Thu, 22 August 2024
Weekly Newsletter

DVN
Interior

NEWSLETTER #224

Editorial

Back-To-School Time!

BMW IX – BMW IMAGE

Welcome back from summer holidays! In preparation for the Design and Sustainability Workshop in Torino on 22-23 October, this week's in-depth piece addresses, with Olimpia Migliore's great expertise, the Ecodesign for Sustainable Products Regulation (ESPR), which took force this past 18 July. It is the cornerstone of the European Commission's approach to more environmentally-sustainable and circular products, particularly automotive ones, and especially for the car interior value chain, where plastic is more prevalent than anywhere else in or on a vehicle.

ESPR emphasizes the need for products to be more durable, repairable, and recyclable. Metal and ferrous materials do not represent a big issue today, even if most of them could be better recycled. The main challenge is in increasing the recycle rate of materials is coming from car soft and hard trim, which accounts for more than half of auto-interior plastics.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

ESPR and the Automotive Industry

18 July 2024 marked a milestone for the European Community, in the process of achieving the objectives of the Green Deal and the 2020 Circular Economy Action Plan. On that day, the ESPR—Ecodesign for Sustainable Product Regulation—came into force. The approved regulation text is here.
The ESPR is part of a package of measures which will help the EU reach its environmental and climate goals, double its circularity rate of material use, and achieve its 2030 energy-efficiency targets. It is an evolution of the EU's 2009 Ecodesign Directive, which focused only on energy-related products (ErPs), laying the groundwork to cover a broader range of products, including vehicles and automotive components.
Application of the ESPR to the automotive industry is expected to generate €1.8bn in net revenue by 2035, with additional jobs created and enhanced revenue streams for the waste-management and recycling industries. It will contribute to better road safety in third countries by stopping the export of unroadworthy vehicles and reducing pollution and health-and-safety hazards in countries importing used vehicles from the EU.
The ESPR, replacing the current Directives on end-of-life vehicles (ELV) and on reusability, recyclability and recoverability, is expected to have substantial environmental benefits, including an annual reduction of 12.3 million tonnes of CO_2 emissions by 2035, better valorisation of 5.4 million tonnes of materials, and increased recovery of critical raw materials. Implementation of the regulation will lead to long-term energy savingsat the manufacturing stage, reduced dependency on imported raw materials, and the promotion of sustainable and circular business models.

Overview of initiatives in the Circular Economy package

THE ESPR AND ITS GOALS (EUROPEAN COMMISSION IMAGE)

Summary: the ESPR for vehicles:

The ESPR emphasizes the need for products to be more durable, repairable, and recyclable.

- **'Design circular'**: enhancing circularity in the design and production of vehicles will help to ensure these can be easily dismantled.
- **'Use recycled content'**: 25 per cent of the plastic used to build a new vehicle—plastic is everywhere in car interiors—will be required to come from recycling, of which 25 per cent must be recycled from end-of-life vehicles.
- **'Treat Better':** the measures will lead to recovering more and better-quality raw materials, including critical raw materials, plastics, steel, and aluminium. 30 per cent of plastics from end-of-life vehicles should be recycled.
- **'Improve governance'**: The new rules will reinforce producer responsibility by establishing national Extended Producer Responsibility programs under uniform requirements. These will aim to provide proper financing for mandatory waste treatment operations, incentivise recyclers in improving quality of recycled materials from end-of-life vehicles, thus fostering enhanced cooperation between treatment operators and manufacturers.
- **'Collect more and smarter'**: To stop vehicles disappearing, the regulation provides for better enforcement of the current rules, and increased transparency. This means more inspections, digital tracking of end-of-life vehicles across the EU, better separation of old cars from end-of-life cars, more fines for infringements, and a ban on exporting unroadworthy used vehicles.
- **'Cover more vehicles'**: The scope of these measures will gradually expand to include new categories such as motorcycles, heavy trucks, and buses, ensuring more comprehensive coverage.

For the automotive industry, the ESPR will mean new requirements for designing vehicles that are easier to disassemble, repair, and recycle. The entire lifecycle of a vehicle will be subject to stricter sustainability criteria, from raw material extraction to end-of-life disposal.

As the ESPR aligns with the EU's goals for the reduction of the carbon footprint of products, new targets to reduce emissions during manufacturing will be set for improving fuel efficiency, and encouraging the use of renewable energy sources in the production process.

Obviously, the ESPR will have strong implications for the automotive supply chain.

The implementation of ESPR standards could increase production costs in the short term, but it is expected to drive innovation in sustainable automotive technologies, potentially leading to long-term cost savings and competitive advantages for early adopters.

The regulation is designed to be flexible and adaptable, which could help foster innovation in sustainable automotive design, pushing the industry toward more eco-friendly solutions.

The implementation of the ESPR in the automotive industry will require longer times with respect to other industries, due to the complexity of the products and the longer lifecycles of a vehicle compared to other consumer products. In particular, the replacement of the end-of-life directive with the new regulation will require a great deal of effort in coordinating all parties involved in the collection, dismantling and recycling of vehicles.

Although there is different implementation timing for different industries, the ESPR brings in some common new measures, valid for all kinds of products: the Digital Product Passport, and rules to address destruction of unsold consumer products.

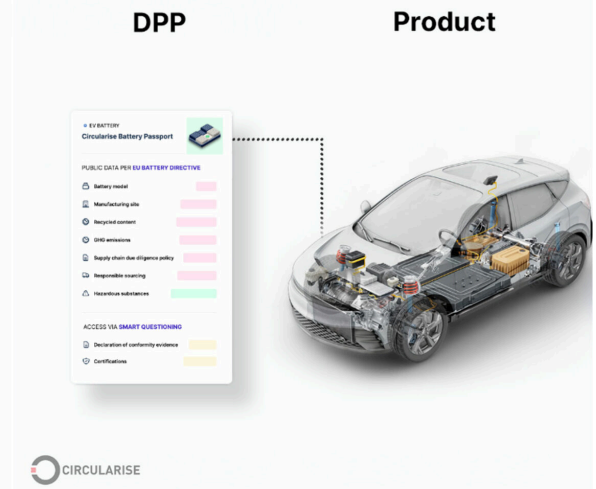
Many unsold products in the EU are simply destroyed—an abject waste of valuable resources. For the first time in the EU, the ESPR introduces a ban on the destruction of unsold textiles and footwear, and opening the way for similar bans in other sectors, if evidence shows they are needed**.**

It will require large and eventually medium-sized companies across all product sectors to disclose annual information on their website, such as the number and weight of products they discard, as well as their reasons for doing so.

Green Public Procurement

Public authorities in the EU spend around €1.8tn purchasing works, goods and services. The ESPR will help steer these funds in a more sustainable direction, by enabling mandatory Green Public Procurement criteria for EU authorities who purchase ESPR-regulated products. This has the potential to significantly boost demand for sustainable products, in turn incentivizing companies to invest in this area.

