



Editorial

Faurecia, Valeo CTOs To Open DVN-Interior E-Workshop



Interior lighting is one of the numerous topics we'll address at the inaugural **DVN-I Smart Interior Conference and Expo** to be held online this coming 24 September, providing an ideal opportunity for your company to exhibit your product or service offer, and to go deeper into these topics. Sign up [here](#), see the conference program [here](#), and watch a video about the event [here](#).

The online workshop will start off with two exceptional presentations from Geoffrey Bouquot on Smart Technology for Smart Interiors, and Christophe Aufrere on Cockpit of the Future.

Geoffrey Bouquot is CTO of Valeo, where he started working in 2015 as VP of Corporate Strategy and External Relations. This past June he was appointed Senior VP of R&D and

Product Marketing in addition to his CTO role.

He graduated in 2005 from the École Polytechnique, and was Technical Advisor for Industrial Affairs of the French Minister of Defence.

And Christophe Aufrere is Faurecia's CTO. He's in charge of advanced product innovation, advanced manufacturing and supply chain, prospective and ventures. He graduated from ESTACA in 1985 and joined Faurecia in 2008.

We're planning for 20 lectures to be presented by managers and experts involved in car interiors, from automakers, suppliers, research and expertise groups, and industry alliances including Audi, Ansys, BMW, Honda, Covestro, DesignLED, Faurecia, Future Lighting Technologies, Hella, Marelli, Osram Continental, Recticel, Sensata, Texas Instruments, Valeo, Yole, ZF, EPIC, and ISELED. Four sessions devoted to smart interior are on the docket: Interior as a System; Any Surface Becomes Functional; Seating; and Interior Design, Simulation, Software, and Electronics. There'll also be an hour-long time for startups to pitch their innovations.

We're hard at work to make this event a grand success, and we welcome your remote attendance!

Sincerely yours

A handwritten signature in black ink, appearing to read 'W. Frally', written in a cursive style.

DVN PRESIDENT

In Depth Lighting Technology

Vision of Future Car Interior Lighting

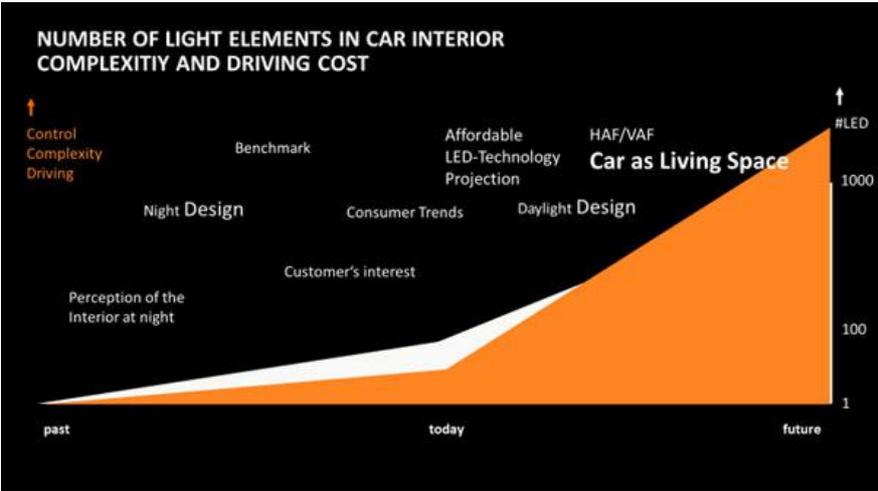
By Philippe Aumont, DVN-Interior General Editor, Smart Interior Workshop director

Carmakers are running with lighting as a key factor for the future car interior. Today we have different functional lamps for reading and bright illumination of the car interior and its exterior surroundings, supplemented by displays and ambient lighting of the floor, cabin space, interior components, and on surfaces of textiles and smart decor trims.



EXTENSIVE INTERIOR LIGHTING FUNCTIONS (BMW)

Interior lighting has a wide array of functional and ambient lighting functions as series equipment in the higher car segments, and increasingly available as extras in the lower segments.



ESTIMATED INCREASE OF LIGHT ELEMENTS IN THE FUTURE, BEFORE PANDEMIC (BMW)

Before the pandemic, BMW predicted a tenfold increase in light elements in the car interior in the near future. Despite the pandemic this trend could continue because interior lighting has a high perception, acceptance, and demand by customers in all car segments. For that matter, the pandemic could wind up accelerating lighting uptake—think of cabin sanitising by UV light, for example. Interior lighting will become more and more complex and multifunctional with an increasing number of new light elements and

functions in night and day design, driven by affordable and package-minimised LED technology, consumer interest and trends, and the perception of the car interior as living space.



