DrivingVisionNews.com
Automotive lighting and driver assistance technologies

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Editorial

DVN + GTB = Success For Everyone

As part of our ongoing efforts to aid GTB in their mission, we're in the middle of a series of three iterviews with three GTB managers. Following on from our **interview** with GTB Secretary General Davide Puglisi, this week we talk with GTB Vice President Bart Telburg.

It's crucial that decisionmakers, engineers, and designers at automakers and suppliers; as well as researchers and regulators, keep their eyes—and hands, as applicable!—on GTB's work.

Lighting innovations can only be commercialised once regulations allow them, and so for over a decade now (and counting!), DVN and GTB have enjoyed a reciprocally beneficial working relationship centred around communication and facilitating the development and realisation of ideas by bringing together experts from all over the world. In this manner, DVN supports GTB's role as a great engine in the regulatory process.

For immediate example, we've scheduled two hours' time at the Shanghai DVN Workshop on 19-20 April for worldwide regulators to meet and talk over ideas to bring better, faster agreements—watch this space for more information soon on this what's shaping up to be another outstandingly high-value DVN Workshop.

Sincerely yours

In Depth Lighting Technology

GTB Depends on the Support of Members: VP Bart Terburg

Bart Terburgis Vice President of GTB, Chair of the GTB Light Sources Working Group, and Osram's Automotive Regulations Manager. He started his career in vehicle lighting in the fall of 1999 at GE Lighting in Cleveland, Ohio, and became active in standardisation and regulations work. He's also a car enthusiast, and so two decades on he's still enjoying his work tremendously. In 2008 he joined Osram as Automotive Regulations Manager. He lives in Cleveland, Ohio, with his wife and 11-year-old son.

DVN: What was your mission during the GTB Presidency of Geoff Draper?

Bart Terburg: In my role of GTB Vice President, my mission during the Draper Presidency was multifaceted. As a member of the GTB Administrative Committee (GTB AC), together with Geoff Draper and Davide Puglisi, I was involved in the day-to-day management of GTB as well as in the preparation of documents and proposals to the General Assembly on a broad range of topics including the constitutionalisation, organisation, and improved operation of GTB. The constitutionalisation took place in 2011 and was a critical step towards GTB being granted special consultative status with ECOSOC, the United Nations Economic and Social Council, which was realised in 2014.

Further, I supported the implementation of initiatives and focus areas for GTB. In recent years this work included the moderation of multiple forums and brainstorm sessions, such as the joint GTB-DVN Forum in Turin (2019) and GTB Glare and Visibility Forum at the invitation of GRE in Geneva (2018). I have also organized and hosted intermediate GTB working group meetings during the months of February, March, and July.

In parallel with my role in the GTB AC I also serve as an officer of the GTB Working Group Light Sources, starting in 2001 as secretary and since 2016 as Chair.

DVN: You worked for over a decade with Geoff Draper and Davide Puglisi. Looking back on that, what sticks with you?

BT: Following Geoff Draper's election to GTB President, he and Davide and I initially formed the GTB leadership team, which formally became the GTB Administrative Committee (GTB AC) after the legal establishment of GTB. From the onset we have been working together very closely and it was evident to me that we jointly share a strong commitment to operate GTB in an open and transparent manner. We also share a common view of how to manage GTB, ensuring that GTB processes were not disregarded, treating all delegations fairly and equitably, and safeguarding GTB's reputation.

On an individual basis we have a very good understanding of each other and while we each bring our own views to the table, we can anticipate each other's viewpoints on topics. This means in cases where Geoff and/or Davide had to make decisions on behalf of GTB at a time when I was not available to join in due to our different geographical locations, I could always endorse their decisions and communications after the fact. A strong mutual respect, trust and integrity has made this possible.

Over the years Geoff has been a trustworthy mentor, encouraging me to grow as a leader in the organisation, by way of him delegating activities and placing trust in the execution thereof, thus creating a shared responsibility for the management of GTB.

Davide and I have collaborated since 2005 and we have forged a strong connection. He is a time-tested trusted partner whose skilful, thorough analysis, levelheaded advice, and authority in GTB operational matters have consistently provided me with guidance in the decisionmaking on complex topics. I greatly value his creativity and pragmatism in managing the GTB Secretariat and his availability to connect for a consultation, regardless of where in the world we each are located.

