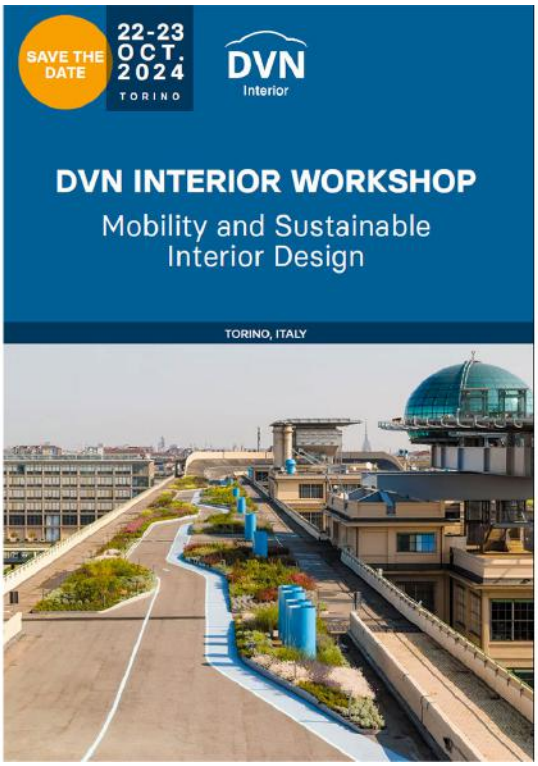
Thu, 25 July 2024
Weekly Newsletter

DVN Interior

NEWSLETTER #222

Editorial

DVN Interior Torino Workshop Ahead!



DVN Interior's next event will be on 22-23 October in Torino, Italy. The rubric is **Mobility and Sustainable Interior Design**, focusing on the intermerging progress of design and sustainability in context of circularity and sustainability.

This week we bring you information about the content of this workshop—speakers, lectures, visits that you will be able to enjoy in Torino, with its long, rich history of automotive design.

Highlights will include a visit to Stellantis' labs; keynote lectures from Italdesign, Pininfarina, Stellantis, and major interior and material suppliers; two panel discussions to explore how interior design and materials can support sustainability and evolve into regenerative businesses that renew, restore, and grow people, places, and the planet synergistically.

Don’t miss it, save the date! All information is on the **DVN Interior Website**, including the detailed docket, expo program, and sponsorship opportunities. I look forward to meeting you there.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

DVN-I Torino Workshop: Regeneration Beyond Sustainability

COURSE MINISTRY IMAGE

Deriving from the Latin 'sustinere'—to uphold or maintain—the word 'sustainability' refers to practices and policies supporting the preservation and protection of the environment, reduced consumption of of natural resources, and reduced waste production. But we mustn't put too much weight on the parent words of 'sustainability'; upholding and maintaining aren't good enough. There's been good progress in recent decades, but we humans have already consumed so much, and generated so much waste, for so long, that if we just *maintain* our environment as it is today, it surely won't sustain us in the long run.

Protecting what surrounds us is no longer enough and, as Generation Z teaches us (and Gen Alpha is on the road already…), it's time to think circular, in terms of **regeneration**.

According to a 2019 survey by ReGenFriends, nearly 80 per cent of U.S. consumers prefer 'regenerative' brands to 'sustainable' ones. Gen-Y and -Z find the notion of sustainability too passive (and bristle at being called 'consumers'). They want to buy from regenerative businesses that embody and practice three qualities found in all living systems: renewal, restoration, and regrowth.

We all very well know the meaning of sustainability, as it has been a buzzword for many years. The automotive industry and mobility in general no longer think of developing new vehicles without including environmental and sustainability targets as a real requirement.

In context of the automotive eco-system, what does regeneration mean? It can be considered at different levels. In mobility at large…in the transition to EVs…and for automotive interiors as all sectors of the economy pivot to circularity.

REGENERATION.ORG IMAGE

In mobility writ large, regeneration means an ability to restore and revitalize transport infrastructure and systems to meet modern sustainability standards. This can involve converting outdated highways into green spaces, transforming disused railway lines into bike paths, or retrofitting old buildings for new uses such as EV charging stations or mobility hubs. It can involve promoting public transport and active transport options such as walking and cycling. These initiatives regenerate urban spaces by making them more accessible and inviting, and contribute to a more sustainable transport system overall.

A major area wherein regeneration and sustainability intersect in mobility is in the transition to electric vehicles. By shifting away from combustion-engine vehicles to EVs, we can significantly reduce greenhouse gas emissions (turning down the oven we've placed the planet in) and air pollution (leading to cleaner and healthier cities).

Regeneration in the interior industry

Understanding how regeneration can be applied to the automotive interior industry and its supply chain is a bit more challenging than rethinking mobility in general. Is the use of bio-based or recycled materials enough to make the ecosystem regenerative? No, probably not; on the contrary, excessive use of bio-based materials can be detrimental to other industries (farming, for example) and increase the exploitation of nature—the opposite of regenerating it. And intensive recycling processes might use more energy and resources than traditional raw material processes. Lifecycle analyses—cradle to grave calculations—can guide us toward good paths, but sometimes there are too many variables to consider. Too, there is a lack of data on the origin of materials and components coming from a globalized industry.

So, how can we move toward regeneration in a proper and effective way, and without sabotaging our efforts as we go?

