PRESS KIT

EXPO2022

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Startup Autobahn’s platform produces tangible results driving open innovation for over 30 pilot collaborations and implementations between corporate partners and startups

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Startup Autobahn's platform produces tangible results driving open innovation for over 30 pilot collaborations and implementations between corporate partners and startups

On July 7, 2022, more than 30 startups will present the project results from their collaboration with corporate partners at Startup Autobahn powered by Plug and Play EXPO2022. These results offer sustainable solutions that drive change in the areas of mobility, production and business innovation.

Stuttgart & Silicon Valley This year, the successful projects between the program startups and corporate partners, including Mercedes-Benz AG, Bosch, Webasto, DXC Technology, Motherson, Schaeffler, and Maxion Wheels, will be showcased to more than 1,000 industry leaders and innovators at EXPO2022 on July 7 in Stuttgart. These will focus on topics in electromobility, advanced manufacturing, cybersecurity, smart cities, driving simulation, route planning, smart fuel economy, autonomous driving, and production robotics. The transformation in the field of mobility has attracted a lot of attention, especially in corporate management, and its relevance will be emphasized at EXPO2022 by keynotes from Ola Källenius, CEO of Mercedes-Benz AG, Tanja Rückert, CDO at Bosch, Saori Dubourg, Board Member at BASF, Saeed Amidi, CEO and Founder of Plug and Play Tech Center, and many more, highlighting the successes of the projects.

Bosch used &Charge's unique crowdsourcing approach to validate and enrich POI data around EV charging in Europe

The aim of the Bosch and &Charge collaboration was to validate and enrich POI data around EV charging. The EV market is currently ramping up but there is a constraint of inaccurate data that hinders EV adoption. Bosch and &Charge's crowdsourcing technology can resolve this issue for a dedicated data set. The next steps in this project are to integrate the mechanism into the Bosch EV ecosystem.

Mercedes-Benz and 4Silence worked on identifying and measuring noise leakages in driving vehicles

To reduce noises inside a vehicle, it is essential to identify the most dominant transfer path from sound sources outside the cabin to the passenger's ears inside the cabin. While driving, this is difficult to accomplish, due to the large number of reflections in the car. Using 4Silence's new technology, as implemented in the Sonocat measurement device, Mercedes-Benz and 4Silence could quickly localize noise leaks, as the Sonocat is able to differentiate between the source and its reflection. The experimental facilities and experts of Mercedes-Benz enabled 4Silence to increase their experience in the automotive industry.

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DXC Technology teams up with asvin and Excelfore to provide a best practice solution for tracking and tracing the automotive software supply ecosystem

The software-defined vehicle will require a full digital lifecycle management, which needs to be cyber secure, trusted and regulatory compliant. asvin and Excelfore, two member companies of the eSync alliance, and DXC Technology have set up a joint initiative to address the automotive specific challenges on Software Supply Chains Security and Software Update-Management-Systems (SUMS) and provide a best practice solution. In order to increase trust and integrity, this solution is changing the perspective from a “Supply Chain” towards a “Supply Ecosystem”, where software components and suppliers are interconnected and a single small supplier entity from the bottom can have a huge impact towards tier 1 suppliers and OEMs. asvin's novel network ledger approach will enable an instant mapping of software components in use, their integrity and provenance.

From Proof of Concept to Acquisition: How Bosch and atlatec provided scalable, safe 3D maps for autonomous driving

atlatec and Bosch worked on using a 3D mapping pipeline to build massive amounts of high accuracy 3D map data for automated driving. The atlatec approach is very light-weight and uses nothing but two cameras, a GPS, a LiDAR and AI to do so. As a result both partners agreed that this approach is very feasible. Bosch finally fully acquired atlatec with its subsidiaries in Japan and USA.

Motherson engaged Brodmann17 to provide Vision-AI to their camera monitoring system

The aim of the project was to provide automated Vision-AI object detection and classification to the Motherson Camera Monitoring Systems. By selecting Brodmann17, the teams could work collaboratively to take high field of view camera video images and process utilizing compute-light deep learning AI algorithms. Motherson’s Advanced Engineering ADAS team and Brodmann17 R&D team were involved. The prospect is to reduce accidents in the future through the enablement of auto-alerts to vehicle drivers for blind spot detection, safe turn assist, and lane keeping assist.

Bosch accelerates testing of electrical machines with CirQua technology

The design, optimization, and quality control of electrical drives depends on the experimental results of test benches. As a result of the presented proof of concept, the required time for startup operation of electrical motors was reduced significantly in the pilot project collaboration between Bosch and CirQua. CirQua’s technology enables Bosch to have more comprehensive testing results with improved quality and repeatability. Next steps will include collaborating on the development of test bench

inverters for different voltage ranges in order to implement the CirQua technology in Bosch's test benches. In addition, a validation of the test results by comparison with simulation data is planned.

