



Editorial

Shanghybrid DVN Workshop: A Great Success!

Last week brought two highly relevant events in China: the Shanghai auto show, and the dual-track DVN Workshop, live in Shanghai and online for worldwide participants—"Shanghybrid", in a word. Today we publish a [DVN Report on the 2021 Shanghai Workshop](#); watch for our DVN Report on the auto show next month. So how did this first-ever hybrid DVN Workshop work out?

We had many more attendees than expected. We blocked the registrations at 200, then 220, and we couldn't turn away 20 more at the entrance. So 240 attendees were physically present and 80 attendees were on line, most of them from Asia because of the time lag to Europe and the Americas.

Surely the most salient aspect of the event was the content of the 35 lectures. Even for me as the organiser, with knowledge in advance, I got a lot of interesting new information by following them. So many developments and innovations from automakers and suppliers; such fruitful lectures and discussions from regulators. And really a super high level in the Q/A discussions. Yes, I was proud last week of my lighting colleagues.

Another grand success at the Workshop: the expo booths. A video was done in every booth with the presentation of the innovative systems, components, materials, services, and devices. The exhibitors were so happy and we will take all this experience into account to make everything even better for the next DVN Workshop in September near Detroit during NAIAS!

Again, don't miss downloading the report on the [DVN Shanghai workshop](#). A long report but so fruitful report with all the Q/A discussion at the end of each session summary. A lot of information to get and to share inside your company!

Sincerely yours


DVN CEO

In Depth Lighting Technology

DVN Report on the Shanghybrid DVN Workshop

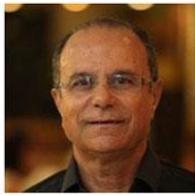


In the report, DVN first presents the 10 main takeaways of the DVN Shanghai workshop:

- **ADB and the technologies behind, Matrix, DLP, MicroLEDs and even dynamic laser.**
- **New functions as guiding lines, projection of symbols, light around the car, functional and for styling effect**
- **Software and simulation, the two skills we must develop**
- **CASIC will increase the communication between the Chinese SC21, and the UNECE-GRE, with an important role for GTB and DVN; a MUST to open worldwide regulations to new functions and technologies.”**
- **Styling differentiation mainly in RCL as OLED or “like OLED”,**
- **Sensors integrated in the HL/RL**
- **New generation of displays, HMI, and interior lighting for higher level of safety and user experience**
- **LED light source and light shaping industry is embracing the opportunities of digital lighting with performance related innovative concepts and products to move the market forward.**
- **Growing importance of specialist companies providing solutions to make the new advanced lighting systems possible.**
- **High level of innovations shown in the exhibition booths**

Then we summarise the lectures of the 35 speakers, present highlights of the Q&A sessions, and describe the innovative systems and components presented at the exhibition booths.

The first session was dedicated to the achievements and the needs of automakers to improve safety and style, within the constraints of regulations.



H. Fratty
DVN



H. Kiel
SVW



J. Kobert
Audi



W. Gonçalves
Stellantis



L. Yang
FAW VW



R. Uebler
BMW



P.H. Matha
Volvo cars



M. Larsen
GM

SVW's Dr. Henning Kiel talked about advantages and challenges of new exterior lighting technologies, with personalised welcome communication and lit logos, and also with new interior lighting providing information for comfort and safety functions.

Audi's Jonas Kobert detailed two surveys showing dynamic light functions don't cause distraction and do improve safety.

Stellantis' Whilk Gonçalves presented the challenges of communication by light, then explained how his group will use three kinds of lighting communication: guiding lines, projection of symbols, and light around the car.

FAW VW's Lili Yang developed her lecture around matrix technology, showing the benefit of 11 segments against 32 segments in performance vs cost and later the benefit of microLED with 20 kilopixels.

BMW's Rene Übler presented the BMW ADB concept using dynamic laser matrix beam adding few words on the innovative rear lights of the BMW 5 series. **Volvo's Paul-Henri Matha** talked about the Volvo plans to be fully electric by 2030 and its impact for exterior lighting. "Range decrease by ADB is not an issue in an SUV but could be an issue in a city car".

GM's Michael Larsen detailed the long, 10-year uphill climb to still-not-yet-legalised ADB in the USA.

The second session was dedicated to technical offerings of setmakers to improve safety and style.



W. Huhn, chair
DVN



J. Ao
Hasco



H. Nafari
Mind



S. Hirsch
Marelli AL



C. Kirchenbauer
Hella



Y. Cho
Hyundai Mobis



L. Brisson
Varroc Lighting



L. Fan
Valeo

Jinlong Ao, Hasco Vision showed his clear future vision with a broad lighting system approach including sensors, electronics and software.

Hossein Nafari from **Mind Optoelectronics** made one of the best presentations, in which he announced the serial introduction of a 10-kilopixel ADB system for Q1- 2022, and 100-kilopixel μ LED module in 2025. **Sebastian Hirsch** from **Marelli AL** said sensors, mainly lidars, will be integrated into the headlamps, but not before 2024-2025.

