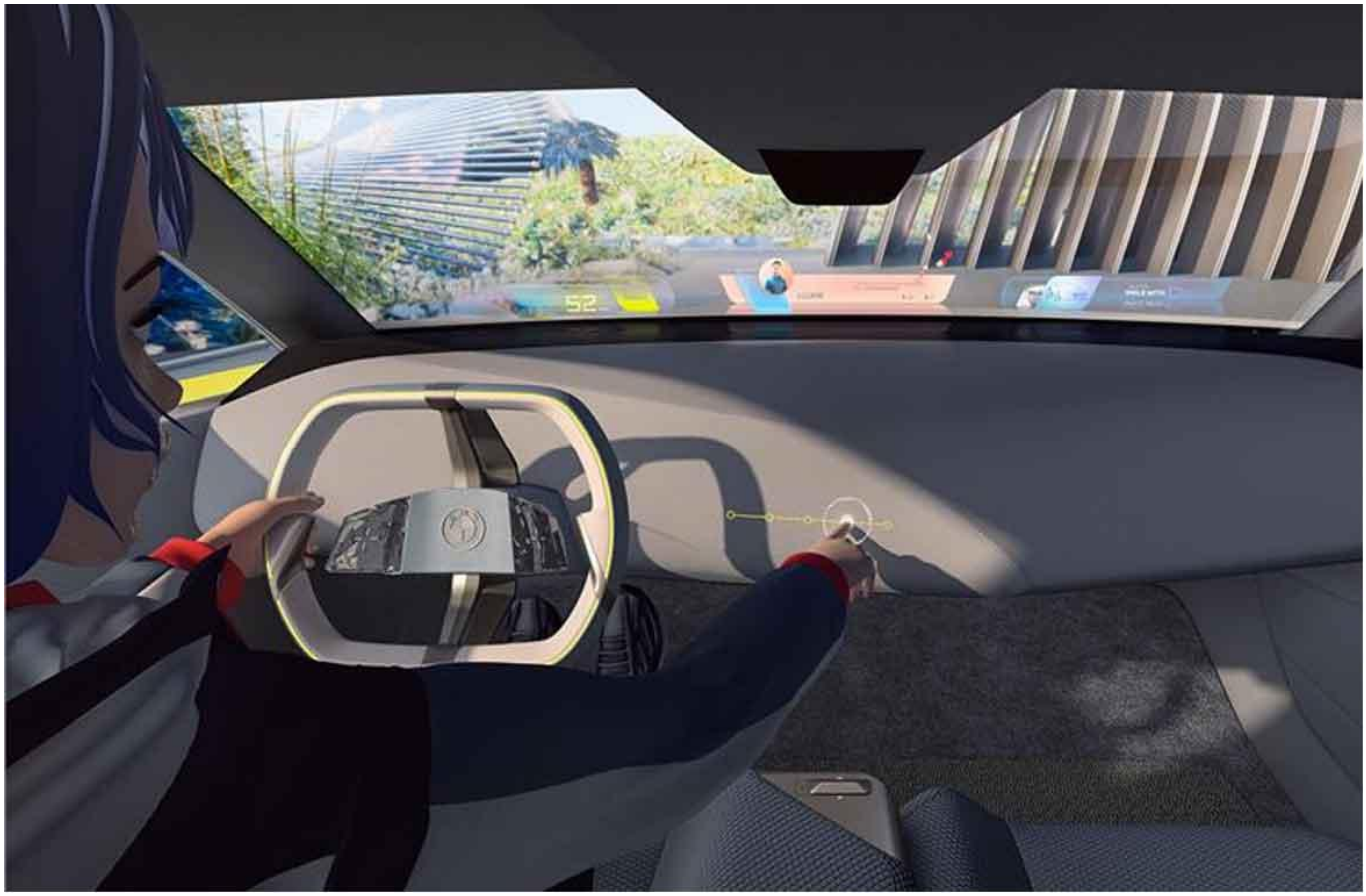
Thu, 29 February 2024
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #201

Editorial

New Members Bring New Technology To The DVN-I Table



BMW I VISION DEE (BMW IMAGE)

Welcome to Newsletter № 201, the first stepstone in DVN-Interior's second era! It's a fine opportunity to meet and to interview a recent new community member: Polycontact, a very interesting company active in seat belt electronics, and actively adding interior lighting in their portfolio of Swiss technology products.

