Thu, 8 February 2024
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #198

Editorial

Why Do Interior Materials Matter?

HYUNDAI IONIQ 5 (HYUNDAI IMAGE)

Recent issues of your DVN-Interior Newsletter have focused on CES, AI, and SDV. This week, we circle back around to a primary main thing about car interiors: they use a lot of soft materials—plastics, textiles and leather. Like all materials, interior softs are under heightened scrutiny from perspectives including optimization, sustainability, and new alternatives. Leather, for example: it's common in seats, doors, consoles, instrument panels, and steering wheels. It brings benefits: luxury signature, durability, reduced interior noise and vibration, and aesthetic qualities. But it's not ideal for thermal comfort; it's cold in winter and hot in summer. And serious new alternatives are popping up at an increasing rate. We dig into these topics in this week's in-depth piece, and bring you coverage of new options vying against traditional plastics, such as bio-plastics, mycelium, karuun, high-performance resins, PET yarns, and more. These materials can help make car interiors more sustainable, and also can differentiate with new design signature.

Materials and design: that's one of the important themes of the Köln DVN Interior Workshop on 23-24 April. The rubric: **Interior of the Future · New Features and Emerging Technologies**. Hop over to our website today and **register** as a participant, speaker, or exhibitor; I look forward to seeing you there! Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Leather and New Other Options for Interior Surfaces

VW ID.BUZZ WITH NON-ANIMAL LEATHER (VW IMAGE)

Leather is a renewable, nature-based material that has been used for thousands of years. The use of leather for vehicle seats, dashboards, doors, consoles, armrests and more is traditionally—and promotionally—a sign of quality and value-added expense within a premium brand car in many markets (but not all! In some places, cloths are preferred). Leather can offer comfort and durability, but the sustainability and environmental impact of its production is facing increasingly arch scrutiny, and it is not favored by those who avoid the products of animal agriculture—meat and leather alike.

Raw hides are a byproduct of the food industry, recovered and transformed into a material of value, and that's to the good, but the process of turning hides into leather has long consumed vast amounts of water, generated a great deal of toxic waste, and stomped with a large carbon footprint. In recent years, leather production has become less destructive to the planet by dint of investment in R&D and process engineering.

Nevertheless, there are increasing numbers of non-animal-sourced leatherlike materials on the market, presented as environmentally superior alternatives with comparable or better look, feel, function, and durability characteristics. Some of these are commonly referred to as 'leather', despite that term being legally confined to the animal-skin variety in countries like Italy and France.

The global market for car interior leather was valued at USD $6bn in 2022, and is projected to reach $7bn by 2029, at a CAGR of 2.5 per cent. A complete leather interior is worth a significant amount of money, several thousands of Euros or Dollars, therefore an important topic in the economic equation of a vehicle. Major leather companies serving the automotive industry include Bader (Germany); Zhejiang Mingxin Automotive Leather (China); Katzkin (USA); Elmo (Sweden); JBS (USA); Wollsdorf (Austria); Automotive Leather Company (USA); Scottish Leather Group (UK); Kyowa Leather Cloth (Japan); Tata International (India); GST AutoLeather with Lear (USA), and Dani (Italy).

Let’s look at recent advances in animal leather, then at new materials.

Process Improvements for Animal Leather

New ways of processing animal hides into leather, and new ways of using it, stand to reduce leather's environmental burden. Certification standards like those of the Leather Working Group provide a framework for assessing and promoting sustainability practices in the leather industry, such as**:**

- **l**eather parts made from recycled leather scraps or postconsumer waste.
- tanning with tannins found in plant matter such as tree bark, which doesn't generate the toxic waste of conventional tanning with chromium salts.
- water-based processes in place of nastier chemical solvents (though this can aggravate the high water consumption of leather production in general).
- **i**mplementing practices to minimize waste during the manufacturing process.

Here are some examples of how these ideas are being put into practice:

Bridge of Weir's Water-Saving New Tannery

BRIDGE OF WEIR IMAGE

Automotive supplier Bridge of Weir Leather has opened a new tannery as the latest advancement resulting from over £14m (USD $17m) of investment by parent company Scottish Leather Group over the past seven years.

One of the first steps of the leather production process, tanning puts hides through treatment in drums filled with water and tanning agents to create leather's strength, flexibility, and durability. Compared to previous equipment, the company's new tannery reduces the total number of hide drums from 30 to 14, while at the

same time enabling the company to process greater batches, and saves energy (82 per cent) and water (42 per cent versus the previous BoW usage, and 50 per cent less than industry standard). Bridge of Weir sources water from their own lake, and their water treatment and recycling plant diverts 'up to' 40 per cent of treated water back into production use.

Dani

MERCEDES E-CLASS (DANI IMAGE)

To enhance quality and sustainability, Dani developed technology to recycle water along the production process, and GOAST, a new metals-free tanning technology developed in collaboration with Venice University.