Looking back, I truly treasure our coöperation. I enjoy open and honest relationships with both Geoff and Davide that have developed into personal friendships over the years.

DVN: In addition to your GTB responsibilities, you have also been very active in SAE. Will you compare and contrast the two for us?

BT: Within a month after starting my career in vehicle lighting I became involved in GTB and the SAE and I have been actively involved since that time. In my roles as both contributor and leader in the GTB and SAE organisations I have learned that by actively listening to the viewpoints of others in a structured way you will gain the respect of your peers in the industry and you can motivate a group of volunteer industry experts towards achieving a shared goal. The key to success is approaching the groups with an open-minded attitude towards globally diverse cultures, both in terms of geography and workplace culture.

While GTB and SAE are both international organisations focused on formulating technical requirements for lighting, the main differences are in how the groups are organised and the intended audience of the content that they create.

The SAE Lighting Systems Group (LSG) is part of a standards development organisation with a mission to develop volunteer consensus standards, following a structured process as defined in a governance policy. Members of the SAE technical committees and task forces acts as individuals. The complete review process of an SAE technical report, standard, or recommended practice takes place within the technical community, with the reviewers acting as individuals. While the SAE LSG is engaged in an active dialogue with governmental bodies in North America and at GRE, in recent years the lighting standards are predominantly adopted by industry.

GTB is an association of associations. GTB's primary mission is to promote safety, reduce regulatory barriers and minimise administrative burden to innovation and international

trade. The main tool GTB has to achieve this mission is the preparation of proposals for new and amended regulations and standards, primarily in the UN system. Content creation is done by participants in GTB working groups who act as individual experts; however, the decisionmaking in the committee of experts is done by the delegations that represent the member associations.

Thus, in both groups the debates are centred on the technical merit of proposals. Due to the differences in make-up of the decisionmaking bodies, the dynamics of the debate and the procedural aspects of arriving at the result are different.

A decades-long coöperation between the GTB and SAE groups exists, where they jointly pursue opportunities for harmonization of requirements.

I have been honoured through my roles in both organizations to contribute to the drafting of national and international vehicle lighting regulations and standards, promoting international coöperation and harmonisation of lighting requirements.

DVN: Valter Genone is the new GTB President. How will your mission change in his presidency?

VALTER GENONE, NEW GTB PRESIDENT

BT: Under the new GTB President my principle mission will not change. I will continue to fulfil my statutory obligations as Vice President, which include serving on the GTB Administrative Committee for the continued management of the association, and when needed, exercise the essential functions of the President or Secretary-General in case of their absence.

As President Genone takes office, initially my focus will be on providing, together with Secretary-General Davide Puglisi, an environment for the transition of the presidency where the incoming President can commence his role while the continuity in the day-to-day management of GTB is ensured.

In due time, when Valter Genone is articulating and introducing his interests, initiatives and/or focus areas for GTB, I am prepared to take on additional responsibilities and

support him in the implementation thereof.

Valter Genone and I have coöperated in GTB for over two decades and I am looking forward to continuing our working relationship as he commences the GTB Presidency.

DVN: You regularly participate in DVN Workshops, so you've been able to keep track of the relationship between GTB and DVN. What is your feedback?

REGULATION SESSION - 2019 DVN SHANGHAI WORKSHOP

BT: I have had the opportunity to contribute to all U.S.-based DVN Workshops, as well as to a couple of DVN events in Europe. In these events I have witnessed, as well as experienced through my own participation in regulatory panels organised by Geoff Draper, firsthand, how DVN Workshops deliver a one-of-a-kind platform with an excellent set of boundary conditions for representatives from GTB to engage in an open exchange with industry leaders from the DVN community and invited government regulators on topics related to technology and regulations. All parties benefit greatly from this level of interactivity.
A unique example of the interactivity between GTB and DVN is the brainstorm session that was held in conjunction with the joint GTB-DVN Forum in Turin (2019) where industry leaders and GTB had the opportunity to engage with each other. This brainstorm session has given GTB access to input from DVN participants, a source of information that is not available elsewhere, and conversely the DVN community had an opportunity to interact with prominent experts in lighting regulation. The feedback collected in this forum has been essential to complement internal GTB discussions to shape our GTB 10-year vision.