Also this week we welcome Scotland-based Ceres Holographics, who develop HUDs with their Holographic Optical Elements technology. They will be speaking at the upcoming DVN Interior Workshop in Köln on 23-24 April. It's time to **register**, if you've not already done so. Interior members get free entry according to their status, and non-members are welcome, as well.

Today also brings step 2 of the survey we announced last week; please vote by hitting **this link**. results of the survey will be presented at the Köln Workshop.

We are delighted to work tirelessly in service to you, our membership!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Polycontact: Swiss Tech for Switches, Sensors, Lighting

L-R: POLYCONTACT CEO HANSPETER GAUER; BUSINESS DEVELOPMENT HEAD DR. OLIVER KUERTEN; DVN'S PHILIPPE AUMONT; POLYCONTACT ELECTRONICS & LIGHTING LEAD RETO HIDBER

DVN Interior: Tell us about Polycontact!

Polycontact: Polycontact was founded in 1959, aiming at producing microswitches. We are now 49 per cent owned by the Markus Looser foundation. It is a Swiss technology company headquartered in Chur, which can look back on more than 60 years of company history.

We're a midsize company, with more than 400 employees; revenue is expected above CHF 40m (€42m) for 2024, split between Europe (66 per cent), Asia (28 per cent), and North America (8 per cent). Polycontact activities are almost 100 per cent automotive, even if we are investigating opportunities with trucks and off-roads.

DVN-I: What are your company's mission and vision?

Polycontact: Strategy for 2030 is to increase sales up to 15 per cent of electronics and lighting, while keeping the current business fields (switches, sensors, harnesses, and testing).

As we went into series production with our first lighting product by end of last year the first step has been made. The next steps are in planning.

DVN-I: Will you tell us more about your physical plant?

POLYCONTACT HQ (POLYCONTACT IMAGE)

Polycontact: In addition to sales, research, and development, also a large part of the belt buckle switches and their plastic components are manufactured at our headquarters in Chur, Switzerland. The Chur development center includes all the necessary labs, such as climate chambers, salt spray, light black chamber, end-of-line tests, etc.

In 2015, when the Swiss Franc detached itself from the Euro, it was not possible anymore to be competitive with only a Swiss production base, when selling in Europe. Therefore, we launched—within a very short time—a plant in Sibiu, Romania, and now we are even competitive to sell in China. Our second plant in Sibiu opened in 2022.

The Sibiu plants produce all sensors and electronic products, and also switches and cables.

DVN-I: Can you describe the main pillars of your product offering?

Polycontact:

- Seat belt buckle switches and push switches
- Position sensors: Roof tops, rear spoilers, front diffusers, luggage space separations, cooling air claps, hydraulic cylinders, door handles
- Seat track position sensors and seat angle sensors
- Electronics and lighting components
- Wire harnesses

We are a leader for coded seat belt buckles, and sensors mainly used for roof top mechanisms controls. We also produce wire harnesses, and we are developing lighting and electronics.

DVN-I: What is a coded seat belt buckle?

Polycontact: Coded seat belt buckles are needed in premium vehicles, which have more than on/off function, but also being able to detect any malfunction. We sell about million switches there per month. It was our initial product they we started to develop as the first generation of seat belt buckle switches for Mercedes in 1992.

The signals from the belt buckle switches are evaluated by the control unit and, depending on occupancy and vehicle type, used to control hold-on, start / stop, handbrake, and classic sound and light warning.

In addition to the normal warning function, a diagnosable belt buckle switch can be used in a traffic accident to control the airbag. Reliable cost-optimized detection of lock states makes use of different switch technologies (resistance-coded buckle switches, buckle switches based on hall, buckle switches based on slider, wireless buckle switches, buckle switch LED lighting, etc).

DVN-I: What can you tell us about about how your sensors are used?

