

Tue, 15 November  
2022  
Weekly Newsletter

  
Lighting & ADAS

NEWSLETTER #777

## 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



# Editorial

## Involved With Lidar? Don't Miss The DVN Lidar Conference!

It's just two weeks until the 5<sup>th</sup> DVN Lidar Conference!

In this week's DVN newsletter we give the latest information about presenters and themes of this extraordinary event at the Dorint Pallas Hotel in Wiesbaden on 30 November-1 December.

This year's event will bring together more than 200 worldwide participants, you and your company can network and promote your ideas and innovations with key managers; experts, and decision makers involved in automotive lidar.

These DVN Lidar Conferences have consistently been a great success over the years, bringing together all sectors and interests to discuss this increasingly-crucial technology as more and more manufacturers and suppliers integrate lidar into their ADAS-AD innovations. Volvo's electric EX90 SUV will include Luminar's Iris lidar as standard equipment; Valeo's Scala is in cars driving on German and Japanese highways; Hesai are delivering over 10,000 of their AT128 lidars a month, and on and on.

Our two keynote speakers, Valeo's Marc Vrecko and TÜV Rheinland's Bircan Taslica are excited to give their views at the [Lidar Conference](#) on the various aspects of ADAS, AD and V2X communication and to exchange opinions with the conference audience—and that's just a quick pick from the nearly-full agenda; find more speakers and presentations on the docket; elsewhere in this week's newsletter, you'll get spot-highlights of selected presentations. We can't wait to see you there!

Sincerely yours,

  
DVN CEO

You can still register on the DVN website at [DVN Lidar Conference](#) or contact [glebrun@drivingvisionnews.com](mailto:glebrun@drivingvisionnews.com) or [christophe@drivingvisionnews.com](mailto:christophe@drivingvisionnews.com)

# In Depth Lighting Technology

## DVN Lidar Conference: Coming Soon!

**30 NOV.  
01 DEC.  
2022**  
FRANKFURT

**DVN**  
Lidar

**SAVE THE DATE  
NOV 30  
DEC 1**

# DVN AUTOMOTIVE LIDAR CONFERENCE & EXPO

**"APPLICATIONS, USE CASES & TESTING, TECHNOLOGY,  
ECO-SYSTEM"**

**New location with an entire room dedicated to all our exhibitors:  
DORINT HOTEL PALLAS WIESBADEN, FRANKFURT AREA**

**- 5<sup>TH</sup> DVN CONFERENCE & EXHIBITION ON AUTOMOTIVE LIDAR -**

Here's all the information about the keynotes and lectures to be presented at the fifth DVN Lidar Conference, to be held at the Dorint Pallas Hotel in Wiesbaden on 30 November-1 December.



M. VRECKO, VALEO



C. KOBETZ, MERCEDES-BENZ



B. TASLICA, TÜV

Speakers include:

- . Marc Vrecko (Valeo's president of comfort and driving assistance) will explain how lidar leadership boosts Valeo ADAS systems;
- . Bircan Taslica from TÜV Rheinland will elaborate on ADAS/AD sensor testing and upcoming regulations
- . Christian Kobetz from Mercedes-Benz will give deeper insight into their Drive Pilot system;
- . Fabien Bastide from Ansys will present his view about the lidar simulation tool chain;
- . Pierrick Boulay from Yole Développement will present the status of the automotive lidar ecosystem and market perspectives;