Mercedes-Benz works with Deepfine on digitizing offline-based services

The joint pilot project with Mercedes-Benz Korea's IT and related departments intends to find ways to digitize offline-based services to potential customers and vehicle owners of Mercedes-Benz in order to provide higher convenience. The pilot project, which utilizes Deepfine's XR and deep learning technology, is a prototype of a platform that allows customers to receive sophisticated vehicle information and services such as digital, user-customized manuals or the visit of an XR showroom anytime, anywhere regardless of time and space. This versatile digital solution could be implemented in older and new Mercedes-Benz models.

Advanced security for AI and analytics: Bosch works with Edgeless Systems on a scalable confidential AI pipeline

Access to raw data sets is ideal for the development of analytics based on Artificial Intelligence (AI). However, security threats, strict privacy regulations, and potential loss of Intellectual Property (IP) ownership when collaborating with partners can turn data into a toxic asset. Bosch has teamed up with German startup Edgeless Systems to develop a scalable confidential AI pipeline for lowering the risks related to data or IP leakage. The team has prototyped their system for the development of advanced driver-assistance systems (ADAS) and are testing to ensure that the system holds up against the performance and scalability needs of a production environment.

Hyperganic and Schaeffler partnered to accelerate innovation through Algorithmic Engineering

The automotive and industrial supplier Schaeffler partnered with Hyperganic to implement Algorithmic Engineering (AE) in its Advanced Manufacturing Technologies Unit. The goal of the collaboration is to accelerate engineering through rapid iteration and seek design answers beyond the limitations of standard CAD. As a next step, Schaeffler and Hyperganic will integrate automated simulation loops for faster pre-production validation.

Bosch and Hypermile develop retrofit AI cruise control to reduce truck fuel consumption

In an attempt to reduce fuel consumption and carbon emissions of commercial vehicles, Bosch teamed up with Hypermile to develop a fuel-efficient retrofit AI cruise control. Bosch and Hypermile collaborated to integrate their respective products: Bosch's Retrofit Efficiency Module (remodul) and Hypermile Co-Pilot. The pilot demonstrated a combined solution performed better than either one individually in terms of fuel

economy and engagement rate. The two companies have a memorandum of understanding to bring a joint solution to market.

identifai and DXC Technology accelerate digital transformation and transparency of energy usage in the manufacturing sector

The metals and manufacturing industries have limitless and untapped potential. The digitalisation can unlock huge opportunities. identifai and DXC Technology saw the opportunity to reduce energy and emissions as well as improve operational efficiency at a German metal manufacturer. With soaring energy costs and a complicated data landscape, this customer sought to gain insight into their energy consumption, from energy sensor data, work orders and the electricity consumption report, to identify opportunities for improvement, and optimize their processes. As a first result, the built Energy Intelligence Platform and Backend completely automates energy reporting, estimates & forecasts energy needs, and provides insight into energy/emissions per part to help the manufacturer reduce 5% of energy costs.

Makersite is offering a software solution that allows its customers to solve complex challenges in their products and supply chains

Schaeffler will operate on a climate-neutral basis along the entire value added chain from the year 2040 and is therefore increasingly relying on a partnership network of suppliers who are committed to the sustainability targets set by the company along the entire value added chain. By teaming up with German based start-up Makersite, Schaeffler can run ad-hoc automated analysis of environmental impacts from the entire supply chains in scope. Together, the team were able to compare different product supply chains from a sustainability perspective and crucially ensure that the supply chain changes reduce Scope 3 emissions

DXC Technology and Makersite help manufacturers transform their business towards a green economy

Global manufacturers face challenges today that they are not yet equipped to solve. Decarbonizing supply chains, accelerating product innovation or building resilient supply chains to stay competitive are among those. DXC Technology's experience of integrating, building and maintaining enterprise software combined with Makersite's digital twin solution for product and supply chains, is today allowing manufacturing enterprises to transform their business model towards a green economy and stay ahead of the competition.

Mercedes-Benz and Monolith leverage AI to accelerate product development Automotive product development lifecycle times are getting shorter, whilst complexity is getting higher. Mercedes-Benz has partnered with Monolith to use AI in product development, to allow their engineers to predict and evaluate the

performance of multiple designs in a matter of minutes. Along with this, the teams are investigating the use of AI models on 3D geometry to further their efforts in generative design.

Mercedes-Benz and Seven Bel work on evaluating sound imaging technology

In order to verify the acoustic tightness of a car cabin fast and reliably, Mercedes-Benz has teamed up with Austrian high-tech startup Seven Bel to evaluate sound imaging technology. The team is working on determining its potential use in both product development and quality control. The next step will be to deploy the measurement system in verification testing of prototypes.

