Thu, 10 October 2024
Weekly Newsletter

DVN Interior

NEWSLETTER #231

Editorial

Pillar-to-Pillar Displays: Immersive Or Invasive?

AUO IMAGE

In June we reported in depth about Display Week in San Jose. There, the predominant automotive focus was 'smart' full-width, pillar-to-pillar displays customizable by the driver and passenger. Other developments included curved, 'smart', customized cockpit displays with integral sensing capabilities, and no separation between screens such that the driver and passenger will not see borders between them.

Is a big screen really needed? With screen growing year by year, is there a limit? See this week's in-depth piece, where we analyze pros and cons.

The upcoming DVN Workshop is now just in front of us; it's the week after next in Torino on 22-23 October, with a theme in the spirit of times: Design and Sustainability. Come, talk and listen with the likes of Stellantis, Ford, Italdesign, Forvia, Antolin, Dow, Covestro, Mario Levi, Techno Team, SP3 and more. It's not too late yet to **register**. I'm looking forward to meeting you all there!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Are Wider Displays Better?

SAMSUNG SMARTTHINGS PLATFORM ON HYUNDAI-KIA CAR (SAMSUNG IMAGE)

Ever since the first automotive display—a couple of very small CRTs in the 1976 Aston Martin—the amount of real estate dedicated to displays has grown dramatically. As reported by Reuters, the average size globally of a vehicle's center display in 2018 was 7.7", projected to reach 9-10" by 2024. It's 2024 now, and the average is…10".

The 2012 Tesla included the first automotive touchscreen display. At 17", it touched off an escalating size war of ever-larger-and-more numerous in-car screens providing instrument clusters, center stack controls and displays, and infotainment displays.

So, automobiles are equipped with more and larger displays year over year, and this trend seems likely to continue. Will it eventually lead to widespread adoption of pillar-to-pillar (P2P) displays? Business projections show a total P2P business revenue of just $36m in 2022, but some have forecast that the P2P display market will increase 46.2 per cent through 2032 to reach $1.65bn.

Some of these P2P displays, and other larger and curved display configurations now showing up in multiple automobiles, use OLED technology on account of its visual quality and flexibility. However, as an emissive display type, OLED displays require careful testing to ensure uniformity. Typically, a high-resolution imaging photometer or colorimeter is needed to measure the pixels and subpixels. Then an adjustment factor can be computed and applied to correct the display.

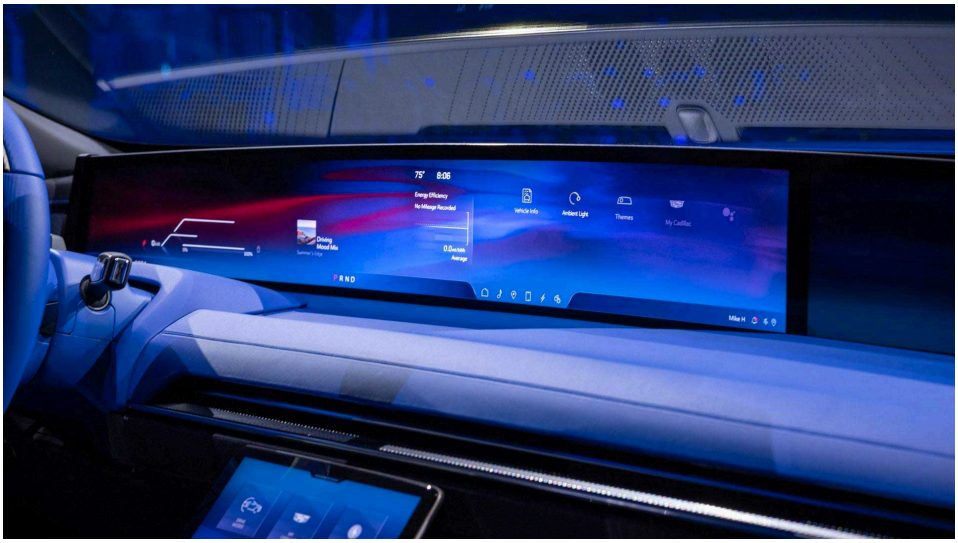
Why screens are getting bigger

It is said that the main reason screens are growing wider is that users expect this, in parallel to smartphones, tablets, and TVs—the idea being that consumers have been trained to associate bigger/wider screens with new technology.

Functionally, various ADAS functions require the ability to display information. To support CarPlay and the like, the display must be a minimum of 8" and a certain resolution, and this minimum requirement is growing as the need becomes acknowledged that information must be provided in less distracting ways, even as there is more of it to provide.

And wider display supports the vaunted immersive experience, declared by automakers and suppliers as the new pinnacle of automotive interiors. P2P displays are said to provide an "immersive" experience for the driver. Typically, these dashboards integrate multiple component displays beneath a single sheet of touchscreen glass. So far, only a few P2P displays have been commercially launched, though they show up a lot in concept vehicles.

P2P in real cars



2024 CADILLAC CELESTIQ

Cadillac

Cadillac's Celestiq is one of the few, it includes a 55", pillar-to-pillar digital display with 'electronic digital blinds' (digital blocking) which GM describes as an active privacy technology that allows passengers to watch videos while blocking them from the driver's view.

