Thu, 25 August 2022
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #124

Editorial

Keep Importing And Mixing Innovation

DIGITAL PLUS AUTOMOTIVE EQUALS NOW! (GARTNER IMAGE)

Passenger safety has really been a decisive factor in the architecture and construction of motor vehicles, especially their interiors, for about half a century now—since the mid-late 1960s, when regulations began to take force. Before that, automotive safety was a subject that popped up here and there, often more an expression of marketing hype than of any sound science. Famously, for example, in the 1956 Ford safety package of seat belts and a padded dashboard, which found few takers and led to the old quote, often taken out of context, that "safety doesn't sell". In this week's Coffee Corner we look at the 1957 Aurora, presented at the time as the safest car.

On and on through the years, safety improvements have only accelerated—both active safety (including ADAS) to limit the likelihood of a collision, and passive safety to mitigate the consequences if a collision does happen. Whiplash is one of the most common such consequences, as it happens at low speed and its effects are long-lasting. This week's in-depth article looks at how radar is helping to solve this old issue. And we've got some disturbing test results out of Sweden, showing that touchscreens make cars significantly harder to control.

As market conditions change at an accelerating pace, cross-pollinated technological and technical innovation are integral parts of the equation. For every new technology or technique examined in DVN-Interior, there is always a potential application somewhere else…and conversely, the automotive interior is "somewhere else" from the standpoint of another industry or market sector, so it works both directions. That's why it's essential we keep importing and mixing ideas from different products, markets, and people to invent better automotive interior products and services.

We're glad you're here with us! Not yet a member? come **join in**.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Anti-Whiplash Update, and Windsor High-Tech Solution

PICTURE: TORQUE NEWS

In a **previous in-depth article**, we looked at how head rest(raint)s do more than just protect us. That is still true, of course, though protection is their first task. We examined solutions developed by Mercedes; Saab/Lear; Volvo/Autoliv; Toyota/TS Tech, and many others.

Now, let's update the situation by scrutinizing Ontario, Canada-based Windsor Machine Group's announcement of a high-tech headrest they have developed.

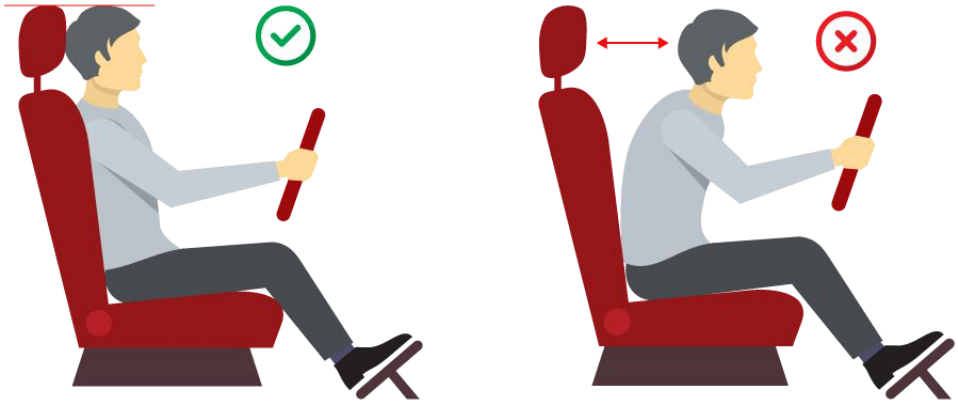
What is Whiplash?

Research in England has shown that half of all car crashes result in a whiplash injury. Whiplash can cause chronic pain and lasting disabilities. While a correctly-positioned head restraint can reduce the possibility or severity of a whiplash, hundreds of thousands of vehicle occupants each year suffer neck injuries despite having positioned their head restraint in accord with best practices, discovering the hard way that a correctly-placed head restraint doesn't guarantee against injury.

A headrest is effective in preventing neck hyperextension (moving to its extreme backwards position) but cannot stop hyperflexion (moving to its extreme forward position). This latter motion alone can—and often does—cause neck injuries.

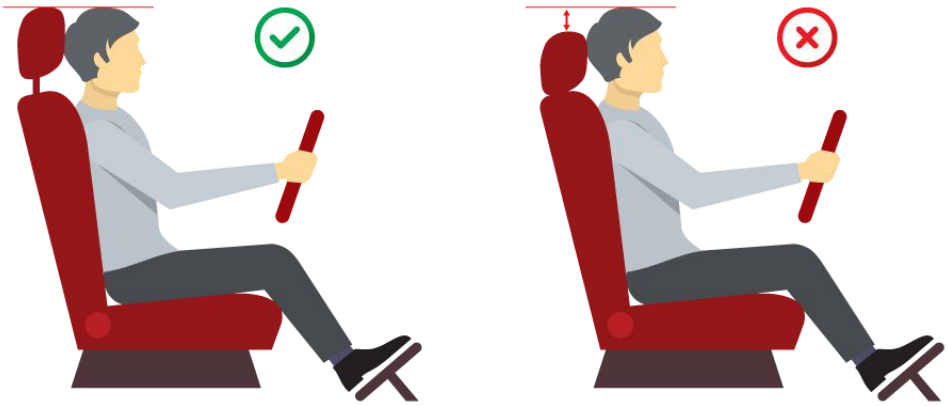
What is the correct position?