Mercedes-Benz and Spinque enable a digital twin of the vehicle production process

Analysis of the vehicle production process requires information from multiple sources combined. Mercedes-Benz integrated various data silos, such as production planning, observation data and reporting data, using knowledge graph technology. Spinque's software allowed to rapidly design solutions on top of this knowledge graph to support day-to-day tasks.

Maxion and SwipeGuide work together on Pilot study of digital work instructions in MSC CRZ shop floor

Maxion Advanced Technologies (MAT), together with SwipeGuide, and Maxion Structural Components' Cruzeiro team, successfully piloted a digital work instructions solution. In Maxion, creating and distributing paper-based work instructions is ineffective, manual and time-consuming. The disruptive cloud-based platform from SwipeGuide, enables the operators to create, share, manage and use the work instructions digitally. The 75 days pilot study benchmarked the benefits of using such a digital work instruction platform and helped identify our critical needs.

Schaeffler and truckoo joined efforts to work on a one-stop shop solution for truck trade and repair

In an attempt to simplify the buying and selling process, Schaeffler and truckoo teamed up to establish a one-stop-shop solution for used commercial vehicles. First, both concentrated on making truckoo's global platform solution more accessible for Schaeffler's network, using a common approach on the Schaeffler's repair information platform REPXPERT. An interlinked solution of the Automotive Aftermarket division of the industrial and automotive supplier Schaeffler and truckoo is then aimed to lift the convenience of trading commercial vehicles to the next level and pave the way for digitalization in truck repair shops.

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Mercedes-Benz and Ventus: Influence of wind on the energy consumption of electric vehicles

Mercedes-Benz teamed up with the German startup Ventus to back up the long-distance drive of the Mercedes-Benz VISION EQXX with wind forecasts. The Ventus wind analyses provided important insights in the preparation of the VISION EQXX's record-breaking voyage and its daily forecast served as a decision-making aid for determining the day of a successful road trip from Sindelfingen, Germany to Nice, France. In the future, the “Wind on Roads” forecasts could provide more accurate wind data for the route ahead, and thus make intelligent navigation even more powerful.

Webasto teamed up with wheel.me to work on frame and rack automations for production lines

The aim of wheel.me's solution is to simplify the movement of assets for both logistics and manufacturing firms. The company has partnered with Webasto to optimize production processes at one of the automotive supplier's plants, making them more efficient and cost-saving

Startup Autobahn powered by Plug and Play will present the Global Innovation Award and Voices of Open Innovation Award at EXPO2022

At EXPO2022, Startup Autobahn powered by Plug and Play will also present the Plug and Play Global Innovation Award and the Voices of Open Innovation Award. The Plug and Play Global Innovation Award honors the work of the network’s partners and startups who successfully come together and apply their knowledge, passion, and innovations, to solve challenges facing the industry today. The Voices of Open Innovation Award honors the collaborative efforts and successes of those partners that have enabled open innovation on the Startup Autobahn platform as an early partner. The award is given to a partner that has played an invaluable part in making open innovation come to life on this platform.

About STARTUP AUTOBAHN powered by Plug and Play

STARTUP AUTOBAHN powered by Plug and Play is an open innovation platform that provides an interface between innovative tech companies and industry-leading corporations. The basis of the program is the partnership that develops between startups and the corporate business units. The two entities hold an equal footing from the get-go: together they evaluate the potential for a joint venture, move forward to pilot the technology, and work to achieve the ultimate goal – a successful production-ready implementation. Designed with the intention to exceed startup acceleration, STARTUP AUTOBAHN powered by Plug and Play moderates a community for collaboration with a focus on implementable results. Over the years, the platform has successfully cultivated over 380 projects with more than 289 startups since its founding in 2016.

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About EXPO2022

EXPO2022 is an invite-only conference showcasing technologies of the future and exposing the power of open innovation between leading corporations and innovative startups. STARTUP AUTOBAHN powered by Plug and Play welcomes over 1,000 entrepreneurs, investors, experts and decision makers in the field of Mobility, Production, Enterprise, Sustainability and beyond to Stuttgart to exchange opinions and experiences on relevant future topics and to experience what can result from successful open collaboration. Guided by the motto “Driving Open Innovation on the Autobahn”, the platform crafted an agenda with thought-provoking panel discussions, inspiring keynote speakers, breakout sessions and of course the events highlight – the exclusive showcase of the successful pilots between the program startups and the business units of the corporate partners.