Polycontact: Our sensors are used in convertible roofs, spoiler, and door lock systems or as safety-relevant components in the detection of the position of the car seat.

Seat position sensors will develop, as NCAP will request a 3-position seat understanding to trigger the airbag appropriately. For transition from automated driving back to manual, a 40° max seat angle must be checked.

DVN-I: What are your main technologies?

Polycontact: We master the main technologies needed to develop produce our components, including simulation, tooling, and end-of-line testing. It includes:

- Plastics and injection molding
- Product and process engineering
- Tool shop and rapid prototyping
- Optics (optical and lighting simulation and measurements)
- Mechanics, optics, electronics, and software
- Laboratory technologies
- EOL (end-of-line) test station building

SEAT BELT BUCKLES (POLYCONTACT IMAGE)

DVN-I: What are your main markets and customers?

Polycontact: Seat buckle and sensors are Polycontact's bread-and-butter activities (about 90 per cent of revenue), all in automotive, where Autoliv is our primary customer. We are progressively extending this product portfolio in lighting and electronics, and we are open to other markets and are about to start to enter them—e.g., truck and off-road.

DVN-I: What's your USP (unique selling proposition)?

Polycontact: We set ourselves apart through our speed and innovation, and we are leaders in coded buckle switches and in rooftop sensors, with Swiss automotive quality. It is based on implementation with flat hierarchy, well-established failure culture, and we are honest and straightforward to our customers in terms of communication but also tough in doing business. That is reflected in the Swiss Employer Award we proudly won in 2022.

As we are a smaller company, our decisionmaking process is quick and efficient, thanks to lean internal and external communication. That is the basis of our customer satisfaction strategy. We are perfectly adapted to what the automotive market is now demanding, under the influence of Chinese and new entrants like Tesla, which have a new understanding of speed, compared to the legacy players.
We can act as a build-to-print supplier as well as developing and producing own products.

DVN-I: You work directly with automakers? Or through tier-1s?

Polycontact: Our business model is development with OEMs, and shipment to tier-1s. For a new generation of seat belt buckles, development will take place directly with tier-1s.

DVN-I: How are you working with your customers?

Polycontact: As a competent development partner, the company is in close contact with customers, from the initial idea through the assembly of prototypes to a technically mature serial product, and even during the series production. Thanks to our flat corporate structure and high flexibility, Polycontact can swiftly react to customer requests. We do see communication as the key to success.

POLYCONTACT PRODUCTION (POLYCONTACT IMAGE)

DVN-I: How do you manage costs, especially here in Switzerland?

Polycontact: Design to cost is in our DNA. When we develop a system or a component, its function is important, but only if it is affordable and competitive. Our production process is very automatized with plastic injection machine, from 250 to 1,500 kN (producing a total of 87 T/year), and assembly lines for switches mostly based on roundtables. It is really mass production with cycle time around 2 seconds! Evidence of this performance is some products are even shipped to China! (also, thanks to easy train connection to Hamburg, allowing affordable ship transport there).

POLYCONTACT PRODUCT BOARD SHOWS DIVERSITY OF RANGE (DVN IMAGE)

DVN-I: What are your key industrial competencies?

Polycontact: It is all around plastic injection of technical and complex small parts (from 0.05g to 20g) and integration of micro-electronics. That's what a switch is all about to be later integrated in a seat belt buckle or a wire harness. It is also around management of diversity, as we have a lot of part numbers.

DVN-I: How do you see interior lighting evolving?

Polycontact: We do see lighting playing a major role in the interior as well as exterior. Autonomous driving, wellbeing, and human-machine interface communication are important factors of the closer future. Apart of that, OEMs are more and more trying to distinguish themselves using light to strengthen their brand.

DVN-I: What were your first lighting developments?

POLYCONTACT LIGHTED STEERING WHEEL, L, AND ITS LIGHT GUIDE, R. (DVN IMAGES)

Polycontact: Lighting started in 2019 with the world's first 360° steering wheel LED light bar presented at IAA Frankfurt, developed with Joyson. This functional light strip will become mandatory for L^3, like what is now existing on the Mercedes S-class and BMW 7-series. Therefore, we are developing competences accordingly, with focus on electronics and optics. With optical FEM simulation, experience in the design and manufacture of optical components (lenses, diffusers, visible parts), interdisciplinary development teams and the in-house optical laboratory, we achieve the specified optical requirements of the overall system (luminance, homogeneity, color location, appearance).