Stahl

STAHL EASYWHITE TAN (STAHL IMAGE)

Stahl is a Dutch specialist in specialty coatings and treatments for flexible substrates. Their EasyWhite Tan is an organic, metal-free tanning technology to produce high-quality leathers with a lower environmental impact, significantly reducing concentrations of salts and acids present in the tanning process. And wastewater can be captured and recycled for use in the liming system, reducing both water consumption and effluent volumes.

Stahl's novel Ympact coatings for leather processing are formulated with 25 to 70 per cent renewable feedstocks derived from biomass, recycled plastics, and CO_2 captured from industrial processes.

The new Stahlite range is designed for use in the retanning and fat-liquoring stages of the wet-end leather production process, and replaces conventional retanning and softening agents with special polymers. These

penetrate more thoroughly into the leather fiber structure to coat the fiber bundles and fibrils with a smooth layer. The result is automotive leather which weighs 7 to 8 kg less—that's up to 30 per cent, in a luxury car with a full leather interior.

Alternatives to Animal Leather

FILK TANNERY PILOT PLANT (FILK IMAGE)

German research institute FILK (Freiberg Institute) analyzed nine leather-alternative materials, selected and supplied by the German Leather Association and categorized as natural fibrous (e.g., Muskin derived from subtropical fungi); mixed synthetic/vegetal, and natural fibers coated with biomass polymers. The materials were compared in chemical and physical tests against synthetic PU (polyurethane) and animal leather. The findings, recently published: in tests of tensile strength, flexibility, tear strength, permeability, and water vapor absorption, none of the tested alternatives exhibited overall performance matching animal leather. Specifically, none matched animal leather's high mechanical and flexural strength and high vapor permeability. Moreover, most of them contain synthetic components, potentially limiting their ecological and environmental benefit.

Eco-leather

Eco-leather is is animal leather tanned using environmentally sensitive methods according to UNI 11427:2011. The difference centers around the agents used during tanning and waste products, which are less environmentally burdensome. Animal leather treated in this way is more expensive, and is characterized by uneven color, natural imperfections and marks, extreme softness, and long life. As with most animal leather, it requires regular maintenance if its appearance is to remains unchanged over time, and exposure to sunlight tends to change its color.

Synthetic leather

LEATHER PART LAYOUT OPTIMIZATION (BRIDGE OF WEIR IMAGE)

Synthetic (artificial, faux) leather—or 'pleather'—has nothing of animal origin, and so is considered vegan. It is an industrial product made of a cotton or synthetic fiber cloth spread with a film of plastic material, generally PU and/or PVC. The film is then imprinted with leatherlike textures. These materials can be engineered to mimic the look and feel of genuine leather.

Benefits are low cost, ease of cleaning and maintenance, water repellency, and resistance to light and heat. But it is a non-breathable fabric, with less-than-leatherlike resistance to wear and tear.

Vegan, vegetable, and cultivated leathers

To define a leather as 'vegan', it must obviously not be made of animal skin. But that's not enough; it must also be certified as being without any animal-derived component, at all stages of production.

Vegetable leathers, on the other hand, are made entirely from a variety of non-animal natural sources, such as wafer-thin veneers of different woods; cork sheets, or the top coating of mushroom caps.

Cultivated leathers include a range of products, many of them still at low TRL, obtained through biotechnological processes of transformation by dint of bacteria, enzymes, or other microorganisms from mycelia, fermented tea, or artificial proteins.

Alcantara

LAMBORGHINI WITH ALCANTARA TRIM (LAMBORGHINI IMAGE)

Alcantara is a brand name for a synthetic textile with a soft, suedelike microfiber pile, noted for its durability. It was developed in the 1970s by Miyoshi Okamoto, and initially manufactured by the Italian company

Alcantara—the name has an Arabic root and means "the bridge". It is made from polyester and polystyrene, and often used in premium car interiors as a sustainable, durable alternative to animal leather. Its durability is a major credential for the sustainability of leather, as it aligns with the goal of minimizing waste and resource consumption.

The adoption of sustainable leather alternatives in the auto industry is driven by both environmental concerns and consumer demand for ecologically compatible products. As the automotive sector continues to focus on sustainability, it's likely the use of sustainable materials will become more prevalent, including alternatives to animal leather. Manufacturers and consumers alike play a crucial role in driving these changes by demanding them (and then actually buying them!). Here's how one luxury automaker is reacting to the demand:

Jaguar Land Rover (JLR)

RANGE ROVER LW (JLR IMAGE)

In a recently-published document, JLR presented their sustainable material approach as part of their corporate commitment to net zero. The approach is built on 3 pillars: circularity, regeneration, and reduction. The document mentions a focus on seat trim, with PU main A-surface seating parts and wool PE blend for bolsters and B-surface parts. Benefits accrue in terms of haptics and trimmability; durability and soiling performance on par with leather, and carbon footprint shrinkage (8 versus 26 kg CO_2/m^2).

They are investigating biofoil and bioculture leather alternatives. Challenges to overcome: bio fibers don't form a continuous woven network, and bonding with biopolymer doesn't provide haptics and overall performance

JLR says PU is a good first alternative step; bio-cultured leather is very challenging, polymeric foils are still unstable, and that leather from regenerative farming (holistic land-management practice that focuses on soil health) has potential as a carbon-beneficial material.