Founding Partners Mercedes-Benz AG, Plug and Play Tech Center, University of Stuttgart, ARENA2036 **Anchor Partners** ZF, DXC Technology, Porsche AG, BASF, Webasto, Motherson, Deutsche Post DHL Group, Bosch, Schaeffler, STMicroelectronics, Bridgestone Mobility Solutions **Ecosystem Partners** Murata, AGC, Hyundai, The Linde Group, BP, Forvia, Eberspächer, ADAC, Sekisui, Plastic Omnium, Maxion Wheels, Novelis, ITT, Grupo Antolin, Huf Group, CEAT Ltd, GF Casting Solutions

Materials

Photographs: https://pictures.startup-autobahn.com/Spring2022/EXPO2022
Logos: http://stuttgart.pnptc.design/
Website: https://startup-autobahn.com/
EXPO2022: https://expo2022.pnptc.events/
For further information on the pilot projects, partners and startups, visit us at EXPO2022. Please reach out for you individual ticket.

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June 27, 2022

&Charge participates in Europe's largest open innovation platform, the STARTUP AUTOBAHN EXPO2022 and promotes its unique SaaS model to the public

Frankfurt, June 27, 2022 Europe's largest mobility platform for open innovation, STARTUP AUTOBAHN EXPO2022, connects creative start-ups with experienced experts from established companies in the field of mobility. Founded by Mercedes-Benz AG, the innovation driver STARTUP AUTOBAHN works in cooperation with the research factory ARENA2036, the University of Stuttgart and the US accelerator Plug & Play. Together with various industry partners, Mercedes-Benz AG aims to continuously promote the technology, mobility and IT sectors. The STARTUP AUTOBAHN has already established a global footprint, in addition to China, India and Singapore, countries such as South Africa and USA are also supported in start-up scouting. On July 7th, the largest open innovation platform will again take place in Stuttgart and &Charge is going to be participating. The technology company &Charge lifts the curtain to showcase its unique SaaS model combined with a crowd-sourcing approach. The goal here is to motivate a broad user community (the so-called &Charge Crowd) to provide comprehensive data around the charging of electric cars.

Accelerated by global megatrends such as decarbonization and digitalization, the automotive industry is in the midst of a profound transformation process. Sustainability is one of the dominant tasks of our decade and is enshrined in the Paris Climate Agreement, among other things. To achieve these goals, governments are imposing restrictions and bans on internal combustion engine vehicles and stimulating demand for zero-emission vehicles. For example, depending on the country, there are different levels of subsidies for the purchase of an electric vehicle.

In the course of this, the car manufacturers (OEM) are also pressing ahead and setting clear phase-out dates for their combustion technology. The overriding goal is to implement and support the Paris Climate Agreement, which will result in this traffic and mobility turnaround. E-Mobility has a key position here.
We are currently at a transition to the mass market, in which electric vehicles are arriving and being used across the whole of society. As a result, many new user groups are currently owning an electric vehicle for the first time and will do so in the future. The requirements of the mass market for a new technology differ significantly from those of the so-called early adopters. Thus, among many other topics, E-Mobility is primarily about reliable, hassle-free and simple charging of the electric vehicle.

Due to the historically high fragmentation of this new ecosystem, these requirements cannot currently be met across the board. It can happen that public charging stations are defective, cannot be found, or are polluted - these impairments diminish the charging experience and can be hindering the broad adoption of E-Mobility.

June 27, 2022

Together with key industry stakeholders, &Charge is working to successively mitigate these factors and help address them.

Thus, &Charge has established a unique crowd-sourcing approach that ensures, among other things, that soiling, defects and impairments of the charging experience can be reported in real time by electric car drivers via their own app and thus reach the respective charging station operators. They can then respond immediately and solve the problems. The charging station operators use these services around the &Charge crowd to reduce their operating costs and increase the quality of location and stay.
Strategic partners on the &Charge platform include Allego, EnBW, EWE Go, mer, MOVE Mobility, Pfalzwerke, Stadtwerke Pforzheim and many others in Europe.

In the same way, &Charge also uses a Crowd-Sourcing approach to validate and collect charging station data. Due to the complex ecosystem, it happens that certain data points are not correct. For EV drivers, this means that in case of doubt, they will not find the desired charging station on site because the geo-position is not correct. In addition, &Charge also collects other relevant information via its own crowd, such as enhanced information of the charging station, activities on site, toilet, playground for kids, etc. This data can then be used by car manufacturers or navigation service providers to correct and improve their own data quality.

To increase the commitment of the crowd of electric car drivers, &Charge has set up its own sustainable bonus program. Specifically, EV-drivers earn so-called &Charge kilometres (1 kilometer = 0.08€) for their activity, which in turn can be used to charge electric cars free of charge. In addition to collecting data and rating charging stations, electric car drivers can also earn &Charge kilometres for online shopping at over 1,500 partners in Europe.