The president of the Association of Personal Injury Lawyers, Brett Dixon, says: "Your headrest can’t do its job if you haven’t adjusted it to fit you. It is like leaving the batteries out of a smoke detector". Although it will not eliminate the risk of whiplash, **correctly adjusting** the head restraint can lessen the extent of injury. That means ensuring that the top of the head restraint is as high as the top of your head, and the head restraint should be as close as possible to the rear of your head.



By reducing the distance between the back of the head and the head restraint (first example), the neck is protected from bending back in an impact. This also minimizes the time it takes for the head to come into contact with the restraint. The head has less time to accelerate, and is supported for longer during an incident. In the second example above, the space between head and headrest means that the head will move further back in a collision, increasing the chances of the occupant sustaining a severe whiplash injury.

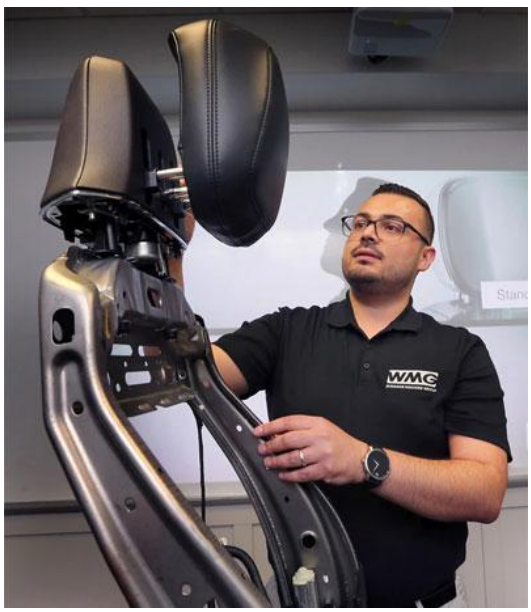
Head restraint height



The top of the head restraint must be aligned with the top of the occupant's head, (first example above) offering full support and minimizing the risk of a severe whiplash injury. In the second example, the head restraint is too low. In a crash, the head will want to roll up over the top of the head restraint, which will then act as a fulcrum, potentially even worsening injury. At least, the head will not be fully supported and so the chances of an injury are increased.

ROSPA— the UK's Royal Society for the Prevention of Accidents—also notes the importance of having a locking headrest which will not move during impact. If the head restraint will move as your head is thrown back, there can be no really effective protection against whiplash.

Windsor Machine Group's True Active System



IMAGES: DAN JANISSE, WINDSOR STAR

Nevertheless, many head restraints never get moved to the correct position. So, technology is evolving to protect occupants whether or not they check and properly adjust their head restraints. An nnovation from Ontario, Canada-based supplier Windsor Machine Group looks like it might be a better solution, as it moves the headrest closer to an occupant's head right before a collision.

The Windsor Machine Group, one of the industry's suppliers of headrests sent a team to test their True Active head restraint system at the Insurance Institute for Highway Safety's facility in Virginia. The system uses radar sensors to optimally position the headrest in the fractional moments before a rear-end car crash, with the goal of minimizing impact on the occupant's head and neck.

"We thought that this would definitely be a great technology to prevent, or at least reduce, the potential of whiplash," said Ahmad Farghawi, vice-president of engineering at Windsor Machine Group.

Up to now, anti-whiplash head rests could be uncomfortable, Farghawi said, meaning they are not used effectively: only 14 per cent of Canadians adjust their head restraint correctly, for example.

Farghawi said the motorized head rest they are proposing is the best of both worlds: Comfort for most of the time passengers are in the vehicle, and added safety in the event of a crash. True Active uses the existing sensors in a car to detect a possible crash, then trigger the head restraint to position itself closer to the occupant's head, supporting it on impact. If no crash occurs, the head restraint moves back.

The prototype was first developed in 2019, and shown to automakers in the following years, leading up to last month's IIHS tests.

The IIHS is an insurance industry-backed nonprofit research group which, among other things, quantifies vehicle safety performance trends and effects. They provided test vehicles for the True Active head restraint tests. IIHS senior research engineer Marcy Edwards said "These were actually vehicle tests, where one vehicle ran into the other and then deployed the head restraint prior to impact. What we will do is make a comparison and see if the [anthropomorphic crash test] dummy is able to detect a difference in that technology".

The IIHS is now reviewing the data from the Windsor Machine Group's True Active test; results are expected this autumn.

Interior News

Cooperatively Designed Composite Seatback Wins Weight Award

INTERIOR NEWS

BASF IMAGE

BASF, Flex-N-Gate, Toyota and L&L Products have been awarded the Altair Enlighten Award for achievements in vehicle weight savings for their joint work on a composite seatback design for the new Toyota Tundra.

Flex-N-Gate is a U.S.-based automotive supplier producing a wide array of components including bumpers, front-end modules, all sorts of lighting components, and many more. They have a revenue of USD $8.9bn and were ranked as the 7th-largest American automotive parts supplier and the № 33 supplier in the world. L&L Products, also from the U.S., specialize in static sealing; improved acoustics and vibrational performance; structural reinforcement, and composite components.

The seat structure is the first interior application for L&L Products' Continuous Composite Systems (CCS) technology which uses BASF's polyurethane pultrusion system Elastocoat 74850. CCS is a fiber-reinforced composite carrier with engineered sealants and adhesives in a two-dimensional profile. In this application it was overmolded with BASF's impact-modified polyamide 6 Ultramid B3ZG7 CR to create the 3D shape of the 60-per-cent seatback.