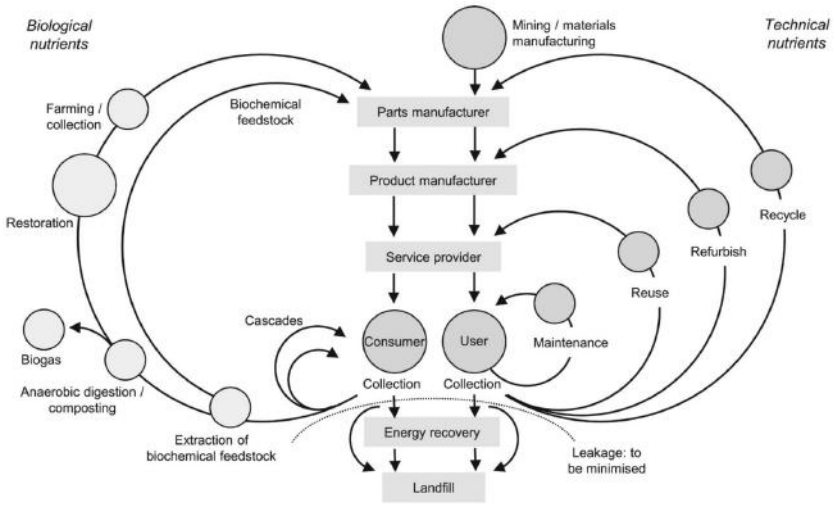
One key aspect of regeneration is the idea of circular systems, wherein materials, components, products, and systems are designed, specified, and made to facilitate the maximal reuse of scraps, wastes, and end-of-life products. Resources are used efficiently, and non-reusable waste is minimized. This can be seen in practices such as recycling, upcycling, downcycling, and composting, which help to reduce the strain on natural resources and minimize the amount of waste that ends up in landfills. By **closing the loop** and reusing materials in a sustainable way, we can reduce our impact on the environment and move towards a more regenerative way of living.

It is a fact of life in modern civilization that voluntary guidelines and encouragement campaigns just aren't as effective as toothy legislation. The **DPP (digital product passport)** is an important initiative of the European Community, supporting the development of a sustainable economy and the shift to a regenerative one. The DPP is a digital record with comprehensive information about a product and its entire value chain. This includes everything from the origin of the product, materials used, environmental impact, and disposal recommendations. The main purpose is to reconcile the transparency demanded by consumers, investors, and other stakeholders, and the opacity caused by a lack of dependable data on product journeys.

The EU has introduced the DPP as a key component of the proposed ESPR (Ecodesign for Sustainable Products Regulation), under which DPPs would be adopted by the EU and phased in mandatorily between 2026 and 2030. This rule will extend to all 27 EU member countries and apply to a wide range of product categories, including automotive components. DVN will soon bring you detailed coverage to explore the impact on the automotive industry.

Meanwhile, back in the car: what can be considered a regenerative way of designing, developing and produce interior materials and components? Regenerating the ecosystem with reforestation and habitat restoration can be one answer. Natural raw materials growing on artificial substrates and not on soil could be another. Growing natural materials which regenerate without human intervention—cork, for example—could help cut down on the use of resources. Software-defined vehicles' EE architectures and interior systems could potentially allow to save energy and maybe even shae excess energy with the surrounding environment.

Examples abound already, and we've only just recently begun thinking of them!

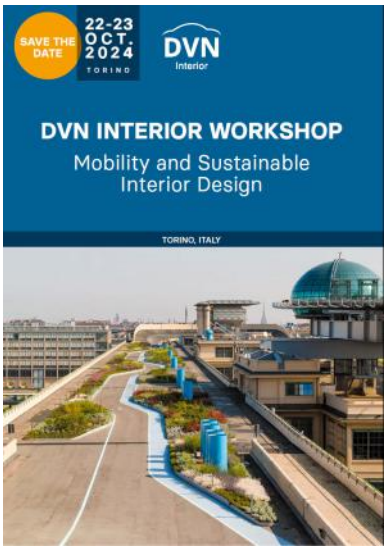


Circular economy *(image adapted from Ellen MacArthur Foundation article)*

So, how can designers and regenerative design help automakers and their supply chains shift from sustainability to regenerativity? With creativity! Also with great and very real urgency; as the World Economic Forum recently stated:

Given the climate urgency, it is time that businesses think and act beyond sustainability. They must evolve into regenerative businesses that renew, restore, and grow people, places, and the planet synergistically.

Regenerativity: DVN Interior Torino Workshop



We will attempt to answer these questions during our next workshop in Torino, Italy. The event rubric is **Mobility and Sustainable Interior Design**. Italian design is known and appreciated all over the world, so we couldn't miss the opportunity to invite famous design companies to participate. We have been careful about using the outdated word 'sustainable' design, as regenerative design is still in its early phases. We are sure interesting ideas that will emerge during the workshop will pave the way to a future of **regenerative interior design**.

Here is a snapshot some companies who have confirmed their participation:

Stellantis is lending great support in the organization of this workshop, offering the possibility to visit some of their Mirafiori laboratories and participating with two keynotes, on CMF innovation design, and on material innovation.

QUINTESSENZA® (ITALDESIGN IMAGE)

Italdesign, a visionary design, engineering, and prototyping company turning into a system integrator to anticipate the needs of a fast-changing world. Their second-day keynot presentation will focus on the way to innovate sustainably, as demonstrated with their new Quintessenza concept car—the embodiment of the relationship between humans and nature.

Dow, longtimematerial science experts. Their presentation will guide us through their rich portfolio of sustainable materials and excellence in circularity with a lecture entitled, 'Design for Circularity Enabled by Material Science'.

Borealis provides advanced and sustainable polyolefin solutions, including base chemicals and recycling. Their presentation will describe their products and how they can be applied to address the circularity challenge of the new EU end-of-life vehicles regulation.

Covestro: polycarbonate material experts. Their CMF specialists will describe the latest in polycarbonate films and granulates for application in car interior design.

Forvia: This major interior components and systems tier-1 will come with a lecture from their designers and material experts.

BCOMP IMAGE

Bcomp: specialists in sustainable and lightweight thermoplastics and natural fibre composites.

Maip: thermoplastic raw materials manufacturers, they will present a lecture on sustainable biopolymers. Maip has developed of a family of bio-based and biodegradable recycled polymers, using waste as a resource, and reducing dependence on non-renewable resources.

Mario Levi: a tanning company involved with leather interiors. They'll present a lecture entitled, 'The Path Towards Sustainability' for leather in automotive interior applications.

Muth Lighting: Robert Miller will orate on advancements in LED technology and intelligent lighting systems, which have revolutionized interior design possibilities, offering greater flexibility in customization and energy efficiency. Mr Miller will also illustrate the sustainability aspect of interior lighting, focusing on energy-efficient solutions and materials that minimize environmental impact.

NBHX Trim Group: they offer an extensive range of materials and technology, with a particular attention to natural and recycled materials.

Technoteam: Manufacturer of imaging light and color measurement systems.

…and more to come.

