CLEPA
European Association of Automotive Suppliers

Innovation Awards 2019

Innovation in the Automotive Supply Industry

Connectivity & Automation

Cooperation

Environment

Safety

Organised by CLEPA European Association of Automotive Suppliers

Supported by Deloitte.

What is CLEPA?

CLEPA - the European Association of Automotive Suppliers - brings together over 120 global suppliers of car parts, systems and modules and more than 20 national trade associations and European sector associations.

CLEPA is the voice of the EU automotive supplier industry, linking the sector to policy makers.

3.000+
SMEs represented

75%
of the vehicle value comes from suppliers

5 million
Direct jobs

€22 bn
Invested in R&D

±3.000
Patents filled by the automotive industry each year

€600 bn
Turnover each year

Driving innovation forward

The CLEPA Innovation Awards celebrate outstanding achievements in the European automotive supply industry in the fields of Connectivity and Automation, Cooperation, Environment and Safety.

Innovation is key to shaping the mobility of the future, and the main trends of digitalisation and sustainability are transforming the automotive industry as well as the vehicle population on the roads.

The automotive parts suppliers are active right at the forefront of developments.

CLEPA (the European Association of Automotive Suppliers) represents over 3000 companies supplying state-of-the art technology solutions, as well as more than 20 national trade associations and European sector associations. The industry invests over 22-billion-euro year on year in research & development to make road transport cleaner, safer and more efficient, as well as connected, cooperative, automated and thus more 'smart'.

With more than 60 applications received, we are proud to present to you in this fouth-edition booklet the winners and finalists of the 2019 Awards. Selected by a distinguished jury of international experts, these innovations scored highest marks in terms of ambition, market relevance, impact and quality of their innovation.

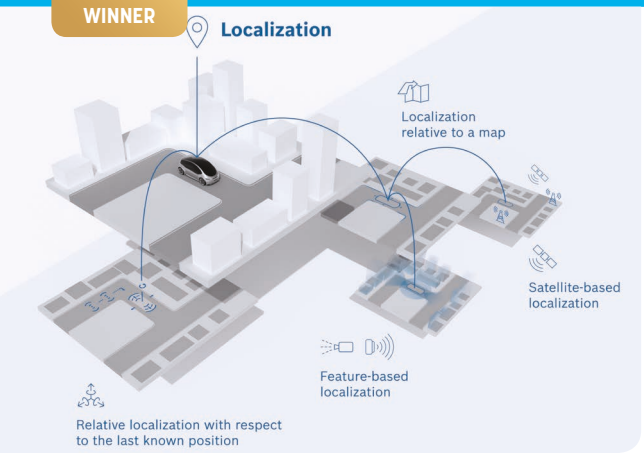
For the second time, a special prize was awarded in each category to SMEs, acknowledging the important contribution of small and mid-sized companies to the industry's resourcefulness, ingenuity and competitiveness.

I'd like to thank our Innovation Awards partner Deloitte which supported the Awards Gala, the members of the jury and all entrants for taking part in this journey. We hope to receive even more applications next year!

Kind regards,

Sigrid de Vries
CLEPA Secretary General

1
WINNER



BOSCH
Invented for life

Vehicle Motion and Position Sensor

Vehicle localisation system for Automated Driving

A precise and reliable vehicle localization system is a prerequisite for automated driving. For the purpose of advancing such mobility, Bosch innovates by combining two complementary technologies: On the one hand feature-based localization relying on surround sensors, while on the other it makes use of navigation-satellite-based positioning and inertial sensors.

The data that is collected by the vehicle's surround sensors is used to create an independent map layer – the 'Bosch Road Signature'. A comparison of the data provided by the vehicle with the features stored in the map enables precise and reliable vehicle localisation, radically evolving accurate automated driving.

In addition, Bosch uses advanced satellite-based localisation. The 'Vehicle Motion and Position Sensor' comprises high-performance satellite receivers, a correction service to improve the satellite positioning, inertial sensors, smart fusion and integrity algorithms for a reliable position calculation. We will see the launch of this motion and position sensor in 2020.

