



DVN STUDY

**NEW LIGHTING FUNCTIONS 2020-2030**

To Improve Safety, Communication, Comfort, and Styling

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# Editorial

## Let's Shape Together The Future Of Lighting!

***Guest Editorial by Wolfgang Huhn, New DVN Senior Adviser***

Hello, dear DVN members, newsletter readers, lighting guys in the world—this is Wolfgang Huhn.

After taking early retirement from Audi at the end of last year, I joined DVN because it is the heart of our lighting community. You can't find anywhere else this level of continuous Information, communication and networking among the people who make up the international car and lighting industry, 2<sup>nd</sup> and 3<sup>rd</sup> tier manufacturers, authorities and scientists in the field of vehicle lighting.

The view beyond our own (lighting) noses towards lidar, ADAS and the car's interior is another exciting advantage.

Discussing about driving safety, new regulations, energy, CO<sub>2</sub> and many more items with experts of different viewpoints in different parts of the world helps a lot to build up a qualified personal position. This makes experts and managers stronger and helps them to take the best decisions.

DVN events were a "must" in my life as the head of Audi lighting. Believe me, it was—and still is—not easy to leave the great Audi lighting team after 20 years. But now I am looking forward to my new, fascinating DVN experience. Let's shape together the future of lighting!

Regards



WOLFGANG HUHN  
DVN ADVISER

# In Depth Lighting Technology

## DVN 2.0: A Great Team Is Born - Bigger, Better, Broader Expertise



## Driving Vision News

We've been working on major increases in the DVN global footprint, with more and better resources in Europe, North America, China, Japan, Korea, and India to keep DVN members fully informed and up to date on the needs of automakers and their suppliers, and on the innovative new technologies coming faster and faster.

We are now proud to introduce our expanded team of passionate, dedicated experts working tirelessly to build monthly DVN Reports and weekly DVNewsletters for you, to organise DVN Workshops and Conferences, and to build each year an indispensable top-level DVN Study.

The Board, chaired by Jean-Claude Lebrun, is organised around CEO Hector Fratty, Sales and Finance Director Salomon Berner, Senior Adviser Wolfgang Huhn, Director of DVN Interior Philippe Aumont, and Director of Marketing Carine Abouaf.

### **10 experts are working with Hector Fratty, Philippe Aumont, and Wolfgang Huhn to create and refine DVN content:**

- Jean-Paul Ravier, former Research director at Valeo Lighting, former ELS director;
- Daniel Stern, DVN Chief Editor and one of the five greatest lighting experts in North America, member of the US Transportation Research Board Visibility Committee;
- Carsten Befelein, former expert at BMW and Toyota Boshoku Europe;
- Ralf Schäfer, former OEM Engineering Marketing VP of Philips (later Lumileds) Automotive;
- Nick Xiomertis, specifically for DVN interior;
- Leo Metzemaekers, director of Product Development, Marketing, & Sales at Philips (later Lumileds) Automotive;
- Rainer Neumann, former Global Technology VP at Varroc Lighting;

- Jean-Paul Charret, former R&D Director at Valeo Lighting;
- Alain Serval, former PSA ADAS expert;
- And we're in talks with a top camera expert; stay tuned.

## **10 Business development representatives are working to follow DVN members' innovations, expand the DVN member base, and pick up lighting, ADAS, and interior information all around the world:**

- China: Carolyn Zhao, and two other Chinese Development reps
- Japan: Eiichi Ono, former Nissan Director of Lighting and T. Sato, formerly of Stanley Electric;
- India: Jeevan Pursala
- Korea: B.Y. Chung
- North America: Ingo Schneider and Dana Lowell
- And we're in talks with European experts; watch this space.

Jean-Claude Lebrun, DVN President and Shareholder together with CEO Hector Fratty, says "DVN has done an excellent job in these 15 years and we are optimistic for the future with these high-expert additions to DVN's marvellous and passionate team".

### **Interview: Wolfgang Huhn**



**DVN: For the rare lighting experts who don't know you, could you introduce yourself?**

**Wolfgang Huhn:** Sure. Here is my CV in bullet points:

- 1981-1986: Studies in electrical engineering at TU Darmstadt, including lectures and a diploma thesis in lighting technology
- 1987-2000: BMW in Munich as a lighting development engineer, later head of lighting department, project manager electromechanics, head of assembly planning E/E and whole vehicle. 1999 PhD from TU Darmstadt
- 2001-2020: Audi in Ingolstadt, head of lighting and vision systems, temporarily including switches, horns, interior lighting, lighting-related ECUs, and software. Lead engineer for lighting and vision for the Volkswagen Group.
- 2021: DVN Senior Adviser, and I continue to work in the GTB.