- . Henri Häfner will talk about the Cepton view on lidar integration and eco-system
- . Wolfgang Schulz from Continental will cover a special topic of KPI extraction for optimal sensor configurations;
- . Tero Tolonen from Canatu will present advanced transparent heater technology for lidar covers;
- . John Peek from KSLD will build a bridge from LiFi technology to lidar data transfer;
- . Andy Zott from Scantinel will talk about photonics integration enabling FMCW lidars;
- . Niklas Andermahr from Dioptics will discuss optical design and testing for lidar sensors;
- . Mrinal Sood from Aeye will expound on software defined success of next generation lidar sensors;
- . Dmitriy Yalid from Red Creamery will introduce an ultrahigh-resolution lidar sensor with mechanically modulated CW laser;
- . Clemens Hofmann from AMS Osram will present a market and technology overview on emitters for lidar sensors;
- . Ricardo Ferreira from Lingdao will describe combining hardware and software for lidar, and
- . Alex Leuta from Opsys will describe lidar sensors with micro-flash scanning technology;
- . Clement Nouvel will present how Valeo sees the market and technology evolution of automotive lidar
- . Thomas Luce will present the MicroVision view on lidar interference
- . Adrian Zlocki from FKA GmbH/Aachen University will discuss how a standardisation and test framework could be established
- . Michael Kiehn from Ibeo will give his view about different lidar approaches for autonomous driving
- . Manuel Ligges will talk about the possibilities of data reduction with SPAD lidar
- . Jens Fischer from Docter Optics explains how high precision optics are produced in volume



A differentiating element of DVN Lidar Conferences is an outstanding exhibition of enterprises in the automotive lidar field. Aligned with the conference program, we have planned ample time during breaks to visit the exhibition and get into contact with potential suppliers, customers and peers. To comply with the wishes of our exhibitors and to focus an even bigger attention to the exhibition, we have this year chosen for a new hotel which presents the exhibition directly between entrance and conference room.

# Lighting News

## Nordic Lights' New Heavy-Duty Headlamp

LIGHTING NEWS



Finland-based Nordic Lights—a maker of premium-quality lighting—are a preferred supplier to major heavy-duty vehicle makers including the likes of Caterpillar, Liebherr, Sandvik, John Deere and Komatsu. They've just launched their new Sculptor 2 LED combination headlamp, and we took the opportunity to talk with R&D director Jyrki Mikkola. He enjoys working at the forefront of bringing optimal lighting and the latest technology to worksites all over the world.



**DVN: Tell us about this new Sculptor 2 LED combination headlamp!**

**Jyrki Mikkola:** The Sculptor 2 is a new headlight designed for machines that are operated and used in road traffic. It combines five functions: daytime running light; position light; direction indicator; passing beam, and driving beam. The Sculptor 2 is a

pinnacle of design, both in terms of features as well as visual expression. Featuring a mix of carefully chosen parts and expertly designed functions, the result is a headlight with excellent features that will stand the test of time. In the design process we made a special effort to optimise the lighting properties of all functions—especially the near-field illumination and the DRL, since we know that these maximize worksite efficiency and safety.

### **DVN: What are Nordic's strengths?**

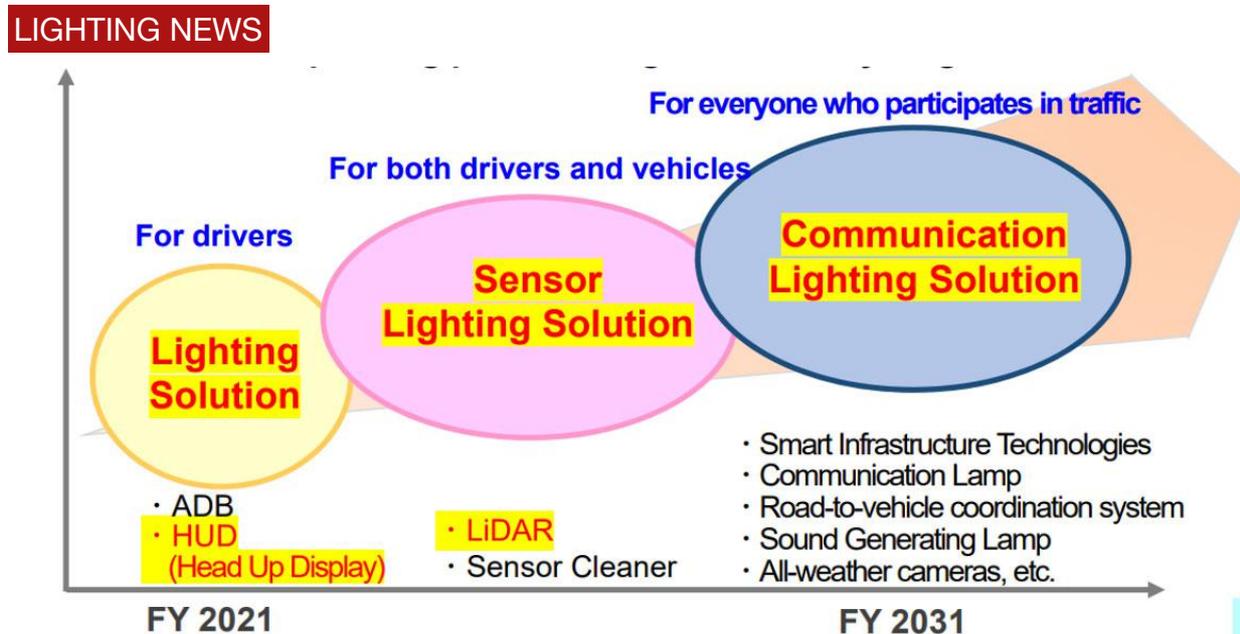
**J.M.:** I would say that a key strength is our thorough understanding of the lighting requirements of heavy-duty vehicles operated in different demanding conditions. This is something we gain by our close cooperation with numerous world-leading machine manufacturers. As a result, we deliver high-quality products that will endure the roughest conditions. We continuously explore upcoming technologies and develop new optical solutions and implement these into our products.



