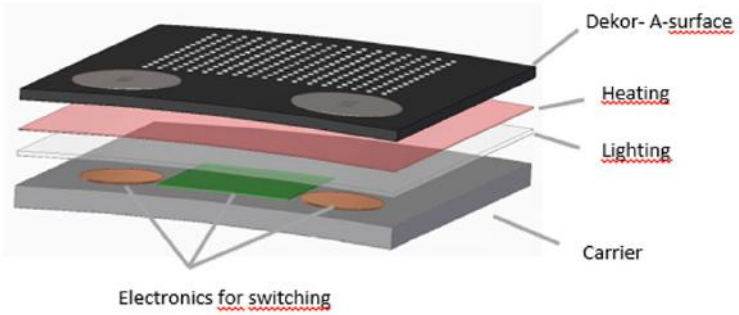
What is needed is *technology for a purpose*, for a meaningful intent. That is, HMI with intent, reducing cognitive load. A recent consumer research exercise confirmed that smart localization matters: like seat adjustments on the door; ambient light on the overhead console; comfort and multimedia controlled on a central screen; windows, and mirrors on the door. Right position and good visibility/accessibility with effort-minimized reach and operation is paramount for safety. Feedback is also very important—visual feedback (color…) and haptic feedback, especiallywhen sound feedback has limited value.

GREWUS-KURZ/POLYIC HAPTIC EXPERIENCE BOARD (GREWUS IMAGE)

Grewus develops and produces acoustic signal sensors and haptic actuators for many applications, including car interior. Haptics apply everywhere in the interior, dashboard, center panel, door, and even back of the front seat for entertainment. Grewus showed the different technologies which apply, such as exciter, piezo, voice coil, LRA (Linear Resonant Actuator), and the challenge of integration into interior systems.

TITV Greiz, a research institute for special textiles and flexible materials, showed many technologies they master to integrate special fibers to create smart textiles, to extend HMI capabilities to soft surface materials.

FLT presented a new automotive heating solution, applicable on paper, foils and textiles, allowing also technology convergence into a 'smart' surface, combining lighting, heating and switching in a single compound.

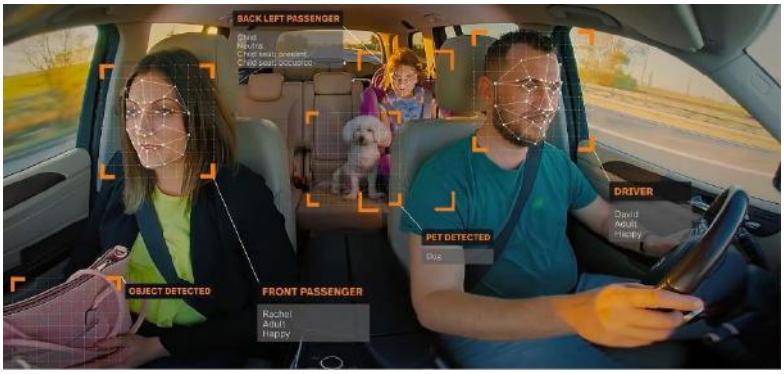


FLT IMAGE

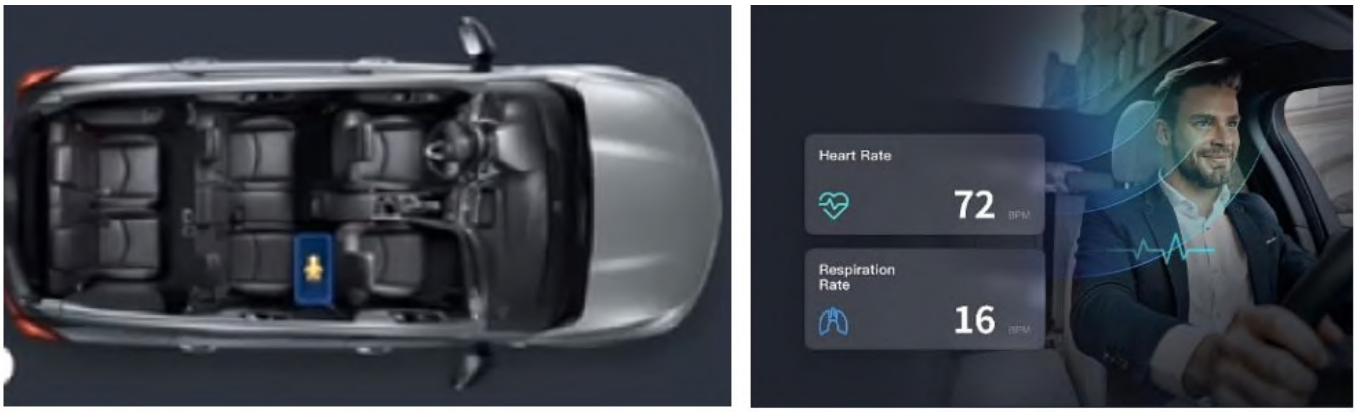
Ansys presented the future of simulating displays and HUD using their Ansys Optics process. Simulation is key to efficiently develop HMI, displays and HUD, including component integration such as HUD; camera; light guides; AR systems; ambient lighting; LEDs, and microLEDs.

