

DEMAND-PULL SUPPLY CHAIN CASE STUDY

FEBRUARY 2013

“An excellent job was done in preparation and execution.”

—Project Manager

CLIENT OVERVIEW

REGION

North America

INDUSTRY

Aero structures design and manufacturing

CUSTOMER PROFILE

The client is a worldwide manufacturer of commercial and military airplane assemblies and components, employing over 14,000 skilled professionals.

BUSINESS SITUATION

The company's “general fabrications” unit suffered internal fill rate shortfalls, missed service deadlines, and incurred excessive overtime costs.

SOLUTION

Pinnacle Strategies implemented a comprehensive production management solution based on demand-pull principles and integrated it with the existing SAP ERP system.

Demand-Pull Replenishment system increases inventory turns 83% while improving service levels from 85% to 99.5%

CHALLENGE

General fabrication unit struggles to deliver on time

“General fabrications” is the parts production organization of a worldwide designer and manufacturer of aero structures, including fuselages, propulsion systems, and wing systems for commercial and military aircraft. The general fabrications (Gen Fab) unit employs approximately 700 of the company's 10,000 employees on a 20-acre facility in Kansas, and was responsible for four years' worth of orders placed within the firm's master production schedule. But long lead times and a confounded “system” of priorities contributed to a number of bottlenecks that dropped the fill rate to 83% and led to budget-busting overtime expenses. Managers were operating from 15 different priority schedules compiled from a variety of areas within the organization. As a result, inventory was very high, turning less than three times a year.

SOLUTION

Apply a multi-faceted Demand-Pull Supply Chain process to shift from “push” to “pull”

With more than 30,000 SKUs under production, Gen Fab required a comprehensive work scheduling and management process overhaul to reduce costs and increase service levels. Pinnacle Strategies worked with Gen Fab in five key initiatives that turned the unit around:

REDUCE SHORTAGES BY REPLENISHING ACTUAL CONSUMPTION When Pinnacle Strategies arrived, component supply was managed based on cues from the master production schedule, and orders were pushed through the system, rather than pulled based on actual consumption. Pinnacle Strategies developed and implemented an inventory buffering strategy incorporating scientific methods rooted in ground-floor realities and using existing SAP functionality; the resulting streamlining enabled Spirit to carry four times less inventory while simultaneously improving service levels.

RECONFIGURE BATCH SIZE AND LEAD TIMES TO ACCELERATE FLOW Pinnacle Strategies recognized that the true “touch time” (when components are actually worked upon) was a small proportion of overall production time. Pinnacle resized the production batches and reduced lead times, accelerating the flow of work through the production process.

RESULTS IN NUMBERS

INVENTORY TURNS INCREASED BY 83%

OVERTIME SPENDING REDUCED BY \$2.8 MILLION ANNUALLY

INTERNAL FILL RATES IMPROVED FROM 85% TO 99%

PAST DUE ORDERS DROPPED BY 93%

Client recovered from a natural disaster, despite facility damage and lost production time, without missing a delivery

INTEGRATE WORK INTO ONE PRIORITY SYSTEM In any given week, as many as 8,000 orders competed for management attention. Pinnacle Strategies brought coherent focus to the entire factory floor, creating a single execution priority system integrated with SAP data that reflected the true needs of the customer.

BUST BOTTLENECKS TO INCREASE THROUGHPUT WITHOUT ADDITIONAL INVESTMENT Once the execution process was under control, Pinnacle Strategies organized a series of Rapid Analysis Bottleneck Improvement Teams (RABITs) to rapidly identify and break the bottlenecks (activities, machines, and resources) that were delaying the overall workflow—without requiring new machines or additional staffing.

MONITOR PROGRESS WITH AN OBJECTIVE PERFORMANCE MANAGEMENT SYSTEM To consolidate process improvements and sustain performance, Pinnacle Strategies created a system of measurements and reinforcements that established a single objective platform for monitoring manufacturing performance. The embodiment of this process was the Buffer Management Tool (BMT), a database (residing along with the SAP database) of all open orders and related activity.

RESULTS

Overtime spending reduced by \$2.8 million a year

Lasting improvement that withstood a tornado

The first phase began with about 2,000 SKUs moved to the new replenishment formula. Within just three months, the fill rate increased to more than 95 percent. Over the next nine months the remaining 19,000 parts were converted to the system, reaching fill rates of 97 percent, then 99 percent. Inventory turns almost immediately increased, escalating to 83 percent by the engagement's completion. As productivity improved, overtime was minimized, saving Spirit more than \$2.8 million annually even as past due orders fell by over 93 percent. But perhaps the true test of the new system's value came in the wake of a spring tornado, which took down major portions of the Gen Fab operation and halted production. Thanks to the strength of the demand-pull system as the organizing principle (along with the BMT), the company was able to completely recover from facility damage and two-weeks of lost production time in less than 30 days—without missing a delivery.

ABOUT DEMAND-PULL

Demand-Pull is an alternative to conventional planning and execution rules that manufacturing and distribution companies apply to challenges such as:

- Global sourcing and demand
- Shortened product life cycles
- Shortened customer tolerance time
- More product variety
- Pressure for leaner inventories
- Inaccurate forecasts
- Long lead times for parts/component

While they are applied with the highest hopes, conventional approaches often fall short of expectations. For instance, when long-range forecasts are used, MRP planning spreads the inherent demand variability and creates inventory swings between too much and not enough. Although Lean techniques rely less on forecasts, they include little to no formal planning tools. Supply chains can easily be "surprised" by demand spikes or changes in capacity. In either case, the proliferation of spreadsheets attests to the weakness of conventional solutions.

The alternative: Let demand lead the process. In a pull-based supply chain, procurement, production, and distribution are demand-driven so that all activity is based on actual customer orders, rather than forecast projections. The pull demand system controls inventory investment, thus stabilizing supply chain performance and allowing supply chain managers to make rational tradeoffs and decisions regarding supply chain variables and performance. By letting reality, not modeling, take the lead, the demand-pull supply chain solution delivers improved customer service with less investment and cost.

BEST PRACTICES SOLUTIONS

Pinnacle Strategies is an international management consulting firm focused on operations management excellence. We work with organizations to increase shareholder value by developing high-performance business processes that significantly enhance productivity, reduce costs and time to market, improving profitability and accelerating sustainable growth. Pinnacle Strategies offers results-driven consulting solutions in the areas of performance management, project management, operations management, and supply chain.

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Book a best practices briefing for your management team. Contact Pinnacle Strategies at:

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