Hella's Chris Kirchenbauer said their new Flatlight technology for signal with 5-mm thickness and floating appearance is effectively giving style very similar to OLED, but with a reduced cost. first SOP in early 2023.

Hyundai Mobis' Cho Yeonggi presented lighting and ADAS developments, with an ADAS sensor integrated in the ADB system.

Luc Brisson of **Varroc** and **Ralf Muenster** from **SiLC** showed us object tracking with 4D+ imaging using lidar sensors with advanced dimensions.

Valeo's Lei Fan described Valeo's monolithic microLED technology for making ADB.

The third session was devoted to vehicle interior topics.



P. Aumont, chair
DVN



PG Bravo
Grupo Antolin



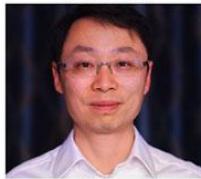
K. Blankenbach
DisplayForm



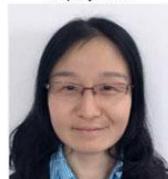
S. Hoffmann
Inova



S. Zhang
Ansys



M. Dou
Osram



L. Song
Melixis



J. Gourlay
DesignLED

Professor Dr. Blankenbach from **Pforzheim University** explained the new display technology, the system approach with new shapes, higher pixels, holograms, augmented reality and even emotion. **Inova's Stefan Hoffman** explained his company's new lighting network, with the hardware and software structure behind the screen.

Ansys' Sen Zhang talked about interior optical design workflow with that company's development tools. **Osram-ARM** and **Melexis** jointly presented about fusion of safety display functions with ambient light.

J. Gourlay from **DesignLED** talked about interior personalisation becoming more and more important, from the standpoint of integrated lighting with very thin backlight.

Novem R&D head Dominique Heilborn addressed how combining physical and digital for seamless user experience, putting together new functions in premium materials, such as wood, aluminum or carbon, anywhere in the interior, and how it will influence automaker/supplier relationship.

Dr. Wolfgang Clemens from **PolyIC** explained how the combination of decoration and light, using capacitive touch sensors with haptic feedback, creates the new generation of HMI.

The 4th session is the 18th in the series of DVN regulatory sessions, bringing together worldwide regulators.



G. Draper
Chair



W. Wei
SMVIC



Z. Caiping
XingYu



R. Neumann
Varroc



D. Puglisi
GTB



D. Xie
CATARC

Wang Wei from **SMVIC** presented a very interesting report on the progress of SAC/TC114/SC21 to update GB Standards.

Zhu Caiping from **Xingyu Lighting** presented a very detailed report on some hot topics in the drafting process of new GB Regulations on light signalling devices.

Varroc's Rainer Neuman provided the latest status on research projects sponsored by the GTB Scientific Working Group (SVP).

Davide Puglisi, GTB Secretary General gave a progress report on the main GTB activities at the UN-GRE in Geneva.

Xie Dongming from **CATARC** explained the CASIC organisation and its objectives.

The 5th session was dedicated to four leading light source suppliers who gave their view on the future development of LED front lighting technology.



R.Schäfer
chair



K.Ma
Lumileds



C.Setzer
Osram



T.Yuan
Texas Instruments



N.Hung
Everlight

Keanu Ma from **Lumileds** gave insights into leading-edge standard LED technology in combination with microLED applications.

Osram's Carsten Setzer described the combination of visible light with infrared sources which will take an increasing area of interest for vehicle safety through direct obstacle detection.

Terry Yuan of **Texas Instruments** addresses a bucket of new digital lighting opportunities.

Everlights' Norman Hung gave insights about the market introduction of matrix technology.

In the 6th session, specialist companies described their solutions to make the new advanced lighting systems possible.



L.Metzemaekers
Chair



D.Hong
AML



A.Zhang
Covestro



V.Wang
NXP



D.Pengyuan
Ansys

Xu Dong and **Dian Hong** from **AML Systems** demonstrated how to improve: precision, cycle time and accessibility of headlamp aiming.

Andy Zhang from **Covestro** showed the latest material trends for automotive exterior lighting.

NXP's Victor Wang proposed considerations and solutions for matrix headlighting.

Pengyuan Lu from **Ansys** explained why future complex headlamp systems will be impossible to design without use of simulation tools.

