

Media Information
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BMW Group's innovative Edge Ecosystem wins award.

+++ Cloud-based software suite for worldwide edge device management +++ Central app catalogue rolled out in the BMW Group production network +++ Zero-touch installation for fully automated setup +++

Munich. The BMW Group's Edge Ecosystem has won the Microsoft Intelligent Manufacturing Award 2021 in the Envision category. The cloud-based software suite allows production-related applications (apps) on edge devices to be distributed, configured and administered worldwide. This means software innovations can now be rolled out efficiently by users themselves without deviating from standardised business processes.

The Edge Ecosystem significantly reduces the effort involved in the manual management of many thousands of devices around the world. It also helps prevent faulty configurations from causing production shutdowns and saves on maintenance costs. These advantages make the innovative Edge Ecosystem a key driver in the digitalisation of the entire BMW Group production system.

Because it is open and uses standard IT technologies, the Edge Ecosystem also allows external partners and suppliers to integrate their hard- and software components around the world into the BMW Group's production system – efficiently and without special adjustments. Fast hardware integration is enabled by a zero-touch installer that integrates new edge devices into the ecosystem fully automatically and without user input.

**Increasing efficiency and cutting downtimes in production.**

App configuration is managed centrally by the cloud platform and allows hot-swapping – which is particularly important for production. So if an edge device fails, it takes just a matter of minutes to load the complete application and configuration onto a new device. This reduces downtimes in production to a minimum and eliminates the need for separate, complex backup management.

Worldwide distribution of AI models.

The BMW Group's Edge Ecosystem is already in use in several applications worldwide. In production, it connects the cameras and edge devices of specialised deep learning models used for inline quality assurance. It also allows image data, which undergoes application-specific processing locally, to be managed and offers the necessary flexibility for the agile exchange of AI models.

The Edge Ecosystem is being used in the press shop as well. Here, sheet metal must be oiled before being formed, but the amount of lubrication required depends on a range of factors, such as storage time. To ensure the optimum amount of lubrication, a deep-learning model was developed that transmits the lubrication parameters for each sheet to the machine and controls the system in real time. The model has been distributed and is constantly updated in the BMW Group Edge Ecosystem as an application for BMW Group presses around the world so that only as much oil is used as necessary.

**Retrofitting to existing systems.**

The Edge Ecosystem can also be used to update existing systems so that they too can work with modern applications in the cloud. This is done by installing a special gateway software on an edge device in the system which then converts its data into cloud-compatible formats. For example, the technology is being used to integrate loading machines and fire doors into the network of autonomous transport systems in logistics.

Edge Ecosystem wins award.

The value-adding impact the BMW Group Edge Ecosystem will have on future production has now been confirmed by an independent source. The system has now scooped the Microsoft Intelligent Manufacturing Award 2021 pre-sented by Microsoft and Roland Berger, in the Envision category.

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The BMW Group production network

In 2019, strong customer demand and new models kept capacity utilisation high across the BMW Group production network. Production volumes for the BMW, MINI and Rolls-Royce brands reached record levels, with output totalling 2,564,025 units. Of those, 2,205,841 were BMW vehicles, 325,729 MINI, and 5,455 Rolls-Royce Motor Cars. Approximately 1 million vehicles were manufactured by the German plants.

Uniquely flexible and highly efficient, the BMW Group production network is able to respond quickly to changing markets and regional sales fluctuations. Expertise in manufacturing is a key contributor to the BMW Group's profitability.

The BMW Group production network uses a range of innovative digital and Industry 4.0 (IoT) technologies, including virtual reality, artificial intelligence and 3D printing applications. Standardised processes and structures across the production system ensure consistent premium quality and allow a high degree of customisation.

The BMW Group

With its four brands BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial and mobility services. The BMW Group production network comprises 31 production and assembly facilities in 15 countries; the company has a global sales network in more than 140 countries.

In 2021, the BMW Group sold over 2.5 million passenger vehicles and more than 194,000 motorcycles worldwide. The profit before tax in the financial year 2020 was € 5.222 billion on revenues amounting to € 98.990 billion. As of 31 December 2020, the BMW Group had a workforce of 120,726 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company set the course for the future at an early stage and consistently makes sustainability and efficient resource management central to its strategic direction, from the supply chain through production to the end of the use phase of all products.

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