In summary, the auto industry is actively exploring sustainable alternatives to animal leather, balancing comfort, quality, and environmental impact. As consumer demand continues to evolve, expect to see more innovative materials in future car interiors.

Interior News

Covestro – HiPhi Joint Lab on Advanced Materials

INTERIOR NEWS

HIPHI X (HIPHI IMAGE)

Covestro and Chinese EV brand HiPhi, at the China International Import Expo, announced a joint laboratory to advance low-carbon material solutions and smart technologies for future mobility.

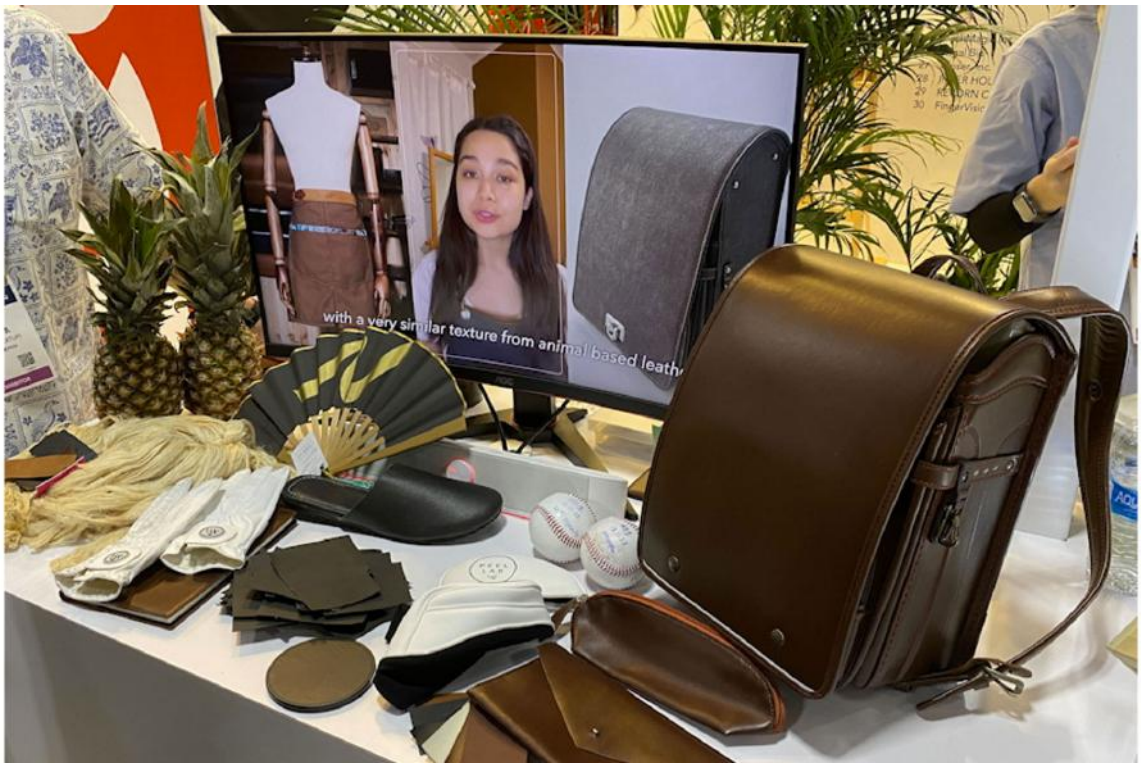
The joint lab will mainly focus on the commercialization of low-carbon materials in future EVs and the establishment of relevant standards, as well as the development of smart surface technologies and battery solutions.

HiPhi has been a Covestro partner since 2018. Covestro's materials have been applied in HiPhi cars, such as the polycarbonates that enable a 'smart' B-pillar with complex functions in the electric HiPhi X SUV. The Z, a sports sedan, employs polycarbonates for the touchpad switch on its steering wheel, enabling a futuristic interactive design, as well as high-performance waterborne polyurethane adhesives for auto interiors. And the Y has Covestro polycarbonate in its headlamp and lidar lenses.

Covestro's President of Engineering Plastics Lily Wang says, "As the mobility industry embarks on a journey towards carbon neutrality, the demand for circular, low-carbon footprint materials is growing rapidly and will only accelerate in the near future. We hope to collaborate with more like-minded companies, like HiPhi, to accelerate the decarbonization trend and pioneer smart technology development at the same time".

Peel: High-Performance Pineapple-PU Leather

INTERIOR NEWS



This Japan-based B2B startup is making high-quality, luxurious, ultra-resistant leather out of pineapple leaves, recycled polyurethane, and recycled resin. Since 2022, they've made at least 800 metres of the stuff, with impressive look, feel, and touch quality. Peel says their material is better, in ways that matter, than animal leather and ordinary PU artificial leather. Among other favourable comparisons, the Peel pineapple leather is highly and durably scuffproof and waterproof as-made, without need of surface treatment after manufacture or periodically in the field, and that they're in productive talks with airplane seat makers, with an eye on the automotive seats-and-surfaces market as well.