Digital Product Passport



CIRCULARISE IMAGE

A significant innovation under the ESPR is the introduction of a Digital Product Passport (DPP), to provide comprehensive information about a product's sustainability and environmental impact throughout its lifecycle. In the near future, every vehicle or component will come with a DPP, making it easier to track its history and promoting transparency and traceability.

Following known solutions such as the Battery Passport, the DPP may include material data,such as the composition of the vehicle, the weight of the materials used, and their origin; and dismantling information, such as disassembly instructions and recycling recommendations.

The DPP will store detailed traceability-transparency-sustainability information about the origin of materials, the manufacturing process, carbon footprint, and other environmental impacts.

Consumers will have access to detailed information about the sustainability of the vehicles they purchase, including the materials used, energy efficiency, and repairability. This will enable more informed choices and drive demand for more sustainable vehicles—like what happens with well-known existing energy-efficiency labels on home appliances like refrigerators and washing machines, and similar labels on vehicle tires.

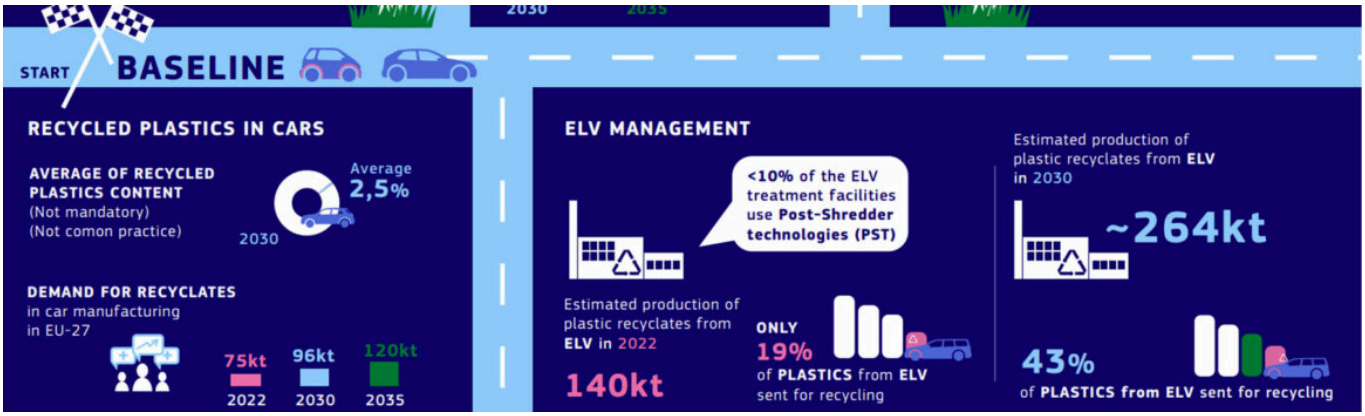
The DPP could include information on how to repair and upgrade vehicles and components, supporting the EU's goals of increasing product longevity and reducing waste.

The DPP will also streamline the recycling process by providing detailed information about the materials and components used in a vehicle. And regulators will be able to use the DPP to monitor compliance with the ESPR and other environmental regulations.

All in all, it presents quite a bit of opportunities; manufacturers who excel in creating sustainable products and transparently sharing this information via the DPP could gain a competitive advantage—here again, as we already see with home-appliance and vehicle-tire efficiency labelling.

ESPR and Automotive Interiors

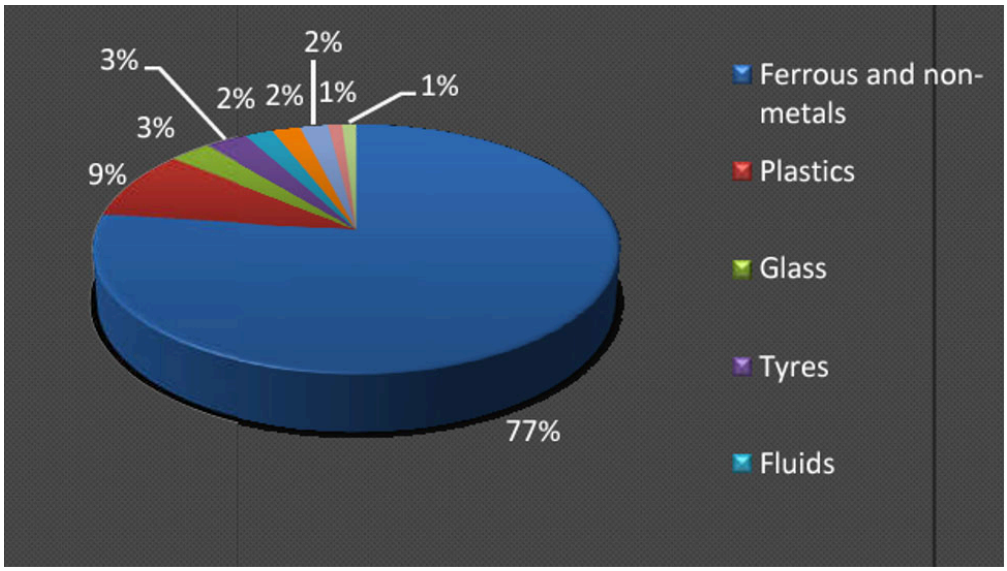
According to the European Commission, every year over six million vehicles reach the end of their life and are treated as waste in Europe. The current EU rules have resulted in improved collection of ELVs, successfully reduced hazardous substances in vehicles, and increased the recycling of ELVs to around 85 per cent of the materials that they contain. Most of these are metal, which is shredded and not optimally sorted and valorised. Only 19 per cent of plastics from ELVs is recycled; the rest is landfilled or incinerated.Electronics and composite materials are hardly recycled at all.



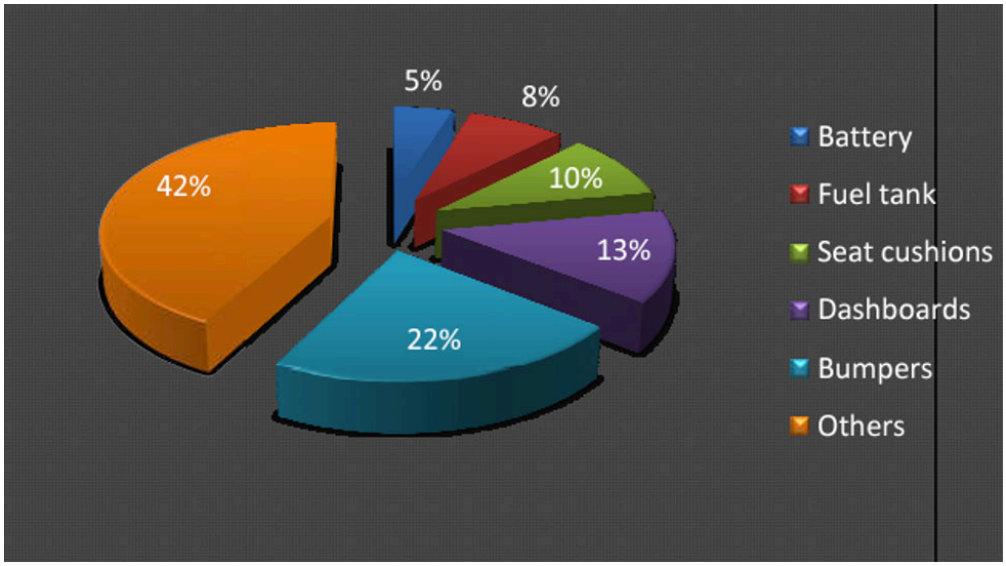
ACTUAL AND PREDICTED PLASTIC RECYCLING RATES IN THE EU (EUROPEAN COMMISSION INFOGRAPHIC)

Actual and predicted plastic recycling rates in the EU (European Commission infographic)

Metal does not pose a big recycling challenge, even if most of them could be better recycled. Soft and hard trim—more than half of the plastics in car interiors—presents much tougher challenges.



