

Synchronizing Material Flow with Production Requirements

The long term customer of Epic Data is a discrete manufacturer of personal and corporate jet aircraft. They have a legendary name for timely delivery of high quality custom aircraft. Although the planes share a common fuselage they are all configured to order to satisfy the requirements of the purchasers.



Business Challenge

Prevent Production Interruption owing to Material Shortages.

Our customer had implemented inventory management practice to reduce the carrying cost of their manufacturing inventory. This change exposed three very visible problems resulting from the unpredictable flow of materials to work centers causing them to not meet the takt time of the production plan.

To reduce inventory and exposure to frequent ECN costs on inventoried components, the customer had increased the number of subassemblies included for Just in Time (JIT) delivery and reduced line-side stock levels for these subassemblies. These changes resulted in unplanned stoppages due to material shortages on the production line.

A secondary effect was a reduction in quality along with increased documentation control issues and increased labour cost due to parts swapping just to get planes finished.

The main identified problems were:

Planning, warehouse management and supply chain management systems were not synchronized to real time events in the production process — this was considered the root problem.

This caused additional parts order to be sent out via the ERP system that subsequently created an excess inventory problem that was increasing inventory carrying cost. Expedited orders were created only to be cancelled and confusing suppliers effort to meet JIT contracts.

Material Visibility:

When parts were delivered from suppliers, even though the material had been received on a “Just In Time order” and was at a receiving dock located in another building on campus, the inventory system did not reliably show current parts availability, demand or locations because it was driven by the ERP rather than production process management. Material logistics staff was not able to effectively expedite parts to work cells for priority requests.

Delayed visibility to the material delivery status of released production orders meant that production managers

could not be sure if the required parts reached the work cell in time, or if the shortage was resolved (with details on how), or that there was a work stoppage until a significant amount of time had already passed.

Inaccurate and Missing Data Collection:

Timeliness, out of sync, and not collecting parts usage data at correct process steps. This existing set of material related problems had been masked by excess inventory available at line side and in buffer stock locations. Parts consumption was not correlated with production demand and inventory levels in real time.

The Epic Data Solution

After we did a process analysis to determine why the existing manufacturing IT solution was not effectively coping with the problem we deployed the EpicMES products; EpicMES Track and EpicMES Production along with increased real time data collection tools.

Utilizing our 4D implementation methodology we mapped material and data process flows, configured Epic Data products to support the required process steps and implemented new process management practices.

The final solution provided material request transactions that could be generated by production & logistics staff that sent pull signals directly to suppliers. New agreements for supplier managed inventory allowed certain types of parts to be delivered directly to the point of use. This leaned out the logistics process and provided time and costs saving.

For parts that were still warehoused managed, the transactions provided more timely information about requests such as age and priority. Material tracking functions would deliver near real time updates on the fulfillment status of orders and confirmation of usage at point of consumption. Interfaces delivered more timely updates synchronizing the ERP, SCM & WMS systems.

This project took 9 months from initial discovery to test and integration with existing manufacturing IT systems and final acceptance by the customer.

Business Results

Achieved Production Takt Time Targets and Reduced Inventory Costs.

- Provided rich tool set to deliver the right parts to the right work center at the right time.
- Reduce inventory by getting more parts delivered just in time for production. The percentage of parts planned to be delivered JIT has increased significantly.
- Eliminated duplicate orders.
- Provided accurate real time details about the materials delivered for orders.
- Labor costs for material management was also reduced by having a trusted process validate supplier managed inventory.
- Part tracking improved and combined with dynamic cycle counting process improved inventory accuracy to 98%.

ABOUT EPIC DATA

For over 30 years, Epic Data has delivered real-time shop floor and warehouse management information to the world's most progressive discrete manufacturers through turnkey data collection and lean manufacturing operations management solutions.

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