**DVN: We published last month an important report about *Audi and Lighting* where we presented the wonderful achievements of these last two decades. What are the achievements you are the most proud of?**

**Wolfgang Huhn:** In Audi, I had always the opportunity to present our ideas for innovations directly to the board. This caused fast and final decisions as well as an ultra high pressure to deliver. We started 2004 to introduce stylish LED DRLs and rear lamps nobody has seen before. Every new car launch brought some lighting surprises to our customers (and competitors). We changed lighting from a commodity into a high-tech jewel. Finally this changed the whole industry.

The highlight was 2011 when I received the Professor Ferdinand Porsche Award from the University of Vienna together with Kamislav Fadel, and the Man of the Decade award from DVN. I am fully aware that I was representatively awarded for the Audi lighting team including Design, Electronic, purchase and the famous prototype workshop.

Later we followed the strategy to substitute mechanics by software. Examples are the matrix beam, greeting animations (great with OLED) and lighting functions on demand. Everything was possible only together with our suppliers—the headlamp and rear lamp makers, the light source and component industry, as well as the universities, the GTB, and regulatory authorities who helped us to realise innovations for brain and heart.

**DVN: You are now working with a DVN team of experts in lighting, ADAS, and interior. What are the new fields you think DVN should cover, considering your great experience with two premium car brands?**

**Wolfgang Huhn:** First I need to understand DVN completely. This means learning about DVN's strengths and weaknesses. Then we will talk about improvement of the existing branches as well as the chances and risks of new fields (...uhh, I hear myself talking like an automotive consultant!). Most important is communication; DVN shall offer and organise communication, now and in future.

**DVN: You have done a great job with Geoff Draper in GTB; will you carry on working in the strategic group you helped build?**

**Wolfgang Huhn:** Geoff modernised the GTB during his presidency. Among many other things he installed a professional secretary general and he founded the Working Group Strategy (WG-S) in 2016. I was elected chairman of the WG-S, and reelected some weeks ago. The GTB is now able to initiate international research to prove the influence of technical innovations on traffic safety. This independent research results are the base for the development of new regulations. I like to continue being part of the WG-S, because it is an honour and a pleasure to work at the forefront of regulations for innovations and the general improvement of the GTB.

**DVN: You said in your guest editorial this week "Let's shape together the future of lighting". What do you mean; what does this look like to you?**

**Wolfgang Huhn:** Today's lighting world is full of target conflicts. Low headlamp size vs. performance; large and homogenous DRLs and rear lamps vs. energy consumption and weight; innovations vs. cost and many more. We have to find solutions, compromises, and limits together. DVN can help with examples, advice, and as a communication platform where and when it's needed.

**DVN: The most important innovation of the last decade, in terms of night-driving safety, is ADB. How will we convince regulators, marketers, and car buyers to allow, promote, buy, and eventually require it?**

**Wolfgang Huhn:** In one of his fantastic lectures my colleague Michael Hamm compared the performance of ADB with a very good low beam headlamp using the NCAP 5 star rating system. The ADB result was 13 stars. Whoever has experienced ADB does not want to go back to low beam. This means drivers, marketing guys, and regulators need to experience ADB. It is one of our tasks to organise it.

**DVN: Interior is a major differentiator for premium cars. Interior lighting is part of it. How do you reckon lighting is changing the perception of car interiors?**

**Wolfgang Huhn:** Interior lighting is a difficult case. Very short distances between light source and passenger show every inhomogeneity and every colour shift very prominently, and causes glare easily. This means deep engineering knowledge and highest precision is the base of a good result. Fact is, a premium car interior must have a premium lighting including individually controllable RGB lines, trim illumination, and dynamic greeting effects, as well as a roof lighting which enlarges the headroom perception. I personally like the interior lighting with additional functions such as the red flashing light guide in the door trim in case of danger during door opening. In future dynamic light strips probably can help to avoid moving sickness in automated cars, especially when sitting backwards, reading, or watching a movie. Additional research seems to be necessary. Interior lighting is an interesting field full of new possibilities.