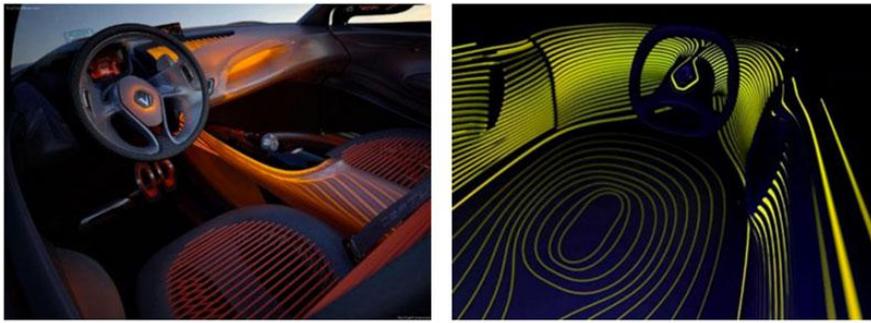
DISPLAYS AND INTERIOR LIGHTING GROW TOGETHER (DAIMLER)

Displays and lights will carry on growing more and more reciprocally integrated in new, ever-more-seamless ways as styling elements and for dynamic and adaptive functions including ambient lighting and welcome/farewell animations. Software combines interior lighting with matching interior component functions. Comfort use cases and assistance enrich the functionalities of today. The future interior lighting follows the megatrends of increasing connectivity and digitalisation for infotainment and enhanced interaction with the environment, individualisation and personal lighting solutions, efficiency for electric vehicles and new use cases in autonomous driving vehicles.

Static indirect and contour lighting will be replaced by dynamic lighting functions for signaling, safety and communication aspects. Dynamic matrix reading lamps, zone lighting for each passenger, adaptive lighting for different seat positions and activities, light beams for hand guidance, anti-fatigue and anti-motion-sickness lighting, and individualised lighting for wellbeing, relaxing, and alertness are only some examples for future interior lighting functions.

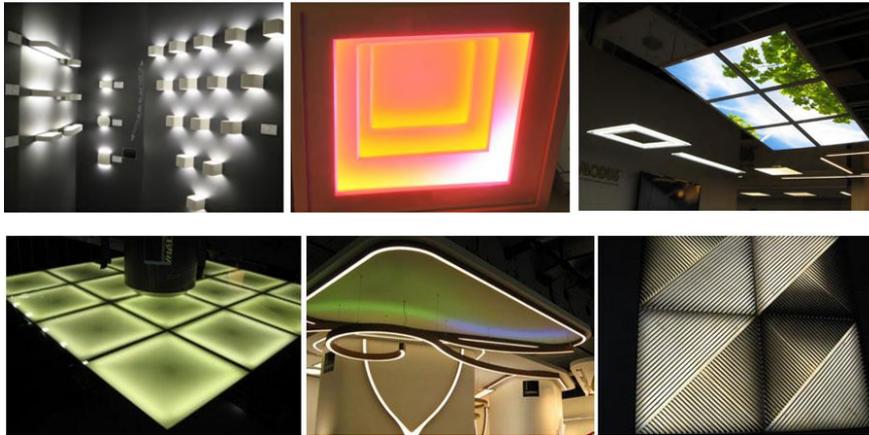
"Experience modes" deliver orchestrations of interior lighting and functionalities matched to a variety of situations and scenarios. The functionalities are addressed to different senses to form a coherent experience. The complete interior experience can be changed with just one click or voice command. With this kind of modal adjustability, passengers can experience different moods and aesthetic orchestrations in the car interior for wellness, vitalisation, and relaxation achieved by a combination of light, climate control, massage, scents, music, and other suchlike.

Future interior lighting developments will be driven by safety, communication, comfort, and styling demands; examples include the aforementioned welcome/farewell animations, brand identification, and new lighting functions and technologies. Light projections, smart LEDs, microLEDs, smart functional surfaces, laser-based lighting, guiding materials for 3D light patterns on demand, and area backlighting with hidden-until-lit effects are some of the new lighting technologies being researched and developed for future lighting applications.



