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Weekly Newsletter

DVN
Lighting & ADAS

NEWSLETTER #843



Webinar: **EVIYOS® 2.0 LED** for
precision adaptive headlights -
new era in road safety

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Editorial

CEO Round Table: Incredible Opportunity At Munich DVN Event



We have been preparing our DVN Munich Event since last September, working to bring in more interaction. We're designing it for participants to be active the full two days of the workshop.

To that end, we've decided to increase the number of keynote speakers. And we're dividing the sessions thematically with focus on EE, design, display, ADB, and sustainability. We'll have a one-hour pitch session for our exhibitor, and more round tables. We've scheduled a market insight session so everyone will be primed to discuss it during the cocktail hour immediately following. One session will be dedicated to design, ending in a panel discussion with designers to interact with the audience via the Slido app, which has made audience participation easy and fun at past DVN events, and input via that channel will be fed back in as fresh material for the panel discussion.

We've had another idea, too: we've integrated step-by-step design because design is now the second pillar of lighting devices (and it's headed toward overtaking safety performance to become the first pillar). So with those two pillars in flux, we've broadened the focus and scope to encourage interactive participation involving the whole lighting community and supply chain as part of our event. Business development, sales, marketing, purchasing people are participating, so we're welcoming them to speak up. And that's in addition to CEOs giving keynote speeches or otherwise participating.

So...why not organize a CEO round table? Wolfgang and Hector and I thought hard about it, and in the end, we decided it's a good idea. For a start, each of us contacted two CEOs. Five months later, we are able to propose, for the first time at a lighting event, a lighting CEO panel discussion to talk about the stakes that the automotive industry faces—especially the vehicle lighting industry.

You won't want to miss this central element of our 2-day workshop, with the rubric:

The automotive industry is in transformation; what opportunities do you see for our business?

The banner features the DVN Lighting logo on the left and the event title 'Munich WORKSHOP 27-28 February' in the center. Below the title, it lists 'Round table CEOs' with five headshots of participants: Sylvain Dubois, Maurizio Martinelli, Steger Wilhelm, Adam Wu, and Hossein Nafari. Underneath the headshots are the logos of the companies they represent: MARELLI, Valeo, ZKW, amul, OSRAM, and MIND. At the bottom of the banner, it says 'REGISTER www.drivingvisionnews.com'.

Paul-Henri Matha
DVN Chief Operating Officer and Lighting General Editor

In Depth Lighting Technology



DVN Munich Workshop
Lighting

"Design and Lighting,
Technology and EE architecture
to support new mobility"

27-28
FEBRUARY 2024

Munich

Computing: Automakers' New Primary Focus



Inspired by Pierrick Boulay, Yole Group Senior Lighting & ADAS Analyst

The ADAS market is expected to exceed the USD \$30bn mark by 2028, considering cameras, radars, lidar, and computing. Sensors for safety started out with their own ECUs, but as their technology improves the previous one sensor/one ECU/one function paradigm is giving way. With the development of centralized architecture and the emergence of software-defined vehicles, computing is taking on a newly elevated role to create the global picture around the car crucial for driver and vehicle vision and, therefore, for increasing autonomous driving and safety-management systems.

Main suppliers of legacy sensors include Onsemi, Omnivision, and Sony, and resolution is increasing—from 1-2 megapixels in the recent past to today's 8-megapixel cameras. Last May, NHTSA proposed making AEB (automatic emergency braking) mandatory. This regulation would require systems to detect pedestrians even in the dark, and that could exert major changes; current AEB works as well as it can during daylight with a

radar and a visible camera, but performs poorly in darkness. So, automakers would have to use different sensors to meet the requirements. Thermal cameras perform well when the road bends, in poor weather, and in low light conditions. Adding an algorithm for pedestrian detection would be straightforward, and this could be a great opportunity for thermal cameras to finally enter the automotive industry, but they still cost more than visible-light cameras, and that's still the main obstacle to adoption. Other sensors, like gated-imaging cameras or lidar, could also be used in dark-capable AEB systems.

The average radar module count per car will increase from 1.7 in 2022 to 3.1 in 2028. As a result, the automotive radar module market is expected to grow from \$6.7bn to \$13.5bn. Legacy radars are dominant today, but 4D radar is expected to generate around 60 per cent of the market revenue in 2028. 4D radar brings elevation capability, and its finer 1° resolution dramatically improves object differentiation compared with the 4° to 6° resolution of 3D radar. But the increase in performance requires more computing power. Here, innovation is being driven by startups like Arbe Robotics, Uhnder, and Metawave. These startups are using either AMD/Xilinx field-programmable gate arrays or, in Arbe's case, producing their own ASICs to replace classic MCUs. Today the computing is usually embedded in the radar module, but we can expect the computing part to be increasingly discrete.

