Thu, 17 October 2024
Weekly Newsletter

DVN Interior

NEWSLETTER #232

Editorial

Novares : Looking Behind The Surface

Novares is a company expert in plastics. They design and manufacture complex automotive components and systems, including most interior components. We visited Novares to better understand what they do and how they do it—to get a feel for what goes into living up to their motto 'Beyond Plastics'—and it was interesting to see how this company develops solution for the interiors of tomorrow's connected, automated, and sustainable vehicles. You'll find our interview in this week's newsletter.

Sustainability is an important dimension of interior strategy; you see it in the Novares interview, and several interior news items are focused on it as well, like the Asahi Kasai Sage Comforio trim, the Helcor sustainable leather, and the In Bio natural material project.

Sustainability, along with design are at the center of our DVN Interior Workshop happening next Tuesday October 22 and Wednesday October 23, in Torino, Italy. If you want to attend, hurry fast; registration is still **open**! I'm looking forward to meeting you in Torino next week.

And DVN Interior will publish In-Depth about Paris Motor Show, which is happening as we speak! Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

DVN-Interior Interview: Novares Plastic

Novares is a French company of plastic experts based in Velizy Villacoublay, near Paris. They design complex components and systems for virtually every automaker in the world, and many tier-1s, and manufacture them with innovative, cutting-edge techniques for greener, lighter-weight cars in pursuit of the CASE megatrends—Connected, Autonomous, Shared, and Electric.

Novares is inside 1 car out of 3 worldwide. The company has a footprint covering 22 countries, with 37 manufacturing plants, 6 skill centers, 7 technical centers, and 17 customer service centers. They achieved a turnover of €1.2bn in 2023.

INTERIOR SKILL CENTER DIRECTOR RICHARD PIERCY.-
NOVARES IMAGE

DVN Interior met with Novares' management and innovation teams to learn more about this remarkable company. We met Group Innovation Director Hugo Mestre, and the Interior Skill Center Director Richard Piercy.

DVN Interior: How did Novares come to exist?

Novares: Novares was created in 1955 as Mecaplast in Monaco and the group first production of chemical condenser caps started. Mecaplast became known for making a durable plastic fan used in the popular Peugeot 204's engine, and later the first-ever thermoplastic cam cover, and in 2004, non-woven synthetic media for air filtration and also in oil separation devices for cam covers. Since 2012, under CEO Pierre Boulet, Mecaplast has continued to grow as a key supplier to automakers, offering a large product range in engine, interior and exterior trim.

In 2017 Mecaplast became **Novares**, following the acquisition of Michigan-based Key Plastics.

DVN-I: Why Monaco? That's a pretty unusual place in the automotive world.

Novares: Founded by Charles Manni, a big contributor to the Monegasque economy, the company started with five employees in a small 15-meter warehouse. They focused on producing a variety of automobile parts for local distributors and auto manufacturers. We maintain a presence there since!

DVN-I: You've come a long way since that small warehouse!

Novares: 2023's global revenue was €1.2bn, with a workforce of 9,000 persons, including 550 engineers.

DVN-I: How is Novares organized?

Novares: We are organized around five product lines, with their respective share of our total business:

- Powertrain (36 per cent)
- Interior Components (27 per cent)
- Exterior (24 per cent, paints and surfaces)
- Opening Systems (8 per cent)
- Air Vents (5 per cent)

These product lines enable Novares to provide global plastic-based solutions to the automotive industry, for engine, interior, and exterior applications.

DVN-I: What is the difference between your skill centers and technical centers?

Novares: A skill center is in charge of innovation for the product line and supports all business units selling it to the customers and bringing deep engineering expertise. We have one skill center per product line, Monaco is where the interior components skill center is.

The technical centers oversee program development (R&D), program management, and engineering costs, and they serve multiple product lines. They are in Czechia, India, Mexico, Morocco, Romania, and Turkey. Our proximity with production plants is very important for smooth product and process development. It also helps relationships with OEMs and tier-1s locally.

DVN-I: How is your revenue divided among customers and regions?

Novares: Western Europe leads with 31 per cent, followed by USA (18 per cent), Eastern Europe (17 per cent); Mexico (16 per cent), China (12 per cent), and then Turkey, North Africa, India, and Brazil. From a customer portfolio standpoint, the group produces for Stellantis, Ford, Renault/Dacia, BMW, GM, Nissan, Toyota, Audi, and others, including newcomers like Tesla. Customers also include tier-1s such as Yanfeng, Forvia, Bosch, and many others. The backlog included is worth five years in sales.

DVN-I: What does your motto 'Beyond Plastics' signify?

Novares: It means we are a complete solutions provider serving our customers' needs. We use advanced plastics injection technologies, and we design highly engineered solutions, beyond commodity plastics, to be user-friendly, ergonomic and affordable.

We create and produce components and systems with multi-functionalities that add value. Our parts have complex functions, mechanisms, use kinematics, mechatronics and provide integration expertise for modules.

Our plastics match metal performance, plus offer the lightweight dynamic contributing to the production of lightweight cars, especially EVs, where any saved gram can be transformed into km of range.

Our capabilities are to produce quality products and systems reinforced by continuous improvements (trails and errors) and this goes beyond just manufacturing, it guarantees customers all the latest techniques, with service.

Our plastic heat exchanger is a good example. It allows the replacement of conventional aluminum alloy heat exchanger with a plastic part, which can be integrated more easily into engine parts such as an air intake manifold.

DVN-I: And how do interior components factor in with 'Beyond Platics'?

Novares: For Interior components parts, our product innovation strategy relies on three pillars:

- Plastic 'instrumentalization', where *beyond* means plastronics, integration of electronics, sensors, interior lighting, and so on.
- Plastic CO_2 reduction; here *beyond* means reduction of CO_2 footprint, bio-sourced materials, and circular economy.
- In electrification, *beyond* applies obviously to powertrain, and has consequences as well in term of interior design, including CMF (color, material, & finish).

