

Tue, 19 July 2022  
Weekly Newsletter

**DVN**  
Lighting & ADAS

NEWSLETTER #760

## PixCell LED

Ultimate precision in perfect alignment

100+ individual cells with just 25 µm spacing, perfectly matrixed onto a single LED chip for intelligent headlamps

SAMSUNG



# Editorial

## DVN Study Now Available



The lighting community is now able to get the electronic booklet and one week later the three samples for each order. **DVN Market Forecast on New Lighting Systems—Technologies and Skills to Succeed** presents the market perspective of new lighting elements like illuminated grilles and logos; signal projections; road projections; ADB; laser light sources; OLEDs; communication displays, and more. For each new function, the study shows data-backed market potential forecasts. In this week's in-depth article, you'll find commentary about the study from renowned experts.

Get your copy today, from the [DVN website](#). Questions about the study or your order requires special handling? Just [drop us a line](#); we'll be glad to help you.

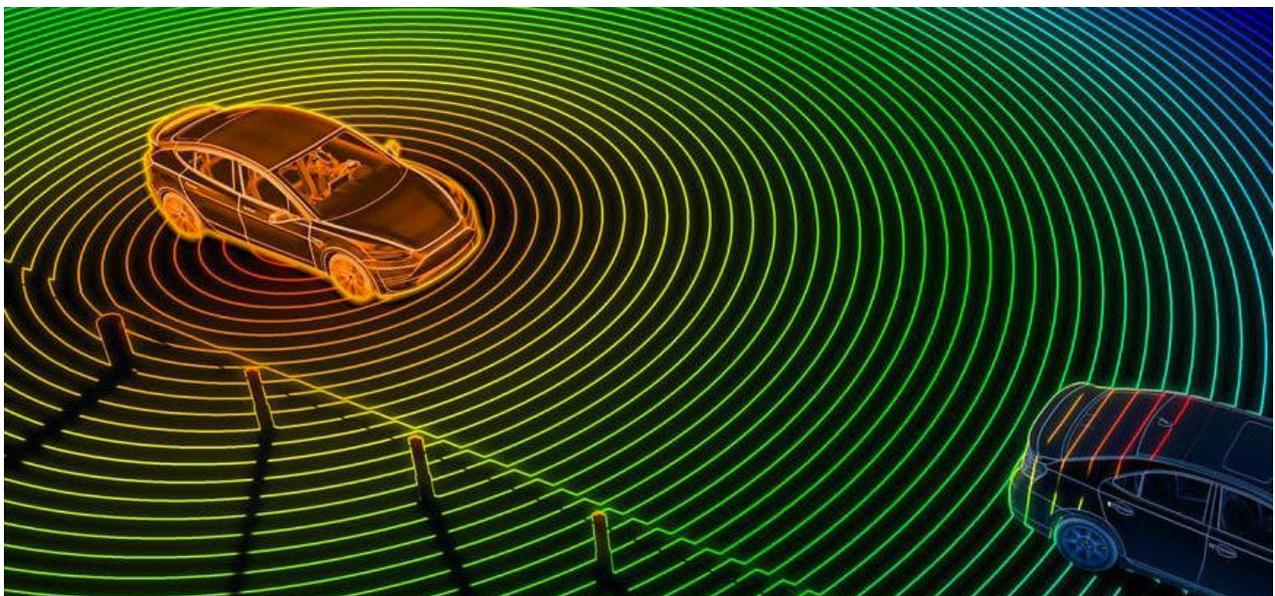
Sincerely yours

*W. Frally*  
DVN CEO

# In Depth Lighting Technology

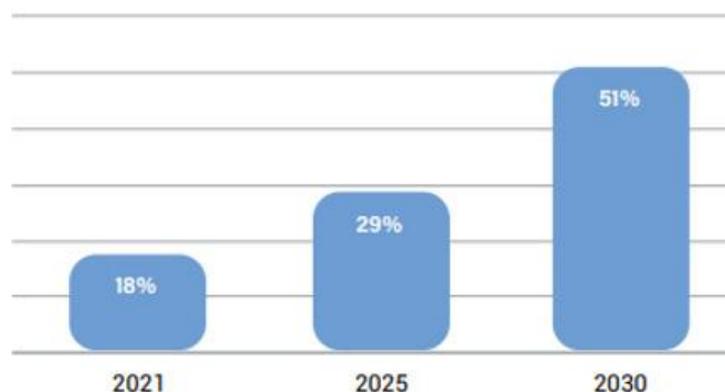


## DVN Study: Available Now!



We have released the 5<sup>th</sup> DVN Study: **Market Forecast on New Lighting Systems and Skills to Succeed**. For the first time, a DVN Study gives a view to the future of the vehicle lighting market in dependable figures based on market data and numerous interviews with automakers; tier-1 -2 suppliers, and research scientists—all augmenting DVN's considerable in-house expertise.

**ADB Market Share in Europe**  
all system and vehicle types



ONE OF THE TWENTY FIGURES PRESENTED IN THE STUDY

The 2022 DVN Study responds to demand within the DVN community for reliable forecasts about the new components and functions entering the market in the next years; especially new front-end content including ADB; illuminated grilles and logos; ground projections all around the vehicle; display communication, and tangentially-related technology like over-the-air firmware updates. These new technologies are analysed in context of broad market trends: increasing popularity of EVs; new design philosophies; growing capability and acceptance of automated driving, and new hardware and software architectures.

This is a major independent market research work, which delivers a well-founded forecast of volume for the new lighting elements and functions. The intent is to help readers make strategically optimal decisions on investments, resource allocation, and product focus—crucial for the business plans of all tier-1 and -2 suppliers as well as automakers, all of whom can get, in this study, a view of the market from an external and neutral position.