DVN: What is the message you would like to transmit to the lighting community?

SESSION OF GTB IN LISBON, PORTUGAL, NOVEMBER 2018

BT: My message to the lighting community is a heartfelt *thank you* for supporting GTB.In recent years an important factor contributing to the success of GTB's work is the research funding received from automakers, setmakers, and component manufacturers active in GTB. This research funding, managed by the GTB Working Group Strategy, enables GTB to conduct studies on safety benefits of new lighting functionalities to support our regulatory development, carried out by independent universities and institutes.
With many new lighting technologies on the agenda of global standards and regulatory bodies, and as the requirements to specify them are becoming more complex, it is of great importance to have industry proposals supported by academic rationale of the safety benefits, when they are being presented to regulators for their consideration. The research funding is an important factor of support for GTB, however, as with any organisation, it is the people involved that drive the success.

GTB depends on the support of its members and the delegates from industry, academia, and regulatory agencies who join and contribute to GTB's work. We owe our success to the ability to tap into the knowledge of the world's preeminent experts in lighting regulation, a pool of talented, knowledgeable individuals.
Through extensive debate as well as careful and critical examination in a broad platform we are successful in developing suitable solutions for technical requirements for incorporation into new regulations. The human resources and participatory investment made on behalf of those convening in GTB is proof of the importance that the lighting community places on our activities. It is an investment in the regulatory realisation of new lighting technologies.
It is this human resource investment that I believe deserves a special mention. Therefore, on behalf of GTB, I want to express my thanks to the individuals involved in GTB and to the organisations that support them. Thank you for your support by having your subject matter experts be a part of GTB! For just one example, I am grateful to my employer, Osram, for their continued support of my official roles in GTB.

Lighting News

Mitsubishi, Stanley Form Lighting Development Alliance

LIGHTING NEWS

Stanley Electric and Mitsubishi Electric are forming a business alliance for automotive lamp system development, design, manufacturing, and sales, on a backdrop of rising market demand for increasingly intelligent vehicle lighting systems to support ADAS and AD.

Both companies will bring their special expertise to the alliance—Mitsubishi's advanced control management and Stanley's automotive optical design and manufacturing, for example—to develop, produce, and commercialise ever-better lighting systems. Stanley will be in charge of light sources, optical modules and lamp sets, while Mitsubishi will handle lighting control management. Mitsubishi's compact, highly efficient **direct-projection optical system** will be developed jointly toward serial production for automotive applications. The two companies, working together, will expand their automotive business while contributing to a safer, more comfortable society in the drive toward zero traffic fatalities.