DVN-I: Design and attractiveness are central to interiors. How do you address these?

Novares: That's very true, and that's why decoration is a key dimension for us, with eye-catching decoration solutions, easily packageable into a car interior. It includes parts and surfaces with natural aspect and feeling, textile, translucency/diamond-like effects, and ambient lighting.

DVN-I: What are some of your innovations you're most proud of?

Novares: From disruptive perspective, we can mention Active Plastic: no more switches, as plastic becomes the sensor! Also, our Touch & Feel customizable HD haptic system.

Looking at incremental innovations, Nova W8 (weight saving technology) and Ultra Mat (cost effective light absorption surface) both bring major VAVE features to the automotive market, including a big step for decarbonization.

DVN-I: Plastic becomes a sensor—fascinating! Can you tell us more?

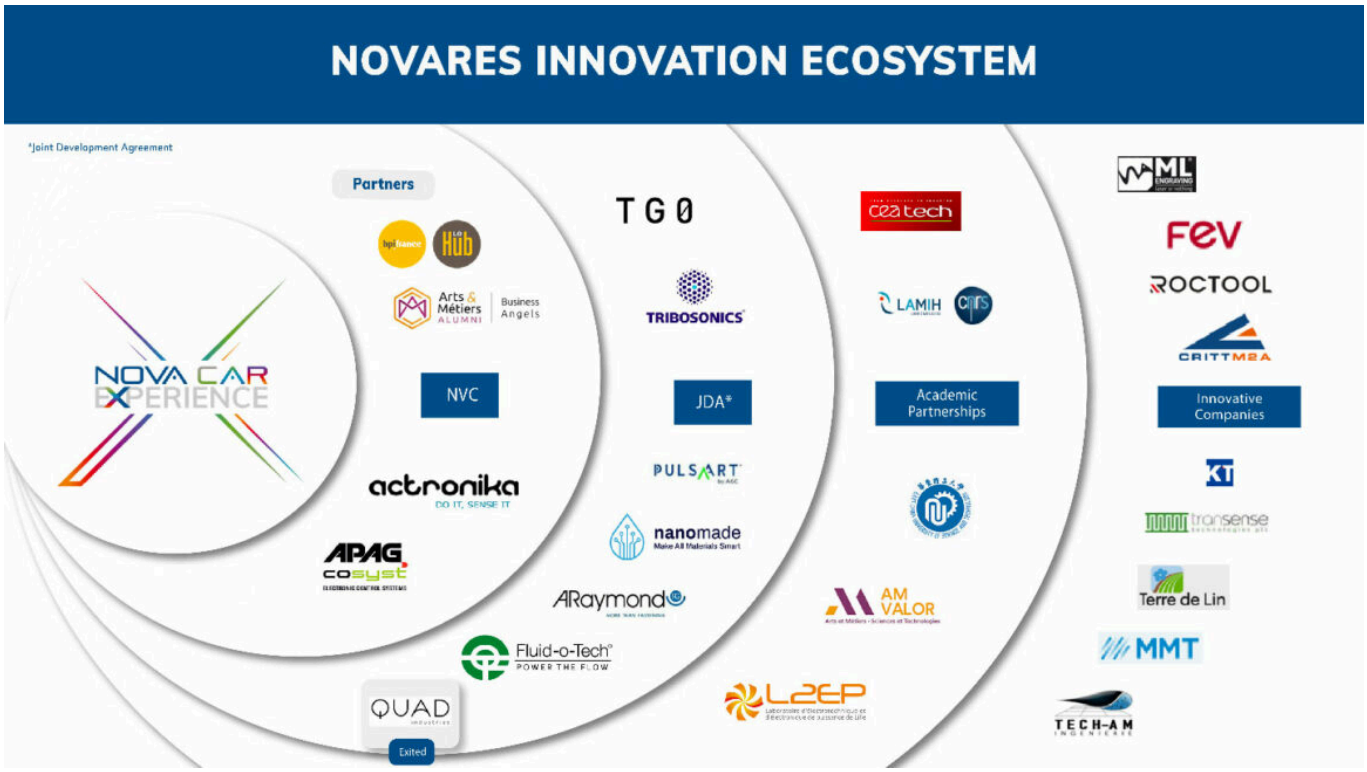
Novares: It came froma partnership we started four years ago with TG0, a UK-based startup. The idea was to integrate TG0 technology into Novares products.

It is based on efficient low-cost capacitive touch sensors and controllers on the product surface to enable touch-sensitive, pressure-mapping surfaces that enable to reimagine products and interfaces through touch, twist, swipe, turn, and so on without adding any layer of electronics behind, meaning a sustainable construction. Targeted products include center consoles, overhead consoles, seat controllers, instrument panels, door handle controllers…the list goes on!

Novares brings our expertise in the production of advanced solutions with intelligent and intuitive interfaces integrating TG0's innovative solutions sought by new-gen EVs. Using the same sustainable approach, both companies' value is based on building more with less, which means fewer materials, lower energy consumption, and easy recycling for a more powerful product that leads up to 33-per-cent CO_2 reduction.

