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Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #135

# Editorial

## The 'K' Show: Closing The Loop On Plastics


IMAGE SUPPLIED BY K SHOW

DVN Interior visited the world's leading trade fair for the plastics and rubber industry: K, in Düsseldorf.

Plastics represent only about 10 per cent of the weight of today's vehicle, but about 50 per cent of the volume. Think of all the interior parts made with plastics: seats; instrument panels; upholstery and fabrics; headliners and dashboards; door panels, and more. True, there are great developments ongoing in renewable materials, but that's not enough; plastics are still indispensable. The sustainability shift will be only possible by closing the loop on plastics so that their grave is also a cradle, and the K trade fair really showed off the industry efforts to get there.

This week we've got ample coverage of the K show; designer perspectives, and more. We're happy to have you here with us!

Sincerely yours,

Philippe Aumont
*General Editor, DVN-Interior*

# In Depth Interior Technology

## K Fair 2022: Innovation and Circularity for Plastics


DVN IMAGE

DVN Interior visited the world's leading trade fair for the plastics and rubber industry - the K2022 in Düsseldorf on October 21st. 176,000 visitors from all continents visited the Düsseldorf Messe, over 70 per cent of whom were international guests, representing 157 nations.

Plastics are some of the most important materials in the automotive interior realm. Plastic is a generic term for numerous different polymers—each with its own characteristics; suitable applications, and challenges in term of sustainability and the circular economy. We were impressed at how the plastics industry is moving towards sustainability and circularity. It looks sudden, but they've been at it for a few years; what we're seeing now is actually the results of many years' developments.

During the eight days of the trade fair, discussion and display topics showed the industry is driving toward sustainability in terms of recycling and reuse ('circular economy'); energy and resource efficiency; decarbonization, and digitalization. In today's coverage, we report on products and technical parts, with priority to DVN member companies:

**Covestro**


COVESTRO IMAGE

Under the motto 'Crafting Connections With You', the Covestro booth played host to a workshop where the company invited customers; partners, and other stakeholders to devise ideas to overcome major long-term challenges. They presented new products and materials there to support the circular economy and climate neutrality, and displayed them under four sub-themes:

'Crafting Electrification' demonstrated how Covestro works with partners to advance green progress; for example with plastic solutions for wind turbines and electric cars.

'Crafting Sustainable Living' presented modern, climate-neutral plastics for everything from buildings to refrigerators, which help to reduce the $CO_2$ and energy footprint.

'Crafting Smart Designs' provided insight into how Covestro leverages digitalization to work in a more connected and sustainable way along the entire value chain.

And 'Crafting Circular Economy' illustrated how a systematic transition to a circular economy can be the key to climate neutrality and resource conservation.

**Grilleboard Outer Panel**

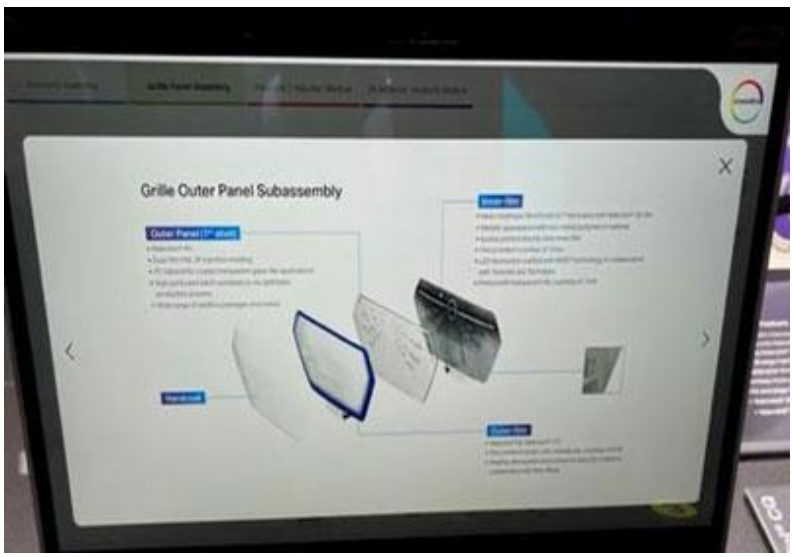

DVN IMAGES

As the industry progressively shifts from combustion engines, radiators go away, so the radiator grille becomes obsolete. This frees up the space between the headlamps, a literal front-and-center area whic has for over a century defined what autos have looked like. Instead of a grille, then, a multifunctional grilleboard (='grille' + 'billboard') such as Covestro's outer panel subassembly combines versatility and style.

With a non-metal black-metallic and body color appearance on its seamless outer surface, this grilleboard panel also incorporates a true 3D styling and signature lighting using integrated LED illumination systems for edge-glow, a hidden-until-lit logo and lightbar, and display.

The demonstrator was based on a Polestar grilleboard, with 3D-effect from a material supplied by Toray, and Tactotek film.

With sensor integration, a radar module is hidden behind and operates through the metallic appearance of a film. Electronics are integrated, as well, with an embedded heating-wire system to aid display and radar performance. It gives designers the freedom to achieve different form factors and part-to-part variation.




There are four layers to the grilleboard outer panel subassembly; outside to inside: Hardcoated outer film… outer panel…inner-film…inner panel.

The outer film is Makrofol DE film that can be printed in body color and metallic ink, creating a futuristic appearance. Electrical connectors molded of Makrolon CTI are incorporated for ready-to-install efficiency.

The outer panel is formed using dual film; film-insert molding, and 2K injection molding which also couples it to the inner panel. For this element, Covestro uses Makrolon AG polycarbonate, a high-purity material tailored for

coated transparent glasslike applications. It is available in a wide range of additive packages and colors.

The inner film layer includes interesting material innovations that enable functional features. For example, the electronic busbar can be printed directly onto the inner film. Also, it has a metallic look, but is created using a polymeric material laminated with Makrofol DE film.

