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Editorial

Paul-Henri Matha On DVN Award

At the recent DVN Paris Workshop, Paul-Henri Matha (shown here with Hector Fratty) won the second decennial DVN Personality of the Decade award, succeeding Wolfgang Huhn. Here in the editorial page of this week's DVN Newsletter, he gives a lovely encore presentation of his thoughts:

“First, I want to thank the complete DVN team for the organization of the workshop in Paris last month. It was really a pleasure to participate again physically in a DVN Workshop.

During this event, DVN organized an award ceremony.

I was so proud when DVN team called me to the stage for the Personality of the Decade award. After Wolfgang Huhn 10 years ago, it is now me on the floor. Strange feeling!

This is what is so good about these workshops. R&D teams can join with colleagues from electronics; software; design, procurement...it is not only a workshop for engineers, but for the whole lighting community. These workshops make lighting understanding always better and communication easier in a big company like a car maker.

After this workshop, I showed the award to my family and the Volvo team, and I tried to summarize a bit what I have done during these last 10 years. So many things; time really flies! “

Paul-Henri Matha

Exterior Lighting Technical Leader, Volvo Cars

In Depth Lighting Technology

Matha's Decade of Achievements



I am not a general manager; I am an expert, a technical leader. The role in a car maker is quite important and I could summarize my journey like this:

- Innovation lead with participation in congresses to scout the market: DVN, surely, and also ISAL; VISION; IFAL, AutoSens, ALE ...
- Definition of the lighting technical roadmap with all stakeholders (safety; design; marketing, procurement...)
- Pre-development team support
- Core activity support
- Legal expert with participation in organizations like GTB and SAE
- Exterior design team support
- Exterior R&D team support: training; helping, knowledge transfer.

Volvo Cars is a company heavily promoting technical expertise, and this is great. All companies—automakers; tier-1s, and tier-2s—should develop their expertise as a key to success. When you are a technical expert, the results you get are not your own alone, but the results of the complete team: software and hardware R&D; design; procurement, and others. You are just the part of the iceberg that competitors can see in conferences.



SCENIC II

I think everybody who reads the DVNewsletter will recognize themselves in these examples and have similar stories to tell. It's sometimes good to look in the mirror and see how the world has changed.

My first lighting projects: facelift on the Renault Megane and Scenic 2 in 2006. We put the first LED rearlamp on the Scenic; I still remember strong discussion with Ludger Rembeck from Hella, who is still there!

We did a headlamp with Valeo Martos—Jean Paul Drouet was the project director and Mari-Carmen Marquez the project leader—with 3 sets of tools for halogen and Xenon. I met Hector for the first time during a project review in Martos in 2004 if I am correct. He was still Valeo lighting R&D chief at that time.



With Sens and Angers I developed Renault's first microoptic rear lamp on the Scenic 3; a similar concept was launched in parallel on the Volvo XC-60—perhaps a hint at my future career at Volvo! We developed Xenon MBL technology for this Scenic, just after the first one done on Renault Espace with Valeo Angers.



After six years as project leader, I took the role of pre-development and core team leader in 2009. We pre-developed, with the team, the first full-LED lamp for the Renault Espace and Kadjar with Valeo Angers and Hella Lippstadt/Slovenia, launched in 2015. One of the main side activities was the update of the technical specifications for LED lamps, especially with our electrical and lab test experts, and with support from Francois Bedu.



Before leaving my position in 2012, we developed the specification for a common LED headlamp driver for all Renault vehicles, still in use if I am correct, not only for Renault but also for Nissan, etc.

In 2012, I took the position of general manager for exterior lighting, seats and safety system in Romania. My team of 100 engineers focused on developing technology for Renault; Dacia; Nissan, and Lada vehicles for Europe; South America; South Africa; India; Russia; Morocco; Algeria, and Iran. The main priority was to develop nice-looking lamps with minimum budget. We introduced, for example, an LED daytime running light on the Lada X-Ray model.



In 2015 I came back to France and took the position of Renault lighting expert.
My main activities were:

- Pre-development of low-cost full-LED lamps, presented at VISION 2018, for Renault Clio with a Renault-designed light source unit shared on more than 10 vehicles;
- Pre-development of Renault's first matrix headlamp for the Espace and Talisman;
- Involvement in legal requirements. I joined GTB in 2016; OICA in 2018, and SAE in 2019. I participated on the GTB Installation working group where UN R48 is handled, with support from secretary Mark Grainger and now Sebastian Fahr, and with participation of a lot of experts—there are about 60 active members. We have prepared some regulatory evolutions that have been published in the last years; road projection is perhaps the most famous one.