**Boston Consulting Group's Xavier Mosquet** says "Car manufacturers and suppliers are clearly entering a new lighting era, driven by factors like fast electrification of new car sales. Elimination of the radiator opens a large space to use lighting across the front grille to offer a specific signature to electric cars and illuminate the brand logo. These new signatures and design options, with slimmer shapes, will impact and enhance rear lighting too. Lighting also offers new communication to warn other drivers and pedestrians. This will be facilitated by cheaper, and higher definition, LED technologies such mini- or microLEDs. For sure this will start with warmer driver welcome and farewell lighting for stationary applications, with potential user personalisation. With all these features having the option to be bought with the vehicle or come later as a service through over-the-air updates. All of this will result in a likely 50-per-cent increase in vehicle lighting content in the next few years. This is why this study is so important. It is the result of deep interviews with automakers, suppliers, and universities, and delivers the facts and figures to describe the fast-paced changes changing the face of automotive lighting".



**DVN senior adviser Wolfgang Huhn**, formerly Audi's lighting director—who co-authored this study with three other master experts—says "The vehicle lighting industry is dynamically innovative. After adaptive driving beam, ADB, many more innovations like laser high beams; OLED rear lamps; high-power LEDs; dynamic indicators; road projections, and others have been

introduced. Now comes the next phase of new lighting elements, and the new business opportunities they bring. Premium EVs have closed surfaces where the radiator grille goes on a combustion-engine car. Grilles have long been leveraged as car brand signatures, and now these closed surfaces make it possible to greatly increase that leverage. What used to be the grille can become an illuminated display, to make car signatures even more conspicuous and stylish. Lighting as a factor to distinguish the car and the brand from others will become more important in the case of EVs. Design and styling are now the foremost levers to entice car buyers, and we find UX (user experience) is poised to share that № 1 enticement lever. Lighting is central to design, styling, and UX. So, we put together this study to provide a reliable facts-and-figures forecast plotting out which of these new elements will gain significant traction in the market from now to 2030. The information only DVN can add, is our expert knowledge and the expertise of our worldwide network of subject matter specialists. This makes the 2022 DVN Study unique for the vehicle lighting business".

# Lighting News

## Geoff Draper: Opportunities for Innovations to help Elders on Night Driving

LIGHTING NEWS



DVN will soon publish a report from 76 year-old Geoff Draper, former GTB President, on worldwide demographic development and the opportunities for automotive lighting innovation.

Provoked by his personal experiences, Geoff presents the outcome of a review of recent publications, related to the development of lighting systems that can take account of the known worldwide demographic changes. He focusses on the potential of new technologies to address issues experienced by the significant 30% of drivers over the age of 60 years. These drivers may benefit from customised lighting solutions to enable them to continue driving at night and retain their right to mobility, as long as they are remaining fit to drive on medical and ophthalmic grounds.

