Thu, 27 June 2024
Weekly Newsletter

DVN Interior

NEWSLETTER #218

Editorial

Don'tchya Step On My Blue Suede…Interior?

2017 CHEVROLET CORVETTE WITH BLUE SUEDE INTERIOR (CARICOS IMAGE)

It has been nearly 70 years since the song "Blue Suede Shoes" came out, eventually turning this type of fabric into a cultural touchstone. Suede has been used in automotive interior trim for a long time, especially under the name and brand Alcantara. This week's in-depth report focuses on suede materials, including their sustainability and vegan alternatives.

This week, DVN Interior is attending the Enmore Automotive Congress trade show in Suzhou, China. We look forward to a broad range of show-and-tell in fields including cockpit monitoring, CMF design, cockpit interaction and vehicle display, interior decoration and lighting, NVH, acoustics, HUDs, safety, raw materials, exterior lighting, lidar, and more. We will report about the extensive interior technology content in forthcoming DVN Interior newsletters, so stay tuned.

Thanks for your membership, and remember: the DVN Interior workshop videos are **available** for download.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Suede and Alcantara: Premium Leather Alternatives?

ECCENTRICA CONCEPT CAR 2023 (ECCENTRICA IMAGE)

Suede is known for its soft texture and luxurious appearance. It's a popular choice for adding elegance to a vehicle's cabin. Suede and suedelike materials are increasingly popular in the automotive industry for reasons including:

• Aesthetic appeal: a luxurious look and feel that enhances the interior design of vehicles, with the aesthetic and feel of real suede leather.

• Sustainability: these materials can be produced with less environmental impact than traditional leather.

• Innovation: suede made from recycled materials (such as recycled plastic bottles) is on the rise.

• Comfort: suede's plush texture provides comfort and a pleasant tactile experience for passengers.

By incorporating materials like suede that are both aesthetically pleasing and environmentally responsible, automakers can appeal to eco-conscious buyers and adhere to stricter environmental regulations

Alcantara

Alcantara is the brand name of a durable synthetic textile with a soft, suedelike microfiber pile. It was developed by Miyoshi Okamoto, and initially manufactured by the Italian Alcantara company—itself the result of a 1972 joint venture between Italian chemical company ENI and Japanese company Toray Industries. The company is now owned by Toray and Mitsui.

Alcantara is commonly applied as a substitute for leather and vinyl in vehicle interior trim. Although it is a trademarked brand, it has become genericized for this type of suede product. It is actually a synthetic textile made from a blend of about 68 per cent polyester and 32 per cent polyurethane. It is lighter, more durable, and provides more grip than conventional leather or plastic, making it a favored choice for areas like steering wheels and gear stick knobs. It offers durability and stain resistance with the appearance and tactile feel of suede, and it may be erroneously identified as such.

Other synthetic suedes like UltraSuede or MicroSuede are also available, and offer similar benefits and characteristics. These materials are chosen for their durability, resistance to stains and fading, and their ability to maintain a luxurious look in high-traffic areas of the car's interior.

Alcantara Applications (as recently presented at April 2024 Beijing Auto Show)

Alcantara, as a premium interior material, is favored by automakers including Hongqi, BMW, Zeekr, Bentley, Lotus Nyo and Hyundai, upholding the concept of sustainability and design. The following list illustrates the many car suede material car interior applications.

(Alcantera images)

Hongqi

Hongqi is a luxury brand of the FAW Group, and their Guoya model features a large area of beige Alcantara. It looks graceful, perfectly complementing the car's overall exterior color.

In addition to the Guoya, Hongqi also presented the Guoyao, featuring Alcantara covering the headliner, interior pillars, and door panels, with stitching in silver, gold, and black to create a Milky Way scene on the headliner with diamondlike décor.

The stitching outlines horse contours on the front of both door panels against a grey background made in Alcantara.

BMW

The BMW X5 and X7 use textured Alcantara material to create an elegant car interior space.

The XM features Alcantara covering the headliner and interior pillars, and a 3D embossed ceiling. The pattern exhibits an aesthetic gradient effect with various shades of blue, creating a design ambiance within the seating area through irregular geometric patterns.

Zeekr

Zeekr's 009 electric minivan features intricate Alcantara door panels.

The 001 FR, a shooting-brake crossover coupé, has grey Alcantara seats with contrasting red stitching, for a sporty tactile and aesthetic effect. The dynamic color scheme of red and grey is also applied to the door panels.