After the second lecture session will come two panel discussions centered on the workshop's theme:

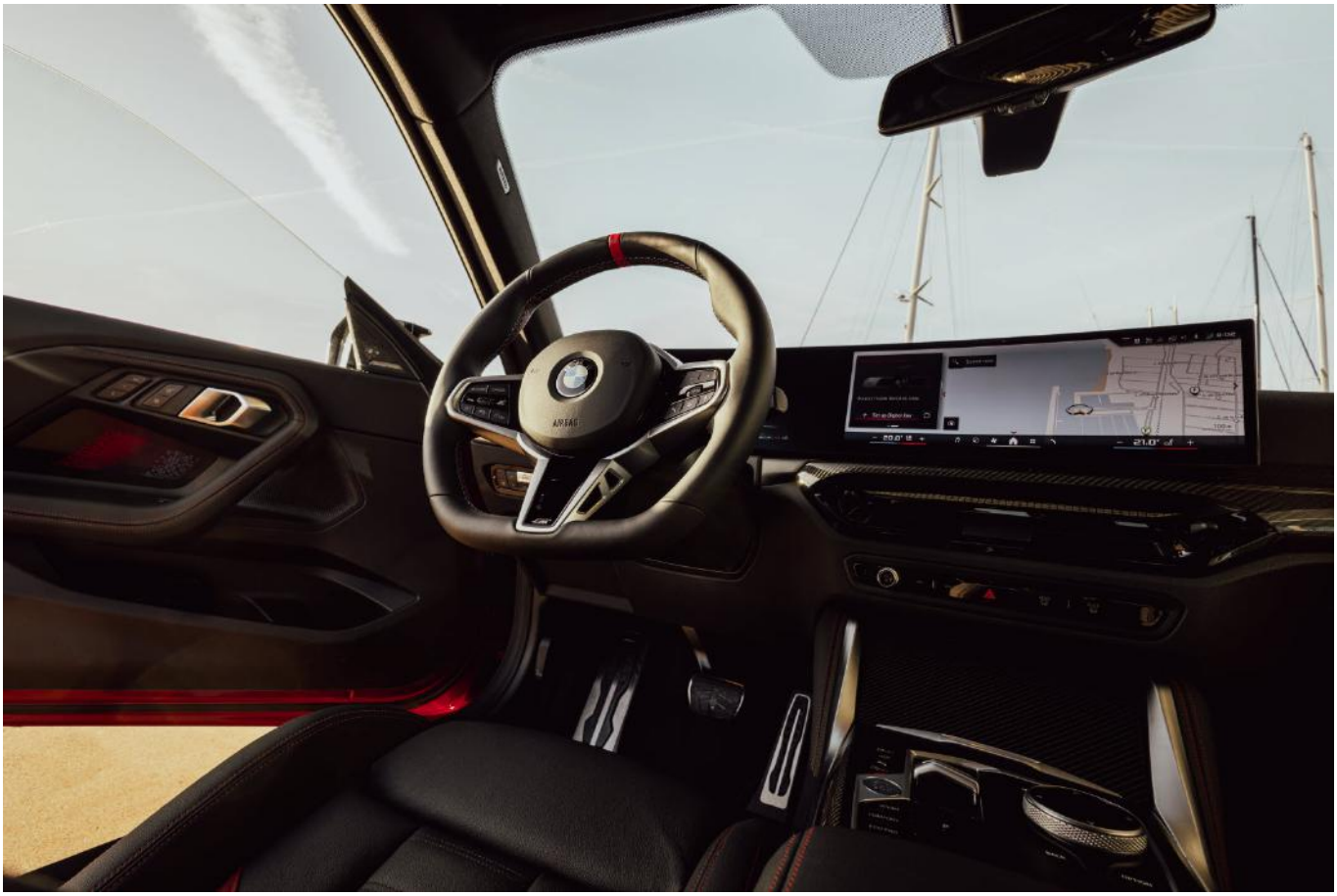
- **Sustainable Interior Design**: designers and design companies can have a great impact in designing sustainable (and possibly regenerative) interiors, from the choice of the materials to the functionality of the components and the way to dispose them at end of life.
- **Sustainable Materials for Interior Design:** how can the mobility supply chain help achieve regeneration and enhance the circularity of processes and materials, and how will the need for circularity influence material and surface design?

Register for the upcoming DVN Interior Workshop in Torino, 22-23 October 2024.

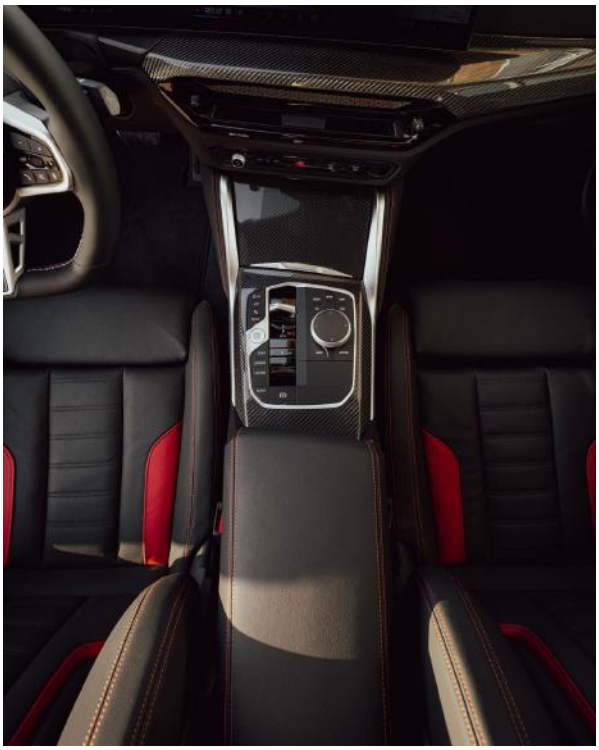
Interior News

BMW 2 Coupé Has New Interior Features

INTERIOR NEWS



BMW IMAGES



The new BMW 2 Series coupé has a thoughtfully modified design, extended standard equipment, and consistent digitalization. It has a high center console, anthracite-colored headlining, and a seamless blend of the instrument panel and door panel surfaces. The curved display, featuring a 12.3" information display and a 14.9" control display, aims to enhance intuitive vehicle operation. The system also supports iDrive with QuickSelect based on BMW Operating System 8.5, allowing touch and voice command controls for functions like air-conditioning and seat heating.