From the specification and the conception to the implementation over the testing up to the serial production, Polycontact provides integrated electromechanical components such as RGB LED light systems in the steering wheel, LED modules and controllers, illuminated switches and buttons, signal processing module position sensors, and controllers for hall / inductive ICs.

DVN-I: How is simulation supporting your developments?

Polycontact: Simulation is a key process to provide a maturity level from the very beginning of the product development process. Besides showing and sharing our competences towards our partners and customers, we can save time and money by avoiding too many development loops to hit the target requirements. Ansys and Lighttools are in use for simulation. Besides optical simulation we are also experts in magnetic simulations.

DVN-I: How is sustainability managed?

Polycontact: Sustainability is playing a major role within the organization. We have photovoltaic panels in use already in Sibiu. We are currently planning to install panels in Chur, as well.

We furthermore are screening the market to use re-cycled granulate for our products. As an ISO 14001 certified company we oversee continuous improvement in this field.

DVN-I: What else would you like to share with the DVN-I community?

Polycontact: We see ourselves playing in a niche market. Nevertheless, we do understand the market and its requirements and can act and support as a tier-2 or -3, or delivering straight to the OEMs. And we can provide the solution from scratch till production out of one hand.

Interior News

Ceres: Holographic HUDs for Safer View

INTERIOR NEWS

CERES IMAGE

Ceres Holographics, founded in 2009 and based in Livingston, Scotland, is working with OEMs on holographic head-up displays (HUDs) to improve functionality and safety.

Ceres began development of their core digital master printer technology more than 15 years ago to develop and advance the manufacture of holograms in new photopolymer material from Covestro, formulated for light guiding and image hologram applications. The companies recognized, and confirmed, the advantage of this approach in terms of design flexibility and manufacturing repeatability. Ceres leverages that innovation today to manufacture very large holographic optical elements (HOEs) for a new generation of transparent displays.

Ceres uses the holographic film not to recreate a 3D image of an object, but to reproduce the behavior of a physical optical element, creating a HOE. Each 250um pixel in the photopolymer film captures the interference pattern from two laser beams, one being the wavefront representing a tiny part of the optical component being created. It continues until the whole film consists of millions of tiny HOEs to make up the required optical function. The final HOE can act as a shaped-mirror optical element, or a diffuser optical element. Both are transparent to the driver or passenger, and are light and flexible.

Ceres' HoloFlekt® manufacturing process facilitates the replication of their precision-printed HOE masters, and is key to scaling to volume production. This accumulated expertise from 15+ years of R&D into mastering and replication for volume manufacture is realized in their HoloFlekt® 1400-mm-wide roll-to-roll manufacturing machinery, which came on line in 2021.

The Ceres Holographic Transparent Display enables projected information from a simple LED-based projector to appear in the plane of the glass. This type of display is capable of very high brightness and full color, with none of the disadvantages of transparent OLED, LCD, electroluminescent, or nanoparticle displays in terms of cost, complexity, brightness, and transparency.

First benefit of this holographic approach and the off-axis capability is that it gives designers much more freedom in where they place the projector, while still having the information directed toward the driver's face.

A second benefit is that the thin, transparent film of the holographic component can be embedded in the glass substrate of a windshield, so the optical components take up no space of their own in the cockpit.

Ceres has spent five years aligning this technology and manufacturing capability for automotive, in cooperation with their windshield interlayer partner, Eastman Chemical, to realize the opportunity for transparent display technology.

This breakthrough approach to transparent HUD implementation—affordable, power-efficient, highly transparent, with an entirely passive film— overcomes barriers that have kept HUDs from wide adoption. As a mainstream technology, transparent HUDs can improve driver attentiveness and information, reduce accidents, and aid in the safe integration of increasingly powerful autonomous ADAS features. This will literally change what people see when they look out through their windshield and help them stay safer in the real vehicles of the future.