Udo Hornfeck is New ZKW CTO

LIGHTING NEWS

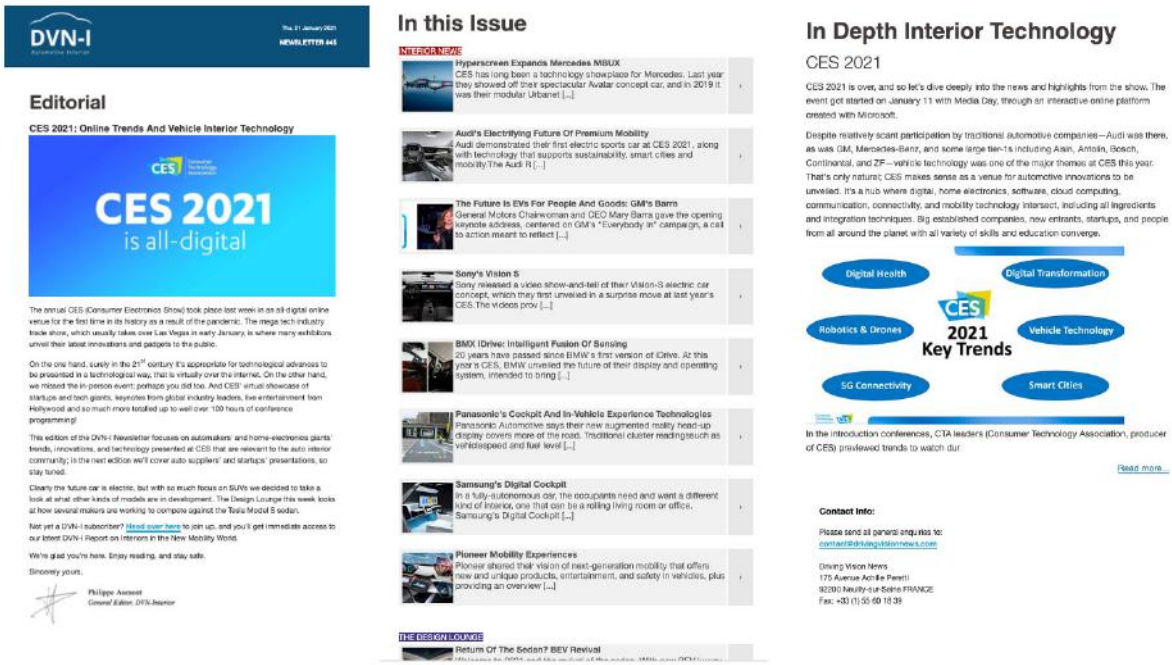
ZKW CTO Jürgen Antonitsch will resign from his position at the end of this month, returning to self-employment. Udo Hornfeck will take up the CTO position from 1 March.

CEO Dipl.-Ing Oliver Schubert praised Antonitsch's work: "We would like to express our sincere thanks to Jürgen Antonitsch, who returned to the CTO position during a challenging time and has significantly supported ZKW with his broad experience".

Hornfeck has many years of international experience in the automotive and engineering sector. Most recently he was CTO and Executive Boardmember for the Wiring Systems Devision of Leoni; prior to that he served as Technology and Innovation Director at Dräxlmaier Group.

Now: DVN-Interior Newsletter Goes Weekly

LIGHTING NEWS



Within today's ACES trends—autonomous, connected, electric, and shared vehicles—mobility use cases are changing dramatically. The re-imagination of cars as living spaces is gaining traction as vehicle autonomy steadily grows, while aerodynamic and crash-safety priorities have done away with yesterday's exterior flying buttresses and other suchlike. Therefore, car interiors are becoming the real product differentiator, allowing drivers and occupants to do a much broader range of activities: relaxing, working, phoning, reading, watching movies…the car becomes a mobile lounge. All these new usage possibilities mean car interiors are one of the fastest-evolving pieces of the vehicle in terms of new technologies, configurations, designs, user interface strategies, and features.

That's the scope of DVN Interior, launched two years ago on the successful DVN model. DVN-I is a community of car interior experts, communicating through a newsletter, reports and workshops, aiming at compiling and analysing information that would otherwise be scattered and difficult to access, so community members can access, absorb, and leverage it quickly and efficiently. Up to now, the DVN-I Newsletter has been published twice a month. But rapidly increasing demand, support, and favourable feedback means effective right now, the **DVN Interior Newsletter becomes weekly!** That's double the content, half the refresh time—double the value for DVN-I subscribers.

DVN-I's global network of subject matter and business development experts work tirelessly to follow DVN Interior members' innovations and expand the DVN Interior member base—the first Chinese automaker has just joined—and to pick up and amplify interior technology and business information from all around the world.

The change to a weekly DVN-I Newsletter couldn't come at a better time; just like the developments in interior air quality, interior hygiene, sanitisation strategies for shared vehicles, and so many other hot topics in the vehicle interior world, the services DVN-I provides are centrally crucial in today's travel-constrained pandemic conditions. **Join DVN-I today!**

'20 Chinese Car Sales Down

LIGHTING NEWS

For whole-year 2020, auto sales in China totalled around 25 million units, a two per cent drop from 2019. That's according to figures from the China Association of Automobile Manufacturers (CAAM).