Safety And Driver Monitoring

As stated during several lectures, including the third keynote (by Forvia), driver attention and cognitive load are part of the HMI performance objectives. As soon as cognitive load and distraction enter the game, safety is at risk. That's why driver monitoring systems are called for.

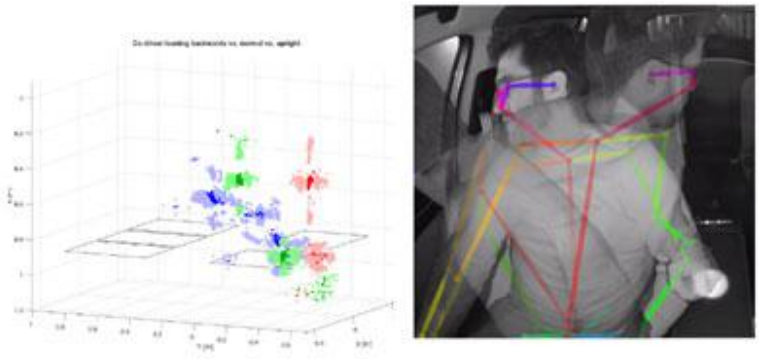


Yole gave a solid perspective on the evolution of that market, including occupant monitoring, for basic safety (compliance with EuroNCAP); safety and comfort (seatbelt detection, wrong posture, objects), and advanced safety (vital sign detection, emotion). Going through a value chain analysis, and giving a total revenue forecast (almost $2bn by 2028, with a 58-per-cent CAGR), Yole explained that multiple sensors are expected to be used for in-cabin sensing, and that related software development is important, and that most automakers will rely on collaboration with tier-1 suppliers to develop it.



POTOSENSE VITAL SIGNS DETECTION (POTOSENSE IMAGES)

Potosense is a Canadian startup developing and producing the first mm-wave in-cabin sensing package in production for automakers. They use Sunway's production facility in China. Their system can detect and classify presence with one single sensor, best located in the overhead console (seat for vital signs). Major use case is child presence detection, and it can differentiate an object and a person. Going further to vital signs detection, it has medical-grade accuracy for alcohol/drug detection; motion sickness, and drowsiness.



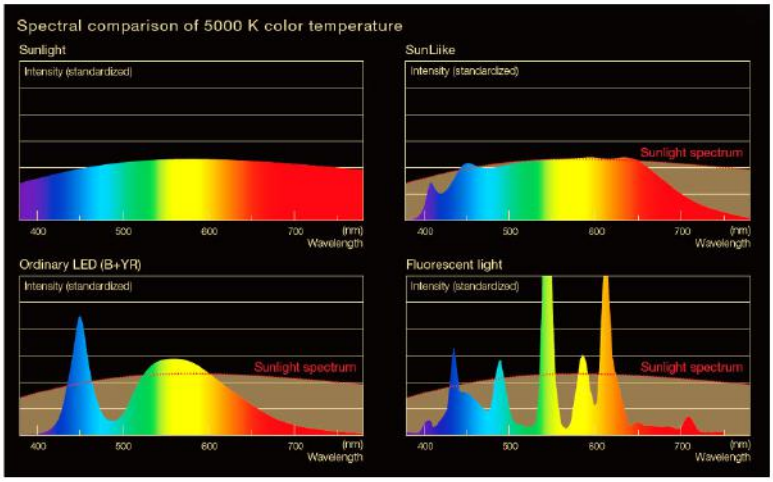
Rheinmetal Dermalog Sensortec talked about radar In the overhead console, provided by one central camera. Both technologies eliminate disadvantages of individual technologies, and in addition, it enables the decomposition of safety functions through redundancy. Then, sensor fusion can increase accuracy and reliability. Further use-cases are made possible that benefit from this sensor fusion between camera and radar (seat belt reminder, occupant detection, driver identification, out-of-position warning, etc) are made possible. SensorTec is flexible in terms of architectures and desired scope of delivery (full system supplier, modular components, ,and complete software solutions).

Interior Lighting

With human occupants at the center of the car interior, Forvia's keynote emphasized the "third place" using warm white light, light being dynamic to inspire space and to create immersive experience. It also showed that light is everywhere in the cockpit, and that even light can be a vector of dialog as HMI in interaction with the vehicle.

VOLVO IMAGE

Volvo emphasized the application of Seoul Semiconductors' SunLike LEDs inside the car—in this case, the new EX90, adorned with 72 SunLike LEDs to deliver a near-sunlight experience. For more details, see our previous report.



SUN LIKE LIGHT SPECTRUM – SEOUL SEMICONDUCTOR IMAGE

Seoul Semiconductors explained that their SunLike white LEDs based on violet rather than blue emitters so that the high blue spike is eliminated and traditionally weak cyan-green-red parts of the spectrum are much stronger, brings the nature of light into the automotive realm. It increases the illumination quality and therefore valorizes textures, materials, and even passengers' skin; overall it improves the wellbeing of car passengers.

JLR IMAGE

JLR (Jaguar Land Rover) talked about modern luxury interior lighting attributes, for their premium market segments. Attributes relate to how users are interacting with lights inside and outside of the vehicle. The target, set forth in 7 principles, is to create inspirational, exclusive, and exceptional experiences and wellbeing for customers, while being sustainable, modern and innovative. Every action must be rewarding, seamless and effortless, to touch occupants emotionally and make them feel special. Interior lighting has been developed for that, including positive perception of space. More is not always better. Cascading lighting inside reveals the technology and materials, but it must be subtle and progressive.