### **DVN: How do you improve lighting safety while also reducing CO<sub>2</sub> emissions?**

**J.M.:** We can achieve improvements on both these axes by creating optimal lighting solutions for the specific vehicle and work environment. In the optical design we make sure to focus the light on the correct area, thus avoiding [wasted] light and improving efficiency by using the power to illuminate only the area needed. By choosing the correct colour temperature and light output, and the optimal setup of lights for the machine, we improve both safety and efficiency. This means less power used and less time spent to get the job done, and lower CO<sub>2</sub> emissions of the machine.

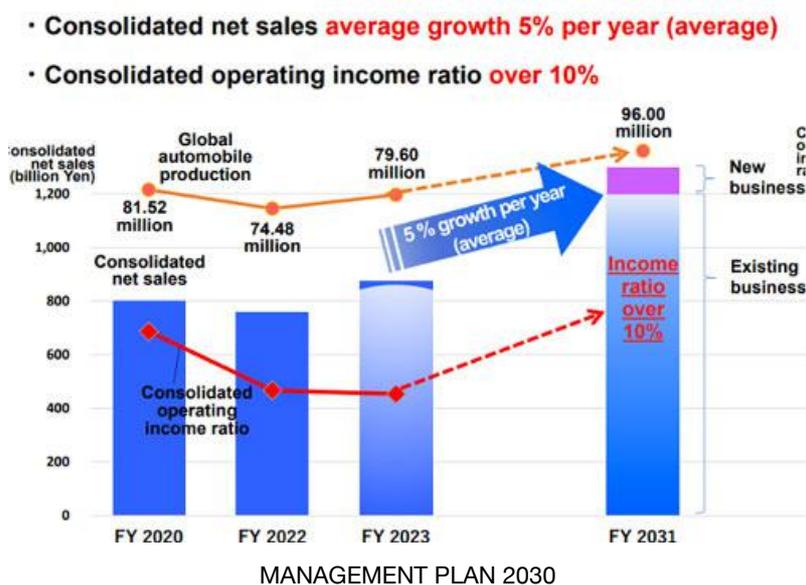
# Koito's Vision and Management Plan 2030



Koito have announced their new Management Plan 2030, with motto "Lighting the Way for Our Sustainable Future" to continuously contribute to safety and security for society.

The main strategies in their lighting equipment business include expanding their global share from 20 per cent in 2022 (considering 74.5 million vehicles) to 23 per cent in 2030 (96 million vehicles), and promotion of ADB to increase the global adoption rate from 5 per cent in 2022 to 20 per cent in 2031.

