

Gift Wrap Manufacturer Increases Sales with Production Simulation

Arena® Simulation Software Enables Manufacturer to Significantly Reduce Cycle Times and Costs to Meet Peak Seasonal Demands

Challenge

Extreme seasonality, increasing variability in demand and a complex supply chain were cutting into profits and made firm delivery commitments challenging. They needed to:

- Increase throughput
- Decrease inventory
- Decrease operating expenses and cycle time
- Do a better job of capacity planning
- Gain access to accurate, timely information

Solutions

Rockwell Software
Arena Simulation Software

- Arena's manufacturing simulation software was used to analyze the manufacturer's processes
- Over 20 different scenarios were evaluated to determine the best recommendation for process improvement

Results

- The model helped the manufacturer increase sales by more than \$1 million
- The simulation effort identified several options to optimize process performance
- Cycle time was reduced from 5 weeks to 3 days
- Overtime and operating expenses were lowered
- On-time shipping performance increased to more than 95%



Background

A South Carolina-based consulting firm that applies the principles of synchronous back-office integration to customer forecast and actual demand assists one of the world's largest manufacturers of holiday wrapping paper—responsible for 30–40% of worldwide production—to increase production to meet the challenges of seasonal demand.

Challenge

The seasonal nature of the gift wrap business means that 90% of the manufacturer's business occurs in a 90-day window (September, October, November). Demand had been uneven, due mostly to a problematic supply chain. Production lead times were too short to generate enough volume to meet demand, overwhelming the process for on-time delivery. Meanwhile, the short shipping cycle (an 8-10 week window) caused bottlenecks that reduced production capacity, resulting in poor performance that cut into profits. As a result, the company faced the possibility of losing repeat customers, incurring fines and lost profit for each day of a missed deadline, and having retailers demand compensation for lost margin. The manufacturer knew they had to commit to a firm delivery time frame. In order to do that, they needed to simultaneously increase throughput, decrease inventory, reduce operating expenses and cycle time, do a better job of capacity planning, and gain access to accurate, timely information—the lack of which was another glaring bottleneck.

LISTEN.
THINK.
SOLVE.®

Solution

In order to identify the critical problems in the manufacturer's process, the consultants put into place a business process analysis-and-repair initiative that included production simulation. Arena's manufacturing simulation software by Rockwell Software was selected because it quickly illustrated the performance of the entire process: entering new customer forecasts, building the product database, completing package design, and finalizing quality control information for the product.

Results

The Arena production simulation model was used to evaluate over 20 implementation scenarios, identifying more than five that could improve the system. The definitive scenario demonstrated how to reduce cycle time from five weeks to three days; bring down overtime expenses, thus lowering operating expenses; and increase on-time shipping performance from 70% to more than 95%. The production simulation model also located and resolved many interrelated bottlenecks and identified how fluctuations in volume or demand timing would affect the system. The simulation model also identified the impact of "late" business on the manufacturing schedule, enabling the company to realize more than \$1 million in additional sales.

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