Lancia Ypsilon Has Elegant Italian Interior

INTERIOR NEWS

Lancia's styling center and the Cassina design house cooperated to give the Ypsilon's launch edition an upscale passenger compartment, like an elegant Italian living room.

Lancia is emphasizing the Ypsilon's *italianità* (Italianness), and the car was unveiled a couple of weeks ago in Milan in the showroom of Italian interior design and furniture house Cassina. Lancia plans to sell 1,906 of the Cassina-edition cars, only in Italy, to celebrate the 1906 founding of the Lancia brand.

The Ypsilon's interior is characterized by a blue tone that wraps around the seats, dashboard, and door panel inserts. The cabin also has a Cassina multifunctional coffee table that allows occupants to recharge their phones—a first for a car interior, according to Lancia.

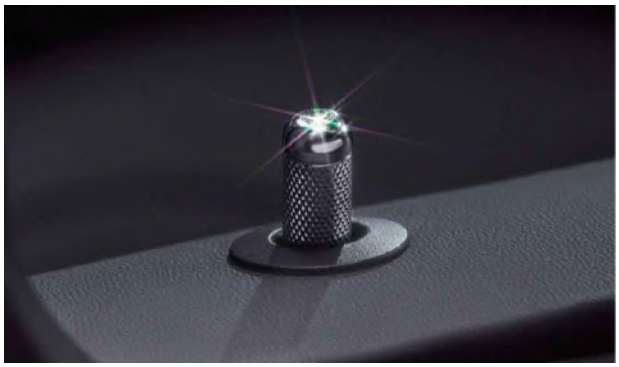
The Ypsilon is the first Stellantis production car equipped with the automaker's SALA (Sound Air Light Augmentation) infotainment that operates on a customizable, widget-based system, with the homepage serving as a centralized control panel for sound, air and light. Its dashboard has two 10.25-inch cockpit and infotainment screens.

Diamonds in Mercedes G-Class Interior

INTERIOR NEWS

MERCEDES-BENZ IMAGES

44 years after the launch of the Mercedes-Benz Geländewagen (the G-Class), they've built their 500,000th unit in Graz, Austria. To celebrate, now there's the "Stronger than Diamonds Edition".



Limited to 300 units, the special-edition G-Class with its V8 engine is an actual, real treasure: diamonds totaling one carat are installed in the interior.

The special model comes exclusively painted Manufaktur Rosewood Grey Magno. All four stainless steel door lock pins have an embedded ¼-carat diamond, and the outer door handle is decorated with an embossed diamond-design logo. Even the vehicle key has a genuine silver badge and diamond embossing. The black nappa leather in the interior is contrasted with pink stitching, and the illuminated stainless steel door sill trims bear a "Stronger than Diamonds" badge. The special model costs €175,000 plus tax.

KGM's New Torres

INTERIOR NEWS

KGM PICTURE

KG Mobility is a South Korean automaker tracing their origins to SsangYong Motor, established in 1954. Now KGM has announced their Torres, a 'C+ segment' SUV, as the first model to reflect the brand's new design philosophy 'Powered by Toughness'. The name is inspired by the landscapes of Torres del Paine National Park in Chile.

KGM UK Managing Director Kevin Griffin calls the Torres "the first to reinterpret our future design vision, which draws heavily on our unique heritage", and says it is intended to fill the gap between "semi-medium-sized" SUVs like the Korando and large ones like the Rexton, to "create an additional segment in the market and open new opportunities for us as we continue to develop our product offering that adds value and originality".

The interior offers a refined, comfortable, contemporary space designed to maximize comfort and convenience for all onboard. The wide, slim dashboard creates a spacious feeling, providing an uninterrupted view of the road. The four-spoked, flat-bottom steering wheel offers integrated audio controls for quick access. Metal accents and ambient mood lighting add a sophisticated touch to the leather upholstery.

Information is presented on a twin-panoramic 12.3" digital display cluster with infotainment controls. Standard features include Apple CarPlay, Android Auto, Bluetooth connectivity, DAB radio, and front USB and aux ports, accompanied by six cabin speakers.

