Paper 10: Applying Mature Digital Twin to Optimize Production and Reduce Carbon Footprint

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Abstract:
In a strategic collaboration with an industry leader in the Oil and Gas industry, Siemens excelled the maturity of the digital twin. The paper discusses the benefits achieved by applying Siemens' Digital Twin Solution as a holistic ecosystem. It covers following topics:

Introduction of the Digital Twin Concept

A digital twin is a dynamic, virtual representation of a physical asset, system, or process plant. It integrates real-time data from sensors, historical records, and AI-driven simulations to mirror the behavior and performance of its real-world counterpart.

Optimizing Production Through Real-Time Insights

The process digital twin enables operators to simulate and predict the behavior of complex systems under varying conditions. This allows engineers to test different operational scenarios virtually, —without interrupting actual production.

Reducing Carbon Footprint with Data-Driven Decisions

The continuous analysis of energy consumption patterns and emissions data enables operators to identify inefficiencies and implement corrective actions in real time.

ESG- and Sustainability Impact driving responsible operations