In 2022, for the first time the passenger vehicle lidar market surpassed that for robotaxis. Lidar adoption is driven primarily by Chinese automakers, especially new ones making EVs. Seyond, Valeo, Hesai, and RoboSense lead this market. Valeo have dominated the passenger car lidar market—supplying Audi and Mercedes, for example—but dropped from 79 per cent market share in 2021 to 24 per cent in 2022, with the emergence of Chinese suppliers. In 2022, Seyond led the market by supplying Nio. The auto lidar market is quite young, therefore highly changeable; rankings can and do change rapidly. Hesai and Robosense are each supplying at least 14 automakers, and their respective market shares should change in 2023 and 2024. Chinese automakers are rapidly implementing lidar using local suppliers; Chinese lidar manufacturers controlled 73 per cent of the market in 2022. They have little traction in Europe, mostly because European automakers haven't bought into Chinese lidar yet, and that market is limited to low-volume premium vehicles, mostly supplied by Valeo.

The increasing number and performance (range, resolution...) of onboard sensors drives a need for more computing power in passenger cars. Computing revenue for ADAS and cockpit processors is increasing quickly, with a 13 per cent CAGR between 2022 and 2028 and reaching a value of \$12.7bn in 2028, of which ADAS is responsible for over 60 per cent. Mobileye have dominated the automotive vision processor market for a long time, accounting for 52 per cent market share in 2022, followed by the likes of AMD and Nvidia.

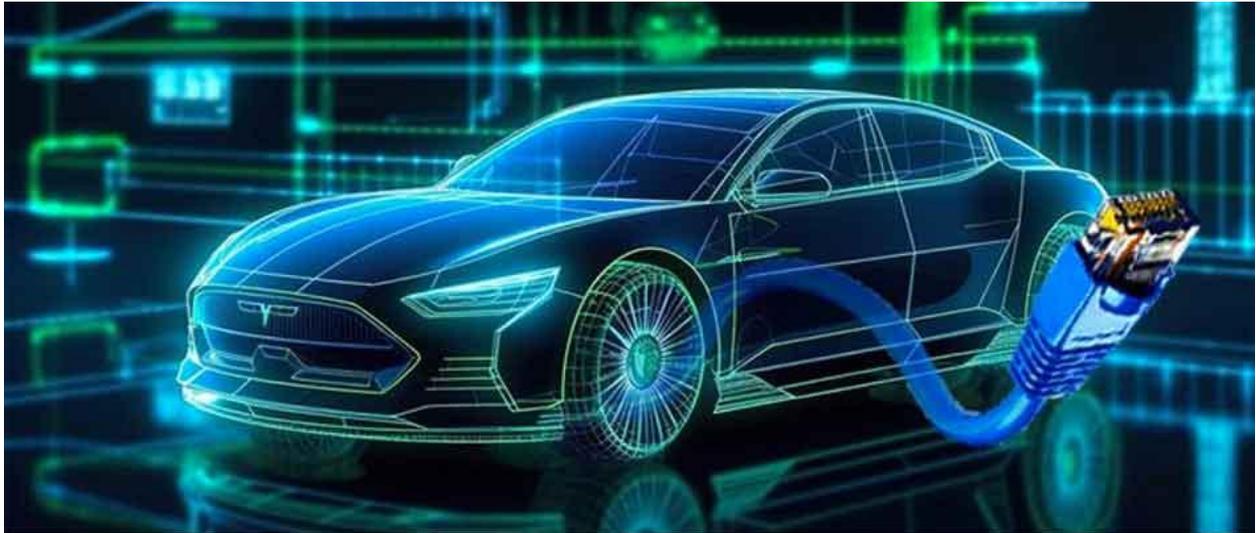
The cockpit processor market is dominated by Qualcomm, with Renesas and NXP also active in the space. Qualcomm recently entered the automotive market through the cockpit, leveraging the user-experience knowledge they gained in the smartphone market. But Qualcomm's targeting the much more lucrative ADAS market, where they are showing signs of readiness to rapidly gain significant market share and quickly become a strong competitor to Mobileye. Meanwhile, Chinese companies including Horizon Robotics, Black Sesame, and Hisilicon are gaining ADAS and cockpit design wins and their market share is expected to increase significantly in the next five years.

During CES 2024, Bosch, LG, and Continental announced computing platforms that would merge ADAS and in-vehicle infotainment in a single system on chip, pitched to automakers as an affordability benefit. This type of cross-domain platform might be implemented in low- to mid-range vehicles without embedded advanced functionalities for these domains. High-end vehicles will likely still use separate platforms for automated driving and infotainment, with features and functionalities requiring much more computing power.

Lighting News

EE-architecture for lighting

LIGHTING NEWS



As new functions and technologies are coming up for lighting in automotive and the electrical architectures in vehicles are also under development DVN sees the need to work on architectural standardization to assure that all these new functions can be enabled.

Therefore we dedicate a session of our DVN Munich event, on the 28th of February, to talk about electrical architecture for interior and exterior. Different presentations will be done by Tier1 and Tier2 about CAN, CANFD, Can FD light, UART over CAN and Ethernet capabilities.