Lotus Nyo

Lotus Nyo, the Chinese branch of Lotus, unveiled the Chapman with ultimate luxury and high-end offerings. The Emeya, meanwhile, has a grey Alcantara steering wheel, headliner, and interior pillars to match the overall color scheme of the car, creating a harmonious atmosphere.

Hyundai

Hyundai presented their N Performance collection. Alcantara features heavily in the interior trim of the new Elantra N.

There are grey accents to complement the light blue exterior, with a grippy Alcantara-covered steering wheel. There's more Alcantara on the seats, with three sleek lines harmonizing with the textured grey and blue uppercase letter "N".

UltraSuede

ACURA MDX (HONDA IMAGE)

Ultrasuede is the trade name for a synthetic ultra-microfiber fabric invented in 1970 by Dr. Miyoshi Okamoto, a scientist working for Toray Industries. In Japan, it is sold under the brand name Ecsaine. Its content ranges from 65 to 80 per cent non-woven polyester (fully recycled ultra-microfiber) and 20 to 35 per cent non-fibrous polyurethane.

Ultrasuede, made from plant-based and recycled materials, has been used in automotive interiors for more than 40 years, and is highly rated for its soft, smooth touch and high-quality feel. It is used by major automakers round the world for interior applications including seats, doors, headliners, and dashboards.

ŠKODA VISION IV AT GENEVA AUTO SHOW IN 2019

Asahi Kasei's AKXY2 concept car has interior surfaces upholstered in Dinamica, a microfiber suede made since 1997 by Italian company Miko, a subsidiary of Sage Automotive Interiors. **It is** produced in part by using recycled polyester—the recycled content varies according to the product line and application—in a water-based process without organic solvents.

The manufacturing process used by Dinamica makes it possible to use fewer virgin raw materials since it uses a part of recycled fibers of waste products which would otherwise be sent to landfill sites or incinerated, thereby reducing CO_2 emissions and other environmental impacts associated with these processes. Dinamica consists of three layers: face, inner scrim, and backing. The producthas in recent years seen a growing demand in the automotive sector.

Chamude (Kolon Industries)

Kolon is one of the world's top three makers of artificial leather. Theirs is a composite material consisting of 3D confounding nonwoven fabric and polyurethane elasticity using sea-type ultrafine fibers. It is promoted as a 'tech-art' product that satisfies aesthetic sensitivity based on ultrafine fibers that are 1/1000th the thickness of a human hair. Applications include overhead, door, instrument panel, and seats. The material is said to satisfy drivers with thermal comfort, sound absorption, luxurious appearance, and soft touch.

Neoluxe (Shawmut)

SHAWMUT IMAGE

Founded in 1916, Shawmut is a fourth-generation, family-owned-and-operated advanced materials developer and manufacturer headquartered in West Bridgewater, Massachussets, USA. They are experts in advanced materials innovation.

Fifteen to twenty years ago, car manufacturers typically made headliners out of synthetic nonwovens. Today, polyester-based knit fabrics are the trend. In five to ten years, a similar shift is expected for synthetic suede as new development processes enable synthetic suedes to have the same premium characteristics of traditional suede at a reduced cost.

Shawmut's Neoluxe premium synthetic suede is an alternative to urethane impregnated nonwoven microfiber synthetic suede. It is produced through a known, proven, and sustainable knit process.

Sustainability

These synthetic sueds are vegan friendly and perceived as premium due to their soft texture and association with sports cars. They provide better grip than leather or plastic, which is especially beneficial in racing conditions

Synthetic suedes are generally more moisture resistant and offer higher levels of grip than conventional leather. However, they may not be as rugged as traditional leather and might need more frequent cleaning to prevent wear and tear.

Choosing suede or a synthetic alternative for a car’s interior depends on preferences for aesthetics, maintenance, and the ethical considerations of using animal products. These materials can provide a unique and upscale look to vehicles while also being practical.

Interior News

New BMW Has Sporty, Premium, Leather-Free Interior

INTERIOR NEWS

BMW-IMAGES

The fourth generation of the BMW 1 Series has launched, with upgrades in interior design and infotainment systems to enhance the driving experience.

The new BMW iDrive system with QuickSelect, based on BMW Operating System 9, provides what is said to be an intuitive user interface and features a redesigned home screen with vertically arranged function icons for easy access. This system supports touch operation and voice control and enables remote software upgrades and personalized digital services through BMW ConnectedDrive.

The newly designed interior, which is completely leather-free as standard, offers a modern premium ambiance with sporty accents and generous space for up to five occupants. New seats are highly comfortable for long journeys. Sport seats in the Econeer version have covers and upholstery made from recycled polyester, and M sport seats are optionally available. Perforated seat surfaces are also available in the Veganza version with leatherlike properties. The Veganza/Alcantara equipment is part of the M Sport Package.