Mercedes

MERCEDES IMAGE

The 56" MBUX Hyperscreen is one of the highlights in the EQS. with software capable of 'learning', the display and controls adapt to the user. The system makes personalized suggestions for numerous infotainment, comfort and vehicle functions. It is a 'zero layer' system: the user needn't scroll through submenus or give voice commands.

The MBUX Hyperscreen is an example of digital/analogue design fusion: several displays appear to blend seamlessly, resulting in an impressive, curved screen band. Air outlets are integrated into this large digital

surface to connect the digital and physical world.

Produced by LG Displays, this EQS Hyperscreen incorporates an LCD instrument cluster display and two flexible OLED screens for center stack and passenger displays.

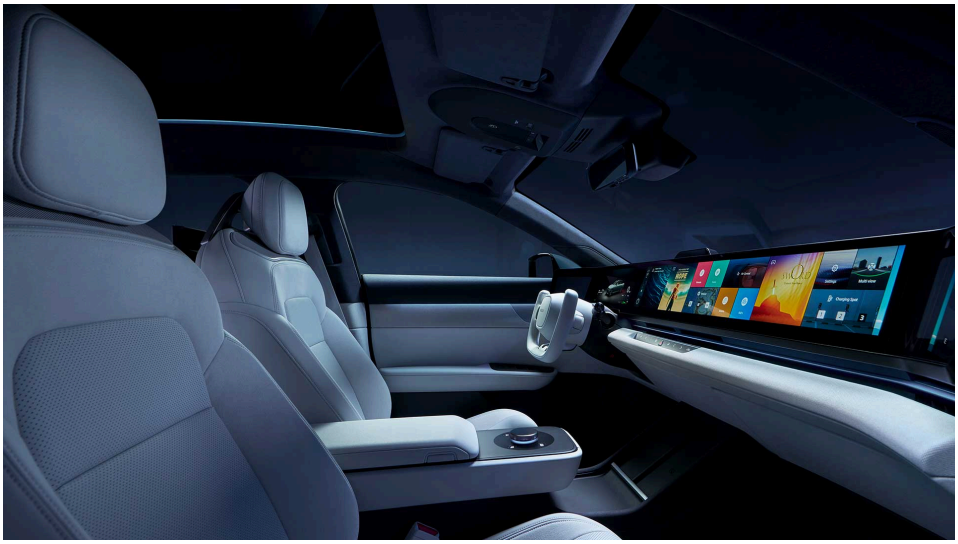
Lincoln

LINCOLN IMAGE

Ford's Lincoln luxury brand says their display system "brings enhanced levels of customization and convenience" to the in-car experience, and that it is "presented in an engaging, seamless and connected form". They say their panoramic display is the largest in its class, paired with an 11.1" center-stack touchscreen.

When parked, Lincoln drivers can surf the web as they would on a phone or tablet using the Vivaldi browser, which Polestar also debuted an updated version of this month. Google Chrome is coming soon, Ford says, "with a Bluetooth-connected keyboard to make typing easier."

Sony - Honda



In the Sony-Honda Afeela, there's a panoramic screen that spans the entire front area. Drivers get clear driving information while passengers get an immersive entertainment experience. An unusual steering yoke ensures an unobstructed screen view for the driver.

BMW

BMW is taking a slightly different approach, announcing a panoramic full-width HUD in a 2025 model. It's called BMW Panoramic Vision, and supports driver engagement in the maker's Neue Klasse series of cars.

For the first time this projection technology allows visible displays across the entire width of the windshield for all passengers. BMW Panoramic Vision shows information relevant for the driver and passengers with a higher light intensity and contrast onto a dark-coated area at the lower edge of the windshield. This creates an extremely sharp image always visible across the full width of the glass. Information relevant to the driving situation is always in the right place at the right time.

Hyundai-Kia

Hyundai plans to install a 24-to-27" OLED screen this year, and the Genesis GV70 has a 27" OLED display produced by LG Display.

LG Display was one of the first companies to identify the automotive industry as a potential market for their AMOLED displays. LGD supplies OLED panels to automakers, including Mercedes and GM (for Cadillacs). In 2021, it was estimated that LGD holds over 90 per cent of the market for automotive AMOLEDs, and the company is now considering building a dedicated AMOLED production line for automotive displays.

Porsche

PORSCHE IMAGE

One highlight of the Porsche Panamera is its display and control concept: the Porsche Advanced Cockpit with touch-sensitive panels and individually configurable displays. The interactive cockpit takes the form of two seven-inch screens.

A 12.3-inch touchscreen in the center console functions as a central PCM control and display unit, via which the driver can access various items of hybrid-specific information.

Aehra

The Milanese startup Aehra in June 2022 teased the launch of a high-end electric crossover. The Impeto (SUV) and Estasi (Sedan) are touted in terms of their architectural space efficiency and features to prioritize user convenience, comfort, and wellbeing. The company says all factors lead to 'desire-to-drive', contributing to making life on board Aehra products a pleasant and unique experience.

The distinctive, sportscar-like design maximizes aerodynamics and efficiency plus interior space. The car's shortened front overhang, with the base of the windshield pulled dramatically forward, creates a cab-forward, single-line design—unprecedented in the SUV and sedan segments.

Stellantis (Ram)

STELLANTIS IMAGE

Ram is taking a more traditional approach to displays. The 1500 Revolution BEV concept truck features a display made up of two screens. The lower unit has three different positions: minimal, extended and full-screen view. It can also be removed and used in different areas of the pickup truck.