In their new-mobility activities, key strategies include realising new business by collaboration with venture enterprises (including potential mergers and acquisitions), and stepping up work to discover new mobility business themes.



# BYD Launch Premium Yangwang Brand

## LIGHTING NEWS



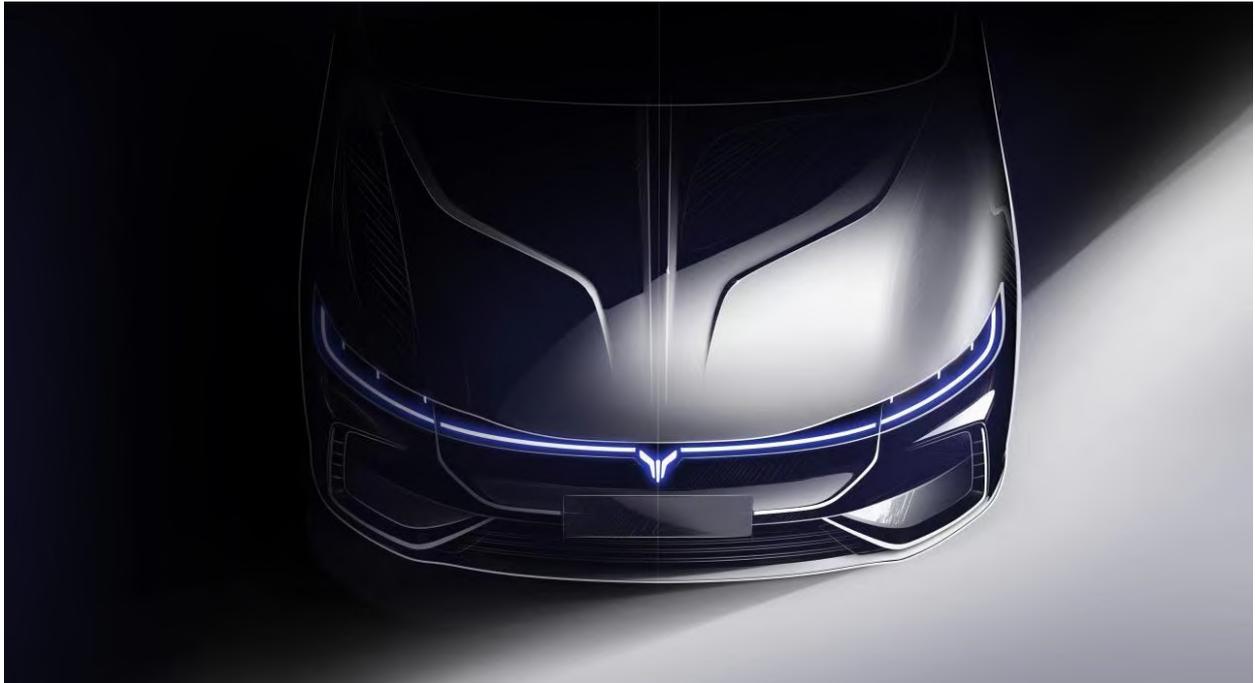
Chinese automaker BYD have officially announced their high-end car brand: it's Yangwang. Details are scanty just yet, but a few automotive-design patents give some clues to the possible appearance of the new brand's rumoured €100k-class off-road vehicle.

As the front-face patent drawing shows, the brand logo is a vertical rectangular design. There are a lot of LEDs, as it seems, and numerous discrete lighting elements. The fenders are equipped with cameras.

And in the rear-end patent drawing, we see lights positioned relatively low, with a hard-styled overall appearance. The final mass-production design can't be inferred yet, but these drawings show some directions BYD are apparently taking seriously enough to patent. Stay tuned!

# Voyah's First Sedan Has Light-Centric Exterior Design

## LIGHTING NEWS



New Chinese automaker Voyah say they will launch their first sedan this year, and the recently-revealed exterior rendering shows light as the core theme. The car is design-based on the i-Land concept car, a medium- large electric sedan.

