



A glimpse into the future of automotive interior lighting with **ALIYOS™**.

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**am** **OSRAM**

## Editorial

### Köln Workshop, Part I



WORKSHOP OPENING (DVN IMAGES)

What an amazing DVN Interior workshop it was! The event was a grand success, and it's incredible to see how much our interior community is growing year upon year. Heartfelt thanks to all participants, speakers, and exhibitors, whose involvement, insights, and passion are what made this event so special.

If you missed a session, all speaker videos will soon be available on our website for participants to (re)watch and enjoy. PDF presentations released for publication will be posted as well.

In the meantime, this week's newsletter has a special format, with three in-depth reports covering the keynote by Yanfeng's Patrick Nebout, and the materials & sustainability and interior lighting sessions. The remaining sessions—seating and cockpit—will be covered next week, along with a complete expo booth report.

Thanks again to all for your outstanding contributions and participation.

**Philippe Aumont**  
*DVN-Interior General Editor*

# In Depth Interior Technology

## In Depth #1 Keynote: Mobility Device To Living Space



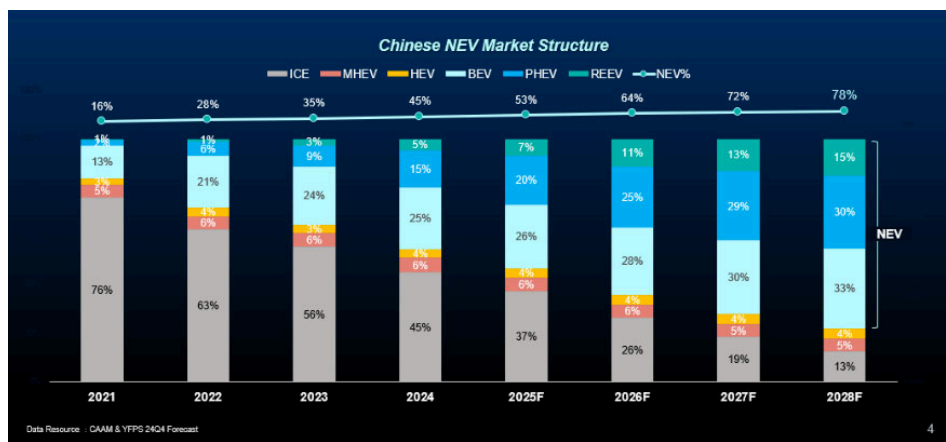
KEYNOTE: MOBILITY DEVICE TO LIVING SPACE



Yanfeng CTO Patrick Nebout gave a keynote presentation entitled, "Automotive Interior, China Perspective".

He said the NEV market share in China will exceed 75 per cent by 2028, with rapid growth of PHEV & REEV (range-extended EV) segments.





The premium sector of the market keeps an upside momentum, with a lot of new NEV brands setting their sights on high-end buyers. These emerging companies are aggressively challenging traditional premium brands and defining new premium BEVs. Examples include Zeekr, Polestar, Nio, Li Auto, Aion, Aito, Xpeng, and more.

NOA (navigation on autopilot) is a key battleground for automakers; it is evolving from highway-only to urban NOA. In 2025, uptake of NOA at L<sup>2</sup> and above will exceed 50 per cent.

From an in-cabin perspective, the following features lead innovative trends:

- Diversifying seat functions: sliding, rotating, health-monitoring, fatigue-warning, adaptive adjustment.
- 'Smart' surfaces for new HMI: touch controls integrated with decorative trim and lighting.
- New interior lighting modes: single-color 'breathing', music-sync, real-time variation.
- Exquisite craftsmanship, detail design, texture optimization.
- Artificial intelligence models enable multimodal interaction for new kinds of in-cabin HMI. Advances include more accurate, fluent language recognition; humanlike interaction, and simulated emotions.
- Multi-sensor integration.
- Multimodal interaction: visual, auditory, tactile, olfactory.
- Personalized entertainment recommendations and driving assistance
- Advances in climate control and health management, entertainment and vehicle information services.

All this means enhanced cockpit functions for personalized UX. In that respect, the vehicle is no longer a mobility space, but a living space.

Vehicle development is not driven anymore by vehicle configuration with a feature list as long as possible, but by use case scenarios. It goes from car-centric, to user-centric.

Mr. Nebout used three examples to illustrate these trends: the Aito M9, Stelato S9, and Yanfeng Smart Cabin.

## Aito M9



Aito is the first brand under Huawei's Harmony Intelligent Mobility Alliance (HIMA) collaboration model, in which Huawei leads the product design and development process and supplies key components such as the powertrain, ADAS, and vehicle software, to deliver a completed design for the automaker to manufacture. The name Aito stands for 'Adding Intelligence to Auto'. Features include:

- Smart welcoming mode, UWB precise sensing, rich lighting effects
- MagLink Display System: a Huawei tablet can be attached to the seat backrest via MagLink, enabling multi-screen interaction

- Cinema mode, with dual zero-gravity seats and a 32" retractable projection display
- Camping mode, with flat-lying 1<sup>st</sup> row to form a bed
- Outdoor KTV mode, with 100" display for watching movies or doing karaoke, projecting lyrics, and selecting songs with your phone

### Stellate S9



Stelato is a Chinese premium EV brand established in 2024. The brand operates also under HIMA, a collaboration between BAIC BluePark and Huawei. They lay claim to:

- First zero-gravity mode in sedans, including for rear passengers
- Motion sickness relief mode, using Huawei's Xmotion intelligent vehicle body coordination control system to provide seamless acceleration and deceleration and stable posture
- Privacy mode, with seven opaque curtains; one click disables the in-car microphone and camera; there's also a one-touch personal sound zone.
- Cinema mode uses a 32" retractable projection display. The image remains stable at 80 km/h, even with all four windows open.
- The 'Healthy Cabin' has an automatic fresh air system, and the seats are covered with an organic antibacterial coating.

### Yanfeng xBU smart cabin



The Yanfeng xBU smart cabin includes what the maker calls a 'Smart Safety System', integrating the seat belts and airbags along with SafeUnit<sup>®</sup> technology (see our [previous coverage](#)). The seating ECU is integral, and the smart cabin also has innovative switches, armrest display, heating, adaptive components, and sustainable construction.

There's a narrow, square, foldaway 'smart steering wheel' enabled by drive-by-wire. Lighting is integrated with decoration, ambient effects, branding, mood support, and display functions.

# In Depth #2 Session Overview: Materials & Sustainability



SNAPSHOTS OF SPEAKERS @ MATERIALS & SUSTAINABILITY SESSION, CHAIRED BY OLIMPIA MIGLIORE – DVN INTERIOR – DVN IMAGES; KALPAK PATANKAR · MARELLI; GEORG GREISTENBERGER – BOREALIS; ALESSIA PIERINI - DOW

## How to Design Interiors With Innovative Circular Material Solutions Alessia Pierini · Dow Mobility Science

Dow has introduced a series of innovations helping to build the ecosystem for automotive circularity, including:

**Infinair** polymers for loop technology: polyolefins that allow to design automotive cushions prioritizing circularity, through mechanical recycling.

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2

MobilityScience™

### Mechanical Recycling

Design cushions for **mechanical recycle** utilizing polyolefins

- Designed for 100% recyclability
- Low VOCs/Odor
- Breathability
- Excellent thermal management
- Washability
- Very low moisture retention

- Set circularity objectives in the design phase
- Rethink approach to part design prioritizing circularity

DVN Interior workshop Köln, April 2025

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**Specflex CYR** uses recycled waste from the automotive industry, with identical performance to the original material, to produce circular polyurethane-based products matching the same original performance, enabling 75-per-cent circularity on polyol and 60 per cent on MDI.