Continental

CONTINENTAL IMAGE

Continental last year unveiled their ultrawide 'In2visible' HMI. Measuring 1.29m wide, the surface comes with an integrated, haptically-supported control panel. Optional dimming of individual areas means the interface can save power, improve readability and reduce distractions.

Rightware

Premiered at CES 2023, the Snapdragon Digital Chassis concept vehicle uses a next-generation Snapdragon Digital Cockpit Platform from Qualcomm, leveraging Android S and QNX 7.1, all seamlessly integrated and performance-optimized with Kanzi One.

Conclusion

A panoramic display can be a key element of a cockpit offering an immersive experience for drivers and passengers. The display can include the functions of an instrument cluster, vehicle control center, and infotainment all in one.
Widening screens can pave a way for the future of much richer digital services inside the vehicle, for various use cases and scenarios. Cars will become increasingly 'intelligent', and the in-car digital services will steadily grow and cover more use cases. In-car digital experiences could become one of the most important touchpoints in the digital ecosystem.
It seems most likely that over the coming years, the number and size of screen inside the vehicle will increase, probably rapidly. Limits are restricted only by the physical car interior space and the costs of the screens.
Or…maybe not. When Tata Motors presented their Avinya concept, they demonstrated a future wherein voice controls, and not screens, will be the hub of the automobile interior. We shall have to see!

TATA AVINYA CONCEPT 2022 (TATA IMAGE)

Interior News

Yanfeng's EcoSkin is New Interior Surface Material

INTERIOR NEWS

YANFENG ECOSKIN

The interior trim materials in new cars can emit high levels of VOCs; Many scientific studies have shown VOC levels in new cars can reach over 5,000 mg/m^3.

The problem of the in-car smell is a global one; 91 per cent of consumers surveyed in the USA, UK, France, Germany, Japan, and China say that bad smells when driving negatively affect their mood, make them feel nauseous, stressed, or irritated.

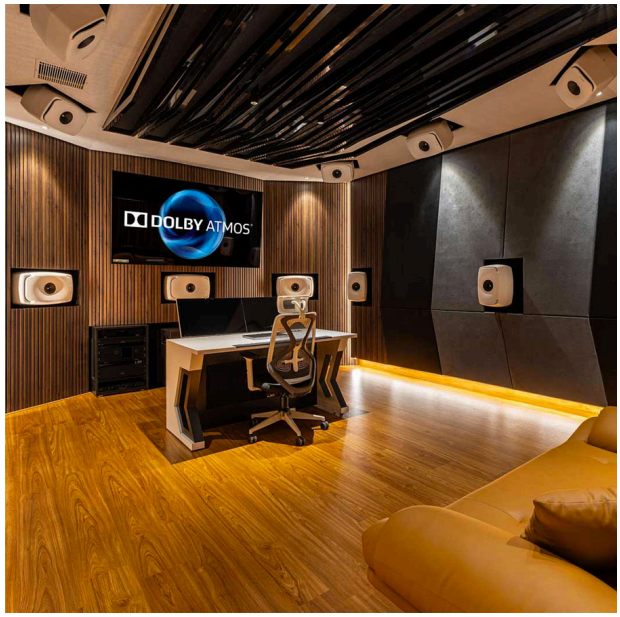
And the issue seems getting worse, since car manufacturers are increasingly incorporating recycled and bio-based materials into vehicle interiors to meet consumer demand: these materials often retain strong odors from previous uses, posing a challenge for reducing new car malodor emissions. A study found that postconsumer HDPE contains 32 odorous substances, with higher odor intensity compared to virgin plastic. Suppliers already face difficulties meeting the VDA 270 standard for in-car malodor levels, and as the push for recycled materials intensifies, there is a growing need for effective additives to eliminate volatile organic compounds (VOCs).

Yanfeng has been actively exploring the development and application of sustainable surface materials in recent years. Their EcoSkin, for example, has unique environmental benefits that can effectively reduce the VOC in the car and create a green and eco-friendly cabin experience.

EcoSkin is a recyclable thermoplastic elastomer (TPE) designed for use on visible interior surfaces of vehicles. It features a lifelike texture, high stain resistance, and is easy to clean. Unlike traditional materials, ecoSkin allows for greater design flexibility, including customizable color combinations and light transmission. Its integrated multi-texture process streamlines manufacturing while reducing the carbon footprint. Production is solvent-free, significantly lowering VOC emissions. Additionally, a new wireless charging module showcases ecoSkin's versatility, utilizing its surface technology for various applications. The one-piece injection molding process also achieves a 37.5-per-cent weight reduction, improving the material's quality and sustainability.

Stellantis' New Immersive Audio Reference Lab

INTERIOR NEWS



GENELEC IMAGES

Stellantis has opened a state-of-the-art Dolby Atmos 9.1.6 audio lab in Bengaluru, India, featuring Genelec Smart Active Monitors. This lab is the first of its kind among automakers in India, and will focus on audio reference, production, and quality assurance as part of Stellantis' broader initiative to create in house the new brand's audio signatures.

Stellantis Chief Software Officer Yves Bonnefont says, "Audio plays a vital role in our customers' satisfaction and enjoyment of their vehicles, as well as alerting them to key functions and driving situations. This brand-new lab demonstrates our commitment to class-leading automotive acoustics – and highlights India's pivotal role in Stellantis' global strategy".