Peel's appeal extends beyond the functional aspects of the material, to ecological, animal, and human health and wellbeing. They say animal leather is the № 1 most environmentally-damaging of all 'fashion materials'; leather tannery workers have a 35-per-cent elevated risk of getting cancer on account of the toxic chemicals involved, and each kilogram of animal leather's production wastes or pollutes 17 tons of water. They describe Peel pineapple leather, on the other hand, as tackling food-agriculture waste, preventing animal suffering, and helping to address climate change.

Even at the present early stage of commercialisation, their material is cost-competitive with animal leather and PU artificial leather; one imagines the affordability increasing on scale-up, assuming no impediments—the world grows and eats a lot of pineapple, so it would seem the feedstock is probably in good supply.

Leather Type	Material	Price per m²	Durability	Environmental Impact
PEEL Lab Pineapple Leather	**Pineapple, Recycled PU, Recycled Resin**	**$20 - $50**	**Water proof Scratch proof Lasts up to 10 years without treatment**	**Emits only 2.75 kg of CO_2 per m² Partially biodegradable**
Animal Leather (Cowhide)	Cow	$40 - $160	Not 100% waterproof Not scratchproof Lasts up to 30 years if oiled regularly	Emits 110 kg of CO_2 per m² Animal cruelty Causes water pollution Increased health risks of tannery workers
Synthetic Leather	PU	$1 - $30	Waterproof Not Scratchproof Lasts 2-4 years	Emits 15.2 kg of CO_2 per m² Takes 500 years to decompose

MycoWorks Harvests First 'Fine Mycelium' Biomaterial

INTERIOR NEWS

MYCOWORKS IMAGE

Biotechnology company MycoWorks has successfully harvested more than a thousand sheets of Fine Mycelium, their luxury leather alternative, at their plant in South Carolina. The sheets can be used to create materials for a range of applications in automotive design.

The company, based in San Francisco, was founded by artists with the mission to create a platform for the highest quality materials using mycelia, the rootlike structure of a fungus consisting of a mass of branching, threadlike hyphae.

The South Carolina facility employs a tray-based process and incorporates automation methods, and MycoWorks says they have achieved product quality better than that of their California pilot plant.

The company has developed the capacity to ship the biomaterial in its untanned, wet form to tannery partners, eliminating an initial tanning step. This reduces costs and enhances the output quality at processing tanneries, such as Spannish tannery Curtidos Badia, and their unique Reishi product.

MycoWorks CEO Matt Scullin said, "The potential of our technology is not to replicate existing materials, but to leapfrog them, delivering an entirely new category of products to the market (…). Uniquely differentiated from leather, our first product, Reishi, represents an entirely new class of materials that is engineerable, controllable, durable, and sustainable".

GM Ventures, the investment arm of General Motors, signed a long-term agreement to co-develop Fine Mycelium materials for potential use in a range of automotive applications.

Porsche eMacan: Sustainable Luxury with Karuun

INTERIOR NEWS

The electric Porsche Macan was unveiled in Singapore recently. It combines high technology with a classic sports car feeling. 'Nature tech materials' fit perfectly into this exclusive combination as a high-quality design element.

The design of the eMacan is based on that of the combustion-engine version, but with distinctive features, including a new display and operating concept. Digital displays dominate the cockpit and the center console. The Porsche Exclusive Manufactory offers a variety of customization options for the exterior and interior, with exclusive color accents and materials. Especially in terms of sustainability, Porsche relies on what they call 'type instead of stereotype' with future-oriented, individualized products.

'Nature tech' products are optionally offered in the configurator as 'Interior Trim in Summerwood', and used as decorative elements in the doors and dashboard. The high-tech material, called (and made by a company called) Karuun, is sustainable and offers a special look and feel.

Karuun, the company, is based in Kisslegg, Germany. Their material by the same name is a rattan-based material, with the natural structure of the rattan palm transformed through an energy-efficient process into a sustainable, and commercially viable material. It is laminated with a thin cellulose coating to prevent cracks forming during processing, and it can be backlighted.

Trinseo Pulse Engineering Resins for High Performance Interiors

INTERIOR NEWS

TRINSEO IMAGE

Trinseo Automotive makes plastics and latex binders. They hold a leading position in the PC/ABS markets in Europe and North America. Their Pulse engineering resins provide strong technical features, such as low density, low VOC emissions, and high impact strength. They are approved for many premium automaker specifications.

The Pulse GX series is optimized for interior component applications like center and floor consoles, instrument panels, pillars, and more. GX50 engineering resin, for example, is an easy-flow, medium-heat PC/ABS resin with a density that allows part cost reduction for unpainted components. The GX70 grade offers evenly distributed, low-gloss appearance suitable for larger parts, with the same lower-density characteristics as GX50. Both resins are suitable for premium unpainted surfaces.

The unfilled and mineral-filled PC/ABS blends of the Pulse XT series offer high flow, which allows for more complicated designs as well as thinner wall thicknesses. This series can also enhance exterior applications, such as bumper grilles, roof rails, spoilers, and side mirror housings.