MATERIALS IN VEHICLES (RESEARCH JOURNAL OF CHEMICAL AND ENVIRONMENTAL SCIENCES)



DISTRIBUTION OF PLASTICS IN VEHICLES (RESEARCH JOURNAL OF CHEMICAL AND ENVIRONMENTAL SCIENCES)

Recycling automotive interior trim presents is a complex and often inefficient process. This is because of the diverse materials used, the way they are bonded together, and the lack of standardized recycling processes. Here is a more detailed look at the key problems:

Complex Material Composition

Automotive interiors are made from a wide range of materials, including plastics, fabrics, leather, foam, metals, and adhesives. Each of these has different recycling processes and requirements, making it difficult to efficiently separate and recycle them. Many interior components, such as seats and dashboards, are made of multiple layers of different materials bonded together; e.g., foam, fabric, and plastic. Separating these layers for recycling is challenging and often not economically viable. Here is a real paradigm shift in the offing; for decades up to now, engineering optimization focused on integration—how best to combine functions and materials. Now we need to figure out the opposite!

Electronic components present even more difficulties in being dismantled, separated and recycled.

Unrecyclable or Hard-to-Recycle Materials

There are many materials used in car interiors which are difficult or impossible to recycle. Examples are thermoset plastics composite materials, which are hard to recycle because of irreversible processes and difficulty in separating fibers from plastic; and adhesives used to bond different materials together. These

often are unrecyclable, and complicate the recycling process. Surface treatments to enhance material appearance, durability, or comfort introduce contaminants that complicate recycling, making the materials less suitable for reuse.

Lack of Standardization and Lack of Design for Recycling

There is a mix of difficulty and (up to now) lack of incentive to develop efficient recycling systems for many materials and components, which thus end up as discarded waste.

Economic Viability, Health & Environmental Concerns

Recycling automotive interiors can be expensive, with labor-intensive processes of disassembling and separating materials. In many cases, the value of the recovered materials does not justify the cost, leading to a preference for landfill or incineration over recycling. Dealing with toxic substances and emissions add complexity and cost to the recycling process.

Focus on Metals

The EU's End-of-Life Vehicle (ELV) Directive has successfully driven the recycling of metals, but less attention has been given to nonmetallic materials like those in automotive interiors. This regulatory gap has led to lower recycling rates for these components.

Short- and Medium Term Strategy

Most automotive supply chains are underdeveloped, with rigid restrictions, regulations, and specifications which can hinder and constrain. Some operators might withdraw from the market, so financial incentives could help the introduction and scale-up of technologies faster and more effectively. Costs must be shared across the value chain, and governments and manufacturers must team up to foster global harmonization of standards, working closely with material suppliers and research institutions, so one region's rules don't clash with another's.

Future legislation should also be defined in a way that considers all the benefits of recycled content together with bio-based feedstocks, like non-food-chain competitive materials that can be recovered from food production or other processes, which may prove more economical and reduce the carbon footprint of products more than post-consumer plastic alternatives.

The Plastics Europe organization has a position paper suggesting ways to approach some of the challenges described so far. Here are seven key points from that 2022 position paper:

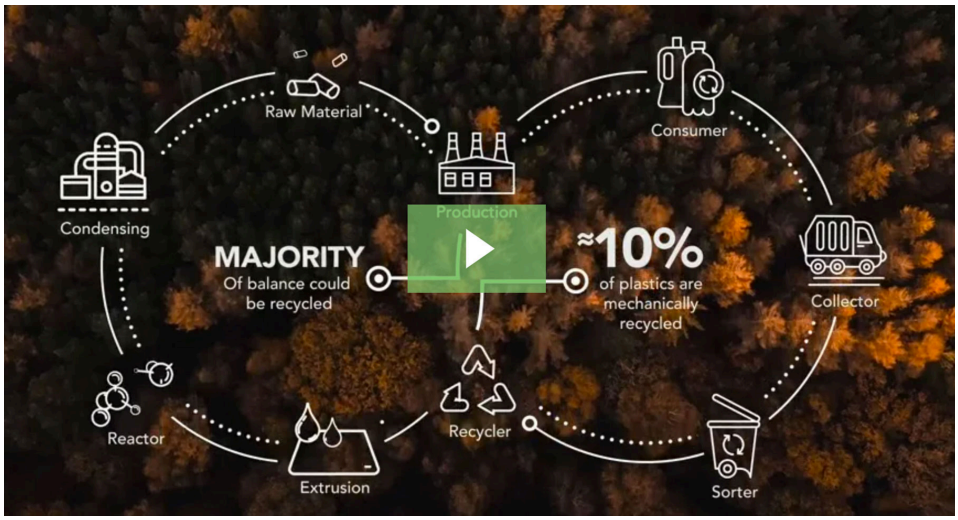
- A 25-per-cent target for recycled and circular plastics (as the ESPR now foresees)
- Acceptance of chemical recycling using the mass balance credit model
- Use of innovative and alternative feedstocks for increased circularity
- Addressing the workability of the closed loop targets & inclusion of all plastics streams: closed loop recycling may require a full reorganisation or creation of new infrastructural systems, including processing lines per recycling plant per polymer and per application.
- Addressing substances of concern and chemical safety: REACH regulation to be integrated and not overruled
- Extended producer responsibility (EPR) schemes for the automotive sector
- Definitions creating a clear scope and joint understanding (plastic definition presently excludes materials like thermosets, possibly out of the scope of the recycling measures)

In summary, the topic is complex and we could talk about it for months. In our next in-depth reports we will analyze single topics thoroughly, to attract-connect-create worldwide experts in automotive interior sustainability. We will also explore these topics during our next interior workshop in Turin—the first and, very likely, not the last workshop activity centered on sustainability and regeneration.

