News Release

# Teradata and Volkswagen Develop Smart Factory Solution for Greater Efficiency in Vehicle Body Construction

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- “Spot Welding Analytics” - the smart analysis of machine data in production - turns the Volkswagen plant in Emden into a digital factory
- Volkswagen, AWS and Teradata aim to make data analytics technology available to industrial cloud community partners

On the path to fully networked production in the automotive industry, there are two key success factors: the digital networking of processes, products and machines, and the smart use of data. An interdisciplinary team from Volkswagen, AWS, and the connected multi-cloud data platform for enterprise analytics company, Teradata, has now succeeded in both. With "Spot Welding Analytics," they have created an intelligent solution that enables greater transparency and efficiency in car body construction. The solution integrates and analyzes data generated by welding robots – a previously untapped potential of manufacturing data.

Mastering complex test procedures in car body construction

"Spot Welding Analytics" is already in use today at the Volkswagen plant in Emden, where it is transforming the body shop into a digitized factory. More than 1,000 cars are produced at the plant, daily. The machines and robots in the vehicle body shop set up to 7 million spot welds every day. The spot welds not only have to be executed according to materials, layer thicknesses and positions to ensure quality and durability they must also be precisely inspected after execution. The robot needs only a few seconds to set the spot weld. But quality assurance afterwards is time-consuming. This is because the checks are based on samples that have to be carried out manually by a quality assurance team. The approach of achieving transparency with the help of data has far-reaching advantages: from the possibility of early intervention and rapid detection of weak points in process

sequences to dynamic maintenance of the welding infrastructure and analysis of material combinations. In addition, Volkswagen´s "Spot Welding Analytics" not only reduces manual effort, but also extends the defined inspection scopes and end-to-end process monitoring.

"The use of process data for 100 percent process monitoring is a decisive step towards the smart factory and will be the basis for further applications that contribute to continuous improvement," says Mathias Boomgaarden, the project manager for the use case at Volkswagen's Emden plant.

Significant insights into welding processes with AI and machine learning

The solution is fully built on and aligned with Volkswagen's Industrial Cloud (Digital Production Platform). The platform's base service, the Base Connectivity Solution, is used to establish local connectivity between operations technology (OT), IT and the enterprise tier in the Industrial Cloud. Spot weld data and additional metadata are integrated and analyzed in the Teradata Vantage cloud data platform on AWS. This is where analytical processing, model training, and data scoring take place, as well as combining the data with other sources. Using analytic models that incorporate self-learning and self-enhancing artificial intelligence (AI) or machine learning algorithms, the service classifies and refines the data based on various process characteristics. The results provide Volkswagen's autobody engineers with information on the process stability of all weld spots. In addition to the process characteristics of each spot weld, the solution supports the analysis of the effects of integrated maintenance measures, material combinations and welding process parameters.

Data analytics for Industrial Cloud community partners

Volkswagen, AWS and Teradata want to make data analytics technologies accessible and scalable for the Industrial Cloud community. The Industrial Cloud is an open industry platform that enables companies from the automotive and manufacturing industries and their suppliers to benefit from its services and solutions as partners.

“Digitalization is fundamentally changing the methods by which vehicles are developed, planned and built. Our Spot Welding Analytics solution of the Industrial Cloud highlights one of the significant potentials for smart production in the automotive industry from data analysis of machines, sensors and IT system,” said Christian Schwöbel, Executive Account Director Automotive at Teradata.

About Teradata

At Teradata, we believe that people thrive when empowered with trusted information. We offer the most complete cloud analytics and data platform for AI. By delivering harmonized data and trusted AI, we enable more confident

decision-making, unlock faster innovation, and drive the impactful business results organizations need most. See how at **Teradata.com**.

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