The 1.89-meter-wide Torres offers space for comfort and a load area ranging from 703 to 1,662 liters. There's a concealed space beneath the load floor. This substantial and practical storage area caters to various needs, making it exceptionally convenient for both daily activities and road-trip adventures.

Ford Patents Grab Handle Steering Wheel

INTERIOR NEWS

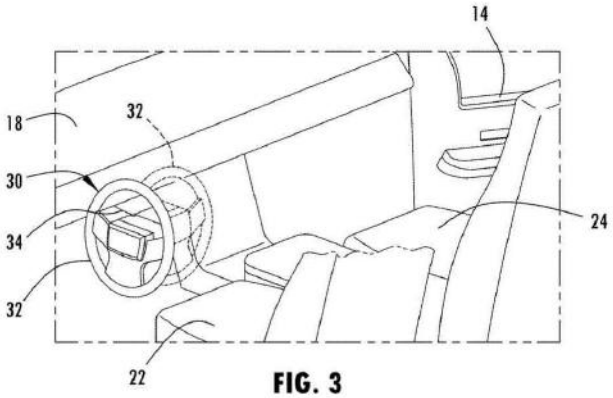


FIG. 3

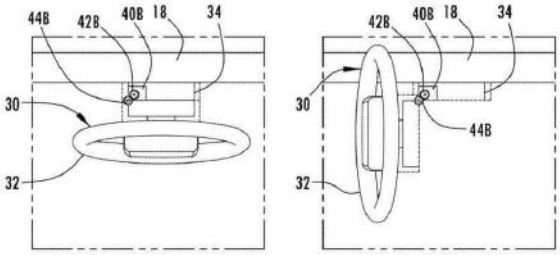


FIG. 3A FIG. 3B

Ford has dreamed up and **patented** a steering wheel which could swing like an opening door and slide across the dashboard to serve as an assist grip.

The idea is a motorized system that would allow the wheel to go perpendicular to the dashboard, making it easy to grab by someone trying to get into the vehicle. Ford is also discussing a sliding mechanism for the steering wheel and steering column that would allow them to be moved from one side of the dashboard to the other.

According to Ford, when a driver or passenger approaches the vehicle, existing sensors—camera, radar, ultrasonics—scan their body to determine the ideal position for the steering wheel/handle. It could be adapted to specific user profiles so that the vehicle recognizes a particular person and automatically sets things up for them.

Enhanced Interiors for BMW M4 Coupé and Convertible

INTERIOR NEWS

M4 COMPETITION COUPÉ (BMW IMAGE)

The BMW M4 Competition Coupé and Convertible with M xDrive have been updated with a redesigned steering wheel and interior trims, along with the introduction of BMW Operating System 8.5.

BMW says the driving experience is further improved by configurable assistance systems that can be controlled via the M Mode button on the center console, allowing for tailored driving experiences such as Track mode for racetrack use.

Standard features include park distance control, cruise control with braking function, and optional driving assistant packages with additional safety features like front collision warning and lane departure warning.

The M-specific cockpit has been refined with new steering wheel designs and interior trims. The steering wheel now includes multifunction buttons, M buttons and shift paddles, with an optional M Alcantara steering wheel available. The cockpit also features a control panel on the center console for easy access to various functions.

Interior customization options include different leather trims, heated seats and fully electrically adjustable and heated M Carbon bucket seats. The company says that the BMW Curved Display and BMW Operating System 8.5 provide intuitive access to vehicle information and controls, with M-specific graphics.

Production of these models will begin next month.

The Design Lounge

Crash, Part I

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

RIMAC CONCEPT ONE AT GENEVA, 2016 (WIKIMEDIA IMAGE)

People have been crashing cars for as long as cars have been around. These events changed the nature of the automobile, not just in terms of morphology but also in terms of its surrounding context, urban, civil, civic, chorographic, and choreographic. Car crashes have been essential in popular culture for an entire century of dramatic mythology creation, funding its reputation of speed and supernatural risk. It is all about the man and the machine. While ongoing popular statistics have been endlessly chasing 'the error', accidents are deeply embedded into the very nature of the automobile ever since its birth. It is almost the necessary condition of its own thrill, like if the one could not exist without the other. And this is not seen just as a historical fact but as an integrated characteristic of the process of making, omnipresent all along its development procedure, during, before and after.