Car maker	**Sales 2020**	**Change 2020/2019**
SAIC Motor	5.60	-10%
Dongfeng Motor Group	2.87	-2%
GAC Group	2.04	-1%
Changan Auto	2.00	+14%
Geely Auto	1.32	-3%
Great Wall Motors	1.11	+ 5%
JAC Motors	0.45	8%
BYD	0.43	- 7%

As of December 2020, China's auto market was gaining year-on-year sales growth for nine consecutive months. Affected by the impact of coronavirus outbreak in the first quarter, five major publicly-traded Chinese automobile groups suffered decrease in annual sales. SAIC were still № 1, and were also the only maker hit by a double-digit decline; three other groups—Changan, Great Wall, and JAC—saw sales *gains* despite stiff headwinds from the pandemic.

Driver Assistance News

Cepton's Small, Affordable Car Lidar

DRIVER ASSISTANCE NEWS

At CES last month, Cepton Technologies introduced their Nova miniature near-field lidar sensor for cars. Cepton CEO Dr. Jun Pei says automakers predict half the cars they make will be equipped with lidar by 2030—maybe not for autonomous driving, but at least for advanced driver assistance.

The Nova, which Cepton say costs around $100, provides 3D imaging with a field of view of 90° to 120° horizonal and 60° to 90° vertical. It offers angular resolution down to 0.3° with a maximum range of 30 metres. It can detect objects in relevant proximity to the equipped vehicle—small children, objects on the road, the edges of the road itself, and more. The Nova is in development for volume production starting in 2023, and samples will be available later this year through Cepton's early access program.

Xaos AI MEMS Lidar Set for Production

DRIVER ASSISTANCE NEWS

Xaos Motors say their AI MEMS lidar system is ready for production and they plan to begin shopping the device around to global automakers.

The XCAT Pro lidar can change scan angle, resolution, and optical scan distance without modifying hardware. The scanning algorithm is powered by AI to scan and trace relevant objects detected while scanning the whole range.

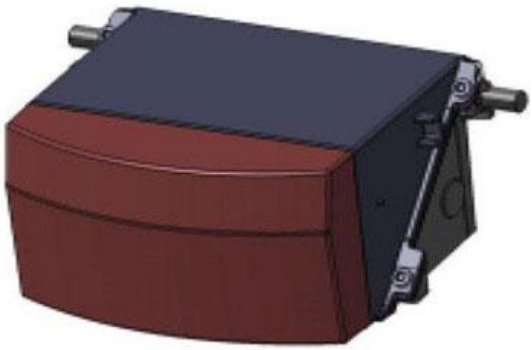
Xaos say the XCAT lidar and their 3D vision software support companies developing ADAS and AD systems. The company also are developing flash lidar and a domain control unit (DCU) for integration into the control technology for self-driving sensors, and have filed a patent in Korea for an "LED headlamp-linked automotive lidar system".

Hyundai Look to Pick Valeo's Lidar

DRIVER ASSISTANCE NEWS

Hyundai Motor Group are reportedly planning to use lidar sensors from Valeo, rather than Velodyne, for their first L^3 autonomous vehicle—the Genesis G90 to be released next year.

According to multiple officials from the industry, Hyundai Motor Group are currently testing attachment of Valeo's 16-channel lidar sensors onto the radiator grille, and that mass production issues have made it unlikely Velodyne's sensors will be chosen this time. Industry analysts see strong chances Hyundai will get lidar sensors from Velodyne in the future—one predictor being a healthy partnership between Hyundai Mobis and Velodyne—and there is a feeling that automakers will want multiple lidar sensor suppliers to stabilise price and supply.