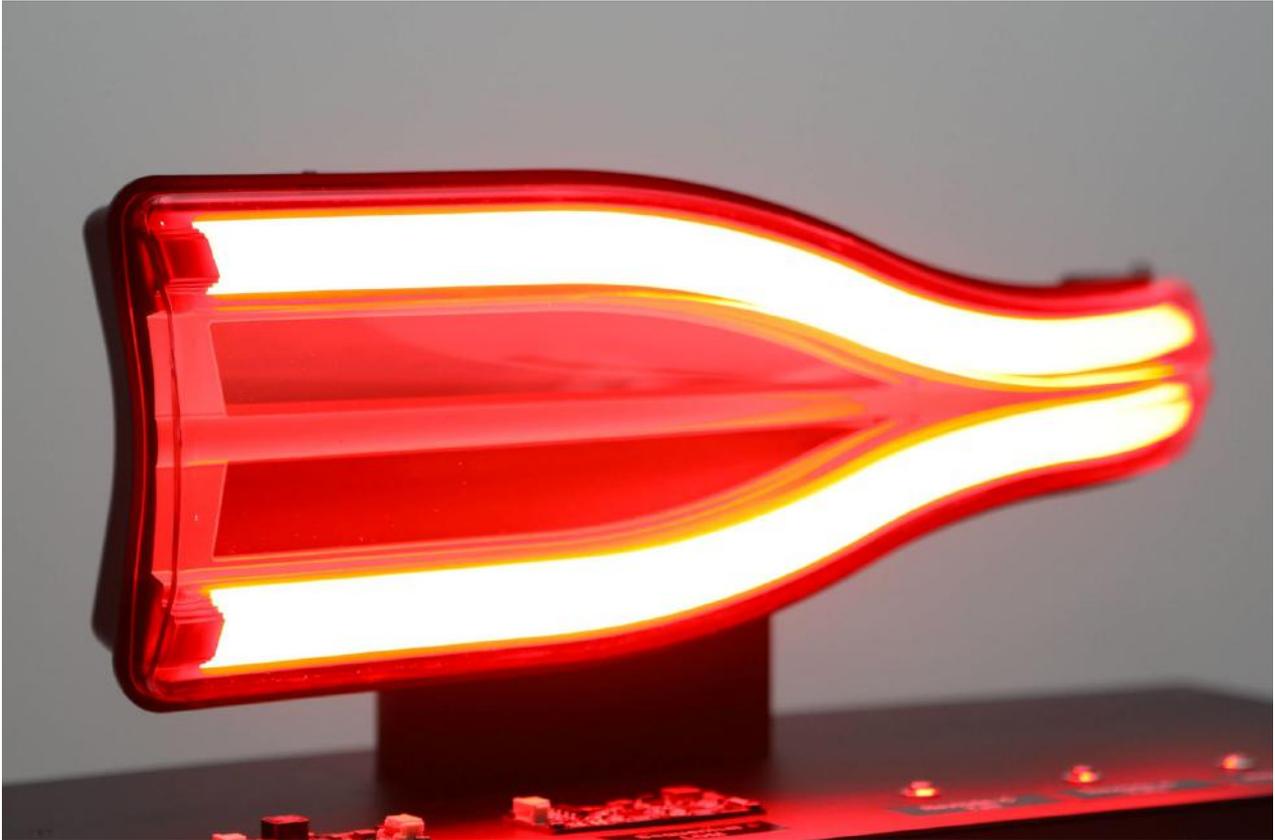
Tany Gu, on behalf of **Ningbo Sunny Automotive**, explained the importance of optics in headlamp imaging applications.

An important part of the report is focused on the products, systems, components, devices presented by the exhibitors. These exhibitions were a central anchor point of the Workshop. And the final part of the report presents the main information from the Paris VISION congress which was held last month, with the Q&A sessions highlighted in detail.

Lighting News

LG Innotek's Nexlide-E Module

LIGHTING NEWS



LG Innotek have announced their Nexlide-E, an automotive lighting module that produces bright and uniform light. The module's LED package is mounted on a thin substrate and covered with optical resin, with a thin optical film attached on top of the package to spread the light brightly and evenly.

The module can be used for the likes of tail and stop lamps and other signal lamps all around the car. It's 63 per cent brighter than the previous product and produces uniform light.

The company's micropatterning technique is used in the optical film to give a variety of lighting effects. The maximum intensity of the Nexlide-E has been raised from 80 to 130 cd, which allows compliance with a variety of exterior light signal regulations. Car manufacturers can design slimmer and more compact lamps, thus returning more usable space to the vehicle.

To achieve such a bright and uniform light, LG Innotek developed a new optical film for the Nexlide-E. Only 0.2 mm thick, the film is attached to the LED module. Different types of the optical film create various lighting effects. The micropatterns can be changed according to the type of optical film to increase brightness by collecting the beam, produce a surface light source by diffusing the light or even produce a three-dimensional light shape. With optical films, LG Innotek can produce customised lighting modules without complex design changes or using additional components such as an inner lens. The first vehicle equipped with the Nexlide-E is expected to be mass-produced in the later half of this year.

LG Innotek are a cutting-edge materials and components manufacturer and an affiliate of the LG group. The company's business units include core components for mobiles, automotive, display, semiconductors, and IoT. They are headquartered in Seoul, Korea, and their sales subsidiaries are located in Germany, USA, Mainland China, Japan, and Taiwan with production subsidiaries in China, Vietnam, Indonesia, Mexico, and Poland.

HELLA Polestar: Rear electric vehicle in scene

LIGHTING NEWS



HELLA has implemented a highly integrated, continuous rear combination lamp for the new Polestar 2, consisting of lighting and electronic components. It gives the Polestar electric performance fastback its unique, characteristic appearance.