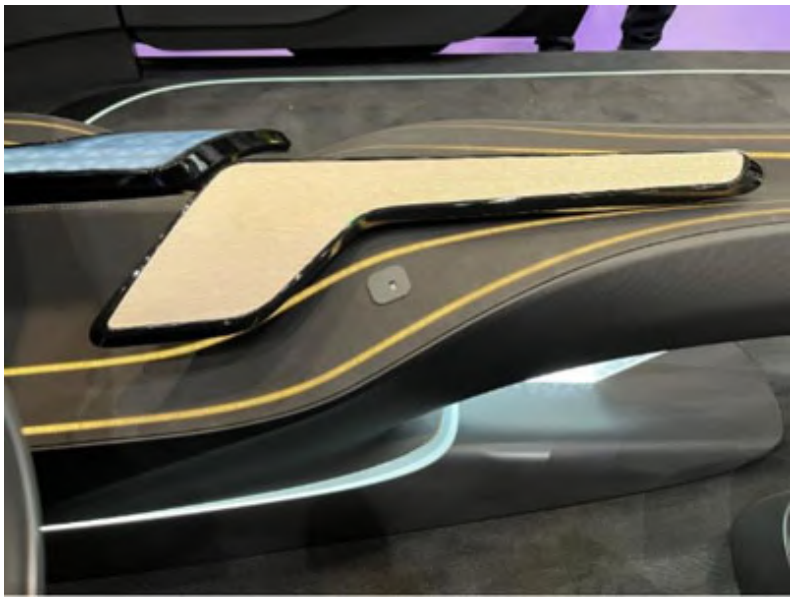
And the inner panel subassembly is the carrier for display; light bar; and radar modules. This subassembly is formed from mineral-filled Bayblend material using a two-component (2K) injection molding process to couple it to the outer panel.

**Automotive Interior Concept Demonstrator**

Covestro's banner motto at the show was *The Automotive Interior Will Never Be the Same*. As new trends are shaping the industry—electrification; personalization; autonomous cars, and human-machine interfaces—automotive interiors are transforming, too, requiring raw materials with all-new properties.

To create beautiful and peaceful interiors, automakers and their suppliers face many demands and challenges. Dynamic lighting is one. It must be integrated into many parts of the car, including the floor. It must also demonstrate new capabilities; for example, adjusting based on music or mood.

And in all applications, transparency and texture are key. Consumers don't just want to touch the tech; they want to see it. They want large-screen, 3D and hidden-until-lit displays, advanced driver-assistance systems, and seamless multi-material surfaces with aesthetic and touchable textures. Covestro makes the materials needed to achieve these effects, and many others to achieve design and performance requirements. Standard polycarbonate and glass can no longer do the job. Covestro's polycarbonates are inspiring the automotive interiors of tomorrow.



The interiors of EVs can be more open and spacious, as shown in the Covestro virtual center console concept.

It includes injection-molded parts that look and feel like wood; stone, or other materials. These parts could be backlit and transparent. Buttons for functions could be integrated and hidden in the surface until they are needed. Here, the wood is real, following a specific flexibilization process to fit with 3D interior shapes. There's a stackup of real wood 0.3 mm thick; a PC blend; a film for electronics and lighting, and PC ABS with glass fibers for a total of 6.5 mm thickness.

Makrolon AI polycarbonate is a special edge lit material that can go from transparent to translucent. This versatile material gives designers many options for ambient and dynamic auto interior lighting. Pairing this material with Maezio lightweight composite in the flying center console results in slim, sleek, and stylish components.

Functional integration of lighting; sensors, and switches paves the way for whole new kinds of design possibilities. Covestro has developed a new material that is dimensionally stable; transparent, and heat resistant: Makroblend OM 845G polycarbonate glass fiber-filled blend. This, the first transparent blend in the optical lighting portfolio to offer these properties, can be back molded and back lit in textured, 3D shapes.

Covestro also offers a versatile toolbox of hard to flexible two-component (2K) waterborne polyurethane dispersions that offer the combination of high design freedom from soft to hard. And by combining this 2K polyurethane technology with edge-lit and high-tech Makrolon AI materials, it’s possible to create a wide range of tantalizing textures that meet expectations.

Beyond LED lighting, the shade’s embedded circuitry could provide radiant heating, which is particularly important in EVs, where localized heating will help reduce energy consumption.

On the door and dashboard, there’s translucent coated textile, Insqin. It's light of weight, and lighting can appear in novel ways to create a warm and inviting interior.

## Composite Seatback

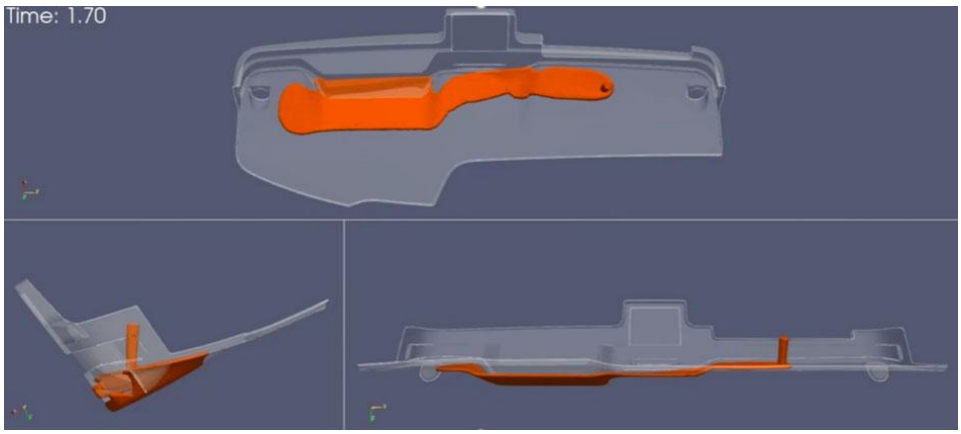
The seatback is formed from Maezio lightweight composite and features marble flakes, produced from post-industrial recycling materials, developed together with SAIC in China. The seatback was produced using a pilot production process then assembled on real seats, and has passed many automaker-specific tests.