EXAMPLES FOR BACKLIGHTING AND LIGHT PROJECTION (RENAULT)

Tomorrow's automotive interior lighting will also borrow and share reciprocally with general lighting, with its much longer history and experience in developing lighting for all imaginable use cases. Now that technology and technique exist to do so, many general lighting solutions and effects can be transferred into the car interior, especially for autonomous driving vehicles.



EXAMPLES FOR 3D SIDE PANEL, FLOOR, AND ROOF LIGHTING EFFECTS FROM GENERAL LIGHTING

ISELED (Intelligent Smart Embedded LED) is an innovative technology based on highly integrated, smart LED modules enabling dynamic ambient and functional lighting solutions.

A widespread group of companies are working together as an ISELED Alliance to promote and further develop this technology. The alliance will be presented at the DVN-Interior Conference and Expo on 24 September.

Lighting News

New PC Techniques For New Forward Lighting

LIGHTING NEWS



A vehicle's front combination light usually comprises dozens of components, clips, and screws. Covestro have a new, different idea: a headlamp module concept composed of a reflector/housing, collimator lens, bezel, and outer lens cover that results in significantly fewer parts. Multi-shot molding of their Makrolon® TC8030 thermally-conductive and DS801 dimensionally-stable polycarbonates, and a moulded-in-place design strategy, allow the low/high beam LED modules and their corresponding reflectors to be produced less expensively through elimination of added heat sinks, attachments, and other components. The polycarbonate bezel uses multi-shot molding to consolidate the turn signal and DRL while hiding sensors behind a lidar-transparent mask. Beyond reducing system complexity and costs, simplifying assembly and saving valuable space, this novel approach also reduces weight.

Future headlamps will integrate electronics such as lidar, radar, and cameras along with the light sources. This will require use of thermally-conductive materials to dissipate the heat generated by the electronics and light sources. Covestro say their headlamp demonstrator is the first of its kind to do so. The low/high beam reflectors are made of Makrolon DS801 for high reflectivity of visible light. The reflectors can be molded directly into the housing made of TC8030 with multi-shot moulding and vario-thermal mold control techniques. This eliminates the need to attach the reflector with brackets and fasteners, which saves weight.

The DS801 material provides a metallisable, smooth surface finish similar to unfilled polycarbonate, and can enable greater lumen output compared to other systems. The single, metallisable component yields beam performance that remains stable regardless of the operating temperature of the LED lamp system due to its low, isotropic thermal expansion.

The [demonstrator](#) uses only a few different materials: polycarbonate, ABS, a scratch-resistant coating for the outer lens, and metallisation on the reflectors.

BOE's New OLED Tail Light Solution

LIGHTING NEWS



At SID Displayweek 2020, BOE demonstrated an [OLED taillight module](#), developed in collaboration with "automotive makers" BOE declined to identify.