Trinseo was formerly was known as Styron. They were part of Dow Chemical until Dow grouped several businesses for sale in 2009; Trinseo became independent in 2016.

B.I.G Spins New Auto Yarn for Carpets

INTERIOR NEWS

B.I.G. Yarns (Beaulieu International Group) in Belgium says they have completed their first industrial production runs of virgin polyester BCF yarns for automotive carpet to complement their polyamide PA6 products.

The automotive carpet market is expected to grow strongly in the coming decade with the increased demand for vehicle customization and personalization driven by owners looking to upgrade and enhance interiors, including the flooring area.

A growing awareness around car hygiene is also boosting the market as consumers become more conscious of maintaining cleanliness in their vehicles, including the floors. Automotive carpets provide an effective solution by trapping dirt and preventing it spreading to other areas.

B.I.G. says there is a growing market in PET for automotive interior applications, with polyester allowing automakers and suppliers to develop products which embrace ecologically-sound design by building monopolymer carpets and flooring that are fully recyclable at the vehicle's end of life.

The new yarns offer high performance for automotive carpets, including durability and abrasion and stain resistance, passing all automotive tests including the Taber test for abrasion performance, compressibility and recovery ability test, light fastness in automotive and VOC according the VDA 278 test.

The yarns can be color dyed, have a dTex between 1300 and 1500, 81 filaments, and are ideally for mats with a composition of 400 to 800 g/m^2, while the yarns for molded carpets have a dTex of 1200, 144 filaments, and are suited for 380 g/m^2 applications.

The supplier says they are now a one-stop shop for dyed BCF carpet yarns for the automotive industry: nylon (PA6), polypropylene (PP), and polyester (PET), and the Eco-range of PA6 yarns which position the company to help carpet manufacturers meet sustainability targets.

Bio-Plastics: Biodegradable?

INTERIOR NEWS

MERCEDES EQXX (MERCEDES IMAGE)

Stellaris is an India-based consulting company, with a focus on sustainable growth. They recently published about bioplastics with the potential to replace the majority of the 20,000 components made of petrol-based plastic. It is cost-effective, with desired properties for manufacturing, and capable of retaining its shape and size till the end of its life.

Currently, bioplastics are derived from carbohydrate-rich plants, such as corn or sugar cane. This ensures the highest yields, and needs the least land area to grow. Research is being conducted on cascading feedstock, focusing on using inedible waste and byproducts as feedstock for producing bioplastics, which have a promising future for automotive interiors—provided they can scale up cost-effectively to meet the high demand.

Major bioplastics and their automotive applications include:

- Biopolyamides (Bio-PA), which can make connectors, fuel lines, flexible tubing, and suchlike
- Polylactic acid (PLA): well-suited for mats, carpeting, and upholstery.
- Bio-based polypropylene (Bio-PP) for bumpers, spoilers, dashboards, HVAC ducts and housings, and battery covers.

Automaker examples include:

- Mercedes collaborated with startup UBQ Materials to develop bio-plastics from household waste. This plastic can be injection moulded. They also used sustainable lightweight materials in the cabin of their Vision EQXX all-electric concept car. The door handle is composed of bio-steel fiber, and floor mats are made of recyclable bamboo fiber.

RENAULT CLIO INSTRUMENT CLUSTER (MITSUBISHI CHEMICALS IMAGE)

- Renault is the first European automaker to use Durabio for the outer mask of the instrument cluster for the Clio. It is a bio-plastic developed by Mitsubishi Chemicals, made from plant-based isosorbide.
- Toyota has used Denso radiators with end tanks made out of DuPont Zytel 610, which contains 40 per cent (by weight) renewable content from the castor bean plant.
- Volvo promises to use 25 per cent bioplastics in new cars manufactured after 2025 to produce dashboards, floor mats, and seats.
- Hyundai's Ioniq 5 has fabrics incorporating bio-PET yarns, generated from sugarcane and corn. They are used for interior headliner finishing materials, seat coverings, floor mats, and floor carpets.

The Design Lounge

The case of CASE

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

EDAG LIGHT CAR SHARING CONCEPT AT GENEVA MOTOR SHOW 2013 (WIKIMEDIA IMAGE)

CASE is a term that was invented a few years ago and successfully survived to this day, as a description of the future of mobility. It stands for Connected, Autonomous, Shared, and Electric, and has been used since then by many automakers, including Toyota and Daimler who still use it to this day, as a label to their mobility strategy. Conceived before the pandemic, it acted a bit as a vocabulary equalizer. Disguised in corporate phrases and presentations, it became almost a word, giving the impression that all its letters are equal. But let's spellcheck CASE with today's mobility parameters.

Electrification is one of the key enablers for new integrated mobility across vehicle segments. Range anxiety goes hand in hand with the underdeveloped infrastructure, but the transformation is ongoing, bringing by the day greater numbers of EVs as part of our everyday journeys. The largest EV markets, US, EU and China, are rapidly and sooner than expected, becoming electric.