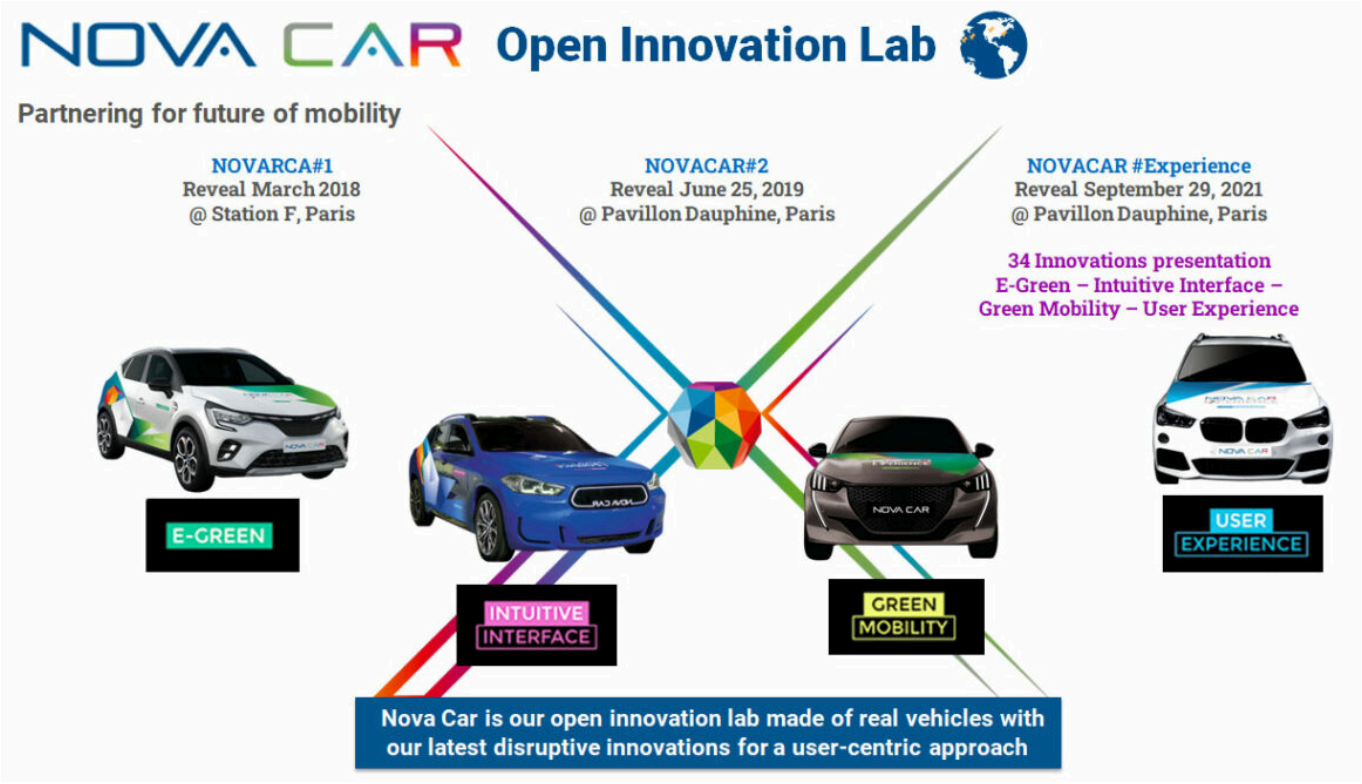
DVN-I: How did you find TG0?

Novares: We started co-working with a few partners in 2018 through Novares Venture Capital, then quickly enlarged our collaboration to startups and innovative compagnies. TG0 is one of the successful partnerships resulting from a strong team spirit between the two companies, reinforcing the commitment to rely on each other's complementary skills.



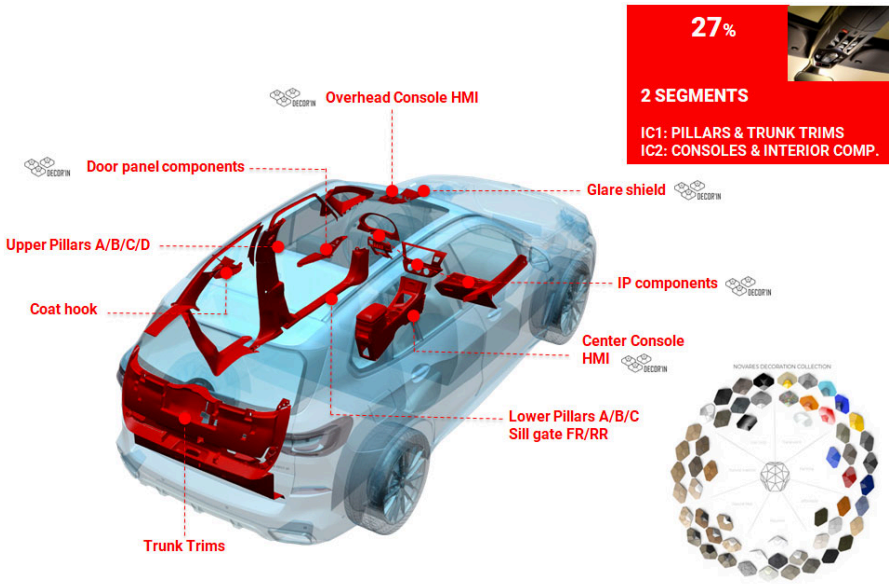
DVN-I: What does Novares Venture Capital do, overall?

Novares: The idea is to add 'technology bricks' beyond our plastics, and to help those startups to transfer their technology and expertise into the automotive world, which is very demanding in term of specification, quality and mass production. The target is not to acquire these companies, which are often successful in other industries.



DVN-I: You mentioned Novacar; what is that?

Novares: Novacar is not a concept vehicle as such, it is more an innovation carrier, where we showcased, in real car environment, many different innovations. We will be building soon a fourth generation of an approach we started in 2018; it is called Novacar eXperience, to emphasize the user experience dimension we want to convince our customers about. Each car has a lifetime of 18-24 months, where we tour the vehicle around customers and continents. It integrates around 20-25 innovations per vehicle. It has no public exhibition, only customer visits.