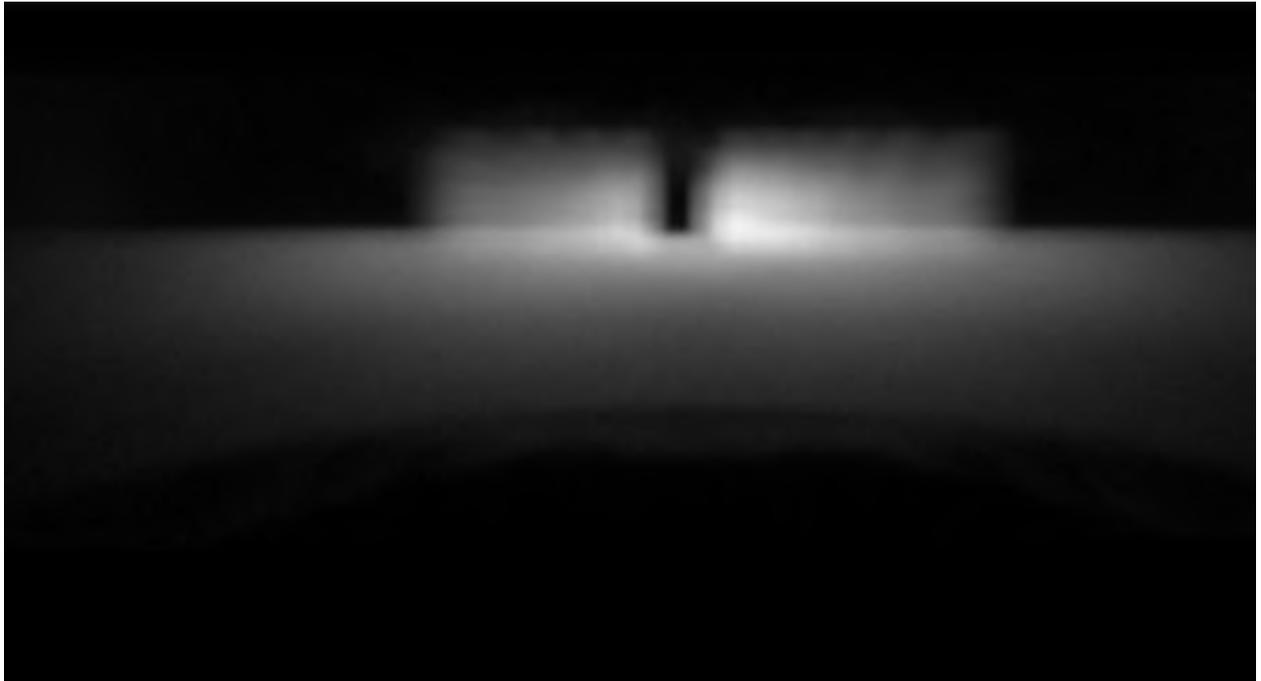
The red OLED taillights offer up to 2,000 nits' brightness and a lifetime of over 20,000 hours. The panels are less than 0.3 mm thick and will operate in a wide temperature range (-40 to 95 °C).

This is the first time we hear that BOE is developing OLED lighting technologies—and this could be very interesting news; it could signal that the company are looking to expand their offer for the automotive industry.

BOE Display, founded in 1993 in Beijing, China, produce LCD and OLED displays. They have been producing small glass-based OLEDs for some time, but the company's focus is currently in flexible and foldable OLEDs. The annual capacity of the B7 line, when complete and at 100% yields, will be 45,000 monthly 6th-gen substrates, or about 90 million smartphone OLEDs.

Design Award for ZKW Light Module

LIGHTING NEWS



PIXEL MODULES FOR HR ADB

ZKW's new StripeZ LED light module has won the German Design Award 2020 in the Auto Parts and Accessories category. The jury liked the unusually compact design of the lighting element. The ZKW design team strove to use an LED module to turn the subject of light into the shape of an eye and thereby make it the centre of attention. The StripeZ modules are already being used in series production of headlamps for premium vehicles..

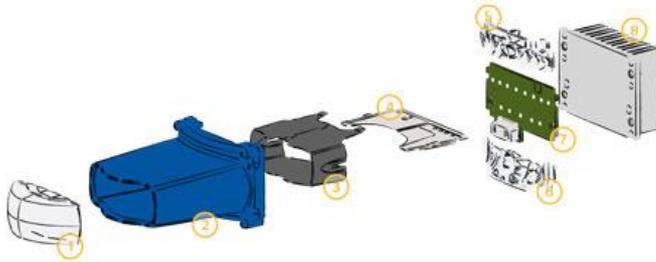
The StripeZ module range offers low lens height and an integrated cooling element. Compared to conventional LED elements, the technology has significantly smaller dimensions with the same light performance, which allows new design options for the main headlamps and front end of the vehicle. ZKW CEO Oliver Schubert says "The award is very important to us, as the topic of design is becoming increasingly important in automotive lighting and sensor systems. Car manufacturers have increasingly higher requirements with regards to appearance, which is why we have to develop trend-setting designs".



The StripeZ modules all feature exceptionally slim design, a consistent design language, and a multitude of design options. The technology also creates additional space in the

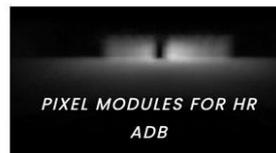
headlamp housing due to the reduced space requirement, which can be used, for example, for the integration of sensors. “This aspect is particularly important for autonomous driving,” says Schubert

Despite its compact design, the StripeZ modules give performance comparable to larger LED light modules. Depending on the version, the optical lens is only 22 to 30 mm high and thus considerably smaller than conventional systems with a height of around 50 mm. StripeZ technology allows the task of producing different light functions (e.g., low beam and high beam) to be split into several modules. Depending on the desired appearance, one can choose whether all headlamps are to light up simultaneously or not. This creates an even wider range of design options for each headlamp.