TACTOTEK IMAGE

Tactotekexplained that light is a user experience; welcoming you when approach, staying away till you need it, warning you and keeping you safe, interacting when needed. Light is not just essential to the third (living) space; it is what enables it. Light has to be tamed, and that what the Tactotek IMSE® technology is doing. It has new

features, like light channels, to address light lines, visual quality beyond today performance (around 5 cd/m^2), and transform surfaces that have poor light efficiency into shy tech surfaces.

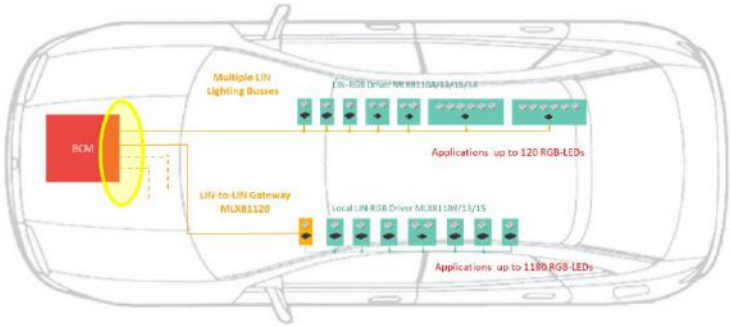
AMS OSRAM IMAGE

Dynamic lighting is the new trend, and AMS Osram presented how to make it happen, thanks to new dynamic and colorful ambient lighting by using intelligent RGB LEDs with Open System Protocol. Dynamic works for decoration and personalization, but also warning, communication, and interaction.

TECHNO TEAM IMAGE

Techno Team is a manufacturer of imaging light and color measurement systems. Measurement of interior lighting is a combination of metrology and image processing. As stated by their CEO, they sell numbers for performance, which, at the end, are important to generate the perception of the final user! Basic work from the operator is required (stabilization of DUT, measurement setup), and careful handling of the measurements and evaluations. Estimation of the measurement uncertainty (not only from the measurement device) to select appropriate acceptance intervals from small tolerance intervals

Parameters to measure for interior lighting are: finding; orientation; functional/tell-tale; scale; pointer, and ambient.



MELEXIS IMAGE

Melexis talked about solutions for interior and exterior lighting, in a context of increasing complexity of functional and safety relevant lighting systems. Zone or Domain architecture is possible, depending on automaker requirements. Multiple backbone architectures (CAN-FD, Ethernet, …) can be supported. Together with LIN and CAN-FD is Melibu, the Melexis light bus. Multichannel LED driver, single channel light engines as

well as integrated LEDs are possible. Every LED fully controllable as a single light point enables all kind of animation. Finally fusion from design and functionality is fully supported.

IMAGE COURTESY OF UNIVERSITY OF PFORZHEIM

University of Pforzheim closed the interior lighting session, with a perspective on improving traffic safety by directional augmentation via RGB LED matrix displays.

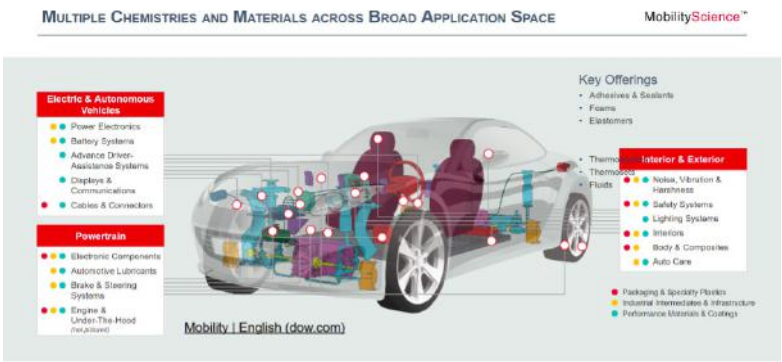
Augmented reality for manual driving improves traffic safety and trust in ADAS; for autonomous driving, it raises wellbeing (and reducing motion sickness) by visualization of the intended trajectory.

Materials and Sustainability

A keynote by Liux presented GEKO, intended to be the most sustainable cars on the planet. Liux is a Spanish startup, and their talk was a perfect introduction to the materials and sustainability dimension of this workshop; the company found one of the few real complete car system experts, to build a limited production system (15,000/year), combining innovation, simplicity, low-capex processes, and bio-technology and material (example: natural linen in a bio-based resin for composite bodyworks) and 3D printing for simple molding tools.

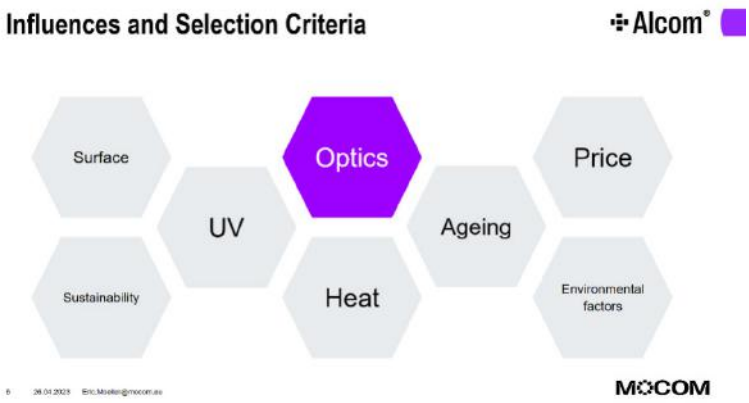
The car target is mini-mobility; it's a 2-seater, and the first complete functional vehicle has been developed in 9 months!!

