Improving Customer Service

Demand-pull supply chain solution delivers improved customer service with less investment and cost. It has been once again verified in a recent project. Pinnacle Strategies implemented a comprehensive production management solution based on demand-pull principles and integrated it with the existing SAP ERP system. Let us see the results.

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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
- Less customer tolerance time
- More product variety
- Pressure for leaner inventories
- Inaccurate forecasts
- Long lead times for parts

When they are applied with the highest hopes, conventional approaches often fall short of expectations. Eg., 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 (SCs) can easily be 'surprised' by demand spikes or changes in capacity. In either case, the proliferation of spreadsheets attests to the weakness of the 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 stabilising 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 SC solution delivers improved customer service with less investment and cost.

A recent application

When a company's – which is a global manufacturer of commercial and military airplane assemblies and components,

employing over 14,000 skilled staff – 'General Fabrications' unit suffered internal fill rate shortfalls, missed service deadlines and incurred excessive overtime costs, 'demand-pull replenishment system' raised inventory turns 83%, also improved service levels from 85% to 99.5%.

The challenge: 'General Fabrications' is the parts production organisation 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 4 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 organisation. As a result, inventory was very high, turning less than three times a year.

Solution: 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.

- **Reducing shortages by refilling actual use**

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 the company to carry four times less inventory while simultaneously improving service levels.

- **Reconfiguring batch size and lead times**

Pinnacle recognised 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.

- **Integrating work into one priority system**

In any week, as many as 8,000 orders competed for management attention. Pinnacle 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.

- **Busting bottlenecks to increase throughput**

Once the execution process was under control, Pinnacle organised a series of Rapid Analysis Bottleneck Improvement Teams (RABITs) to rapidly identify and break the bottlenecks (activities, machines and resources) – which were delaying the overall workflow – without requiring new machines or additional staffing.

- **Monitoring progress with an 'objective performance management system'**

To consolidate process improvements and sustain performance, Pinnacle created a system of measurements and reinforcements that established a single objective platform for monitoring mfg. performance. The embodiment of this process was the Bufer Management Tool (BMT), a database (residing along with the SAP database) of all open orders and related activity.

Results: Lasting improvement

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 per cent. Over the next nine months the remaining 19,000 parts were converted to the system, reaching fill rates of 97 per cent, then 99 per cent. Inventory turns almost immediately increased, escalating to 83 per cent by the engagement's completion. As productivity improved, overtime was minimised, saving the company more than $2.8 million annually even as past due orders fell by over 93 per cent.

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 organising 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. ■

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%