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MobilityScience™

### Waste to feedstock recycling

## SPECIFLEX™ CIR

End-of-Life Vehicle Waste

SPECIFLEX™ CIR uses recycled waste from the automotive industry to produce circular polyurethane-based products matching the same original performance

First example of PU circularity in mobility segment

Circular feedstock using waste stream from the same mobility sector

Enabling > 75% circularity on polyol and > 60% on MDI\*

Identical performance to virgin material. No requalification needed

Enabling CO<sub>2</sub> reduction versus virgin fossil fuel-based equivalent

\*MDI: Methylene diisocyanate  
© \*\*Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

New Vehicles

Polyurethane (PU)

Skins, foams, headliner, trims, instrument panel foams, acoustics / NVH (hoodliners, roofliners, e-motor encapsulations, acoustic barriers)

Commercial

DVN Interior workshop Köln, April 2025

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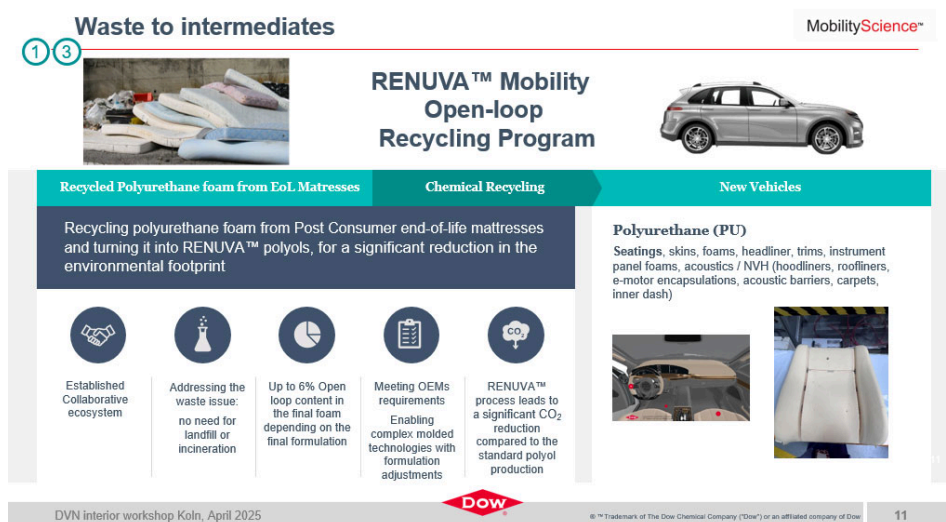


Dow also informed about their latest recycling programs: **Renuva Closed Loop and Renuva Open Loop**. The first program is a cooperation between Dow, Adient, and JLR, one of the first ones in the automotive world, aiming to reduce CO<sub>2</sub> footprint and promote sustainability through closed-loop recycled components.

The program recycles seating PU foam, which is depolymerized, resulting in a liquid polyol also branded Renuva, which contains up to 50 per cent recycled content.



The Renuva Open Loop recycling program uses recycled PU foam from postconsumer mattresses. It's turned into Renuva polyols, with a significant cutdown on environmental footprint.

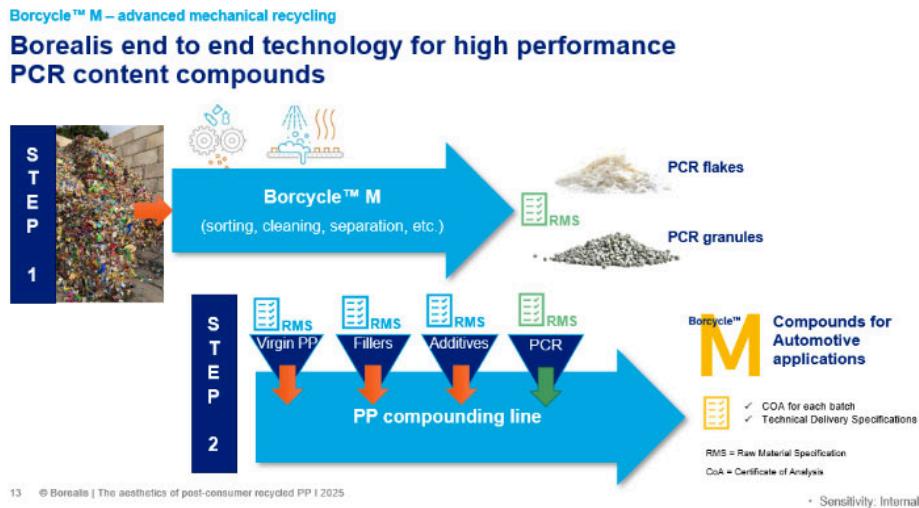


## The Aesthetics of Recycled PP — New Opportunities and Challenges

Georg Grestenberger · Borealis

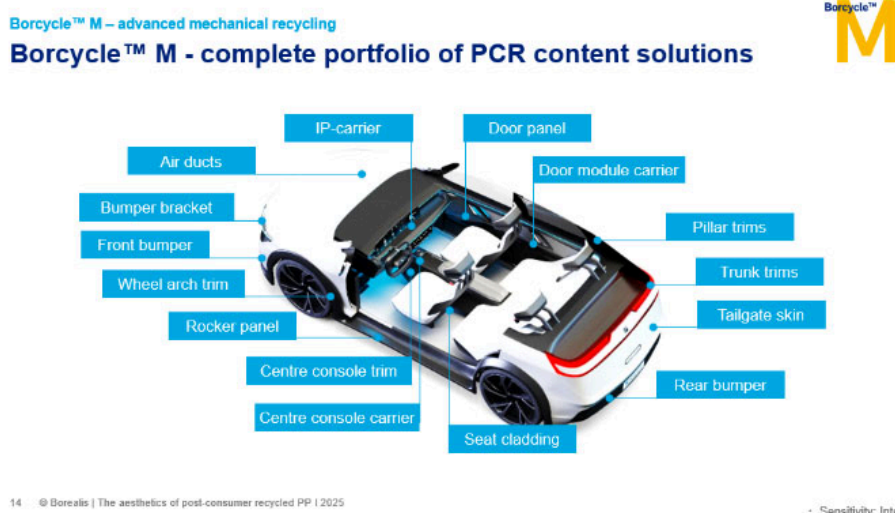
Mr. Grestenberger's introduction was focused on the recent EU circular design and end-of-Life regulation, calling for 25 per cent by weight of recycled plastic in new vehicles (with a proposal from the European Parliament to lower this to 20 per cent), a quarter of which must originate from recycled vehicles.

Borealis makes polypropylene (pp), which represents 54 per cent of the plastic contained in an auto interior. Recycled PP for interior applications is therefore key to achieve the target, whether it be 20 or 25 per cent.



Borealis has introduced their PCR PP from closed and open loop mechanical recycling; their **Borcycle** family includes three types of PCR PP:

- **EE1300SY** is a mineral-filled PP compound with 30 per cent recycled polymer from postconsumer waste, which can be used for claddings and trim.
- **EE0300SY** is a low-density mineral-filled PP compound containing 30 per cent recycled polymer from postconsumer waste, used for claddings and trim.
- **MG1416SY** is a lightweight, mineral-filled PP compound containing 40 per cent recycled polymer from postconsumer waste, suitable for inserts and trim.



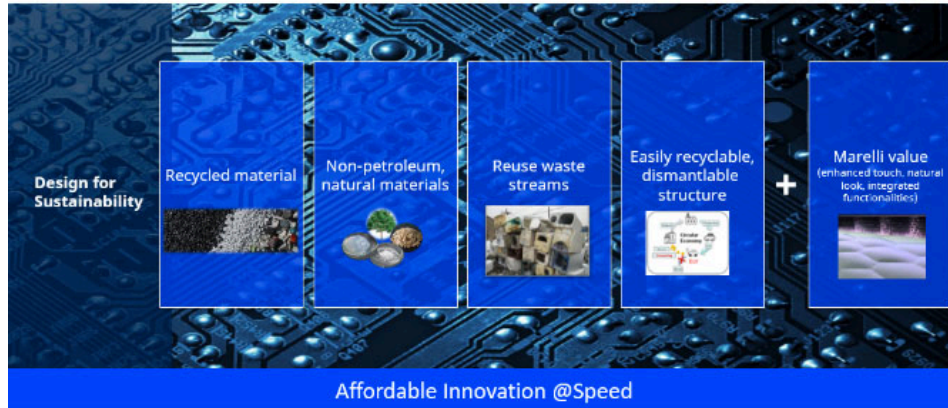
Grestenberger also said the latest generations of PCR compounds can be provided in various colors, but the brighter the colors, the harder it is to get a good color match, requiring higher pigment concentrations and higher costs. And for darker colors, very tight color tolerances are difficult to maintain. Special effect colors aiming to visualize the circularity content (like dark spots) can often impact material performance and circularity.

So, PCR PP can greatly support the increase of recycled plastic content, but automakers must carefully avoid overly-tight specifications which can elevate costs and reduce material performance.

## Sustainable Innovations for Car Interior Kalpak Patankar · Marelli

Mr. Patankar illustrated the sustainability targets which underpin Marelli's commitment for a greener future: carbon-neutral operations by 2030; net zero, including supply chain, by 2045.