Heated seats and a wide range of electric adjustments, including memory on the driver's side, are available as options for all seat versions. Lumbar support can be added to the sport and M Sport seats. An optional massage function is also available for the sport seats. A driver and front passenger interaction airbag is now fitted as standard.

High-quality surfaces and trim, a redesigned gear selector, and the BMW Curved Display underline the progressive, premium ambience of the interior. The fully digital display system comprises a 10.25” information display and a 10.7” control display. The number of buttons and controls in the cockpit has been reduced, for better **and/or worse**; the air conditioning is also controlled digitally. The rear seatbacks can be folded to expand the luggage capacity from 380 to 1,200 liters.

Mini's Roomy New Mini Cooper 5-Door

INTERIOR NEWS

BMW-MINI IMAGES

The interior centers around a circular infotainment screen, toggle switches, and a slim HUD. Innovative materials create a versatile cabin with a modern look, featuring a panoramic glass roof and space for three rear passengers.

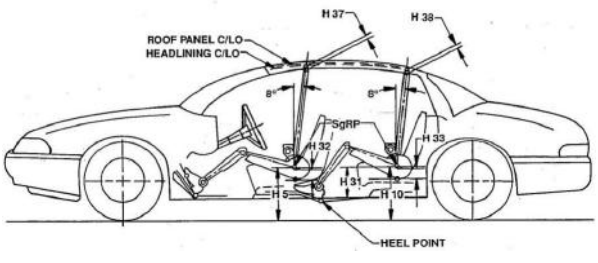
The central feature is a 9.5" OLED display with touch and voice control via Mini Operating System 9. It displays vehicle information, navigation, media, phone, and climate controls. The optional HUD shows crucial information in the driver's line of sight.

Additionally, the interior features a JCW black/red dashboard knit and a partially perforated Vescin steering wheel with red accents.

The car provides seven Experience Modes: Core, Green, Go-Kart, Personal, Vivid, Timeless, and Balance. These modes provide personalized cabin lighting and themes. The Mini Intelligent Personal Assistant can be activated by saying "Hey Mini," enabling voice control for some functions.

The trims available are Classic, Exclusive, and Sport, each offering several exterior and interior personalization options.

Special attention has been made to rear passenger space in terms of legroom—the distance between the back of the front seat and the front of the rear seat. Leg and knee room are crucial for comfort and safety.



Mobis' Updated Cockpit Display Module

INTERIOR NEWS

HYUNDAI MOBIS IMAGE

Hyundai Motor Group’s main automotive components unit, Hyundai Mobis, has unveiled their latest cockpit display. The M.VICS 5.0, the latest version of the M.VICS display originally launched in 2021, is a 27”, pillar-to-pillar panoramic multiscreen display providing dashboard, navigation information, and media content. It includes a 7” screen for vehicle status information and button controls.

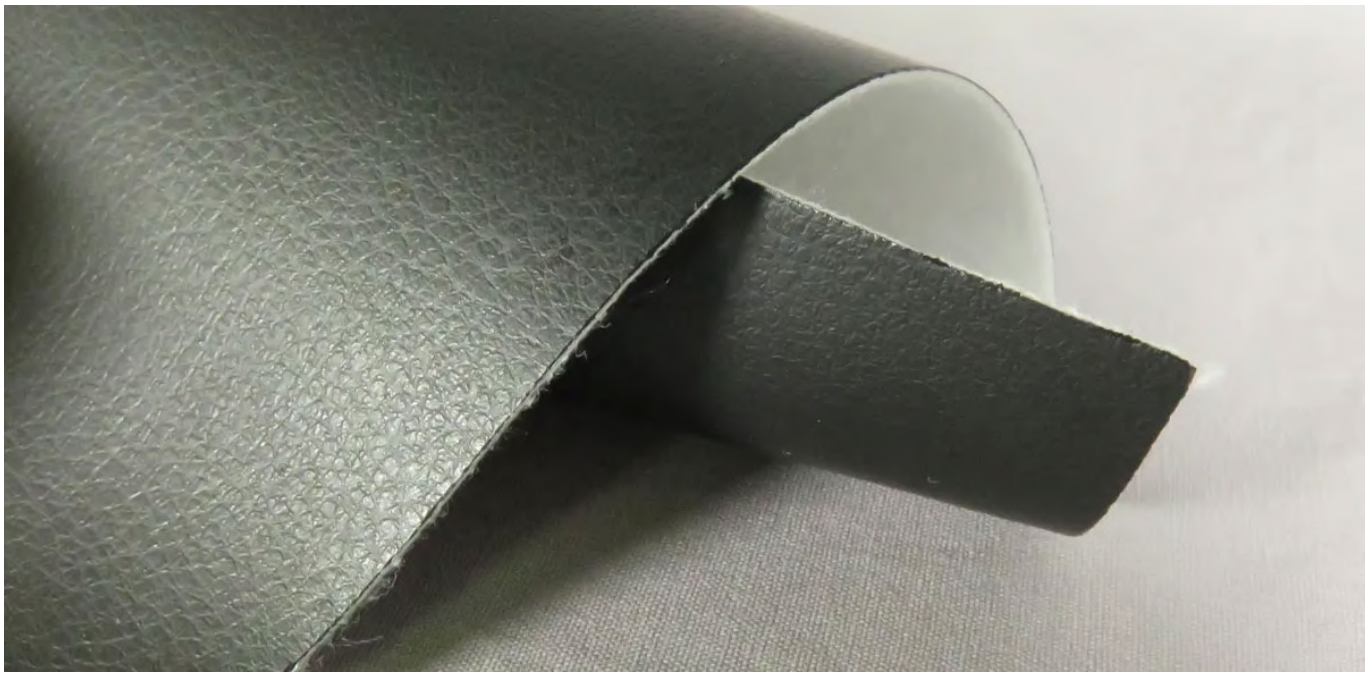
The individual screens, which generally function independently, are seamlessly connected within the display allowing them to be integrated into a single screen when needed.