The Polestar 2 has been available to customers since summer last year.

The C-shaped rear combination lamp extends seamlessly across the entire width of the vehicle with a narrow light band of almost 300 LEDs, consisting of five electronically coordinated modules. All lighting functions and animations, such as scenarios for coming home and leaving home, are entirely controlled by software. This also allows the vehicle manufacturer to implement updated lighting animations using software updates if desired, without having to modify the hardware architecture.

"Rear combination lamps stopped just being used for safety functions a long time ago. In fact, they are also an important design element that car manufacturers can use to differentiate their vehicle models. This also puts increased demand on lighting technology and design vocabulary", says Dr. Frank Huber, HELLA's Managing Director responsible for the Lighting Division. "The Polestar's rear combination lamp shows that we can optimally fulfil individual customer requirements using our comprehensive lighting and electronics expertise."

The Graphical Animation Interpreter tool designed by HELLA was used in the development process to implement customer-specific light animation requirements with flexibility and efficiency. The software generally enables automotive manufacturers to design lighting animations easily, starting with functions such as the wiping indicator and individual choreographies for headlamps, grille lighting, rear combination lamps and the interior, right up to more complex animations for autonomous driving functions.

Marelli AL at Shanghai Autoshow: Large range of products

LIGHTING NEWS



Marelli Automotive Lighting showed off their broad range of modules, adapted to customers' needs.

- **h-Digi** module, high-end technologies, with high-resolution projection system, with 1.3-megapixel resolution.
- **Folia-LED** technology for rear lamps, which is an affordable solution comparable to OLED systems. This ensures broad styling options and the possibility to create animations through electronic control.
- **MicroLED**, a second-generation high-resolution projection system with 20 to 40 kilopixels engineered for volume markets, aimed to be in production in the next couple of years.

Finally, Marelli AL had the best example of **electronics** devoted to the control of LED lighting solutions. Automotive Lighting supports the transition from numerous local ECUs to centralised DCUs (Domain Control Units). Today, dedicated lighting control functions are already part of Marelli's lighting controllers. The next step into the future is the centralisation of the complete vehicle lighting control for front, rear and interior lighting into one DCU.

This week Marelli announced a cooperation agreement for radar solutions aimed at ADAS and autonomous-drive applications, signed with the Chinese company WHST. This partnership will be firstly aimed at the Chinese market and then opened up to the rest of the world. This will allow Marelli to integrate 77- and 79-GHz applications for 4D radar into headlamps, rear lamps, smart grilles, and also standalone corner and long-range radar and newest cockpit radar technology. The move confirms the commitment of the company in the domains of autonomous driving and sensing perception in particular, and follows consistently their long-standing activity, started years ago with the introduction of the Smart Corner, a solution integrating sensors for autonomous driving within vehicle headlamps and tail lamps, and with strategic partnerships in the lidar field.

Hella at Shanghai Auto Show: ADB Technology

LIGHTING NEWS



Hella made an impressive appearance at Auto Shanghai 2021, showcasing their timely solutions to hot topics in the Chinese market. The event was one of the world's largest and most important trade fairs for the automotive industry, and Hella took out a 200-m² stand. The presentation focused on indispensable technology highlights for key market trends such as electrification and autonomous driving, digitalisation, and connectivity as well as individualisation.

Hella presented a selection of their latest vehicle lighting components and innovations, notably headlamp systems for the volume and premium segments, including the latest chip-based headlamp matrix systems SSL100 and SSL|HD. While the SSL100 headlamps have been manufactured since last year also at the Chinese lighting plant in Jiaxing, large-scale production for the SSL|HD technology will initially begin in summer 2022 and is set to start also in China in 2024. Especially for the volume segment in the Chinese market, Hella also presented different LED headlamp technologies that combine high performance, functionality, and compatibility with local price requirements.

Another technology highlight, which was the focus of the Hella trade fair presentation in Shanghai, was the rear combination lamp concept FlatLight. This is based on particularly small microoptics, smaller than a single salt granule. Among other things, this enables completely new styling possibilities. The design of light signatures changes fundamentally, as it is now possible to implement the indicator, brake, and tail light in just one optical element. This also reduces weight and installation space; the energy requirement of the FlatLight concept can also be reduced by around 80 per cent compared to conventional LED tail lights. The market launch is planned within the next three years. Also on display were various concepts for grille illumination and interior lighting.

OLEDWorks at Shanghai Autoshow: Innovative OLED

LIGHTING NEWS



This week, OLEDWorks is exhibiting their latest automotive lighting solutions at Shanghai Autoshow. “We are incredibly excited to meet with our Partners and talk to the automotive lighting community in-person and thrilled to be doing so in one of the world’s most innovative automotive markets,” states Dave DeJoy, OLEDWorks CEO.