### Interiors - Design for Sustainability approach



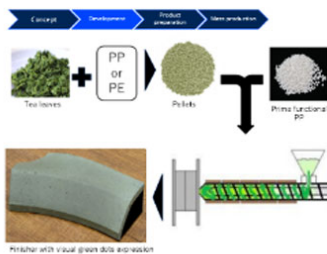
© Marelli

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Marelli has a clear approach to design for sustainability in interiors, and Patankar's talk illustrated this with some of the supplier's innovations, including:

- Use of recycled GFPP resin
- Lightweight urethane for interior products, with 80-per-cent cutdown in VOCs, 40-per-cent mass reduction in future tooling (8 per cent in current tooling), and 20-per-cent material cost reduction
- Green tea-mixed PP resin, an innovation co-developed with a Japanese green tea company
- A mono-material soft instrument panel with olefin
- A fully sustainable IP, incorporating Wastea, Marelli's tea-waste bioskin

### Co-innovation - Green tea mixed polypropylene resin



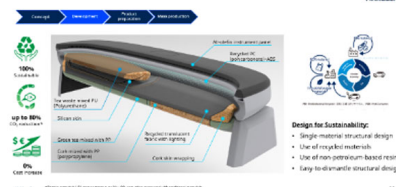
Our partner:  
Japanese Green tea provider

Design for Sustainability:  
• Reuse waste stream  
• Use of recycled materials  
• Circular economy



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### Fully sustainable instrument panel - MVP



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In summary, a full portfolio of sustainable materials and systems solutions undergirds Marelli's commitment to innovation and the circular automotive economy.

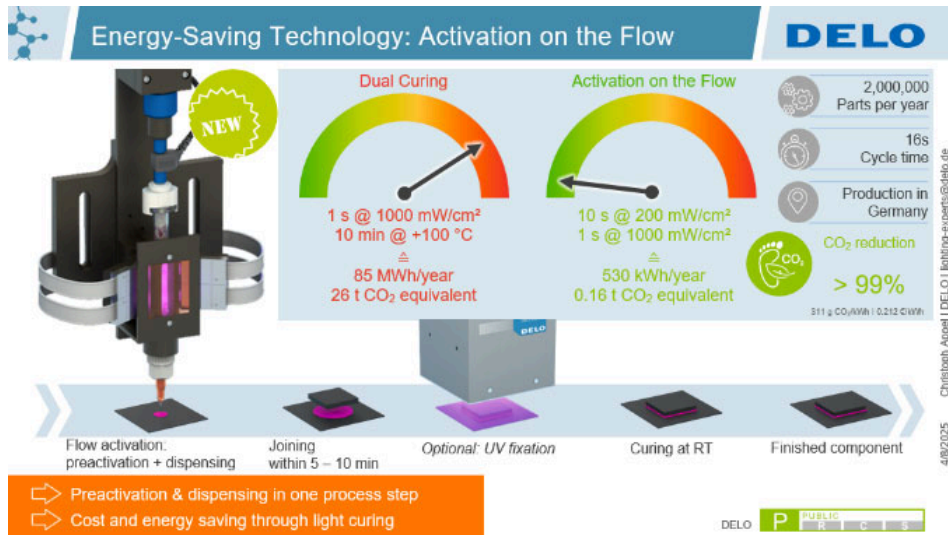


## How UV Curing Adhesives Enhance Sustainability

### Christoph Appel · Delo

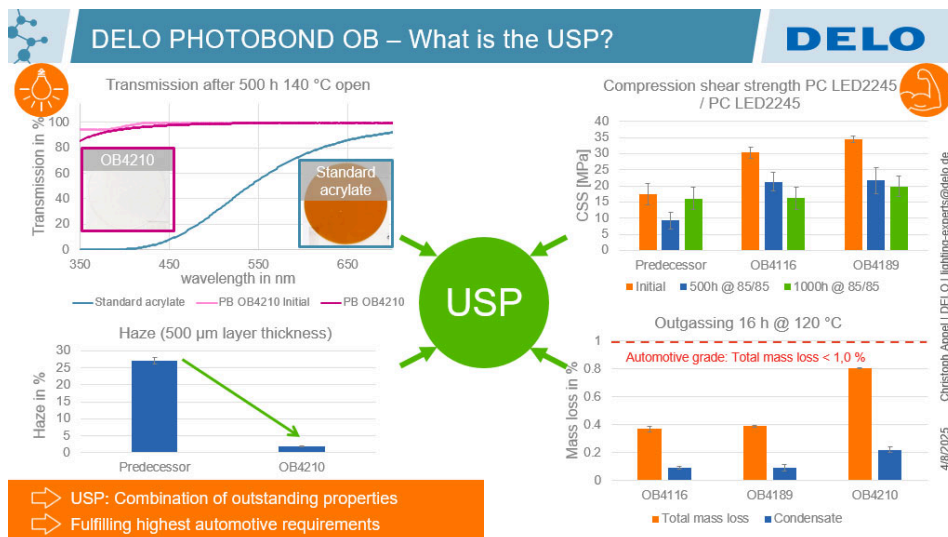
Delo is a family company specializing in adhesives for high-tech applications. Mr. Appel highlighted how UV-cure adhesives can help sustainability, especially in vehicle lighting.

Their latest innovation is a patented process called activation-on-flow, to cure the adhesives combining the dispensing and the pre-activation. Compared to dual curing, the new process saves on cost and energy. Power for curing goes from 85 MWh/year for the dual curing to 530 kWh/y with the activation-on-flow process—fully a 99-per-cent reduction in energy consumption!



Delo also specializes in bonding optical elements, with one of their processes called Photobond OB—it allows combination of outstanding properties and fulfilment of highest automotive requirements.

For vehicle lighting, Delo offers a variety of adhesives, including combinations of ICA (isotropic conductive adhesives) + NCA (nonconductive adhesive), an established solution for flexible substrates and in-mold electronics. For mini- and microLEDs, the best option is the ACAsolution (anisotropic conductive adhesive).

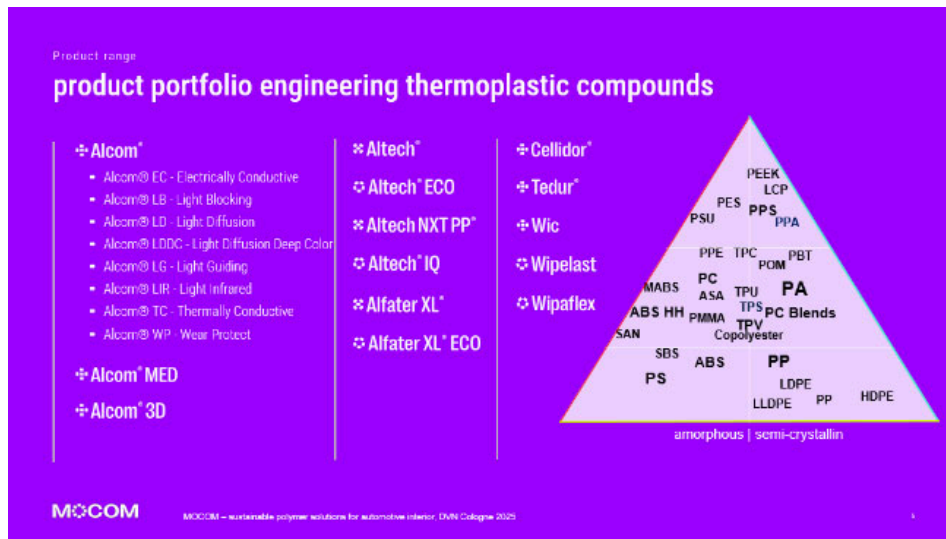


Delo helps to minimize carbon footprint with thoughtfully-devised chemistry and energy saving solutions.

## Sustainable Interior Solutions for Interiors

Werner Aumüller · Mocom

Mocom is a compounder belonging to the Otto Krahn Group. Their product portfolio includes thermoplastic compounds for lighting solutions: light guiding, light diffusion, and light blocking materials for illuminated control elements and ambient and signal lighting.