2ND PRIZE

veoneer

ERICSSON

Learning Intelligent Vehicle LIV 3.0

Connectivity as a contributing sensor for Collaborative Driving

Veoneer's product benefits the consumers by creating an appealing and trustworthy user experience while enabling safe, robust and efficient mobility. The Learning Intelligent Vehicle (LIV 3.0) successfully demonstrated Collaborative Driving during CES in January 2019, and more than a thousand people got a first-hand experience of the technology and its effects.

The innovation comes from combining existing technologies (such as advanced driving assistance technology and connectivity) with a human centric approach. One of the key challenges of collaborative driving relates to security, which has to be dealt with for each of the four C´s: cloud, code, car and connectivity. This entails an authentication of identity, certification handling, consent management and access of control. The innovation bridges two gaps. Firstly, connectivity as a contributing sensor in collaborative driving enables the creation of new value chains. Secondly, such connectivity bridges a technological gap since we foresee complementary communication modes for network (up/downlink) and direct (sidelink) communication being needed.

Connectivity as a sensor for Collaborative Driving therefore enriches safety and empowers both driver and car thanks to its contextual information, ultimately making the vehicle even more intelligent.

Valeo
SMART TECHNOLOGY FOR SMARTER CARS

Centricam

A camera with its own cleaning device

Cameras and lidars (distance measuring laser) are becoming more and more present on today's vehicles and will have an undeniably vital role in the autonomous car of the future. These are the eyes of the autonomous vehicle. However, as optical sensors, they will have to sometimes face adverse weather conditions. This is the challenge that Valeo has decided to focus on.

Cameras and lidars work fine in sunny weather conditions. However, problems may arise in the presence of rain, mud, sand, insects or even ice. You can even see this today when your camera, fully blurred, is rendered completely useless. Under such conditions, the video flow is corrupted, and Autonomous Driving calculations become impossible.

The technology Valeo has developed and is presenting today brilliantly solves these problems with the everView Centricam solution. It is a combination of a current camera with its own cleaning device which starts working in case of obstacles on the sensor. The cleaning device consists of an extra lens which is able to spin on its axis, getting rid of any dirt, ice, snow, dust or rain. The rotation is so fast that it centrifuges any unwanted material off the lens without ever stopping the video flow nor affecting its quality. Thanks to the work of Valeo's engineers, Autonomous Vehicles will be able to safely drive 100% of the time.

3RD PRIZE EX AEQUO

Hybrid V2X

Vehicle communication through infrastructure

Connected vehicles have the potential to make driving much safer and more efficient by either directly communicating with each other or through infrastructure. To achieve this, Continental's Hybrid V2X solution integrates technologies not only for 4G and 5G network access, but also Dedicated Short Range Communication (DSRC) and Cellular V2X (C-V2X) for direct V2X communication.

Thus, vehicle manufacturers can overcome a big challenge, since the technical path to establish V2X communication varies globally. While some regions prefer DSRC, others lean towards the C-V2X technology, complicating communication among vehicles. With Continental's new Hybrid V2X solution, currently under implementation, the same hardware and software platform can be used to support both communication standards, reducing not only cost but also complexity for a global application of V2X communication. These benefits have been proven with Continental's first customer award for this 5G-Hybrid-V2X solution.

XenomatiX
True solid state lidar

LiDAR

True Solid State LiDAR for Autonomous Driving and ADAS Applications

Xenomatix offers a complete Lidar solution that collects high resolution and accurate data of the vehicle's surroundings in real time for Advanced Driver Assistance System (ADAS) and Autonomous Driving (AD). This company is helping the automotive market to get closer to Level 5 automation, directly contributing to the improvement of AD.

XenomatiX Lidars enable consumers to embrace the benefits of driving with improved comfort and safety, by providing solutions for the detection and tracking of objects and free space, road profile measurement and localisation.

