DrivingVisionNews.com

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Editorial

Happy Holidays—Even So!—From DVN

With the pandemic forcing harsh constraints that will sharply restrict everyone's holidays, all of us here at Driving Vision News wish you and your family as happy a holiday season as possible under the circumstances! Relax and enjoy yourself to the max. Start new traditions and look forward to mixing the old ones back in once the pandemic's over.

After grand success with our two most recent DVN Workshops in China and US and our Lidar Conference in Frankfurt, we are now working on our 24th DVN Workshop, which we're planning for Paris on 1-2 February.

Registration is now open, and we look forward to welcoming your attendance and participation in an inspiring, exciting, lively and safe conference in Paris. Of course we will regulary keep you informed about any changes and updates, here in the weekly DVNewsletter. Won't it be refreshing to go to in-person events and shows again!

Even though this ending year has brought deprivations and hassles; fears and griefs; inconvenience and disruption, we are convinced that 2022 will be a promising, eventful, and brilliant year.

We remain ever-grateful for your investment in being part of the DVN Community, and we personally and professionally wish each of you and your loved ones the happiest of holidays and a fine start for a successful and, above all, healthy New Year.

Even in this runup to the holidays, here at DVN we're working tirelessly to bring you a steady stream of relevant information. Today our quarterly report on new vehicle launches goes live; **take a look** and see.. Also this week, we review the latest DVN Study done with over 25 companies. Automakers, tier-1 and -2 suppliers, and other major players have already bought their copy of this highly substantial study, and feedback has been very positive. **Get your copy** today!

Last update of DVN Paris Workshop: Attendees have to get vaccinated to enter in the meeting room.

Sincerely yours

DVN CEO

...and the whole of the DVN team

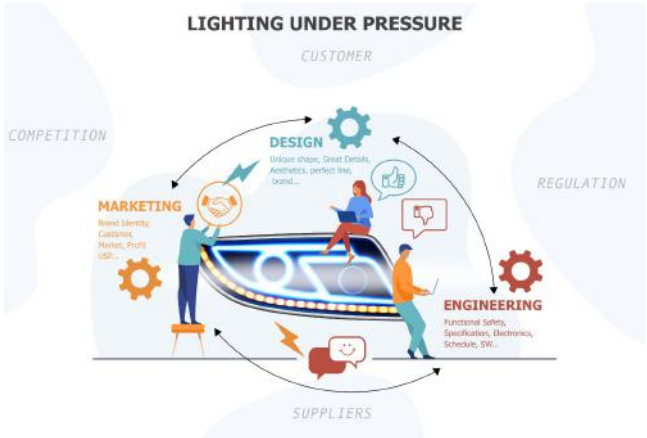
In Depth Lighting Technology

DVN Study: Insights From Behind Closed Doors

LEFT TO RIGHT: R. SCHÄFER · L. METZEMAEKERS · W. HUHN · H.FRATTY · S.BERNER · J.P. RAVIER
(NOT SHOWN:GEOFF DRAPER, CARSTEN BEFELEIN)

In this year's DVN Study, a whole new approach involved working in a team with eight industry experts to define and describe the demands, interests, and influences of design, marketing, and lighting engineering inside an automaker. If you've not yet **got your copy**, you're missing out; it provides insights from behind doors usually totally closed except to insiders, to improve mutual understanding between automakers and their tier-1 and -2 suppliers. It's a tight, exciting-to-read study: **Lighting under Pressure – Leveraging Tensions Between Design, Marketing, and Engineering**.

This study provides readers with tools, resources and understanding to optimally configure and manage interrelationships with all relevant departments and stakeholders during new projects. It describes and explains how and why decisions are made, and by whom. The roles of design, marketing, and engineering in the early phase of the car process are described in unprecedented detail to give unique insight into how suppliers and automakers can best support each other—not just on the technical side, either; by reading this DVN Study you will come to understand the needs, wants, pressures, and daily headaches of those you work with. We have integrated dedicated messages for engineers, marketers, and designers. All in all, this is a fine piece of consulting work which would be tremendously more expensive to commission from a business consultancy; from DVN it's a screaming bargain!