# Lighting News

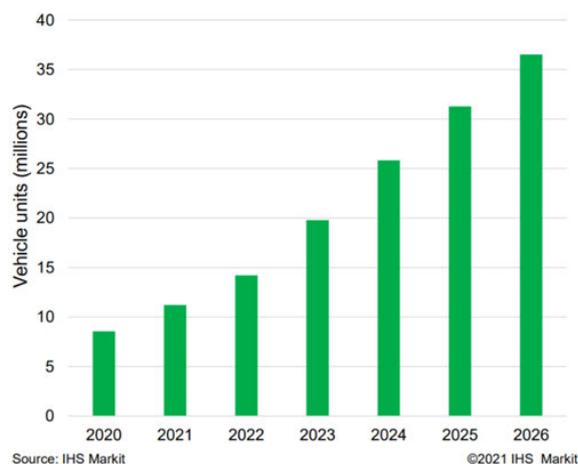
## ADB Makes Top-10 Trend Watchlist

LIGHTING NEWS



# IHS Markit®

IHS Markit have published a report on the *Top 10 Auto Tech Trends to Watch for in 2021*. ADB is № 9, after EV charging speeds, 5G automotive deployment, L<sup>2</sup>-L<sup>3</sup> driving, software, battery manufacturing, OTA (*over the air*), automotive chip shortages, and production 3D printing.



### ADB APPLICATIONS WORLDWIDE

The three important points presented in this report concerning ADB are:

- ADB has moved to lower sales segments for European and Japanese automakers, boosting adoption further; 46 automakers offer ADB on their 2021 models.
- Premium segments have shifted to higher pixel counts, with some breaking into the megapixel range.
- Despite growth in Europe, China, and Japan, regulatory hurdles remain in the US, but this is expected to change in the coming years.

# Marelli Aim at Tier 0.5

LIGHTING NEWS



BEDA BOLZENIUS

Marelli want to provide their customers with complete systems, not just a variety of components. Their goal is to become a tier 0.5 supplier, CEO Beda Bolzenius (photo) recently told *Automotive News Europe*.

The Oliver Wyman consultancy gives the "tier 0.5" designation to suppliers who take over responsibility for major systems and modules from a vehicle value-creation perspective. Often co-located at automaker facilities, a tier-0.5 supplier offers system-level R&D, integration into the ecosystem of suppliers and partners, and provides system integration and program management expertise.

Bolzenius says the combined strengths resulting from the merger that created Marelli already have put the company within the tier 0.5 territory, and a sequence of small steps will make Marelli into a bona fide tier-0.5 supplier, adding that semiconductor makers, who play a key role in the creation of electronic architecture, will also gain in importance.

A subsystem Marelli and their predecessor Magneti Marelli have been actively developing for some years now, called the Smart Corner, is an advanced corner-of-the-vehicle module including detection and perception systems such as cameras, radars, lidars, and lighting— all integrated through fusion software. Bolzenius says the intent is "to integrate camera, radar and lidar technology within vehicle headlamps and taillamps, using a fusion software to optimise the way those different types of sensors work".

Marelli, fully owned by U.S. venture capital company KKR, are the world's 14<sup>th</sup> largest supplier, with original equipment sales to automakers of USD \$14.9bn.

# Instrument Systems: AMS Screen Imaging System

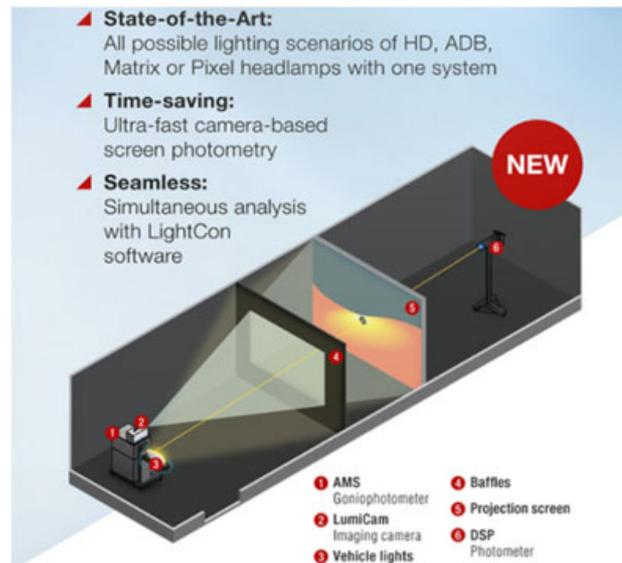
LIGHTING NEWS



KONICA MINOLTA Group

Instrument Systems' offer centres around customised optical measurement solutions for interior and exterior vehicle lighting. Their range includes high-end laboratory equipment as well as affordable yet excellent mass-production solutions.