About &Charge GmbH
&Charge GmbH is the first and only platform in Europe that combines user engagement with value-added services around EV charging. The technology company offers innovative solutions for private and business customers:
1. Private customers: "Daily companion" for charging electric vehicles. The &Charge app for EV drivers makes charging more affordable, reliable and fun. EV drivers are rewarded with bonus points ("&Charge kilometres") for purchases and activities, they can rely on the ratings of other charging stations or use the marketplace to share private charging stations (wallbox sharing).
2. Business customers: Offering multiple value-added services.

June 27, 2022

&Charge's B2B solutions bring additional benefits to partners in the e-Mobility ecosystem such as charge point operators (CPOs), e-Mobility service providers (EMPs) and roaming providers. Among other things, CPOs can benefit from direct user feedback on their charging stations ("remote maintenance based on crowdsourced feedback"). EMPs and roaming platforms can rely on improved and quality-assured POI data for charging stations, or CPOs/EMPs can join the ecosystem as an acceptance partner by using &Charge reward points to increase their customer loyalty and acquire new users.
&Charge has been a carbon neutral company since its inception in 2019. The company avoids, reduces and offsets not only the CO2 emissions of its own operations, but also those of its users.

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About STARTUP AUTOBAHN powered by Plug and Play
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Startup Autobahn EXPO2022: asvin presents best practice example for automotive software supply chain

July 1st, 2022

Cooperation project with DXC Technology and Excelfore for secure software in connected vehicles

Cybersecurity expert asvin will showcase "Usecase FlexCar", a security concept for connected vehicles in the automotive industry, at this year's Startup Autobahn EXPO2022 event. The collaborative project was launched together with global IT services company DXC Technology and Excelfore and will be presented on site. Under the motto "Driving Open Innovation on the Autobahn," the event launched by Startup Autobahn powered by Plug and Play will offer a discussion platform with presentations, networking opportunities and an overview of successful pilot projects between program startups and the business units of corporate partners in the field of mobility on July 7 in Stuttgart.

Digitalization is advancing in leaps and bounds and encompasses more and more areas of everyday life. Connected vehicles are no longer a dream of the future. However, networked devices in the Internet of Things (IoT) always offer attack surfaces for cybercriminals and hackers. Especially when different software stacks come together and no uniform language is used, it is difficult to comprehensively close security gaps. As a result, the door is wide open for attackers. This is exactly where the cooperation project of the cybersecurity expert asvin, in collaboration with DXC Technology and Excelfore, comes in and focuses on software supply chain tracking and provenance in the automotive industry.

Comprehensive security concepts for connected vehicles

Connected vehicles require a complete life cycle assessment that ensures cybersecurity on the one hand, but also complies with legal requirements. Due to increasing complexity and interdependencies within the software supply chain, especially for OEMs and suppliers, new processes such as DevOps are being introduced to extend software development cycles and manage continuous software delivery through OTA updates. The result is targeted cyberattacks that exploit vulnerabilities in systems or processes. Therefore, a new approach is needed that simplifies the complex operations within the supply chain and creates integrity within the software space used. Developed by asvin, DXC Technology and Excelfore, "Usecase FlexCar" is a decentralized security platform used to secure OTA updates and their documentation for vehicle type approval. The aim is to minimize security risks for digitized vehicles across all stages of the software supply chain. In this way, (meta-)information of the different software stacks of suppliers can be standardized and cybersecurity safety systems can be implemented more easily and effectively.

The ideal platform: Startup Autobahn powered by Plug and Play

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Startup Autobahn powered by Plug and Play is an open platform that provides an interface between innovative technology companies and industry-leading companies in Stuttgart. Members thus have the opportunity to benefit from both the know-how of the members and the network. The common goal is not only to develop new ideas within the framework of the cooperation, but also to drive innovations forward and thus the mobility of the future. The network is supported by the Plug and Play Tech Center, a US software platform from Silicon Valley.

"The cooperation with Startup Autobahn is another important step for us to protect connected vehicles even better and to make an important contribution to future mobility concepts," says Mirko Ross, CEO of asvin. "In addition, we are very proud to have found a solution for more cybersecurity in connected vehicles together with our partners from DXC Technology and Excelfore and to be able to meaningfully contribute our expertise to Startup Autobahn's comprehensive network."

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DXC Technology

DXC Technology (NYSE: DXC) helps global enterprises run their mission-critical systems and operations while modernizing IT, optimizing data architectures, and providing security and scalability across public, private and hybrid clouds. The world's largest enterprises and public sector organizations rely on DXC to deploy services across the enterprise technology stack to set new benchmarks in performance, competitiveness and customer experience. Learn more about how we deliver excellence for our customers and colleagues at DXC.com.