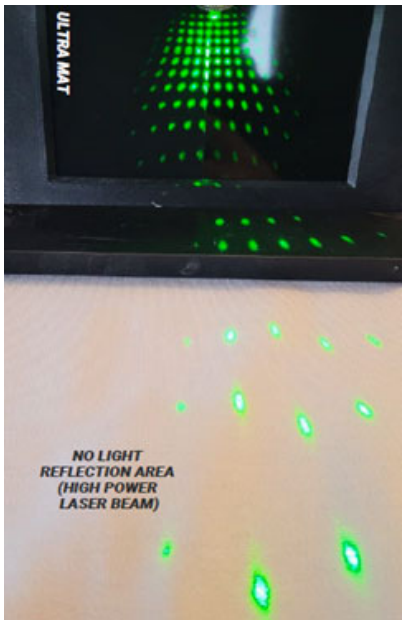


DVN-I: Can you tell us more about the Monaco Interior Skill Center?

Novares: In this historical location for Novares, we manage all interior innovation projects, with all project teams, product, process, and technology experts, all the development tools (e.g., CAE), and the different labs for metrology and validation.

We master all product and process technologies for interior trim, such as injection, foaming in-mold technologies, decoration, assemblies, and wrapping, to name a few. HMI and kinematics are also important expertises worth mentioning.

DVN-I: Can you mention some interior innovations you have developed?



Novares: Our Ultra Mat technology is a good example. It is an anti-glare solution for video camera systems. There are more and more cameras in or out of the vehicle, and they can all be disturbed by light. The idea here is to have external light absorption in the camera housing, through fine engineered texturing, without any paint or any post injection operation. It saves costs, and limits carbon footprint.

DVN Interior: What's hot in bio-sourced materials at Novares?

Novares: A good example is Natur'In, a natural-fiber decoration insert backmolded with bioplastics. It can be used anywhere in interior trim—IP, Door, Console, Seat Back cover, etc.

The A-surface is made of thermoformed natural flax fibers, and the part itself is made of injected bioplastics, keeping all the possibilities of injection, such as ribs, locators, clips, and such for integration.

Flax fibers come from Terre de Lin, a French agricultural cooperative, in a supply chain compliant with automotive requirements.

This solution fits with automotive design and CMF trends, visible and touchable sustainability, while being really sustainable, and part of a virtuous circular economy.

DVN-I: Thank you so much!

Interior News

Hyundai-Kia, Samsung: SDV for Infotainment Experience

INTERIOR NEWS

HYUNDAI IMAGE

Hyundai and Kia have partnered with Samsung to improve integration of software-defined vehicles (SDVs) with smartphones.

The Korean auto brands are working on new infotainment systems and an open mobility ecosystem, in collaboration with Hyundai's global software center, 42dot. They aim to provide a user-centric vehicle environment to improve the connectivity of the infotainment system, which is set to launch in 2026.

Using Samsung's SmartThings, Hyundai and Kia will develop technology to link SDVs and the smartphone ecosystem. Chang Song, President of Hyundai Motor Group Advanced Vehicle Platform (AVP) Divisio, said the goal is to enrich car users mobility experience by "offering personalized services that extend beyond transportation, seamlessly integrating vehicles with smartphones", and accelerating the transition to true SDVs.

Hyundai, Kia and Samsung will also introduce a service for vehicle location verification. It will be expanded through integration with SmartThings Find, offering a global location tracking service. The service is made possible by a crowdsourced network of millions of Samsung Galaxy devices that use the Bluetooth Low Energy (BLE) technology to report their location, eliminating the need for cellular coverage.

This feature will allow customers to easily check their vehicle location through the Connected Car Service app in unexpected situations such as theft. Vehicles not registered with the Connected Car Service can check the location through the Samsung SmartThings app.

Hyundai and Kia also plan to continuously develop services for convenient mobility by sharing vehicle data application programming interfaces (APIs) and software development kits (SDKs) with business partners including Samsung Electronics.

Southco Flip-Out Table for Zeekr 009

INTERIOR NEWS

SOUTHCO IMAGE

Geely has collaborated with Southco to develop innovative interior solutions for the Zeekr 009.

The 009 is the brand’s first minivan, launched in 2022. Zeekr sought an integrated foldable table, and Southco provided a flip-out one that is lightweight, durable, and compact enough to conceal in the armrest without taking up space.

Southco, based in Concordville, Pennsylvania, supplies glovebox and center-console mechanisms, seating and headrests, and other interior parts. Their table for the 009 is a custom design that seamlessly embeds a bifold positioning hinge.

The table also employs friction technology for all rotating pivots and the attachment of leather to an aluminum alloy surface using glue. It offers a smooth, quiet 180° operation. The automaker's requirements also included mirror-polish and chrome finish options, and high rigidity and low weight in a constrained space.

Southco engineers confirmed the optimal operating force and the resistance to vibration by applying the company's friction technology, which enables controlled resistance through the entire range of motion.

The table also features Southco positioning technology. Passengers can silently operate the table with ease and hold it securely in any position even under vibration or dynamic loads. Occupying minimal space, the hingeing solution enables flip-out tables to deploy to a secure horizontal position, and then easily fold and stow flat when not in use.

Sage Conforio PES 3D Knit

INTERIOR NEWS

SAGE IMAGES

Sage Automotive Interiors, a division of Asahi Kasei, develops and makes innovative automotive bodycloth and headliners. Sage has a long history of providing quality soft surfaces for automotive interior surfaces such as seating, door panels, instrument panels and headliners.

Now they've developed Comforio for breathability, cushioning, ventilation, and full recyclability. The three-dimensional design ensures high comfort and performance.

As a monomaterial, it allows all-in-one fabric formation with good stability, breathability, cushioning, and ventilation. Its 100-per-cent PES makeup supports complete recyclability. It comes as a 3D double-needle bar knit construction that connects upper and lower knitted fabrics with springy threads.