In the meantime, here is a here is a look at some companies proposing breakthrough technologies to recycle plastics:

Advanced chemical recycling

Alterra



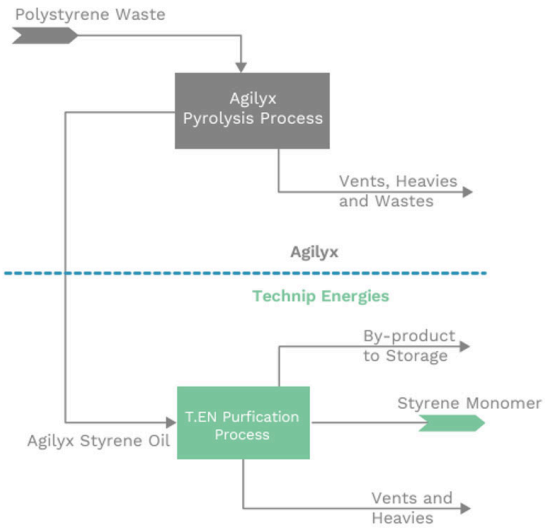
ALTERRA IMAGE

Alterra has a process they call Inficycle, to collect, sort, and break down hard-to-recycle plastics at their molecular level so they can become new feedstock infinitely. The technical definition of the process is Hydrothermal Liquefaction (HTL). It uses high temperatures and pressure to convert organic materials, including plastics, into crude oil. This process mimics the natural geological processes that produce fossil fuels, but does so in hours instead of millions of years.

HTL can convert a wide range of waste materials, including mixed plastics, into valuable products like synthetic crude oil, which can be refined into fuels and chemicals. Some plastics are harder to recycle than others due to their composition. Examples are high- and low-density polyethylene (HDPE and LDPE). But Alterra says Inficycling can handle more types of plastic than traditional recyclers, and as a mixture rather than requiring laborious sorting by plastic-type, making hard-to-recycle plastics useful again instead of sending them to a landfill.

Alterra's process is a continuous one, and the company says a continuously-fed reactor will convert more discarded plastic at greater efficiency than a batch process because it reduces the footprint while increasing rate, duration, and volumetric capacity. It also removes operational downtime such as repetitive loading, cleaning, or reactor charging. And it provides superior control and automation of the process.

Agylix



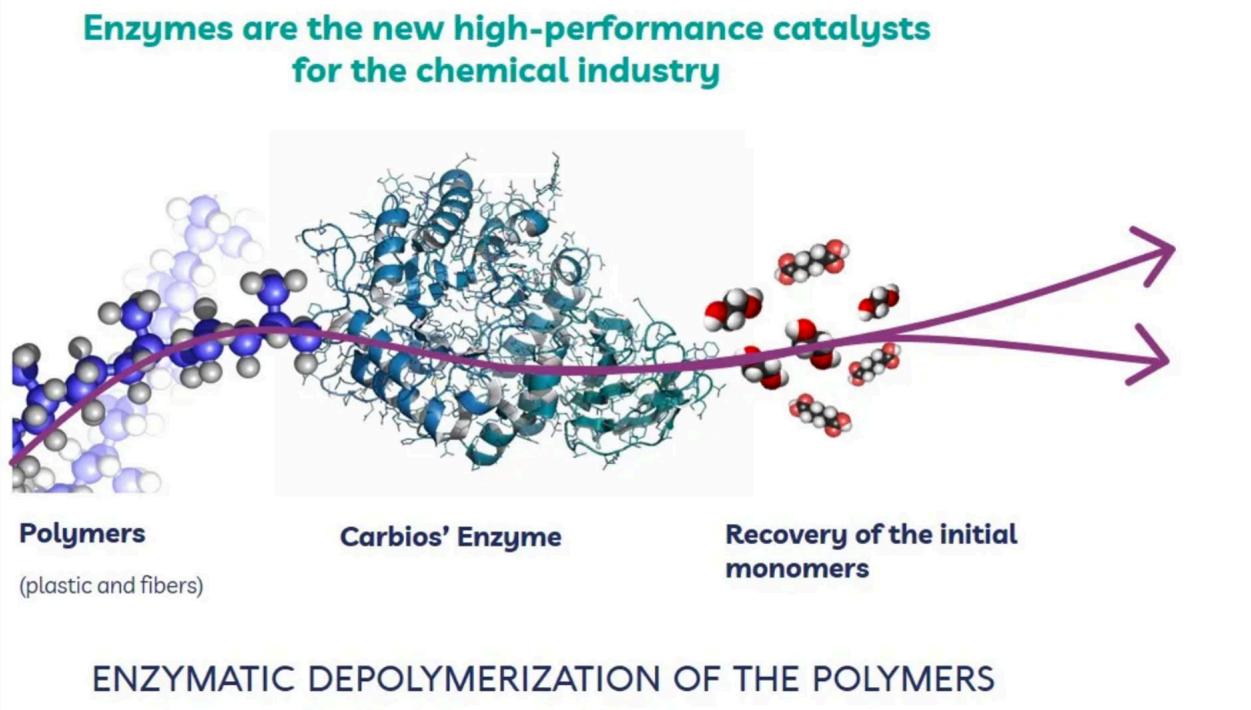
AGYLIX IMAGE

Agilyx uses catalytic depolymerization to recycle mixed waste plastic and specific streams like hard-to-recycle polystyrene, which is converted into styrene monomers to be be reused to make new polystyrene products. This process, the company called Trustyrenyx. Because the process doesn't need a catalyst, Agylix can handle contaminated plastic waste—often a challenge for other technologies.

Through its Cyclyx joint venture, Agylix can also offer an end-to-end feedstock sourcing and management solution, achieved through a deep understanding of waste plastics as a feedstock, enabling the development of tailored logistics and sourcing.

Enzymatic recycling

Carbios



CARBIOS IMAGE

The usual thermomechanical recycling processes have limitations: only clear plastic can be recycled in closed loops, with a loss of quality in each cycle, making it difficult to obtain new products from 100-per-cent recycled PET. Colored and soiled plastics are very difficult or impossible to recycle.

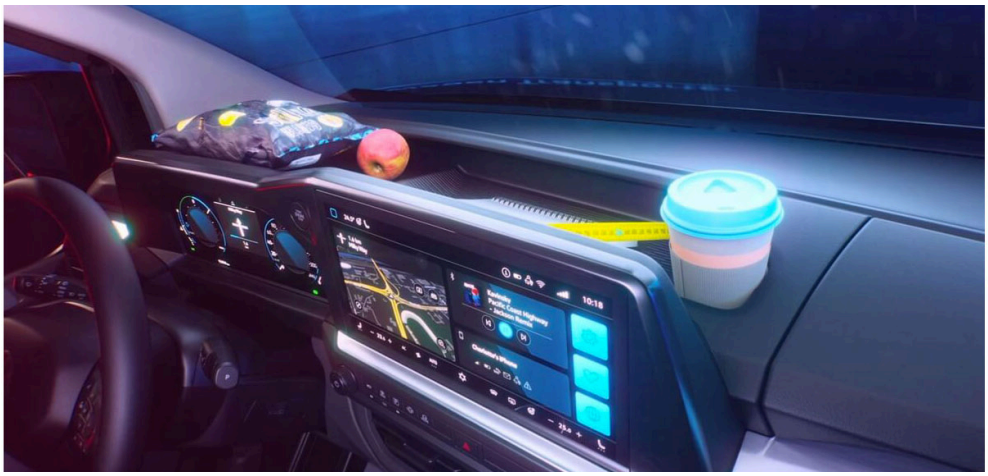
But Carbios' enzymatic recycling process uses an enzyme capable of specifically depolymerizing the PET (polyethylene terephthalate; drink-bottle plastic) contained in plastics or textiles. The monomers resulting from the depolymerization process are purified in order to be re-polymerized into PET of quality equivalent to the virgin PET obtained from the petrochemical industry.