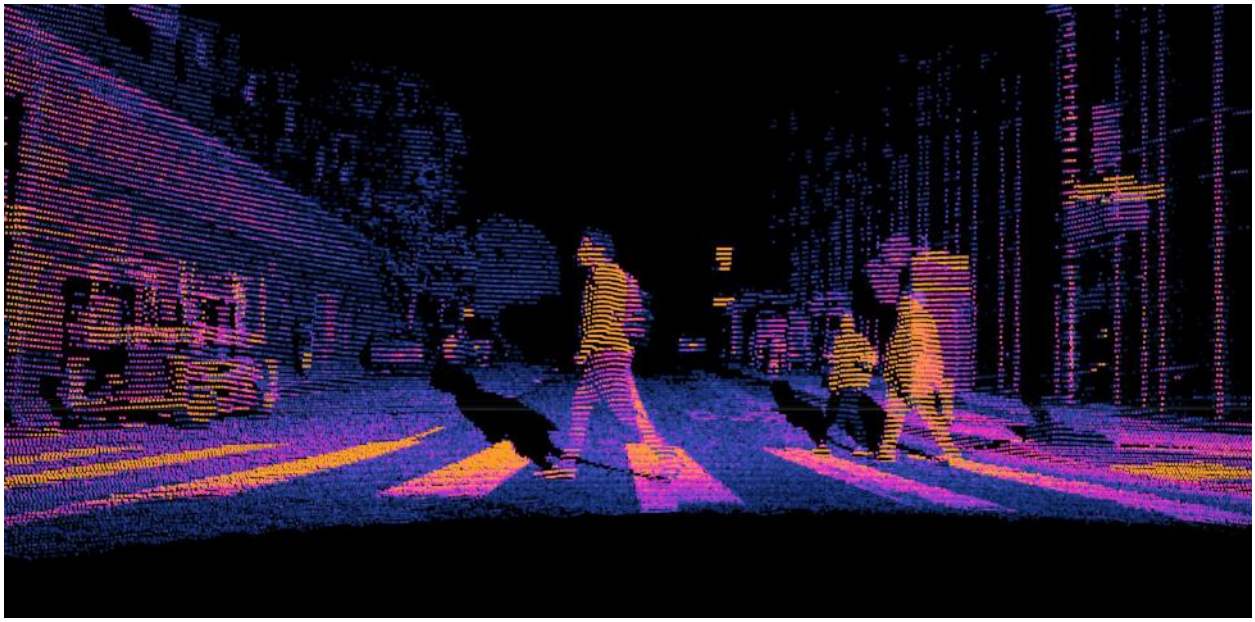
So far, Valeo are the only company to successfully mass-produce automotive lidar sensors; they supply their first-generation Scala lidar—with four channels and a range of about 150 metres—for Audi's A8 sedan.

The lidar sensors being tested at Hyundai Kia's Namyang Technological Research Centre are a second-generation version of the Scala sensor. Its horizontal view angle is 133°, down from the gen-1 Scala's 145°, but the gen-2 version still has improved detection as the number of channels has increased from four to 16, so its vertical viewing angle has also increased from just 3.2° to a full 10°. Its range has also doubled to 300 metres under ideal conditions (a car or a pedestrian with a retroreflective vest). Under more difficult conditions—no retroreflective vest—pedestrians can be detected out to 135 m.

Hyundai say they plan to put L^3 autonomous driving technology in the 2022 G90, and that they're working on software to recognises and understands objects detected by lidar sensors bought from outside suppliers.

Lidar Sensor Makers Build on Nvidia Platform

DRIVER ASSISTANCE NEWS



Nvidia have long recognised lidar as a crucial component to an autonomous vehicle's perception stack. Most recently, lidar makers Baraja, Hesai, Innoviz, Magna, and Ouster (whose sensor generated the street-level view shown here) have developed their offerings to run on the Nvidia DRIVE platform to deliver robust performance and flexibility for customers.

Ouster's OS series of sensors, for example offers high resolution and programmable fields of view to address autonomous driving use cases. It also provides a cameralike image with its digital lidar system-on-a-chip for greater perception capabilities. And Hesai's latest Pandar128 sensor offers a 360° horizontal field of view with a detection range from 0.3 to 200 m. In the vertical field of view, it uses denser beams to allow for high resolution in a focused region of interest. The low minimum range reduces the blind spot area close to and in front of the lidar sensor.

With the addition of these companies, the Nvidia DRIVE ecosystem addresses every autonomous vehicle development need with verified hardware. Typically, AV developers experiment with different variations of a sensor suite, modifying the number, type and placement of sensors. These configurations are necessary to continuously improve a vehicle's capabilities and test new features. An open, flexible compute platform can facilitate these iterations for effective autonomous vehicle development. More than 60 sensor makers, including Sony (cameras), Continental (radar), and Flir (thermals) are choosing to develop their products with the Nvidia DRIVE AGX platform.

