

# DEMAND PULL CASE STUDY

APRIL 2013

## World's Largest Supplier of Aircraft Components Boosts Output and Productivity with less Investment

### CHALLENGE

**Increase production rate by 20% while minimizing additional costs for labor, overtime, and inventory**

Based in North America, the company designs and manufactures aero structures including fuselages, propulsion systems and wing systems for commercial and military aircrafts. The world's largest supplier of commercial airplane assemblies and components, the company maintains design, manufacturing and repair facilities around the world, including the United States, United Kingdom, France, Russia, Malaysia and China. The company employs more than 14,000 skilled and professional workers, including more than 1,300 degreed engineering and technical employees, and 190 contract engineers.

In 2012, the company's most important client stepped up production of airplanes, demanding an upstream increase in major assemblies—the bulk of the fuselage construction—by 20% in the third quarter of the year. Under high pressure, the Final Assembly department found itself falling behind schedule. Finished products were not getting out the door at the same rate as component materials were coming onto the factory floor: the discrepancy in rates was costing money—and threatening an important business relationship.

### SOLUTION

**Implement a Demand-Pull Production System**

In essence, efficient production means ensuring that the right parts arrive at the right places at the right times. When Pinnacle Strategies consultants arrived to help, however, they quickly recognized an inherent contradiction in the assembly process. Instead of organizing overall production to meet client deadline demands, management enforced a “jobs behind schedule” metric that rewarded the optimization of component units. While this focus reduced costs per unit and increased throughput per labor hour, it sacrificed the efficiency of the chain as a whole and failed to meet the chain's true objective: to produce completed assemblies on the client's timetable.

Pinnacle Strategies re-aligned production around the output goal of the entire chain by establishing four solution elements:

**LIMIT WORK IN PROCESS** In a rush to demonstrate productivity, work was released to the floor without regard to resource distribution, resulting in “cherry picking” of orders

“Changing a few things in the order replenishment process—from a push to a pull—made all the difference, resulting in a very fast improvement in delivery performance.”

—Mark Woepfel, President & CEO  
of Pinnacle Strategies

## CLIENT OVERVIEW

### REGION

North America

### INDUSTRY

Aerospace

### CUSTOMER PROFILE

A global supplier of commercial airplane assemblies and components, employing 14,000 people in six countries around the world.

### BUSINESS SITUATION

The company's Major Assembly team needed to increase its rate of production by 20% while minimizing labor, overtime, and inventory costs.

### SOLUTION

Re-align the production process into a Demand-Pull system in which client expectations set the production pace and establish priorities.

## RESULTS

JOB BEHIND SCHEDULED REDUCED BY  
**40%** IN JUST 5 DAYS

**REDUCED OVERTIME EXPENSES**

and mis-allocation of capacity that delayed progress. Under Pinnacle's guidance, fewer projects were initiated under an accelerated completion schedule, allowing the same number of staff to finish projects faster.

**MANAGE THE BUFFER** Under the old system, each work center in the routing added a "safety" time to its schedule; the sum of these safeties artificially increased order lead times. Pinnacle aggregated safety into one chain-wide buffer that could be distributed to individual units on an as-needed basis, reducing the overall consumption of time.

**ESTABLISH A SINGLE WORK PRIORITY SYSTEM** Multiple and conflicting priorities (hot, red-hot, and DO-IT-NOW) were causing chaos on the shop floor, resulting in a "crisis mode" of management that robbed the system of productivity. Pinnacle create a single priority system aimed at the customer due date, integrating every work center in one common focus.

**REWARD COLLECTIVE IMPROVEMENTS** After limiting work in process, managing the buffer and establishing a common priority, Pinnacle corrected issues that created repeated disruptions with real consequences for the customer due dates, rather than make tactical improvements for individual work centers.

## RESULTS

### Forty percent improvement in just 5 days

Within five days of implementing the first two solution elements, the jobs behind schedule dropped by 40%. As a consequence, less overtime was required to meet deadlines, and workers were assigned to centers where their contributions were most needed.

## 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.

## ELEGANT SOLUTIONS TO COMPLEX PROBLEMS

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