OLEDWorks collaborates with vehicle manufacturers and Tier 1 suppliers to utilize OLED light to increase safety on the road through vehicle communication and energize the consumer experience through personalization and branding. Their commercially available segmented OLED taillights have been garnering media attention across the industry, with the latest spotlight on the technology just yesterday as part of Audi’s A6 e-tron electric vehicle concept [release](#).



The e-tron concept utilizes the latest generation of digital OLED technology that acts as a display across the rear of the vehicle.

OLEDWorks is a global leader in the development and production of innovative organic light-emitting diode (OLED) lighting technology. By producing the world’s best performing OLED panels and combining rapid product innovation, OLEDWorks simplifies and enriches lighting solutions in general lighting and automotive applications.

PACE Award Finalists Named

LIGHTING NEWS

Automotive News

PACETM
AWARD



Deloitte.

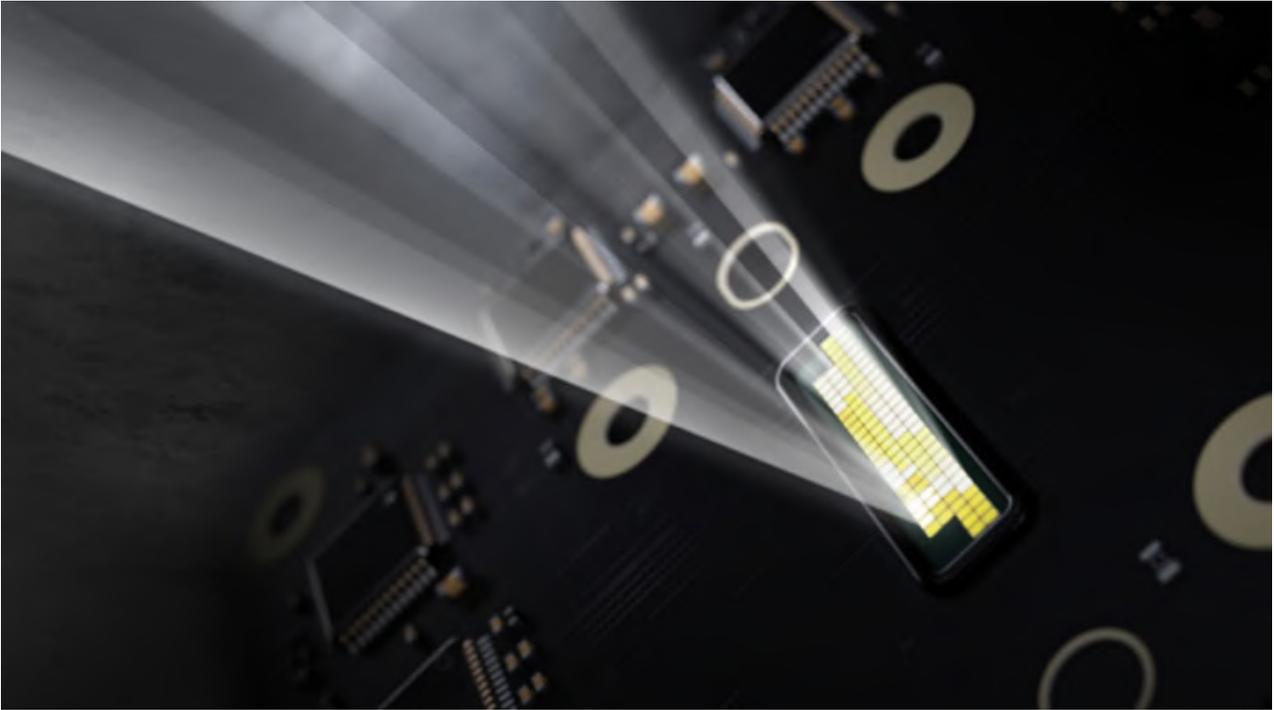
 **APMA**
LEAD. REACH. CONNECT.

The Automotive News PACE Award, now in its 27th year, is given to suppliers in recognition of a technological innovation in products or processes that have reached commercial application. The 2021 finalists reflect an industry of diverse R&D efforts. Finalists involved in lighting and ADAS are:

- **Continental** for Curved Plastic Lens
- **Faurecia** for IRYStec perceptual display platform vision
- **Hella** for brake system sensor
- **IEE S.A.** for VitaSense child-presence detection system
- **RoboSense (Suteng Innovation Technology)** for MEMS solid-state lidar
- **Samsung Electronics** for PixCell LED
- **Valeo** for data interface for ultrasonic near-field perception systems
- **Valeo** for lidar cleaning system, 36% of the liquid consumption saved

Samsung's PixCell LED for ADB

LIGHTING NEWS



Precautionary safety is becoming a central focus for the automotive industry as new and revolutionary technologies are changing the way we drive. Within this global movement, interest in “active safety”—functions that detect risk factors and prevent potential accidents—is on the rise.

The automotive lighting sector has been contributing to this trend by introducing a variety of innovations, the most prominent of which is Adaptive Driving Beams (ADBs). ADB headlights are able to automatically adjust headlamp lighting based on the traffic environment to improve the visibility of drivers. And, Samsung’s PixCell LED technology is playing a vital role in creating the most advanced form of ADB.