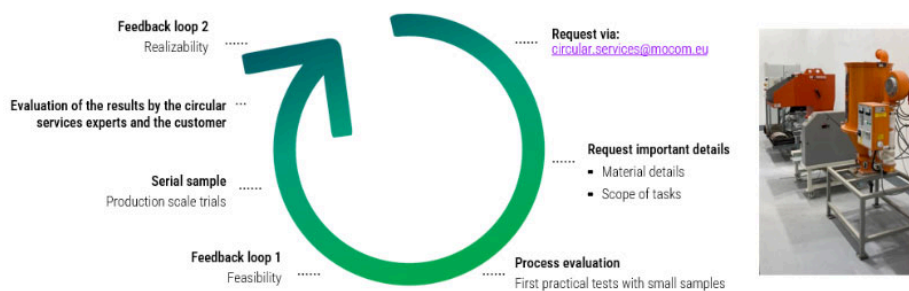
Mocom's sustainable portfolio for lighting includes the Alcom ECO solutions, with PC feedstocks coming from postconsumer and postindustrial material, mechanically recycled.

Their portfolio also includes sustainable materials for cover and decorative parts, like Altech PC/ABS Eco, and sustainable lightweight materials like PP compounds based on organosheet outstamp waste (called Altech pp-B Eco).

Mocom also provides circular services for components recycling, and consulting services on design for circularity.

Circular Services MOCOM Recycling

### Customized recycling developments – MOCOM recycling lab Gardelegen



**MOCOM**

MOCOM – sustainable polymer solutions for automotive interior, DVN Cologne 2025

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## Compolite & Colomotion Florian Steinhäuser · Ascorium

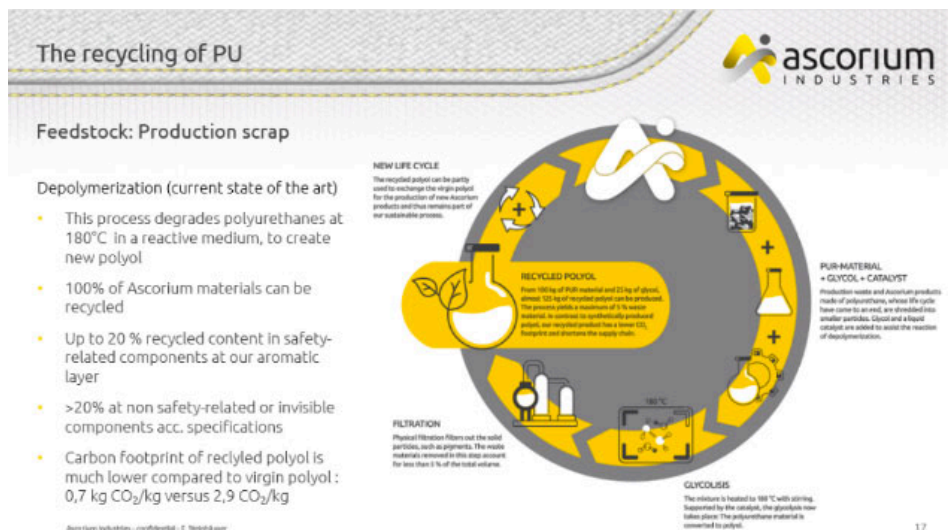
Ascorium is a company specializing in premium PU surfaces. Their presentation described two materials from their portfolio, CompoLite and Colo-motion.

CompoLite is a lightweight PUR sandwich material, which can reduce the total weight of components, for example replacing steel frames. It allows the integration of functional elements like fasteners directly on the PUR substrate, it has a low thermal expansion coefficient and good dimensional stability thanks to low water absorption.

Colo-motion is a direct back molding process, which allows the creation of a PUR spray skin with foamed back layer on a carrier. The process offers design freedom and combination with all colours and grains and type of carriers.

In terms of sustainability, the company can offer a reduction of the Ascorium PU CO<sub>2</sub> footprint by more than 64 per cent by switching to the Colo-motion process with CompoLite substrate.

Recycled PU feedstock Ascorium uses production scrap undergoing depolymerization, considerably reducing the carbon footprint of the polyol. Other recycling possibilities include pyrolysis, mechanical recycling, and use of commercially-available recycled polyol from postconsumer waste streams.





## The future of PC and PC/ABS in Advancing a Circular Economy

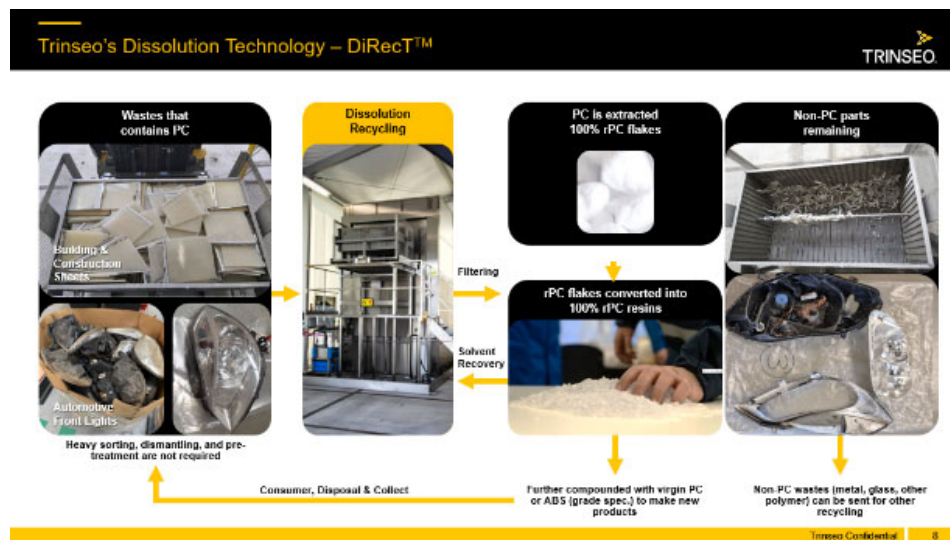
### Dr.Ing. Oliver Becker · Trinseo

Trinseo is a global material solutions provider, offering ABS, PC/ABS, PMMA, TPE and glass-filled materials.

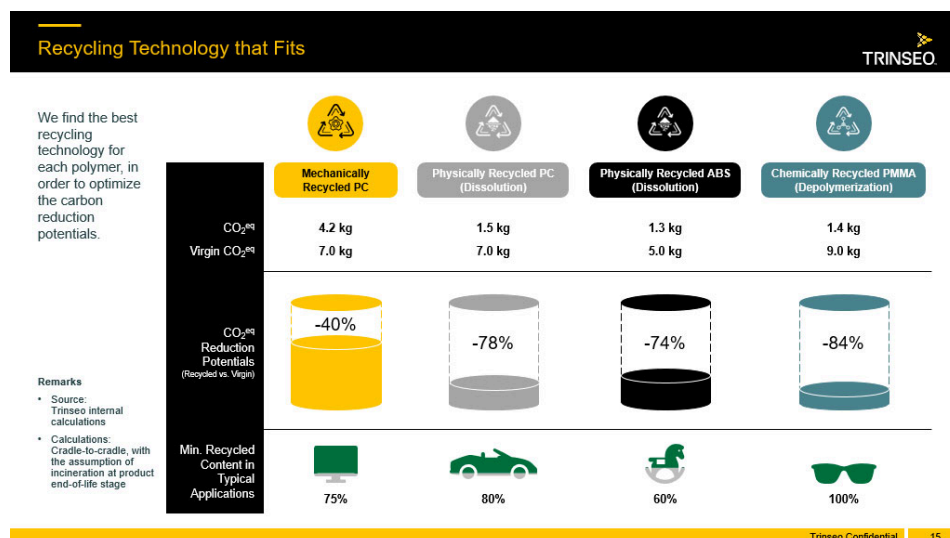
Dr. Becker described an innovative recycling technology Trinseo is calling DiRecT. It is a dissolution process for physical recycling without a change of chemical structure. Polymers are extracted using a solvent, and become the base to generate new materials.

The benefits compared to other recycling methods include:

- possibility to accept a broader range of wastes
- limited waste pre-treatment required
- high purity and consistency of polymers extracted
- possibility to produce light colors
- easy to scale
- significant reduction of CO<sub>2</sub> emissions



Trinseo's dissolution facilities are in The Netherlands, and the pilot facility started in 2023. Trinseo is able to find the best recycling technology for each polymer in order to optimize the carbon reduction potential.