### Instrument Panel: Simulation of Bayfill


COVESTRO IMAGE

Automakers and tier-1 interior suppliers need digital verification for components, from instrument panels to interior trim. Simulation is crucial to shorten development cycles, reduce complexity and costs, and mitigate risks. Covestro presented a simulation of their polyurethane (PU) foaming process; they've developed material models and state-of-the-art calculation methods for this purpose, as well as building up powerful computing capacities.

In car interiors, however, it has long been a question not only of simulating structure and form, but of creating a digital twin of the possible manufacturing process. Those involved are relying on the science of materials modeling to simulate the foaming process. This can be explained using the example of an instrument panel. In this application, semi-rigid PU foams based on Bayfill have become well established, as they enable the economical and reliable production of components with complex contours. In addition, the foams provide a pleasant feel and noise insulation.




SIMULATION SOFTWARE PREDICTS THE BAYFILL INSTRUMENT PANEL FOAMING PROCESS (COVESTRO IMAGE)

Covestro's automotive-systems R&D chief Dagmar Ulbrich says "With Covestro's digital twin for Bayfill foams, suppliers and [automakers] receive detailed information about the processing behavior of the material as early as the design phase, before real experiments or trials are necessary. This helps identify potential challenges early on, when product and tooling changes can still be made at low cost".

Polyurethane foams can meet the requirements for instrument panels and other interior parts well, but the foam must be processed within a specific process window. Simulated foaming based on Covestro’s material models helps to optimally adjust the process window.

**Kurz**

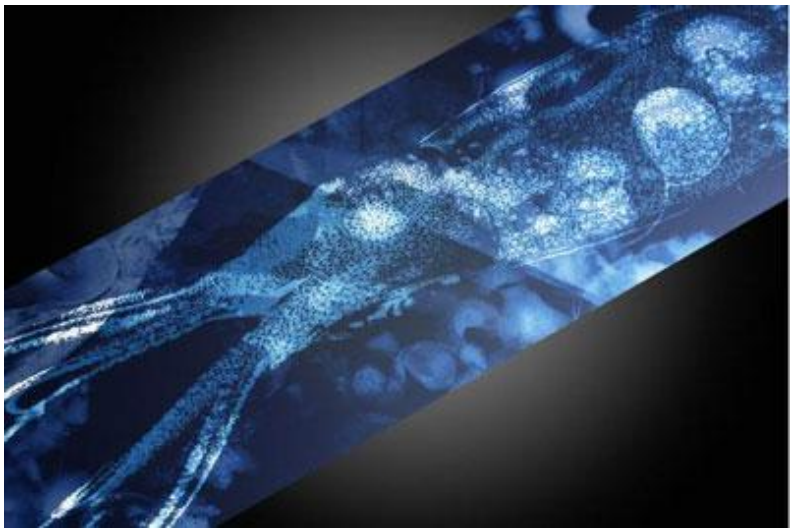

DVN IMAGES

Kurz, based in Fuerth, Germany, is a company specializing in thin film technology. They have over 5,500 employees developing and making decorative and functional coatings for application to carrier foils and then applied to a wide variety of products: automotive components; phones; TVs; washing machines; furniture; packaging; books; textiles; bottle labels; bank cards, and lots more.

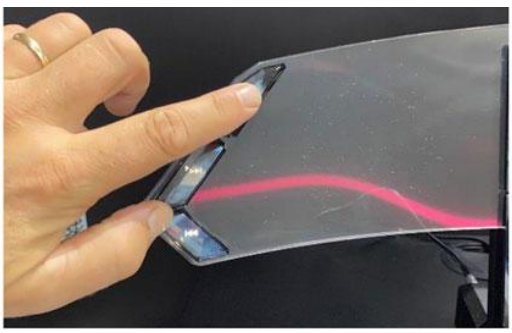
Kurz used a variety of demonstration devices to show light designs developed in cooperation with Mentor, a renowned manufacturer of light guide systems. Thanks to a proven RGB algorithm, company-specific corporate identity colors can be implemented with full fidelity. Light and surface design merge to create an innovative, futuristic design with fantastic effects and a high degree of customization. Unlike conventional processes, the light can be directed, distributed, and, in the right places, decoupled in the desired form, color, and brightness.

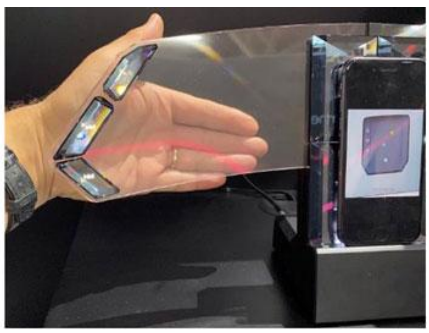
The Smart Crystal HMI Panel, which was developed in cooperation with Swarovski Mobility and Kurz subsidiaries Burg Design and PolyIC, visually enhances the interior of vehicles in the luxury segment and also offers smart functionality for intuitive operation. The panel won the ABC Award in 2022 and impressively combines design and decoration, highly transparent sensor technology, and high-quality touch-capable crystals from Swarovski.

Kurz also presented new metallization designs with different color variations, color gradients, and even 3D geometries. The process is based on the reaction of two different metals with each other, is suitable for different processes, and can be used for shy tech designs. The new solution can be backlit and additionally enhanced with haptic and matte gloss effects. Kurz Biofense can also be used to provide the surfaces with long-term hygiene protection.

Kurz (including PolyIC) and Swarovski Mobility created another design concept as well. With functional handmade Swarovski crystals, this concept shows how touch operation on a futuristic steering wheel works via crystal clear, transparent control surfaces based on PolyTC metal mesh films and Kurz IMD hard coating.