The standard ambient lighting includes waterfall lighting integrated into the central air outlets, with nine color options. This feature also includes welcome and goodbye animations, and light signals for incoming calls and open doors.

The car comes with an M leather steering wheel as standard, featuring a flattened bottom rim, modified spokes, and a red center marker. The standard heated sports seats for the driver and front passenger can be optionally upgraded with electric adjustment with memory function and lumbar support. Optional M Sport seats provide additional adjustment options and lateral support.

The new M PerformTex black seats, standard across all models, present a sporty design with sustainable production processes. Optional interior trims include wood finishes and M carbon-fiber trims, while 'CraftedClarity' glass applications provide a premium touch to elements like the gear selector and start/stop button.

Enhanced iDrive features a new home screen with a permanent map view, and vertical bar widgets for easy navigation. The BMW Maps navigation system, standard as part of the Live Cockpit Plus, includes features like the Augmented View function, enhancing the map display with real-time contextual information.

3SS, TomTom in IVI Development Pact

INTERIOR NEWS

3SS IMAGE

3SS (3 Screen Solutions; see our previous coverage) is a provider of TV and multiscreen entertainment software solutions. They and location technology specialist TomTom have announced a technology partnership to improve in-vehicle entertainment by integrating 3SS' 3Ready entertainment platform with TomTom's digital cockpit software development kit (SDK).

3Ready is designed to deliver an entertainment ecosystem for vehicle displays, providing a user-centric experience with a variety of partner content, apps and services. TomTom's digital cockpit is a modular SDK for in-vehicle infotainment, featuring pre-developed and fully tested applications. It has flexible architecture and customization tools so automakers can create specially-branded in-car experiences.

The integration of the platforms aims to enable car manufacturers to improve their in-cockpit entertainment offerings, reduce costs, and minimize technology risks. The companies say the collaboration also enables auto makers to create tailored entertainment experiences that blend into their HMI, transforming traditional app grids into 'content-centric discovery platforms'.
3Ready also uses automotive application programming interfaces and TomTom Map SDK data points to recommend and personalize content based on the user's state and driving scenario, which illustrates the potential of leveraging vehicle data to create onboard experiences.

The 3Ready platform includes content aggregation, management, and monetization capabilities. 3SS says automakers can adapt the UX through a web-based content management system without requiring software updates, letting automakers manage, style, tailor, and target content across their entire fleet in real time.

3SS automotive chief Felix Walter says, "OEMs everywhere are putting in-vehicle entertainment high on their agenda in recognition of the opportunity to stand apart from the competition by providing a superior in-cockpit experience, while earning revenues and increasing engagement and interaction with customers".

Infineon, MediaTek to Bring Digital Cockpits for Regular Cars

INTERIOR NEWS

Infineon has partnered with MediaTek to bring modern digital cockpits to mid- and low-price vehicles.
It is based on innovative cockpit solutions, powered by Infineon's Traveo CYT4DN MCU and MediaTek solutions, to pave the way for advanced displays with 1920 × 720 resolution.

The TRAVEOTM CYT4DN is a family of Traveo T2G microcontrollers dedicated to automotive systems such as instrument clusters and HUDs. There's a 2D graphics engine, sound processing, two Arm Cortex M7 CPUs for primary processing, running at up to 320 MHz, and an Arm Cortex M0+ CPU for peripheral and security processing. Too, there's a 720p GFX and a unique 327-ball BGA package.

The T2G CYT4DN incorporates Infineon's low-power flash memory, multiple high-performance analog and digital peripherals, and enables the creation of a secure computing platform.

This collaboration aims to make digital cockpits accessible to a wider range of vehicles, reducing system costs and simplifying software while ensuring high reliability.

MediaTek is a global fabless semiconductor company whose products enable more than 2 billion consumer products a year. They are a market leader in developing tightly-integrated, power-efficient SoCs for mobile devices, home entertainment, network and connectivity, automated driving, and IoT.

Redtiger Dash Cam with Voice Control and Touchscreen Interface

INTERIOR NEWS

REDTIGER IMAGE

Redtiger is a US-based brand of 4K vehicle security cameras. Now they come with a new F4 dash cam, designed to bring advanced technology to the driving experience. The F4 features voice control and an intuitive touchscreen interface, aiming to improve both convenience and safety for drivers.

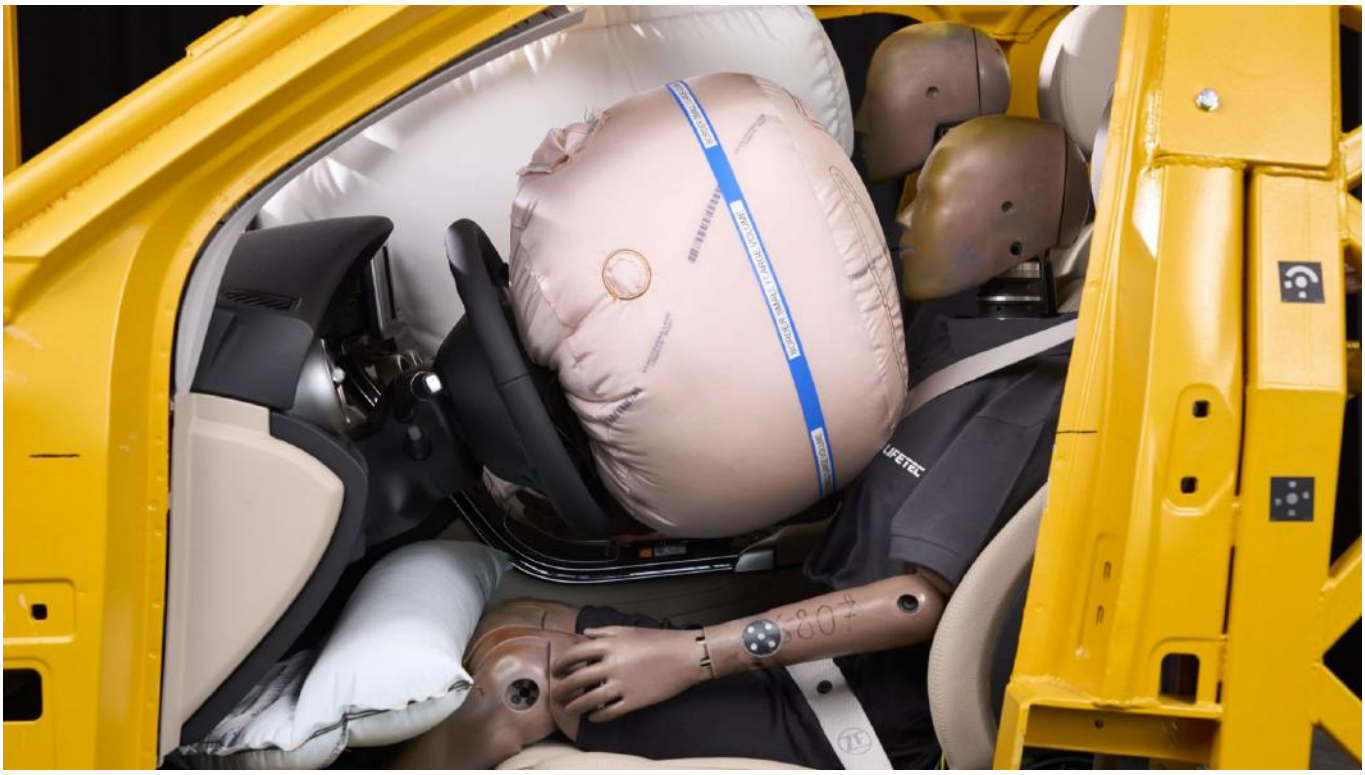
The dash cam is designed to enable users to operate the device using simple voice commands, enabling functions such as starting and stopping recordings, capturing photos, and turning off the screen. This hands-free operation is intended to help drivers maintain focus on the road, thereby increasing safety.