Excelfore

Excelfore, based in Silicon Valley, unlocks vehicle data through innovative platforms for connected cars, electric and autonomous vehicles. Excelfore's products include protocol stacks for in-vehicle connectivity and a full implementation of the eSync™ bi-directional pipeline for OTA updates and data collection. Excelfore is headquartered in Silicon Valley, California, USA, and has offices in China, Germany, Japan and India. www.excelfore.com

asvin

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asvin provides solutions to ensure the security and provenance of software throughout its lifecycle. This includes services and analytics that monitor data and software supply chains, support secure roll-out of over-the-air software updates, and for the creation of Software Bill of Materials (SBOM).
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Press release visuals link:
pictures.startup-autobahn.com/Spring2022/EXPO2022/Press-Release-Visuals/

DEEP.FINE is a Korean startup that develops industrial collaboration platforms using extended reality technology. The startup succeeded in commercializing a smart glasses-based, remote collaboration solution

by developing an industrial collaboration platform called “ARON”. It has achieved phenomenal success in just 3 years since its establishment, supplying the solution to major construction companies and major companies’ manufacturing plants that are undergoing facilities maintenance. DEEP.FINE is also collaborating with major telecommunication companies at home and abroad to develop advanced metaverse technologies including 5G MEC.

DEEP.FINE’s XR Showroom which will be exhibited at EXPO2020 enables people to view Mercedes-Benz cars remotely without visiting the showrooms in person and enables them to receive information about cars from the auto experts in real time. This solution also can be effective for promoting high-end models, heavy equipment, ships and aircraft that are difficult to find at showrooms.

“By converging various technologies, we’re going to invest in ambitious research that goes beyond the limitations of the XR industry and prepare for the growth and future of core technologies” said DEEP.FINE CEO Kim Hyun-bae. “Using convenient authoring tools, we’re going to carry out R&D in advanced solutions that can be easily tested and used in various fields including collaborative manufacturing, construction, education and healthcare” Kim added explaining that many advanced technologies like remote precision collaboration, remote rendering, AI-based interaction are already increasingly incorporated through XR in many industrial fields.

About Deep.fine

DEEPFINE is offering a software solution that allows its customers to create virtual vehicle experiences beyond space limits. DEEPFINE's service aims to reduce vehicle exhibition costs and gain potential customers through real-time interaction between dealer and buyers in the XR showroom. DEEPFINE is mainly targeting customers in the automotive industries. Their focus is on applications in business areas like promotion, consulting, sales and training. DEEPFINE is currently focussing on building new customer relationships with small, mid-sized or large companies in the automotive and heavy equipment sectors.

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June 30, 2022

Sensor integration for autonomous driving: Webasto and Bosch present prototype

At EXPO Day of the "Startup Autobahn" innovation platform in Stuttgart, Webasto and Bosch show a jointly developed autonomous vehicle sensor integration prototype for the first time.

Stockdorf. June 30, 2022. Innovation, collaboration and inspiration combined in one car: Webasto has integrated a total of 25 sensors from Bosch as well as numerous additional features into the roof of a joint prototype. The vehicle will be presented to the public for the first time at EXPO2022 of the "Startup Autobahn" innovation platform on July 7 in Stuttgart. Four radar, four lidar sensors and 16 cameras of different type from Bosch are integrated in Webasto's Roof Sensor Module (RSM). Sensors reliably detect the environment and will enable autonomous driving at Level 4. Webasto integrates features for cleaning, de-icing and fog removal as well as sensor cooling to ensure functionality in all weather conditions with automotive-grade industrialization. A vehicle motion and position sensor (VMPS) consisting of a global navigation satellite system (GPS/GNSS) and an inertial measurement unit, is further accommodated in the Roof Sensor Module.

"In our prototype, we demonstrate our competence as a system integrator. Compared to current robotaxi prototypes on the market, we are able to significantly reduce the height, weight, and package this in a stylish roof module, particularly while also integrating a transparent sunroof bringing comfort, air and light into the vehicle for passengers," explains Freddy Geeraerds, Member of the Management Board of Webasto SE and responsible for the global roof business.

Teaming up with "Wheel.me"

In addition to the cooperation with Bosch, Webasto is also showing the result of a promising collaboration with a startup at the EXPO. At "Wheel.me", everything revolves around autonomous wheels. Webasto learned of the Norwegian company in 2019 during a "Startup Autobahn" event. In a pilot phase, Webasto provided the robotics company with a test site for their first prototypes, among other things. The technology and the idea behind the product convinced Webasto to launch a use case at its Utting, Germany plant. At the site the intelligent, electric wheels independently transport heavy glass and frame racks from the warehouse to the production line. "We see this as a great example of how technology from innovative tech-companies can help us be more flexible and efficient", said Carlos Inacio, Head of Automation Supply Chain at Webasto. After a successful installation in Utting (Germany), the plan is to extend the roll-out of use-cases across different locations.