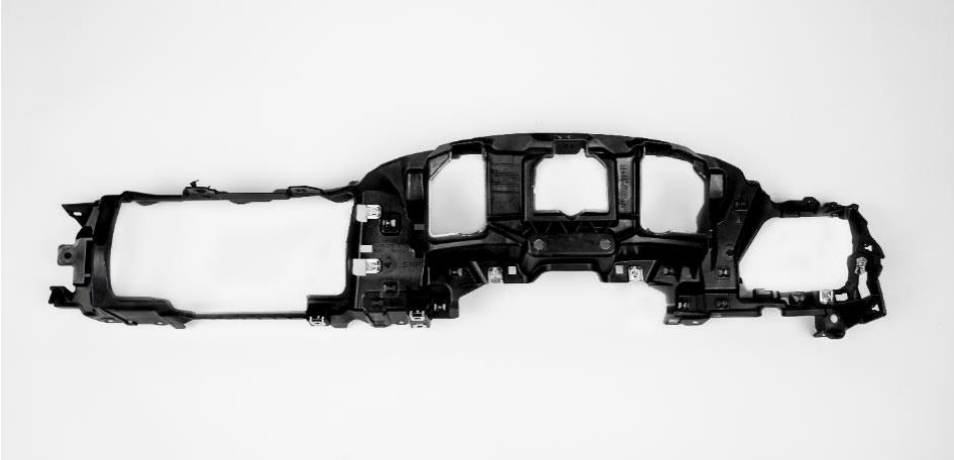


With the Wittmann Group, Kurz presented a joint project from the automotive interior design sector: The Overhead Light Console (OHLC). Thanks to its in-mold electronics, it can be used to control various functions such as the ambient light, reading light, and sliding roof. In this way, injection molding and integration of PolyTC sensors as well as decorations are combined in a single, highly efficient work step to form a 3D-deformed component using IME. This creates a seamless organic surface in an appealing shy tech design with maximum creative freedom.

**Mocom**

MOCOM IMAGE

Mocom, a family-owned company now part of the family-owned Otto Krahn Group, specialize in customized material solutions and compounded thermoplastic polymers. The Otto Krahn Group includes plastics distributor Albis; plastics compounder Mocom; the Krahn Chemie Group with technology partner for ceramics materials Krahn Ceramics and recycling specialist Wipag. Otto Krahn is represented in more than 30 countries; in FY21 they employed around 1,700 people and posted global turnover of €1.5bn.



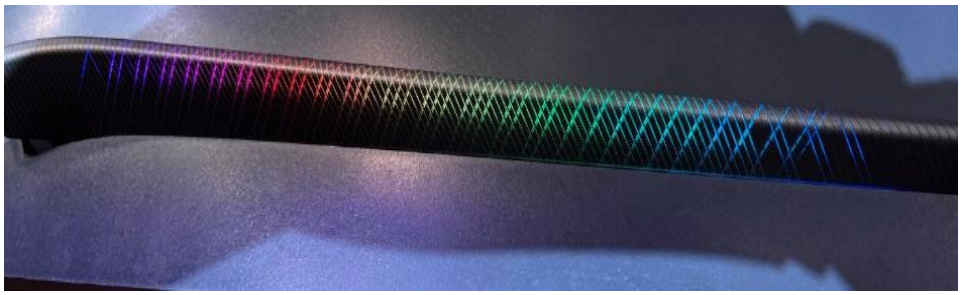
THIS COCKPIT CROSS CAR BEAM IS MADE OF RECYCLED MATERIAL PP CF 30 BY WIPAG FOR THE PORSCHE 911 (992).

Mocom is expanding their product portfolio: For fuel cell and battery applications, the focus is on compounds like Alcom; Altech; Alfater XL, and Tedur with high purity; conductivity; flame retardance, and shielding properties. New requirements also apply to cooling and temperature control systems in electric vehicles. With their Altech NXT PP brand, Mocom offers an alternative to conventional polyamides. The compounds are characterized by high stiffness and stability, even under high temperature conditions. At the same time, the material's low density makes it suitable for lightweight construction and requires significantly reduced energy during processing, thus leading to reduced $CO_2$ emissions in production.

The increasing digitalization in industry, households and traffic requires materials for radar and sensor technology that, depending on the application, are characterized by transmittance or shielding against high-frequency radiation as special characteristic. The Mocom product portfolio offers solutions for smart home; driver assistance systems, and autonomous driving.

MOCOM IMAGES

LDDC MC (Metallic Color) brings three new colored compounds with metallic effect—grey, red, and white—to the Alcom portfolio. The light-transmitting color variants are based on polycarbonate and are equipped for homogeneous light output with good light diffusion. With this combination, Mocom is expanding the possible applications of their Alcom LDDC series to include illuminated trim panels in metallic effect color.

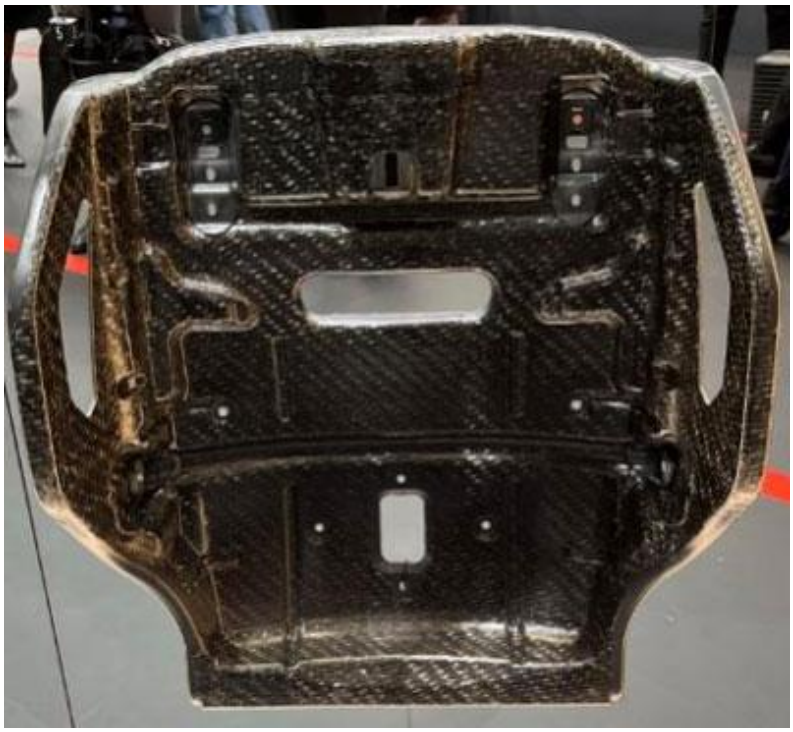


TRIM PANEL LIGHT DECORATION (MOCOM IMAGES)


**Lanxess**

Lanxess is a German specialty chemicals company based in Cologne, founded in 2004 as a spinoff of the chemicals division and parts of the polymers business from Bayer.