The front end is a closed design, with the headlamps connected by plaques to form a full-width design. The rear end, too, has a full-width light bar.



*Voyah Automobile was founded in 2018, fully integrating Chinese state-owned Dongfeng's 53+ years of vehicle manufacturing technology and resources. Voyah are intent on becoming, in their words, "China's leader in high-end new energy passenger vehicles". Their first model was launched in June 2021—a "performance-level intelligent electric SUV" called the Free. Their second model, the Dreamer was launched this past May as an "electric luxury flagship MPV"; 1,000 units were delivered up to early August.*

# Uno Minda Lighting Strive to be Segment Leaders

## LIGHTING NEWS



For nearly six decades, Uno Minda have been supplying innovative products, designed and engineered for efficiency with an emphasis on enhanced comfort levels and fine-tuned response. The company have 62 manufacturing plants round the world, with over 21,000 employees.

The Minda lighting division, founded in 1980, is one of India's leading vehicle lighting manufacturers. They develop affordable new-tech products for two-, three-, and four-wheelers as well as off-road vehicles, growing at 25 per cent CAGR.

A Taiwanese design centre has given a boost to the company's expertise in optical and mechanical design, while capitalising on the strategic advantages offered by Taiwan. In 2012, the lighting division entered a technical licence agreement with AMS, a Korean market leader for lighting systems, who now provide technical support for Minda's design and development of headlamps; tail lamps; fog lamps, and new technologies such as LED light sources. In 2016, Minda Lighting acquired Spain-based Rinder Group; then, in 2021, Minda bolstered their technical capabilities by buying Delvis.

As part of their expansion plans, Minda will set up a new lighting manufacturing plant at Bhagapura, Gujarat, to serve increasing demand for four-wheel vehicle lighting. They also plan to tap potential export business in Europe and America.

Chairman and Managing Director N.K. Minda says the vehicle lighting industry is in "a gradual shift in technology into more LED-based lighting products. With strengthened technical capabilities in the next level of lighting technologies, [Minda] are well positioned to benefit from these technological shifts and to achieve leadership in the segment".

# Driver Assistance News

## Luminar Lidar Equips New Volvo Polestar Models

DRIVER ASSISTANCE NEWS



EXPLODED ILLUSTRATION OF LUMINAR LIDAR ON VOLVO EX90

Volvo Cars CEO Jim Rowan has announced that the upcoming electric Volvo EX90 will include Luminar's Iris lidar as standard equipment—Luminar's first global passenger-car launch.

The lidar integration is the result of a collaboration between the two companies that started in 2016. By 2020, they'd agreed to integrate Luminar's Iris into new Volvos, and the Iris-equipped EX90 was revealed earlier this month. Luminar's hardware and proprietary software-enabled lidar includes slim roofline-attached sensors that sense the road in front of a vehicle driver during night and day at highway speeds. They can see small objects hundreds of metres ahead, buying more time to inform, act and avoid. Luminar's lidar sensors will complement five radars; eight cameras, and sixteen ultrasonic sensors to provide excellent all-round vision and reliability of perception.

Together with the Volvo Cars announcement, Polestar officially revealed their Polestar 3 electric SUV, which will also include Luminar lidar as an option. It's included in the Pilot Pack, which will be available to order from the second quarter of 2023.

# RoboSense Launched E1 Flash Solid-State Lidar

## DRIVER ASSISTANCE NEWS



RoboSense officially launched RS-LiDAR-E1 (E1), a flash solid-state LiDAR based on its in-house, custom developed chips and flash technology platform. Besides, Robosense unveiled the smart manufacturing joint venture, Luxsense, jointly with Luxshare-ICT, a domestic leading electronics manufacturer.