Unlike conventional processes, Carbios' innovation allows the recycling of all types of PET waste as well as the production of 100% recycled and 100% recyclable PET products, without loss of quality. Plastic and textile waste thus becomes a valuable raw material, enabling the circular economy to become an industrial reality.

Interior News

Gen-7 VW Transporter Has New Interior

INTERIOR NEWS



VW IMAGES

Volkswagen Commercial Vehicles has unveiled the interior of their newest Transporter, featuring a modernized version of the previous layout.

There's a digital cockpit with actual, real physical controls—or "hardkeys", since that sounds more future-y, hep, edgy, and with-it than just calling them physical controls. VWCV says they provide enhanced usability (and every bit of research **agrees**) to complement the wide range of digital functions. This design, according to VW, ensures that the Transporter remains a practical tool with straightforward operation and an efficient workspace.

The interior features high-quality materials, thoughtful design elements, and numerous power interfaces: USB-A, USB-C, 12V, and optional 230V sockets. This array of power points ensures that various electrical devices, from laptops to power tools, can be used efficiently within the vehicle.

The new Transporter has a pushbutton for the keyless start system, 12-inch digital instrument panel, and a 13-inch infotainment display. The automatic transmission's selector lever is on the steering column, creating more legroom than a floor-lever, though the manual gearbox's gearstick remains in the center console. The multifunction steering wheel includes clearly arranged buttons, and the infotainment system volume can be adjusted via the steering wheel or a rotary knob. The handbrake lever has also been ejected, replaced by a switch for the electric parking brake, freeing up space in the footwell.

Practical features include large cupholders, stowage compartments in the dash panel, and a high dash panel and seating position. The vehicle also has a load compartment ranging from 5.8 to 9.0m^3, accommodating up to three Europallets, depending on the wheelbase and roof version.

Albert Kirzinger, chief designer at Volkswagen Commercial Vehicles, says the new Transporter "combines form and function. We have purposely supplemented or combined the wide range of digital functions with physical controls in the form of easy-to-use hardkeys. This is because the Transporter is a tool, a vehicle for professionals. They need everything to be straightforward to use so that they can work efficiently".

Will this acknowledgement that physical controls are often the right answer spread beyond commercial vehicles? The world's drivers can certainly hope for Kirzinger's revelation to gain traction.

Cinemo Software for Marelli Platform

INTERIOR NEWS

CINEMO IMAGE

Marelli's LeanConnect platform will use infotainment software from digital media specialist Cinemo. The partnership follows Marelli's recent contract to supply their Android Automotive OS-based LeanConnect platform to a major automaker.

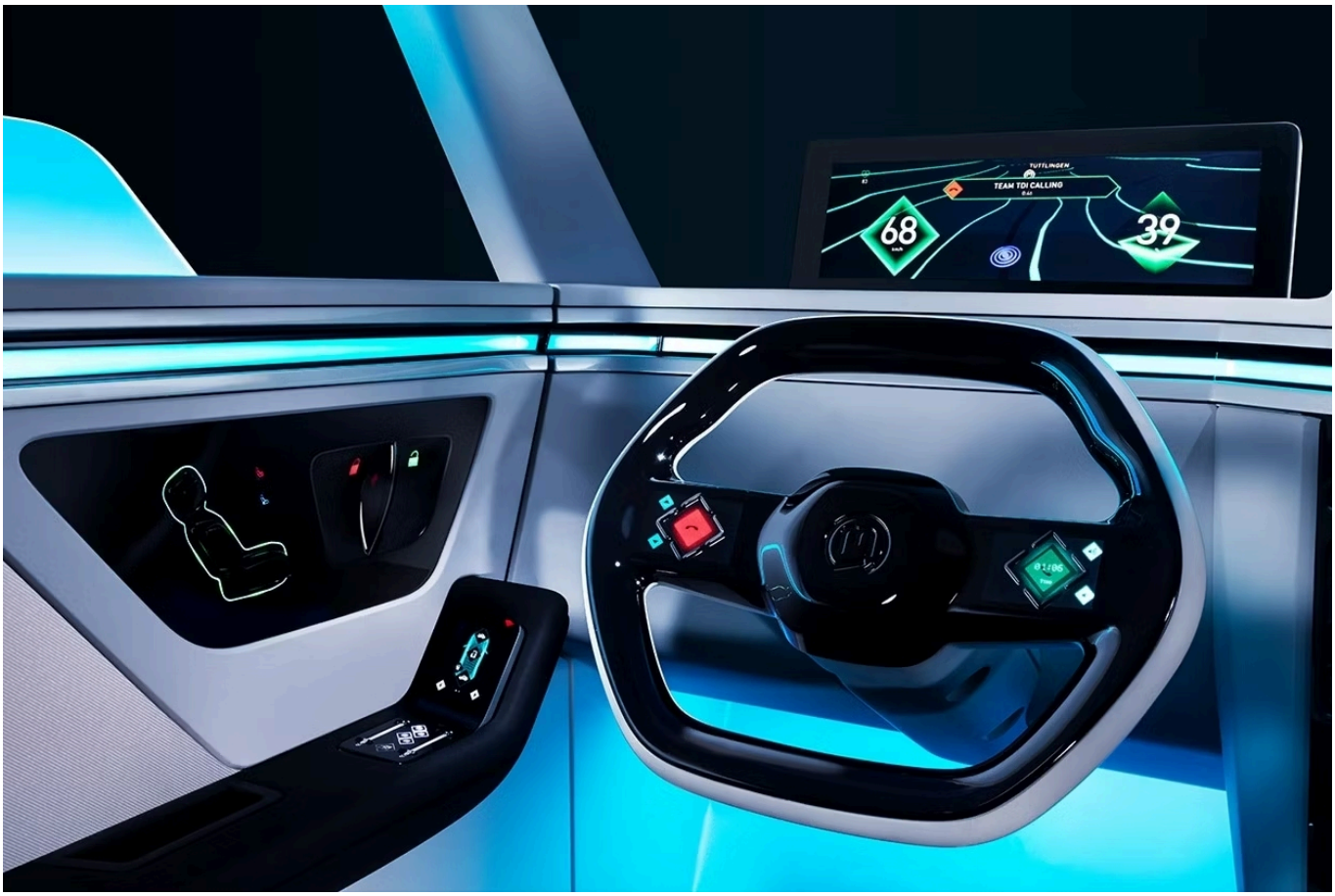
The LeanConnect platform combines instrument cluster, integrated vehicle infotainment (IVI), and 4G telematics functionality into a single control unit to simplify electronics architecture. The platform, Marelli says, can maintain ASIL-B compliant cluster functionality and can manage two cameras and two displays.