Under the motto 'Quality Works', Lanxess presented high-quality solutions for the plastics and rubber industry from five business units: High Performance Materials; Urethane Systems; Polymer Additives; Rhein Chemie; and Inorganic Pigments, with focus primarily on the topics of e-mobility; circular economy, and climate protection. Automotive interior product applications were presented, including:



Composite Seat Cushion Shell for BMW M

Headrest with PA 6 GF structure

**BASF**

BASF is a long-established, multinational chemical company—the largest in the world, headquartered in Ludwigshafen, Germany. They presented their 'Plastic Journey' (Make · Use · Recycle) towards a more sustainable plastics economy with a portfolio of engineering plastics and polyurethanes with significantly reduced $CO_2$ footprint. They showcased sustainable solutions for industries such as automotive; construction, and packaging, accompanied by expert panel discussions


DVN IMAGES

As described in our earlier DVN Interior coverage of the Citroën Oli, various components have been radically reinterpreted and constructed by using materials in a different context. For example, the complete backrest is made of a flexible 3D-printed plastic material (Ultrasint TPU88A). The open lattice structure provides natural air flow, replacing all ventilators in the seat. For this, as well as to produce about twenty parts, the competence of a 3D printing service was leveraged—Sculpteo, in France, a brand of BASF.

Another striking feature is that many of the new components are designed and manufactured from materials from the same chemical product family. Bonded and welded components made from different materials are a challenge in mechanical recycling. For this reason, the designers created as many components as possible from a single material.

The color of the body perfectly conveys the concept of the car. At first glance it seems to be a pure white color, but mica particles have been added to emphasize the shape of the car. Interior parts such as the seats and the flooring are an intense orange.

During design and development, Citroën worked closely with BASF, who contributed their design expertise through the Creation Centre. BASF industrial design manager Alex Horisberger says "This is where the project was born. On a visit to the creative studio at Citroën, we were able to convince their designers with our materials and trend analyses. Working on the same level with Citroën's interior and exterior designers was a personal highlight for me".

Another high-performance plastic from BASF can be found in the rear armrests and the interior floor. Infinergy, an expanded thermoplastic polyurethane (TPU), is also used in running shoes and sports flooring. It is elastic like rubber, but lighter, robust, and highly resistant to abrasion. In oli, the material provides a pleasant yet stable surface in armrests and floors. Plus, it damps noise and vibrations. A special coating is applied to ensure an extra-long life span. The water-based NovaCoat-P coating is ideal for protecting soft substrates against abrasion; UV radiation; dirt, and chemicals. And because the flooring is waterproof, it can be easily cleaned with water. Floor plugs made out of Elastollan can be removed to drain water and dirt.

The weight of the vehicle exterior was also considerably reduced, while at the same time increasing stability and durability. The hood, roof, and trunk are made of panels combining the Elastoflex polyurethane system and the Elastocoat spray paint system. Thanks to the honeycomb sandwich structure, these panels are so stable that you can even stand on them. This is part of the vehicle's functionality.

As for the car body itself, R-M Agilis is another BASF product that provides greater sustainability; it is a water-based coating has a very low VOC content.

BASF's CathoGuard 800 electrocoat, which protects the battery housing from corrosion, contributes to further resource savings. It stands out for its high performance and eco-friendliness, as it is free of tin and hazardous air pollutants and has a low solvent content.

And their innovative Haptex polyurethane solution makes car seat cover safer and more comfortable. Nio's seat covers are made with it, the first polyurethan(PU) solution made without the use of organic solvents.

BASF and Grupo Antolin have developed a headliner based on BASFs ChemCycling process. Chemical recycling is an important addition to mechanical recycling and contributes to building a comprehensive circular economy.

Prime quality plastic from postconsumer recyclate, with door handles made of scrap tires.

**SCG Chemical**


SCG is one of the largest integrated petrochemical companies in Thailand, and a key industry leader in Asia. They offer a full range of petrochemical products ranging from upstream production of olefins to downstream production of three main plastics resins: polyethylene; polypropylene, and polyvinyl chloride. For this seatback structure they used P1085J, a polypropylene resin for lightweight and safe automotive parts.

**Next K is 2025**


The next K show is in 2025, and DVN-Interior will be there!

# Interior News

## Global Mobile Alert to Prevent Driver Distraction

INTERIOR NEWS


GLOBAL MOBILE ALERT IMAGES

Global Mobile Alert (GMA) was founded by Demetrius Thompson in 2004 after he was involved in two separate accidents involving distracted drivers using smartphones. While recovering from the second accident, Mr. Thompson developed a driver distraction alert technology which does not require embedded vehicle-to-everything (V2X) hardware in the vehicle; GMA has assembled a team of executives and advisors to commercialize his technology by deploying to Android and Apple iOS smartphones, and in-vehicle infotainment systems.

GMA's concept involves audio and visual alerts allowing smartphones and in-vehicle infotainment systems to alert drivers of changing conditions and potential hazards before an accident occurs. GMA's technology communicates wirelessly with traffic lights; school zones, and railroad crossings and will warn a driver too busy on a voice call to remember they have a driving task to mind. GMA is working with partners to eventually display traffic light signal phase and timing features on customer's smartphone or vehicle infotainment screen.