The name “PixCell” was conceived from the fact that each segment in a PixCell LED is able to operate as its own individual cell. Applying Samsung’s monolithically integrated LED technology with the PixCell LED embraced more than 100 segments into a single LED chip, with a wall structure between segments to isolate each segment. Subsequently, it makes the LED alignment far more precise than that of peer products, which have separate LED packages mounted on a circuit board one by one. This unique technology gives Samsung’s PixCell LED its unrivalled 300:1 contrast-- a ratio that is nearly three times higher than conventional competing products relying on legacy technologies.

Samsung’s PixCell LED is an LED light source with industry-leading precision that dramatically enhances light accuracy, best optimized for intelligent headlights. It enables an ultra-fine, automated lamp control to create better contrast, which is a key element of intelligent headlamps. Lamps with a higher contrast ratio can more accurately distinguish which areas of the road need to be lit or dimmed at any given moment. In doing so, the headlamp adapting the PixCell LED not only improves visibility, but also prevents glare from oncoming cars and the traffic preceding it. This provides a significantly safer environment for all drivers on the road at night, and in inclement weather such as fog and heavy rain.

With the goal of achieving safer driving at night and under tough conditions, Samsung’s PixCell LED technology generates what can easily be considered the premium contrast for high-convenience, pinpoint-controlled automotive lamps. It promises unmatched lamp precision for the industry’s most trustworthy ADBs.

Driver Assistance News

Xenomatrix's Newest Solid State Lidar

DRIVER ASSISTANCE NEWS



Xenomatrix, a pioneer of true-solid-state lidars for ADAS and AVs, have launched a new generation of XenoLidar-X, designed to meet the performance requirements needed by today's leading automakers.

XenoLidar-X is a standalone, off-the-shelf solution with no moving parts. It is modular and fit for centralised or distributed integration via two distinct versions: **Xpert** for long-range applications and **Xact** for mid-range applications.

XenoLidar-X provides a simultaneous optical output power increase and an electrical power consumption decrease by a factor of 10, using a unique concept of performant global shutter Xenomatrix call "multi-beam." As a robust, small, and lightweight solution, XenoLidar-X addresses challenges centring on cost without compromising the performance requested by today's top automakers.

The Xenomatrix team have focused on delivering a futureproof sensor with a small and light design for easy integration. Integration has been an important element of the company's ongoing partnerships with tier-1 suppliers like AGC, Marelli, Kautex, and others to create a complete, customisable, modular and flexible lidar solution. Soon these partnerships will deliver lidars integrated into the windshield, rear window, grill, headlight, taillight, and bumper of the vehicle.

Although the automotive industry accounts for a large portion of Xenomatrix' customer base, their solid-state lidars have been introduced for smart cities and industrial and logistics applications. Xenomatrix continue to see new opportunities in the road market and developed a road lidar for road management applications and pavement management systems.

Xenomatrix are the first company to offer true solid state lidar solutions for ADAS, autonomous driving (AD) and road digitisation. Xenomatrix design and build products and software that enable precise real-time 4D-6D digitisation and an understanding of a vehicle's surroundings, empowering applications that lead to safer and more comfortable vehicles.

Blickfeld's New Tech for Lidar Data Pre-Processing

DRIVER ASSISTANCE NEWS



Blickfeld have enabled smart lidar functionality on their sensors. This makes Blickfeld's lidar sensors the first ones that not only collect detailed 3D data but are also capable of computing and providing enriched information through on-device pre-processing. This pre-processing is an industry first and is accomplished by a high-performance computing chipset integrated into the lidar. The first feature introduced by Blickfeld is a pre-processing algorithm that enables motion detection. As a result, Smart lidars offer easier, faster, and more cost-effective integration into applications and solutions.

Smart lidars are characterised by intelligent pre-processing functions in addition to the 3D measurements. Thanks to these functions, the collected data is converted into insightful information early in the processing pipeline without the need for external computing hardware to perform these steps. Instead, Blickfeld's sensors have a specialised system-on-chip (SoC) computing chipset that enables the execution of algorithms on the sensors themselves. This allows robust on-device data analysis, enabling fast and straightforward implementation of numerous use cases in areas such as smart city, security, or industry.

Blickfeld are developing an algorithm library optimised for the chipset that includes a variety of pre-processing features. The first algorithm presented enables dynamic motion detection. Here, the static background within the point cloud is identified and removed so that the device only transmits motion information. Dynamic objects, such as people and vehicles, are detected and highlighted along with their movements. This feature is included with the current firmware on Blickfeld's Cube 1 series devices and is already being used successfully in customer projects. The acquired data is made available at the open software interface. Besides immediate motion detection, another advantage is the enormous reduction of the data volume, greater than 95 per cent in typical cases.