At their Berlin site, they develop and make the Optronik product range for equipping complete light laboratories for goniometric measurements in exterior vehicle lighting. With the Optronik line, the company have developed a portfolio of high-quality measuring instruments and systems that have proven themselves over the years in the light channels of international automotive manufacturers.



And now they have a newly-developed system for ultra-fast testing of all lighting scenarios for advanced headlamps—high-definition, ADB, matrix, pixel, and other suchlike. The **AMS Screen Imaging System** combines ultra-fast camera-based luminance measurements on a projection screen with goniometric far-field measurements in a light lab, for fast and highly accurate test results.

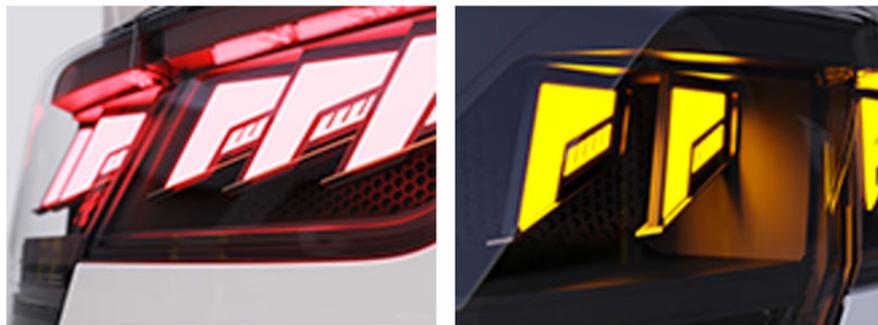
The system setup includes a classic AMS 3000 or 5000 far-field goniophotometer with a DSP 200 fast illuminance meter positioned beyond the photometric limiting distance. The camera used for screen photometry is the recent 5-megapixel LumiCam 2400B, allowing excellent resolution for the measurement of any headlamp, no matter how plain or fancy.

# Hella FlatLight Has Ultra-Thin Optics

LIGHTING NEWS



Hella's new FlatLight concept is made possible by an innovative light guide concept which is based on micro-optics. These optical lenses are smaller than a grain of salt. The optics, which are only a few  $\mu\text{m}$  in size, allow the diffraction properties of light to be exploited.



Dr. Frank Huber, Hella's Managing Director responsible for the lighting division, says "This will fundamentally change light signatures as we have known them. Manufacturers are looking for new design options more than ever." He calls FlatLight "a new lighting innovation for rear combination lamps that combines functionality and design".

The structure of the Hella FlatLight, which is only a few millimetres thin, offers greater design freedom. The implementation with microoptics is only one possibility to build the rear combination lamp. Depending on the customer's wishes and requirements, other technologies can also be used, such as nanoparticles. These enable, for example, 3D curved optical elements that can follow a vehicle contour even better and thus lead, among other things, to a reduction in installation space and assembly weight.

FlatLight requires less energy than other technologies; just 1 watt serves all rear light functions.

The turn signal, stop, and tail light functions can be implemented with just one optical element, rather than the multiple chambers required up to now. Multi-colour combinations, such as for tail light/direction indicator or DRL/direction indicator, are also possible in just one element. In addition, the shape of the individual optical elements can be freely

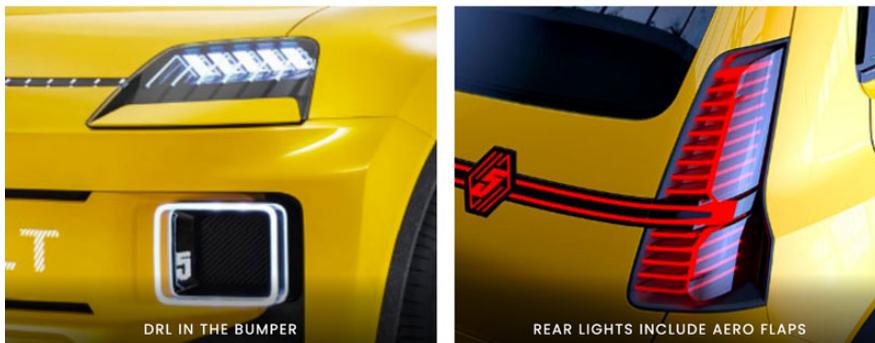
designed. Complex welcome and farewell scenarios can be designed via the Hella software interface, and also implemented directly. Typography, logos, and other graphics can be added.