Feedback from buyers of this DVN Study has been overwhelmingly positive. Here's an example from from one of the greatest experts in marketing: *These kinds of frictions between departments with different goals, targets and ways of thinking are daily experienced by hundreds of well motivated engineers, stylists, and marketing people around the world. [in this study] maybe for the first time these challenges and conflicts are clearly described and made transparent for potential common solution finding. Thank you **all** being interviewed as part of this study and providing insights out of their personal perspective!*

As Jackie Marshall DiMarco, Ford's Vehicle Programs Director for F-Series and Commercial Trucks says in the preface of the study*: The lighting community can reduce these omnipresent tensions through increased modularity as well as the harmonisation of lighting regulations and performance criteria throughout the primary*

markets. A higher focus in these areas will allow us to bring more innovative and safer products to the markets that relate to the significant automotive paradigm shifts that are under way.

Design of a vehicle is crucial as buyers are mainly influenced by style. The designer's role is important because they always have access to board members.
Their main demands are:

• A front signature being dominated by DRL,
• Thinner and thinner lamps, front and rear,
• In night-time, a signature by the illuminated functions, such as logos and grilles,
• A rear signature realised by the position lamp, often edge-to-edge,
• Decoration with precise internal design,
• Their involvement in new functions as displays, road projection, electric plugs.

Marketing is cyclical and plays different roles during the conception and full life of a car. In this study, and in conjunction with lighting we differentiate between: product marketing (spec); point of sales marketing (dealer support); advertising; after-sale marketing (owner support), and brand identify (continuous).
• Marketing has recognised the high value of new and innovative light functions and supports them for brand signature, identity, and sales success, even if these light features are cost intensive and without legal need.
• Brand value is an important parameter for globally active companies. Within the last decade, continuously about 8 carmaker brands are among the Top 50
• High ranking of a brand is not only a value in itself, but also allows to ask higher prices than competition at same product performance.
• A key component creating brand value is the brand signature which is significantly influenced by the lighting appearance at day and night. Examples of premium carmakers show that some brands kept their signature over decades, whereas others started a close to disruptive modernizing change at a certain point of time

Engineering has the obligation to stress the importance of lighting in relation with safety, and to surprise marketing with new lighting functionalities.
• Ultimately, marketing will need to follow lighting engineering when it comes to the lighting application in terms of final functionality and legal compliance.
• In the relationships between marketing and lighting engineering we observed:
either a strong marketing with weak lighting engineering leadership or strong lighting engineering leadership with weak marketing.
• Fast technological change as well as a change in end user behaviour need an adaptation of the capabilities of lighting engineering.
• Lighting engineering has the chance to strengthen its central role between program management, design, marketing, and safety in the future.
• User-experience engineering of lighting systems supported by software/AI skills and using sensor input can become a key differentiator.
• Conflict between engineering and design will lead to innovation or will lead to quality defects.

Lighting News

Nine Takeaways to Summarize Recent model Launches

LIGHTING NEWS

DVN publishes this week its monthly **report**.
This report presents the models launched from September to December.
Find below the 9 takeaways we have to retain.