Geoff attempts to identify how the lighting and signalling regulations may be adapted to meet the challenges posed by the changing demographics. Of course, the work to define the actual performance requirements will require considerable effort by expert organisations, including GTB, in conjunction with the UN Working Party on Lighting and Signalling (GRE).

# Light Design Is Crucial: Rivian Design Boss

LIGHTING NEWS



Jonathan Szczupak is Rivian's exterior design director, and Charles Sanderson is chief engineer. They recently gave an [interview](#) with Cool Hunting, an online publication which covers the intersections of design, culture and technology concerning the complexity of the design of light in a car. Here's a snippet:

*"Right toward the end of the program we went into a huge redesign on the lamps. We spent all this time building out lamps as tabletop models and put them in vehicles to prove it out. Then we kind of got to the end and we're like, "This could be bad. These aren't good enough." They needed a little more detail, a little more precision. We really put our heart and soul into bringing that stadium shape and to get right the way they switch on, to get to an incredibly beautiful piece of design."*

The whole interview is worthy; give it a look.

# Cadillac Escalade's ADB On Hold in the US Market

## LIGHTING NEWS



Adaptive Driving Beam became available on the 2022 version of Cadillac's big premium Escalade SUV in Canada, as an option costing around C\$1,100.

ADB is also available on the Escalade in Europe and the numerous countries around the world that respect the UN Regulations on vehicle equipment and construction.

The plan was to offer ADB on the US-spec 2023 Escalade, which went into production last week,

But GM have had to hit the brakes on that—the system is reportedly held back by the byzantine test protocol specified by NHTSA as part of that agency's ADB rule, severely divergent from the UN protocol accepted virtually everywhere else in the world including Canada, and from the SAE protocol also accepted in Canada.

# Maruti Suzuki Gets LED Lighting

## LIGHTING NEWS



The newest version of Maruti Suzuki's Grand Vitara SUV for the Indian market gets an up-to-date LED lighting package including LED headlamps, LED DRLs, LED rear lamps, and LED fog lamps —exemplifying the accelerating uptake of advanced lighting technology in a market where until very recently, H4 bulbs were a premium feature and the antique R2 40-watt tungsten bulb was still used in numerous new vehicles.

The Grand Vitara, slated to be formally unveiled this week, is also expected to have a 360-degree camera, a 9-inch touchscreen infotainment system, a HUD, and provisions for wireless phone charging.

# Hyundai's New Ioniq 6 EV

## LIGHTING NEWS

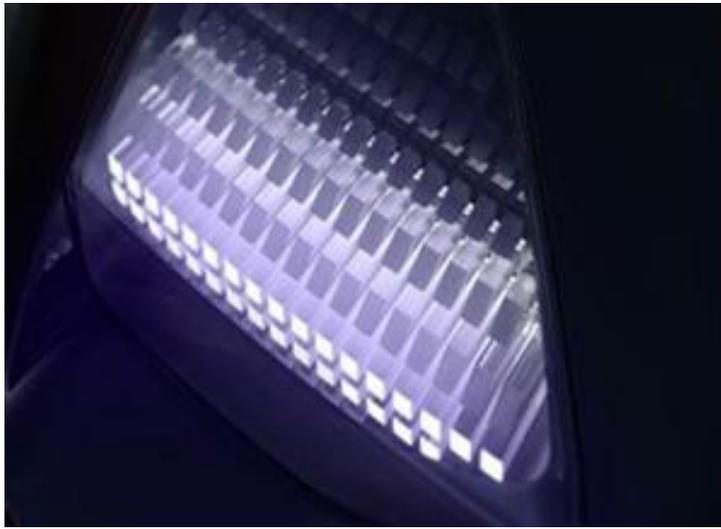


Hyundai have launched their Ioniq 6 electric sedan, with competitive pricing and long driving range aimed at competing with Tesla in the volume EV sedan sector.



The Ioniq 6 will be available in South Korea and Europe this year, with North American sales slated to begin in the first quarter of 2023.