# The EV Renault 5 prototype, inspired by the R5 cult model

LIGHTING NEWS



Renault is taking a step into a new era with plans to launch 14 core vehicles by 2025 from which 7 will be full-electric. Called *Renaulution*, this strategy unveiled the EV *Renault 5 prototype*, inspired by the cult model from Renault's past, the R5.



The R5 is immediately recognizable, thanks to a modern treatment of lines and flush surfaces with futuristic detailing lights. The rear lights include aero flaps and is composed of a full width light stripe. The fog lamp appearance in the bumper is DRL. The Renault logos are made with backlighting and are showing the next idea for Renault brand identity.

The *Renault 5 prototype* is a cute, pin-sized, city car taking one of Renault's timeless success to the future with a modern, 100% electric twist. It kept the fun, anti-crisis and mischievous side, with the pop of yellow highlights. The *Renault 5 prototype* takes strong features from the original design, adding a modern approach which is also evident in the chosen finishes and materials.

'This prototype simply embodies modernity, a vehicle relevant to its time: urban, electric, attractive' comments Gilles Vidal, Renault design director.

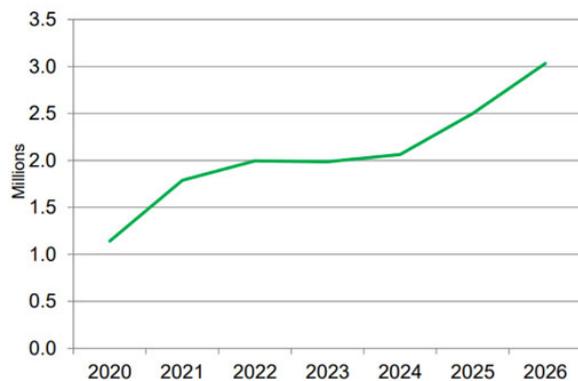
# Driver Assistance News

## Lidar Makes Top-10 Trend Watchlist

DRIVER ASSISTANCE NEWS



IHS Markit have published a report on the *Top 10 Auto Tech Trends to Watch for in 2021*. Lidar is № 10, after EV charging speeds, 5G automotive deployment, L<sup>2</sup>-L<sup>3</sup> driving, software, battery manufacturing, OTA (*over the air*), automotive chip shortages, production 3D printing, and ADB lighting.



GLOBAL AUTOMOTIVE LIDAR SALES FORECAST

The three important information presented in this report concerning Lidar sensors enabling automation, especially in L<sup>3</sup> and L<sup>4</sup> launches, are:

- The new automated driving features provide primary use cases for new and diverse sensors, especially lidar;
- Technology, performance, and cost obstacles:
  - High early costs but with relatively predictable declines
  - Matching performance to cost and launch targets
- Ongoing technology advances and segment maturity:
  - Solid state improves reliability
  - FMCW (frequency-modulated continuous wave) is generating interest by providing velocity information
  - Perception stack development emphasizing the ability to ingest new sensor inputs with greater flexibility.

# CES: Blickfeld's Launches Automotive Lidar Suite

DRIVER ASSISTANCE NEWS



At CES 2021, Blickfeld presented their automotive lidar suite of mid- and long-range sensors. The mid-range sensor, called the Blickfeld Vision Mini, has compact dimensions of 50 × 50 × 50mm, which facilitate its efficient, easy integration into vehicles.

By incorporating it into side mirrors, headlamps, rear view lamps, and the A, B, and C pillars, for example, a 360° surround-view can be achieved. With a field of view of up to 107° and a range of up to 150 m, the sensor provides reliable data for automated driving.

Blickfeld also are introducing a long-range automotive lidar sensor, the Vision Plus. It's designed for use at the front and rear of the vehicle, to detect small objects up to 200 metres away. Together, the Vision Mini and Vision Plus enable automation for L<sup>2+</sup> autonomous vehicles.