The lab achieves exceptional acoustic standards, including a low reverberation time and impressive sound insulation, through advanced simulation techniques. Genelec monitors were chosen for their superior sound quality and integration capabilities. The collaboration with Genelec has been crucial in meeting Dolby's stringent requirements, highlighting Stellantis' commitment to innovation in automotive audio.

The system relies entirely on Genelec Smart Active Monitors, taking care of the surround and height channels, and a subwoofer handling the low frequencies. GLM software, Genelec Loudspeaker Manager, enables precise calibration of frequency response, playback level and distance delay, ensuring that the Genelec solution seamlessly met Stellantis' technical and aesthetic demands.

Genelec is a renowned manufacturer of professional audio monitoring equipment, established in 1978. The company is recognized for its commitment to research and development, leading to numerous industry innovations and establishing itself as a leader in active monitors. Genelec products are known for their reliability and neutral sound reproduction, adapting well to various acoustic environments. The brand is also noted for providing exceptional customer support, ensuring users get the best performance from their audio systems.

Kia OTA Update: Feature Bonanza, Pushbutton Silence for Speeders

INTERIOR NEWS

KIA EV6 (NETCARSHOW IMAGE)

Kia is improving the operating systems in numerous vehicles with an extensive update promising 153 new features. These include a significantly upgraded route planner for electric cars, which provides information on arrival time, charging status, and charging stations. Another new feature: preconditioning is activated when the driver searches for charging stations using voice recognition. Voice control also supports other commands, for example to control the ambient lighting and the instrument cluster. The music streaming service Soundcloud is also integrated.

The update, transmitted over the air, will gradually reach all Kia cars from model year 2022 onwards.

It will also make it easy to defeat a new safety device. Since July, all new cars registered in the EU for the first time must issue an audiovisual warning if a speed limit is exceeded. This can be switched off temporarily, but is switched on again every time the car is restarted. However, numerous test cars show considerable deficits in the detection of traffic signs. False warnings are sometimes issued, and sometimes warranted warnings aren't given.

Automakers are aware of this and are attacking the problem from two sides: working to improve the recognition rate, and…making it easier to switch off the warnings. Mercedes has created a button at the top level for this purpose, and the Kia software update will provide a steering wheel button.

Volvo's China-Market Luxury Car

INTERIOR NEWS

VOLVO IMAGES

This luxuriously equipped four-seater EX90 is intended only for the Chinese market, where every premium auto brand must offer a chauffeur-driven model, just for image reasons alone. Volvo offers two models there, the EX90 Excellence and the EM90, in which the best seats are in row two, where the owner usually sits.

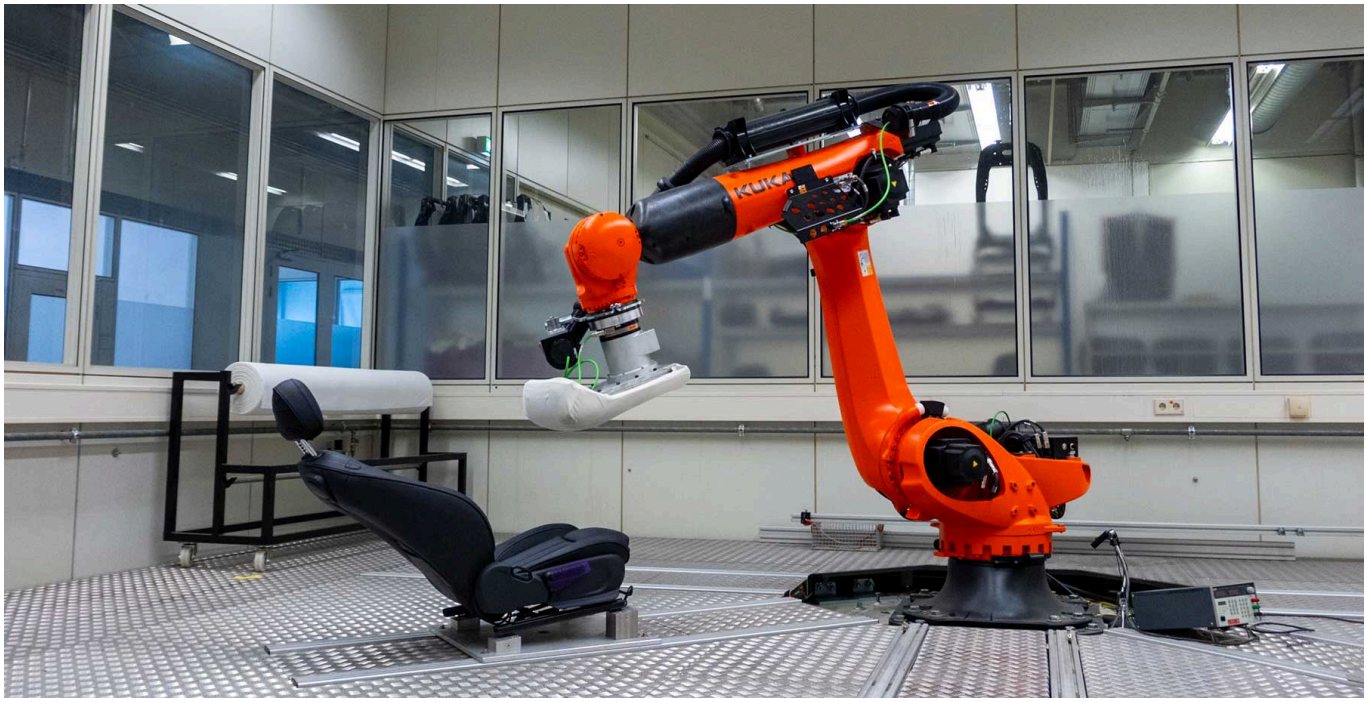
At the front of the interior, everything is still normal and there is no discernible difference to the standard model. In row two, however, wide individual seats invite you to take a seat. They can be adjusted almost to a reclining position, and the footrests then extend electrically.