The Ioniq 6 has similar autonomous driving features to the Ioniq 5, including "Highway Driving Assist 2" and Blind-Spot Collision-Avoidance Assist. Some software can also be updated remotely OTA, a first for Hyundai.



For lighting, Hyundai is using what they are calling “Progressive Lighting Technology”:  
“The pixel lamps are progressive lighting technology integrated into the headlamp, tail lamp and spoiler, efficiently using energy from the vehicle’s battery cells. Pixelated lamps will be carried forward as a signature design element in future Hyundai models.”

# Driver Assistance News

## Livox Car Lidar Goes On Sale

DRIVER ASSISTANCE NEWS



Livox, a subsidiary of DJI, recently announced the retail launch of their second-generation semi-solid-state HAP lidar. It offers a 150-metre detection distance; 144 lines equivalent, and a  $120^\circ \times 25^\circ$  field of view, for C¥8,000 (approximately US \$1,200 or €1,200). It does not use a one-dimensional rotating mirror; instead, it has a double-wedge prism structure, which makes the assembly structure simpler and smaller.

The HAP product is also the core component for Xpeng's Navigation Guided Pilot autonomous-drive system, already in production.

# Hella's All-Electric Brake-By-Wire Pedal Sensor

DRIVER ASSISTANCE NEWS



Hella have received an order from a major German car company to develop and make a fully electric brake pedal sensor for a high-volume production vehicle. Brake-by-wire technology transmits brake commands electrically rather than mechanically—and this will be the first-time brake-by-wire has been used in large-volume series production.

The sensors are slated for start of production in 2025 in Hella's European production network. The brake-by-wire pedal simulates the feel and behaviour of a conventional braking system in which the pedal is mechanically connected to the brake system. As the brake commands are controlled electronically in Hella's by-wire solution, functionalities of automated driving are supported. In addition, a customer-specific setting of the brake function is possible: the brake force can be specifically adapted depending on the driving scenario. Component weight is reduced by up to 20 per cent compared to a conventional setup. In addition

# Mercedes-Benz, Tencent in AV Pact

DRIVER ASSISTANCE NEWS



Mercedes-Benz subsidiary Daimler Greater China Investment have signed a memorandum of cooperation with Tencent Cloud Computing. The two parties will collaborate on high-level autonomous driving to accelerate research and development of autonomous driving technology in China.

The two parties will establish an autonomous driving joint laboratory. Tencent's experience and resource accumulation in autonomous driving, as well as expertise in cloud computing; big data, and artificial intelligence will provide Mercedes-Benz with integrated; performant, and stable cloud services to accelerate the simulation; testing, and application of autonomous driving technology.

Drive Pilot has been optional on the Mercedes S-Class (for €5,000) and EQS (for €7,430) since this past May. The system can control driving functions in certain situations, allowing the driver to temporarily do other things, such as replying e-mail. Mercedes-Benz aim to have the system certified in the U.S. by the end of this year, and then sell the system in California and Nevada where local laws would permit its use.

# General News

## Key Audi, Porsche, Bentley EVs delayed by VW's SW Woes

GENERAL NEWS



Audi, Porsche and Bentley could be forced to delay key new electric cars because of continued problems at parent Volkswagen's software subsidiary Cariad.

- Audi's new flagship, which is being developed under the Artemis project, will not now launch until 2027.

- Bentley's plan to sell only battery-powered cars by 2030 is looking doubtful, the sources also said.

- Porsche's new electric Macan and its sister model, the Audi Q6 e-tron, are also threatened with delays. Both are scheduled to launch next year.

Cariad is far behind schedule in its development of new software for the models, according to report in *Automobilwoche*.

Audi's Artemis project was supposed to launch a 2.0 software generation capable of hands-off Level 4 autonomous driving, as early as 2024. Now the first production Artemis car, internally called Landjet, will only start after Volkswagen's Trinity electric sedan according to company sources.

Audi's production car from Artemis will launch at the end of 2026 at the earliest, and more likely 2027, according to the sources. Cariad was founded in 2020. They have around 5,000 developers, engineers and designers worldwide that "unify their knowledge to not only transform the Group to a software-driven car company, but to transform the car into an automotive experience that is seamlessly integrated into our digital life."