One of the first-ever automobiles, the remarkable piece of engineering designed and built by Nicolas Cugnot in 1769 as a 'utility vehicle' to transport canons for the Napoleonic wars, it is reported to have had an accident, crashing against a wall. Furthermore, it was the first time that the question was asked: was it a fault of the human or a fault of the machine? Many similar episodes have animated the pioneering attempts that defined, by trial and error, automobile's mechanical but also metaphysical nature. But let's jump to modernity when cars were already established. For many, the 1950s is considered to be the automobile's golden era. Postwar automotive design took a futuristic leap. The place to be was Detroit and more precisely the GM design studio under Harley Earl. Following his success with LeSabre concept car, during one of his business trips he was asked about the future of automotive design and his prompt answer was a picture of a Jet plane (the Douglas skyray fighter jet) figuring at a page of a magazine he was holding. Lo and behold in 1953, the GM Firebird I, essentially a jet plane on wheels, was created, as a car body wrapped, or rather styled, around a jet engine. That was equally a design as well as an engineering prouesse. During the very first test-drive on a track, one of the team members that helped creating the prototype, decided to take it for a spin. What he didn't know is that turbine engines do not perform instantly. They are a bit like the opposite of an electric one. At the beginning,

while spooling up to hi-rev, there is hardly any reaction even if you floor it, but then, torque comes all-together and it's powerful, and, very hard to hold on. That is exactly what happened, the car sailed straight off at the first corner. The engineer survived the crash yet with severe injuries that compromised his career path in GM as well as the future of jet engine cars. Firebird I entered the list of legends and the tailfin era of automotive styling spread worldwide for over a decade.

Fast forward to June 2017, Richard Hammond, (Top Gear TV show) was involved in a dramatic accident while driving the Rimac Concept One, an impressive and beautiful all-electric hyper car, capable of reaching speeds up to 220 mph. A lot of questions surrounded the event. Mate Rimac himself said that the latest technology used at the car is extremely preventive, yet he'd rather replace Richard with a crash-dummy, while the car was tumbling downhill, because it could give better feedback on the accident. This isn't exactly the sort of press coverage which any automaker would wish for, but the company's head of sales confirmed that the very day of the accident the company was able to sell three cars despite not having any plans to put the prototype in production. Richard Hammond's crash was the best thing that happened to Rimac.

Incidents served not only as historical milestones highlighting the evolution of automotive and the need for continuous improvement, but also as legends to underline their extreme character. This is exactly how the most brilliant, and just as terrific, everyday invention played its part in creating some of the longest lasting myths of the last century. Very rarely mechanical objects have had such a primary connection with humans. The motor car acted brilliantly in the playhouse of our dreams, sculpted as a piece of art, and engineered with imagination and ingenuity, thus each one symbolic of their time. No other mass-produced object radiates a similar unsettling attraction.

News Mobility

Autonomous Driving: Modelling Sensor Technology?

NEWS MOBILITY

BOSCH IMAGE

Autonomous driving functions have become an integral part of road traffic. However, extensive testing is required before the vehicles hit the road. These often still take place on real roads and proving grounds. Increasingly, however, tests are also being carried out virtually.

Artificial intelligence and machine learning methods are also finding their way into measurement and testing technology. From L^3 on up, automakers assume a liability risk for faults in the ADAS. This inevitably leads to new ways of safeguarding. Purely virtual tests have long been established, also thanks to ever better and more accurate vehicle and environment models. However, the behavior of the many complex electronics and sensors cannot yet be modeled with sufficient accuracy.

There is a lot of discussion about AI-based methods, particularly in automated driving. It is clear that it will not work without these methods. However, it is also clear, that the use of tools for the deterministic validation of self-learning algorithms is necessary.

More and more sensors and sensor fusion are defining the modern vehicle. What does an appropriate test system need to offer in order to process the large amount of data from sensors, cameras, lidar and radar?