From 5th to 7th of March there will be the Automotive Ethernet congress in Munich where one of the presented use cases will be focusing on ethernet-based lighting architecture for high-resolution light functions. As the Ethernet usage is extended in vehicle networks also lighting functions have the possibility to use this technology. This congress will be a good possibility to learn about future possibilities.

VISION Congress Abstracts Up 38% Over 2022

LIGHTING NEWS

SIA VISION 2024

Vehicle and Infrastructure Safety
Improvement in All Conditions



16 - 17 OCTOBER 2024

CITÉ DES SCIENCES ET DE L'INDUSTRIE,
PARIS - FRANCE

The SIA VISION Organisation Committee is grateful to all the engineers, students, researchers, and scientists who answered the call for papers.

Last week at the deadline, we had 99 papers from 46 different companies; 69 for lighting, and 30 for ADAS. That's a substantial increase compared to last time, in 2022, when we had a total of 72—60 for lighting and 12 for ADAS. So, we feel we made the right decision to have parallel lighting and ADAS sessions this year; clearly there will be plenty of good material for both.

Now the Scientific Committee will meet on 13 March to select the papers for the congress. Entrants, watch for feedback by end of March.

CNN Links Traffic Glare to U.S. ADB Rule

LIGHTING NEWS



On 15 February, American news channel CNN [published a lengthy story](#) headlined, "Headlights Are Blinding Us. Here's Why It's Mostly an American Problem". Its first sentence: *Imagine if you could drive at night with your high beams on all the time, bathing the road ahead in bright light but without ever blinding other drivers.* As general-audience coverage of vehicle lighting goes—ADB in particular—it's an unusually good reporting job in terms of technical accuracy, with reference and quotes by involved people with relevant expertise and experience. The story is worth reading for an updated look at how the popular media covers the practical effects of the vigorously-maintained difference between U.S. regulations and those recognized in virtually every other country on the planet—as well as the reasons that have been offered as explanations for that difference. Although it is not explicitly mentioned in this article—NHTSA did not comment—their [rigorous scrutiny](#) of 2014-model European-specification vehicles with ADB was a key basis for the agency's unacceptance of the ECE and SAE ADB specifications; NHTSA's analysis concluded those systems cause glare to other traffic participants.

In its conclusion, the CNN report says it will still be awhile yet before ADB comes to U.S. roads. Is that true? We'll have to wait and see! The world's automakers and lighting tier-1s are busily working on devising hardware and software compatible with the U.S. regulation, while compliance test houses and the SAE Lighting Systems Group just as busily work to figure out how to interpret the regulation and devise ways of testing to it.

HSL Add Top Lighting Experience to Top Executive Tiers

LIGHTING NEWS



CHRISTIAN PÄSCHEL
Co-Owner and CEO



DR. FRANK HUBER
Co-Owner



HSL, founded in Italy in 1988 as Stelit, are an agile-manufacturing company specializing, since 1999, in vehicle lighting. Last week, the company appointed Christian Päschel as Co-Owner and CEO, and Frank Huber as Co-Owner—two distinguished leaders, each with over two decades' experience in the automotive industry.

Päschel has deep and broad experience in the vehicle lighting industry; he served as CEO of Varroc Lighting Systems, and at Hella he was an executive boardmember and head of vehicle lighting sales. And Huber has had leadership positions at Forvia, Hella, Mercedes, Audi, and McKinsey. Most recently, he served as President of Seating at Forvia and CEO (and management boardmember) of Hella Lighting.

Päschel and Huber share a common goal to steer HSL's growth in luxury and premium lighting, emphasizing process optimization, digitalization, and innovation.



Hella's New Sustainable Headlamp Concept

LIGHTING NEWS



Forvia's Hella division has developed a sustainable headlamp concept they say offers high performance and functionality without costing more than less environmentally-compatible headlamps.

Over its entire life, the new headlamp has a CO₂ footprint up to 70 per cent lower, and it weighs just two kg instead of about five. The concept was presented for the first time worldwide at CES 2024.

Hella management boardmember responsible for lighting Yves Andres says, "We want to shape the mobility of the future with product solutions that are both innovative and particularly sustainable, and which benefit customers, consumers as well as the environment. As a technology leader, we therefore also want to be a frontrunner with regard to our lighting products and take another significant step towards a circular economy. We have therefore designed a near-series headlamp that impressively demonstrates the possibilities of harmonising sustainability and performance without having to compromise on safety and comfort".

The concept is based on three principles: less, better, longer. Significantly fewer components are used, and purely decorative components are replaced by functional, structural elements. Materials such as bio-based plastics and recyclates are used, for example from recycled drink bottles. Hella's SSL48 light module is integrated; this saves installation space with its highly efficient optics, and it implements software-based lighting functions—thus reducing the effort required for different headlamp variants and enabling subsequent upgrades. Unlike conventional headlamps, it should also be possible to replace and repair individual parts in order to extend the service life of the headlight and significantly increase the recycling rate of its components.