## Bcomp Sustainable Natural Fibre Composites

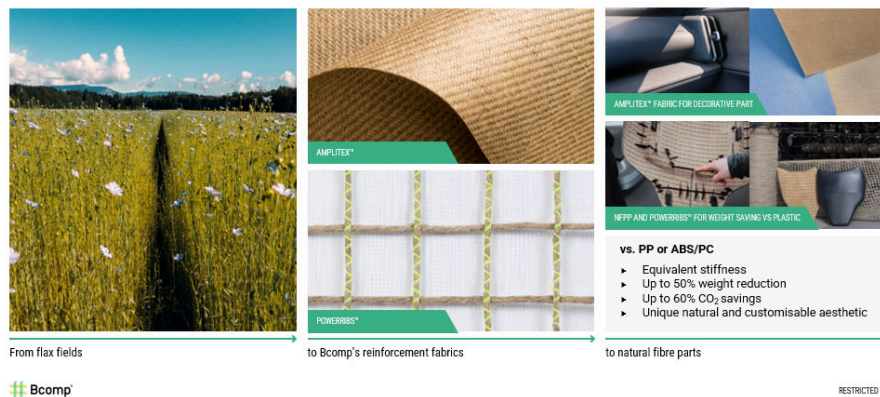
### Johann Wacht · Bcomp

Bcomp is a supplier of lightweight, high-performance bio-based materials. They're using Flax as raw material, transforming it into natural fiber materials and reinforcement fabrics including AmpliTex and PowerRibs.

AmpliTex can be used for decorative interior parts, and PowerRibs for weight savings versus plastic. The two materials can replace monolithic carbon fiber, for example in sports cars, with equivalent stiffness and weight, 85-per-cent CO<sub>2</sub> savings, and improved safety. Against PP, they bring equivalent stiffness, up to 50-per-cent weight reduction and 60-per-cent weight saving, offering also unique aesthetics.

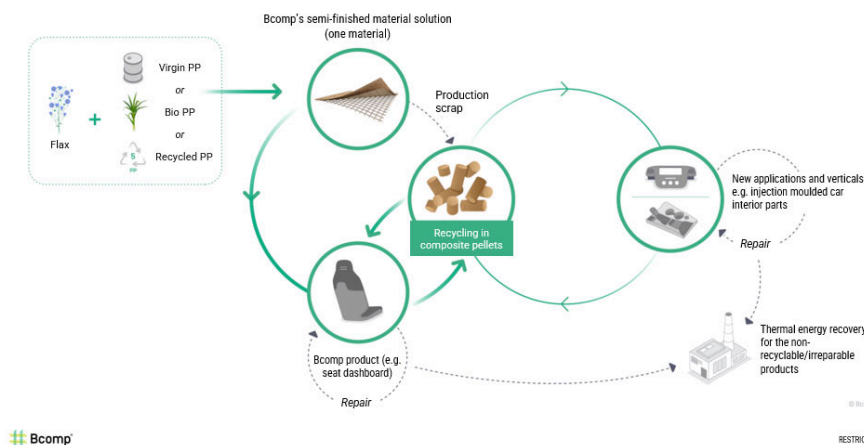
OUR OFFER FOR AUTOMOTIVE INTERIOR

### Lightweight, high-performance sustainable material solutions



The materials are validated for large-scale automotive interior component production, and are entering into production in models such as the Polestar 3, Volvo EX30. and Cupra Born VZ.

### Circular opportunities with Bcomp's natural fibre solutions



The recycling opportunities include use of production scrap for recycling in composite pellets to produce new interior parts, and recover of thermal energy for non-recyclable or damaged products.

Bcomp's sustainable solutions won the company the 2025 DVN Best Sustainability Contribution award.

## In Depth #3 Session Overview: Interior Lighting & Decoration



MERCEDES-MAYBACH S-CLASS, BENCHMARK FOR DECORATIVE AMBIENT LIGHTING? – MERCEDES IMAGE

All lectures addressed the next level of interior lighting in terms of ambient lighting, decoration, and HMI support to reduce complexity, to get more harmonized functions, unconfined UX, human and design centric approach and sustainability.

### Tomorrow's Interior is Today Focusing on Light & Associated Sensing

**Michael Brandl · ams Osram (Automotive System Solution Engineering Director)**



AMS OSRAM IMAGE

Brandl presented ams Osram solutions available to address current trends: hidden-until-needed, unified architecture & protocol, transparent & translucent elements, car serves the passenger instead of passenger having to control car, thin applications, electronics and light, high efficiency electronics & light, and lightweight applications. The ams Osram expo booth showed innovations including these technologies:

- OSP(open system protocol), with enlarged application options
- automotive qualified intelligent RGB device in series production



- freedom of choice, e.g. for  $\mu$ -controller suppliers
- sensor and actuator integration
- Aliyos, demonstrating unprecedented design options for interior
  - super-thin applications
  - transparent applications
  - weight saving

## Interior Lighting Trends & Use Cases on the Latest Yanfeng XiM25 Concept Car

Thomas Lappöhn · Yanfeng (Chief Lighting Engineer)



YANFENG IMAGE

Yanfeng's XiM25 concept car includes a wide array of interior innovations, such as:

- Living space on wheels: pause and recreation, info- and entertainment
- Welcome lighting, for accentuation and highlighting
- Driving: no distraction for driver, supporting and cocooning light for passenger
- Autonomous driving: more sound and lighting features come to life
- Use all lighting functions for different scenarios
- Scenarios are calculated use-case dependent
- Lighting functions are emerging from the use-cases

## Iseled Alliance Further Developments

Gerhard Nill · Inova (Senior Technical Sales Manager)

ILaS ISELED Network & Lighting Products		License free for customers		
<b>Microcontrollers &amp; SW</b>  <b>ISELED &amp; ILaS MCUs</b> <ul style="list-style-type: none"> <li>• NXP: S32K1, S32K3</li> <li>• Microchip: SAM21, PIC16/18/24/32</li> <li>• Renesas: RH850/F1KM</li> <li>• YTMicro: YTM32B1</li> <li>• Bluewhale: xxxxx</li> <li>• Zhixin: xxxxx</li> <li>• Autochips: AC78X</li> </ul> All with readily implemented SW drivers & standardized API Library	<b>ILaS Transceiver &amp; Bridges</b>  <b>ILaS Cable Transceiver</b> <ul style="list-style-type: none"> <li>• Inova: INLT220Q</li> </ul> <b>10BASE-T1S Bridges</b> <ul style="list-style-type: none"> <li>• ADI: EZB Bridge (AD390x)</li> <li>• Microchip: Endpoint (LAN866x)</li> </ul>	<b>Integrated Smart LED</b> <div> <b>ISELED LEDs</b> </div> <div> <b>ILaS LEDs (cable IF)</b> </div> <b>ISELED Smart RGB LED: calibrated:</b> <ul style="list-style-type: none"> <li>• Brightek: iCled</li> <li>• CoAsia: CoSAL</li> <li>• Dominant: seddLED 3.0</li> <li>• Everlight: EL3534-Series</li> </ul> <b>ILaS Smart RGB LED: calibrated:</b> <ul style="list-style-type: none"> <li>• Dominant: seddLED 3.6</li> <li>• CoAsia: CoSAL ILaS RGB</li> <li>• Everlight: EL3534-Series</li> </ul> <b>ISELED Smart RGB LED: calibrated:</b> <ul style="list-style-type: none"> <li>• Everlight: EL3534-Series (D65 &amp; Gamut)</li> <li>• Harvatek: Chip LED</li> <li>• EnnoStar: i3638</li> <li>• Liteon: LTSA-E30B, -E35B</li> <li>• LTSA-E60B (Power RGB LED)</li> </ul> <b>Tunable white LED:</b> <ul style="list-style-type: none"> <li>• Dominant: seddLED 2.0</li> </ul>	<b>Universal LED Drivers</b>  <b>ILaS Smart LED Driver:</b> <ul style="list-style-type: none"> <li>• Customizable</li> <li>• Inova: INLT301Q</li> <li>• Predefined</li> <li>• Inova: (INLT30xQ)</li> </ul> <b>ISELED Smart LED Driver:</b> <ul style="list-style-type: none"> <li>• Predefined:</li> <li>• Inova: INLC10AQ</li> </ul>	<b>ILaS Sensor Clients</b>  <b>ILaS Sensor or Sniffer</b> <ul style="list-style-type: none"> <li>• Inova: INLT220Q</li> </ul>  <ul style="list-style-type: none"> <li>• GPIO Extender</li> </ul>

INOVA IMAGE

## ISELED/ILaS Benefits: Reduced BOM with more Features

Centralized single point of software enables:

- Drastically simplified software management -avoids coordination of different tier-1 software required
- Simple synchronization of lighting scenarios
- Easy OTA SW updates at no additional cost, allows 'lighting as a service'

Fully calibrated smart LEDs:

- Relieves tier-1 of system calibration efforts
- Reduces system cost
- Reduces software workload on central MCU; no calibration or temperature compensation algorithm in software

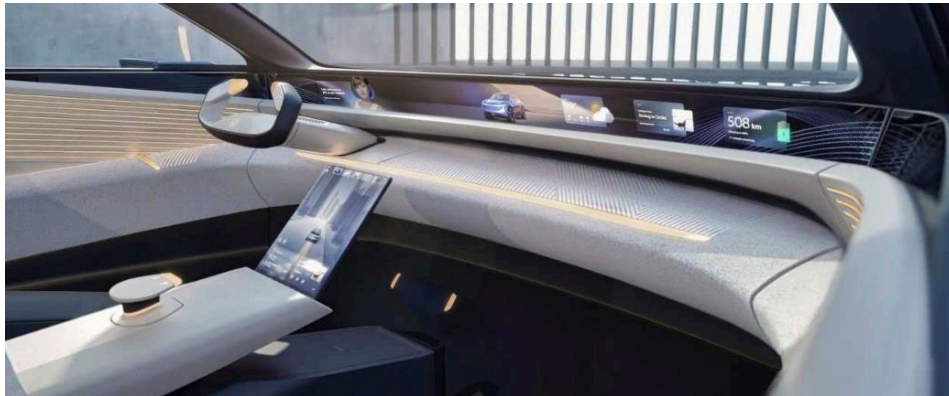
BOM cost reduction:

- Integrated DC/DC controller in INLT220Q & ILaSRGB LEDs
- Easy integration of local control; sensor integration via INLT220Q GPIOs
- Expandable single architecture for ambient & direct lighting

Overall: an ecosystem with multitude of suppliers and products reduces supply chain risks.

### **What's Next? Design Trends in Car Interiors Decoration**

**Thorsten Süss · NBHX Trim Group (Head of Global Design)**



NBHX IMAGE

CMF meets technology: NBHX fuses modern manufacturing techniques with traditional design aesthetics and natural materials, also with local collaborations.

CMF meets virtual experience: the idea is to merge the physical world and the digital realm, with sensorial innovation, virtual zen.

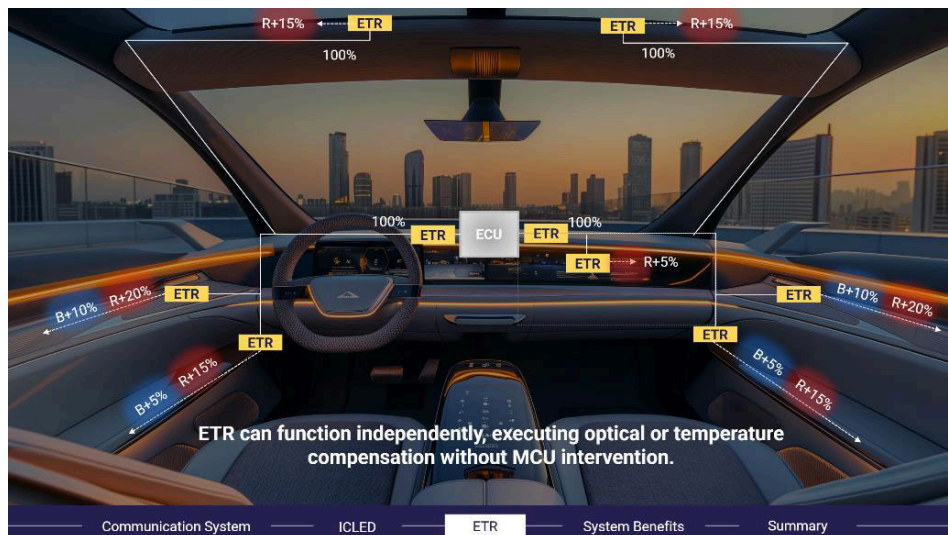
CMF meets sustainability: more sustainable materials with eco-conscious choices.

Key takeaways

- Blending material craftsmanship with innovation and cross-cultural aspects
- Authentic traditional materials play still a major role
- Potential by increasing customer experience with UX/UI
- Importance of sustainability enabled by diverse scenarios

## A Smart Lighting Solution for MCU-Free Automotive Systems

Dr. Darren Kao · Brightek Optoelectronics (Assistant Vice President)

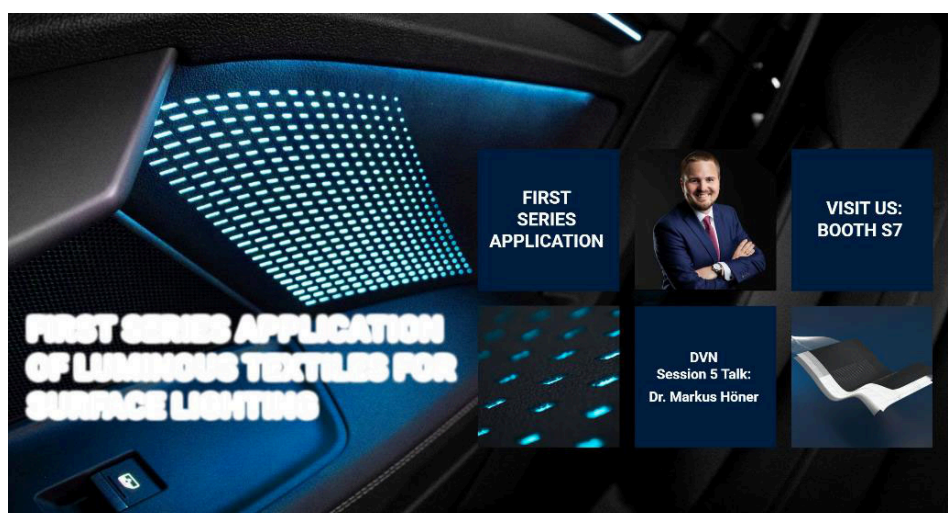


BRIGHTTEK IMAGE

Brightek Optoelectronics presented a smart transceiver solution, ETR, designed to simplify in-vehicle circuits and enhance communication between ICLEDs and sensors. To support the growing demand for personalized ambient and exterior lighting effects, a smarter transceiver than a typical CAN/ LIN transceiver is essential—one that can store calibration data for consistent LED color performance and simplify over-the-air updates. Brightek's ETR transceiver is developed to address these needs. It is addressable and capable of controlling up to 32 light strips per SPI port, resulting in a system cost reduction of up to 30 per cent. ETR also provides flexible bridging between SPI, I2C, and CAN FD, supporting data transmission over distances to 10 meters and speeds up to 5 Mbit/s. Additionally, it offers advanced features such as a built-in compensation lookup table, broadcast functionality, and high-temperature endurance. With this solution, manufacturers can streamline their lighting system design using fewer components, while maintaining high reliability and performance.

## First Series Application of Luminous Textiles for Surface Lighting

Dr. Markus Höner · Mentor (Development Director)



MENTOR IMAGE

Dr. Höner presented textile lighting technology based on thin light guides: 3D shape, no tooling, roll-to-roll technology, short development cycle, rapid prototyping.

Many possible areas of application: in textile and non-textile, line lighting, anywhere, door panels, seats, cockpit, footwell etc.

The technique involves simple customization with RGB LEDs, multiple variants via software control, mood-based or automatic light adjustment, visible design in both lit and unlit states, day and night designs, dynamic

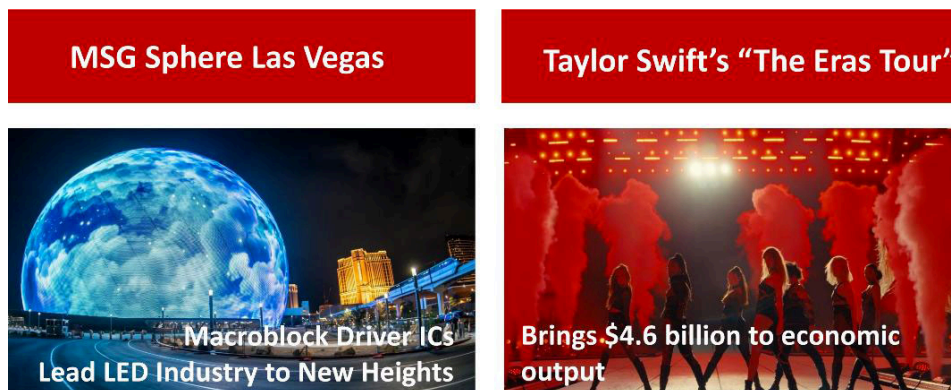


lighting.