L&L's product engineering manager Hank Richardson says "With this partnership, we were able to eliminate an all-steel assembly that contained 60 stamped and welded parts and integrate into four composite parts, which reduced assembly and scrap costs associated with the metal seat structure. This also allowed for greater functionality of the seating system".

BASF thermoplastic composites technology leader Kipp Grumm said "We continue to show how pultrusion can deliver lightweight, cost-effective solutions as well as integrated functionality. The unique design of the injection overmolded pultruded beam in the seat structure also passed all relevant crash test requirements and opens the door for more adoption of composites in automotive applications".

Continental: Bio-Attributed PVC Interior Surface Materials

INTERIOR NEWS

CONTINENTAL IMAGE

Continental will use Biovyn, a bio-attributed PVC from supplier Inowyn, in the production of technical and decorative surface materials for automotive customers. Continental says the move will help reduce their carbon footprint and meet customer demand for sustainable, bio-based products.

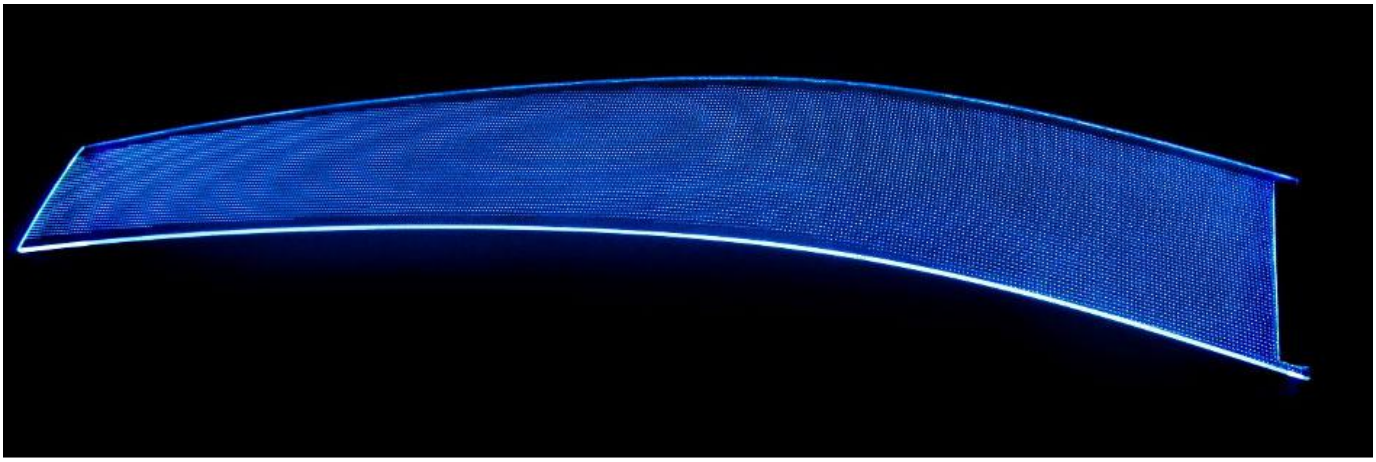
Biovyn is a new generation of PVC certified by the Roundtable on Sustainable Biomaterials (RSB). It is a drop-in product made from a 100-per-cent renewable raw material, avoiding fossil-based feedstocks. This product enables more than 70-per-cent greenhouse gas savings compared with conventional PVC production. Bio-attributed PVC means that the bio building blocks are allocated to the PVC according to a mass balance accounting system.

Inovyn, part of global chemical company Ineos (which also is restarting the Hambach, France ex-Smart assembly plant to produce the Grenadier SUV), is Europe's leading producer of vinyls and in the top three worldwide, with annual commercial production volume of around 10 megatons. They have about 4,200 employees and annual turnover of €3.1bn, specializing in manufacturing, sale, and marketing a wide range of chemicals used as raw materials in almost every industrial process, with facilities in eight countries across Europe. Their product range consists of an extensive range of class-leading products arranged across general-purpose vinyls; specialty vinyls; organic chlorine derivatives; chlor alkali; hydrogen and vinyls technologies.

Continental Surface Solutions director Dr. Dirk Leiß says “Major automotive manufacturers are now demanding more sustainable raw materials such as biobased polymers. With the fully bio-attributed PVC material, we meet these customers' demand, contribute to more sustainability and drive innovation of products at the same time".

Feno's Ultra-Thin Flat Light Guides at IZB

INTERIOR NEWS



FENO IMAGE

Feno, a company based in Oberhaching, Germany, develops lighting control systems; LED-based lighting equipment and supporting software products; signal converters, and signal controllers.

As thin as a ruler, their new laser-structured, thermoformed flat light guides seem poised to make fast friends in the automotive interior lighting realm. At the IZB show this year, Feno will showcase how flat light guides save valuable space in the design and planning of an automotive interior and can even illuminate large, demanding surfaces homogeneously.

PMMA light guides with laser-etched microstructure-enabled ultra-thin surface lighting were presented at ISAL 2022. In this presentation, Feno showed how use of thermoformed laser-structured flat light guides help meeting several requirements in automotive interior lighting.

The International Suppliers Fair (IZB, *Internationale Zuliefererbörse*) is aimed at all automotive industry suppliers and has a prominent reputation in international professional circles. It is specific due to its location at the headquarters of Volkswagen in Wolfsburg, Germany. This years's show runs from 11 to 13 October; in 2018 a total of 838 exhibitors from 34 nations presented their products and innovations on 38,000 m^2 of exhibition space.