Cinemo's smartphone projection solutions will enhance the LeanConnect platform by enabling Android- and iOS-based smartphone integration. The technology is designed so car occupants have access to supported apps directly from the head unit.

"Our partnership with Cinemo has helped us enrich our AAOS-based LeanConnect infotainment platform and deliver a first-rate, quality solution for a major worldwide car manufacturer," said Yannick Hoyau, VP of engineering and advanced innovation at Marelli's Electronic Systems business. "Cinemo's automotive entertainment track record and easy-to-integrate software gives us peace of mind that we can deliver a cost-efficient solution and boost our time-to-market." The first equipped cars are set to launch in 2026.

Lextar is IseLED Licensee

INTERIOR NEWS



MARQUARDT IMAGE

Inova Semiconductors and Lextar have signed a letter of intent regarding Inova's IseLED and ILaS technology Taiwan-based Lextar wants to develop LED products and thus expand the Iseled product portfolio, so automotive customers will have more choices for functional and decorative lighting in interiors and exteriors. The supplier has announced the first products for November 2024.

IseLED technology was introduced in 2016. According to the IseLED Alliance, supporters today include LED and semiconductor manufacturers, automotive suppliers, and lighting designers from all over the world. The most recent members are Autochips, Zhixin Semiconductor, and Hebatronic. There are more than 50 members, including Dräxlmaier, Forvia, Magna, Preh, TE Connectivity and Valeo. According to Inova, over 100 million chips have been produced. ILaS allows IseLED LEDs to be networked and all interior lighting systems to be connected to each other via cables. According to Inova, this enables complete, hardware-only interior lighting systems that are centrally controlled.

Lextar, a subsidiary of Ennostar, specializes in the integration of LED housings and modules. The company is active in various areas of the automotive industry, including interior and exterior lighting, display backlighting and sensor technology.

Full-Width Displays Shove Tablet Screens Off the Road

INTERIOR NEWS

CADILLAC IMAGE

Large display tablets in cars are a thing of the past—already! The next generation of infotainment relies on screens that extend across the entire width of the vehicle, from pillar to pillar. The size of the displays goes hand in hand with a change in infotainment and the use of the car. While the focus used to be on driving from A to B, vehicles are increasingly becoming mobile offices or entertainment lounges on wheels.

Mercedes started the trend with the Hyperscreen in electric vehicles such as the EQS. The next evolutionary stage could be seen in the EQXX BEV long-distance study, in which the curved monitors already blended much more naturally into the interior. Full-width displays are expected to go into series production next year in models based on the MMA platform; the new electric CLA family will be the first. The curved display has a radius of 4.2 m and measures 47.5 inches (~121 cm). It comprises over 3,000 LEDs, illuminated on a surface measuring 7680 × 660 pixels.

Matrix backlighting has several benefits. The razor-sharp image quality with high contrast makes it easier to operate the touchscreen. To reduce driver distraction, menu fields appear only when you approach the screen with your fingers. Individual screen areas can be dimmed—local dimming—improves readability and saves power, which is important in an electric car.

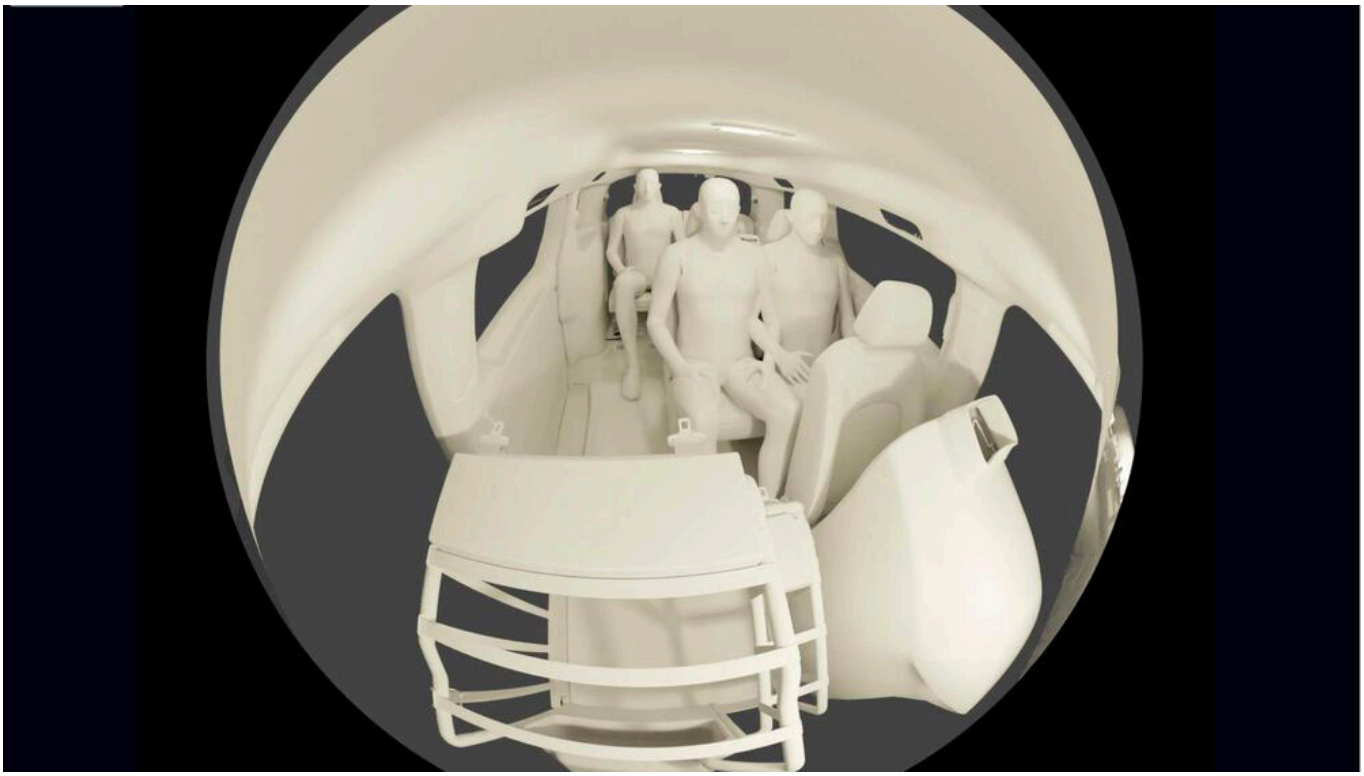
These ultrawide displays consist not of one large monitor, but of several screens combined under a glass surface. This gives developers the opportunity to integrate sensors and cameras into the component.