Hyundai Mobis says the display panels “feature a variable system that moves vertically and adjusts tilt, optimising the screen's size and position according to driving conditions. In the standard Drive Mode, part of the panel lowers below the dashboard, transforming into a smaller display. In ‘Theater Mode’ for watching media content or ‘Relax Mode’ for resting, the steering wheel lowers and the seat tilts, with the display's tilt and size automatically adjusting accordingly”.

Cockpit safety features include cameras mounted on the steering wheel and above the driver’s seat to monitor drowsiness and inattentive driving, and issue emergency warnings. Safety technology is integrated, including slim steering wheel airbags, passenger roof airbags, and knee airbags.

Research Pact for Synthetic Leather From Bio-Based Plastic

INTERIOR NEWS



DITF IMAGE

A new type of artificial leather was developed in a project of the German Federation of Industrial Research Associations, carried out in close cooperation between the German Institutes of Textile and Fiber Research Denkendorf (DITF) and the Freiberg Institute (FILK). In this artificial leather, both the fiber material and the coating polymer are identical; varietal purity is a prerequisite for an industrial recycling concept. Conventional artificial leather, on the other hand, often consists of different materials.

PBS (aliphatic polyester polybutylene succinate), which can be produced from biogenic sources and whose biodegradability has been proven in tests, was selected as the base material for the sustainable artificial leather. The material can be processed thermoplastically, which also simplifies subsequent recycling.

Process engineering adjustments had to be made in the cooling shaft at the DITF in order to achieve a successful primary spinning process and to obtain PBS filaments with good textile-mechanical properties. This ultimately allowed POY yarns to be spun at relatively high speeds of up to 3,000 m/min, which had a tenacity of just under 30 cN/tex when stretched. These were then processed into fabrics made of pure PBS, which in turn were used at FILK as a textile base substrate for the subsequent extrusion coating. PBS was also used as a thermoplastic. Optimized production steps made it possible to produce PBS composite materials with the typical structure of artificial leather. Purity and biodegradability fulfill the requirements for a closed recycling process.

Nio EL8: A Six-Seater SUV for Europe

INTERIOR NEWS

NIO IMAGES

Nio has revealed their new six-seat EL8 SUV, and they plan to market it in Denmark, Germany, the Netherlands, Sweden, and Norway (where the previous EL8 paved the way for the brand's entry into Europe).

Nio says the EL8 is 'packed with class-leading innovations such as the most powerful mass-produced mobile computing platform to date, 'light bending' LED lights and dual chamber air suspension.'

Nio also says the car includes sustainable design and materials, including the 'world's first plant-based woven suede, soybean foam and rattan'.

It is roomy and large: 5.1 m long, 1.75 m tall, and 2.2 m wide. Interior space is mostly based on the extended 3.1-m wheelbase.

The Executive Console model offers a 'smart refrigerator' and console housed between the second-row 12-way ottoman reclining seats. Continuing the theme of ultimate luxury, the Executive model also offers a 'hot stone massage' experience in the first and second seat rows as standard.