Sustainable Center Console Wins Plaudit

INTERIOR NEWS

IMAGE: CSI ENTWICKLUNGSTECHNIK

The NaMiKo Smart sustainable center console took an Honorable Mention at the Altair Enlighten Awards. It's from a German project consortium comprising Automotive Management Consulting (AMC); BMW M; CSI Entwicklungstechnik, and the German Institutes for Textile and Fiber Research (DITF) was responsible for the conception, development and realization of the center console, which structurally consists largely of renewable raw materials.

The load-bearing structure of the NaMiKo weighs just 400 grams—left and right combined; it consists of a bio-based cellulose fiber and a matrix system with a high bio content, produced using the "NFK in 3D" space winding process. In total, the center console weighs around 5 kg.

In addition to the materials used, all other economic and ecological development effects were analyzed and optimized during the development and realization of the NaMiKo. In order to be able to identify and make necessary adjustments at the earliest possible stage of development, those responsible for the project used AMC's software-based sustainability value analysis. For example, for natural resource use, this determines sustainability criteria such as material availability, water consumption, biodegradability and reprocessing data. For material and energy consumption, sustainability criteria such as component mass, logistics and transport parameters, and the CO_2 footprint in the use phase are documented and taken into account.

The NaMiKo Smart project is supported by the German Federal Ministry of Economics and Climate Protection (BMWK), the Jülich Research Center, and from the scientific side by the German Institutes for Textile and Fiber Research Denkendorf (DITF). The company Gradel from Ellange, Luxembourg, was responsible for the industrialization process of the NFK in 3-D process, and von der Linden GmbH contributed its experience in the use of bio-based resins. The development service provider CSI was in charge of the end-to-end digital CAE-CAD-CAM process chain. The project partners are convinced that this digitalization of development will open up completely new scope for the sustainable lightweight construction of the future.

Touchscreens Are Making Cars Harder to Control: Swedish Test

INTERIOR NEWS

IMAGES: GLENN LINDBERG/VI BILÄGARE

Vi Bilägare is Sweden's biggest car magazine, launched in 1930. They've just published the results of practical research they did into car HMIs as physical buttons, levers, and dials are increasingly replaced by touchscreens. The problem, long suspected and now proved out by the tests, is that touchscreens are significantly harder to use—and that means they create a serious new safety hazard.

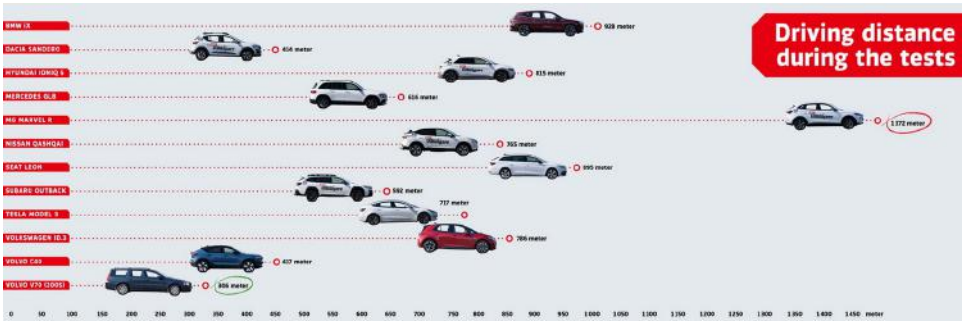
Inspiration for the screen-heavy interiors in modern cars comes from smartphones and tablets. Designers want a ”clean” interior with minimal switchgear, and the financial department wants to lower the cost. Instead of developing, manufacturing and keeping physical buttons in stock for years to come, car manufacturers are keen on integrating more functions into a digital screen which can be updated over time.

How have these screens affected safety? Vi Bilägare gathered eleven modern cars from different manufacturers at an airfield, and measured the time needed for a driver to perform simple tasks while driving the car at 110 km/h. As a control, the test car group also included a car without a touchscreen, a 17-year-old Volvo V70. The tests were designed to have a driver carry out four tasks:

- Activate the heated seat, increase temperature by two degrees, and start the defroster;
- Power on the radio and adjust the station to a specific channel;
- Reset the trip computer, and
- Lower the instrument lighting to the lowest level and turn off the center display.

They also measured the angle at which the driver has to look down to operate the controls. By photographing the same driver in all cars, they found the driver has to lower the line of sight by 56 degrees to view the lower end of the worst screen, ompared to just 20 degrees for the best one.The drivers were given time to get acquainted with the cars and their infotainment systems before the test started.

Tesla was not the first to introduce a touchscreen, but the American carmaker has always offered bigger touchscreens than most manufacturers, containing the controls for more of the car’s features. Even the windshield wipers are controlled through the touchscreen. BMW's iX also offers a touchscreen, but not as big as Tesla’s, and also more physical buttons. But that’s no guarantee of a system which is easy to use. The BMW’s infotainment system has lots of features, but it also has one of the most complex and complicated user interfaces ever designed.



The results? The worst car travelled 1.4 km before the driver could finish performing all four tasks, while the best-performing car went less than a quarter of that distance. The easiest car in this group to understand and operate, by a large margin, was the 2005 Volvo V70. The four tasks were handled within ten seconds, during which the car went 306 meters at 110 km/h.

At the other end of the scale, the Chinese-made MG Marvel R EV driver needed most of a whole minute—44.6 seconds—before all the tasks were completed, during which the car travelled 1,372 meters, more than four times the distance compared to the old Volvo.

