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From Data to benefit - application of AI technologies in steel production

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In the ongoing digital transformation of the steel industry, Artificial Intelligence is more and more integrated into the automation of the production processes. However, the true potential of AI technologies can only be realized if preconditions to data quality are given, and domain expertise is effectively digitized.
This presentation explores the application of AI technologies—such as machine learning, deep learning, and expert systems—in areas like predictive maintenance, process control, and defect detection. A special focus is placed on the unique characteristics of steel production data, including its complexity, heterogeneity, and real-time processing requirements. Additionally, we discuss the importance of capturing and structuring expert knowledge in digital form to enhance AI-driven decision-making and ensure long-term knowledge retention. By combining high-quality data with digitized know-how, steel manufacturers can achieve tangible benefits such as reduced downtime, improved product quality, enhanced sustainability, and continuous improvement of the production processes along the entire production chain. This paper will highlight best practices for transforming raw data and human expertise into actionable insights, demonstrating how AI can drive measurable benefits in steel production automation.

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