It can include the full range of heating, ventilation and massage functions. Automatic climate control with five temperature zones and a glass sunroof is part of the package.

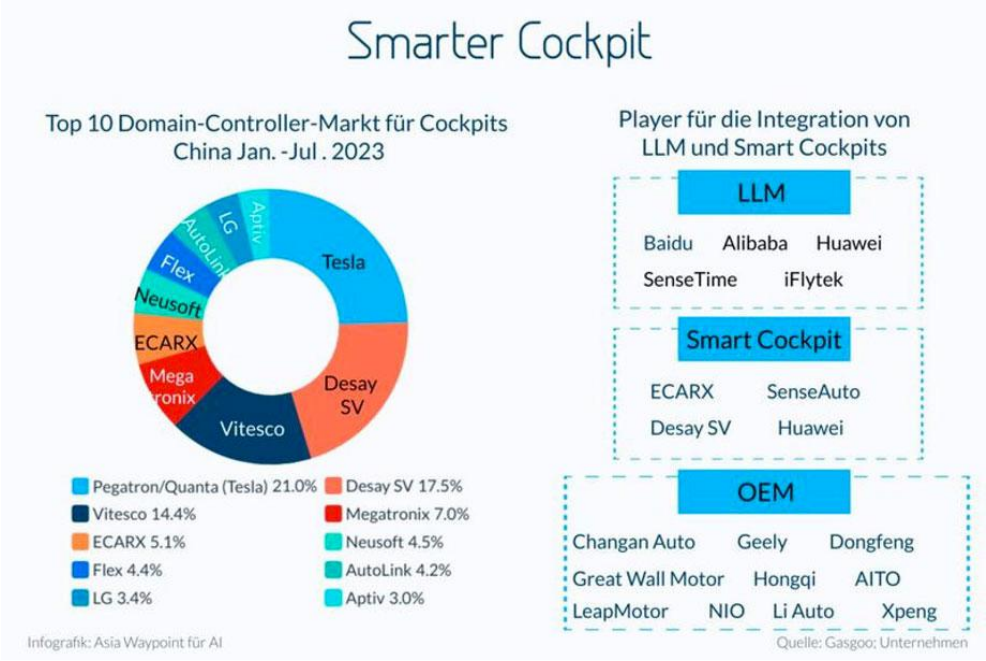
LLM Invasion: Smart Cockpits in Chinese Cars

INTERIOR NEWS

GEELY IMAGE

What car companies have been promising for a long time, the 'smart cockpit' is now being embodied with large language model (LLM) technology, hailed by someas the next technical automotive leap. In any case, more and more Chinese automakers are integrating ChatGPT-like software into the cockpits of their cars. Changan, Geely, Great Wall, Leapmotor, Jidu, Dongfeng-Voyah, Hongqi, and Dongfeng-Nissan have announced their intent to offer Baidu's 'Ernie Bot' in their cars.

Where previously only relatively primitive voice commands were possible, the driver now can enjoy (or now must endure, depending on point of view) a conversation with a virtual 'assistant' which 'understands' context and can respond to followup questions. The car is also beginning to proactively contact the driver when it needs maintenance.



DOMAIN CONTROLLERS IN VEHICLES AND COMPANIES USING THIS TECHNOLOGY (ASIA WAYPOINT GRAPHIC)

Driving functions and infotainment can be controlled by voice, gesture, and facial recognition, and there is also a 'safety monitoring' system for children. Another possible application of artificial intelligence in cars is the improved evaluation of sensor data for driver assistance systems. LLMs are integrated with domain controllers for this purpose. Chinese AI company SenseAuto recently highlighted 'multi-sensor fusion perception' for their latest cockpit product. Based on SenseNova, the company's own LLM, they claim 'a more intelligent decisionmaking system for the car's brain'.

LLMs change communication between driver and vehicle, making it more interactive and personal, and also promise to improve autonomous driving functions through faster and better decisions. These new promises are accelerating the adoption of smart cockpits in the Chinese car industry. Naturally, it is most advanced in more expensive car models. However, more and more affordable cars in China are now also being equipped.

The high number of relatively young, tech-savvy drivers in China is driving the pull towards digitalized cockpits' gradually becoming standard in China. LLMs have given this development another strong boost.

ZF Lifetec Airbag Brings Design Freedom

INTERIOR NEWS

ZF IMAGE

ZF Lifetec has introduced a new design of steering wheels by reconfiguring the placement of the driver airbag. The aim is to provide greater freedom for future-oriented interior concepts while maintaining safety performance.