BMW's iX and the Seat Leon were better, but still evidently too complicated; the driver needed almost a kilometer to perform the tasks. Lots can happen in traffic during that time. The Dacia Sandero and Volvo C40 performed well despite their touchscreens, which are not overloaded with features.

Car	Time to perform four tasks, seconds	Score, 1–5
BMW iX	30.4	4.0
Dacia Sandero	13.5	3.75
Hyundai Ioniq 5	26.7	3.5
Mercedes GLB	20.2	3.25
MG Marvel R	44.9	2.5
Nissan Qashqai	25.1	4.25
Seat Leon	29.3	3.25
Subaru Outback	19.4	4.0
Tesla Model 3	23.5	3.75
Volkswagen ID.3	25.7	2.25
Volvo C40	13.7	3.5
Volvo V70 (2005)	10.0	4.5

EDAG: AI with Deep Learning Approach

INTERIOR NEWS

HERE IMAGE

Artificial intelligence and machine learning are helping developers secure software-based functions. This includes deep learning algorithms: They reconstruct images and reduce the risk of errors in driver assistance systems.

Facial recognition; intelligent traffic systems; AVs, and multifunctional transport systems. Two factors form the basis for these: digitization and the development of artificial intelligence. In the next few years, technical systems with AI will gain importance in almost every area; create many new business models and influence daily life. This is not only because of the increasing technical performance of AI, but above all because these systems can adapt to new environments and develop continuously and independently.

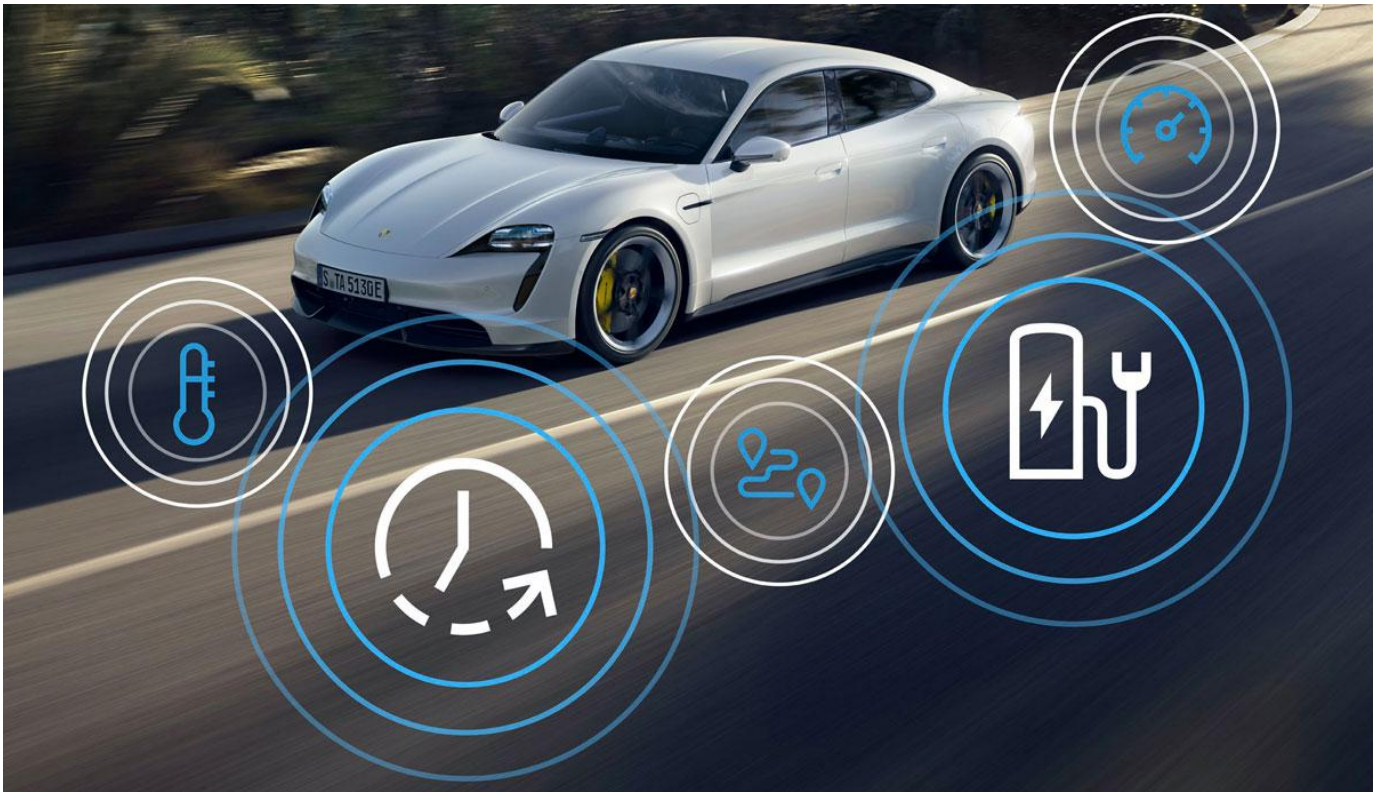
More and more assistance systems are being installed as standard. These support the driver and pave the way for autonomous driving on the basis of camera images and other sensors such as radar, lidar and ultrasound. In theory, they deliver high-quality results that make driving safer. In practice, however, things are sometimes less rosy: If the camera lens is obscured by dust or dirt, or weather conditions such as rain, fog or snow prevail, the software will not get a clear image. Important data may be missing as a result. A total failure or incomplete or incorrect information to the system can lead to serious accidents in partially or fully automated vehicles. In order to ensure the robustness and quality of such software-based functions and assistance systems for many situations and environments, the EDAG Group began targeted research and development in the field of artificial intelligence four years ago.