Compared to LED headlamps on the market now, the overall concept of the sustainable headlamps is designed to be cost-neutral—that is, not to cost more. In particular, the installation of reused components, the reduction in component requirements and the lower overall weight shall offset the cost of higher-quality materials. Andres says, "With our headlamp concept, we have proven that sustainability, performance and functionality are not contradictory. In the next step, we want to further develop and deepen the approaches of our sustainable headlamp together with our customers and bring them closer to possible series projects in the medium term".

Hella Lamps for KTM Motorcycles

LIGHTING NEWS



A new lamp concept for KTM is based on the Hella M60 LED module which, according to Hella's Managing Director of Lifecycle Solutions Stefan van Dalen, "brings a lot of light output onto the road despite its small size and, at the same time, offers many options for creating an individual design".

The low and high beam LED lamps are open-mounted, and flanked by powerful daytime running light and position light elements. Together with KTM, the industrial design specialists at Hella developed the lamp to customer specifications. The result is a brand-signature appearance, and it is about 700 grams lighter than the 'split face' shape that was typical for KTM up to now. The concept was then put to industrial use and transferred to two different motorcycle models.

The daytime running lights' intensity automatically adjusts to the ambient light conditions; the low beam stays on for a few seconds after the ignition is switched off, and the lamps feature animations to greet the driver. The lamp was developed—and production has started—at Hella Fahrzeugteile Austria.

Driver Assistance News

Reverse Auto-Braking Doesn't Work: AAA Report

DRIVER ASSISTANCE NEWS



Reverse Automatic Emergency Braking, often fails in its intended mission to stop drivers reversing into a person or vehicle. That's the finding in [a report by AAA](#) (the American Automobile Association), in whose tests reverse AEB with cross-traffic detection failed in over 97 percent of trials to prevent a crash between an equipped SUV and an approaching vehicle. And in half of trials, an equipped SUV wasn't prevented hitting a child-size dummy standing still behind the vehicle.

AAA technical engineer Austin Shivers, the lead researcher, says, "These systems are not magic; you shouldn't rely on them completely and you should understand how they work". AEB uses sensors to detect objects in the path of your car and, if the driver doesn't heed the systems' warning to stop, the brakes are applied automatically. Some newer systems also have rear cross-traffic detection meant to warn of (and brake for) cars approaching from either side.

The AAA team [examined](#) the performance of AEB with cross-traffic detection in sensing rear traffic when the vehicle was parked next to a larger vehicle that blocked the equipped vehicle's sensors' view of traffic. Four mid-sized 2023-model SUVs were tried: a Hyundai Tucson Hybrid, a Lexus RX 350, a Mazda CX-30, and a Volkswagen Tiguan. As the SUVs backed out of their spot, an inflatable test car approached from the side at 24 km/h. The AEB systems detected it and automatically applied the brakes in 65 percent of the test runs, but prevented a crash in just two-and-a-half percent—only one out of the 40 test runs.

Shivers says the study wasn't meant to rank the performance of particular vehicles or systems, but to assess the state of the art in general, and described the reason why they have a hard job: the sensors' lines of sight are blocked until the equipped car reverses past the adjacent vehicles or walls. "These are new systems so, inevitably, there will be refinement in the future", Shivers said. "Our message isn't so much for the people designing these systems; we're asking for test standards for the industry".

In the second test, the SUVs backed up toward a stationary inflatable target, shaped like a child, 2.4 metres behind. "We expected this to be a fairly easy scenario because it's designed to detect objects directly behind the vehicle", Shivers said. "That technology has been around for a decent amount of time now; this is the one type of situation where you'd expect it to work". But the systems applied brakes only 75 per cent of the time, and they hit the pedestrian target in half the trials. Shivers says he's not sure why.

AEB isn't useless; according to IIHS (the U.S.-based Insurance Institute for Highway Safety), cars with rear AEB, rearview cameras, and parking sensors have 78 per cent fewer reversing collisions than cars without those technologies. IIHS Vice President of Active Safety Testing David Aylor says that's worthy performance: "They're the most common crashes. They're not severe, but they happen all the time (...) backing out at the grocery store and you back into a car behind you; even at [six to eight kilometres] an hour, you can end up with \$5,000 worth of damage".

Part of the difficulty is what might justifiably be called the Tesla Full Self Driving Effect: people vastly overestimate the capability of the system. Aylor says they're really meant to assist the human driver's situational awareness: "The manufacturers really designed [AEB systems] to have the driver respond and that's why you get a warning first. Obviously, anytime you're backing up, you need to be aware of your surroundings".

Stellantis Hands-Free Active Driving Assist, launched with the 2024 Jeep Grand Cherokee

DRIVER ASSISTANCE NEWS



Hands-Free Active Driving Assist is Stellantis' new system, and it enables hands-free driving, but only on mapped roads.

Currently, the Hands-Free Active Driving Assist system is an option on the two-row 2024 Jeep Grand Cherokee and three-row Grand Cherokee L in Overland, Summit, and Summit Reserve trims.

The 2025 Ram 1500 pickup truck will be the next model to offer the Hands-Free Active Driving Assist system.