Mentor's RGB modules are optimized for fibers in terms of brightness, color, temperature range. Single and multi-LED arrangements can be accommodated, with algorithms to avoid any color shifts.

### LED Driver IC for Smart Cockpit and Ambient Lighting

Kerry Huang · Macroblock (Deputy Director of Sales)



MACROBLOCK IMAGES: EXAMPLES OF SUCCESS

Macroblock's automotive LED driver ICs light up the interior for vehicle manufacturers. The company presented a diverse range of exhibits, including interior lighting and automotive displays.

The linear ambient light and smart dimming reading light showcased use their LED driver IC, MBI6034Q. This 12-channel constant-current IC supports 16-bit grayscale for enhanced color performance and features long-distance data transmission. The MBI6034Q has been successfully integrated into the interior ambient lighting of Honda's Ye P7 model.

The center information display uses the MBI6330Q. This 24-channel driver supports 8-scan design and 16-bit grayscale. This IC enables a 'dot correction by zone' technique to ensure optimal brightness uniformity and supports a high-luminance mode to enhance the visibility of warning symbols and in-vehicle entertainment. Furthermore, the MBI6330Q includes advanced features such as error detection, error reporting, and signal disconnection mode to improve system stability and reliability.

### Film-Based Technologies for Advanced Interior Design and Light Integration

Tino Theer · Nissha (Development Engineer)



NISSHA IMAGE

Nissha technologies include IML (in-mold labelling), FIM (film-insert molding), IMD (in-mold decoration), and Mutech Décor, which combines decoration and functionality.

Their techniques allow for antireflective surfaces achieved by IMD/IML, heater integration, flexible design for changeable, rainbow effects; translucent matte chrome, brushed effects, and all development tools, including simulation.

## MiniLED vs OLED in Automotive Backlighting Application

Simon Song · Refond Optoelectronics (Overseas Marketing Manager)



REFOND IMAGE

Refond featured cabin lighting and display products with Mini LED backlights panels, direct view mini/micro-LEDs and lighting/ sensing LEDs. Benefits were described as higher brightness and reliability and lower cost compared to OLEDs or edge-lit LCDs, and better efficiency and image-quality versus edge-lit LCD.

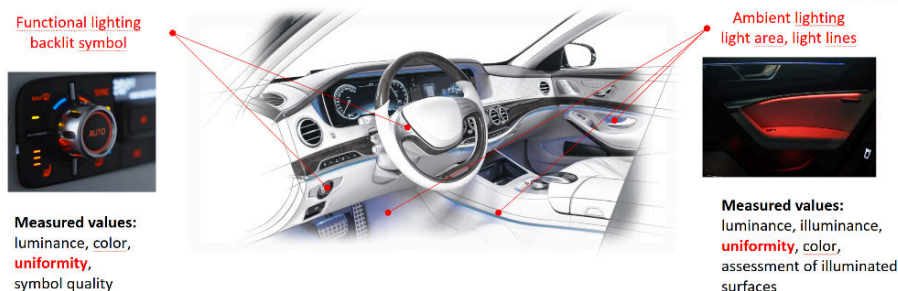
Refond DV mini- and microLEDs offer higher operating temperatures and longer lifetimes compared to OLEDs, and greater design freedom and transparency versus OLED/LCD. Their miniLED backlight offers benefits regarding 3D optics (reflective, halo-reducing, diffuser), shaping of pixel light output and ultra-thin panel solutions.

The company's miniLED solutions include miniLED screen + woodgrain film, sky roof display, miniLED flexible lighting strips, smart RGB LEDs, and human-centric lighting LEDs

## Imaging Colorimetry — One Key Factor to Seamless Interior Lighting Design

Tanja Thiele · TechnoTeam (Application Engineer)

### Interior lighting design



TECHNOTEAM IMAGE

TechnoTeam's functional lighting backlit symbol gives excellent measured values: luminance, color, uniformity, and symbol quality. For ambient lighting, area lighting, and light lines, TechnoTeam's techniques are adding local features to qualify the homogeneity: VDI/VDE guideline 5595 proposes a local uniformity feature based on spatially segmented feature extraction.

# Interior News

## Italdesign Concept Lab: Digital R/Evolution of Vehicle Development

INTERIOR NEWS



ITALDESIGN IMAGE

Italdesign CTO Davide Casini gave a keynote speech focusing on vehicle development efficiency.

In the context of electrification, connectivity, ADAS, UX/UI, and cybersecurity, new projects include more contents with more complexity, under the umbrella of higher customer expectations. Challenge is to develop with these higher specifications, in a reduced development budget, at a faster pace (was 36-48 months – is 24-36 months now) to compete in a global environment, strongly influenced by the speed and priorities of the China market.

Key success factors are speed and effectiveness. The new tool, developed by Italdesign is called Concept Lab. It is a flexible and reconfigurable test rig, including, among many functions, a fully electro motorized and adjustable seating buck (Adjustable seating positions for sport cars, vans, trucks, and whatever unconventional means of transportation), VR head mounted display, a tracking system with 21 IR cameras, hands/body and items tracking, door panel elements, roof structure, along with additional parts. Optional hardware parts can be added based on needs (e.g. door ring for ingress/egress analysis).



## CONCEPT LAB

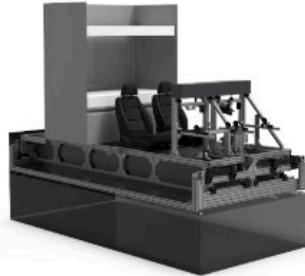
Different seating bucks derived  
from the mainstream Concept Lab



Modular Version



Heavy Truck



Software Development



Customizable for different  
mobility players



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Performance parameters for comfort and ergonomic can be defined and validated: visibility, reachability, roomability, usability, ingress/egress, etc.

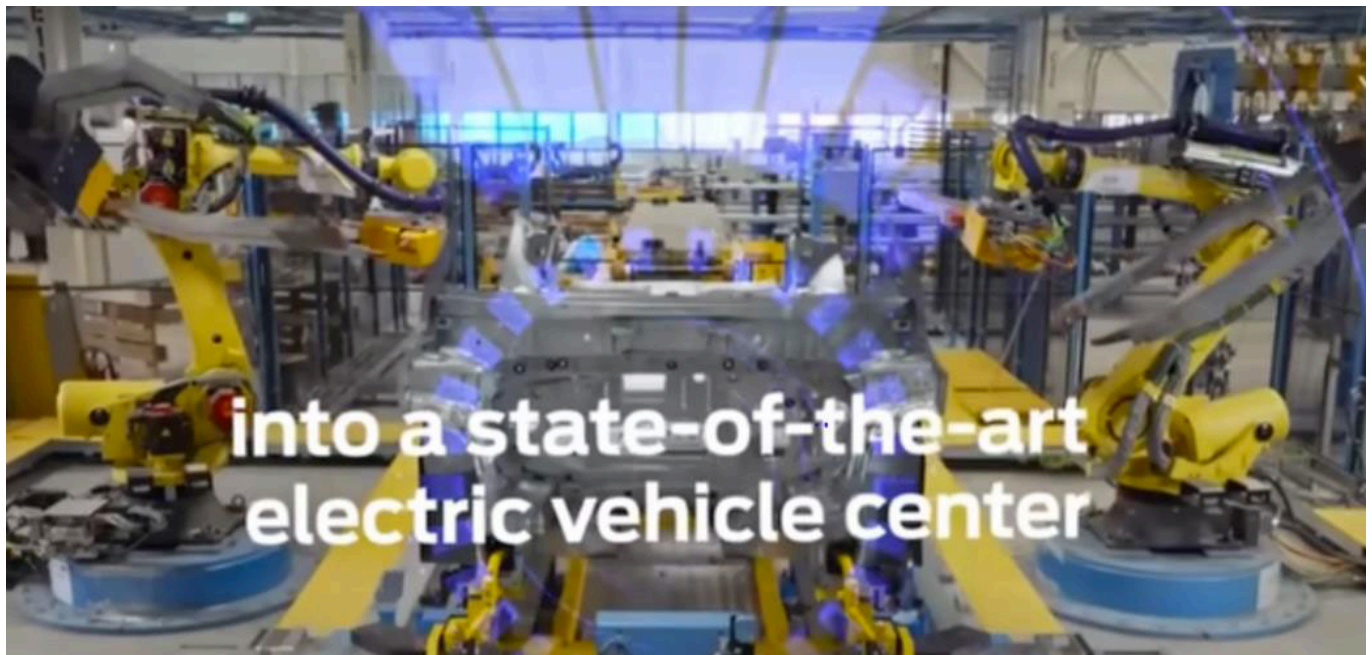
Immersive design evaluations are overall possible, including for instance, real time color & trim evaluation and comparison of alternative design solutions. Especially for HMI/UI evaluation, to meet OEM-specific needs, with graphics and interactions such as touch, swipe, and pinch to zoom.