Target for the interior, too, is to be honest with materials—show them as they are, for example linen fibers. Of course it must be attractive and sustainable. With sustainability, the biggest challenge is to be affordable, and it seems they are on their way to achieve it! The car's paintless body is an example.



DOW IMAGE

Dow presented their portfolio of materials for car interior applications. It covers many areas in the vehicle, such as seating foams, synthetic leather, modified leathers, acoustic and NVH materials, panels, consoles and flooring, and materials for lighting (silicone optics, thermal interfaces, etc.) Dow MobilityScience has the advanced materials science, expertise at every stage of the vehicle life cycle, and global scale to help the industry advance their sustainability ambitions and transform transportation. DVN Interior will come back soon with more to introduce better this new DVN Community member.



MOCOM IMAGE

Within the same sustainable trend, Mocom presented their polymer portfolio and sustainable compounds for lighting technology. There's a variety of polymers (PA, PMMA, PET…) which can be used in lighting applications. It has potential to reduce cost and complexity (e.g., by elimination of coating process), they are flexible for new design solutions, including combination of soft touch and light.

Sustainability becomes a requirement for all, and use of recyclate is already possible in many areas.

GRAMMER IMAGE

Grammer has developed a sustainable center console. It was a detailed exercise for a center console, in which they analyzed each part's weight; material, transport, etc., with an expert team fully dedicated to develop methods for LCA (lifecycle assessment) calculation, also responsible for green product strategy and materials

They also engage with the recycling and reuse of their products; a complete armrest assembly, first shredded, and then in following steps, different materials are separated and sorted. And later regrind material is melted/extruded and regranulated. At the end, there's a significant CO_2 footprint reduction of 84 per cent!

NOVEM ONE SLIDER (NOVEM IMAGE)

Novemclosed the session and the workshop with a lecture which summarized pretty well what is needed in this changing interior world. Novem is a trim company workig to become a system supplier. That means having trim and electronics together, and being responsible for integration, not just delivering single components. UX reflects the optimal integration, as perceived by the user. Of couse it has to be executed within the cost objectives and the sustainability targets. That's the one way to success!

Interior News

Ascorium Accelerates Net-Zero Journey

INTERIOR NEWS

ASCORIUM IMAGE

Ascorium is a market leader in polyurethane (PU) surfaces used in automotive interior/exterior components, such as dashboards, door panels and glove boxes. Because of automakers' upgraded sustainability targets, they decided to continue their net-zero journey.

“The push came from Volvo Cars,” says Gunther Guetens, Ascorium’s Group Sustainability and Materials Manager. “They have the ambition to reach net zero emissions by 2040, by decarbonizing the cars’ entire life cycle. To achieve that aim, they must encourage their suppliers to adopt sustainable practices too. That’s how they asked us if we measure our carbon emissions according to the greenhouse gas protocol. The question was part of a survey, so they didn’t push us in any way, yet it triggered us to take action".

Ascorium launched several sustainability initiatives in the past, of course. Yet, it was time to raise the bar and professionalize their approach. Measuring carbon footprint seemed like the perfect starting point.

On Recticel's recommendation (former Ascorium mother company), they selected Futureproofed software to measure, monitor and report its carbon footprint.

Futureproofed customized their tool with Ascorium-relevant scopes and emission categories. Finding all the data, spread across systems throughout the organization, was quite challenging.

Based on all these data, the Futureproofed platform calculated Ascorium’s scope 1, 2, and 3 emissions in line with the greenhouse gas protocol. Now, in one click, they can share the reports with management and anyone else interested.

“Our products are made with polyurethane (PU), which is a versatile material that allows us to create long-lasting, durable solutions. While that is a great start, we know we must do more to make our products sustainable. Futureproofed software gives us the insights we need to understand which raw materials have the biggest impact on our carbon footprint", said the company.

Continental's Changzhou Plant for Sustainable Interior Materials

INTERIOR NEWS

CONTINENTAL IMAGE

The Phase III expansion has begun of the Changzhou Plant, Continental's second joint venture in China with the Jiangsu Changshun Group. The facility will be used for the development of sustainable and environmentally friendly automotive interior materials.

As part of the project, coating machines, printing presses, mixing equipment, embossing machines and various other public and auxiliary equipment and environmental protection equipment will be purchased. Once completed, the Changzhou Plant will have added an annual capacity of 13,000,000 m^2 of high-performance composite surface materials, providing an estimated 35,000,000 m^2 annual capacity of surface materials.

Through this expansion project, Continental will be able to increase the production capacity of their Acella surface material. The material is described as a "high-performance, eco-friendly decorative material" that uses water-based lacquers with low VOC emissions and plasticizers without reproductive toxicity. The material is free from contact allergens and stabilizers containing heavy metals, and antimony trioxide. Having gained the OEKO-TEX Standard 100 label – which denotes that the material meets strict standards for environmental aspects of textile production—the material is widely used for seats and door trims.