Along with the platform, Nvidia provide the infrastructure to experience chosen sensor configurations with DRIVE Sim, an open simulation platform with plugins for third-party sensor models.

General News

Geely Group Sales Top Two Million

GENERAL NEWS

Zhejiang Geely Holding Group ("Geely Holding") say aggregate sales across their three automotive subsidiary units exceeded 2.1 million units in 2020. The three units are Geely Auto Group (Geely Auto, LYNK, Geometry, Proton, Lotus); Volvo Car Group (Volvo, Polestar), and Geely New Energy Commercial Vehicle Group (Farizon Auto, London Electric Vehicle Company).

Geely Auto reported 2020 sales of 1.32 million units. The Geely Auto brand increased its market share and retained its position as the best-selling Chinese brand for the fourth consecutive year. The premium Lynk & Co brand set new monthly sales records in the second half of the year and officially entered the European market with their first Lynk & Co Club. Proton Cars performed exceptionally, growing nine per cent year-on-year and raising its market share. Meanwhile, Lotus Cars continued to make significant investments in facilities at the company's UK headquarters and sales rose four per cent in 2020 across global retail sales.

Volvo Car recovered from a challenging first half of the year with their strongest second-half sales performance in the company's history. For the full year, Volvo saw a unit sales decline of six per cent to 660,000 vehicles, and gained market share. Polestar began global delivery of the Polestar 2, pure electric coupé crossover in the second half of 2020 with thousands of deliveries across Europe and China.

Geely New Energy Commercial Vehicle Group, established in 2016 as a strategic addition to Geely Holding's portfolio, have quickly expanded their product range through their Farizon Auto and London Electric Vehicle Company (LEVC) brands. The commercial vehicle unit continued to expand globally by forming strategic partnerships and opening new markets for their eco-responsible commercial vehicles.

A New Design Chief for Ford

GENERAL NEWS

Moray Callum will retire at the end of this April, after two decades as Ford's Vice President of Design. He'll be replaced by Anthony Lo, who most recently served as Renault's VP of Exterior Design. Lo will join Ford on 1 April for a month-long transition period before Callum departs.

Since joining Ford in 1995 through their Mazda affiliate in Japan, Callum led the design of Ford vehicles including the 1999 Super Duty pickup truck, 2011 Explorer SUV, 2015 Mustang, and 2016 GT. He was also in charge of recent vehicles such as the Mustang Mach-E, Bronco, and F-150. Callum worked for Mazda from 1995 until 2001. He returned to Ford in 2006 and became Vice President of Design in 2014.

Anthony Lo, who worked for Renault in Paris the past 10 years, helped implement the company's "cycle of life" design strategy that resulted in a number of concept cars and later influenced the brand's global lineup of cars and SUVs. He also worked for Mercedes-Benz in Japan, Audi in Germany, and General Motors in Europe, overseeing Saab, Opel, and Vauxhall designs.

Toyota Topple VW to Take Sales Lead in '20

GENERAL NEWS

Toyota overtook the Volkswagen Group to become the world's top-selling automaker in 2020, for the first time in five years, as the slump in demand caused by the coronavirus pandemic hit VW harder.

Toyota's 2020 group sales, including Lexus, Daihatsu, and Hino, fell 11 per cent to 9.53 million units, while the VW Group's global deliveries declined by 15 per cent to 9.31 million, including the VW, Audi, Porsche, Škoda, SEAT, Scania, and MAN brands. The extent of the automakers' sales losses was largely determined by their level of exposure to the regions most disrupted by the virus.

Global production in 2020 was down 12.6 per cent year-on-year, but production in China was up 9.5 per cent. In December, global production was up 14.4 per cent year-on-year, the fourth consecutive monthly increase. The increases have been driven primarily by production in North America, Japan, China, and Europe.

Prior to 2020, VW outsold Toyota in every year since 2015. But the two companies' results last year may be indicative of a longer-term trend, according to analysts. While VW are expected to temporarily surpass Toyota again in 2021, Toyota are projected to pull ahead each year through 2025, according to IHS Markit.