In 2018 I joined Volvo Cars in Gothenburg, Sweden. You can see first results with:

- Pixel lamps on the XC-40;
- HD DLP lamps on the Polestar 3 and Volvo EX-90. We presented the EX-90 during the DVN Workshop in Paris;
- Animated rear lamps on the Polestar 2 and Volvo C40, V90, and others.

In the team, we are developing premium and advanced lighting technology, focused on design and safety, with a very high level of complexity, for all markets (US, Europe, China), that is really a challenge. Volvo car suppliers and experts that are reading the newsletter can understand and confirm!



During this decade, I participated in all VISION and ISAL congresses, and joined the steering committees for both events. I gave more than 20 lectures at those two congress series alone, but also DVN; IFAL; ALE, and others in Europe; America, and Asia. Main focus lately is on reducing power consumption and increasing sustainability, in line with our Volvo Cars policy to be carbon neutral by 2040.

In these 20 years, so many things have changed; It is a totally new world. In 2005, we estimated it took around 4,000 hours to develop a lamp. We are now not far from 100,000 hours for complex lamps.

Lamp part price was around €5 on a Renault Twingo 20 years ago if I am correct. Value has been multiplied by a value between 4 to 40 now. To follow this trend, our tier-1 suppliers have grown in turnover and personnel count. Some newcomers have joined the industry, attracted by double-digit growth. This is where we are now, and the market will continue to grow for sure.

My last message to close my paper: it is crucial for all exterior lighting stakeholders to participate in regulatory development and rulemaking. Car makers; tier-1 and -2 suppliers, test houses...GTB is a great opportunity for example to amend regulations used throughout the world (unfortunately this opportunity does not apply to the USA). I really encourage all stakeholders to participate. It is a hard job, but it is needed!

Lighting News

Audi to Go Interior-Forward

LIGHTING NEWS



Audi design boss Marc Lichte says his company's future models will prioritise interior design above all. At a preview of the Audi Activesphere concept, Lichte said "In the past, the process was always the same; in the beginning there was the combustion engine and platform. Then together with sales and marketing, we decided two-seater, or four-seater or six- or seven-seater, then we start designing the exterior design and, in the end, interior.

"The future is exactly the opposite. And that's why I put UI/UX design department in the centre of our design activities. It starts there and it ends there, because they focus their thoughts about the use cases.

"So, it's a 180-degree turn. If you want to be ahead in this transformation, this is the future".

Did Odedra, Audi's head of UI/UX design, says the new approach is "the complete opposite to what it used to be in the old world—we start with 'what are the human needs?'. Human centricity is at the core of what we do. What does the user need? And then we build an interface because that's the relationship between the user and the vehicle. And then we build an interior around that, and then we build an exterior".

Far-Out Ambient Lighting In E-Class Mercedes

LIGHTING NEWS



The new Mercedes E-Class interior boasts the impressive full-width MBUX screen, of course, along with a more advanced ambient lighting system than the outgoing model, introduced in 2016. Integrated within the cowl and the dashboard on the new car, as well as within the doors and transmission tunnel to provide a multilayer effect, the ambient lighting can be programmed to pulse in combination with music from the audio system.

The system, engineered in-house, uses newly-developed software to analyse the music and provide what Mercedes-Benz describe as an 'optic depiction of music' within the multicoloured ambient lights. Aside from its repertoire of music-responsive party tricks, the ambient light system is used as a warning for functions including the parking assistant; intersection approach system, and brake assist.

The new E-Class interior was unveiled at a strategy update announced by Mercedes-Benz CEO Ola Källenius at the company's Sunnyvale R&D centre near San Francisco.

Spotlight: KIT's Light Technology Institute

LIGHTING NEWS



The Karlsruhe Institute of Technology (KIT) is an important university in Germany, with 9,000 employees and 22,000 students working on a bachelor's or master's degree. **The LTI, Light Technical Institute**, was founded in 1922 as a first German institute for lighting technology. Today it represents a wide range of topics such as optoelectronics; nanophotonics; photovoltaics; automotive optical technologies, and general lighting. The LTI has four professors; **Prof. Cornelius Neumann** is responsible for the automotive optical technologies; general lighting, and metrology. From 2009 to 2023 the work of this group has been represented in 32 successfully finished dissertations and a large number of research projects.

Prof. Neuman told DVN that vehicle lighting has taken "a giant step during the last 15 years. Today we have on one hand a variety of technologies to create beautiful signal functions we never even dreamed of before. On the other hand, we care about more safety with ADB and high-resolution headlamp solutions.

"So, we are on a very successful track. But, as always, some critical points have to be mentioned. Not all the things we can do from a technical point of view are reasonable from a physiological point of view. Sometimes less can be more and maybe advertisement is not always the best advisor.

