

Media Information

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BMW Group scales Virtual Factory

- Virtual automated collision checks ahead of new product launches
- Core component of BMW iFACTORY
- Up to 30-percent reduction in production planning costs projected
- BMW Group to present Virtual Factory at NVIDIA GTC Paris

Munich. The BMW Group is industrialising its Virtual Factory, with production planners continuously scaling applications in the digital twins of over 30 production sites to accelerate production planning worldwide. What once required several weeks of real-world modifications and testing can now be precisely simulated in the BMW Group's Virtual Factory. To create optimal conditions for upcoming launches at the plants, the BMW Group will integrate more than 40 new or updated vehicles into its global production between now and 2027. This will first be done virtually to ensure immediate stability at the plants. Going forward, the BMW Group's Virtual Factory is projected to reduce production planning costs by up to 30 percent.

Virtual planning is a core element of the BMW Group iFACTORY and involves a wide range of tools. The intelligent linking of building data, equipment data, logistics data, vehicle data and even 3D simulation of manual work processes creates digital twins of all BMW Group plants worldwide. In an industrial 3D metaverse application based on NVIDIA Omniverse, simulations can be performed in real time, enabling virtual optimisation of layouts, robotics and logistics systems. The BMW Group's Virtual Factory is continuously expanding to incorporate generative and agentic AI functionalities and assistants.

Digital, automated, fast: Collision checks for new vehicle models

For every launch, it is essential to verify that the new product fits on the production line and does not collide with its surroundings at any point. In the BMW Group's Virtual Factory, this collision check is digital, automated and fast, using construction data combined with 3D scans. The movement and rotation of a vehicle through the production lines are precisely simulated, allowing the system to automatically check for possible collisions. What now takes just three days to simulate virtually previously required almost four weeks of real testing.

In the past, a real vehicle body had to be manually guided through the production lines – often over several weekends – to identify potential collisions. In the paint shop, this process sometimes required completely emptying and cleaning the dip coating tanks where vehicle bodies are submerged for priming. The costs and time investment for this were enormous.

Growing number of scalable applications

The BMW Group's Virtual Factory is rapidly evolving, enabling an increasing number of applications to be scaled. In addition to virtual, automated collision checks, this includes human simulation to optimise manual production steps and automated identification of maps of the surroundings from existing 3D scans for smart transport systems.

Learn more about the BMW Group's Virtual Factory at NVIDIA GTC Paris:

Thursday, 12 June 2025 from 11:00 a.m. to 11:45 a.m. CEST.

[Accelerating Automotive Innovation with Accelerated Computing, Digital Twins and AI](#) by the BMW Group.

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**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 services. The BMW Group production network comprises over 30 production sites worldwide; the company has a global sales network in more than 140 countries.

In 2024, the BMW Group sold 2.45 million passenger vehicles and more than 210,000 motorcycles worldwide. The profit before tax in the financial year 2024 was € 11.0 billion on revenues amounting to € 142.4 billion. As of 31 December 2024, the BMW Group had a workforce of 159,104 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. Sustainability is a key component of the BMW Group's corporate strategy – from the supply chain through production to the end of the use phase of all products.

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