

# DEMAND PULL CASE STUDY

APRIL 2013

## Crucial Aerospace Components Dept. Reduces Lead Times by 60%, Achieves 100% Due Date Performance

### CHALLENGE

#### Provide sufficient frames sets for fuselage assembly

The company designs and manufactures aero structures for commercial and military aircraft. The world's largest supplier of commercial airplane assemblies and components, 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.

The company's frame department was responsible for producing frame sets that form the core of airplane fuselages and fed the final assembly department. Synchronization between the two operations proved difficult, however. Frame transport dollies, used to ferry frames between the two departments, were frequently in short supply, often because they were occupied with frame sets Final Assembly was not ready for. As these sets idled, the frames Final Assembly did need were stalled at Frame Production.

### SOLUTION

#### Let Final Assembly "pull" sets from Frame Production

Called in to help the customer manage the Frame department more efficiently, Pinnacle Strategies recognized that the current workflow was fundamentally flawed. Under the established model, output was based on computer calculations of what Frame Production could ideally produce. Pinnacle substituted misplaced idealism with practical reality: the workflow must be dictated by Final Assembly demands—the frames they wanted in the order they wanted them.

Pinnacle Strategies implemented a Demand Pull workflow based on the following principles:

**FOLLOW THE LEADER** The order of construction would not be set by Frame Production. "efficiency" models, but by the order in which Final Assembly needed the frames. The "pull" reorientation not only brought the departments into alignment, it reduced the volume of work in progress (WIP) that had caused the misallocation, and subsequent shortages, of capacity.

"Aligning the support departments allowed the people building the product to focus on their work. A simple fix that simplified the replenishment process."

—Mark Woepfel, President & CEO of Pinnacle Strategies

### CLIENT OVERVIEW

#### REGION

North America

#### INDUSTRY

Aerospace

#### CUSTOMER PROFILE

The client is the world's largest supplier of commercial airplane assemblies and components, employing 14,000 people in six countries around the world.

#### BUSINESS SITUATION

The client's Frame Production Department could not produce fuselage frames at a sufficient rate for Final Assembly, threatening delivery targets.

#### SOLUTION

Reorganize workflow to allow the downstream assembly plant to pull work through the chain.

### RESULTS IN NUMBERS

REDUCED LEAD TIMES BY **60%**

ACHIEVED **100%**  
DUE DATE PERFORMANCE

REDUCED WORK IN PROGRESS

INCREASE COMPLETION RATES BY **20%**

REDUCE TIME TO BUILD A COMPLETE  
FRAME SET BY **33%**

**INITIATE WORK WHEN READY** Work on too many orders began before they were fully staged will all the sub-components necessary for complete construction. As a result, the floor was cluttered with partially-completed assemblies competing for resource time. Under the new rule, work could not begin until everything was available to see the project through to completion.

**CHANGE LAYOUT TO INCREASE CAPACITY** Pinnacle found a bottleneck at a riveting machine on the floor. Despite running two to two-and-a-half shifts a day, the riveter could not keep pace with demand. After some investigation, Pinnacle consultants found a similar machine that could be retrofitted to perform riveting duties. This machine was adjusted, then moved to an appropriate place on the floor to accelerate the flow.

**RESOLVE DISRUPTIONS** As Frame Production corrected its workflow, it faced a new challenge: help Final Assembly increase fuselage output by 20%. To meet the revised objectives, Pinnacle helped remove disruptions to the workflow by: reviewing the resource skills and implementing cross-training to increase flexibility; reviewing quality data to identify and correct the root causes of defects; managing process status and inventory flows to reduce travel times and accelerate production.

## RESULTS

### Frame Production reaches 100% due date performance for first time in 8 months

In just five months, the implementation of a Demand Pull process led to a reduction in lead times by 60%; for the first time in eight months, the department achieved 100% due date performance. As Final Assembly increased its demand for frames, Frame Production responded with further workflow improvements that allowed it to cut the time necessary for producing a frame set from three days to two. By the end of Pinnacle's engagement, Frame Production was well on the way to meeting its goal of producing the required supply.

## 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 demand-pull 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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