In addition to voice control, the F4 includes a high-resolution touchscreen display. The vibrant and responsive interface is designed to complement the voice control feature, providing an easy-to-use and engaging user experience.

Redtiger CEO Jonny Don says, "As our roads become increasingly congested and the risk of accidents rises, the need for reliable dash cams has never been greater. Traditional dash cams often require manual operation, which could be a distraction for drivers, especially novice drivers. This is where F4 dash cams come into play, offering a hands-free solution that prioritizes safety and convenience".

ZF Lifetec Airbag for Advanced Automated Driving

INTERIOR NEWS



ZF IMAGE

DVN Interior previously reported on a new steering wheel with a repositioned driver airbag. Now ZF Lifetec—the new name of ZF Passive Safety Systems—announce an airbag for advanced automated driving. It improves crash safety by offering top-grade protection even with new comfort seating positions now possible in automated driving scenarios. ZF's inflator enables inflation of particularly large airbags due to increased volume, and the internal pressure in the airbag can be adjusted to the occupant's height and weight.

L^3 highly automated driving is possible in more vehicles and is being approved in more countries. Drivers can turn away from the traffic when the system is activated, provided they can resume control quickly when prompted. With fully automated L^4 driving, this restriction could be removed altogether, and naturally then drivers will also be able to change the seat position and angle of the backrest to positions unconstrained by the need to remain in control position.

But that makes a safety problem: with regular airbags and seatbelts, the crash safety of the driver and front passenger are only assured within that constrained positional range. If a frontal crash occurs while the front occupants are in a non-control, comfort seat position—a backrest angle of around 40°—crash protection is severely degraded. The distance between the inflated airbag and the occupant is too great to properly cushion and restrain the passenger. The solution consists of a dual-contour airbag designed for the standard seating position that can also be enlarged when the occupants are in a comfort seating position.

The two-stage function can be regulated via a control unit that switches a system of bag-cushion-tethers. These tethers are connected to an active release unit, which releases them as required.

For the dual-contour driver airbag to fully deploy, the gas filling volume must be increased. This requires a two-stage gas generator, which ZF has developed for airbags with particularly large volumes. It can fill within milliseconds even the larger of the two volume sizes of the driver airbag integrated in the steering wheel.

As the airbag control system is integrated into the car's electronics, the vehicle can identify which seat position the driver is in now of the crash and which stage of the gas generator needs to be triggered. In addition to seat tilt and weight sensors, other sensors, such as interior cameras, can be integrated into the system for a more precise assessment of the scenario in the interior.

Are 'Smart' Windshields Coming?

INTERIOR NEWS

PORSCHE IMAGE

For a century, the windshield had only its one nominal function: to let the driver see the road without getting pelted by rain, snow, hail, insects, or buffetted by wind.

But even today's cheapest new car has a great big high-tech windshield. Lane departure warning and emergency brake assistants have recently become mandatory in Europe, and with them a camera on the upper edge of the windshield, mounted inside. The digital view also requires its own heating system, at least for now, to keep the windshield clear for the cameras.

Carglass Managing Director Jean-Pierre Filippini says as many as 20 functions are built into a modern windshield: thermal insulation, noise-absorbing film, heaters for the wipers in their parked position, temperature sensors, lidar provisions, GPS antenna cables, mobile phone and DAB connections, and special areas for the head-up display to project.