June 30, 2022

About Startup Autobahn

Webasto has been a partner of "Startup Autobahn" since fall 2017. STARTUP AUTOBAHN powered by Plug and Play is an open innovation platform that provides an interface between innovative tech companies and industry-leading corporations. The basis of the program is the partnership that develops between startups and the corporate business units. The two entities hold an equal footing from the get-go: together they evaluate the potential for a joint venture, move forward to pilot the technology, and work to achieve the ultimate goal – a successful production-ready implementation. Designed with the intention to exceed startup acceleration, STARTUP AUTOBAHN powered by Plug and Play moderates a community for collaboration with a focus on implementable results. Over the years, the platform has successfully cultivated over 380 projects with more than 289 startups since its founding in 2016.

About Webasto:

The Webasto Group is a global innovative systems partner to the mobility sector and is among the top 100 suppliers to the automotive industry worldwide. The company's product portfolio comprises in-house developed roof systems, heating and cooling systems for various types of vehicle, batteries and charging solutions for hybrid and electric vehicles, as well as complementary services relating to thermo management and electromobility. Webasto's customers include manufacturers of passenger cars, commercial vehicles and boats as well as dealers and end customers. In 2021, the company generated sales of 3.7 billion euros and employed some 15,700 people at more than 50 locations. The headquarters of the company founded in 1901 is located in Stockdorf near Munich, Germany. For more information, go to www.webasto-group.com

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July 7, 2022

Shaping the Future Together: NXP Announces Collaboration with Plug and Play's Open Innovation Platform STARTUP AUTOBAHN

NXP joins Plug and Play's Open Innovation Platform STARTUP AUTOBAHN to connect with startups from all over the world and to drive technologies of the future.

What's new: NXP® Semiconductors announced its collaboration with Plug and Play's flagship Open Innovation Platform STARTUP AUTOBAHN at their EXPO 2022. The Open Innovation Platform scouts for startups from all over the world with the aim to validate technologies in proof-of-concepts (PoCs) and pilot projects. The primary goal of the platform is to grow and nurture these pilots and transfer them into a production-ready implementation, partner with startups or find investment use cases.

Why it matters: Plug and Play will connect NXP with startups to address industry-wide challenges that require collaboration to find viable and long-lasting solutions. The program addresses the needs of NXP and comprises topics from the fields of the future of mobility, IoT, sustainability and beyond. Their collaborative open innovation approach will allow NXP to build new relationships, improve efficiencies across the value chain, and drive future disruptions in the market place. They will also act as an important channel for cultural mindset change, as their approach will usually directly involve business leaders, product leaders, and many other employees from across the whole organization.

"One company can only do so much working in isolation," said Lars Reger, Executive Vice President and Chief Technology Officer at NXP Semiconductors. "There are enormous possibilities that are not yet fully exploited today. Joining STARTUP AUTOBAHN, powered by Plug and Play, NXP helps drive technologies of the future. By working collaboratively, we can expand our innovation horizon to create a world that anticipates and automates. For startups, agility is key and bringing them to market faster to boost their solutions and innovative concepts."

"We are very proud to announce NXP Semiconductors as a new partner joining our open innovation platform," said Saeed Amidi, Founder and CEO, Plug and Play. "Considering the ever-growing role that semiconductors play across several industries and sectors, our joint goal for this strategic partnership is to further boost innovation at NXP with significant startup-corporate collaborations and enhance our global innovation ecosystem."

More details: STARTUP AUTOBAHN powered by Plug and Play focuses on identifying startups that can provide the most innovative solutions to technical challenges. The team runs more than 60 accelerator

programs every year in more than 18 industry-themed programs, in the fields of future of mobility, IoT, production, enterprise, sustainability and beyond. They match corporate partners, such as NXP, with relevant startups for business development, strategic partnerships, investment, and mergers and acquisitions. The basis of each program is the collaboration between the two entities, which hold an equal footing from the beginning of the partnership.

STARTUP AUTOBAHN EXPO 2022 is an invitation-only event that brings together entrepreneurs, investors, experts, and decision-makers to Stuttgart to exchange relevant future topics and experience what can result from successful open collaboration.

About NXP Semiconductors

NXP Semiconductors N.V. (NASDAQ: NXPI) enables a smarter, safer and more sustainable world through innovation. As a world leader in secure connectivity solutions for embedded applications, NXP is pushing boundaries in the automotive, industrial & IoT, mobile, and communication infrastructure markets. Built on more than 60 years of combined experience and expertise, the company has approximately 31,000 employees in more than 30 countries and posted revenue of $11.06 billion in 2021. Find out more at **www.nxp.com**.