"What still has to be done is to enhance safety and comfort in adverse weather situations and in town. Another future task will be the communication in (partly) automated traffic. For the OEMs and the suppliers, cooperation with universities gives objective results, independent of company strategies or marketing opinions. For universities the advantage is to be at the pulse of time for serial applications and advanced developments. So, it is fruitful for both sides.

"Further improvement will be found by [more] bilateral cooperation, but even more in orders by the organisations GRE or GTB and joint programs funded by German or European funds. The latter must be triggered more strongly by the automotive lobby".

Find more information on universities involved with vehicle-based lighting in the next DVN report, **Universities and Lighting**, to be published end March.

Renate Vachenauer is New Audi Buying Boss

LIGHTING NEWS



Audi's supervisory board have picked Renate Vachenauer to replace Dirk Große-Loheide as the automaker's head of procurement.

Supervisory Board Chair Manfred Döss says he is "particularly pleased that Renate Vachenauer, a proven expert in electromobility and digitisation, is taking over the procurement department of the four rings. Thanks to her experience with digital ecosystems, she has the best prerequisites for the current challenges in order to successfully advance the transformation to a software-driven mobility provider".

And Management Board Chair Markus Duesmann says "The past three years have shown, particularly in procurement, how important effective control is in times of upheaval in order to secure our business as best as possible. I am very pleased to welcome Renate Vachenauer to our Management Board team. She brings with her great technical expertise in the field of digitisation and electromobility, which will be of considerable importance for our success in the years to come".

Vachenauer, who holds a doctorate in electrical engineering, held various positions in Germany and abroad at the BMW Group from 1999 to 2020. Among other things, as department manager, she was responsible for the area of active driver assistance systems and e-drive control units. She has been with Audi since April 2021 and heads the Interior Development, Interaction/Data Management department.

Valeo Achieve '22 Goals

LIGHTING NEWS



These are the comments of Valeo CEO Christophe Perillat (photo) upon publication of his company's 2022 results.

"Owing to the remarkable commitment of our teams, we have achieved all of the financial objectives we set at the beginning of 2022 in a challenging environment marked by high inflation, the electronic components shortage, lockdown measures in China and the conflict in Ukraine.

Growth in our original equipment sales outperformed automotive production in all regions, our EBIT and EBITDA margins, at 3.2 and 12.0 per cent of sales, respectively, are in line with the guidance published in February 2022, and our free cash flow generation of €388 million is above expectations. We are particularly pleased with our order intake, up 48 per cent compared to 2021, including several particularly strategic orders in electrification and ADAS.

2023 outlook

Given the uncertainty regarding automotive production in our main business regions, and taking into account net inflation and cost reduction measures, we are setting the following objectives for 2023.

These objectives lead to:

- sales in 2023 at €22-23 billion vs €20 billion in 2022
- a 0.8 to 1.6 percentage point improvement compared with 2022 adjusted profitability
- a significant improvement in free cash flow generation with a significant improvement of our financial performance in second-half 2023 compared to the first half of the year.

Plastic Omnium Gain Traction

LIGHTING NEWS



The Plastic Omnium Group achieved all their financial targets for 2022, with strong growth in economic revenue up +18 per cent at €9.5bn and operating margin flow up significantly by +20 per cent at €364m. Main takeaways:

- Major acquisitions, diversification and strengthening of the growth and value creation profile with €1.3bn invested; sustained robust financial structure.
- Offensive approach to innovation (e.g. launch of OP'nSoft, embedded software solutions) and targeted management of industrial capex.
- Ramp-up of momentum in order intake in the highly promising hydrogen market; signature of major contracts with Safran; Stellantis; Hyvia, and Ford and future construction of the largest hydrogen vessels factory in Europe.

Plastic Omnium CEO Laurent Favre (photo) says "We are satisfied with what we have accomplished in 2022 in an unprecedented economic and geopolitical context. Thanks to Plastic Omnium's operating and financial profile, we were able to successfully implement our strategic roadmap, make a number of technological shifts and secure strong growth drivers and significant future value creation.

The performance and leadership of our traditional activities remain the cornerstone enabling the diversification of Plastic Omnium's portfolio. Supported by its historical position in exterior automotive parts and fuel systems, the Group now has three new activities—lighting; electrification, and hydrogen—enabling it to meet the sector's challenges".

ZKW-ÖAMTC Fahrtechnik Joint Training Courses

LIGHTING NEWS



ZKW and Austrian driver-training specialists ÖAMTC Fahrtechnik cooperate closely in the training of instructors. In February and March, the partners will hold lighting technology training courses for around 160 ÖAMTC driving technology instructors from all over Austria, at ZKW's Wieselburg site.