Helcor-Leder-Tec: High-Quality Sustainable Leather

INTERIOR NEWS

HELCOR-LEDER-TEC IMAGE

Helcor, an automotive supplier since 1980, produces high-quality, sustainable upholstery materials in Germany. They concentrate on the ennoblement of split leather, microfiber, and bonded leather, and their LWG-Gold and Oeko-Tex certifications testify to their high-quality material solutions, which are used in various areas of the vehicle interior, such as seats, door panels, dashboards and steering wheels.

The company uses a patented process to finish the materials, which offers many design possibilities combined with high technical performance. A natural leather structure as well as technical surfaces such as carbon look can be reproduced. Thanks to the fine, high-performance finish, split leather treated by Helcor can be called ‘real leather’ without any restrictions.

In recent years, alternative backing materials have been added to genuine leather in Helcor`s portfolio and finished using the same process. These new backing materials, such as microfiber nonwovens, spacer fabrics and leather fiber fabrics, are mostly made from recycled raw materials. Helcor also uses renewable, natural raw materials such as flax.

This diversity makes it possible to combine the same surface on different substrates and match them for use in the vehicle.

InBio: Interactive, Bio-Based Surfaces for User-Centric Interiors

INTERIOR NEWS

HOCHSCHULE REUTLINGEN IMAGE

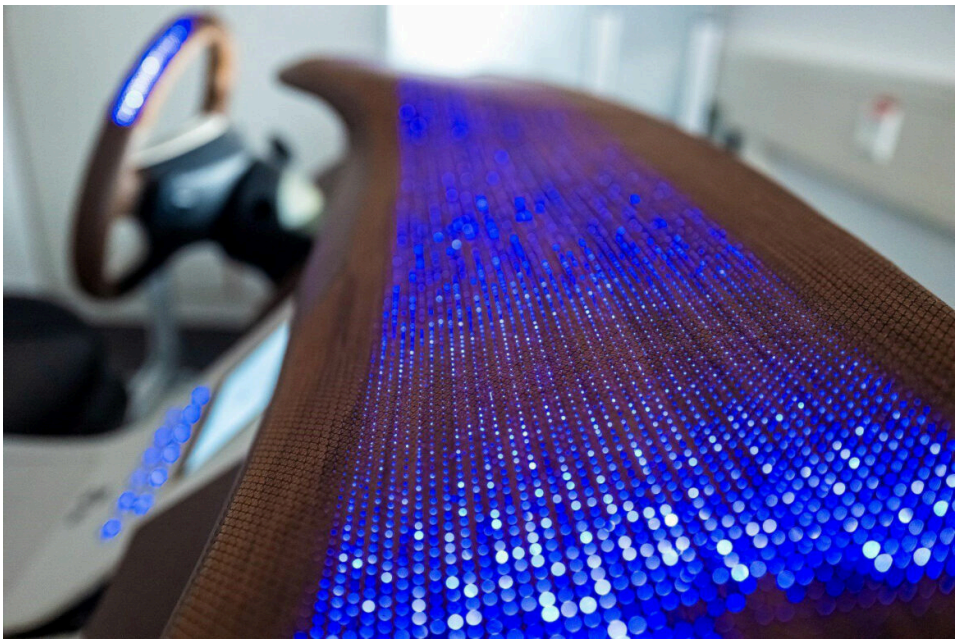
A new way of defining user experience has emerged, wherein HMI and sustainability are closely interconnected—an alternative vision which might help smooth the overexposure to technology due to P2P screens and endless recursive sub-sub-submenus to operate the car's functions.

An interdisciplinary team from the fields of chemistry, computer science, industrial design and textile technology worked on an innovative automotive interior with bio-based, interactive surfaces, within the frame of the project InBio, "Interactive, bio-based surfaces for user-centric automobile interiors", led by the Industrial and Material Design department at the Hochschule Reutlingen and supported by European Regional Development Funds from the EU and the Baden-Württemberg region.

The team was aiming at developing lighter and more intuitive interfaces based on innovative textile user interfaces that reduce the complexity of interior components. With green design features, which should help the environmentally conscious user to identify sustainable materials and products more easily and select them in a targeted manner.

As part of the interdisciplinary work, the project succeeded in designing an innovative car interior, based on a Mercedes E- Class sedan, partially realizing it as a demonstrator.

The core of the interior is made of wood surfaces, backcoated with textile substrates made out of cotton. The textile elements are integrated via appropriate functionalisation and construction and used as control elements for a variety of relevant switching functions in the car. The interactive textile elements fulfil switching functions and are designed in such a way that visual feedback is possible at the same time. In addition, the wood-based paneling elements are also partially translucent due to their special manufacturing method, so that feedback is also possible via these in combination with suitable lighting elements, and a specific lighting mood can also be created.

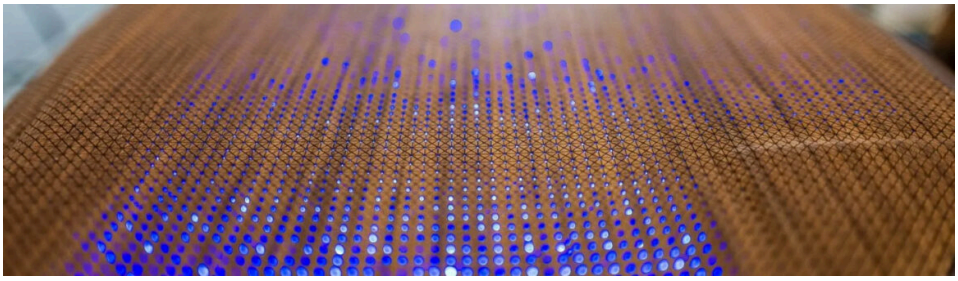


NUO IMAGE

"With our operating concept, certain functions are first visible when the driver needs them," says the designer Wehr, a research associate at the Hochschule Reutlingen. ETTLIN, the manufacturer of the smart textiles with light effects, is one of the official partners of the InBiO project. The other companies participating into the project were Eissmann Automotive for auto interior components and a startup called NUO, a subsidiary of well-known veneer producer Schorn & Groh, who delivered material for the demonstration model.