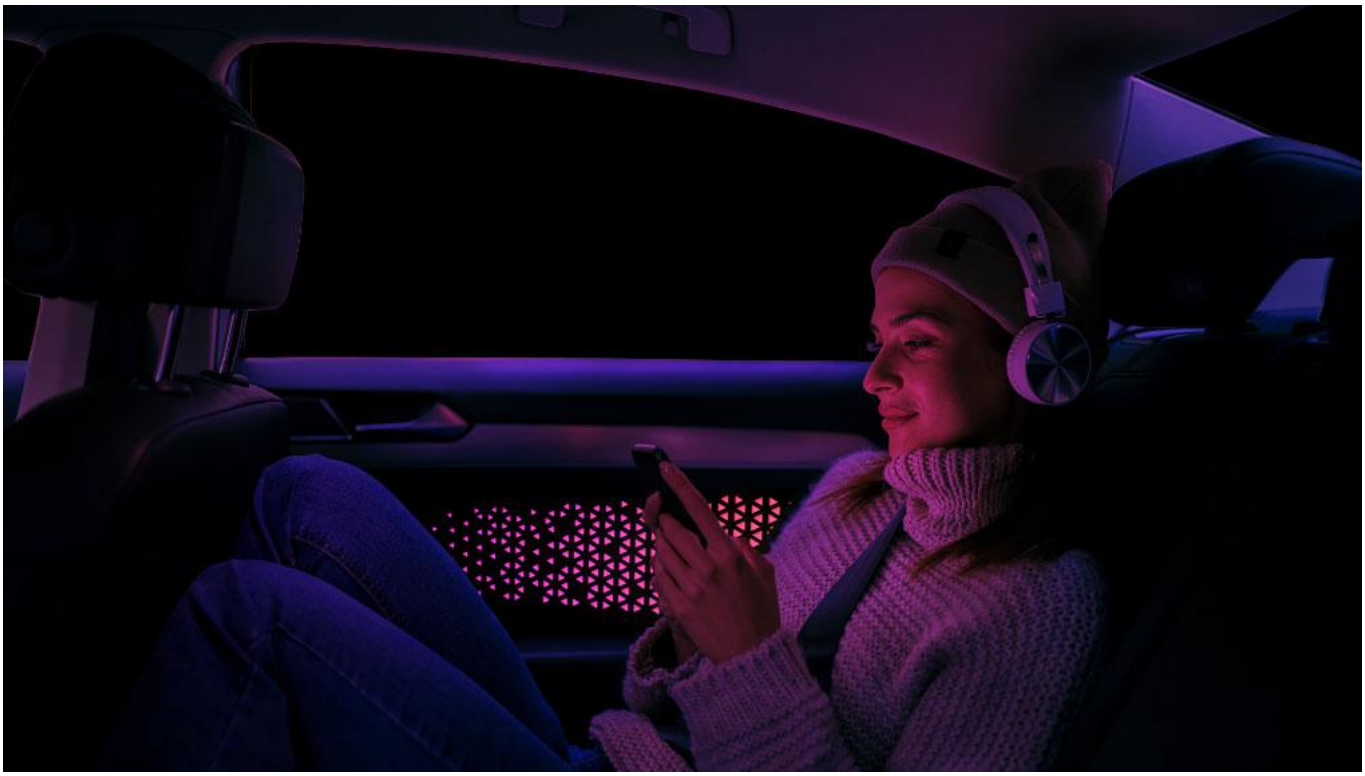
The development of symbols to be virtually integrated into the field of vision is progressing rapidly. Jaguar, BMW, Toyota, Great Wall, Forvia, Ceres Holographics and others have recently presented their visions of the future: HUDs that take up almost the entire windshield and enable different areas and information for the driver and co-driver.

The driver can see the navigation arrow and the upcoming speed limit on the road ahead, while the co-driver is watching a movie or leading a team conference. Many suppliers are working on similar technologies that will potentially soon appear on all windows in the car. DVN Interior will continue to publish new technologies in the field.

The Design Lounge

Feno: Light Art in the Car

THE DESIGN LOUNGE



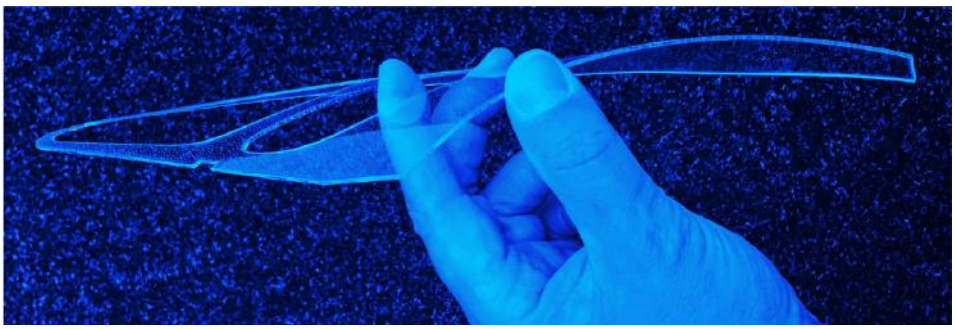
FENO IMAGES

The emotional effect of light on passengers is a completely new medium. With the knowledge gained from lighting art, an immersive user experience can be created for well-being in the automotive interior and lasting emotional brand experiences. 'Immersive' means that you dive into an atmosphere, becoming part of your surroundings, feeling as one—and of course feeling good doing so. To achieve an immersive experience in automotive interiors, we have to rethink light.

The illumination of the elliptical glass from James Turrell forces you to look at it. You cannot tell what it is—the brain doesn't have an answer—but it looks like an eye that smoothly changes its colors. The blue picture on the right is a 'sky space', the dark blue square is the sky. Sitting in there, looking up, guided by light, the sky is just there under the roof. It comes down to you and changes its colors in the eyes of the spectators.

Researchers imagine transforming the vehicle interior into a mental refuelling station with digital and immersive services, especially in the luxury segment as the early adopter market. Light improves our frame of mind. The emotional effect of light will be integrated as part of its functionality.

For example, natural atmospheric lighting is a general concept for the interior, designed to influence the mood of the driver and passengers and trigger their emotions. With deep knowledge of light art, you can create a sense of well-being and memorable emotional brand experiences in the passenger compartment. Human psychology is attuned to colors and can be associated with certain types of energy and feelings.



To bring light effects in the car interior, Feno—who presented a lecture at the last DVN Interior Workshop—offers PMMA light guides with a laser-etched microstructure. As thin as a ruler, the 3D thermoformed light guides save space in interiors and efficiently spread light homogeneously over large surfaces.

Feno develops and manufactures LED systems for lighting experiences worldwide. Thanks to many years of cooperation with internationally-renowned lighting artists, Feno has a deep understanding of light and has even a brain sensor that can translate brain waves and feelings into new light effects.

Wontec is an automotive consultancy. CEO Lars Raith says, "In the coming years, interior lighting will change massively and give the car a completely new meaning". He has written about how automakers will emotionalize their brand experience with the application possibilities of light originating from lighting art.

Renault Espace Had Swivel Seats…40 Years Ago

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

RENAULT IMAGES

This year, the Renault Espace MPV is 40 years old! First introduced in 1984, the 7-seater Espace had a modular interior, transforming into a lounge thanks to its swivel seats.

The first three generations of the Espace were amongst the first contemporary minivans or MPVs, and were manufactured by Matra for Renault. The model has been redesigned recently as a mid-size crossover SUV for its sixth generation.