A mighty console with a minibar including glasses and storage space towers up between the seats. A switch made of Swedish Orrefors crystal for the fragrance dispenser sits at the top of the brightly veneered center console. Three fragrances, together with colored ambient lighting, are designed to encourage relaxation. The soft seats upholstered with Nordic down can be heated and are equipped with various massage functions. Instead of leather, Volvo offers upholstery made from Nordico, developed internally within Volvo, a vinyl made from recycled PET bottles and cork.

In China, the EX90 Excellence fills a gap between the brand new EM90 luxury van and the EX90 series models. The EM90, which is also equipped with two comfort seats, is designed more as a business sedan, with a fold-out screen in the roof and a wide range of options for working.

MINI Interiors Made With 2D Weaving

INTERIOR NEWS



MINI IMAGE

The latest MINI features interiors made using an innovative 2D weaving process which exhibits deep color and various textures to elevate the cabin experience.

The 2D woven fabric is made by conventional weaving process consisting of interlacing two orthogonal sets of yarns, the 'warp' at 0 degree and the 'weft' at 90 degrees.

MINI already uses recycled polyester for its interior materials, which are also produced using the 2D weaving process. The process unlocks new design possibilities in terms of coloring and structure, enabling a dual-color design with a sense of depth because the lower textile layer's color shines through the upper one.

Inspired by sneakers, this process gives surfaces a visual complexity, bringing a high-quality appearance to the interior. The headrests of the sports seats in the John Cooper Works trim also feature an exclusive 2D woven surface that extends to the shoulder area.

The combination of high-quality materials and precisely coordinated color tones generates a harmonious, modern appearance in the cockpit and an exceptionally homey character, according to Mini. "We wanted to use colors that respect the heritage of the brand and at the same time create a fresh, contemporary aesthetic," explained Jeanette Ohlhäuser, a color designer at the Mini Design Studio. For example, British Racing Green, the iconic color closely associated with the brand's motorsport tradition, is interpreted as Dark Petrol in the new Mini Aceman interior.

The Mini's interior also benefits from impressive textures and graining on almost every plastic part in the interior. "It is important to us that the texture of the surfaces harmonizes perfectly with the other materials, such as the woven fabric in the interior," said Marlies Michel, designer of Mini graining.

The blueprints for the various surface textures used in the new Mini model family are based on influences such as the grain on wood or rock. The subtle Mini grain developed in this way blends perfectly with the visually strong weave and serves as a link between all the materials in the vehicle interior.

Polestar 4 is Sporty, Individual

INTERIOR NEWS

POLESTAR IMAGES

Polestar promises rear-seat passengers "a new kind of experience". On the seats, which are slightly higher than the front seats, you have plenty of sky above you up to the top of your head, but no view to the rear, for there is no rear window.

As usual, the driver has an interior rear-view mirror. But its image is provided by a camera at the rear of the car roof. It provides a larger field of vision to the high-resolution screen than conventional mirrors, but it could be a problem for a driver with glasses; the image might be blurred or unclear.

The 3-meter wheelbase gives ample space for a generously-proportioned interior. Polestar uses recycled materials and natural fibers to minimize the CO_2 footprint during production. Polestar gives the trunk volume as 526 to 1,536 liters, and there is a small frunk at the front for charging cables and suchlike.

The car runs the Google operating system, which worked perfectly in the test car. It is controlled via a 15.4" screen which, unlike the 2 and 3 models, is mounted in landscape format.

The 10.2" central display shows speed, battery level and range. There is also a head-up display with a 14.7" projection screen. Regular OTA updates also bring the Polestar up to date with the latest software.

The Design Lounge

Maserati Grecale: Premium Luxury and Tradition

THE DESIGN LOUNGE

MASERATI IMAGES

COFFEE CORNER
DVN
Interior

There has not been any hint of a retraction since Maserati restated in January that their future will be electric-only, commencing in 2028. And so, while others have changed their tune as 2024 progresses and sales of EVs tumble in many countries, this marque continues to prepare for the end of liquid-fuel models being a little over three years away (assuming 'in 2028' means on or after 1 January of that year).

The Maserati Grecale, codenamed M182, has been in production since the first quarter of 2022, after being launched in November 2021. It's built at the Piedimonte San Germano factory in Lazio, though Stellantis calls the factory Cassino.

Every Grecale has four-wheel drive and uses the Giorgio platform. In the Folgore, however, what is effectively a bespoke architecture is employed, due to the floor-pan being lowered. Ground clearance is therefore less than in the GT, Modena and Trofeo.