XenomatiX' unique technology is based on the combination of three key fundamentals. Firstly, the low power multi-beam simultaneous illumination of thousands of laser beams, combined with a high frequency frame rate, results in a vast amount of measurements per second discerning every single detail of potential road obstacles. Secondly, XenomatiX' solid-state chip-based Lidar products are based on mature technology, forming the basis for a scalable, future-proof solution. Furthermore, the proven chip-based technology is both reliable and affordable, guaranteeing both high-performance and energy optimization. Finally, The XenoWare software captures superior density 3D point clouds and 2D images, resulting in rich data about the object position, movement and distance to the vehicle.

XenomatiX stands out for their design and production of solid state Lidars with no moving parts, making this technology more robust and reliable.

The XenoLidar is available since June 2018 and has already been purchased by a large portfolio of international companies.

1
WINNER

APTIV

Automated Driving Satellite Compute Platform

Affordable ADAS and AD

Aptiv, through its efficient and scalable Automated Driving Satellite Compute Platform has managed to reduce the cost of autonomous vehicles, ultimately rendering Advanced Driver Assistance System (ADAS) and Autonomous Driving (AD) affordable.

Most systems have the computing power integrated within the sensors, processing the information at the source, which makes each sensor expensive to both build and replace when it is damaged. Aptiv's Automated Driving Satellite Compute Platform takes the processing and electronics out of individual sensors and instead sends the information to the central platform, which allows the sensors to be smaller, more cost efficient, lighter and easier to package in a vehicle. Another innovation is that the mass and volume also eliminate sensor heat dissipation concerns.

This industry-first platform, developed with Aptiv's partnership with Audi, enables Aptiv's customers to apply a simplified sensor footprint to scale features for advanced levels of safety automation. It truly is a game changer in the industry.

TAKOSAN

Cluster for Heavy-Duty Vehicles

Innovative and Cost-effective instrument cluster for HDV with large colour TFT display

Instrument Clusters are the vehicle's fundamental HMI (human-machine interface) units that display essential information to drivers. Takosan's F-Max instrument cluster offers a flexible solution and innovative technology with TFT-display instrument clusters. Equipped with a high-tech HMI system, their instrument clusters provide an uninterrupted and reliable data flow to the driver with a flexible design, enabling any styling request to fit the manufacturer's needs. It is also equipped with driver performance evaluations and high personalization capabilities.

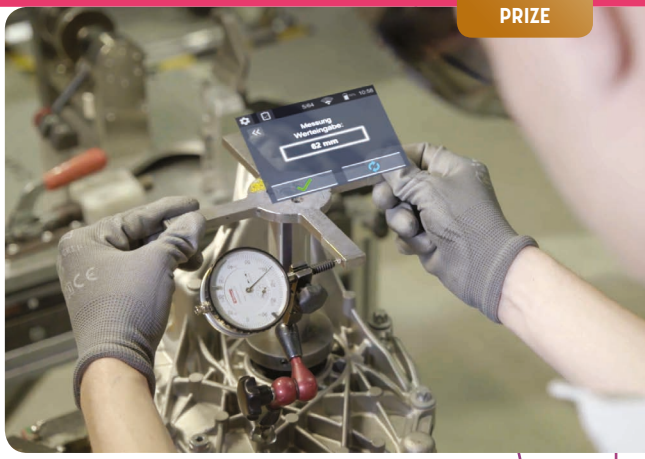
Takosan's product is a combination of many sub-systems with a wide input/output connection, instead of the prevalent system which was composed of separate modules, this ultimately lowers the total cost and renders it more modular. Given that this affects the labour costs of production and energy consumption, it also has a positive effect on its carbon footprint.

Its TFT technology informs drivers of possible risks more efficiently and allows them to take the necessary steps to prevent an accident.

The project is therefore an inspiring example of the simplification and cost reduction of a highly complex and segmented component all the while adding new features and enhancing customer satisfaction.

The component was launched at the 2019 International Truck of the Year award in Germany.