The steering wheel has housed the driver airbag since it was first trialled in the 1970s. Over time, the steering wheel has evolved into a multifunctional control center, integrating entertainment and assistance functions. With ZF Lifetec‘s latest introduction, the driver airbag is now positioned to deploy from the top of the steering wheel, through the upper rim, rather than from the center hub.

This repositioning allows for a simple, smartphone-like design for the steering wheel’s horizontal spoke and hub. The force-sensitive controls for various vehicle functions are integrated behind a continuous surface, blending into the digitally designed dashboards of contemporary vehicles.

The design of future steering wheels will include on-demand functions, touch displays and central screens. However, as the steering wheel is also a safety-relevant component, user-friendliness is paramount.

Hybrid solutions can therefore also be implemented with this concept. These include the combination of a rotary switch with a force-sensitive and tactile surface also integrated in the steering wheel as an anchor point, enabling the driver to operate the system safely.

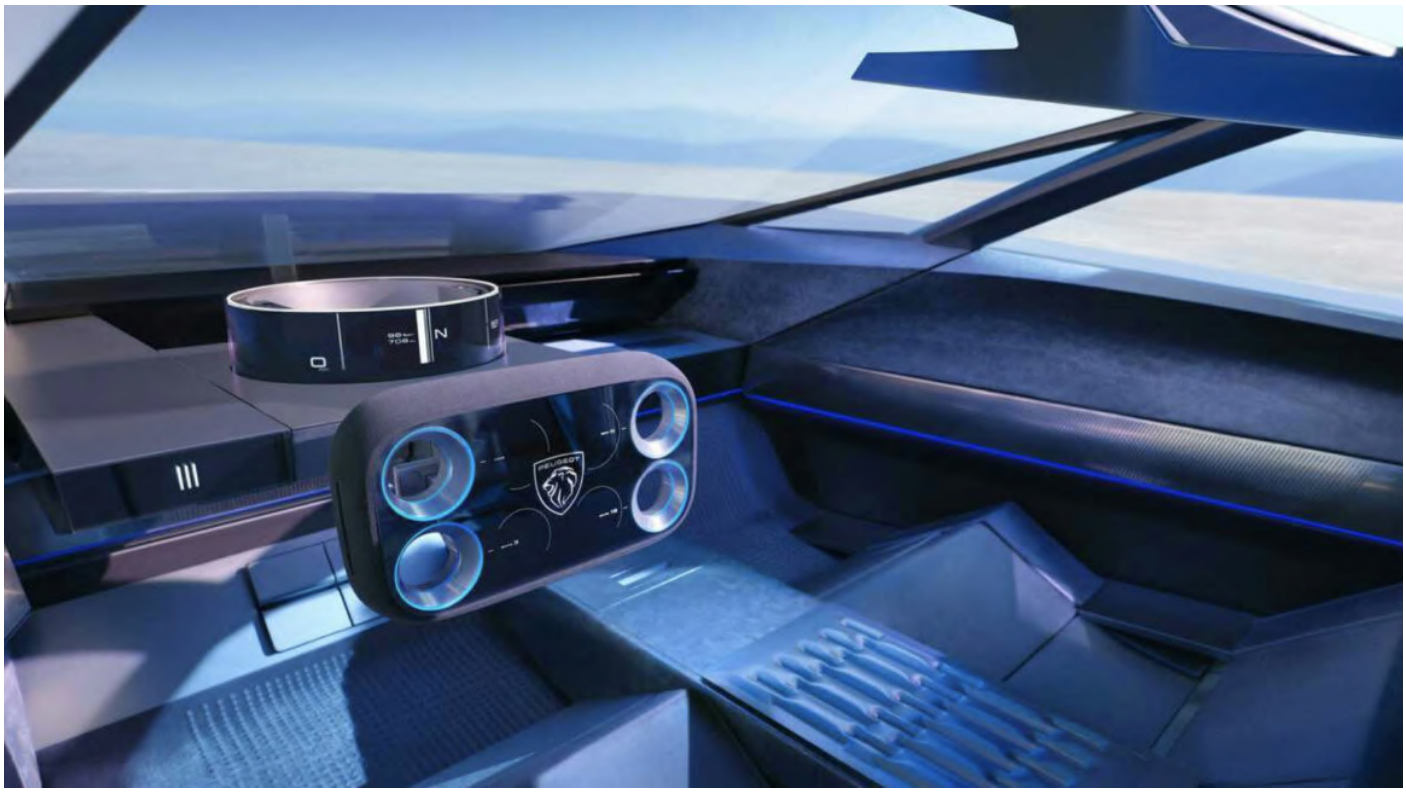
These functions can also be combined with hands-on detection, which is a component of current and future steering wheels. A capacitive sensor under the leather surface recognizes whether the driver is merely touching or safely gripping the wheel. This technology is a further module for safe vehicle control.