1.Ultra slim rear lamps and headlamps

FISKER OCEAN | LINCOLN ZEPHYR | TOYOTA BZ4X

2.More and more small modules at the front

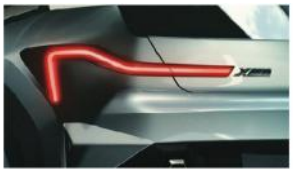
FISKER OCEAN | LINCOLN ZEPHYR

3. Main function hidden for a minimalist look

FERRARI DAYTONA | RANGE ROVER REAR | RANGE ROVER FRONT

4. Rear lamps made up of a horizontal luminous line

FERRARI DAYTONA



BMW XM

PORSCHE VISION GRANTURISMO

5.DLR more and more visible

BMW XM

HYUNDAI SEVEN

AUDI A8

6.New ways of creating front signature

NISSAN MAX-OUT CONCEPT

NISSAN CHILL-OUT CONCEPT

VW T-ROC

7.Extension of DMD technology inside premium brands

AUDI

MERCEDES SL

RANGE ROVER

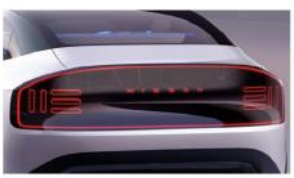
8.Front end and lit logo

BMW XM

GEELY XINGYUE L THOR HI-X

9.Displays are proliferating in the rear end

NISSAN SURF-OUT CONCEPT



NISSAN CHILL-OUT CONCEPT

HYUNDAI SEVEN CONCEPT

Auto LED Market to hit $3.5bn in '21: TrendForce

LIGHTING NEWS

Rank	Company	Revenue 2020	Revenue 2021(E)	Marketshare 2020	Markershare 2021(E)
1	ams-OSRAM	926	1,304	35%	37%
2	Nichia	647	809	24%	23%
3	Lumileds	315	401	12%	11%
4	Stanley	212	231	8%	7%
5	Dominant	136	199	5%	6%
6	Seoul SC	130	155	5%	4%
7	Samsung LED	71	121	3%	4%
8	Everlight	67	69	3%	2%
	Total	2,660	3,506		

AUTOMOTIVE LED MAKER REVENUE, 2020-21 (TRENDFORCE)

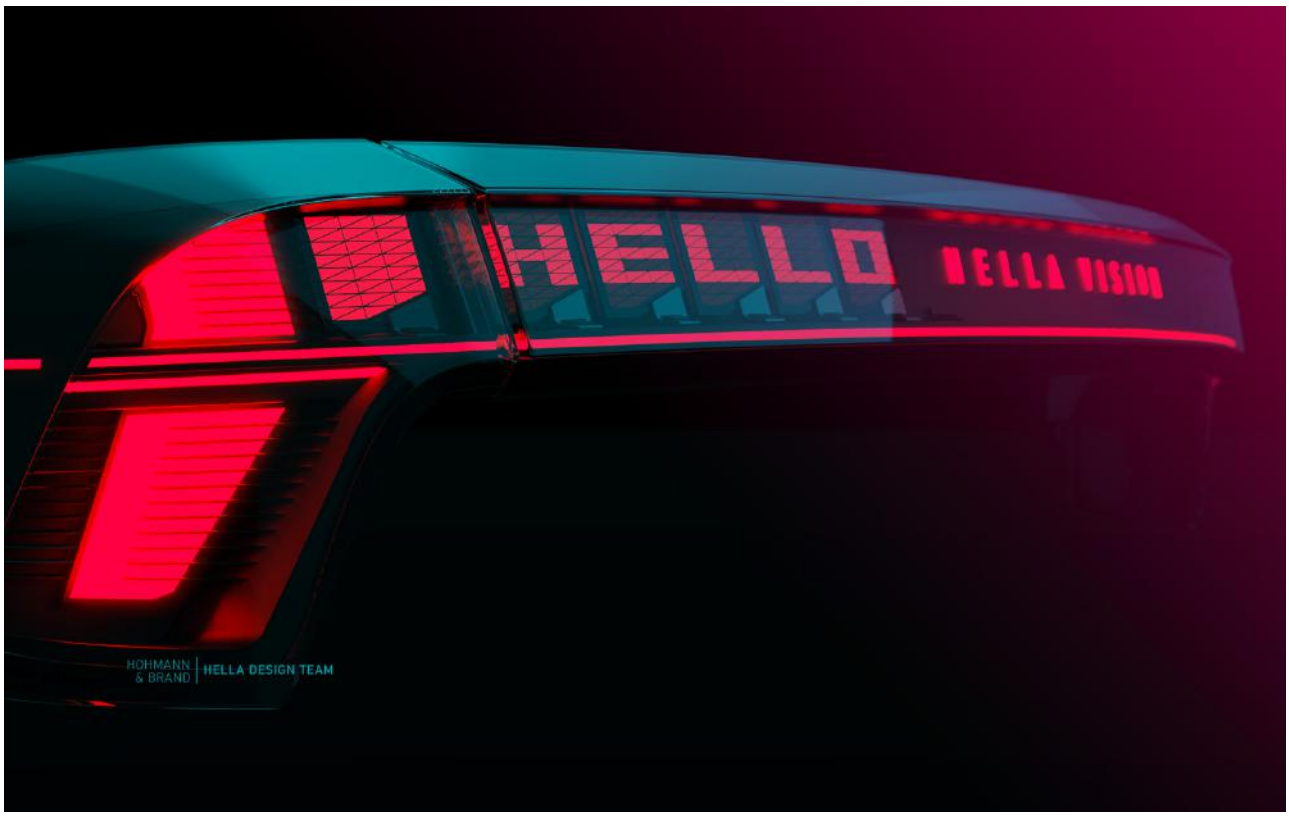
TrendForce say growth momentum from increasing automotive market shipments and the rising prevalence of LED vehicle lighting has driven the global automotive LED market to an estimated value over USD $3.5bn in 2021, a 31.8 per cent YoY growth rate. The surge is supported by a global uptake rate of LED headlamps exceeding 60 per cent this year, demonstrating that LED headlamps and automotive display LED products remain the main driving force for growth in the automotive LED market.