Automakers' adoption of open-source automotive operating systems such as Android Automotive OS that powers the infotainment system on the latest electric cars opens the door for safety app development. GMA has been working with car makers since last year to implement driver distraction alerts in vehicles. Global Mobile Alert offers two products: a Driver Distraction Alert app for Android and iOS mobile devices, and a product to allow companies developing V2V; V2I, and smart city offerings to incorporate Global Mobile Alert's innovative technology.

# Appen's AI Driver Monitor

INTERIOR NEWS

APPEN IMAGE

Appen, founded in 1996, is a company specializing in, as they put it, 'data for the AI lifecycle'. Their data sourcing and annotation and model evaluation enables organizations to launch artificial intelligence systems. Their expertise includes more than a million skilled contractors in over 70,000 locations all over the world, who speak more than 235 languages.

Almost 80 per cent of crashes and 65 per cent of near-crashes involve some form of driver inattention within three seconds of the event. High-quality training data is vital to reduce those figures. If poor quality data trains the model and no additional testing is done to verify the model functions as intended, the result would be comparable to an impaired human driver, times however many of that system are on the road: a lot of crashes!

Appen's AI driver monitoring technology changes its actions based on what the driver is or isn't doing. This is done by machine learning algorithms analyzing camera data in real time to monitor if a driver is paying attention to the road or is distracted. The technology can work with traditional; 3D, or infrared cameras for seeing in the dark, and can recognize if a driver is distracted—on the phone, nodding off to sleep, or participating in a conversation with someone else in the vehicle, for example.

Thanks to AI driver monitoring, cars can now detectt driver fatigue; distracted and impaired driving, and violation of company rules (in the case of a delivery or other drive-for-pay company).

If the AI model notices the driver is impaired or distracted in any way, it can engage driver-assistance technology to help create an extra margin of safety for the driver; the vehicle, and surrounding traffic participants.

# Forvia's Vital-Signs Seat

INTERIOR NEWS

FORVIA IMAGE

Forvia's Faurecia unit works on seating concepts to increase comfort and support health. One way they're doing that: using sensor data to detect unhealthy sitting positions and suggest changes. This serves not only comfort and health, but above all road safety.

Sensor measurements in the seat are already known, but piezoelectric sensors have mainly been used up to now. They emit an electrical charge when force is applied. Capacitive sensors, on the other hand, work much more precisely. The electrical capacitance of a capacitor changes under pressure.

We experience how well this works every day on our smartphone screens. The sensors in the seat do not require direct skin contact. Faurecia's seating innovation manager Omar ben Abdelaziz says "They already detect when a person approaches the seat and then measure the pressure as soon as the user has taken a seat". In the process, the sensors collect data through the various layers of upholstery and seat cover as well as the user's clothing.

Faurecia works with doctors from the French research laboratory Human Fab in Aix-en-Provence, France. They detect pelvis drift, i.e. buckling of the pelvis, hunched back or immobility, which can lead to circulatory problems. The Asana Coach system, as Faurecia calls it, suggests measures to the user to counteract back pain or fatigue. If the user agrees, vibrations as well as pneumatic massage movements start, which cause a change in the sitting position.

For entertainment, Faurecia also works with 'exciters' in the seat. This is like a bass speaker, without the diaphragm. The vibration generated provides physical sensation of the bass effects in a song or movie. A recent Faurecia seat demonstrator is called Vital Signs". It uses sensors to record the user's pulse and breathing rhythm for early detection of fatigue and potential heart attack and stroke, as well as analyzing stress levels. If a driver is agitated, music, massage, lighting, and scent can be deployed in an effort to calm them. It is also conceivable that text messages and phone calls are held off in tense traffic situations.

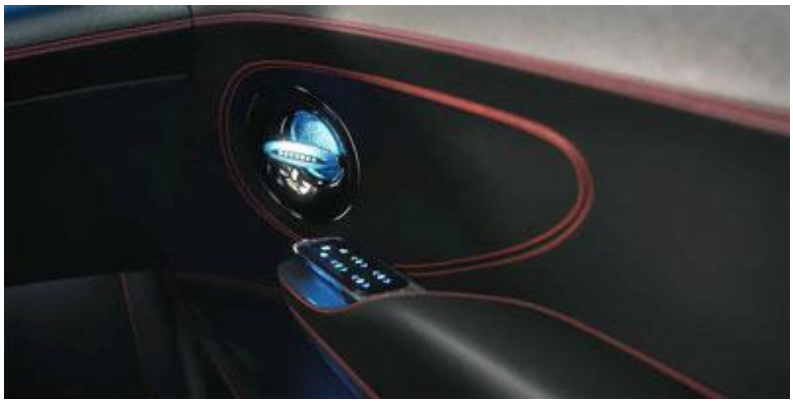
# Beyonca: Premium EV with In-Cabin Cloud Doctor Service

INTERIOR NEWS

BEYONCA IMAGE

Beyonca is a startup founded by a group of former Volkswagen executives, with plans to take on automakers including Audi and BMW in China from next year with a new premium electric vehicle, the GT Opus 1, which offers features such as health monitoring.

Led by current Renault China CEO Soh Weiming and backed by Renault and Dongfeng Motor, two-year-old Beyonca plans to unveil their first production car in the first quarter of next year with deliveries from 2024, Soh told Reuters, adding that by the time the car will be launched, third-generation EV technology will offer faster charging times and longer driving ranges.



The company rolled out the GT Opus 1 concept car on Sunday with features such as sensors that can monitor a driver's blood pressure; alarms to alert Beyonca-employed doctors to an emergency, and an autonomous driving function to help park the car. This first in-cabin cloud doctor service where a doctor will appear virtually on the vehicle’s infotainment screen is supervised by Beyonca's chief health officer: Dr. Tim Guo, a cardiovascular specialist with over 27 years of experience.