For the Grand Cherokees, the package costs \$2,995, which includes a 3-year trial. The package hasn't been priced for the 2025 Ram 1500 yet, but it will also come with a 3-year trial.

The system works on certain limited-access (no open cross streets) divided highways with map data provided from TomTom. GM's map data is provided by Dynamic Map Platform (DMP) while Ford's map data is provided by HERE.

A Stellantis spokesperson wouldn't share how many miles of map data currently exists, but Jeep's website touts "over 125,000 miles of compatible roads." GM's system will work on about 750,000 miles of roads by the end of 2025. Ford's system has over 130,000 miles of mapped roads. Stellantis also hasn't shared which roads are mapped.

When on a road with map data, a cellular connection, and lane markings that can be seen by the car's cameras, the system can be turned on by tapping the Hands-Free Active Driving Assist button on the right spoke of the steering wheel.

When activated, the icons in the digital gauge cluster turn green, the ambient lighting on the sides of the digital gauge cluster turn green, and green graphics appear on the available head-up display.

Stellantis hasn't outlined what hardware the system uses, but it's clear it utilizes the vehicle's radar system (unknown if it's short- or long-range), forward-facing camera, and blind-spot monitors.

The Stellantis spokesperson confirmed the system doesn't include lidar hardware (neither GM's Super Cruise nor Ford's BlueCruise system have lidar either). However, the spokesperson confirmed Hands-Free Active Driving Assist does have an HD GPS receiver like GM's system. This is a key component Ford's system lacks.

Stellantis equips vehicles with Hands-Free Active Driving Assist with an infrared camera mounted atop the steering column to watch the driver's eyes.

If the system detects the driver isn't watching the road, a series of warnings will appear in the digital gauge cluster starting with green, then escalating to yellow, and finally turning red. Should the driver not react, the system will slow down the vehicle and eventually perform a controlled stop in its lane. The vehicle will then initiate an SOS call for help using the vehicle's cellular connection.

The system works at up to 90 mph.

Like Ford's system, the driver must initiate the lane change by tapping the turn signal stalk. The system will deem if a lane change is safe and then execute it. GM's system will automatically execute a lane change to pass slower moving traffic, and it will then move back to the right to maintain lane etiquette.

General News

Massimo Frascella is New Audi Design Boss

GENERAL NEWS



Massimo Frascella is the new Head of Audi Design. He is a graduate of the Istituto d'Arte Applicata & Design in Turin, began his career at Stile Bertone, then moved on to Ford and Kia. Since 2011, he has held leading roles at Jaguar Land Rover, most recently as Head of Design for both brands.

Frascella says, "Joining Audi is a very special moment for me. I am deeply honored to assume the role of Chief Creative Officer and to guide such a talented team in shaping the future of the brand to new heights of innovation and distinction. I believe in the emotional power of design to inspire, connect, and drive change, and I am here to nurture and promote creativity as the beating heart of our brand."

"Simplicity is the essence of my approach to design", he explains. "I am passionate about creating designs that are free from superfluous ornaments and do not merely follow trends. Instead, we will rely on a timeless and sophisticated design language".

Over the coming years, multiple surges in technological innovation are set to decisively change shapes and functions across all vehicle segments. For this reason, Audi have recently restructured their design department to report directly to the Chairman of the Management Board.

Gernot Döllner sketches out his goal: "Design has always been part of the brand's core, of the DNA of the Audi brand. That is why, especially during this phase of technological transformation, 'Vorsprung durch Technik' must be visible and tangible in the interior and

exterior of all coming series models. Massimo Frascella will ensure Audi vehicles are going to embody the brand's identity through an unmistakable and emotional design language. Clarity, precision, and perfect proportions are at the center of his design philosophy – qualities that seamlessly fit into the image of the Audi brand."

So, on 1 June Frascella will replace Marc Lichte, who will stay on in a new role. Lichte has headed Audi Design since 2014; before that he led Volkswagen AG's Exterior Design Studio. Lichte's time at Audi saw new generations of serial best sellers introduced as well as the brand's first standalone electric model series: the e-tron, e-tron GT, and the Q4 model family.

Audi CEO Gernot Döllner says, "Together with his team, Marc Lichte shaped the evolution of the brand's design into the age of electric mobility. We thank Marc for having been a creative mind and visionary for the face of the brand for a decade".

Continental to Cut 7,150 Jobs by '25

GENERAL NEWS



German auto supplier Continental will end about 7,150 research and development jobs worldwide by next year. 1,750 of the doomed jobs are in research and development; the other 5,400 are part of a previously announced cost-cuts program aimed at saving the group €400m. Continental, with currently around 200,000 employees worldwide, announced that plan in November without putting a precise figure on the number of jobs to be slashed.

Continental's automotive chief says, "We are aware of the impact on our employees and will do everything we can to find good, tailored solutions (for employees)," Continental automotive executive boardmember Philipp von Hirschheydt says, adding that the cuts will enable the company to "focus our resources even more on future technologies for software-defined vehicles".

