

Everllence

„The simulation helped us identify problems in our planning data. It showed that the previously planned product mix at the site will not be achievable in this way. This makes it an important instrument of strategic planning. The visualizations of the simulation results are a good tool in the discussion with decision-makers.” (Alexander Robin Cordes – Project Manager Digitalization Operations Innovation & Excellence)

PRODUCTION INTELLIGENTLY SIMULATED

Initial situation

The plant of Everllence SE is specialized in the manufacturing of gas and air turbines and, with over 70 manufacturing stations, around 1700 process steps and six product groups, represents a highly complex workshop production – controlled via SAP ERP (R3).

The diversity in the product mix and the multiple use of individual stations increasingly pose challenges to traditional methods of value stream analysis. In addition, fluctuating material flows and resource availability complicate a continuous production overview and reliable planning capability.

As part of the strategic further development, the company pursues the goal of increasing production capacity by 182% by 2028. In particular, the manufacturing of gas and air turbines at the Berlin site is to be sustainably strengthened and made future-proof.

Requirements

The goal was to create a sound basis for decision-making for production management through the use of a powerful modeling and simulation environment.

Based on available system data, complex material flows and process dependencies in the production system, including a ramp-up scenario, were realistically mapped. Through the simulation of hundreds of operations over a period of more than three years, bottlenecks and inefficiencies could be identified by means of data-driven value stream analysis.

The results were prepared using understandable data visualization and storytelling so that they could be specifically incorporated into decision-making processes.

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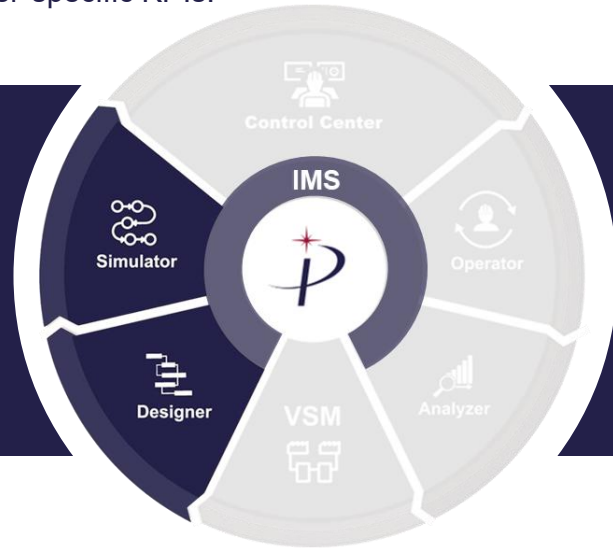
Simulation and analysis of the production ramp-up until 2028 with Polaris:

- **Discrete-event simulation** to derive optimal measures.
- **Modeling & validation** of complex work plans using Gantt visualization.
- **Scenario analysis** for ramp-up, product mix and control strategies (2025–2028).
- **Material flow optimization** through layout-based visualization.
- **Bottleneck analysis** with MS Power BI and customer-specific KPIs.

Implementation

The Designer and the Simulator were used for the project.

This allowed the ramp-up project to be replicated as a digital twin and simulated realistically.



Result

The data-based analysis and simulation provided key insights for optimizing the production system.

Deficiencies in the data quality of the SAP data could be identified and corrected by the customer in order to increase planning quality in the future.

- The material flow could be visualized, and inefficient transport routes could be identified.
- The expected throughput times and station utilizations could be determined under various scenarios.
- Relevant bottleneck stations and measures could be identified to eliminate them in order to achieve the ramp-up in the year 2028.
- A suitable product mix to achieve uniformly high production utilization could be determined.
- Based on a storage space utilization analysis, buffer capacity bottlenecks of large assemblies during ramp-up could be uncovered.

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