Connected mobility had its fair share of challenges in sectors such as data security, digital workforce, transformation as well as monetization. However, it well demonstrated its potential to revolutionize the way

we travel. Constantly addressing the above challenges, by inventing and implementing new solutions, is what ensures the benefits of a prospect connected mobility.

Anything **A**utonomous implicates a number of external parameters such as traffic management, infrastructure and cybersecurity. The sector constitutes a somewhat new territory of mobility and in times what is seen by the traditional approach to transportation as weakness, turns out to be its strength. The challenge is often purely visionary, opening a new perspective to 'mobility territories' with bold proposals. For instance Hyundai DICE goes well beyond the automotive approach and its territorial network, thus demonstrating new narratives of interest and progress, attracting investors into conquering new, places. Certainly, it is not a short-term project but several of the perplexing challenges seem to be attainable.

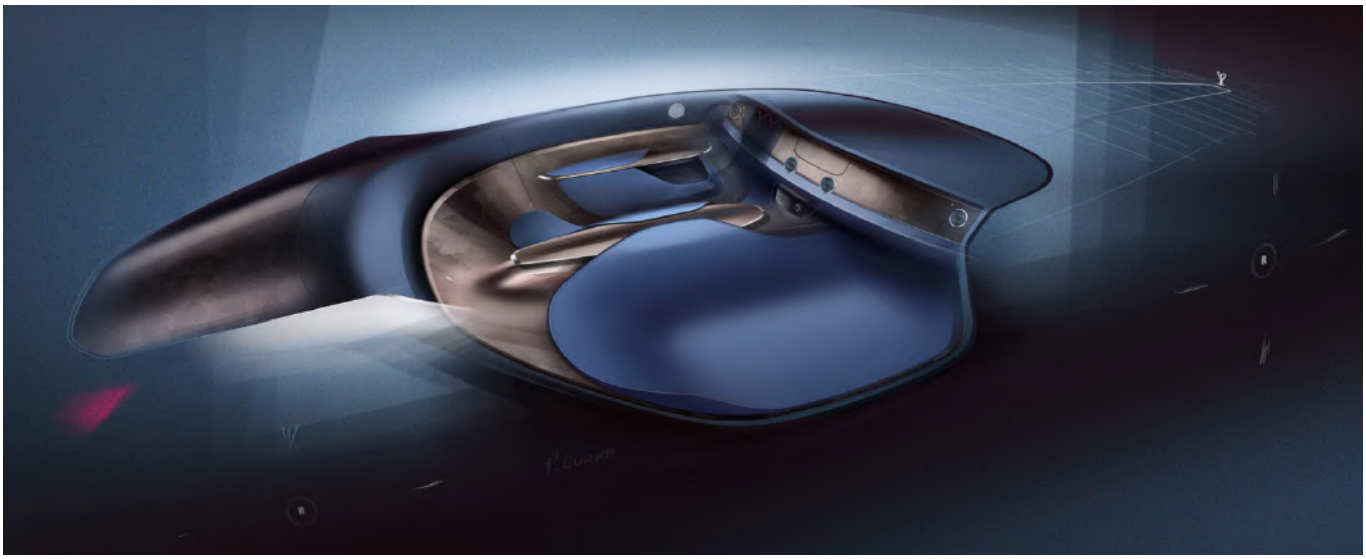
In post pandemic times, anything **S**hared acquired a double meaning. CASE in now spelled with a major accent on the 'S'. In addition to obvious civic reasons associated with certain public transport's features and characteristics, shared-mobility is now also held responsible for contributing to congestion and emissions by adding more trips and vehicles to already crowded roads. Safety concerns have been raised over e-scooters, posing accident risks for riders and pedestrians. Limited parking spaces and road jamming are detected to be at the root of the problem since shared vehicles are now indeed used more than before. And yet, although shared has increased, numbers are still lower than excepted. The subject was far more complex due to a reason external to all planning and predictions: customer behavior. While in theory it all makes sense, it seems that you and I, as well as most people, are not particularly engaged in the procedure of downloading, scrolling, choosing, booking, locating, pin coding, accessing, parking, evaluating, and logging out and confirming that 'I am not a robot'. In addition to low acceptance rates, the business case had to face several unpredicted challenges such as vandalism, higher than expected functioning costs, and rigid city authorities. The combination of the above added more complexity to the mix of the otherwise genius idea of sharing the excess capacity. Due to the challenges, VW offloaded its car-sharing business, WeShare, to the Berlin-based mobility-startup Miles. The survivability of the new acquisition intended a lot of adjustments. It was meant to be simple but someone had a great idea: car sharing companies pay parking fees by sharing their location, thus the decision was taken to fake GPS data avoiding parking fees, a total estimated of 30M euros! According to a report in the Berliner Zeitung, the story ends with Miles's offices raided by the police, making a great story for a car-chase movie but a very wicked one for a car-share plot. On January 15th, another major car-sharing player pulled the plug on their Paris electric car sharing service, Zity by Mobilize (Renault). The official reasons, as communicated, were *"external to the company such as significant damages repeatedly suffered by the fleet"*, affecting the availability of the electric cars and the service's quality rating. Stellantis proposed the latest big deal on car sharing, integrating to its existing operation Free2Move, a merger between Mercedes' Car2Go and BMW's DriveNow. The new acquisition, Share Now, is reportedly costing the two German automakers around a hundred million Euros per year so far.