It starts with high-precision measuring devices that can be used to validate the basic functions of the sensors: These include, for example, the characterization of the antennas, the properties of the transmitter or receiver modules, the connection to the sensor software, the robustness against interference. Specialized solutions that are capable of testing the entire system are required to safeguard the sensor function itself.

Information about both the macro traffic situation and the immediate surroundings is relevant for highly autonomous vehicles. Examples include real-time updates on roadworks, congestion information from the infrastructure or V2X-based communication between vehicles and infrastructure such as traffic light phases or directly between vehicles.

Due to the disproportionately increasing proportion of software in today's vehicles, test solutions must be able to guarantee both the function and safety of this software. This includes complete and detailed testing of autonomous driving scenarios in the laboratory (digital twinning). Functionality must be guaranteed, and security against cyberattacks at all communication interfaces. All these requirements are gradually being formalized by global and regional standards and regulations.

Now, the challenge is to restore confidence in the system, to reverse the current trend of limiting, or even banning, autonomous cars

General News

Volvo's New Innovation Center

GENERAL NEWS

VOLVO CARS IMAGE

Volvo is establishing a new innovation center in Gothenburg, Sweden. At their new Mobility Innovation Destination Torslanda, charging technologies and autonomous driving are among the technologies to be focused on.

Wireless and bidirectional charging of electric vehicles and autonomous driving will be tested, validated and used in a citylike environment at the center. In addition to new buildings and facilities for testing, technology and materials, the campus in Torslanda will also accommodate startups and business partners in the future. Volvo Cars President and CEO Jim Rowan says, "With this initiative, we want to create an ecosystem in which we can develop the future of mobility—including the vehicles and their technology as well as the surrounding infrastructure".

The first step is to construct several buildings opposite the existing campus, which will house modern offices in the future. The new building will be a timber-hybrid construction. The first building is scheduled for completion in 2026. The Volvo Campus is also to be included in the expanded Gothenburg Green City Zone. In this area, the city of Gothenburg is testing new technology for vehicles and infrastructure together with Volvo Cars and other companies, researchers and other partners.

Forvia to Pare Down European Workforce

GENERAL NEWS

FORVIA GERMANY HQ, HANOVER (FORVIA IMAGE)

French automotive supplier Forvia plans to cut as many as 10,000 jobs in Europe over the next five years, in part through attrition, becoming the latest auto industry player to react to falling demand and China's dominance. Downbeat statements about the European automotive sector outweighed earlier positive signals about a plan to boost profitability in Europe.

According to Reuters, Forvia said they plan to cut 13 per cent of their European workforce, largely through attrition. CFO Olivier Durand said the company's "attrition rate is 2,000 to 2,500 people a year. So, in fact, the plan does not mean making 10,000 people redundant," adding that the company will limit recruitment to posts deemed strictly necessary.

In a recent LinkedIn post, CEO Patrick Koller said, "The main consequence of these product changes is a profound redistribution of forces, where previously dominant regions (like Europe or North America) are now completely outpaced by Asia, particularly in traditional car production. This shift from West to East is clear: in 2030, about 58% of all cars produced in the world should be in Asia (representing about 55m vehicles, +17% vs today) while in Europe for instance, we should see a production stabilized around 17m vehicles with no growth expected. China is the symbol of this shift as they are now № 1 in car exportations while they were only № 9 in 2020! They take full advantage of the worldwide demand for electric cars, and they have structural advantages to produce more affordable EVs: direct access to critical resources, cheaper energy cost by 40% vs EU, massive subsidies to their local companies and some leaders in electronics that are decisive for the reasons explained above. They also have a domestic demand we no longer have in Europe—in China, the equipment rate per person is still about 2 to 3 times less important than in the EU or the US today. All these interconnected factors make vehicles' production costs significantly more competitive in Asia than in the EU (from 10% to 30% cheaper in EV) and have enabled numerous new brands to enter the market with more affordable products.

Because these changes are so fast, it becomes clear that our industry must adapt its European industrial setup to remain competitive. The status quo is not an option, it will just lead to massive loss of market shares in this tough competition."