Novel auto-encoder architectures consist of so-called Partial Convolutional Neural Networks and "ConvLSTMs" (LSTM = Long Short-Term Memory). They ensure the robustness and quality of such software-based functions and assistance systems for the variety of situations and environments.
The architecture enables spatiotemporal feature extraction inspired by human memory. It can thus also use information from predecessor and successor images for reconstruction. This deep learning approach allows the reconstruction of image defects, which can be extremely variant. The chosen network architecture thus enables information to be abstracted from previously seen objects and scenarios, and basic relationships to be identified. For example, objects hidden in a single image can be reconstructed based on experience values from the previous images. The experience values are collected in the training process by analyzing millions of different images; the correctness of the abstraction is constantly checked during the training process.

The adaptation of AI-based architectures to the respective challenges takes place generically. Thanks to sufficient data sources and their preprocessing, it offers great potential for continuously improving and safeguarding systems. All in all, innovative machine and deep learning techniques simplify complex FEM calculations and the qualitative evaluation of measurement signals for vehicle safety. This results in a wide range of AI applications: when it comes to optimizing internal processes and developing vehicle concepts

Porsche Taycan Gets First Big Software Update

INTERIOR NEWS



PORSCHE IMAGE

Since its launch at the end of 2019, Porsche has delivered over 75,000 Taycan EVs. Now they've come due for a comprehensive update. All Taycan variants, regardless of age, can be brought up to the 2023 specs with a software update.

Depending on when a vehicle was delivered, customers benefit from—among other things—an increase in efficiency in the drive system as well as new functions and improvements in Porsche Communication Management; Porsche Connect, and the assistance systems. The update also includes the option to have individual functions and equipment unlocked after purchase. It also increases the ability for OTA updates using the network present on all Taycans. The older the vehicle, the more improvements and innovations are added. The update is free of charge and is installed during a workshop visit.

Examples for main updates, directly affecting UX, include:

Porsche Communication Management (PCM) and Porsche Connect: New functions, a colorful tile design on the home screen, and even greater ease of use characterize the model enhancement measures in this area. In Taycan model years 2020, 2021 and vehicles produced up to mid-February 2022, voice control is optimized after the update and the Spotify app is integrated. Android Auto is available wirelessly. Charging stations can be filtered and selected in the navigation according to charging power. Those who drive a model year 2021 Taycan with a head-up display can enjoy the optimized display of the navigation map, for example. The display content has been expanded. In all Taycans before model year 2023, the on-board operating instructions can now also be used via voice control.

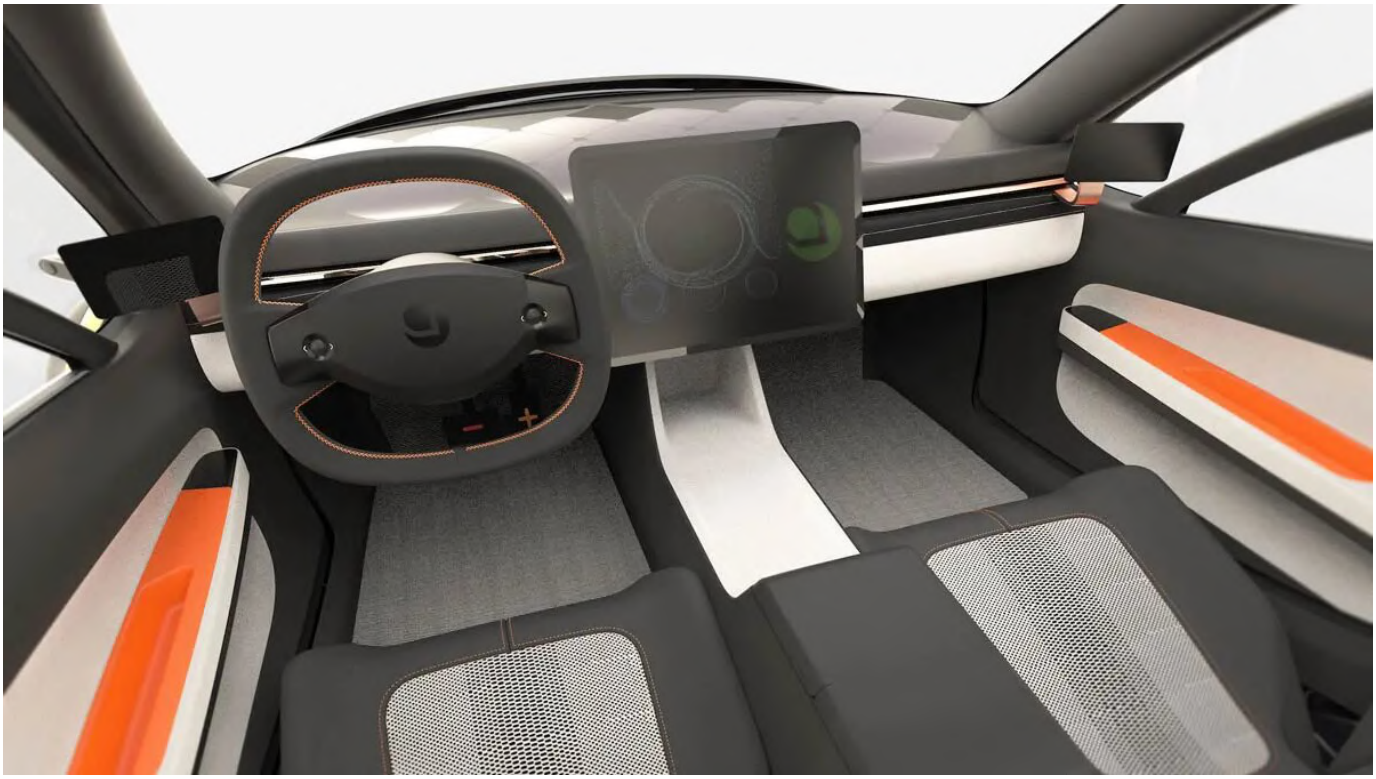
Assistance systems: Some systems can now support the driver in even more situations. The parking assistant's sensors work with greater range. The search for free parking spaces has also been improved so that smaller gaps are now also offered.