While the idea of car sharing is brilliant, after all it seems to be far more intricate than expected. The addition of several unpredicted parameters to the equation has increased complexity to a point that could became uncontrollable.

Reducing the need for car ownership with on-demand multimodal ride pooling, implicates a particular client assistance, depending on how much information they choose to share. In an ideal setup, it could revolutionize mobility, with direct link to the client's calendar and working across applications, with access to total information, in real time. CES gave a glimpse of the missing link to manage complex systems and it might be that to spell CASE correctly we need to add two more letters: AI.

Rolls-Royce Droptail: Minimalism and Analog Tactility

THE DESIGN LOUNGE



ROLLS ROYCE IMAGES

The Rolls-Royce Droptail is a full-sized luxury coach built grand tourer car, presented in August 2023 at Monterey Car Week during the Pebble Beach Concours d'Elegance.

In the Droptail, Rolls-Royce Coachbuild sought to create an 'intimate and cosseting interior' that would also provide a canvas for the team's engineers to showcase their entirely bespoke wood crafting skills.

Rolls-Royce Motor Cars Design Director Anders Warming said, "Within Rolls-Royce design, the Coachbuild department is a place without limitation, where the most ambitious ideas can be expressed and a forward-looking vision of what is possible can be realized. The nature of Coachbuild gives us the latitude to go beyond our existing design strategy and explore bold, new, and highly focused creative avenues. These motor cars represent the dreams of our clients and capture a specific moment in time, while also projecting a bold and timeless interpretation of the Rolls-Royce brand".

The commissioning clients' requirement was a minimalistic approach to an interior, so Rolls-Royce designers develop a fascia that "celebrated minimalism and analog tactility" and has only three visible buttons. The fascia took four years to develop, test and homologate.

To celebrate 'woodcraft without interruption', Rolls-Royce carefully considered the orientation and specific placement of wood to highlight its natural effects. The focal point of the interior space is a curved shawl panel, consisting of an uninterrupted section of wood that wraps around the driver and passenger. Nestled between the two seats is a cantilevered plinth-like armrest, and at the touch of a button, the leather-covered plinth can slide backward and forward to gain access to the rotary information and entertainment system controller.

News Mobility

Marquardt Brings AD Future to Life With Demo Car

NEWS MOBILITY

MARQUARDT IMAGE

In the future, we will drive electrically and autonomously, and the car will become a small living room. Felix Hake and his team at Marquardt have built a demo car to show what it will feel like to sit in the car of the future, which becomes more emotional and gets more character.

The futuristic demonstrator buck has no wheels, and is full of high-tech surprises. Software and hardware developer Dominik Schuster approaches the Democar with a thumbs-up gesture, and the door opens automatically. He sits in the driver's seat and starts the autonomous driving mode. A green light ring lights up around the steering wheel, signifying all systems are go.

The seat automatically retracts to a more comfortable position, for a sort of cinema feeling. At the front, a large screen slowly emerges from the background. You can now watch your favorite series or use the time for a video chat.

Inventors at Marquardt use light in different colors as a control element. As soon as the owner approaches the vehicle with their smartphone, a green band of light shines all around. A floating transparent display can be seen in transparent crystals, like a hologram.

Around 11,000 employees now work at 22 Marquardt locations around the world. The product range, including all variants, comprises around 24,000 products Marquardt generates around 80 per cent of their turnover with the automotive industry.

Robotaxi Rollout: USA and Europe

NEWS MOBILITY

WAYMO IMAGE

The first driverless robotaxis in regular operation are in San Francisco. In the summer of 2023, the California Public Utilities Commission (CPUC) approved driverless operation of robotaxis around the clock; the Department of Motor Vehicles (DMV) had already developed and advanced framework conditions for testing and regular operation. The California Vehicle Code links licencing requirements for autonomous, driverless vehicles to proof of comprehensive technical requirements. These include certified proof of external control, including a continuous two-way communication link between vehicle operator and vehicle (including passengers), parking control at all times and removal from traffic in the event of corresponding technical indications from the vehicle, as well as other measures for hazard detection and control.

Liability lies with the person who controls the autonomous vehicle technology, and thus takes on the role of the driver. In addition, the vehicle owner must take out liability insurance and deposit a guarantee of USD $5m per vehicle. Manufacturers must also declare financial liability for any damage caused by technical faults in the vehicle technology.

But things haven't been completely problem-free; GM's Cruise autonomous-mobility unit was forced off the road altogether last Autumn—one of their self-driving Chevrolets hit and dragged a pedestrian in San Francisco, then Cruise experienced difficulty telling regulators all of what happened—and Cruise is still grounded while negotiations and scrutiny are ongoing.

In 2021, the Federal Republic of Germany laid out the European path for L^3 and L^4 automated driving with the Autonomous Driving Act (Sections 1a-l StVG). L^5 is also possible in principle, in defined operating areas. However, the corresponding implementing regulation for testing and regular operation is still lacking, which means it will still take some time before L^5 robotaxis come.