The third product in Blickfeld's automotive portfolio is their MEMS scanning module 118. This laser scanning unit features a particularly large aperture, wide deflection angles, and high optical power. It has a silicon-based mirror system for 2D or 3D scanning, and a corresponding software library for individual control. This makes it suitable for use with different wavelengths—905 nm and 1,550 nm, for example—and in time-of-flight applications as well as in FMCW-based devices. The scanning module has proven its automotive suitability in internal and external test campaigns based on LV124 for shock, vibration and temperature robustness.

Terje Noevig, Blickfeld's COO and Managing Director, says "By making our MEMS scanning module 118 available as a product, we hope to enable further technology advancements for our customers. Vision Mini and Vision Plus represent our automotive suite for automated driving from Level 2-5, enabling automation of driving functions from slow maneuvers in the city to driving at highway speeds".

# Osram, LeddarTech in Lidar Pact

DRIVER ASSISTANCE NEWS



LeddarTech and Osram have entered into a long-term agreement wherein LeddarTech will provide their industry-leading lidar hardware and software components into Osram's Percept lidar platform.



Osram say Percept is the first flexible solid-state lidar platform engineered with a strict focus on industrialisation and automotive qualification. Osram want to offer a mid- to long-range platform that can be adapted for the specific application requirements of automakers, tier-1s, and system integrators.

Percept integrates LeddarTech's LeddarEngine, which comprises a family of highly integrated SOCs (systems-on-chip) and related lidar measurement software that significantly reduces system cost and development time. Osram, with their considerable laser products and optical module design and industrialisation expertise, say Percept is the most versatile and highest performance lidar available at a cost that can enable volume deployment of ADAS.

Osram and LeddarTech will also collaborate and leverage Percept to deliver perception software solutions that deliver an enhanced 3D environmental model. These solutions will be based on LeddarTech's perception technology, including raw data sensor fusion. This technology further contributes to deliver enhanced and cost-efficient AD and driver-assist systems through the fusion of affordable lidar, cameras, and radar, and with lower overall system computing power.

*LeddarTech are a leader in environmental sensing platforms for ADAS and AV. Founded in 2007, they have evolved to become a comprehensive end-to-end environmental sensing company by enabling customers to solve critical sensing and perception challenges across the entire value chain of the automotive and mobility market segments.*

# Cepton's World's-Smallest Wide-Field Near-Range Lidar Sensor

DRIVER ASSISTANCE NEWS



Cepton have announced a miniature lidar sensor, the Nova, priced at less than \$100 for high volume automotive applications. With a lidar target size of 3.5 cm (w) × 3.5 cm (h) × 7.5 cm (d), and weighing less than 350 g, the Nova is easily embeddable for automotive applications.

The Nova is a wide-angle, near-range lidar sensor intended to address major gaps in proximity detection of objects with current sensor technologies. Featuring best-in-class high resolution 3D imaging with a big field of view (90-120° h × 60-90° v depending on configuration), Nova sets a worldwide benchmark with its unprecedented combination of compactness, FOV, and affordability.

Nova has an angular resolution of up to 0.3°, with a maximum range of 30 m, and is therefore ideal for ADAS and AV applications such as blind spot detection, small object detection, automated park assist, and free space estimation around the vehicle. It facilitates a multi-lidar architecture to create a virtual safety perimeter while minimising disruption to vehicle design aesthetics.

*Founded in 2016 and led by industry veterans with over two decades' collective experience across a wide range of advanced lidar and imaging technologies, Cepton provide state-of-the-art, intelligent, lidar-based solutions for a range of markets including ADAS/AV. Cepton's patented lidar technology enables reliable, scalable, and cost-effective solutions that deliver long range, high resolution 3D perception.*

# Analysts Smile at Geely-Tencent partnership

DRIVER ASSISTANCE NEWS



**Following the news that China-based Geely Auto Group have partnered with technology conglomerate Tencent Holdings, Senior Automotive Consulting Analyst Bakar Sadik Agwan, of GlobalData, says** "The partnership between Geely and Tencent will offer significant value to the China's next-gen mobility market. Both the companies aim to co-develop intelligent cockpits, autonomous technology, work on low car development and digitalisation of automotive products.

"Geely Auto Group can use Tencent's automotive capabilities to expedite their autonomous and EV projects and enhance their existing offering with new in-vehicle technologies from Tencent. Geely have already been exploring the next-gen mobility space with new product development, partnerships and collaboration. The new partnership will offer Geely a competitive edge in the market.