BMW is bringing their 'Panoramic Vision' into the car with the Neue Klasse from 2025—a head-up display that extends across almost the entire width of the windshield. BMW uses a dark-coated area at the lower edge of the windshield to project the content. The information should not only be easily readable by all occupants of the vehicle in bright light, but the relevant content should also always be in the right place. This means the driver only sees the information they select, and not what the front passenger is looking at.

The future of display technology is already being worked on. MicroLED combines the advantages of OLED and LED technology—lasting four times longer than OLEDS, shrugging off moisture and vibration, consuming little power, and offering a wide range of colors and high luminance, very good contrast, and consistently high brightness. MicroLEDs are highly resistant to environmental influences such as sunlight and high temperatures. Another advantage is the faster response time of just a few nanoseconds, which is particularly important for videos and computer games. However, the manufacturing costs are still very high.

Emotion 3D's Interior Analysis for Moia

INTERIOR NEWS



MOIA IMAGE

Moia and Emotion 3D have developed an interior monitoring system for the self-driving VW ID.Buzz AD. According to Moia, the software uses artificial intelligence to take over safety tasks that were previously performed by the driver. For example, the system automatically recognizes whether the doors are free, whether an object is blocking the cabin floor, or how bright it is in the vehicle. In the coming months, the interior analysis and customer experience with the automated processes will be tested.

Moia is a technology company of the Volkswagen Group, working in partnership with cities and public transport agencies and developing on-demand ridepooling services to redefine mobility for people in urban areas.

Cameras in the interior provide the data, which is evaluated using the Cabin Eye software stack from Emotion 3D and transmitted to the Moia software. The principles of the General Data Protection Regulation are observed in the process. According to the press release, Moia focuses on privacy by design. Automated interior monitoring is intended to reduce operating costs for operators of autonomous vehicle fleets. Among other things, the relationship between dispatchers in the fleet control center and vehicles is reduced.

The interior monitoring system checks the permitted number of passengers at the stops and that they are wearing their seat belts correctly. The vehicle is released for travel within a few seconds. If necessary, a message is sent to the control center. In individual cases, the control center can give the go-ahead from outside and communicate with the passengers via an audio connection. Emotion 3D CEO Florian Seitner says automated interior analysis is an underestimated but crucial component of an autonomous mobility service.

VW ID.Unyx E-SUV Has AI Avatar Assistant

INTERIOR NEWS

VW IMAGES

Volkswagen has unveiled their ID.Unyx, an electric SUV coupé, as the first model from the maker's new sub-brand exclusively for China. The car features a personalizable 3D avatar as an assistant, making it the first Volkswagen to provide an AI-supported, interactive experience. This model has a range of over 600km.

Developed and manufactured at the Smart E-Mobility Hub in Hefei, the vehicle is tailored for young customers in China’s metropolitan areas.

Stefan Mecha, CEO of the Volkswagen Brand in China, highlighted the importance of the ID.Unyx in expanding the spectrum of electric ID. models in China. The avant-garde design, sustainable electric drive, and user experience are designed to attract "young, lifestyle-oriented target groups and retain existing customers for the Volkswagen brand", he said.

The HMI includes an AI-based 3D avatar, customizable through an app and synchronized with the vehicle. The entry-level version of the car features a 210-kW electric drive motor on the rear axle, powered by a 77-kWh battery, achieving a range of up to 621 km (CLTC standard). An all-wheel-drive version with two electric motors is also available, delivering 250 kW.

The ID.Unyx's design includes distinctive elements like a gold-colored Volkswagen badge, LED matrix headlamps, and a sporty coupé-style rear end with intricate LED elements.

Volkswagen says they plan to expand the ID.Unyx model range with four additional vehicles by 2026, including SUVs and sedans. This expansion is part of Volkswagen’s plan for China, which includes the introduction of 34 new models by 2030, strengthening their position as the leading international brand in the Chinese market. This plan includes 16 new electric ID. models, 12 new combustion-engine models, and six new plug-in hybrid models.

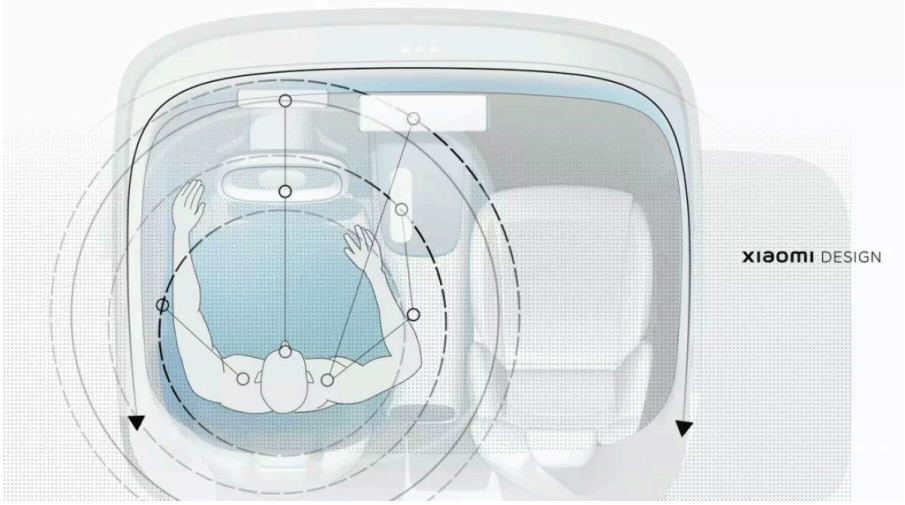
The Design Lounge

New Details on Xiaomi SU7 Interior

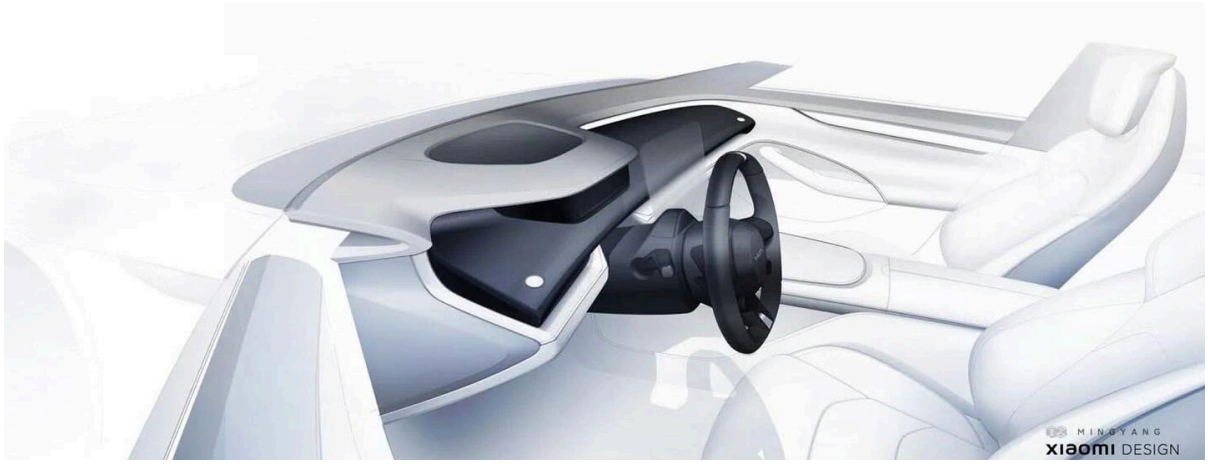
THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

Xiaomi has shifted away from minimalist interiors favored by tech companies entering the automotive space. Instead, they've adopted a driver-centric design with physical buttons (and a rectangular tablet screen pasted onto the middle of the dashboard…perhaps it will be replaced by a pillar-to-pillar display in the next generation?). This change appears to address user feedback, as many EV owners have expressed frustration over the absence of tactile controls in their vehicles.