Continental are the latest German manufacturer to announce job cuts as that country's export-focussed industry grapples with a global slowdown in growth and high inflation.

Forvia to cut up to 10,000 jobs in Europe over the next five years

GENERAL NEWS



As carmakers cut production in Europe, suppliers are grappling with excess capacity, benefiting Chinese rivals, Forvia said its overcapacity in Europe was particularly in seating and interiors, as well as lighting to some extent.

Forvia's operating profit in Europe, Africa and the Middle East was 316 million euros (\$341 million) in 2023, less than half of Asia at 815 million euros. This was despite the region making up 46% of its sales, compared to 27% in Asia.

Forvia plans to cut 13% of its European workforce, mainly through attrition and drastically reduced recruitment in Europe.

Forvia aims to return to its pre-pandemic operating margin of 7% in Europe, compared to 2.5% last year, supported by annual savings of 500 million euros (\$539 million) from 2028.

It said Asia reported an operating margin of 11% for last year, with a double-digit margin in China, and forecast 2024 sales of 27.5 billion to 28.5 billion euros, compared with 27.25 billion last year.

The 2023 sales were in line with analysts' estimate of 27.13 billion euros in an LSEG poll.

Synopsys to Buy Ansys

GENERAL NEWS



Synopsys will buy Ansys in a deal whereby Ansys shareholders will get, for each share they own, \$197 in cash and 0.3450 shares of Synopsys common stock—representing an enterprise value of approximately \$35bn. The acquisition is being described as combining Synopsys' semiconductor electronic design automation (EDA) with Ansys' broad simulation and analysis portfolio.

Synopsys President and CEO Sassine Ghazi says, "The megatrends of AI, silicon proliferation and software-defined systems are requiring more compute performance and efficiency in the face of growing, systemic complexity. Bringing together Synopsys' industry-leading EDA solutions with Ansys' world-class simulation and analysis capabilities will enable us to deliver a holistic, powerful and seamlessly integrated silicon to systems approach to innovation to help maximize the capabilities of technology R&D teams across a broad range of industries. This is the logical next step for our successful, seven-year partnership with Ansys and I look forward to working closely with Ajei and the talented Ansys team to realize the benefits of this combination for our customers, shareholders and employees".

And Aart de Geus, Synopsys Executive Chair and Founder, says, "Since inception 37 years ago, Synopsys has been an innovation pioneer, central to world-changing semiconductor advances in computation, networking, and mobility, and now enabling the new era of 'pervasive intelligence'. Joining forces with Ansys, a company we know well from our long-standing partnership, is the latest example of how Synopsys remains at the forefront. Our Board and management team carefully evaluated our top strategic options to lead and win in this fast-growing new wave of electronics and system design. The technology-broadening team-up with Ansys is an ideal, value-enhancing step for our company, our shareholders, and the innovative customers we serve."

For his part, Ansys President and CEO Ajei Gopal says, "For more than 50 years, Ansys has enabled customers to design, develop and deliver cutting-edge products that are limited only by imagination. By joining forces with Synopsys, we will amplify our joint efforts to drive new levels of customer innovation. This transformative combination brings together each company's highly complementary capabilities to meet the evolving needs of today's engineers and give them unprecedented insight into the performance of their products. (...) I am confident that building on our partnership with Synopsys will position us well to deliver even greater value for our customers, partners and shareholders. The combined company will accelerate the development of our joint portfolio and deliver an increased level of innovation".

Volkswagen Group and Mahindra sign supply agreement for EVs

GENERAL NEWS



Volkswagen Group and Mahindra & Mahindra have signed the first supply agreement on components of Volkswagen's MEB platform for Mahindra's purpose-built electric platform INGLO, taking a definitive step further on their joint vision for e-mobility collaboration, the companies said in a joint statement. The deal covers the supply of certain electric components as well as unified cells. With the agreement, Volkswagen and Mahindra are further deepening their collaboration which started with a partnering agreement and a term sheet in 2022. Both companies will continue to evaluate a potential expansion of the collaboration, they said.

Mahindra will be the first external partner to use Volkswagen's unified cell concept, the core element of its battery strategy. The supply agreement will run over several years and will have a total volume of about 50 GWh over lifetime. Volkswagen Group and Mahindra aim to strengthen their e-mobility footprint in the Indian automotive market and to accelerate electrification in the region. Mahindra plans to launch five all-electric SUVs in India based on its new, purpose-built electric platform INGLO, starting December 2024. With more than five million new vehicles per year in 2023, India is one of the largest automotive markets in the world. The electrification of the passenger car segment is expected to gain significant momentum in the coming years.

Volkswagen's MEB platform and its components are used by the Group brands Volkswagen, Audi, Škoda and SEAT/CUPRA as well as external partners like Ford and Mahindra. The partnership with Mahindra is led by Volkswagen Group Technology and its "Platform Business" unit in close cooperation with Škoda Auto Volkswagen India.

BYD weighs EV plant in Mexico

GENERAL NEWS



Chinese electric vehicle maker BYD is considering setting up a plant in Mexico, as the automaker seeks to establish an export hub to the U.S.