The leather-clad cabin has yellow-stitched trim. There's a central touchscreen, and a center-stack control below that with HVAC controls and such, and the prindle buttons are positioned unusually in a row between the two. Doors open with a press on an illuminated circle.

Start/stop is a small, round button (a real one) below one side of the steering wheel spokes with an identically sized dial on the opposite side. This is the drive mode selector: off-road, comfort, GT, sport, and track.

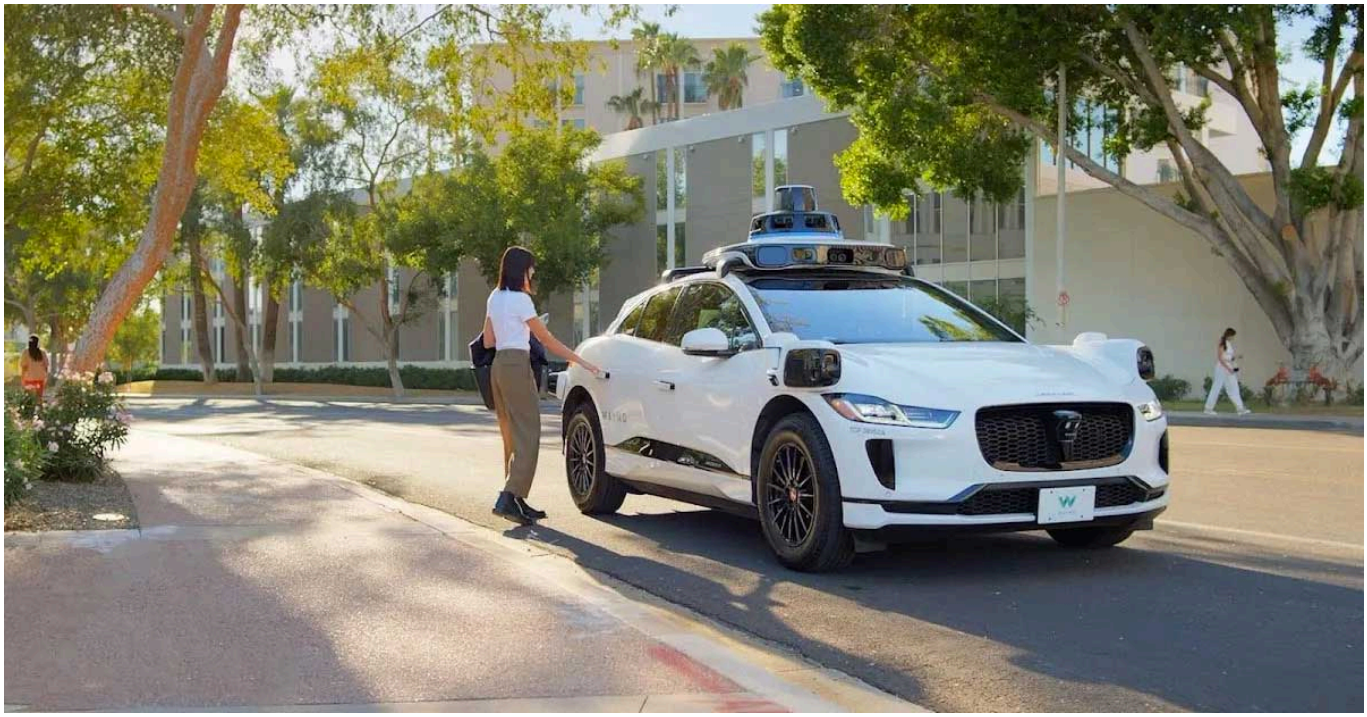
The dash includes a 12.3” digital gauge cluster and a pair of touchscreens on the center stack. The upper unit measures 12.3” and handles the infotainment system while the 8.8” lower screen contains HVAC and other controls. A three-zone climate system as well as a head-up display are optional. The Grecale's cargo area offers up to 540L of capacity, and Maserati says the area behind the power-folding rear seats features a flat load floor with a storage compartment underneath.

The SUV's audio system can be upgraded to a 21-speaker, 1285-watt Sonus Faber stereo.

News Mobility

Waymo Robotaxis: 100,000 Trips Per Week

NEWS MOBILITY



WAYMO IMAGE

Waymo's cars now make more than 100,000 trips with passengers per week. Google's sister company only cracked the 50,000 mark in May. The service was then made available to all interested parties in San Francisco, without a waiting list.

Waymo is particularly advanced in the development of software for autonomous driving and transports passengers with driverless robotaxis in San Francisco, Los Angeles and Phoenix. The company's self-driving vehicles are expensive because of the built-in computers, cameras and sensors, but Waymo is in the process of cutting costs. The next generation of vehicles and their software will only need 13 cameras instead of the previous 29. The number of laser radars that scan the car's surroundings has been reduced from five to four.

Current Waymo vehicles are converted Jaguar iPaces, several hundred of them. The new 6th generation of the Waymo system is to be integrated into Zeekr electric cars, a Geely Group brand. Zeekr's new vehicle is currently being tested with safety drivers at the wheel. Waymo has not yet provided any information on when it will be integrated into the commercial fleet.

Waymo currently has virtually no competition in the robotaxi business. Cruise cars are only just beginning to return to the road. Zoox, which belongs to Amazon, is still working on the launch of their driverless cab rides in Las Vegas. Tesla also wants to present a robotaxi prototype in October, but Elon Musk has been promising this for years, and it could be yet more years before any such vehicle really hits the road—Musk scorns lidar and radar, and wants to achieve (real) full self-driving with cameras alone.