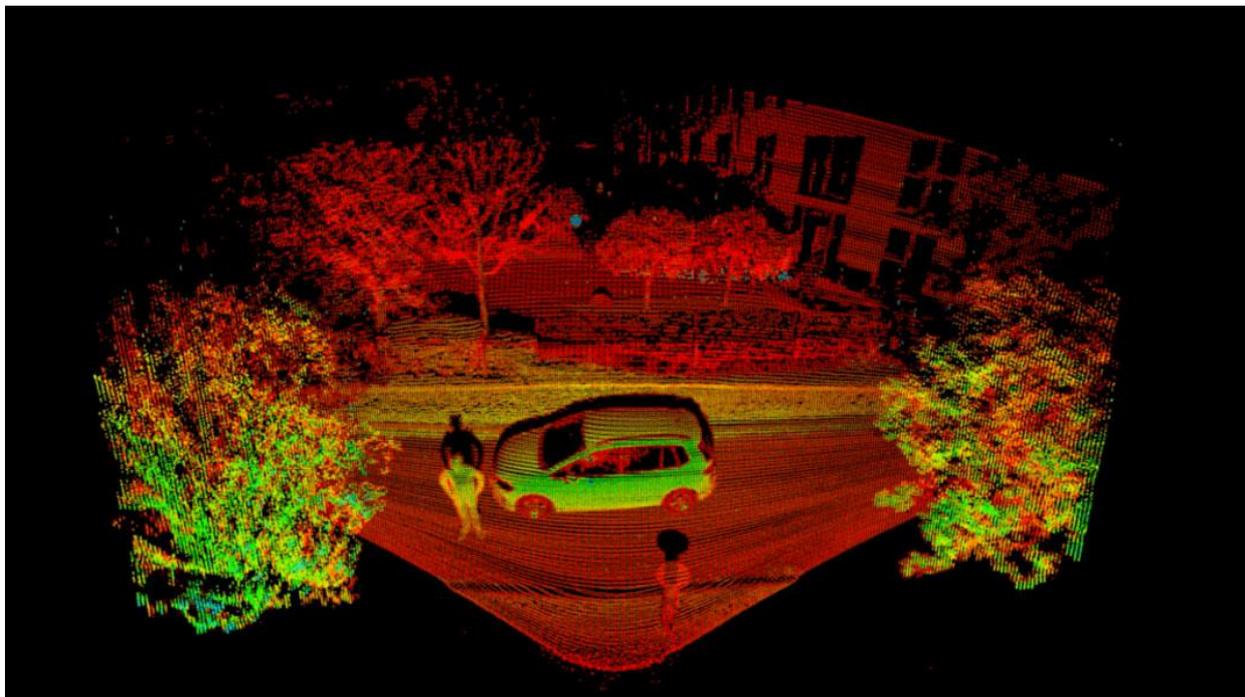
E1 is designed for large-scale series production with a simple bill of materials including no moving parts. Rososense states that E1 will assist partners to further bridge the gap in smart driving perception and improve the all-scenario perception capability of automated and autonomous vehicles.

### 4 core features of E1

- Horizontal FOV of 120°, which ensures 360° coverage area without blind zone using minimum sensors.
- Vertical FOV is designed to be 90°, to allow the perception area to cover both blind zones on the ground and lateral vision.
- Ultra-high frame rates of over 25Hz, capturing target objects' motion states and predicting their moves faster.
- Detection range of 30m @10%, which enables better perception planning control.

# Blickfeld's First Smart Lidar Sensor

DRIVER ASSISTANCE NEWS



HIGH-RESOLUTION POINT CLOUD RECORDED WITH THE Qb2

Munich-based Blickfeld are beginning deliveries of their new Qb2, which offers performance gains in field-of-view, detection range, resolution and accuracy compared to previous Cube 1.

The Qb2 is based on Blickfeld's proprietary solid-state software-defined lidar technology, and—as an industry first—enables the capture and processing of data on a single device. This removes the need for additional computers, and brings faster response times and better bandwidth availability via edge computing. The Qb2 also offers improved function and performance, with features like enhanced adaptable field of view; detection range; and scan pattern, along with higher resolution and accuracy and an IP67 rating.

Due to its anonymous data collection capabilities, lidar data can be used to gain valuable insights in public spaces like shopping centres, airports and train stations. The new Qb2 sensor provides real-time insights allowing companies to plan better and make data-driven decisions.