As BYD seeks to expand its global presence, the automaker is building new plants overseas in addition to expanding exports from China. The automaker opens facilities in Thailand this year and announced plans in December to build a production base in Hungary within three years. In Latin America, BYD plans to spend 3 billion reais (\$605 million) to build a plant in Brazil.

BYD has launched a feasibility study for a Mexican plant. The company is negotiating with national and local government officials over a location and other terms for the plant.

The biggest advantage from locating capacity in Mexico involves lower export costs into the U.S. The U.S.-Mexico-Canada Agreement imposed tougher North American manufacturing quotas for automakers looking to benefit from tariff-free exports into the U.S. market. A series of strikes have increased labor costs in the U.S., so the wage gap between the U.S. and Mexico is expanding.

And requirements for U.S. tax breaks on EV purchases include assembly of the vehicles in North America, along with restrictions on where batteries can originate. Chinese EV companies that lack a manufacturing hub in North America likely would be at a disadvantage.

Overall, 1.36 million vehicles were sold in Mexico last year, up 24% from 2022. Of those, Chinese vehicles accounted for more than 120,000, a gain of 60%, business newspaper El Financiero reports.

SAIC Motor affiliate MG, along with Chery Automobile and JAC Group, are three Chinese brands that have a head start in Mexico.

Mexico is on the verge of becoming a key manufacturing hub for major EV makers. Tesla plans to build a gigafactory in Nuevo Leon, prompting Chinese suppliers to announce about \$1 billion in parallel investments. CEO Elon Musk has indicated the new Mexican factory will be a mass production hub for low-cost EVs.

South Korea's Kia has said it will manufacture EVs in Mexico. Last year, BMW and Stellantis said they will manufacture EVs in Mexico.

Chinese investments in Mexico jumped 50% to \$587 million in 2022, and appetite for investment remains strong this year. Solarever, a Chinese EV maker, unveiled plans to spend 6.8 billion pesos (\$395 million) in the Mexican state of Durango.

Mexico has drawn 170 nearshoring investments from various countries totaling \$74 billion, according to an estimate by Julio Carranza Bolivar, president of the Mexican Banking Association. During the first nine months of last year, Mexico received \$32.9 billion in direct investment, or 90% of the full-year 2022 total.

FORVIA HELLA: Preliminary figures for 2023

GENERAL NEWS



HELLA GmbH presented the preliminary results for the fiscal year 2023. The company increased its currency and portfolio-adjusted sales by 11.7 percent to € 8.1 billion in 2023. Operating income increases by 65 percent to € 486 million.

Bernard Schäferbarthold, CEO: "In 2023, we were able to increase our sales and generated over € 8 billion for the first time in the company's history. We also achieved satisfactory financial results thanks to higher business volumes, successful cost control and the pass-through of inflation costs. Based on our preliminary business figures, we have therefore achieved all the targets we set for the fiscal year 2023."

Lighting Business Group increased its sales by 13 percent to € 3.9 billion. The main growth drivers were higher business volumes in all regions, also as a result of new production launches. Operating income improves significantly to € 132 million while the operating income margin rises to 3.4 percent

Electronics Business Group increased sales by 7.9 percent to € 3.4 billion. The main sales drivers were the business with high-voltage battery management systems, voltage converters, radar sensors and body electronics. The Lifecycle Solutions Business Group also achieved an increase in sales of 7.9 percent and generated sales of € 1.1 billion.

Incoming orders in 2023 amounted to a total of around € 11 billion. This includes several extensive lighting packages with American and Chinese OEMs as well as significant technology packages for the interior lighting solution Smart Lights. In the electronics business,

For fiscal year 2024 FORVIA HELLA expects to generate currency and portfolio-adjusted Group sales of between around € 8.1 and 8.6 billion. The operating income margin is forecasted to be between around 6.0 and 7.0 percent. For net cash flow in relation to sales, FORVIA HELLA is forecasting a figure of approximately 3 percent.

"For 2024, we are forecasting slight improvements as we expect the market recovery to weaken especially in Europe this year and global car production to remain at a level of around 90 million vehicles for the full year," says CEO Bernard Schäferbarthold.

Stellantis considering building Leapmotor EVs in Italy

GENERAL NEWS



Stellantis is considering building up to 150,000 low-cost electric vehicles (EVs) in Italy, in its Mirafiori complex in Turin, as part of its agreements with Chinese automaker Leapmotor, Automotive News Europe said on Monday.

The Franco-Italian automaker last year bought a 21% stake in electric vehicle maker Leapmotor in a \$1.6 billion deal. As part of that deal, the two groups announced a joint-venture, which is 51%-controlled by Stellantis and which gives the European carmaker exclusive rights to manufacture Leapmotor's products outside China.

Stellantis Chief Executive Carlos Tavares said at that time that Leapmotor's cars would be visible in Europe within a maximum of two years.

Production of Leapmotor's cars in Italy could start as soon as 2026 or 2027, Automotive News Europe said, quoting sources familiar with the matter.

