

# DVN MARKET FORECAST ON NEW LIGHTING SYSTEMS

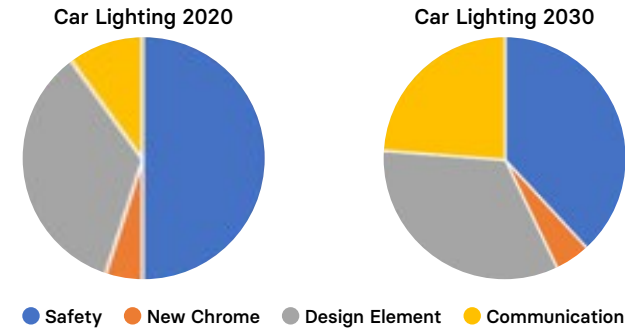


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**For ordering or more information**

carine@drivingvisionnews.com  
+33 698 73 55 56

Many new lighting technologies, techniques, and components are coming onto the market, or soon will. EVs are bringing big changes to car lighting as a whole; billboards in place of radiator grilles; ground-projected light, and OTA updates all bring new business perspectives. The DVN community asked for a market analysis, and now it is ready for you.



This DVN study provides a well-founded evaluation with facts and figures immediately applicable to your business plans, strategic decisions, and resource allocation commitments.

## “**DVN MARKET FORECAST ON NEW LIGHTING SYSTEMS TECHNOLOGIES AND SKILLS TO SUCCEED**”

### Overview

The DVN Study enumerates and assesses the market prospects of new lighting elements like lit front blades and billboards (replacing grilles); lit logos; signal projections; road projections; ADB; laser-based lighting; OLEDs; communication displays, and more. Leverage possibilities are described based on prevailing market trends like the rise of EVs, new design themes, and regulatory environments in the world's major markets. Design trends and the opportunities brought by OTA updates and new hardware and software architectures are described and analysed. The study gives a data-driven preview of the future of the vehicle lighting market. You'll find insightful interviews with automakers; tier-1 and -2 suppliers, and researchers—all in context of DVN's in-house expertise.

### Benefits

This is an independent market research work, a consolidated synthesis of knowledgeable, reliable sources. It provides an efficient education in the latest technologies' prospects in terms of revenue, volume, and regulatory factors, and a sturdy basis for your strategy decisions.

### Who should buy it?

This substantial analysis of the new vehicle lighting market is a high-value resource, from an external and unbiased perspective, for automakers; tier-1 and -2 suppliers, and strategists.

# Preface 1 by Wolfgang Huhn

Dear Reader,

The automotive industry faces huge challenges just about everywhere in the world. The semiconductor shortage has dragged on for two years already, with no end in sight. Russia's war on Ukraine suddenly cut off a key source of wiring harnesses, particularly for European automakers. And now an energy crisis looms. All of these make a big, tricky job of providing a clear forecast for the coming years up to 2030.

Nevertheless, that's exactly what we've done in the 2022 DVN Study. It was hard work, but we believe in the future of the automotive industry, so we worked hard to provide this information. The industry has to transform rapidly, building software-defined cars with electric drive trains which can act autonomously in more and more driving situations. But cars will all still come with exterior and interior lighting systems—increasingly intelligent and functional ones. The vehicle lighting industry is dynamically innovative. Since the latest once-in-a-generation-level breakthrough improvement of night driving safety—adaptive driving beam, ADB—nearly 10 years ago, many more innovations like laser high beams; OLED rear lamps; high-power LEDs; dynamic indicators; road projections, and others have been introduced. The USA is, as always, some distance behind on the lighting hardware and functions because of that country's regulatory situation. But we are convinced that U.S. industry has a real chance to take the lead in software-driven innovations which will soon and rapidly come to be centrally important to vehicle lighting.

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 (subject, of course, to regulations), to make car signatures even more conspicuous and stylish. These displays can also be put to work as status

displays, and as communication displays on L4-5 AVs. Lighting as a factor to distinguish the car and the brand from others will become more important in the case of EVs. Drivetrains and batteries are mostly not different enough to warrant the marketing emphasis long borne by combustion engines and their transmissions, which means saying goodbye to that particular emotional hook. It has to be replaced, so now's the chance for emotionally-attractive lighting to take its place. 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. A wide array of new elements and techniques are investigated, explained, and evaluated. The study is concisely written and easy to read, efficiently giving you a great deal of information. It was created using data from many open sources—anyone can access that, but we've consolidated the relevant pieces coherently for this specific purpose. Moreover, 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.

All of us on the DVN team hope you find the 2022 Study as rewarding to read as we did to write.



**Wolfgang Huhn**  
DVN Senior Advisor



## Preface 2 by Xavier Mosquet

Lighting has been for long a critical component of vehicles on the roads. First for safety, figures from NHTSA and IIHS had night vision as one of the first 3 causes for collisions in the US, and since the mid-80s as a focus for car designers to differentiate their brands. However, car manufacturers and suppliers are clearly entering a new lighting era, driven by several factors.

First and foremost, is fast electrification of new car sales, due to regulation and consumer demand in the light of decreasing battery costs. 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. Add to that the integration of many sensors in the front of the vehicle, and you see emerging a new business model which provides the whole front end as one integrated piece. These new signatures and design options, with slimmer shapes, will impact and enhance rear lighting too.

Beyond, and subject to regulation, lighting offers new communication means to warn other drivers and pedestrians, and to signal Autonomous Vehicles to other drivers, starting at L3. This will be facilitated by cheaper, and higher definition, LED technologies such as mini or micro-LEDs. For sure this will start with warmer driver welcome and farewell lighting for stationary applications, with potential user personalization.

The core function of lighting is on the move too, with Adaptive Driving Beam coming with the promise of eliminating the new glare of (too) powerful front LEDs and enlarging the field of vision, while rear lighting could adjust automatically to weather conditions. 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% increase in vehicle lighting content in the next few years. This is why this study, written by 4 industry experts, with direct prior experience with Audi Lighting engineering, Marelli AL and Valeo Lighting is so important. It is the result of deep interviews with 20 OEMs, suppliers and Universities, and delivers the facts and figures to describe the fast-paced changes changing the face of automotive lighting.

**Xavier Mosquet**

**BCG, Senior Partner Emeritus and founder of the Detroit office**



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