Blickfeld co-founder Dr. Florian Petit says, "Launching our world-first smart lidar device is a major milestone as the device will revolutionise the IoT sector and we are incredibly excited about the opportunities it will provide industries and end-customers alike".

# Velodyne, Ouster Agree Merger Deal

DRIVER ASSISTANCE NEWS



Velodyne and Ouster have come to terms on a 'merger of equals' agreement under which existing shareholders would own about 50 per cent of the combined company

Ouster CEO Angus Pacala is expected to hold that same position in the new company; Ouster reported revenues of USD \$11.2m at the end of the third quarter, an increase of 44 per cent year over year. "Together, we will aim to deliver the performance customers demand while achieving price points low enough to promote pass adoption," Pacala said in a statement. The deal is expected to close in the first half of 2023.

# Liangdao's Lateral Blind Compensation Lidar

DRIVER ASSISTANCE NEWS



Liangdao Intelligence have released the Chinese market's first pure solid-state lateral blind compensation lidar, the LDSatellite. They're saying the product is an automotive-grade lidar combining high performance and reliability; low cost, and long service life.

The LDSatellite's core component, a SPAD chip also made by Liangdao, has recently passed AEC-Q100 certification—requisite for automotive electronic components to assure their reliability and service life.

Liangdao say the lidar has a large  $120^{\circ} \times 75^{\circ}$  field of view and can perceive low targets such as speed bumps; road edges; pets; cones and barrels, and children around the vehicle...strangely-shaped parking spaces; roadblock railings; street signs, and other high objects, giving vehicles 360-degree near-field perception capabilities without blind spots, and greatly improving vehicle parking safety.

The LDSatellite is highly integral; slim, and lightweight, with an exposed window of only  $48 \times 88\text{mm}$ , the size of a credit card. It supports a variety of integrations; it can be flexibly embedded in the body; front bumper sides; left and right fenders; roof sides; rear bumper, and other positions.

# General News

## A New and Different Kind of Renault Five

GENERAL NEWS



RENAULT CEO LUCA DE MEO

Renault are reorganising into five units: electric cars; combustion- and hybrid-engine products; the Alpine sports-car brand; financial services; new mobility and recycling businesses. "We are creating independent businesses, focused on structurally more profitable activities, open to external investments, each of built around an indigenous set of technologies," CE Luca de Meo said. Renault set an 8-per-cent operating margin goal for 2025, which would increase to more than 10 per cent in 2030, from 5 per cent expected this year.

Their combustion-engine business will be housed in a 50-50 joint venture with Geely, separate from Renault's Ampere EV unit, which is to be listed on the stock market in the second half of next year. The move is expected to help Renault raise funds for EV development and technology and narrow the gap with bigger companies such as Stellantis.

### Main targets:

- Operating margin 8% in 2025, 10% in 2030
- Free cashflow above €2bn per year on average over 2023-2025
- Ampere EV business to break even in 2025, around 10% operating margin in 2030
- Alpine sports car brand to generate €2bn in revenue in 2026

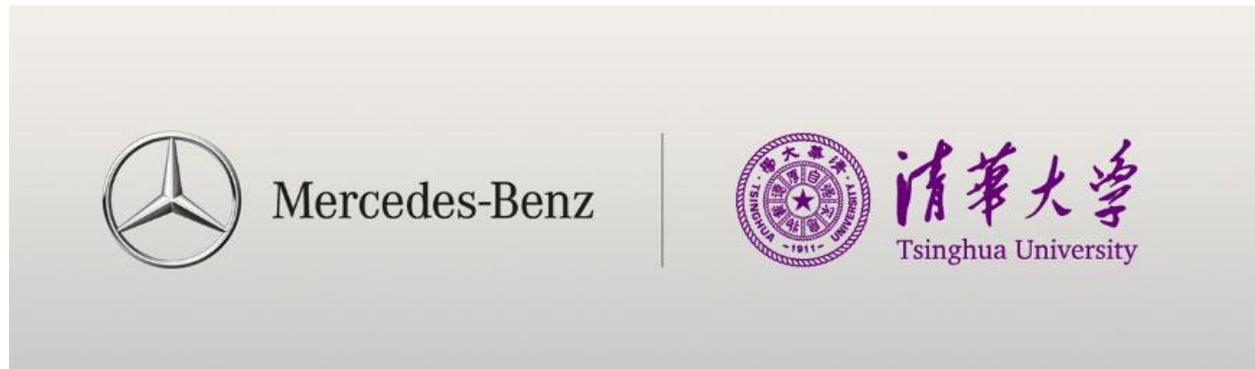
- Dacia will grow margins from 10% to 15% by 2030