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February 2022

Automated driving: acquisition gives boost to Bosch engineering work on SAE Level 4 solutions

Acquisition of map specialist Atlatec planned

- Atlatec is one of the world's most innovative providers of high-resolution 3D maps for SAE Level 3 to 4 automated driving functions.
- Acquisition means even broader diversification of Bosch portfolio, and for customers all the building blocks for automated driving solutions from a single source.
- High-resolution digital maps are indispensable as an additional sensor for safe and relaxed automated driving.

Stuttgart, Germany – Bosch is expanding its expertise in automated driving and strengthening its market position with an acquisition. Atlatec GmbH, based in Karlsruhe, Germany, is to become part of the Bosch Cross-Domain Computing Solutions division as an independently operated company. Bosch and Atlatec have now signed agreements to this effect. Atlatec is one of the world's most innovative providers of high-resolution digital maps for driver assistance and automated driving. The company, which was spun off from the Karlsruhe Institute of Technology in 2014, employs around 25 people in Germany, Japan, and the United States. "The planned acquisition of Atlatec further expands our expertise in the field of high-resolution digital maps and makes us even more diversified.

It makes Bosch the only company that can offer its customers all the necessary building blocks of automated driving – from actuators and sensors to software and maps – from a single source. We are thus consistently expanding our strong position in this area," says Dr. Mathias Pillin, president of the Cross-Domain Computing Solutions division. "In Bosch, we have found the right partner for us as we take the next step in expanding our digital mapping expertise even further," says Dr. Henning Lategahn, CEO of Atlatec GmbH. It has been agreed that the purchase price will not be disclosed. The acquisition is subject to approval by the antitrust authorities.

Digital maps are an additional sensor for automated driving

High-resolution digital maps play an essential part in making automated driving functions safe and convenient to use. Atlatec offers all the necessary building blocks for mapping from a single source: its portfolio includes not only data recording and processing but also creation of the maps themselves as well as the requisite quality control. In addition to onboard sensors featuring radar, video, and ultrasonic technology,

digital maps are another indispensable sensor in automated driving. The information they contain relating to the vehicle's surroundings and traffic events goes far beyond the detection range of a vehicle's onboard sensors. For the creation of maps, Atlatec has developed a scalable solution with its own sensor box and associated software. The raw data this solution collects is analyzed using artificial intelligence (AI) and enriched with important information such as traffic signs and the sharpness of bends, as well as structural features such as streetcar tracks. Since the AI algorithms are continuously learning, the proportion of road and environmental features detected purely by AI is constantly growing. On the basis of information from the map, an autonomously driving car can, say, adjust its speed in good time before a tight bend.
In the development of automated driving, digital maps play a crucial role right from the start. And the higher the degree of automation, the more closely map creation and driving strategy programming must be dovetailed. "Atlatec GmbH's technology package for creating high-resolution maps makes the company an ideal addition for Bosch. The resulting mapping solution is very intelligent and agile, which sets it apart from other vendors. For example, the AI it uses identifies and maps road features such as guardrails and lane markings with the highest accuracy and consistency. This lets us design our driving strategy algorithms even more precisely," says Dr. Stephan Hönle, senior vice president of the Automated Driving unit in the Bosch Cross-Domain Computing Solutions division. Atlatec is also a useful complement to Bosch's road signature technology, which uses swarm data to enable self-driving cars to determine their exact position on the basis of digital maps. Bosch is successfully collaborating with various partners in the field of automated driving and mapping. Atlatec will complement these partnerships.

Bosch is working on every automation level from SAE Level 1 to 4

For Bosch, automated driving is a strategic area of business. The company is the innovation leader in this field. With driver assistance systems and the requisite sensor technology, it laid the foundation for all automation levels at an early stage. Bosch is taking a two-pronged approach. On the one hand, with the aim of making driving safer and more relaxed, it is developing solutions for private vehicles with a focus on driver assistance and on partially and conditionally automated systems (SAE Levels 1 to 3). On the other hand, the Bosch development team is also working on solutions for higher levels of automation, with a focus on fleet vehicles and new operating models. In the logistics sector in particular, the company sees attractive applications and huge business potential for SAE Level 4 automated driving systems. Moreover, Bosch has already developed automated valet parking, the first production-ready automated driving function not to require a driver at all.

February 2022

About Bosch

Mobility Solutions is the largest Bosch Group business sector. According to preliminary figures, it generated sales of 45.4 billion euros in 2021, and thus contributed 58 percent of total sales from operations. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector pursues a vision of mobility that is safe, sustainable, and exciting, and combines the group's expertise in the domains of personalization, automation, electrification, and connectivity. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly info-tainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti- skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 401,300 associates worldwide (as of December 31, 2021). According to preliminary figures, the company generated sales of 78.8 billion euros in 2021. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 128 locations across the globe, Bosch employs some 76,300 associates in research and development, of which more than 38,000 are software engineers.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch- press.com, www.twitter.com/BoschPresse.

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