Among the 2021 revenue rankings of automotive LED manufacturers, the top three companies remain AMS Osram, Nichia, and Lumileds. These three account for a combined market share of more than 70 per cent. This year, AMS Osram's automotive LED revenue grew rapidly and has an opportunity to reach $1.3bn by year's end for an annual growth rate of 41 per cent. Samsung's PixCell LED has boosted that maker's automotive LED revenue growth to as much as $121m with market share expected to increase to 3.4 per cent.

And Seoul Semiconductor's WICOP product has propelled the supplier's share of the headlamp market to 10 per cent. Dominant had the highest annual revenue growth out of the top ten companies in the industry at 46 per cent. For more information, see the report published last month by DVN.

Hella's Digital FlatLight for Custom Signatures

LIGHTING NEWS



Rear lighting not only fulfills important safety functions, but also offers a wide range of possibilities for creating individual lighting signatures. Hella's managing director of lighting says "By integrating a SmartGlass display, our FlatLight now becomes digital. Appropriately equipped rear combination lamps can be controlled with fine granularity. This allows for a variety of customisable signatures and significantly expands the feature set".
With the FlatLight µMX technology, Hella presented an innovative light guide concept using microoptics at the beginning of 2021. It enables particularly homogeneously illuminated surfaces with thin module depth of only 5 mm. At the same time, the technology combines high efficiency with a wide range of design options, as the front surface of the module can be masked with different decors.

Digital FlatLight uses exactly this technology. By using a SmartGlass display, the functionality is increased many times over. In the Hella Vision Digital FlatLight prototype, the SmartGlass in front is divided into 44 triangular segments that can be individually switched and dimmed by software. In contrast to a classic display, not only the size and number but also the shape of the individual segments can be individually designed. This eliminates the need for masks and decors.

The Digital FlatLight is based on the FlatLight µMX optical system. On this basis, it is possible to equip simpler equipment variants with FlatLight and, for example, to expand the functionality of the better equipped variants by adding a SmartGlass display. With the Digital FlatLight, new signatures can be easily programmed for a possible facelift. New business models such as the installation and adaptation of graphics via app or software update are also conceivable in this context. Another plus point: when switched off, the Digital FlatLight impresses with its black-panel look, a homogeneous glossy black surface. Alternatively, the SmartGlass can be used to make the selected signature visible even when it is not illuminated.

"Marginal" Headlamps Cost Ford Bronco Top IIHS Rating

LIGHTING NEWS

Ford's four-door Bronco SUV failed to qualify for two safety awards from the IIHS, in part because its reflector-type LED headlamps don't measure up. The Bronco earned "good" ratings in five of IIHS' six crashworthiness tests, but both of the Bronco's headlight systems earned "marginal" ratings because their low beams did not illuminate the road far enough ahead on curves. That means the vehicle missed out on both the IIHS Top Safety Pick and Top Safety Pick+ designations.

To qualify for a TSP award, vehicles must be available with "good" or "acceptable" headlamps. TSP+ is available to models that have "good" or "acceptable" headlights across *all* trim levels and packages, not just as an option.

IIHS tests the headlight performance of vehicles as received, without first adjusting the headlamp aim to specifications. Looking at the **detailed ratings** for the Bronco's headlamps, it appears this could be a case of lamps aimed too low from the factory: short seeing distance from low beams and high beams on all tests, with no glare.

The Ford Bronco Sport **did markedly better** with its projector-type LED headlamps, rated "Good" and helping earn that model a TSP+ grade from IIHS.

AMS Osram Set Designers Free With Digital Projections

LIGHTING NEWS

Digital projections enable automakers to take new approaches to design and use light to give vehicles a unique appearance and offer end customers numerous opportunities to display individual content, from static motifs and patterns to fully dynamic videos, both inside and outside the vehicle.