Currently, Blickfeld are working on the expansion of the algorithm library. Additional pre-processing algorithms will be released in the near future to take on further steps of capturing and interpreting the environment. A large number of functions can be flexibly combined, making them adaptable to different applications. This flexibility of the Smart lidar, coupled with the ease of use of the sensor and interfaces, pays into the goal of making lidar technology accessible to all users.

Blickfeld founder Dr. Florian Petit says "We designed our sensors as smart lidars from the beginning and designed a corresponding chipset. We are very pleased to now be able to make these functions available for our customers. Smart lidars represent the next generation of lidar sensor technology, and we are excited to lead this evolution in the industry".

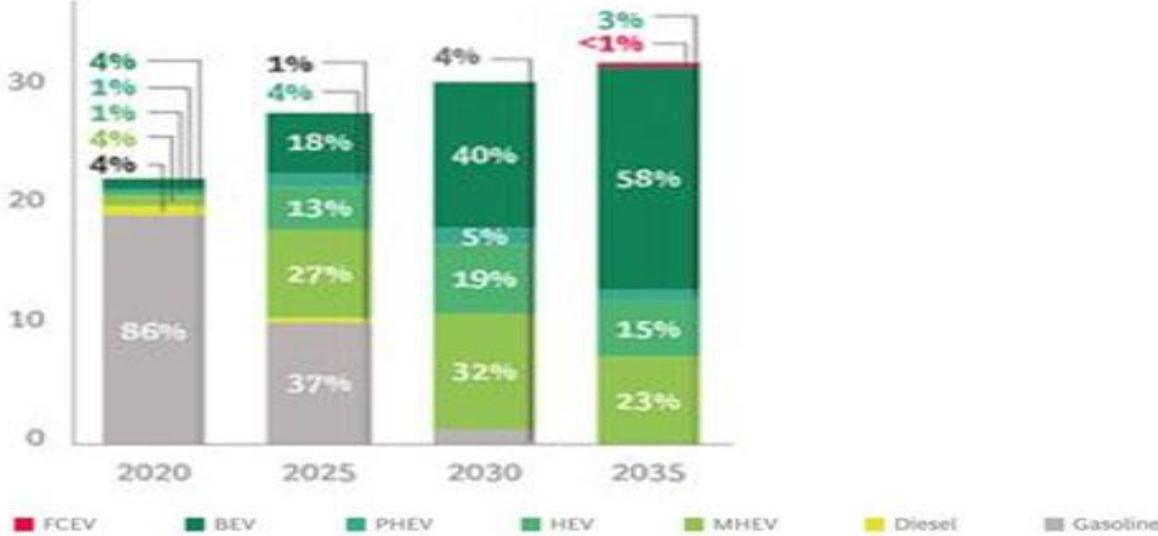
General News

Will Half of Light Vehicles Sold by '26 Be EVs?

GENERAL NEWS



Electrified vehicles will account for more than half of light vehicles sold around the world by 2026, largely driven by sales in Europe and China, according to a new forecast from Boston Consulting Group. BCG said in the report released last week that zero-emission vehicles will replace internal combustion engines "as the dominant powertrain" for new light-vehicle sales globally just after 2035.



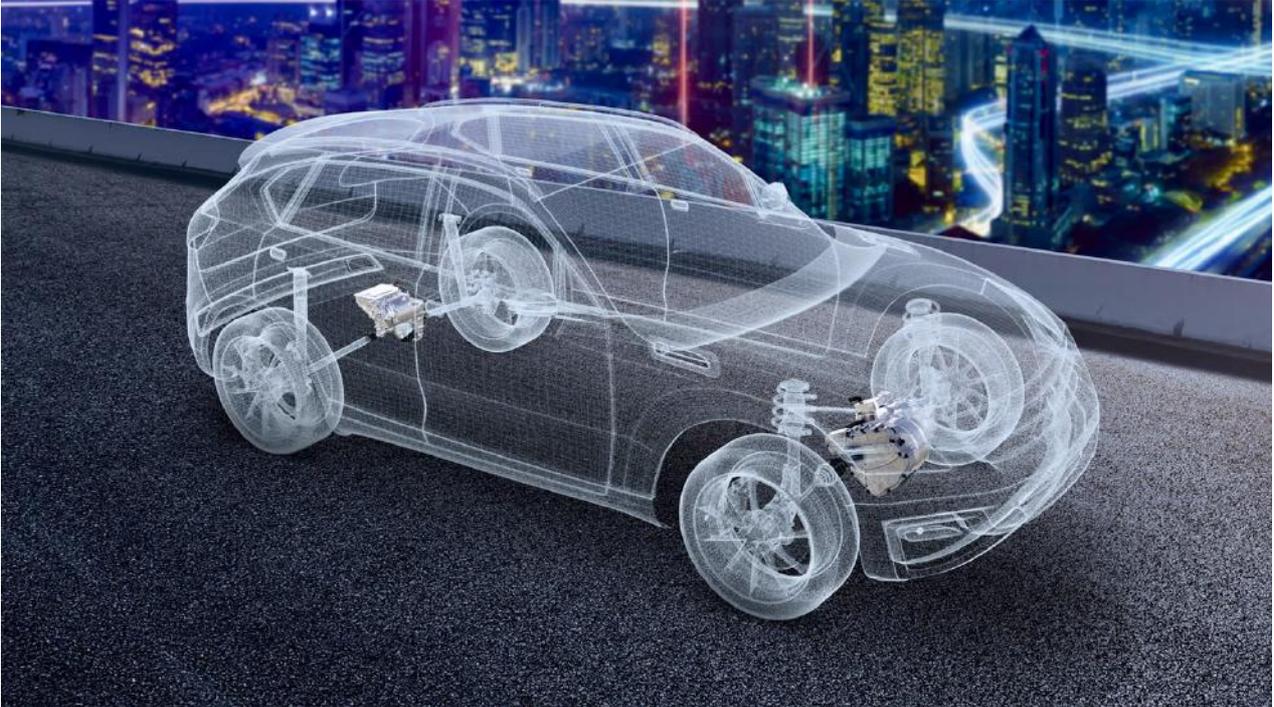
BCG said it sees the transition to EVs playing out in three phases: incentive-driven and early adopter-driven electrification; ownership cost-driven electrification; and supply-driven electrification. First, BCG anticipate that by 2023, there will be more than 300 battery-electric and plug-in hybrid vehicles brought to market. It's expected that plug-in, full and mild hybrids will command 25 per cent of the global light-vehicle market in 2023. Second, BCG project that by 2030, battery pack costs will have dropped dramatically and that the shift to EVs will be most notable in Europe and China.