The Design Lounge

Peugeot's Hypersquare Steering Wheel

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior



PEUGEOT IMAGE

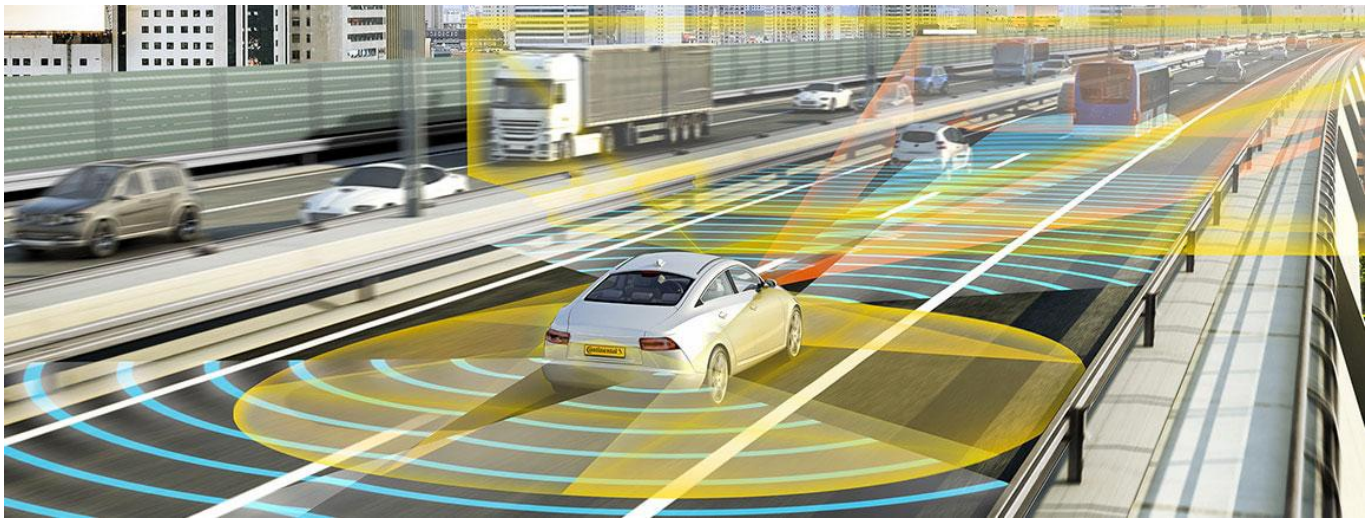
The Peugeot Inception concept was unveiled at CES 2023 in Las Vegas. Peugeot is now presenting the study to the French public for the first time at VivaTech this month in Paris. The new i-Cockpit centers around the Hypersquare steering wheel, inspired by video games. It consists of a screen with circular cells in each corner. The functions can be operated using the thumbs in the circular recesses. The pictograms for air conditioning, radio volume, and ADAS are displayed on the two lateral control panels. In the middle of the Hypersquare is a tablet-like screen on which information about the controls is displayed. The frame of the Hypersquare was produced using a 3D printing process to keep weight down.

The steer-by-wire steering wheel and its control system are combined with a flexible 360° screen in the background. This Halo Cluster with its circular display informs passengers approaching the vehicle. At the transition to L^4 autonomous driving, the Hypersquare retracts and a large panoramic screen extends from the floor. Peugeot plans to introduce the Hypersquare steering wheel and the new i-Cockpit in a vehicle by 2026.

News Mobility

New EU Reg Upgrades Car Safety Starting Next Month

NEWS MOBILITY



CONTINENTAL IMAGE

According to EU statistics, up to 95 per cent of road accidents are due to human error. This makes sophisticated assistance systems more important in all cars, not just expensive ones. They can warn the driver of dangers in time for them to do something about it, and can even correct errors, such as the emergency brake assistant.

That's why the European Commission is making certain assistance systems mandatory for all new vehicles from 7 July, 2024 as part of the long-term Vision Zero Road Deaths strategy. By 2050, the number of road deaths in all countries of the European Community should be as close as possible to zero. Parliamentarians say the fundamental right to mobility should not be linked to the death rate on the roads.