To select the materials in a way that could be perceived as sustainable as possible the team presented test subjects with different materials and asked them to say whether they were sustainable. A textile made of cellulose fibers, for example, was judged to be less sustainable. Textile engineers know that if a material is smooth and shiny, it tends to be perceived as artificial. On the other hand, if fibers are visible and the material is rough and matte, it appears more natural. For the demonstration model, the project team therefore chose only materials that radiate a high degree of naturalness.

The high-quality NUO wood veneer is a very soft, fabric-like veneer that is particularly sustainable, resource-conserving and renewable. The warm appearance of the wood was rated very positively by the test subjects who appreciate a cozy and relaxed atmosphere in the interior of a vehicle, like the one they know at home.



NUO IMAGE

In the future, suitable test subjects will be used to analyze how the developed interior is perceived by different types of users, with questions relating to user-friendliness, aesthetics, recognisability and acceptance of an eco-friendly character, as well as functionality.

A strong network between the Reutlingen University, the IMAT research center, and industry exists to ensure an efficient conversion of prototype interiors into marketable products for local medium-sized companies as well as for the entire Baden-Württemberg industry.

Qualcomm + Epic for In-Car Games

INTERIOR NEWS

QUALCOMM IMAGE

The Unreal Engine will be deployed pre-integrated and optimized for the Snapdragon Cockpit Platform, Qualcomm Technologies and Epic Games have announced. This will enable auto makers “to deliver immersive user experiences”, the companies say.

With this HMI solution, auto makers will be able to develop digital cockpits that are customizable and scalable across all vehicle types. This collaboration marks the first time Unreal Engine is being integrated directly into Snapdragon automotive platforms.

With this, global car manufacturers that use Snapdragon Digital Chassis solutions will have exclusive access to Unreal Engine tools with optimized features, providing unique in-cabin visualization capabilities such as fully customizable 2D and 3D visuals.

Unreal Engine supports unified assets across all applications, offering fast and flexible workflows. The Snapdragon Cockpit Platform improves vehicle interaction with advanced technologies, enhancing user interfaces, connectivity, and in-cabin environments. Using high-performance computing, immersive graphics and AI support, the solution improves user experience toward connected mobility.

Laxmi Rayapudi, vice president, product management, Qualcomm Technologies, said, “By seamlessly integrating Unreal Engine with Snapdragon Cockpit Platforms, we’re empowering auto makers and the ecosystem to innovate and elevate in-cabin experiences to new heights. We look forward to showcasing the power of co-innovation to unlock new possibilities for in-vehicle experiences.”

“Unreal Engine is the most open and advanced real-time 3D creation tool, providing unmatched fidelity and possibilities, whether you’re building for games or for user interfaces,” said Bill Clifford, vice president and general manager for Unreal Engine at Epic Games.

The Coolest Features of the new Bugatti Tourbillon

INTERIOR NEWS

BUGATTI IMAGE

Extremes are not uncommon in Bugatti history. The new Tourbillon, which accelerates to 300 km/h in under ten seconds, is also bursting with special details.

NETCARSHOW IMAGES

The electric motor can rotate the rear driveshafts in both directions. So, if the small, crystal-glass selector lever in the transparent center console is switched to "R", only the electric motor works for maneuvering in the rear. Theoretically, the Bugatti Tourbillon could even win a sprint race in reverse.

There are neither mechanical nor electrical adjustment mechanisms for the seats. This is because the elegant shells are firmly bolted to the carbon monocoque. The elimination of the seat frames has the great advantage that both occupants can crouch significantly lower above the asphalt. This allowed Bugatti to build the Tourbillon 33 millimeters lower than its predecessor, the Chiron. Instead of the seats, however, the pedals and steering wheel can be adjusted. This means that even tall or very short Bugatti drivers can find a comfortable seating position.

The car has a fixed steering wheel hub, much like another French car launched some 20 years ago—the 2004 Citroën C4, and later C5, followed a similar philosophy since only the rim rotated while the center remained fixed in place. The idea was to have all the buttons always in the same position, even if the driver was swerving left or right. Not just buttons, but also warning lights related to the headlights, mounted on the upper section of the steering wheel's hub.

While other manufacturers use digital animations for their speedometer displays, Bugatti provides traditional precision mechanical gauges. The three small and two larger round instruments consist of a total of 600 individual parts made of titanium and precious stones such as sapphire and ruby, manufactured with tolerances of 5 to 50 micrometers. Such high-precision setting mechanisms are otherwise used in medical robots. In total, the entire instrument cluster on the steering wheel hub weighs just 700 grams.

Hidden from view until desired is a high-definition digital screen, which displays vehicle data and offers seamless mobile connection. An intricately engineered mechanism deploys the touchscreen from the top of the center console; portrait mode for the reversing camera in just two seconds and full landscape mode in five seconds.

Particular attention was paid to a new crash structure that ends behind the huge, two-meter-long engine-transmission block at the rear. These are the carbon extensions of the two-meter-long diffuser, which guides the air under the car below the seats and rises by up to eleven degrees at the rear.

Another detail also proves that a Bugatti is different from other cars of its generation. From 2026, it will be one of the few road users that can do without the otherwise mandatory lane departure warning system. This means that the designers led by Head of Design Frank Heyl did not have to take camera or even radar components into consideration. Instead, they were able to take care of other details such as the extremely small exterior mirrors, which have virtually no gap between the housing and mirror surface. Likewise, they used exciter technology instead of traditional loudspeakers to fill the interior with sound. Here, the trim parts and the chassis are used as membranes.