Unlocking functions after vehicle purchase (FoD): The keyless opening function for the doors and tailgate can now also be activated on request on all Taycans in model years 2020, 2021 and 2022. In addition, the option of over-the-air software updates has been further expanded for the new model year.

This big upgrade confirms that UX is improving over time, based on ongoing learning.

Aptera's New Solar EV Interior

INTERIOR NEWS



APTERA IMAGE

Aptera is teasing a new clean interior of for their latest solar EV prototype. Founded in 2006, Aptera started a bit too early for EVs; the market and technology were not ready. They went off to start other businesses, innovating in emerging industries such as lithium battery technology and vertical farm production.

In 2019 the founders rebooted Aptera as a solar electric vehicle brand, with the goal of building lightweight and aerodynamic vehicles powered by the sun that are able to handle most daily driving needs completely off the grid. Future plans include mainstream autonomous capable 6-passenger cars, 2-seat commuters, and utility vehicles up to 18-wheelers.

The Aptera Paradigm is a 3 wheeled vehicle that is so aerodynamic it only produces a .13 drag coefficient. The 2-seat cockpit is as minimal as possible to maintain efficiency and weight reduction. The interior is modern, with a massive infotainment screen and what appears to be 2 screens for side mirrors.

Manufacturing for the vehicle makes extensive use of 3D-printed tooling and composite materials to provide unusually lightweight components. The solar paneling has room to add more, which will give the customer further range. Additionally, the vehicle is equipped with L^2 driver assistance systems.

The Design Lounge

"Safest Car in the World" of 1957

THE DESIGN LOUNGE

AUTOSERVE IMAGE

Even before carnage on the world's roads led to the dawn of mandatory safety standards in the mid-late 1960s, passenger safety has been in mind to one degree or another during the architecture and construction of motor vehicles. Infinite stories are told or written and patents are filed for numerous applications, many of which made it all the way to today's cars.

Engineers and designers, inventors and dreamers have often invested their entire lives trying to materialize their avant-garde visions. One particular story though gathers every single safety feature into one project before vehicle safety was even a proper term.

Father Alfred Juliano, a Catholic priest from Pennsylvania, worked hard to build what he believed would be the safest car in the world. He was passionate about car design and had even obtained an opportunity to study with Harley Earl at General Motors but he had already been ordained when the scholarship reached him. Nevertheless, Juliano cared not just for his parishioners' eternal soul, but also for their physical integrity.

His Aurora concept of 1957, also known as the Aurora Safety Car, is an intriguing piece of American automotive archeology. Some of its features weren't exactly new; they had been shown a decade previously on the 1948 Tucker. Still, the Aurora's safety complement was impressive for its time: it had seat belts; a roll cage; shock-absorbing bumpers; padded dashboard; crumple zones, a telescopic steering wheel and even pedestrian safety features. In an attempt to reduce head impact, the windshield was shaped into a bubble. The front seats swiveled backward in case of an accident, protecting the occupants, a kind of early version of WHIPS.

AUTOEVOLUTION IMAGE

In a more casual manner, the seat arrangement could allow a face-to face among the passengers as some photos demo with a small table in-between.

Sadly, not all good things are necessarily good-looking or, for that matter, successful. As innovative as these features were, integrating all of them into a single car resulted in quite possibly the ugliest vehicle ever built!

The Aurora prototype was forgotten at a car body shop after Father Juliano gave it up as collateral on debts. The priest's story had a less than happy ending, but his creation lives on. In 2004, at the Goodwood Festival of Speed, the Aurora made its grand return to the spotlight, as part of the Cars of the Future exhibit reminding us that some unsung pioneers had been there before.

BYD Denza D9 Has Luxurious, Tech-Filled Interior

THE DESIGN LOUNGE

DENZA PHOTOS

BYD's Denza D9 MPV (minivan) is going on the market now; pre-sale prices range from C¥ 335,000 to C¥ 460,000 (€49k to €67k).

The D9 is the first of three new Denzas to launch this year; the model range will come to comprise five models called the D; the E; the N; the Z, and the A, filling in the Denza name. The D9 is based on BYD's e-platform 3.0 in EV form, and the DM-i platform as a hybrid.

An official video reveals the interior of the D9. It's a luxurious, tech-filled interior with seven screens: three in the front (a 10.25-inch instrument panel, 15.6-inch central control screen, and heads-up display); two on the front seatbacks, and two in the second-row armrests. There is also a refrigerator between the front seats, accessible by those in the second row. Screen mirroring of Android phones is also available on the TS Link intelligent interactive cockpit.