They will also develop and produce environmentally friendly, low-odor, low-temperature resistant PVC artificial leather as part of the Phase III expansion.

"China is the world's largest consumer market of automobiles, and there is a huge development potential in the local automotive market," said Dr Dirk Leiss, Continental's head of surface solutions. "We have noticed that more and more Chinese car owners have higher demands for their car interiors in terms of materials, design and environmental protection."

Marelli: Diorama Display and More

INTERIOR NEWS

MARELLI IMAGE

Marelli's diorama display can be flexibly configured in the cockpit, on the bottom edge of the windshield, from left to right A-pillars, providing high-definition, high-contrast display including navigation, indicators, warnings etc, with improved visibility and readability, allowing drivers to easily identify objects in blind spots.

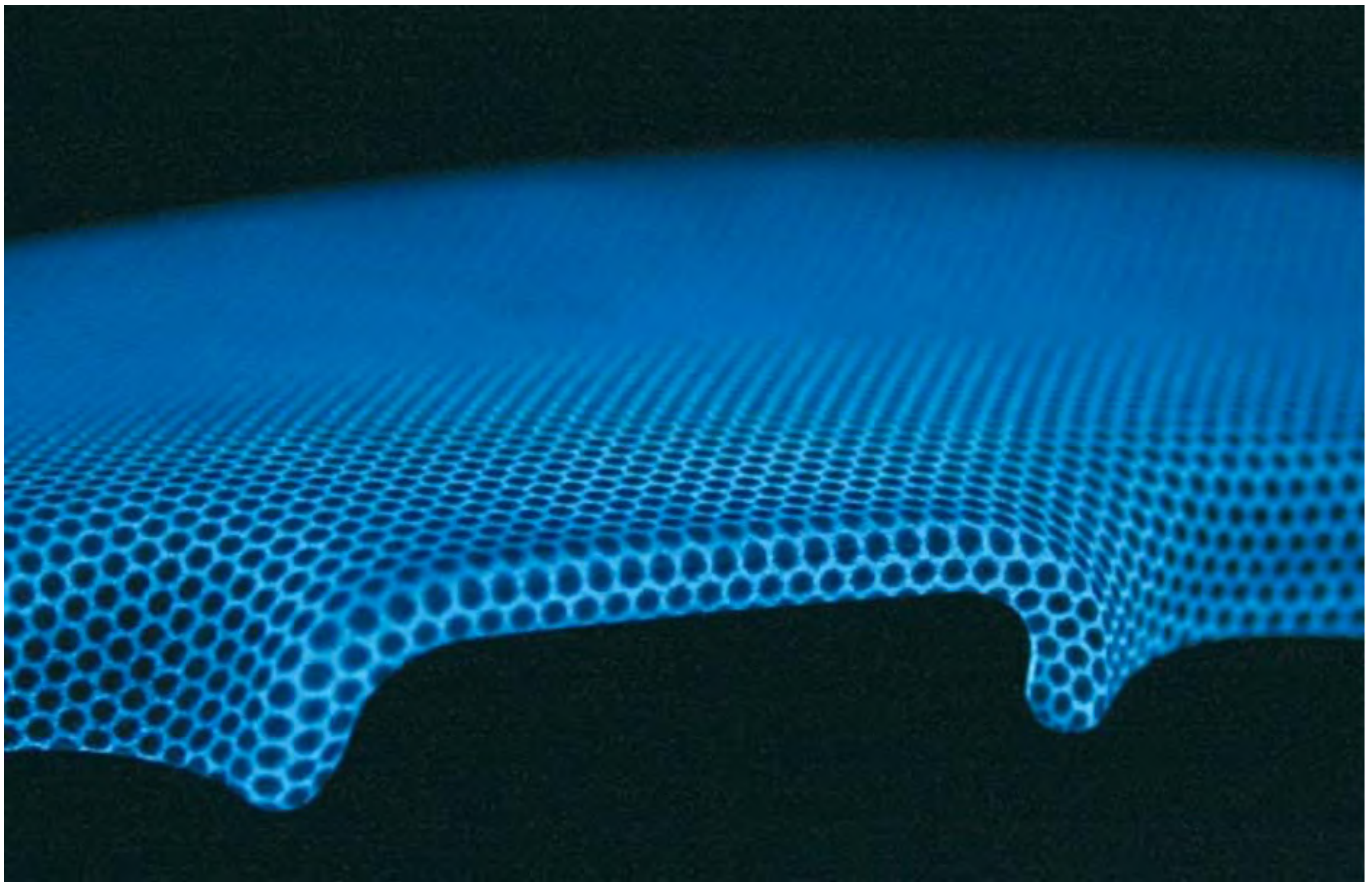
Marelli's screen products are available in different customization form, which can be used alone or several pieces in combination with gap less than 5mm. The product adopts direct backlit display partition, save up to 60 per cent energy, and the new generation of glasses-free 3D and dynamic privacy technology can help protect user privacy.