The Commission is counting on mandatory assistants to save lives. They hope that 25,000 fewer people will die on the roads in EU member states by 2028, and more than 140,000 serious injuries will be prevented, by dint of these systems being fitted as standard in all new cars:

• DMS, driver monitoring system, to keep tabs on the driver's ability to react. If distraction, fatigue, or a loss of focus on the road are detected, acoustic and visual warning signals follow.

• EDR, event data recorders work like the 'black box' in an airplane. It documents the most important driving data. The aim is to ensure a more precise reconstruction of crashes.

• LDW, emergency lane departure warning systems, intervene to correct the direction of travel if the driver oversteers the car to the left or right.

• EBA, emergency brake assist, automatically brakes the car in the event of an imminent collision.

• Speed Assist warns the driver if a speed limit is exceeded

• EBD, emergency braking display, alerts following drivers to hard braking from speeds above 50 km/h.

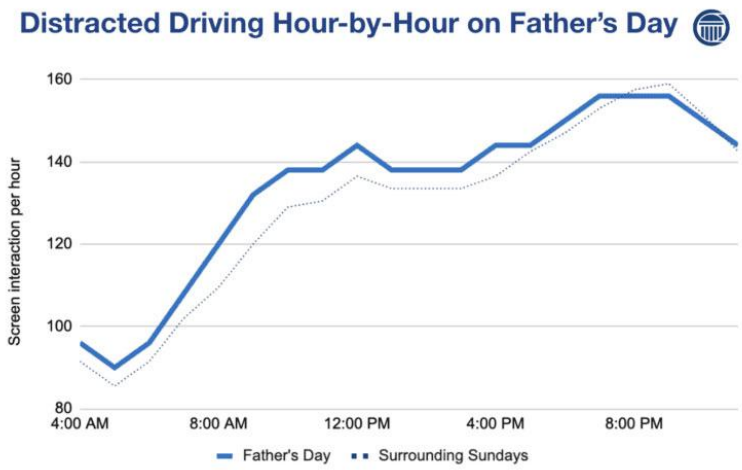
Reversing assistants and tire pressure monitoring systems, already frequently installed, will also increase safety in all new cars from July. From July, every new car will also have to have a standardized interface to which an alcohol monitoring device can be connected, though there is not yet a specification for these devices.

Distracted Driving Rises On Father's Day

NEWS MOBILITY

CAMBRIDGE IMAGE

It sounds apocryphal, but according to data from Cambridge Mobile Telematics, the world's largest telematics provider, Father's Day sees a 7.5-per-cent increase in distracted driving compared to surrounding Sundays. That makes it the fifth most distracted driving day of the year, after Mother's Day, New Year's Day, Thanksgiving, and Christmas.



CAMBRIDGE MOBILE TELEMATICS IMAGE

7.5 per cent translates to quite a lot more risk on the road. Based on CMT's estimates, it means around 1,000 more accidents, 570 more injuries, 5 more fatalities, and $40.3m in economic damage.

CMT says they 'define screen interaction as when a driver taps on their phone's screen while the vehicle is traveling over 15 km/h, including tapping, scrolling, and typing'. In other words, you're engaging in distracted driving if you're using your phone while driving faster than parking lot speeds. No word on what changes if the screen you're tapping and scrolling on happens to have been mounted in the dashboardby the automaker.

Why the increase in distracted driving on Father's Day? "People are using their phones while getting their family ready to spend the day with their parents. However, Father's Day occurs during the summer months [as opposed to Mother's Day in Spring], a time with higher levels of distracted driving overall."

General News

Faurecia, SAIC Co-Develop Intelligent Cockpit

GENERAL NEWS

On June 3, Faurecia and SAIC Motor signed a strategic cooperation agreement to jointly develop leading automotive intelligent cockpit products for the global market. Forvia's Faurecia division will assist SAIC to develop smart cockpits for the state-owned Chinese automaker’s vehicles to be sold in the global market.

The diverse needs and standards across different countries and markets pose a challenge for truly localizing and building high-quality, internationally competitive products. Faurecia China's Clarion Electronics business unit has closely followed the trend of vehicle intelligence. With CMMI Level 5 and ASPICE Level 3 certifications, the unit has established Faurecia-specific product development processes, quality, and safety assurance systems to meet customers' demands for high-quality, high-standard software development.

Through this collaboration, Faurecia China and SAIC Overseas Mobility will leverage their respective strengths in supply, technology, products, manufacturing, markets, the internet, and ecosystems to focus on intelligent cockpit software products and services. Using SAIC's 1.0+ and 2.0 system platforms, the partners will cooperate on overseas market applications for export models, ensuring application service mass production and full lifecycle maintenance during the platform's lifecycle.