

A photograph of a car carrier truck driving on a road, carrying two dark-colored cars. The truck is viewed from the rear. The background shows a scenic landscape with green trees and mountains under a blue sky. A blue line graphic curves around the text on the left.

PREMIUM OEM LEVERAGES IOT-BASED DATA IN THE CLOUD TO TRACK VEHICLES IN DISTRIBUTION

Capgemini supported the BMW Group with a cloud-native analytics platform, which evaluates real-time IoT-based data to precisely monitor vehicles throughout the distribution process.

Pioneering change with data innovation

In recent years, the automotive industry has been increasingly focused on leveraging data to improve efficiency, enhance road safety, and provide innovative customer service. As a leader in the premium automotive segment, the BMW Group has long recognized the data potential that connected cars can unlock to fuel new products and services. Connected cars not only offer several opportunities in terms of new mobility segments, but also significantly optimize the distribution process before they even reach dealers or their future drivers. As an internationally renowned OEM with a reputation for the highest standards in customer service, the BMW Group wanted to explore how in-vehicle generated data could support its global vehicle distribution process.

Tracking vehicles overseas and across continents

The main challenge was that vehicles could not be tracked seamlessly in the distribution process. For instance, there was no transparency in maritime distribution since vehicle tracking had not yet been implemented for sea routes. Without more effective tracking during the distribution process, dealers received delayed information on the condition and location of vehicles. This meant that delivery times were unpredictable with little information available during the process, which risked impacting customer satisfaction. In addition, predictive maintenance and servicing could not take place during the distribution process without up-to-date status information on the vehicle's condition. Similarly, the lack of current, granular data limited the flexibility and expansion of the operational distribution processes.

To respond to these challenges, there was a need for a more adaptable, scalable, and robust technical solution with high stability. The solution's flexibility played a central role given that it had to be rolled out internationally, while taking different regulatory and legal requirements into account. With these aspects in mind, the focus was to improve predictability and the quality of delivered vehicles.

Overview

Client: BMW Group

Industry: Automotive

Region: Global

Client Challenge:

Increasing transparency across the vehicle distribution process chain by ensuring consistent end-to-end vehicle tracking from production to dealer handover

Solution:

Creation of a cloud-native, integrated, and real-time capable analytics platform based on AWS for processing in-car data, operational vehicle distribution information, and master data

Benefits:

- Tracking of vehicles at any point in the distribution process based on GPS data ensures transparency for dealers and customers
- Cloud-based solution enables international rollout, thanks to heightened adaptability and scalability
- Provisioning of reporting and monitoring dashboards for business-specific use cases that drive profound and faster decision-making
- Creation of data assets that can be used across different areas of the business

Hyperscaler solution provides maximum flexibility

As an experienced partner, Capgemini supported the BMW Group to tackle the challenges identified in the early phases of the project. The team substantially expanded the current vehicle distribution platform's reporting and monitoring capabilities by introducing new and revised dashboards that support and foster business-specific use cases. Capgemini developed a modern, cloud-native architecture that served as the basis for the migration to AWS (native) cloud services.

Beyond that, the project supplied the BMW Group with additional data assets, which have been added to the company's data lake and are available for further use cases in other departments. A unique data asset was established by combining the GPS-based location data of vehicles with distribution data from operational systems. This enabled the BMW Group to obtain the most accurate location of vehicles at any given point in time throughout the whole distribution process, including resulting stock calculations.

The dashboards enable profound decision-making and promote transparency across the distribution process. They enable effective management of vehicle quality and incurred service costs based on the data processed by the platform. Using a DevOps approach, the team introduced continuous delivery with test automation and additional operational dashboards for monitoring scalability, costs, and system availability.

Reliable delivery leads to increased customer satisfaction

As a result of the project, the location of all vehicles can now be proactively determined at any point in the distribution process. Following the initial rollout and running on state-of-the-art and cloud-native architecture, the solution is now in use globally. Further results of the transformation process include:

- Improved transparency in the distribution process, including up-to-date information on vehicle stock and conditions
- Immediate intervention in case of technical campaigns on the vehicles
- Increased customer satisfaction among dealers, subsidiaries, and end users as vehicles reach their destinations on time, in excellent condition, and at competitive cost
- Optimized routing and efficient capacity utilization ensure sustainability.

The successful project with Capgemini and the BMW Group covered both the implementation of a new technical solution as well as designing end-user dashboards in line with business requirements. By combining data-driven services and cloud technology, the system sets the bar high for further innovation in the automotive distribution processes.

For more information on this project, please contact:
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About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 350,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2021 global revenues of €18 billion.

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About the client

Today, the BMW Group, with its 31 production and assembly facilities in 15 countries as well as a global sales network, is the world's leading manufacturer of premium automobiles and motorcycles, and provider of premium financial and mobility services.