"Tencent have also been strengthening their offering in automotive technology, and have worked with automakers such as BAIC and Changan, besides backing Geely's ECARX Technology. The company's automotive arm Tencent Automotive Intelligence (TAI) have expertise in artificial intelligence and cloud computing technologies, and offer solution including algorithms for autonomous vehicles, networking services and location-based services."

*GlobalData's mission is to help clients decode the future to be more successful and innovative across a range of industries.*

# Sense's New Modular Flash Lidar for AV

DRIVER ASSISTANCE NEWS



Sense Photonics have entered the automotive market with their Osprey, which they describe as the first modular flash lidar for ADAS and AV. Units can be ordered now at USD \$3,200.

Sense say "Osprey's arrival is a major automotive milestone, ushering in a new era of fully solid-state depth sensing. It features a 75-degree vertical field of view that is also ultra-wide and dense, enabling high-resolution object detection from the street curb to the horizon".

Osprey combines an automotive-qualified, near-field sensor with a "Sense Illuminator", a proprietary distributed VCSEL laser array comprising thousands of individual laser elements. Osprey will be used by Sense Photonics' automotive partners to test and develop new autonomous platforms.

"Near-field sensing has been a major challenge for the automotive industry, especially in the development of autonomous driving," says Sense Photonics CEO Scott Burroughs. "Our simple, camerallike architecture is a significant benefit to customers looking for a scalable lidar product".

Sense are actively working with a number of automotive partners, including an unannounced tier-1 automotive supplier, multiple automakers and major self-driving programs, and German semiconductor manufacturer Infineon.

# General News

## 2020 is Worst Year On Record

GENERAL NEWS

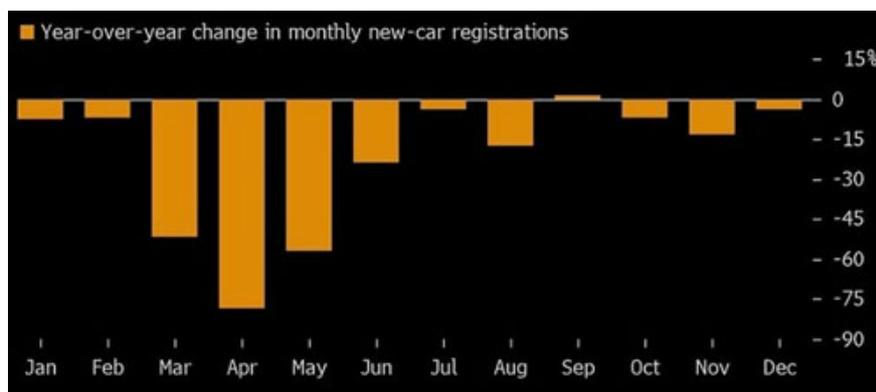


ACEA said 2020 saw the biggest annual drop in car demand since they started keeping track in 1990, with registrations falling by 24% to around 12 million.

A strong finish to the year for Volkswagen Group and PSA Group limited the industrywide decline in December; VW Group registrations for the month rose 8.2%, with all brands showing gains except Audi, and PSA Group sales rose by 2%, led by Opel/Vauxhall, whose registrations jumped 19%. Citroën sales fell 8%, and DS was down 6%. Peugeot's volume was flat.

Renault Group reported a drop of 16%, with the Renault brand down 12% and Dacia down 22%. Fiat Chrysler sales rose by 7%, with Jeep registrations up 20% and the Fiat brand up 3%. Ford's registrations fell 23%.

Among Asian automakers, the Toyota brand gained 23%. Hyundai's volume was flat, and Nissan sales fell 10%. Luxury automakers posted losses in volume, with the BMW brand's sales falling 8% and Mercedes-Benz brand reporting a 3% decline. Jaguar bucked the trend with sales up 22%, while Land Rover registrations dropped by 12%.



## EUROPE'S CAR SALES DECREASE (ACEA)

Spain's market fell the most among the larger European markets in 2020, with registrations down 32%. Sales fell 29% in the UK, 28% in Italy, and 26% in France. The German market was down 19%.

# Toyota Corolla is Top Seller Worldwide

GENERAL NEWS



The Toyota Corolla remained the best-selling car model in the world in 2020. The top ten are dominated by Japanese vehicles.