AMS Osram Automotive Lighting Systems CEO Dr. Dirk Linzmeier says "With our digital projection systems, we serve the growing demand for personalization and user experience in all regions by opening up new design possibilities for a fascinating and high-class driving experience. Digital projections can be used to showcase any vehicle in a much more impressive way".

The systems have a flexible and compact design based on the DMD approach. This provides a wide range of installation options in, on and around the vehicle for displaying projections on various internal and external surfaces. Especially inside the passenger cell, the modules unfold their full potential thanks to their small size and great flexibility. For example, they enable the welcome scenario that is projected in front of the driver and passenger doors to be extended to the dashboard.

DMD modules can project a light carpet in front of the driver and passenger doors to make it easier for everyone to see, especially in the dark or in poor visibility. In addition, the technology is able to display warning symbols next to the vehicle or even to communicate warning signals to other road users in the immediate environment.

AMS Osram Automotive Lighting Systems is an independent division of AMS Osram's Automotive business unit. Headquartered in Munich, the division combines lighting technology with electronics and software to develop smart, innovative lighting solutions for the automotive industry. The division was created in 2021 when the Osram Continental JV was reintegrated into the respective parent companies. With 770 people at nine locations worldwide, they continue to handle the product portfolio of the JV in projection, front lighting, and interior lighting.

Driver Assistance News

Mobileye's self-driving technology takes on Paris traffic

DRIVER ASSISTANCE NEWS

Mobileye is piloting a robotaxi service in Paris that's ferrying employees of one of the French capital's most famous department stores to work. The challenges of navigating Parisian traffic will help speed up the development of Mobileye's self-driving system, said Johann Jungwirth, a company VP.

Mobileye and its competitors must push forward with pilot programs that show the technology's reliability and help secure the approval of regulators if they are going to reach their goal of making self-driving vehicles available to a mass market.

Mobileye is working with Paris metro operator RATP to let employees of Galaries Lafayette hail a robotaxi from anywhere in the city using the Moovit app. It will be the first time Mobileye is using Moovit's technology after Intel acquired the mobility data startup for about $900 million in 2020. The vehicles in the Paris program will include a safety driver behind the wheel for the time being. Intel and Mobileye are testing a self-driving car fleet without passengers in Munich and have announced plans to launch pilot programs in Detroit and Tokyo. Full commercial deployments of robotaxis and roboshuttles will start at the latest in 2023, according to Jungwirth. The majority of testing and development activity for autonomous vehicles has been concentrated in the U.S., particularly in the San Francisco Bay area. But the race to deploy commercialized, ride-hailing fleets of robotaxis has spread to European countries as governments there have become more proactive in considering

General News

Hyundai, Kia Winners as European Market Plunges 18%

GENERAL NEWS

TUCSON COMPACT SUV 4G

The Hyundai and Kia brands were big winners in a European market that plunged 17% in November as the chips crisis continued hit vehicle production.
Passenger car registrations in the EU, EFTA and UK markets were 864,000 last month, data from ACEA. November sales were the worst showing for the month since ACEA started tracking figures in 1993.

Hyundai sales rose by 42% in November while sister brand Kia gained 20%. The brands have leveraged their links with Korean chipmakers to avoid the long plant stoppages which have hit rivals.

Volkswagen Group, Europe's biggest automaker, saw its registrations fall 31%, with VW brand sales down 38%, Audi down 30%, Skoda down 27% and Seat down 25%.

At Stellantis, Europe's No. 2 automaker, registrations dropped by 21%.

Michigan Mulls $9m to Reboot Detroit Auto Show in '22

GENERAL NEWS

Michigan lawmakers are planning to help the Detroit auto show get back in business after what could be a 44-month hiatus for the event. A $795m spending bill contained a $9m one-time grant for Detroit's autoshow.

The Detroit Auto Dealers Association canceled NAIAS in June 2020 and September of this year because of the ongoing coronavirus pandemic, after attempting to move the auto show in 2020 from January to early summer. Detroit hasn't hosted an auto show since January 2019.

DADA is planning to resurrect the auto show next September at Huntington Place, the new name of Detroit's riverfront convention center (formerly TCF Center and Cobo Center).

The auto show is Detroit's marquee annual event, attracting international media and auto executives from across the globe and generating an estimated $400m for the state in the hospitality, travel and construction sectors.