It has high impact on sustainability, as development with that tool save 95 per cent on material, 99 per cent on energy, and 98 per cent less waste.

Italdesign's Concept Lab is an enabler of the digital development with a positive impact on the environment. Italdesign also showcased their bag-in-belt safety solution, and a smart and safe child seat.

# Workshop Opening: Visit to Ford E-Center in Köln

## INTERIOR NEWS



FORD IMAGE FROM [VIDEO](#).

On the morning of the first day of the DVN-I Workshop on 8 April, 45 participants had the opportunity to visit the Ford Electrification Center in Cologne. The number of persons was limited, as the tour was conducted on a train with 45 seats. The time was set up early (7:15 a.m.) because of Ford operational constraints. Participants enjoyed a very interesting tour through the production halls of the Ford-E-Centers.



DVN IMAGES



Ford opened the Cologne Electric Vehicle Center in 2023. With an investment of \$2bn, the historic plant in Cologne-Niehl was transformed into a new high-tech facility. The E-Center is Ford's first climate-neutral assembly plant worldwide. The 125-hectare site is equipped with a brand-new production line, a battery assembly plant, and state-of-the-art tools and automation technologies.

The main focus of the Cologne EV Center is on digital innovations that connect machines, vehicles and employees. The use of self-learning machines, autonomous transport systems and big data management in real time is essential in order to improve the efficiency of production processes and ensure high quality. New cognitive and collaborative robots as well as augmented reality solutions support employees and increase efficiency and data exchange with other plants to share experiences in real time.

In order to achieve CO<sub>2</sub>-neutral operations, Ford reduced energy consumption and emissions at the plant by installing new processes, machines and technologies. All of the electricity and natural gas required to operate the plant are carbon neutral, as it will be sourced from 100-per-cent certified renewable electricity and biomethane. [Ford-Video \(in German\)](#)



# DVN Interior Awards

## INTERIOR NEWS



ITALDESIGN TEAM – BEST BOOTH AWARD (DVN IMAGE)

DVN Interior Awards were presented during the gala dinner part of the event: Best Exhibition Booth, Best Interior Innovation, and Best Sustainability Contribution (Best Lecture was awarded after the last lecture). All awards were selected through the audience votes, except Best Innovation was selected by the DVN Interior Editorial Committee, looking back over a year of interior news.

The winners are:



Best Exhibition Booth: **Italdesign** with Concept, Smart & Safe Child Seat, Bag-In-Belt

Best Interior Innovation: **BMW** with Panoramic iDrive



Best Sustainability Contribution: **Bcomp** with Sustainable Natural Fiber Composites

(Johan Wacht, left, Bcomp)



Best Lecture: **Valeo** with Remi Mathieu (at right in this DVN image)



# Highlights & Guest Feedback, Networking, Schmoozing

## INTERIOR NEWS



NETWORKING AROUND EXPO BOOTHS (DVN IMAGES)

Along the DVN Conference in Köln, Sebastian Adam, DVN Interior consultant, did a guest survey. Here are some thoughts and feedback from attendees.

The agenda received high praise for its clarity, structure, and the depth of expertise shown by each speaker. Notably, guests estimated that around 80 per cent of the content was directly relevant, far above the typical 30–40 per cent relevance reported at comparable industry events.

Participants particularly appreciated the inclusion of academic perspectives, ranging from psychology to sensory perception and emotional design. These viewpoints served as a thoughtful introduction to technical topics, effectively bridging human needs with in-vehicle innovation. As highlighted during the conference, especially in markets like China, the vehicle increasingly represents more than mobility: it's a shared family space, a reflection of identity, and a place of comfort, bringing the feel of the living room to the road.

The exhibitor booths also stood out as a highlight. Attendees valued the hands-on demonstrations and tangible engagement with innovative technologies, expressing a strong interest in seeing even more at future editions.

Above all, the conference delivered significant value through networking. This was frequently cited as a major strength of the event. From thematic sessions and Q&As to the exhibit hall, coffee breaks, and the DVN Awards evening, attendees benefited from countless opportunities to connect, share ideas, and spark future



collaborations. These interactions are already paving the way for exciting new partnerships across the automotive interior and seating ecosystem.

The DVN Awards voted on by attendees, honored outstanding contributions across the industry. Meanwhile, key topics like sustainability and recycling generated robust discussion, highlighting the sector's progress and ongoing commitment to responsible innovation. Finally, many guests indicated plans to share insights internally and foster stronger

# The Design Lounge

## Köln Workshop Design Roundtable

### THE DESIGN LOUNGE



L TO R: DAVIDE CASINI, MATHIAS RÖNNFELDT, THORSTEN SÜSS, KEVIN MULLIGAN, ROBERT STRIEDIECK, GUANG YANG, FRANK UHLIG, ANDREAS FRIEDRICH. (DVN IMAGE)

To close the Köln DVN Interior event we had a panel discussion with the theme "Design" related to the topics (UX, second living room, cockpit, displays, interior lighting) shown during the event.

The following participants took part:

**Davide Casini** - Chief Technical Officer Italdesign Giugiaro

**Mathias Rönnfeldt** - Managing Director SP3

**Thorsten Süß** - Industrial Designer, Design Director NBHX Trim Group

**Kevin Mulligan** - Light specialist and studio engineer. GeelyDesign

**Robert Striedieck** - Interior Design & Lighting expert ex. ZEEKR

**Guang Yang** - UX/UI Designer. Advanced UX designer Diconium, a VW company

**Frank Uhlig** - UX/UI designer Head of UX/UI design Elektrobit

The panel was chaired by **Andreas Friedrich**, Senior Interior Design Expert, late of Polestar, Geely Design, Lynk & Co, Volvo. etc.

First Kevin Mulligan explained his role of Studio Engineer at the Geely Design studio, a common role at any design studio in the world but not known to everyone. A studio engineer is the bridge between engineering and design, with the specific task of boiling down all technical requirements to the bare minimum for the designers to do a proper job and vice versa, and to be the design advocate in discussions with engineering to get all creative ideas across and convince the engineers that it's absolutely doable within the given constraints. A rather challenging but fun role sometimes.

Then we discussed the interiors of tomorrow and how they might look like.

We have seen pillar-to-pillar screens, driver screens becoming smaller and freestanding, CSD (center console screen) becoming bigger and freestanding, some automakers are merging the driver and CSD screens into one, and in all of this the HUD or ARHUD is trying to play an important role too. The participants believed we will be seeing more simplified layouts in the future, more minimalistic and physical interaction points will come back to cater for the new Euro NCAP requirements where you need to have certain functions with physical buttons to get 5 stars in their rating.

Guan Yang pointed out what he already mentioned earlier during the event that there is a huge difference in how Chinese people use their cars versus how we use them in the EU. It's already more of a second living room and hence the needs are very different.

Robert Striedieck told us a bit about his graduation project from Umeå that was about how we can keep the fun part of driving a sportscar when cars become autonomous. You can read more about it [here](#). So far, he hasn't seen anything in that direction yet - it's still too early.

We also discussed the need for personalization and if UX is one of the main differentiators when EVs become more similar in technical capabilities, range, battery size etc. How interior lighting could be one important player in this but more and more colors is maybe not always the right way to go. Polestar has curated themes with light that works well with the interior CMF so you always will have a great-looking interior, while others let the customer decide totally.

At the end we touched upon the fact that smart surfaces are basically plastic parts with electronics inside which often becomes a challenge for automakers and tier-1s when such part falls between the responsibility of different departments, typically interior trim department, CMF people, and electronic engineers, not always easy. At the design departments and certain tier-1s they were getting used to these new technologies and had their internal collaboration working fairly well.

So overall: many interesting aspects of design to discuss and always too little time, but all in all a good way to end the conference with this discussion.