It was originally conceived in the 1970s by Fergus Pollock at Chrysler in the UK. Chrysler had strong corporate ties to the French auto industry, including Simca. Matra's designer Antonis Volanis developed the design of the Espace for Simca. But in 1978, Chrysler UK and Simca were sold to PSA Peugeot Citroën, who sunsetted the Simca brand on account of poor sales. PSA decided the Espace was too big and too radical to take a chance on, so they returned the design to Matra, who took it to Renault. Renault picked up and ran with it.

The Espace offered a high level of modularity with interchangeable and removable seats. The two front seats could swivel 180°, and the five back seats could be taken out to increase the carrying capacity—a first for a vehicle of its kind.

The idea of the Renault Espace was irresistible from the start: a comfortable, spacious, flexible people carrier that drives like a car, not a bus; fits in regular parking spaces and garages, and is efficient and economical of design and operation. Renault recognized that normal people don’t just need a car for commuting, or the school run, or transporting a garden full of plants, or taking the kids and their bikes to the forest, or going on holiday. Normal people want a car that does all those things, and more.The multipurpose vehicle, or MPV, was born. In French, the equivalent term 'Monospace' has a place in the dictionary.

The design featured a body of fiberglass, mounted on a warm-galvanized steel monocoque spaceframe, using the same technique and assembly line at the factory as the Talbot Matra Murena.

Like many surprising new ideas, the beginnings were slow, to say the least. In the first month after launch, Renault sold a grand total of *nine* Espaces.

But soon enough, the idea caught on. The Espace I sold a respectable 191,674 units. Espace romantics will fondly remember the pivoting front seats; driver and front passenger could face backwards and join an indoor picnic (while parked, of course).

In 1984, American Motors (AMC) announced they would market the front-drive Espace in the United States, and it was exhibited at the 1985 Chicago Auto Show. But AMC's negotiations with Matra hit turbulence over the vehicle's import pricing. The US marketing plan for the Espace ended with the purchase of AMC by Chrysler, who (to bring the Espace's origin story full circle) had launched the US market's minivan era in 1984 with their instantly, enormously, and enduringly popular and profitable Voyager-Caravan models.

News Mobility

EZTow Autonomous Material Transport at BMW Dingolfing

NEWS MOBILITY

EasyMile, based in Toulouse, France, makes driverless vehicles for people and goods. They have deployed in over 300 locations in more than 30 countries. They are, they say, making shared passenger mobility a reality, and TractEasy puts material handling in the supply-chain revolution.

At the heart of BMW Group's Dingolfing factory, TractEasy's EZTow is remodeling the way Press hardened sheet (PHS) metal parts are transported outdoors. This autonomous tow tractor exemplifies innovation in automated outdoor towing at an industrial scale.

The EZTow's primary function at the Dingolfing site involves the outdoor transportation of PHS-hardened sheet metal. The electrically powered tractor boasts an impressive towing capacity of up to 15 tons.

When combined with three trailers, the EZTow extends over 16 meters long and navigates autonomously at up to 10 km/h. Its sophisticated navigation is powered by GPS satellite guidance and lidar technology, enabling a detailed 3D mapping of its environment.

Critical to the BMW plant, which is already leveraging automated technologies, the EZTow seamlessly integrates into the existing traffic infrastructure.

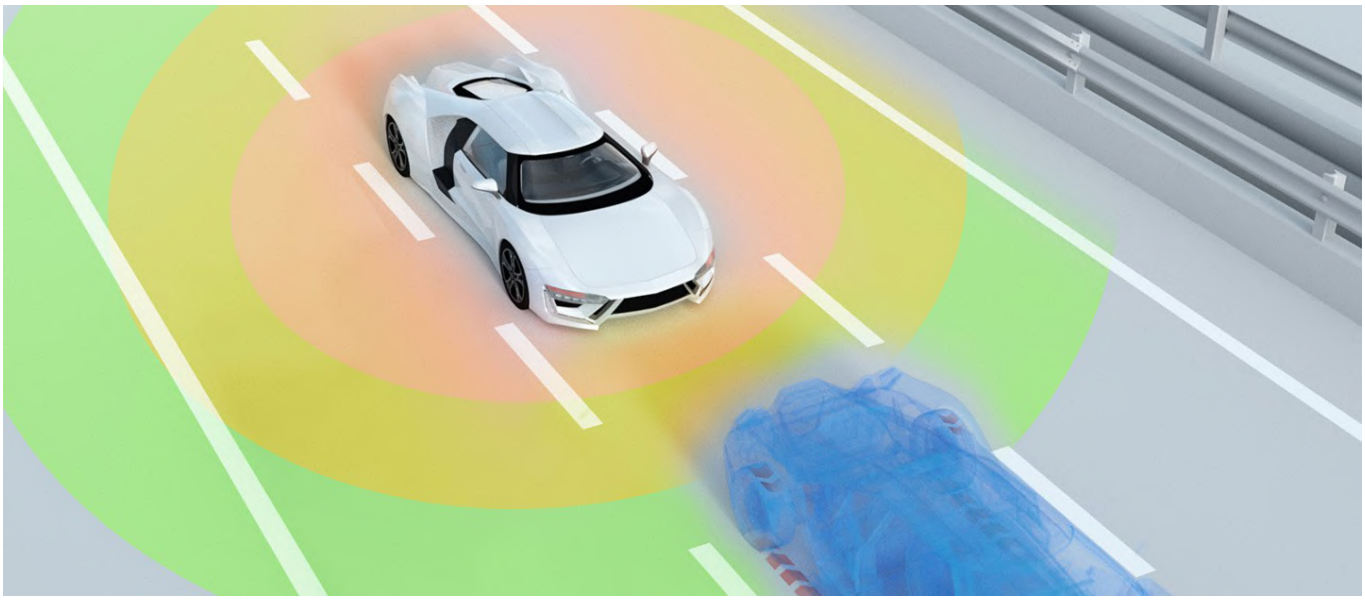
BMW's Dingolfing plant, the largest vehicle production location in Europe, has been at the forefront of integrating automated transport systems to streamline its complex logistics and manufacturing processes.

From autonomous tugger trains and intelligent transport robots to specialized forklifts, the introduction of advanced vehicles like the EZTow is enhancing efficiency and has become a pivotal element in the factory's production environment.