The SU7's interior is designed with a flat-bottomed steering wheel, tactile switches, a horizontal center touchscreen, and a center console. There is a row of toggle switches under the driver's right hand. These switches control functions like air conditioning, ride height, and even the rear wing spoiler, offering a refreshing return to physical interaction among a world of touchscreens.



The interior also features a floating dashboard design that integrates the head-up display, instrument panel, and air outlets, creating a sense of spaciousness. A docking unit allows for the addition of even more physical buttons. The driver-focused design includes sports seat for a low seating position.

The extra-buttons module, which attaches seamlessly to the central display, seems like a clever modular design.

The vehicle's interior is modular and integrated into a person's digital life. Xiaomi-branded phones and devices can seamlessly integrate with the car like CarPlay, but Xiaomi takes it further with add-on hardware features that increase comfort or add functionality.

As stated by Xiaomi CEO Lei Jun during his initial presentation for the SU7, the center screen is modular. It will come standard with no attachments, but the screen has magnetic (and physically pin-locked) attachment points on four sides. Initially, Xiaomi is showing off a set of piano keys and a volume knob called a docking unit. It mounts right at the bottom edge of the screen. Jun's presentation implied that there could be other add-ons available for the SU7 in the future. Perhaps in addition to piano keys, violin strings and guitar frets will become available!

News Mobility

Kyocera's New Street Sensor Technology

NEWS MOBILITY

KYOCERA IMAGE

At the Automotive Engineering Exposition in Japan, Kyocera presented their newest sensor technology for vehicles and road communication. There was a compact FIR vehicle sensor that detects pedestrians and vehicles even in the dark or in poor weather conditions. FIR sensors use the far-infrared radiation emitted by objects to generate images. The compact sensor, which is the size of a AAA battery, can be installed in the radiator grille or on the roof, for example.

Their high-resolution stereo camera with RGB IR image sensor detects both objects at a distance and small objects at close range. The near-infrared light source and RGB IR image sensor improve stereo detection in dark places and other areas. The stereo camera can be used in cars and in compact mobility vehicles and autonomous mobile robots. Kyocera has also introduced high-resolution in-vehicle digital cameras for better visibility, a rotor position sensor and an electronic throttle for motorcycles.

Mercedes Gets L4 Test License for Beijing

NEWS MOBILITY

MERCEDES-BENZ IMAGE

Mercedes-Benz can now test L4 fully automated driving systems in Beijing. Two S-Classes are on the road on designated inner-city roads and highways in the Chinese capital, equipped with lidar, radar sensors, and cameras.

Chinese startup WeRide is a partner in the project; they specialize in technology for automated driving and counts Bosch among their investors. The developers want to find out how the system behaves in everyday situations. For example, when turning left with oncoming traffic, driving through traffic circles, and turning and parking. The two cars can automatically change lanes on freeways and drive through toll stations autonomously. In extreme situations, the vehicle performs what is called a 'minimum risk maneuver': it stops at a safe place. The electrics, steering and brakes are redundant. Mercedes-Benz intends to use similar assistance systems in private vehicles at a later date.

Around four years ago, the city of Beijing established the "Beijing High-level Autonomous Driving Demonstration Area". Companies are allowed to test autonomous driving functions in the area in the south-east of the city. According to the Beijing Daily, 19 test companies had begun in March 2023 and 578 connected vehicles had driven a total of 14.49 million kilometers. The companies located here include Baidu, Pony, and Sense Time.

Mercedes-Benz has been conducting research and development in China since 2005, and—according to their own figures—has increased the corresponding investments in China by the equivalent of around €1.3bn in the last five years. New R&D centers have also been established in Beijing and Shanghai.

General News

Recaro Files for Bankruptcy

GENERAL NEWS

RECARO IMAGES

Recaro has filed for bankruptcy. The company, which has supplied seats to the world's car and truck manufacturers for decades, was yesterday approved for self-administration by a German court, per a report by *Autocar.*

It's unclear how the filing will affect Recaro, who provides sports seats for brands such as BMW, Ford, the VW Group, and others. The seat maker's employees were unaware of the bankruptcy, according to *Autocar,* who also reported that the IG Metall trade union that represents 215 workers at Recaro's factory in Kircheim unter Teck, Germany, has demanded transparency from the supplier's upper management.

In January 2020, Recaro Automotive announced they had sold their business to Raven Acquisitions, a privately-owned investment corporation in Detroit, Michigan. At the time, Recaro reported they had made approximately $150m in revenue in 2019, and said the new ownership would allow the company to prioritize making seats "with shorter and faster decision-making processes allowing greater flexibility to better meet the requirements of the market." It's currently unclear what financial moves led to the insolvency.

Recaro's history dates to 1906, when "master saddler" Wilhelm Reutter began designing and building car bodies and interior components. In 1965, Recaro launched their first sports seat, and in 1967 they introduced the first road-legal full shell seat. Subsequent innovations included a seat with speakers in the headrest (1977), the Recaro A8 sports seat with a plastic backside (1989), and the first retrofit seat with a universal side airbag (2004), followed by a seat with a new lightweight composite shell in 2005.

Continental Mulls Automotive Spinoff

GENERAL NEWS

CONTINENTAL IMAGE

Continental has admitted they will probably not be able to carry on in their current form, and the company's executive board is considering a spinoff of the automotive division, which accounts for around half of sales.

This is where Continental bundles their future business; they develop and produces sensor technology, high-performance computers, and software for automated driving and infotainment systems, electronic braking, and car operating systems. Over the past 20 years, the former tire manufacturer had developed into a supplier giant with numerous takeovers, some worth billions, competing with rivals such as Bosch and ZF. The spinoff would mean the end of Continental as a big-portfolio systems supplier to car manufacturers; the company would once again consist solely of the tire and industrial business.

The separation could also mean the end of Setzer's tenure as CEO. He has long resisted a splitup and, according to the Handelsblatt, has long been viewed critically in corporate and supervisory board circles.