3RD PRIZE



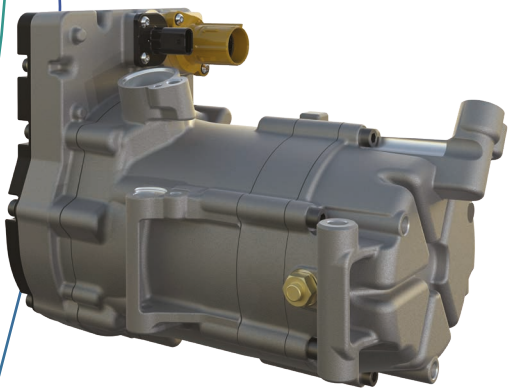
Digitally Enhanced First Parts Release

Digitally supported first-part approval

The "Digitally Enhanced First Parts Release" by Magna is a modular solution in production environments, providing a digital checklist to shop-floor workers via augmentation. It uses a Microsoft HoloLens to support production line auditors in reviewing quality adherence.

The auditor's digital list is filled out using computer vision/ machine learning, voice commands, and/or hand gestures. The tool furthermore allows to freely configure checklists with a multitude of different types of checks, such as reading the small values from calipers. The picture processing runs on an on-site server without connection to the internet to ensure maximum data security.

Its potential is almost limitless, as it increases data quality, improves error prevention, efficiency, time saving, it enforces process discipline in a hands-free and paperless way and requires no investment in IoT (Internet of things) hardware. While it is currently applied on a small scale, its rollout is scheduled for end of 2019.



MAHLE

eCooling

High cooling capacity electric drive air conditioning compressor

100 years ago, Mahle was a pioneer and revolutionised mobility with aluminum pistons. Today, Mahle's e-compressors have the same innovative potential. Providing superior power-to-mass-and-package ratio, the eCompressor simultaneously satisfies the cooling needs of the cabin, battery and drivetrain. Moreover, thanks to its next generation superior cooling performance, Mahle's e-compressor technology enables the supercharging of batteries in less than 15 minutes for future battery electric vehicles.

The charging time is a key asset for costumers when it comes to broadening acceptance for electric vehicles. Furthermore, the modular design of the Mahle e-compressor accommodates different high voltage architectures, creating synergies between different future e-mobility solutions.

The industrialization of the eCompressor is expected to begin mid-2020.

Valeo

SMART TECHNOLOGY FOR SMARTER CARS

48V electric Motor for easy and Urban Mobility

An affordable propulsion system for MHEV, EV and beyond

48V systems, including Valeo's 48V electric Motor for Easy and Urban Mobility, are the fastest and easiest solution to implement while providing a significant fuel economy level (around 14% in WLTP). Moreover, thanks to its interesting cost-to-CO2-emission-reduction, customer acceptance is quite high in spite of the novelty of this innovation.

Valeo's 48V electric Motor for Easy and Urban Mobility family has been designed to be scalable and transversal between 15kW and 25kW. It also optimises costs by standardising active parts. This wide range of power ratings allows covering all vehicle segments with the best trade-off between fuel economy and overall add-on cost.

The mass production of Valeo's 48V Motor is expected to begin in 2020.

INTEVA PRODUCTS

Recyclable Inteather Bi-Laminate material

Allowing suppliers to utilize the recycled bi-laminate scrap

Inteva balances environmental responsibility and cost effectiveness with the introduction of its recyclable Inteather™ Bi-Laminate material. This formulation utilises recycled bi-laminate scrap/offal in the base layer of a cap/base construction, reducing waste by 50%. Not only is it lower in cost than the materials conventionally used for instrument panels, consoles and doors, but it also meets all material and part performance requirements. The patented process for manufacturing this material is not found anywhere else in the industry.

This is the only product available that allows the supplier or OEM to utilise the recycled bi-laminate scrap. Additionally, if this material were to be fully implemented across all interior vehicle production, the industry could eliminate nearly 72 million kilograms of plastic waste from being sent to landfills each year. This product will launch in summer 2019.

1
WINNER

JOYSON
SAFETY SYSTEMS

Far side protection Airbag

High level of occupant protection during side impacts

Far side impacts are responsible for a significant portion of European road death tolls causing approximately 11% of all vehicle occupant casualties. It could be estimated that in Europe approximately 1,200 fatalities were related to far side conditions.