The Design Lounge

Rolls-Royce Spectre Lunaflair in a Holographic Finish

THE DESIGN LOUNGE

ROLLS-ROYCE IMAGES

COFFEE CORNER DVN Interior

At the end of September 2024, Rolls-Royce unveiled their latest exclusive and premium car to the public: the Spectre Lunaflair, a one-off created for a special (and presumably hyperwealthy) client from the USA. Its extraordinary paintwork took over a year to develop. The Spectre Lunaflair concept was partially inspired by another bespoke one-off Rolls, the Phantom Syntopia.

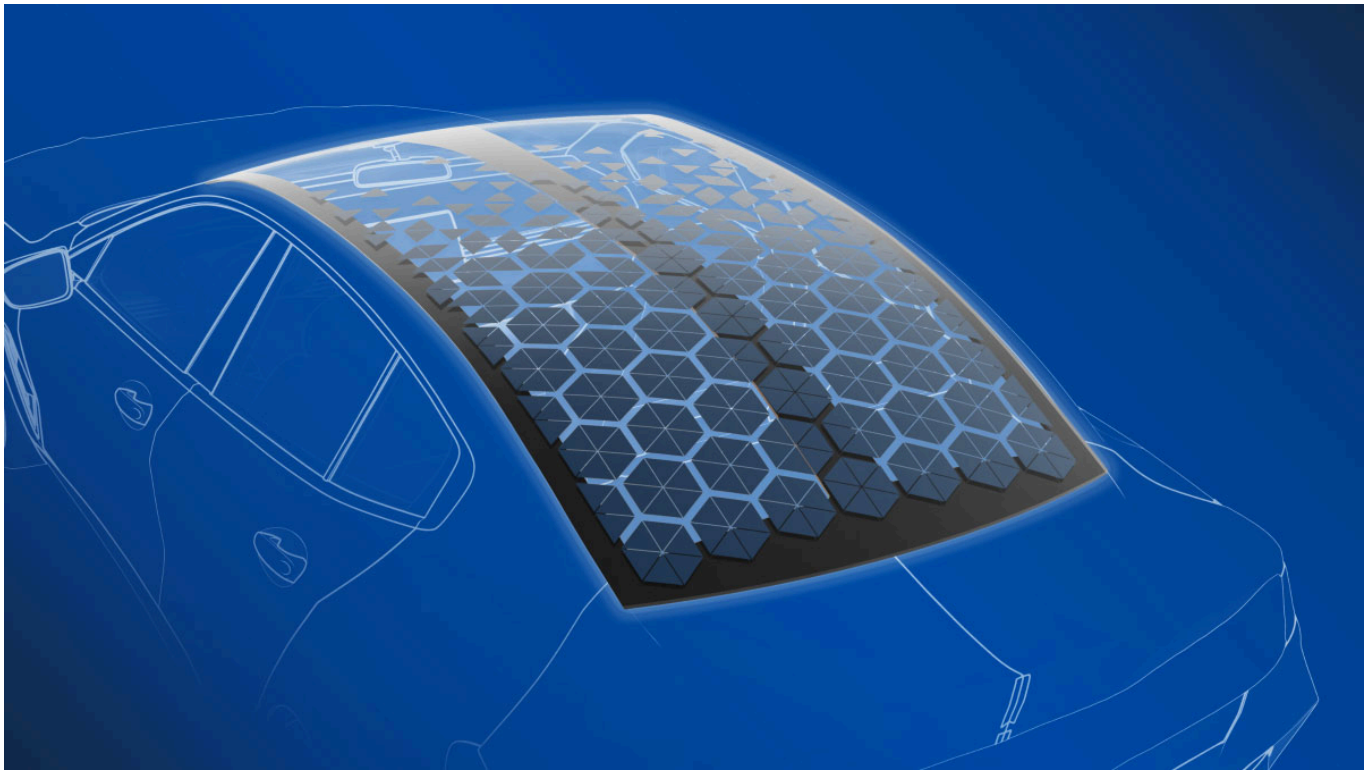
The Lunaflair paint finish is inspired by a halo around the moon, which is created when light refracts through ice crystals in high clouds, creating a partially colored ring. This special optical effect has been transferred to the Spectre by applying seven layers of paint, including a pearlescent layer with magnesium fluoride and aluminum flakes. The result is an iridescent rainbow effect in sunlight and a deep, metallic shimmer in low light.

The moon halo-inspired theme continues in the interior, done in navy blue, white, and a peony color. All shades are reflected in the seats and doors as well as in the iconic Starlight headliner, which comprises hundreds of small LED lights.
Only one Spectre Lunaflair will ever be produced, and the Lunaflair paint finish is reserved exclusively for the car's buyer.

News Mobility

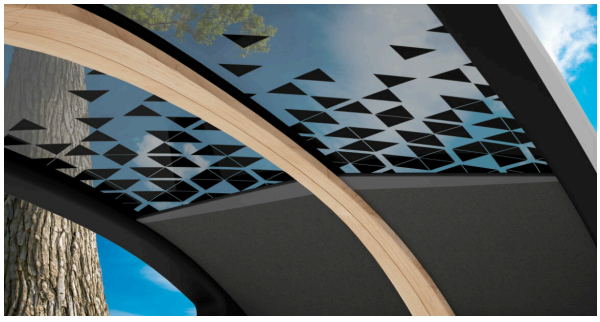
Webasto's EcoPeak Solar Roof Concept

NEWS MOBILITY



Germany-headquartered automotive supplier Webasto recently presented a new roof concept called EcoPeak, which uses biomass-balanced polycarbonate and sustainable plastics instead of aluminum and reduces the roof system weight by as much as 40 per cent.

The EcoPeak panel covers both the roof area and the rear window. The surface has solar cells that supply the vehicle with up to 350 kilowatt hours (kWh) of electricity per year. Depending on the vehicle and local climate conditions, this can be enough power to run the equipped EV for around 2,500km.



It's got integral roller blinds, whose fabric is made from recycled PET bottles—part of Webasto's work towards circularity and resource conservation.