While the Californian passenger boards the robotaxi and their data is only processed by the associated driving service app, the data protection regulations in Europe are far more robust and protective. The event data recorder (EDR, 'black box') for recording human-machine interaction at levels 3 and 4 still raises several technically unresolved questions about data storage. In addition, the regular operation of highly automated driving requires a few other data recordings for which the owner is fundamentally responsible and for which the manufacturer must create the corresponding technical requirements.

General News

Stellantis Takes Over AI Systems from CloudMade

GENERAL NEWS

STELLANTIS IMAGE

The Stellantis Group has concluded an agreement with CloudMade, which focuses on the acquisition of the provider's AI framework as well as corresponding machine learning models and patents.

The new systems will be used to drive forward the development of the STLA SmartCockpit. The AI-based framework from CloudMade, including its graphical interface, is the industry's leading cloud and software development kit for collecting and analyzing automotive data, according to Stellantis.

According to the provider, CloudMade's architecture is primarily based on three approaches to machine learning: personalized learning, intended to recognize and anticipate the behavior of certain users depending on the context; fleet learning, which provides information on vehicle fleets based on sensor data, and cohort leaning, in which groups clustered according to certain attributes are analysed and compared with other data.

On the basis of the acquired technologies, Stellantis would like to be able to offer functions relating to predictive maintenance in the vehicle and personalized user experiences. Examples of this include voice assistance in the car and corresponding remote functions for controlling the vehicle based on the everyday life of the respective user. Other potential applications are seen in real-time navigation and fleet management.

Apple EV Plan Delayed Again

GENERAL NEWS

APPLEMAGAZINE.COM IMAGE

According to a media report, Apple has adjusted the timeline of fielding an electric car, and they're now aiming for a market launch in 2028. Instead of building a largely self-driving car, they want to focus on driver-assistance functions. The change in strategy was decided after meetings between the Board of Directors, CEO Tim Cook, and project manager Kevin Lynch, according to sources close to the matter.

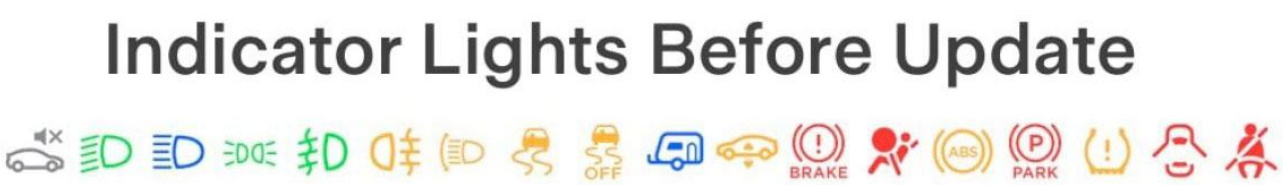
Apple has been putting converted self-driving vehicles on the road in Silicon Valley. Former Tesla manager Doug Field, who was the project manager, joined Ford in 2021, amid his doubts that Apple would be able to successfully bring a vehicle to market, according to Bloomberg News.

According to media reports, Apple didn't want to launch their car until the software was ready for largely autonomous driving, but then realized this is not achievable in the foreseeable future.

With a launch in 2028, Apple would not be the first electronics company with their own car; Sony wants to launch their Afella, co-developed with Honda, as early as 2026.

Oops…! Latest Recall Covers US-Spec Tesla

GENERAL NEWS



Tesla has been forced to recall and fix cars that don't meet applicable safety standards. This time, it's because they failed to make every single one of their US-specification cars in accord the Federal Motor Vehicle Safety Standards.

The noncompliance involves the brake system fault, ABS fault, and parking-brake-applied telltales. In most of the world, symbols are used for these telltales: an uppercase P; an exclamation point, and the letters ABS in the centres of pictograms meant to look like a wheel brake.

But in the U.S. , the word **BRAKE** is required for the brake system fault telltale. If a separate telltale is used to inform the driver that the parking brake is applied, it must use the word **PARK**. And the one for the antilock brakes must read **ANTILOCK**, **ANTI-LOCK**, or **ABS**. All these must be in letters at least 3.2 mm tall. Symbols are allowed, too, but they're optional; the words must be present, and they must be sized according to the regulation.

As has become customary, Tesla enthusiasts have been quick to dismiss the fix as a non-recall, because the fix involves an over-the-air software update rather than time and hassle taking the car in for hands-on service at a dealer—a quibble at best, but this time it's an actual, real, old-fashioned recall, at least for four model years' worth of cars. No Tesla sold from 2012-2015 can be updated over the air; they must be taken to a repair center for a software reflash. That's because even though 4G/LTE was in common use in 2012, Tesla chose to use a 3G cellular radio for data service on their 2012-'15 models—AT&T's 3G service, specifically, which was permanently shut down in December 2022, making all those Teslas unreachable.

They do have wifi, but the recall requires updating even those vehicles not parked near a wifi hotspot overnight—and that means Tesla must mail out paper notices and make service center appointments.