The two most important steps relate to the automaker's EV named Ampere and combustion-car divisions named Power.

External investors—Qualcomm, for one—are being sought for Ampere, which Renault reportedly hope to value at about €10bn, though they plan to keep what they are calling a strong majority. They also are weighing an initial public offering on Euronext Paris in the second part of 2023, at the earliest.

# Mercedes Upgrade Tsinghua Cooperation

## GENERAL NEWS



Daimler Greater China Investment, a Mercedes-Benz subsidiary, have signed a five-year comprehensive agreement to cooperate with Tsinghua University in creating the Joint Research Institute for Sustainable Transport. The goal is to jointly expand both parties' research in advanced transport and vehicles; new energy for transport, and localisation.

Over the past ten years, Mercedes and Tsinghua have focused on autonomous and sustainable driving and transport; active and passive safety; vehicle batteries; standards and regulations, and other topics. They have jointly carried out scientific research and participated in a number of national research and development projects. They've published more than 30 papers; produced 17 professional reports, and developed six software systems.

Mercedes-Benz Group Directors' Board member Hubertus Troska, responsible for Greater China, says, "We are very pleased to see this partnership reach a new level and become another example of Sino-German close cooperation, which will continue to expand joint research in the field of sustainable mobility".

# HiPhi + Covestro = Low-Carbon Mobility

## GENERAL NEWS



At the China International Import Expo 2022, Chinese automaker Human Horizon and Covestro signed an agreement on 'low-carbon intelligent co-creation cooperation' to further expand their joint efforts. As a backdrop, HH had brought their latest HiPhi Z, an advanced coupe with futuristic fashion styling and digital interaction.

The Z is expected to adopt a lighter carbon fibre material. However, the traditional carbon fibre reinforced composite materials are not recyclable; once they are made into parts, they can't be recycled—only burned. And the chemical volatility of carbon fibre, when used as an interior material, makes difficulties meeting the HiPhi Z's stringent interior air quality targets.

Based on this demand, the two parties jointly established a research team, conducted more than 100 experiments together, and continuously adjusted from the formula and the process, and finally achieved mass production of the new material and applied it to the HiPhi Z as exhibited at the show.

# Tesla Model S/X Plaid Launched in China

## GENERAL NEWS



At the China International Import Expo, Tesla presented all their models—the Y, the X, the S, and the 3—in the Chinese market for the first time, and released their Model S Plaid and Model X Plaid.

Tesla claim the Model S Plaid has attracted much attention, saying people are eagerly to see a C¥1m EV with the acceleration performance of a C¥10m-level sports car. The Model S Plaid has a three-motor all-wheel drive system that continuously delivers more than 1,000 horsepower, and a drag coefficient of only 0.208, resulting in what Tesla call the world's fastest-accelerating production car.



The Model S Plaid has the [widely-despised steering yoke](#) rather than a steering wheel, demonstrating the applied power of CEO Elon Musk's dictated whim ("round steering wheels are boring"), and a processor with a floating point calculation capability of up to 10 trillion times per second.

Tesla also showed off their manufacturing technology, such as integrated die-casting technology. The die casting machine at Tesla's Shanghai factory is the current world record holder—weighing 6,000 tons, it can realise the Model Y rear bottom plate as a whole rapidly die-cast moulding, replacing over 70 parts with just one.