The only "millionaire" among the world's best-selling passenger cars (including pick-ups and SUVs) in 2020 was the Toyota Corolla, which, as in 2019 and 2018, is again number one in the Focus2move market researcher ranking.

It was sold 1.134 million units last year.

As with practically all other top ten models, Corona sales also shrank. In the previous year, according to Focus2move, 1.244 million units had been sold, which means a decrease of 9%.

The Corolla was followed by Toyota's RAV4, the Honda CR-V and Civic, before the first German model, the VW Tiguan, appears in the № 5 slot. The Golf is № 8, and the Chinese VW Lavida with 464,000 units (-13 per cent) is № 9.

Previous top-tenners the Ford F-Series (2019: 1.07 million units) and the Dodge Ram (2019: 732,000 units) dropped out of the ranking.

# FCA, PSA Better Off Together: Tavares

GENERAL NEWS



STELLANTIS CEO CARLOS TAVARES AND CHAIRMAN JOHN ELKANN

The merger between Fiat Chrysler Automobiles and PSA Group closed last week, and the combined entity now must mesh their disparate cultures and the operations of 14 brands. "We have a robust financial position, they have been operating properly and they are creating value, so there is no crisis on this merger. It's all about two teams that understand after they turn around their own companies, at one point in time, that we are better off to be facing the future challenges together than in the standard opposition, which demonstrates a high level of maturity." Tavares said. "This is not only about protecting ourselves against the challenges that we already see, this is also about being offensive in making things which are innovative, which are different from what you are used to seeing from carmakers and that hopefully will positively surprise you".

Tavares aims to establish a cohesive, bottom-up dynamic that listens to input from the younger generation of workers on the company's strategic task teams, he said: "That means bringing all of those younger people in those teams as crew members of those teams, and giving them the time and the ability to work on those breakthroughs and then come back to us with some proposals," Tavares said. "Then we will adapt to the top-down directions and try to figure out what is the best final conclusion. That needs time, and we'll give them time. As we are not in a crisis mode, we are lucky to have the time to do so. The company's projected cost savings have risen from [USD] \$4.5bn when the merger was proposed in 2019 to about \$6bn".

Stellantis CEO Carlos Tavares will have 38 top executives reporting directly to him at the new automotive group, more than twice as many than at PSA Group, and considerably more than the last two CEOs at Fiat Chrysler.

# Tavares Names Stellantis Leadership Team

GENERAL NEWS



A mix of executives from Fiat Chrysler and PSA Group have been named to lead Stellantis. Under CEO Carlos Tavares, top cross-company positions announced last week, include Richard Palmer as CFO, the same post he held at FCA; Maxime Picat goes from head of Europe for PSA to COO for an enlarged Europe region; Michelle Wen of PSA as head of purchasing and supply chain; and Arnaud Deboeuf of PSA as head of manufacturing. FCA CEO Mike Manley, a key driver of the merger, has already been announced as head of the new Americas region at Stellantis.

There are a number of Stellantis positions that did not exist before the merger. Among them are Chief Software Officer (Yves Bonnefont from PSA), Chief Performance Officer (Emmanuel Delay of PSA), Chief Affiliates Officer (Philippe de Rovira from PSA), and Chief Customer Experience Officer (Richard Schwarzwald from FCA).

Many Stellantis brand leaders will keep their old positions, with a few notable exceptions. Jean-Philippe Imparato, the head of Peugeot at PSA, moves over to Alfa Romeo, while Linda Jackson, the former CEO of Citroën, takes over from Imparato at Peugeot.

In his first public appearance as CEO of Stellantis, Tavares said governance will be directed by nine committees in a "matrix organization" including business review, styling review, a strategy council, a global programs committee, and brand and region committees. Leadership position announcements include:

- In Design, Ralph Gilles (FCA), for North American brands plus Maserati and Fiat Latin America, and Jean-Pierre Ploue (PSA) for European brands;
- In Engineering, Harald Wester (FCA);
- in Brands, in addition to Imparato, Jackson and Kuniskis: Jeep, Christian Meunier (FCA); Ram, Mike Koval (FCA); Citroen, Vincent Cobee (PSA); Fiat/Abarth, Olivier Francois (FCA); Opel/Vauxhall, Michael Lohscheller (PSA); Maserati, Davide Grasso (FCA); Lancia, Luca Napolitano.