Thankfully, Joyson Safety has found a way to drastically reduce this number with the introduction of its Far-Side-Airbag. Deploying between the driver and front passenger seat in the event of a side impact, the airbag stabilizes the driver against excessive leaning over and its combined risk of injuries in impact, occurring at the other side of the vehicle. Furthermore, the device mainly has to apply damping function between the front row occupants' direct contacts, especially of their heads.

The Far-Side-Airbag therefore significantly contributes to a higher level of occupant protection during side impacts.

BOSCH
Invented for life

Wrong-way driver warning

Contributing to safer mobility

With this innovative solution, Bosch is contributing to safer mobility. Thanks to cloud connectivity, wrong-way drivers as well as all other road users in danger areas can be warned faster than ever before.

With approx. 4,000 wrong-way driver accidents every year in Europe alone the Wrong-way Driver Warning has the potential to prevent wrong-way driving and its often-dramatic consequences.

The Bosch Wrong-way Driver Warning is the first purely cloud-based driver assistance service and the first encompassing a solution for the problem of wrong-way driving on the market. They created a product that is cost efficient, easy to integrate, hardware independent and requires only little data and energy.

The service was rolled-out in March 2018 and is running on 12 million devices in 15 European countries. Within the first year Bosch tracked 2.6 million trips and evaluated more than 100 million GPS points.

3RD PRIZE

APTIV

Automated Driving Satellite Compute Platform

Increasing the safety of autonomous vehicles

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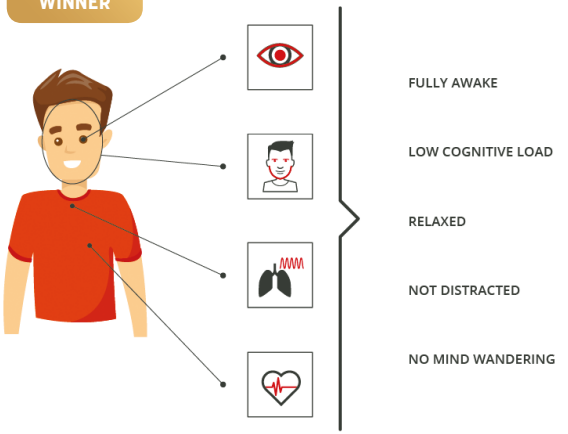

Advanced software for driver monitoring

Reducing errors on drowsiness detection systems

Phasya has developed the first all-in-one adaptive software to monitor a range of physiological and cognitive states (i.e. drowsiness, distraction, stress, cognitive load, and mind wandering) that impact drivers' performance, well-being, and user experience. Phasya's technology aims to objectively detect these often-dangerous states from the analysis of one or several data produced by the human body such as eye movements or heart rate. Their hardware agnostic technology combines various data specifications from different sensors. Furthermore, the software is quickly and easily integrable into customer's platforms.

Its multidisciplinary development approach combining expertise in engineering, human factors, sleep medicine, and neurology enables to deliver relevant and reliable solutions since its existing software can reduce by half the false positive rate of drowsiness detection systems.

This product has already been integrated and tested with OEM's and Tier 1 prototypes and is expected to start production shortly.

List of Jury members

Special thanks to our international expert jury:

Connectivity & Automation

- **Francois Fischer**, ERTICO
- **Arjen Bongard**, Automotive IT
- **Philipp Obenland,** Deloitte

Cooperation

- **Margriet van Schijndel-de Nooij,** EARPA
- **Stefan Deix,** EUCAR
- **Chris Mason**, FISITA
- **Goetz Grundmann**, Deloitte

Environment

- **Clara de la Torre & Maurizio Maggiore**, European Commission
- **Philipp Kinzler,** Deloitte

Safety

- **David Ward,** Global NCAP
- **Laurianne Krid**, FIA Region I
- **Antonio Avenoso,** ETSC
- **Michiel van Ratingen,** Euro NCAP
- **Andreas Herzig,** Deloitte

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