Denza says seven 1.8-m passengers can travel in comfort with seven 20-inch carry-on suitcases. The 10-way adjustable second-row captain chairs come with footrests; heating; ventilating, and 10-point massage functions (also on the front seats, except the footrest), and three 50-kW wireless quick chargers.

Nappa leather and wood are widely used throughout the interior. A large, panoramic sunroof brings in lots of natural lights. The two seatback screens are equipped with 8-megapixel cameras, which can be used for conference calls or for parents to monitor the kids.

News Mobility

Baidu Apollo is Autonomous, Affordable

NEWS MOBILITY

BAIDU IMAGES

Baidu has unveiled an autonomous shuttle to start commercial cab service in 2023. The van presented at the IT group's World Conference is expected to cost the equivalent of around €36,500 and help robot car technology achieve a commercial breakthrough. The company wants to put tens of thousands of vehicles on China's roads.

The 4.76-meter-long Apollo is optionally available without a steering wheel. Instead, there will be space for additional seats or snack machines in the interior. According to the company, 38 sensors, including eight laser scanners and twelve cameras, enable fully automated L^4 driving. According to Baidu, the system's capabilities will be on par with a human driver with 20 years' experience.

The Chinese company would take the lead in the young vehicle segment with its own robotaxi. The US counterpart Google is also pushing into the ride-hailing business with its subsidiary Waymo and already operates test fleets at individual locations. It is joined in China by competitors such as Pony.ai and We Ride. The most important advantage for Baidu could be the proclaimed low unit costs. The previous generation of the Apollo was almost twice as expensive. So far, however, China still lacks a legal framework for the large-scale use of robotaxis.

First Affordable EV with Drone Technology

NEWS MOBILITY

BAUJUN IMAGE

Car manufacturer SAIC-GM-Wuling and China's largest drone producer DJI have jointly developed a smart mini e-car which is causing a stir in China and beyond.

The small 2023 Baojun KiWi has been in series production for a short time and will be available from dealers this month, according to the automaker. Initial reports have the small EV costing just €11,700. Despite this low price, it will be equipped with ADAS functions in the new version, which DJI has developed together with the carmaker.

Analysts in China see a clear overlap between the technology a drone needs to fly and that a car needs for autonomous driving functions. For the new mini e-car, the drone maker has made its adaptive cruise control (ACC); automatic emergency braking (AEB); traffic jam assistant, and automatic parking assistance available for the first time.

Overall, the small electric runabout reaches the L^2 level of autonomous driving, Chinese media report. DJI is also reportedly providing its own data for navigation. Not only the software, but also part of the hardware for these functions has been developed jointly with "DJI Automotive," as the drone maker's new car division is called.

DJI's offerings include sensors for optical perception, along with the associated algorithms, as well as domain controllers for "intelligent driving," early warning systems for driver monitoring, and lidar devices coming from DJI subsidiary Livox, reports news portal Pin Wan. There are no official details yet on what exactly is installed in the first "drone car" from DJI and SAIC-GM-Wuling. Various media reports talk about a "binocular perception sensor for optical vision, a ring camera and a millimeter wave radar." It is also expected that a domain controller from DJI will be used either immediately or in one of the future upgrades.

General News

Ma Chuan is New Faurecia China President

GENERAL NEWS

FAURECIA IMAGE

Ma Chuan, president of Faurecia Seating in China, will assume the role of President of Faurecia China on 1 September. He will take over from Francois Tardif, who will serve as Executive Vice President of Automotive Electronics at Faurecia Asia and will be based in his new office in Saitama, Japan.

Mr. Ma is the first Chinese person to take over as Faurecia's president, signaling the company's determination to further explore the Chinese market. According to a company press release, Mr. Ma joined Faurecia in 2009 and has held several key management positions. In 2016, he was appointed vice president of Faurecia Seating in China. In November 2017, Mr. Ma was promoted to President of Faurecia Seating in China, assuming responsibility for the management and operation of the company's seating systems business in the world's largest automotive market.

So far, Faurecia has about 20,400 employees in China (including 1,300 engineers). The country already has 6 technology centers, 11 R&D centers, and 65 factories.

Lear Targets Fully Renewable Energy by 2030

GENERAL NEWS

LEAR IMAGE

Lear Corporation, which manufactures automotive seating and electrical systems, has joined Climate Group's RE100, a global renewable electricity initiative that includes over 370 major companies. Lear is ranked № 10 in OE parts sales to automakers worldwide in 2021 with total revenue of USD $19.3bn.

RE100 members commit to sourcing 100 per cent of the electricity used across their global operations from renewable sources. By integrating RE100's Energy Efficiency Playbook and renewable energy strategy across the company, Lear plans to achieve fully renewable energy for electric power consumed at its global sites by 2030.

"Lear's strategy, aligned with RE100 and the United Nations' Sustainable Development Goals, illustrates our commitment to industry collaboration and building a more sustainable global economy," said Lear's VP of renewable energy and sustainability, Jozef Chrzanowski. "We are excited to become a member of RE100 and take another step toward a carbon neutral future."

Lear's operations in Germany, Poland and the UK currently meet the goal. In addition, the company is operating six on-site solar installations in Europe, South America and Asia, with a seventh installation due to be announced later this year.

The company says they will use a combination of methods to procure and generate renewable electricity for its remaining global sites. The type of power source will depend on geographical location, applicable legislation, and government regulations.