MARELLI IMAGE

Marelli has in the program a fully transparent functional layer as well as the translucent and touch surface. Among them, the transparent functional layer can display multi-layer, full-color display patterns, not only dustproof and waterproof, but also anti-glare (AG) and anti-reflection (AR), and can be seamlessly connected with the display.

Xtra-Dynamics/ X-Tense Stretchable Light

INTERIOR NEWS



TRIM SOLUTION (XTRA DYNAMICS IMAGE)

Xtra Dynamics, based in Heilbronn, Germany, presented Vision T as a collaboration benchmark. It includes six companies, including Xtra Dynamics, who all came together to bring innovation to bear with the creation of a new interior door panel for a car. Xtra Dynamics supplied the part with the flexible luminous foil, which is stretchable and was the only solution that allowed the integration of the lighting system into the three-dimensional formed parts without the need for expensive light guides.

The foil was seamlessly integrated directly into wooden trim parts and behind vegan leather, adding a unique touch to the end-product. With each company bringing their unique expertise and skills to the table, the end result was a truly groundbreaking and state-of-the-art product.

The seamless teamwork and open communication allowed for ideas to flow freely, leading to a seamless and efficient development process. The

Fifth ISELED Conference

INTERIOR NEWS

ISELED ALLIANCE IMAGE

Interior lighting is increasingly becoming one of the most evolving segments in automotive electronics. It is used for comfort and wellbeing in the car, and with hundreds of colored LEDs more and more for dynamic lighting effects for functional tasks, e.g. to warn the driver in critical traffic situations. All in all, there is an extensive field of tasks that lighting in vehicles has to cover today and tomorrow.

The ISELED Alliance aims to build a system solution for innovative automotive lighting based on ISELED technology. ISELED—the “Digital LED”—and ILaS, the complementary Light & Sensor Network together are capable of supporting all of these exciting new lighting applications and the latest domain- and zonal architectures that are behind it.

5TH ISELED CONFERENCE (DVN IMAGE)

At the 5th ISELED Conference in Munich, more than 150 lighting, electronic and software experts were on-site and more than 250 participants online. The members of the ISELED Alliance presented their latest products and advances around ISELED/ILaS - many also in form of “products to touch” at the exhibition running parallel to the Conference. In addition, automakers and other experts gave keynotes and presentations on the latest developments in the field of vehicle lighting.

PANEL DISCUSSION WITH ROBERT ISELE (BMW), CHANGGIL PARK (HYUNDAI KIA), MARKUS DAUBNER (ANTOLIN), CHRISTOPHE PINCEMIN (YANFENG), AND ALFRED VOLLMER (HÜTHIG) THEME: **DOMAIN-, ZONE- CENTRALIZED - WHAT TO BECOME THE PREVAILING 5TH GENERATION ARCHITECTURE IN CARS?** (DVN IMAGE)

The ISELED Conference was a very successful event, packed with information about automotive lighting and the ISELED/ILaS ecosystem. The success of the ISELED Alliance is also reflected in the steadily growing number of members, which now number 52.

ISELED-ALLIANCE IMAGE

Mitsubishi Electric's Newest Automotive In-Cabin Systems

INTERIOR NEWS

MITSUBISHI IMAGE

Mitsubishi Electric's recently announced Project Jabiru is a next-generation automotive in-cabin system. Spearheaded by Filament Labs, the company's advanced development group, the system is geared towards safety, sustainability, connectivity, convenience, and a human-centric design. In my recent interaction with the product development team behind Project Jabiru, DVN-I was given a first-hand
Jabiru has been designed to be simple and intuitive to use, with a unique personality that reduces driver distraction and cognitive load, while offering drivers and passengers an enjoyable and productive interaction with the system. On top, the use of best practices of web and mobile development means the UX is responsive, straightforward, and seamless.

A "two clicks" rule means that all information—temperature; navigation; media widgets; HVAC controls; volume; phone; passenger side temperature; and parking options, among others—are accessible in not more than two clicks.
The Jabiru system monitors seatbelt usage, whether the driver has a phone in their hand, is smoking, has their hand on the steering wheel, their posture, and drowsiness. The use of in-cabin cameras in the system reduces the cost of putting in sensors to monitor seatbelt use, prevents people from cheating sensors, and allows for detection in the back row.

Micro-movement radar technology detects movement in the cabin. It bridges the gap left by cameras that cannot look through a seat. The radar can detect a heartbeat, breaths, up and down movement of a chest, and even a fly in the vehicle. It can "see" someone/something within the cabin that is not in camera view such as, for instance, a rodent or snake in the footwell.

Using sensor fusion, it can differentiate whether the car is occupied by an adult, baby, or pet and provide a phone notification if the baby or pet is left in the vehicle. Then, working in tandem with thermal cameras, it can automatically turn on the HVAC and keep the baby or animal comfortable.

It has also an SOS feature: the system can configure which driver is involved in an emergency and generate the appropriate medical profile for emergency responders. This is because the camera can detect which driver is sitting in the driver's seat. There is no restrictions on the number of drivers who can be profiled. Automakers can therefore leverage the flexibility of monetizing any additional driver profiles as a subscription feature.

Currently in the process of testing and validation, the system is still another two to five years from production.