	US	Europe	China
2020	91%	79%	90%
2035	2%	4%	0%

LIGHT VEHICLES POWERED ONLY GAZOLINE OR DIESEL ENGINES, BCG

What's Up with the Apple Car? Ask LG Electronics and Magna

GENERAL NEWS



The much-rumoured Apple car may be produced by LG Magna e-Powertrain. The two companies are said to be close to finalising an agreement to build Apple's first car, according to a new report from newspaper The Korea Times.

Announced in December 2020, LG Magna e-Powertrain is the joint venture between Korean tech giant LG Electronics and the large Canadian automotive company Magna.

"LG Magna e-Powertrain is very near to signing contracts with Apple under which they could handle the initial volume production of Apple [electric vehicles]," a source familiar with the matter told The Korea Times earlier this week.

But added, "Contract details are still being discussed".

While most will be familiar with LG's consumer electronics products, those outside of the automotive industry may not be as familiar with the Canadian company Magna, which is a major supplier to the world's top car makers. It's understood Apple and Magna began talks around five years ago.

The company's Austrian subsidiary, Magna Steyr, currently manufactures the BMW 5 Series, BMW Z4 and Toyota Supra, Jaguar E-Pace and I-Pace, and Mercedes-Benz G-Class under contract. Magna's experience in building vehicles on behalf of car brands, coupled with LG's current relationship with Apple, make their joint venture an ideal candidate to produce the future Apple EV. According to the report, Apple plan to unveil their prototype vehicle in early 2024, with production expected to be based in North America.

Volkswagen ID.4 EV named World Car of the Year 2021

GENERAL NEWS



The Volkswagen ID.4 has been named “World Car of the Year 2021,” prevailing over strong global competition. The World Car Awards are presented by more than 90 international automotive journalists from 24 countries, who vote on the best innovations on the world market. “We are particularly pleased about our ID.4 being named World Car of the Year”, says Ralf Brandstätter, CEO of Volkswagen passenger cars. “Not only because it is one of the most important car awards in the world, but also because the jury honored a great idea and a great team. The first ID. model for the key markets of Europe, China and the U.S. carries our electric offensive around the world.”

To be eligible for the World Car of the Year award, vehicles must be manufactured in volumes of at least 10,000 units per year, must be priced below the luxury-car level in their primary markets, and must be on sale in at least two major markets, on at least two continents, between May 2020 and May 2021.

Volkswagen plans to deliver around 150,000 ID.4s worldwide this year. Accelerating the e-offensive is a core element of Volkswagen's ACCELERATE strategy. The company plans to bring at least one new all-electric model to market globally every year.

Baidu and Geely plan \$7.7 billion smart car JV

GENERAL NEWS



XIA YIPING, CEO JIDU AUTO

Jidu Auto, a JV between Chinese giants Baidu and Geely, aims to spend \$7.7 billion over the next five years on developing smart-car technology. The company intends to hire between 2,500 and 3,000 staff for the project over the next two to three years, around 500 of which will be software engineers, it said. The branding for the nascent auto marque is set to be unveiled in the third quarter of 2021, a spokesperson added. Baidu owns 55% of Jidu and Geely has a 45% stake in the company.

The first model from Jidu will be a EV targeting launch within three years and designed to look like a robot in order to appeal to a young clientele, CEO Xia Yiping said in an interview with Reuters. The company then plans to release one new model every year or 18 months, he's cited as saying.