The German Design Awards honour innovative products and projects, as well as their manufacturers and designers, who are pioneers in the German and international design landscape. Award winners are chosen by a top-class international jury.

In addition to its design, which differentiates the StripeZ significantly from other products, its consistently high lighting performance and the design freedom it offers (thanks to its smaller size) also play an important role. The stripeZ product family includes three different categories, which are divided into individual module types. These each have different functions, and all of the products in the entire family are able to offer full light power despite their greatly reduced size. modules are an excellent choice for use in flat front headlamps.



Instead ISELED Conference: A livestream with an audience of some 70 “real” participants

LIGHTING NEWS



With all the many developments around ISELED – a bunch of new products, the roadmap for “ISELED next” and working prototypes of ILaS, the new ISELED Light and Sensor network for the car – the Alliance just didn’t want to have the ISELED community waiting for another half a year to present all the news.

As more the Alliance is delighted that instead of the ISELED Conference now an ISELED Workshop will take place: on the same date - September 3rd 2020 - and in the same premises, the SZ building in Munich. And - unlike many other conferences those days - not only as a livestream but with an audience of some 70 “real” participants on site - a true premiere! And, as if that wasn't enough, the ISELED Alliance has decided to fully sponsor this event to thanking the ISELED community for its patience.

What is needed to register for this now ISELED Workshop?

First of all, the present registrations for the “3rd ISELED Conference” all will be cancelled, already paid fees will be refunded. Means you have to re-register for this now ISELED Workshop to either participating in person or via the Web. For the CoVid 19 protective measures, the number of attendees in person however is limited to max. 70 people and will be handled on a first come, first served basis. Please see further details on the registration page.

The ISELED Alliance would be glad to welcome you at this “Livestream / Live-Workshop” to share a lot of exciting news with you!

Full-width Taillights More and More Used

LIGHTING NEWS



One interesting design trend is now the full-width taillights, stretched across the butts of cars and trucks everywhere.



PORSCHE 911



AUDI A7



LINCOLN AVIATOR

Examples with the 2020 Porsche 811, the Audi A7, Lincoln Aviator, and even the Honda Civic or the Mitsubishi Eclipse Sptcross.



Some cursory research seems to indicate that we can trace this current cycle of the trend, at least partially, to Dodge. By adopting the ultra-wide taillight look to the Charger sedan, Durango SUV and plucky Dart economy car, road-going Americans got comfortable with connected taillights again and apparently over the same period of time, automotive designers have become smitten with it.

Driver Assistance News

VCSELS in Production Car Lidar From 2022

DRIVER ASSISTANCE NEWS



AMS and Ibeo Automotive Systems confirm that VCSEL technology is a core component of Ibeo's new solid-state lidar solution, ibeoNEXT. Ibeo's lidar system will be used in L³ automated driving on vehicles produced by Great Wall Motor starting in 2022.