The courses include the latest headlamp developments and technologies—such as glare-free high beam—the complexity of vehicle lighting; correct headlamp settings; international legal requirements and the future of lighting systems. ZKW CEO Dr. Wilhelm Steger says "We are very pleased that we as ZKW are making a significant contribution to driving safety with the ÖAMTC training courses".

In addition to insights into the development, production and technology of modern headlights, the participants of the training courses receive a wide range of information on the functions; operation, and possibilities of current lighting systems. The topics range from adaptive, glare-free high beam to signal and main beam functions to AFS functions for the low beam. ZKW Wieselburg Site Manager Andreas Nix says "Our training courses are designed to convey the essential know-how about modern automotive lighting systems in a compact and easy-to-understand way".

ÖAMTC Fahrtechnik trains new drivers and experienced drivers in driving safety at eight locations in Austria. Driving technique courses for sporty drivers are also offered, for example at the Fahrtechnik Zentrum Melk, which operates its own race track, the Wachauring.

Driver Assistance News

Luminar in Giant Mercedes Lidar Deal

DRIVER ASSISTANCE NEWS



Mercedes-Benz have signed an agreement with Luminar to supply lidar sensors into multiple vehicle models by mid-decade as part of a push to support and proliferate new automated-driving features. The two companies are calling the pact a "multibillion-dollar deal".

This comes as the first time Mercedes-Benz have scheduled production of lidar-equipped cars, following a protracted development partnership with Luminar.

Mercedes-Benz have not yet specified which models will be first to receive the lidar sensors, nor did they provide a timeline for starting production of lidar-equipped vehicles.

Matt Fisch is New AEye CEO

DRIVER ASSISTANCE NEWS



Performance lidar supplier Aeye have named Matt Fisch as new CEO and as a directors' board member. Fisch is a deeply technical C-level leader with 30 years' experience delivering breakout products across various industries, and scaling software organisations at multibillion-dollar global companies including Harman International; Intel, and Verifone. He takes charge of AEye as they begin commercialisation of their award-winning product range.

Beyond automotive, Fisch has led global product development across industries ranging from payments to consumer electronics. He served as EVP of Global Engineering at Verifone, where he was responsible for all product development globally, leading a team of over 2,000 software engineers across 50 locations and responsible for a \$200m opex budget. He also spent 22 years at Intel, where as GM of Android and Windows software engineering, he led software product development and deep technical partnerships with Apple; Google, and Microsoft in mobile computing, cell phone, tablet, and consumer products. Fisch holds a Master of Engineering in Computer Engineering, and a Bachelor of Science in Electrical Engineering, both from Cornell University.

AEye's unique software-defined lidar solution enables advanced driver-assistance; vehicle autonomy; smart infrastructure; logistics, and off-highway applications. AEye's 4Sight™ Intelligent Sensing Platform, with its adaptive sensor-based operating system, focuses on what matters most: delivering faster, more accurate, more reliable information. Products, built on this platform are ideal for dynamic applications which require precise measurement imaging to ensure safety and performance.

General News

VW Group Top Most Volume Segments

GENERAL NEWS



Volkswagen Group had a terrific January, taking the top slot in eight of 10 key volume segments. VW's winning models included the Golf (compact); Tiguan (compact SUV); T-Roc (small SUV and coupe/convertible); and the Caddy (compact van).

The midsize/large SUV segment was led by the Kodiaq, from VW sister brand Škoda. In the premium segments, VW Group subsidiaries Audi and Porsche were № 1 in a trio of categories including compact premium (Audi A3) and luxury sedan (Porsche Taycan).

The Tesla Model Y was Europe's top-selling full-electric model in the first month of 2023, while the Ford Kuga was the top-selling plug-in hybrid. The Model Y was followed by the Dacia Spring small SUV while the VW ID.4 was third on the list of top-selling EVs.

The plug-in hybrid sector's № 2 seller was the Chinese Lynk & Co 01 followed by its platformmate Volvo XC-40, which was also Europe's best-selling premium PHEV in January, according to Dataforce figures. Overall sales of full-electric cars rose 10 per cent to 84,000 units last month.

Stellantis '22 Profits Way Up

GENERAL NEWS



Stellantis posted solid profit and revenue gains in 2022 along with the largest payout to UAW employees among the Detroit 3 automakers.

Stellantis do not disclose quarterly results under French financial reporting rules, but say net profits for the year jumped 26 per cent to €16.8bn, while global revenue rose 18 per cent to €180bn. North American adjusted operating income rose 23 per cent to €13.9bn. Revenues surged 23 per cent to €85.5bn. Deliveries rose 2 per cent to 1.86 million vehicles.

Stellantis says they expect another year of double-digit returns as vehicle price increases slow; chip shortages ease; and production picks up. The company's operating return beat analyst forecasts by rising to 13 per cent last year.