

Streamlining operations with material flow simulation at Silhouette



“The use of Polaris IMS was the next step towards the Smart Factory for our organization. It’s not just about making processes more efficient; It’s about planning our future business in advance. With Polaris IMS it’s possible to digitally capture our operation model, allowing us to simulate multiple scenarios and take lens production to the next technological level. It is a tool that empowers our teams to visualize, analyze and innovate. The results have been simply outstanding.”

Antje Herold – Head of Lens Production at Silhouette.

CUSTOMER CHALLENGES

Silhouette International Schmied AG, a global leader in premium eyewear, faced complex operational challenges that put their commitment to excellence to the test:

- **High order volatility and delayed delivery.** Frequent fluctuations in customer orders created a volatile production environment, creating a challenge for on-time product deliveries to customers.
- **High variant variability.** Silhouette's extensive product portfolio introduced complexity into the production process, which needed to be optimized.
- **Temporary seasonal bottlenecks.** Seasonal spikes in demand occasionally led to production bottlenecks, affecting material flow.
- **Multiple levels of bottleneck resources.** Bottlenecks emerged at various stages of production, impacting both machine and skilled labor resources, compounding the operational challenges.

IFAKT SOLUTION

In collaboration with Silhouette, a comprehensive approach was devised to address these pressing issues:

- **Capture operational process data.** Silhouette meticulously collected and analyzed operational data, including historical production schedules, order patterns, machine utilization, and workforce skill sets.
- **Identify improvement areas.** They sought to identify key improvement areas crucial for a successful product ramp-up in the coming years.
- **Simulation of multiple scenarios.** A series of simulations were carried out, replicating various real-world scenarios. These simulations encompassed different levels of order volatility and variability, shedding light on the precise operational challenges faced by Silhouette.

AT A GLANCE

Customer: Eyewear Manufacturer
Customer size: 1.300 employees

Country: Austria
Industry: Discrete Manufacturing
Products & Services: POLARIS IMS

ACTIVITIES

The path to success involved several critical activities:

- **Data collection.** Data was gathered directly from production to create a detailed operational model within the Polaris IMS platform.
- **Scenario preparation.** Multiple scenarios were prepared to anticipate expected future increases in orders.
- **Simulation of scenarios analyzing available resource levels and existing bottlenecks.**
- **Validation of improvements** by adjusting resource availability through additional qualified personnel and extended shift models.
- **Reporting.** A standardized simulation analysis reporting system was developed in Microsoft Power BI to assess and visualize areas of improvement.

RESULTS

The material flow simulation initiative delivered invaluable insights and tangible outcomes for Silhouette:

- **Skill-level bottlenecks uncovered.** Contrary to initial assumptions, the simulations revealed that seasonal order increases primarily caused bottlenecks at the skill level, not the machine level. This insight allowed Silhouette to refine their optimization strategies with precision.
- **Anticipated increased demand for 2024.** The simulations also foresaw a substantial surge in demand for 2024. Equipped with this foresight, Silhouette proactively prepared for growth by allocating additional budget for skilled personnel and shift extensions during peak periods.

PROJECT BENEFITS

The adoption of material flow simulation yielded several significant benefits for Silhouette:

- **Improved on-time delivery and customer satisfaction.**
- **Reduced bottleneck disruptions.**
- **Robust resources and budget planning.**

WHAT'S NEXT?

Silhouette is committed to maintaining and enhancing operational excellence. The next steps include:

- **Regular simulations.** Silhouette will conduct routine simulations to anticipate the impact of upcoming fluctuations in order intake, enabling proactive allocation of resources and skills.
- **Intelligent scheduling with Polaris.** An envisioned next step is leveraging the same simulation model for proactive bottleneck management. Silhouette intends to implement an intelligent planning and control solution, Polaris, to further optimize production operations.

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