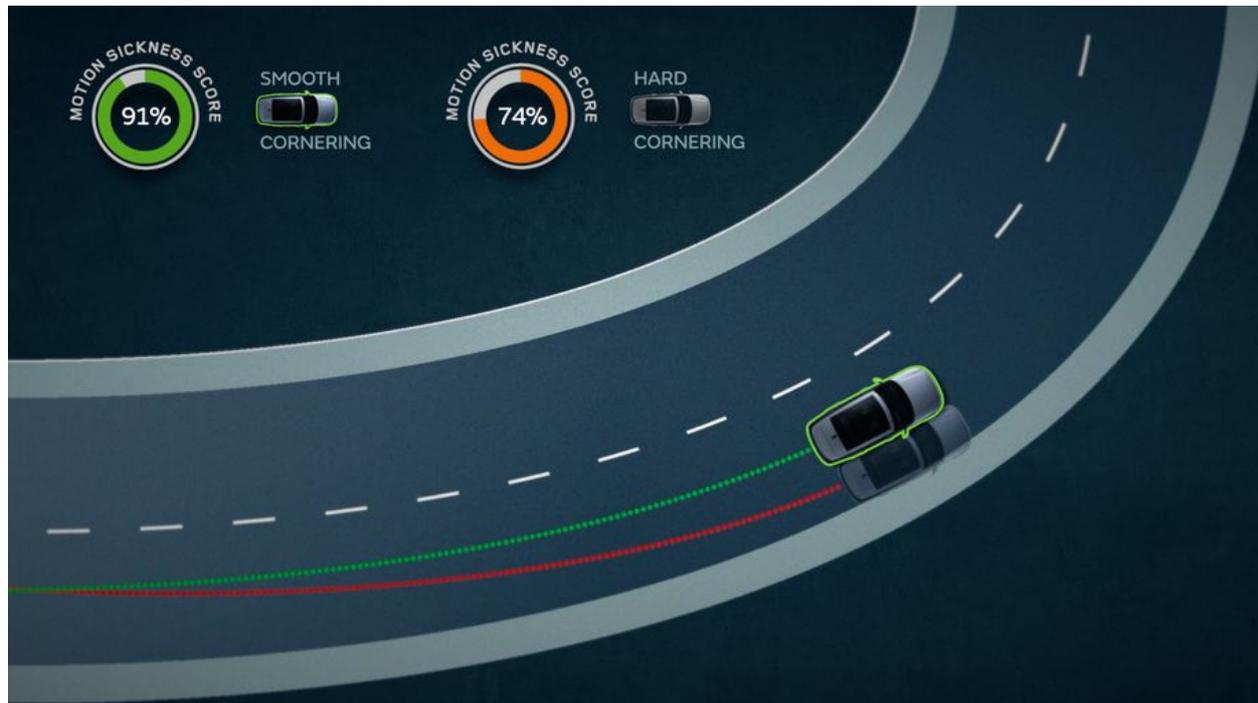
The VCSEL manufacturing technology of ams allows for flexibility in layout design regarding number of pixels, their size and pitch, and specific addressability patterns. The VCSELS can differentiate in scan and flash applications as they are less sensitive to individual emitter failures, are more stable in temperature ranges, and are easy to integrate.

Ibeo's ibeoNEXT will be used in Great Wall vehicles to enable a highway pilot to drive semi-autonomously at Level 3. The ibeoNEXT solid-state lidar offers large detection range, high resolution, and large vertical angle.

Lidar systems emit laser pulses and then evaluate the light reflected from various objects. From the time-of-flight, or the time it takes for the reflected laser pulse to reach the sensor again, software calculates the distance to the surrounding objects. Modern lidar systems can process many laser pulses in parallel: The result is a 3D model of the environment that recognises hazards and obstacles and road markings as well as cars, cyclists, and pedestrians, their position and movement. In combination with a long-range and a high spatial resolution, this accuracy is a key advantage of lidar technology.

JLR Working to Cut Carsickness

DRIVER ASSISTANCE NEWS



Motion sickness is a difficulty that autonomous driving will face. It usually takes place when passengers look inside the vehicle and thus see a fixed environment, while their bodies feel movement. Reading or interacting with a smartphone, for example, while riding in a car can cause motion sickness. Nevertheless, it is important that passengers in an autonomous car can go about their business without worrying about the road. Automated driving should therefore be careful not to worsen this sensation for those subject to it, or even, if possible, to reduce its intensity. Jaguar Land Rover are working on it.

JLR first established a "feel-good score" to assess the level of motion sickness that a given drive might or might not cause, using biometric sensors that record physiological signals. This score had already been used by JLR, in particular to adapt the interiors of their cars to minimise the risk of motion sickness.

Engineers then assessed the feel-good score over 32,000 km of real and virtually simulated driving. Through a machine learning process, the system would allow an autonomous car to adapt its driving based on the data collected.

The technology can be used to teach each Jaguar and Land Rover vehicle to steer independently, while retaining the unique characteristics of each model.

As with all other cars and in order to control body movements in three dimensions, autonomous cars will also have to present an effective suspension and damping system to ensure a good level of comfort while limiting motion sickness. On this point, Jaguar Land Rover highlight their Adaptive Dynamics system which adjusts the continuously controlled suspensions to control roll and pitch.

ZF's Newest ADAS Cameras

DRIVER ASSISTANCE NEWS



ZF have launched their S-Cam 4.8 ADAS camera to enhance automated emergency braking, lanekeeping, and semi-automated vehicle functions. Initial OEM inclusion begins with the Nissan Rogue in the USA.

ZF say the camera is among the first to offer a 100° horizontal field of view, which will help automakers get 5-star ratings under future Euro NCAP protocols, as well as the IIHS Top Safety Pick+ plaudit in the USA, and general safety regulations that require increasingly stringent test protocols for safety-critical systems.