The new concept ensures improved energy and fuel efficiency, and increases driving dynamics.

Thanks to the unique design and the use of environmentally friendly basic components, approximately 50 per cent fewer emissions are created compared to conventional roof systems.

Jan Henning Mehlfeldt, Member of the Management Board and responsible for the global roof business at Webasto says, "Thanks to the enlarged surface area, our roof concept has a significant impact on the vehicle's overall CO_2e footprint. As a market and innovation leader, we are using this concept study to show our customers the possibilities for future series applications. Together with them, we want to develop solutions that are an alternative to conventional roof systems and perfectly combine sustainability, functionality, and aesthetic design. Considering recyclability enables the efficient reuse of materials, which reduces waste and prolongs the utility of resources".

General News

Toyota Chief Scientist's Powertrain Strategy: The 1:6:90 Rule

GENERAL NEWS

TOYOTA IMAGE

Toyota Chief Scientist Gill Pratt has called for a more nuanced and diverse approach to reducing automotive carbon emissions. Rather than focusing exclusively on BEVs, Pratt envisions a future where multiple technologies—including e-fuels and hydrogen—play crucial roles in the global fight against carbon emissions.

Addressing concerns about lithium availability, Pratt introduced the '1:6:90 rule' to illustrate the efficiency of different electrification strategies. It suggests that the battery materials required for one BEV could also be used to power six PHEVs or 90 full hybrids. "Although individually those six PHEVs don't reduce CO_2 emissions as much as one BEV, because we can make six of them using the same amount of battery materials, they can reduce CO_2 five times as much," Pratt explained.

Despite skepticism about e-fuels' viability, Pratt sees significant potential in this technology. While critics point to high production costs—potentially exceeding €20 per liter—and competition from aviation and maritime sectors, Pratt argues that demand could surpass current predictions.

"The reality is that the changeover [to electric vehicles] will not be quick," Pratt stated, noting that many of the world's 1.25 billion vehicles will remain in operation for decades, often transitioning from developed to emerging economies. He emphasized that many regions lack reliable electrical infrastructure, making liquid fuels a necessity for the foreseeable future.

Toyota continues to explore hydrogen as an alternative fuel, both for fuel cells and internal combustion engines. While hydrogen-powered engines produce minimal CO_2 emissions—a few grams per km from burning lubricant oil—their classification as zero-emission vehicles remain under consideration by regulatory bodies in Europe and the United States.

Regarding hydrogen's viability for heavy vehicles, Pratt emphasized the need for balanced infrastructure development. "We believe that hydrogen vehicles can work for transportation if you have an environment where you provide the right amount of hydrogen to the right number of vehicles," he explained.

Pratt expressed skepticism about battery-powered heavy trucks, citing reduced payload capacity due to battery weight, long charging times, and prohibitive infrastructure costs: "A truck with a 1-megawatt-hour battery would require a 10-megawatt charger to achieve a 6-minute charging time, demanding enormous capital investment and operating costs".

On the topic of battery lifespan, Pratt noted that usage patterns significantly impact durability. Slow, home-based charging, the most common scenario, promotes longer battery life, while frequent fast charging can accelerate degradation.

Throughout the interview, Pratt consistently returned to his central thesis: the need for a diverse, pragmatic approach to reducing global carbon emissions. Rather than advocating for a single solution, he emphasized the importance of adapting strategies to different regional contexts and infrastructure realities.

Death of a Segment: Minivans

GENERAL NEWS

CHRYSLER GRAND VOYAGER (CHRYSLER IMAGE)

The minivan segment was almost 1 million per year in the US around 2010, with a similar market share in other continents, including Europe.

But has dwindled to less than 200,000 in 2024. Customers are voting for CUVs and SUVs over minivans.

Chrysler's Voyager is meant to increase Stellantis's minivan sales at lower prices.

The Chrysler minivan, introduced in 1983, was one of the biggest market-changing vehicles of the second half of the 20th century. It was significantly updated and refined multiple times, and interior innovations such as their "Stow'n Go" seating system drove enormous popularity and high-volume sales round the world.

Likewise, Renault's Espace did the same in Europe, when it was introduced around the same time as the Chrysler vans in the US. The Espace found great success in Europe thanks to its flexible seating system, and the floor-integrated rail system, allowing individual seats long travel.

Now, the minivan segment is dying. U.S. minivan sales totaled 306,000 in 2023, per Wards Intelligence data. That compares with 540,000 units in 2010, and 1.3 million in 2000 and in 1995.

To shore up flagging sales, Stellantis is applying the Chrysler Voyager name to a lower-content Pacifica, and offering it to the public for the 2025 model year after selling it just as a fleet vehicle since 2023. Previous plans called for the Voyager to be dropped for 2025, which would have capped a 40-year run for the model. The Chrysler Pacifica is the category leader, selling a total of 121,000 units in 2023 in the U.S.

Toyota has made some upgrades to their Sienna minivan for 2025, with a built-in vacuum and refrigerator on the top Platinum trim, or bundled together on the Sienna Limited.

All Siennas have the Advanced Rear Seat Reminder, newly developed to ensure a child is never left in the van.It works via a radar sensor hidden behind the headliner, which scans for motion in the second and third rows when the car is turned off and locked. If it senses movement, even an infant's chest rising and falling with normal breathing, the door lock beeps nine times. If a door isn't opened within 90 seconds, the horn sounds until a door is opened.

Even with these improvements and price strategies, the minivan category seems to be a declining niche segment, with products stagnating. Honda's Odyssey, for example, has gone eight years since the last overhaul.

About 20 per cent of total minivan sales go to fleets for rentals, where they are handy for traveling families or people moving to a new home. So, unlike the sedan and the coupe and the convertible and the pickup truck and other kinds of cars that have endured, the minivan may well wind up permanently associated with Baby Boomers and Gen-Xers!