The Design Lounge

Fully Charged

By Athanassios Tubidis

THE DESIGN LOUNGE

DVN IMAGE

There are small battery packs the size of a letter-size paper stack, that road assistance people come with and can restart your car. I never quite understood how that works or how is it even possible? The truth is that we have made a lot of progress in electric plugin devices. Even though, in an electric (car) world this device is not necessary, or rather becomes the car itself. In fact, autonomy, range and charging time are still related to anything electric and mobile. ‘Charging’ was the most-used verb at the Farnborough Festival of Electrification '23, the last week of April, showcasing the latest clea- energy technologies and applications next to a great number of electric vehicles of all shapes and sizes. Dozens of live sessions, hundreds of companies and a fair amount of space dedicated to urban and last-mile mobility, including a range of scooters, trikes, skateboards, and bikes, both on display and on the test track. Cars and motorcycles currently on the market were also available to drive, including the BYD Atto3; Genesis' GV60 and eGV70; Hyundai's Ioniq 6 and Ioniq 5; Kia's EV6 and Niro; the MG4 Trophy; the Ford Mustang Mach-E; the Nissan Ariya; the Ora Funky Cat; the Polestar 2; the Subaru Solterra; Rivian's R1T, and Tesla Model 3 and Model Y. Next to them, show cars and prototypes were on display: the Ahera; the McMurtry Speirling and Nissan Ariya single-seater.

Heat pumps; insulation; batteries; smart meters; home EV charging stations, and solar photovoltaics and thermals were some of the supply network novelties, aiming to elaborate on the ‘charging’ aspect of all things electric. And there were a great many home energy solutions, such as cars that are charging the homes instead of only the other way around. There were multimedia presentations elaborating on the pure physics of interior heating and cooling.

After crossing parking lots of re-edited classic car body replicas on electric powertrains (heartbreaking to me, however, equally compelling), I found myself in front of a powerful stance on dramatic wheel arches: a tall bonnet with an arrangement of quad LED headlamps and a red cable charging port faceplate. The MK1 Munro is a modern off-roader conceived to serve in the most remote places like say, mines. It uses just its radio to communicate, still transmitting in such extreme areas. Ross Compton, Munro Vehicles' Chief Designer, explained the idea: the MK1 is all about context. It is a necessary revival of the off-road segment addressed to the purpose. Looking at it as the opposite form of the dominant global SUV segment, ever more urbanized, now there are many more segments and places to explore. Land management; forestry; agriculture; conservation; ecotourism; sports; mountain rescue; coast guard; humanitarian aid; industry; mining; quarrying; construction; telecom, and railroads are just some of the segments well defined and addressed by Munro products. Designwise, it is a novelty as well: making sense instead of restyling older vehicles. Highly recognizable, the

MK1 is a folded-metal origami of imposing proportions; a machine built around critical engineering points and performance requirements, expressing utility every step of the way, every step of the design process. It is designed as a tool.

Several companies addressed the topic from their specific-to-market-segment point of view. Conversely, on the way out, my eyes stuck on one sign: ‘British Gas’. Wrong show, I thought. Talking with Leanne King, Net Zero marketing manager of British Gas, the former natural gas monopoly of the United Kingdom, I realized that the electric business is a matter of perspective. The outsider, British Gas, sees energy distribution as the milestone of anything rechargeable. Common sense, yet a genius vision and strategy.

After all, EVs—whether represent a transition moment in automotive history or are here to stay—certainly offer the opportunity to comprehend mobility from different angles, out of the ordinary or the expected. It is indeed rather mroe about the context, than about the product.

Volvo's New Shanghai Design Studio

THE DESIGN LOUNGE

VOLVO IMAGE

On 10 May, Volvo Cars unveiled their new design studio in Shanghai, meaning the automaker's global design footprint has been further expanded in addition to their existing studios in Gothenburg, Sweden and Camarillo, just North of Los Angeles, California.

The 5,500-square-meter studio provides space for more than 100 designers and creative engineers. Mirroring the carmaker's design headquarters in Gothenburg, the Shanghai studio has all the functions required to facilitate the whole design process, with the capabilities of offering interior, exterior, color and material, as well as UX design to full-sized mass-produced models.

The Shanghai design studio has milling machines; 3D printers, and fully-equipped workshops for producing accurate models efficiently. Designers in Shanghai can use VR technology to explore design in the virtual world. This new studio will help Volvo in better understanding the Chinese market, and designing products better fitting the local user expectations.

News Mobility

Hyundai's Wheels Clock 90° for Easy Parking

NEWS MOBILITY

HYUNDAI MOBIS IMAGE

Hyundai recently unveiled a new technology called “e-Corner”. The system allows all four wheels of a car to pivot up to 90°, together or independently. Forget parallel parking; an equipped car can drive laterally into a parking space. The vehicle pulls up right next to a free space, puts all four wheels perpendicular to the curb, and simply rolls in. There is no need to reverse or turn the steering wheel. Hyundai calls this "crab driving".

Hyundai also showed a "zero turn," basically a turn without a turn: the car swings its wheels outward, but this time the front and rear wheels turn in opposite directions so the car spins about its vertical axis. Up to now, about the closest thing was the unusually tight turn radius of old rear-drive Volvos.

The vehicle can also make a "pivot turn" where the right front wheel stays in place while the rear of the vehicle pivots outward. The technology also allows diagonal driving by turning all four wheels 45 degrees. Won't that make for interesting lane-changes!