"The S-Cam 4.8 will offer ZF customers the opportunity to further refine systems like automatic emergency braking for pedestrians and cyclists while offering best-in-class lane keeping system performance", said Christophe Marnat, executive vice president and general manager of ZF's Electronics and ADAS division.

ZF, in collaboration with longtime partner Mobileye, design, develop, and deliver advanced camera systems based on Mobileye's EyeQ4 processor for advanced object recognition technology that can be particularly effective in helping protect vulnerable road users. The hardware includes an industry-first premium three lens Tri-Cam4 version to support advanced semi-automated driving functions, adding a telephoto lens for improved long-distance sensing capabilities, and a fisheye lens for improved short-range sensing with a wider field of view.

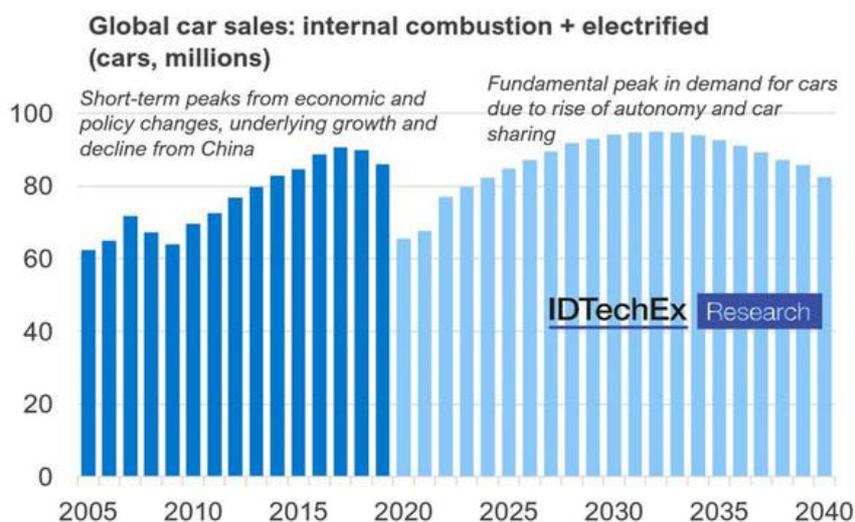
General News

EVs As a Beacon of Growth

GENERAL NEWS



In the decade 2030–2040, the global car market will be shaken up by the rise of autonomous vehicles, which greatly reduces the need for private car ownership. Within this scenario, it is electric cars which will remain a beacon of growth, satisfying both the governmental drive to clean air in cities and the steady rise of autonomous vehicle technology.



GLOBAL CAR SALES (COMNUSTION AND ELECTRIFIED) IN MILLION - IDTECHEX

First invented in the 19th century, EVs lost the initial battle to the internal combustion engine; batteries were unable to compete with the energy density of gasoline. Over a century later, the Li-ion battery is enabling the meteoric rise of the EV as a solution for reducing local emissions and greenhouse gases.

Today electric cars with barely 15 years of development offer cutting-edge automotive technology and performance, including autonomous driving functionality and solar bodywork.

The new IDTechEx report, "[Advanced Electric Cars 2020-2040](#)", provides a long-term outlook for the car market and enabling technologies in the wake of COVID-19.

Hyundai Devote IONIQ Brand to EVs

GENERAL NEWS



Hyundai Motor are launching a global EV brand using the Ioniq name from their current hybrid and EV hatchbacks. They plan to release three EVs under the new brand in the next four years, starting in early 2021 with a midsize crossover.

Hyundai aim to sell a million EV and take a 10% market share to become a leader in the global EV field by 2025; a further goal is to become the №-3 maker of eco- friendly vehicles, including fuel cell EVs.

The Ioniq 5 coming next year is based on the concept 45 vehicle from the 2019 Frankfurt auto show. The Ioniq 6, to be launched in 2022, is a sedan that takes its inspiration from the Prophecy concept shown in March. It will be followed in early 2024 by a large SUV, the Ioniq 7.

The new Ioniq brand will be sold through the existing Hyundai dealership network. In a statement, Hyundai said "To fulfill Ioniq's brand mission, Hyundai will combine current EV capabilities, such as ultra-fast charging, spacious interior and battery-supplied power, with future innovations that combine design, technologies and services to integrate in-car and out-of-car experiences".

Hyundai say additional Ioniq models will follow after the first three are launched by 2024.