These automated systems play a crucial role in simplifying logistics and improving the organization of plant operations, marking a significant step forward in the adoption of autonomous technologies in industrial settings.

Lopaas: Risk Management for Autonomous Driving Vehicles

NEWS MOBILITY



FRAUNHOFER IESE IMAGE

A safety architecture for autonomous vehicles has been developed in the Icon Lopaas project. The system should be able to assess options for action on a situation-specific basis and in real time.

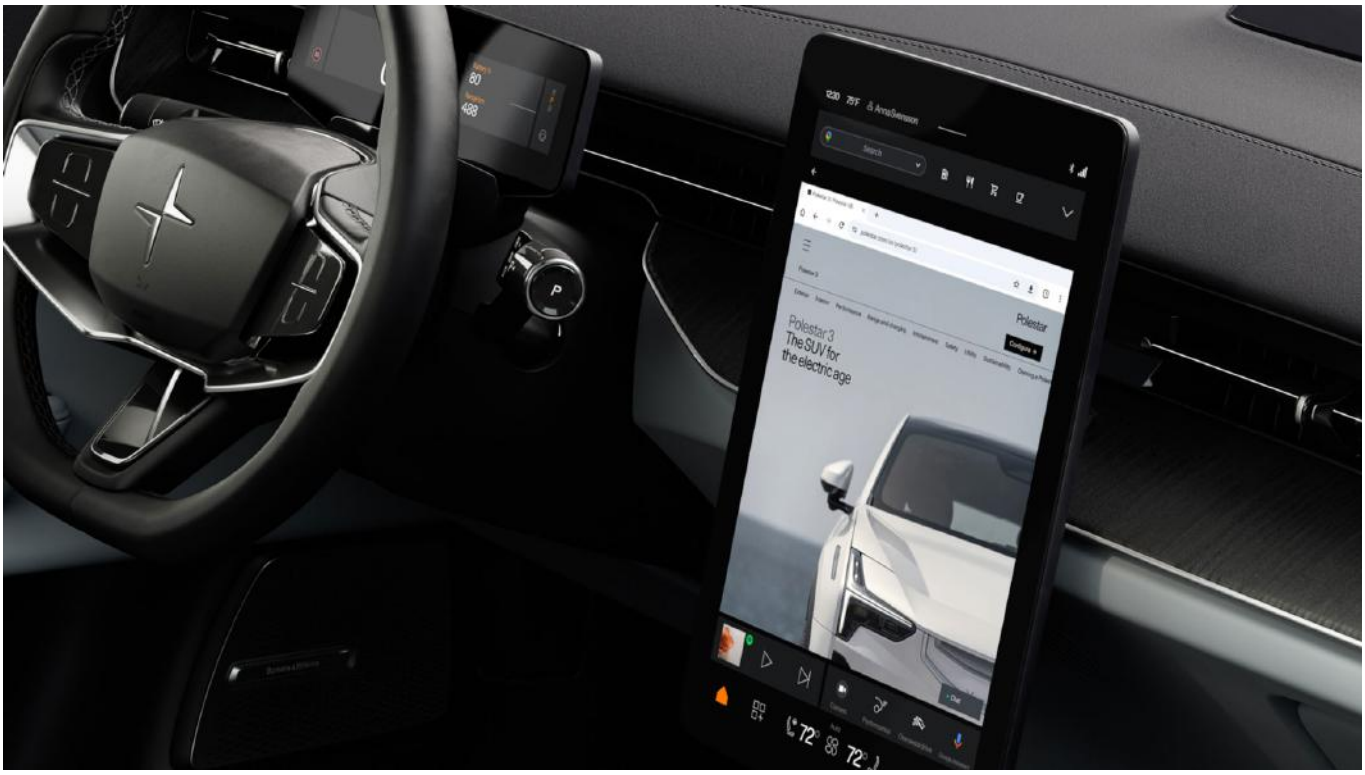
Lopaas stands for Layers of Protection Architecture for Autonomous Systems. The project was conducted by the Fraunhofer Institute for Experimental Software Engineering IESE, the Fraunhofer Institute for Cognitive Systems IKS, and the University of York with the Assuring Autonomy International Program (AAIP). Fraunhofer IESE's expertise in dynamic risk management was also incorporated into the reference safety architecture developed for autonomous driving. Autonomous systems should thus be able to assess the risks of options for action on a situation-specific basis and in real time. The additional use of the developed 'Uncertainty Wrapper' enables autonomous systems to react to unexpected events.

The project, completed after three years' research, also dealt with the proof of safety for autonomous systems. The results of the project were directly incorporated into international industry standards and norms, such as the ISO/PAS 8800 specification for the risk reduction of artificial intelligence in safety-critical systems in road vehicles or the ISO/IEC TR 5469 report for the functional safety of AI systems. The results of the uncertainty quantification of AI systems have been incorporated into the specification standard DIN SPEC 92005. This was published in January 2024, and will be used as the basis for the development of a new international standard.

General News

China's Suppliers in Transition to Smart Cockpit

GENERAL NEWS



POLESTAR IMAGE

A new, intense phase has begun in the battle for the cockpit in China. Desay SV's core business focuses on the efficient integration of the three major areas of smart cabin, smart drive, and smart service. They continue to develop highly integrated leading hardware and software algorithms with safe, comfortable, and efficient mobility solutions and services.

Like Desay, Huayang has spent large sums on research and development. Huayang occupies the new market for electronic systems in interiors and has now taken on a notable role in domain controllers, HUD, and the new AR-HUD.

These two Chinese suppliers Desay and Huayang were developing locally. Now they are preparing to conquer their home market for 'smart' cockpits. With their central control units, LCD screens, and HUDs, they are competing with system suppliers such as Bosch and Continental.

With the momentum from China, Desay is also trying to find its position in Europe. In Germany, the company is investing in a test laboratory for displays and a measuring chamber for antennas. A production plant is also planned in Europe.

Chip manufacturers Mobileye, Nvidia, and Qualcomm are still ahead with their response to rapidly growing demand for more computing power to integrate various components such as lidar, ADAS cameras, electronic rearview mirrors, and HUDs, but Chinese suppliers are working to catch up fast on all other hardware and software in the interior.