Replying to a question last week when presenting full-year earnings, Tavares said the group could manufacture Leapmotor's cars in Italy "if there was a business case for that".

Current production by Stellantis at Mirafiori includes the 500 BEV small car.

Assigning the production of Leapmotor cars to Mirafiori might help Stellantis meet a target, agreed with the Italian government, to increase the group's output in the country to one million vehicles by the end of the decade, from 750,000 last year.

Chinese EV maker HiPhi suspends operations for six months

GENERAL NEWS



CHINESE electric vehicle maker Human Horizons Group suspended operations for at least six months, adding to signs of an enduring squeeze in the industry as growth slows.

The Shanghai-based manufacturer of the premium HiPhi brand suspended production on Sunday.

Workers will receive January wages at the end of this month, and then salaries will be paid at a 70 per cent rate between Feb 18 and Mar 18, the employee said, citing a memo that had been sent to workers.

After that, they'll be paid minimum wage. Workers who wish to continue to pay into their national medical insurance plan should resign by Feb 25, the memo said, in a potential sign the firm will face difficulties in continuing to cover social welfare contributions.

After years of rapid growth, the world's biggest EV market is facing a slowdown as consumer demand wanes and escalating trade tensions hurt the export outlook. That's pushed a growing number of companies, including WM Motor and the EV division of the embattled real estate developer China Evergrande Group, to the brink of collapse and drawn the ire of senior government officials.

Pressure has been building on Human Horizons, with Chinese media reporting last month that it had closed stores in cities including Guangzhou and Chengdu and hadn't paid some suppliers on time. Human Horizons said then that it was operating as normal.

Smaller players like Human Horizons are being hit hard by the intense competition, and many are exiting the industry entirely. The number of registered EV producers dropped to 100 last year from roughly 500 in 2019 as subsidies dried up. HiPhi, whose EVs range from 339,000 yuan (S\$63,366) to 570,000 yuan, sold fewer than 8,000 vehicles in 2023.

Human Horizons' financial woes may also cast doubt over a US\$5.6 billion deal inked in June last year with Saudi Arabia's Ministry of Investment to collaborate on development, manufacture and sales of EVs.

Hyperrealistic Digital Twins Revolutionize Product Development

GENERAL NEWS



By Paul-Henri Matha, DVN COO

Hyperrealistic digital twins is transforming the way products are designed, engineered, and brought to market. It's a new era of product development characterized by precision, efficiency, and collaboration, ultimately driving innovation and value creation in myriad industries.

UVR—United Visual Researchers, a French startup—was created in 2017 to give designers and engineers a more efficient, reliable, and cost-effective way to interactively build, test, and refine multiple prototypes and mockups. There are 12 engineers, including six with PhDs from Supoptique (IOGS), Reims University, and Ensimag in Grenoble. The company's Philippe Porral and Thierry Desroy invited me to visit their office in Paris to talk about rendering and the needs of vehicle lighting designers, researchers, and developers. Quite an interesting discussion we had!

Thanks to their research, UVR can propose a significant shift in product development methodologies, moving towards a more integrated and sophisticated approach. Until recently, what were sometimes called 'visual digital twins' were actually quite distant from being realistic, generally consisting of conventional computer-generated imagery used for marketing and sales. Renderings were beautiful but biased, and they lacked true-to-life representation. Prior to spectral and polarization simulation technologies, RGB rendering software generated so-called 'photorealistic' contents, which were not reliable enough to be deployed throughout the full product life cycle starting from design and engineering.

The concept of true-to-life digital twins is now becoming a cornerstone of modern design and engineering processes. The use of spectral and polarization simulation within this framework marks a revolutionary step in creating digital replicas that not only look

realistic but also behave like their real-world counterparts under various lighting conditions.

The integration of spectral and polarized light simulations allows designers and engineers to predict and visualize how products interact with light and look like in real life. This is crucial for products where optical performance is key, such as displays, lighting systems, and any product where appearance is paramount. By simulating light behaviour, such as reflection, refraction, scattering, and absorption, designers can optimize product features and materials to achieve desired outcomes before physical prototypes are available.

This approach has vast implications for the entire product lifecycle. It enables a level of cross-functional collaboration that was previously unattainable, breaking down silos and walls separating design, engineering, marketing, and sales teams. A reliable visual digital twin becomes pivotal for enabling precise and thorough communication regarding product specifications and expected performance.

Moreover, a seamless integration of spectral and polarization simulation technology into existing workflows enhances interoperability tying together disparate tools and processes into a cohesive, continuous digital thread running through design, engineering, marketing, and sales.

This alignment is crucial for developing and maintaining product consistency and quality, which in turn fosters customer loyalty and brand reputation.

Economic benefits of this integration cannot be overstated. Enabling more accurate predictive visualization and reducing the need for physical prototypes significantly cuts development costs and time-to-market. The efficiency gains can boost process efficiency across all stages of product development, leading to increased returns on investment and a competitive edge in the market.