Beyonca will begin production in China, and plans to build an overseas plant within five years to serve markets including the Middle East, ASEAN countries, and Europe. The broader aim is to sell 100,000 EVs annually with up to five models available by 2028.

Beyonca is headquartered in Beijing and has a design center in Munich and an artificial intelligence development hub in Singapore.

# Jidu Robo-01 Tanyue Bristles with AV Tech

INTERIOR NEWS


ALL JIDU IMAGES

Jidu Auto is a Chinese EV maker founded last year as a joint venture between Baidu and Geely. Their product is a robocar they say combines intelligence and emotion: the Robo-01 Tanyue Limited Edition, priced at C¥399,800 (€55k; $55k).

Jidu also has a point-to-point navigation assistant they call PPA (Point to Point Autopilot), with high-end intelligent driving capabilities with "three-domain integration" of high-speed, urban, and parking in mass production. In addition, Jidu has demonstrated their mass-produced 3D intelligent driving map for the first time, as well as global offline voice.

The Robo-01 strongly restores the forward-looking design concept of the concept car. The appearance is simple, smooth, and full of technology, with powerful AI interaction capabilities, most of the physical controls such as exterior door handles and central control buttons are eliminated, creating a futuristic robot cockpit for users. It is a highly aerodynamic design, equipped with an automatic active rear wing contributing to the vehicle's drag coefficient of 0.249.


The robotized front face design integrates interactive AI pixel headlamps and high-recognition rate AI voice interaction systems, with a variety of 'lighting words' such as outside voice, valet parking status prompt, pedestrian reminder, etc., breaking through the boundary of human-vehicle-environment interaction.

The whole vehicle with no exterior door handle design, and the 4 electric doors are equipped with silent suction function. The door integrates 4 millimeter-wave radars, which is more accurate than ultrasonic radar to avoid obstacles, with smaller blind spots and fewer false alarms.


Jidu's lozenge-shaped steering wheel design is the first to achieve mass production in China, which does not block the front 3D integrated screen, allowing users to obtain screen information freely and completely, and provide the driver with accurate, lightweight and comfortable steering experience. An integrated ultra-thin air outlet runs through the center console panel, creating a clean and tidy layout.

The panoramic canopy provides a large view and natural light for a spacious and comfortable interior space, and with the special coating processing developed by Jidu, it can block more than 99 per cent of ultraviolet rays, and the light at night is highly transparent, allowing a view of the true texture of the starry sky.

The lunar gravity seat with an integrated starry gooseneck lamp is ergonomically designed. The driver seat with 8-way electric adjustment and 4-way lumbar support adjustment, with welcome function and headrest sound, provides for comfort and privacy convenience in long-distance driving. The front seats come standard with three levels of heating; three levels of ventilation; three levels of massage, and have a memory function.

The 35.6" 6K ultra-clear integrated screen is a futuristic, 3-dimensional, unboundedly integrated item. As an AI-sensing interactive entrance to the whole vehicle, the ultra-clear all-in-one screen can provide an immersive 3D visual HMI and entertainment experience. The rear row is equipped with a 7" interactive display, providing users experience with a third living space.

# Alfa Romeo's New Interior Includes NFT

INTERIOR NEWS

ALFA ROMEO IMAGE

For the 2023 Giulia and Stelvio models, Stellantis' Alfa Romeo brand is introducing a completely new digital instrument panel to ensure drivers benefit from a connected driving experience. Featuring the company's historic telescopic design, the digital 12.3" TFT screen enables drivers of the vehicles to access a wide range of vehicle information and parameters which relate to autonomous driving technologies. Additionally, the clusters can be configured into three different layouts depending on driver preference.

The new Giulia and Stelvio feature a fluid and intuitive human-machine interface (HMI) to keep all of the vehicle's functionalities at hand. The car's infotainment system pairs with the optional Alfa Connect Services to deliver features such as over-the-air updates and control of certain vehicle functionalities—door locking or unlocking, for example—via a smartphone or smartwatch.

As with the Alfa Tonale model, the Giulia and Stelvio have built-in non-fungible token (NFT) technology which is based on the concept of the blockchain card. This encrypted, non-modifiable digital register is used to store information specific to the car. Depending on a customer's selection, the NFT generates a certificate where data on the vehicle's life gets recorded. This certificate can be used to guarantee proper vehicle maintenance, helping to support the vehicle's residual value.

The Competizione series vehicles feature a Harman Kardon audio system, privacy glass, a leather upholstered dashboard, seats with red stitching and a Competizione badge on the sides and front headrests.

# The Design Lounge

## Plastics

THE DESIGN LOUNGE


DVN IMAGE

Plastics are made by chemically bonding oil and gas molecules to make monomers. These are bonded into long polymer chains to make polymers—plastics—in the form of grains which, heated and melted in manufacturing plants, create the polyvalent materials that make up the bodies of many of the products we use.

There was a time when at the end of the supermarket conveyor belt, free plastic bags were packed—sometimes with just one or two items in each—and once home, those bags were either discarded or crammed into overstuffed kitchen drawers. When the horrific waste, litter, and pollution resulting from discared plastic bags stopped being ignorable, various jurisdictions enacted 5¢-each charge for a plastic bag, and we began being asked how many we wanted at the grocery store. Kitchen drawers were relieved with one single (paid) plastic bag for shopping, which was often so stretched that had to be made from some short of a wonder material to resist any form, weight, or use. So often, that in times we wondered ‘is space an object’? Later, that plastic bag was unceremoniously discarded. It took quite a while before that very instance was turned into something we all shared as the ‘moral feel-good moment’: the blue bin. This transcribed occasion of civic pride felt different, while placing waste in the blue bin looking at the vague panorama of our surrounding fellows just like a mayor cutting a ribbon of the new upcoming era of recycling. We turned around and left the blue bin, satisfied that every bit of plastic in it would be productively recycled. In fact, the overwhelming majority of plastic collected from recycle bins winds up in the landfill; it is difficult and costly to separate out the numerous different kinds of plastic and recycle them into a worthy material.