Assistance Systems: Safe Progress or Dangerous Distraction?

NEWS MOBILITY

MOBILEYE IMAGE

A new study by the US-based Insurance Institute for Highway Safety finds that driver-assist systems can make new kinds of crash risks. The safety settings can be bypassed—and it is happening.

The IIHS study finds that drivers easily and willfully circumvent software-based safety barriers. It was found that drivers using semi-automated systems were more often distracted; they checked their phones or ate, even when driving without assistance. The problem is so great that an earlier study by the institute found that the systems are more likely to jeopardize road safety than reduce it.

When the vehicle feels safe driving autonomously on the highway, concentration wanes. What's more, you can still outsmart older systems by simply steering with one knee. You then have both hands free to use your smartphone.

Most systems are not yet designed for fully autonomous driving, but are often misused that way. In the USA, the police often have to stop Tesla drivers who have fallen asleep behind the wheel (or just turned their sustained attention away from driving). There have been fatal Tesla crashes because customers misused the system. Regulators all over the world are upset with the automaker's misleading "Autopilot" and "Full Self-Driving" marketing names for their L^2 driver-assist systems.

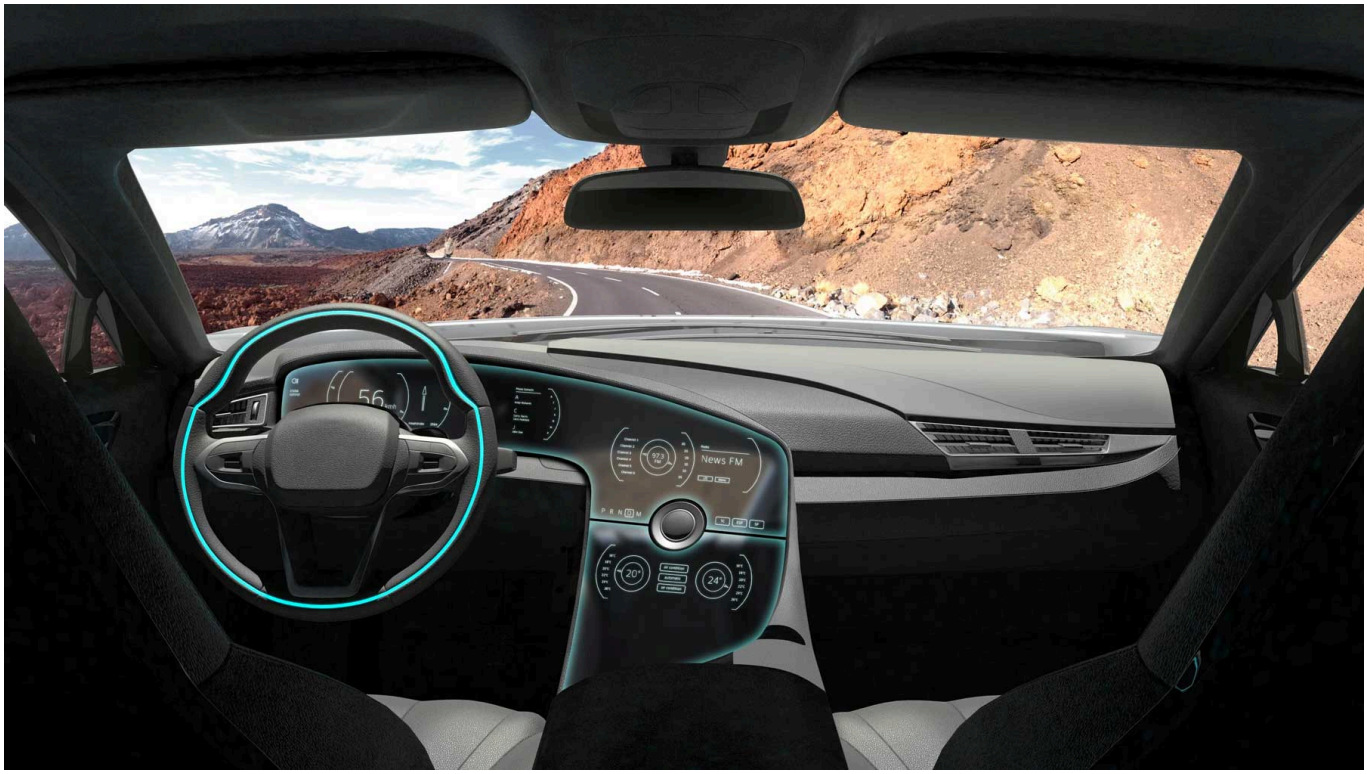
Truly autonomous cars are currently only available from BMW and Mercedes, and only at L^3; real "full self-driving" is at L^5, which will not be available for the foreseeable future. The L^3 systems currently available work only within very narrow limits. They can only be used on the highway and only up to a speed of 60 km/h, though Mercedes has announced they will soon increase the speed to 95 km/h.

Almost all manufacturers offer L^2 systems in their cars and the average age of the vehicle fleet in most countries is around twelve years. This means that the driver assistance systems that have come onto the market in the last two or three years will still be on the roads beyond 2030. And updates for these systems are rare. We can only hope that most drivers will use their driver assistance systems as intended.