Hyundai has not commented on whether or when the e-Corner will be commercialized, but the transverse parking and the axial-pirouette would seem to be most useful. They surely would help in building the next generation of parking, with automatic valet parking and increased parking density.

No-Hands Lane Changes: Just Look Where You're Going!

NEWS MOBILITY

HELLA IMAGE

The new BMW 5 Series, scheduled to enter production in October, will offer an optional "Driving Assistant Professional". With this assistance system, drivers are officially allowed to take their hands off the steering wheel at speeds of up to 130 km/h; however, they must continue to observe their surroundings and the traffic situation. This, in turn, is monitored by a camera in the interior, which also supports another function: lane change by gaze activation.

BMW says "When the driver looks into the exterior mirror, the vehicle starts to change lanes and automatically takes over the necessary steering movements and speed adjustments up to 130 km/h, provided the driver confirms this and the traffic situation permits it. The purely visual gesture complements the previous operation of the turn signal lever, which is also available as an alternative". The system will be available in the U.S.; Canada, and Germany.

Ford has received regulatory approval in the UK for a similar assistance function. Drivers of the electric Ford Mustang Mach-E, with BlueCruise, are allowed to drive semi-automatically at up to 130 km/h on certain highway sections without steering themselves. According to Ford, it can be used on about 3,700 highway kilometers in England; Scotland, and Wales. The function is available as soon as the car reaches an enabled "Blue Zone" on a public highway with adaptive cruise control activated. The system then checks the general conditions: road markings must be sufficiently clear, and the driver must keep their eyes on the road. If these conditions are met, the system switches to autonomous mode and alerts the driver with blue light signals in the instrument panel. The assistance system also suppresses the "hands-on" warning of conventional systems.

In critical situations, the assistance system uses "in-lane repositioning" to slightly correct the car's position within the lane, in line with a driver's intuitive behavior. The assistance system uses signals from five radar sensors; a front camera, and an infrared camera directed at the driver below the instrument cluster. It detects whether the driver is paying attention to what is happening on the road based on the direction of gaze and head position. Using IR technology, this also works through sunglasses.

If the driver appears inattentive, the process is like today's systems: A warning lights up in the instrument cluster. If there is no adequate response, an acoustic signal is emitted before the system decelerates the car. The same procedure is followed if the driver does not take the wheel again at the end of a Blue Zone.

General News

More HMI Business for Marquardt

GENERAL NEWS

MARQUARDT IMAGE

The Marquardt Group in Rietheim-Weilheim, Germany, increased their total sales by around €100m to "a good €1.4bn" in 2022. The mechatronics specialists say they were particularly successful with solutions for electromobility; high-quality control units for vehicle interiors; innovative driving authorization and access systems, and products for the sustainable and energy-efficient operation of home and heating appliances.

Their sales increased, too, of highly integrated automotive user interfaces; intelligent lighting systems for premium vehicles, and rotable gear selectors with display and steering wheel control units.

Sales of electronic steering wheel locks; capacitive door handle sensors, and electronic keys contributed to growth, as well, and the launch went well of their new driver-authorization system called "Push and Drive 3". This platform makes access to passenger cars and commercial vehicles suitable for mass use, for example via smartphone; the secure transfer of the digital key also opens up new offers and business models for fleet managers, car-sharing providers and car rental companies.

Expenditure on research and development amounted to an above-average 10 per cent of sales in fiscal 2022. With their DemoCar 2.0, the mechatronics specialist presented the latest operating concepts and solutions for the vehicle interior of the future to numerous customers around the world. These include high-quality surfaces that are equipped with many hidden functions and turn premium vehicles into mobile living rooms.

The Marquardt Group currently employs around 10,600 people worldwide—400 more than a year ago. According to the company, 1,300 of these are engineers. The company has created new jobs, particularly in software development, in order to help shape the transformation and technological change with highly integrated mechatronic systems. To cope with the planned growth, Marquardt is looking for qualified specialists worldwide

Marquardt gave a lecture at the recent DVN Interior Workshop, entitled “Potential of Printed Structures for Smart Surfaces”.

Can India Remain the World's № 3 Vehicle Market?

GENERAL NEWS

India became the world's third-largest light vehicle market last year following a strong post-pandemic rebound, but can the country sustain it?

The Indian market is roaring back. At the height of the pandemic, light-vehicle sales plunged to a ten-year low of 2.8 million units in 2020, a 30-per-cent decline, compared to four million units in 2018. In the last two years, however, the market rebounded so strongly that sales reached a record high of 4.39 million units in 2022, surpassing Japan's 4.17 million units. Thus, India became the world's third-largest light-vehicle market last year, following China and the U.S.

According to several market research experts, Indian sales are expected at 4.7 million units in 2024, 5.8 million units in 2030, and 6.9 million units in 2035.

What's driving India's growth? Post-pandemic economic recovery, pent-up demand, and easing supply-chain bottlenecks. Automakers are receiving fresh orders. For example, the Suzuki 5-door Jimny and the Maruti Fronx, both small SUVs, are scheduled to be launched in April and May, with already strong customer demand from the middle- and upper-middle classes.

Major automakers are planning significant investments in India and aggressive launches of new models. intensifying competition and hoping to boost sales with increasingly attractive and affordable models.