Plastics' amazing capacities are dialed into their very molecular structure that makes them light and resistible. An extremely thin sheet of plastic, for instance, can extend up to 26 times the lifetime of alimentary products, saving the planet from primary waste, $CO_2$ emissions, and additional transportation costs. Way lighter than glass, with lower melt temperatures saving huge amounts of energy, and it does not require water for its production circle as paper does; it can also be used multiple times. Plastic is fantastic!

Until we're done using them, of course, and then they're waste plastics: practically as bad for our planet as smoking cigarettes is for a human being (and, like cigarettes, the closer and closer we look, the worse and worse we discover waste plastics to be). However, just like any other material, plastics are a resource that can be functional and useful once recovered and put back to the material loop, away from nature. Among many other subjects, the K fair in Dusseldorf last week, was clearly displaying the ability to think about plastics beyond first use. Today's new applications can enable a major shift into a better resource management.

Certainly, it is not all unicorns and rainbows, I thought while trying out Candy Crush on my Phone. Indeed, it might be more like jellyfish and lollipop hammer. Plastics actually, are exactly like Candy Crush: a sticky and elastic feeling that incorporates a deeper satisfaction of immaterializing (popping) the non-needed. The raw materials (cherries and coconuts) you have to maneuver to an exit. These are passive elements, falling in all wrong places. The others can explode or become something else.

# News Mobility

## Pony, Robosense in Autonomous Driving Pact

NEWS MOBILITY


PONY.AI IMAGES

Pony.ai has announced a comprehensive strategic cooperation with RoboSense. Based on the R&D accumulation of Pony's full-stack autonomous driving technology, as well as the comprehensive advantages of Sagitar Juchuang's lidar products in terms of performance and mass production capabilities, the two parties will carry out in-depth cooperation in the fields of autonomous driving and smart transportation throughout the business chain to promote the implementation and large-scale application of autonomous driving technology solutions.

Pony was established at the end of 2016. Starting from China and the US, they have set up R&D centers in Silicon Valley; Guangzhou; Beijing, and Shanghai, and have obtained autonomous driving tests, operation qualifications and licenses within China and the US. RoboSense (Suteng Innovation Technology) is a provider of smart lidar sensor systems.

In the field of passenger cars, Pony is steadily advancing the development of their sixth-generation autonomous driving software and hardware system designed for $L^4$ vehicle-level mass production. Compared with the previous generation, Pony's new-generation software and hardware system follows the technical route of multi-sensor deep fusion, and adopts solid-state lidar with better cost on a large scale. In the field of commercial vehicles, Cyantron Logistics—a joint venture between Pony and Sinotrans, started business operations on 1 April. At the same time, Pony and Sany Heavy Truck established a joint venture to build a smart-logistics 'golden triangle' including autonomous driving companies; logistics companies, and heavy truck manufacturers.

Pony has successively launched in-depth cooperation with industrial chain partners such as NavInfo, Nvidia, Ruqi Mobility, Sinotrans, FAW Group, Sany Heavy Truck, SAIC Motor, and Cao Cao Mobility. Pony and RoboSense will carry out in-depth cooperation in the field of autonomous driving and intelligent transportation, and promote the landing and large-scale application of autonomous driving technology solutions.

# BMW + AWS = Cloud Networking for Fleets

NEWS MOBILITY

BMW IMAGE

Amazon Web Services (AWS) has entered a strategic collaboration with the BMW Group, a continuation of the 2015 partnership between the two companies in the area of vehicle data. BMW will be the first car manufacturer to use the cloud software. It is designed to simplify the distribution and management of data from connected vehicles. In the future, the cloud-based vehicle data platform will also be available to other automakers. It is expected to enable automakers to easily integrate vehicle data and accelerate the development of vehicle and fleet applications. At the same time, it is expected to reduce the cost of new vehicle features and personalized driver experiences.

The solution, jointly developed by BMW Group and AWS, collects vehicle signals and fleet intelligence data from BMW models, processes it and securely routes the data to the cloud. The data is then combined with AWS capabilities, including analytics, machine learning, databases, storage and computing power, enabling the manufacturer to develop new vehicle features and applications. For example, it is conceivable that the range of electric vehicles could be extended for a limited period of time or that performance could be enhanced for a specific period of time. In the future, customers will be able to set the data they need with just a few clicks via a self-service portal. The cloud infrastructure of AWS is to ensure the security of the generated data, while the BMW Group retains full control over the data.

The BMW Group says they have 20 million connected vehicles on the road. With the introduction of the next generation of vehicles, the offboard cloud platform powered by AWS will process about three times the volume of vehicle data compared to the current generation of BMW models.

But the ambitions of the BMW and AWS managers go even further. The jointly developed solutions are to become part of the industry cloud AWS for Automotive. This offering will later be available to other automakers. The automotive cloud will provide technologies needed by automakers to develop the next generation of software-centric platforms, the cloud provider promises. The software will enable them to easily integrate vehicle data sources, accelerate the development of vehicle and fleet applications, and improve lifecycle management.

# General News

## VW R Sub-Brand to Go Electric

GENERAL NEWS


VW IMAGE

Volkswagen plans to become a fully-electric automaker by 2035. The transition will include the company's R performance sub-brand, which is to become EV-only by 2030, sooner than the rest of the model range.

Reinhold Ivenz, in charge of the R brand, says they have started taking the necessary steps to prepare for the transformation, and that there are "several electric R models in the planning stages", though no details have been provided as to which models and when we'll see them.

Volkswagen provided few details about these future models, but said "quick and convenient" charging will be a feature, and that these vehicles will bear the latest technologies that trickle down from concepts and the race track. The EV-only R brand should include a range of products. Volkswagen has added the badge to several different models over the years, including Golf, Tiguan, T-Roc, and others. The first electric R could come from one of VW's ID-branded vehicles, which are selling well. The ID.4 hit a new sales record in the US in Q3 2022.