General News

Flabeg Automotive is Insolvent

GENERAL NEWS



A FLABEG CENTER CONSOLE (FLABEG IMAGE)

Glass processing and finishing supplier Flabeg Automotive Germany has filed for insolvency at Regensburg Local Court. Business operations at the company will continue during the insolvency proceedings.

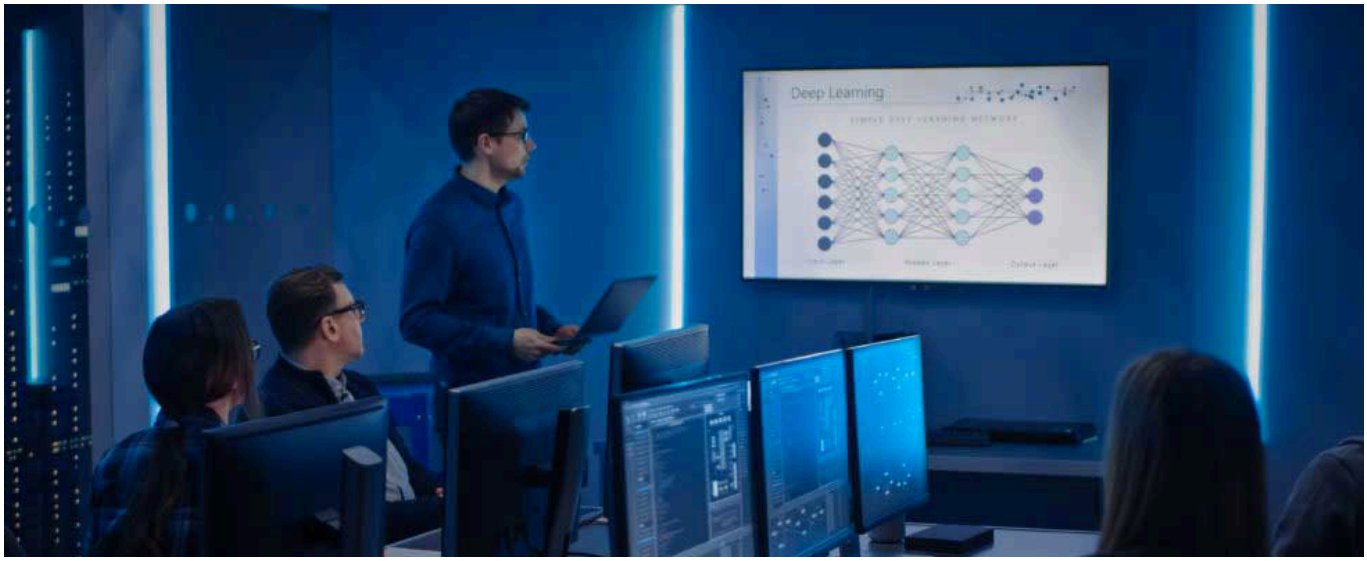
Among other products, Flabeg is a market and technology leader in mirrors for the automotive industry. (Market share: Europe 72 per cent, South America 72 per cent, Asia 12 per cent.). They also develop display glass.

They are pinning their hopes on talks with potential investors. Shortly after filing for insolvency, the insolvency administrator began looking for investors and launched an M&A process. Talks are reportedly in process with potential investors. As a specialist in glass processing and finishing, particularly for display glass in vehicle interiors, Flabeg has extensive expertise.

The opening of insolvency proceedings also marks the end of the 'insolvency benefit period'; wages and salaries will now be paid again by the company from the funds generated.

Akkodis' New Wolfsburg Innovation Center

GENERAL NEWS



AKKODIS IMAGES

At Akkodis' new Wolfsburg innovation center, 650 employees are working on the mobility of the future.

The Adecco subsidiary's expertise includes embedded systems and networked services to 'artificial intelligence', cybersecurity, blockchain and data analytics, measurement technology and testing with HiL test benches.

For example, the company presented the "PROVEit" bicycle demonstrator, a platform that actively involves visitors in the mobility tests of the future. Here, a bicycle simulator on an exercise bike reproduces realistic riding scenarios and shows in real time how different routes and obstacles can be mastered using new test technologies.

There is also a strong focus on the development of alternative drive concepts such as battery systems and fuel cells, which are used in various mobility sectors. At last year's IAA Mobility, Akkodis presented a digitally networked and sustainable mobility ecosystem in the form of the Urban Lifestyle Vehicle. The concept is made up of various electrically powered means of transportation such as e-bikes, e-scooters or e-cars - like the Urban Lifestyle Vehicle. The Akkodis ecosystem is based on the smart battery concept, which integrates various battery technologies in a modular way.

Akkodis also presented "Green & Fly", a concept study for a regional aircraft (CS25), at the ILA in Berlin in June. The aircraft is powered by a system based on fuel cells. The electricity generated here flows loss-free via superconductors to the two electric motors, resulting in optimum energy utilization. The low temperatures required for superconductivity are generated by the cold transported hydrogen, which further increases energy efficiency. This is in line with the aviation industry's goal of making flying emission-free by 2050. In addition to the propulsion system, the concept also boasts a new wing design based on AI-supported modeling.

As a joint venture between Akkodis and the VW subsidiary Cariad, the company "e:fs TechHub" develops solutions for automated driving, while the company "e.lective" specializes in electromobility.