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SOFTWARE

Four Supply-Side Collaborative Manufacturing Tactics

Supply Chain – Manufacturer collaboration improves a manufacturer's visibility, agility, on-time deliveries and cash flow

Collaborative manufacturing is giving leading manufacturers a competitive advantage — making them more innovative, improving productivity, and helping them eliminate sources of inefficiencies. Customer experience is enhanced by increased visibility and responsiveness, while the enterprise benefits from faster inventory turnover, shorter time-to-value, and enhanced profitability.

Of the many strategies a company may have — highest quality supplier, lowest cost supplier, made-to-order supplier, same-day supplier or single-source supplier — collaborative manufacturing can help a manufacturer be at the top of that class.

The traditional arenas for collaboration are between engineering, production and operations personnel; between manufacturing facilities within the same enterprise; and more recently within the customer distribution channel. Extending collaboration into the manufacturing supply chain extends the innovation and efficiency benefits already achieved within the manufacturer's own facilities, and allows more opportunities for competitive differentiation.

Many ERP systems incorporate supply chain management components. However, their functionality is typically based on forecasted demand and a materials resource plan, which works well for simple assembly operations with predictable demand. However, most manufacturing operations are not that straightforward. ERP systems based on static order information fall short when it comes to the real world challenges faced by manufacturers.

Complex manufacturing operations have multiple layers of mechanical, electronic and software component sub-assemblies coming from different suppliers. These are introduced at different points in the production workflow, with complex scheduling interrelations for system integration and testing. Parts and component sub-assemblies tend to have longer lead times, and mismatched schedules or delivery delays in one sub-component tend to result in inventory accumulations at both supplier and manufacturer's locations.

Further, manufacturers with extensive supply chains of sub-component manufacturers often don't have enough other information to create compliance reports to the level of detail now required by many customers and government agencies. Moreover, without good visibility of progress reports coming from sub-contractors, manufacturers struggle with value-billing or progress billing on complex, long-term contracts.

In this document, we outline four scenarios in which Serenic's solutions help synchronize and make visible distributed supply chain operations — **laying the groundwork for manufacturer-to-supplier collaboration.**

1. Point of Consumption visibility helps fine-tune a JIT system

For many years, manufacturers have employed Just-in-Time (JIT) inventory control principles to try to reduce the costs associated with having inventory sitting idle in the plant.

Kanban systems have been used to move parts within plants triggered by the parts' consumption.

Point of Consumption (POC) works like a Kanban system that extends into the supply chain. It ensures a consistent flow of materials from the supplier, along with critical tracking information, right to the point of material consumption in the manufacturing process. This shared information increases the collaboration between the manufacturer and supplier in ensuring a continuous flow of goods through the supply chain to meet demand.

Manufacturers pre-qualify and collaborate with their supply chain vendors to determine production cycle and lead times, vendor-managed quality standards, and replenishment trigger quantities.

During production, when inventory falls below the defined level, workers use the POC system to request replenishment. The vendor delivers the parts directly to the specified location at the point-of-consumption on the production line.

POC offers a JIT solution that reduces production downtime, improved on-time deliveries, and minimizes inventory accumulation.

2. When Advanced Shipping Notice is not enough

Many ERP systems with supply chain management modules provide a means for parts and sub-assembly suppliers to send Advanced Shipping Notices (ASNs) to let the manufacturer know to expect a shipment. While this is useful, it is often not enough.

Complex sub-assemblies have long production cycles that involve assembling many parts and performing system integration and testing. They are typically high value sub-assemblies, with long lead-times. Their timely delivery and flawless performance is critical to the on-time delivery of the final product.

For these sub-assemblies, a manufacturer's operations managers need visibility into key production milestones of their supply chain sub-contractors.

Seeing how a supplier's actual schedule is tracking to the planned schedule helps operations management respond and adjust schedules of other suppliers and their own production facilities.

Further, the manufacturer's quality and test engineers need the visibility of the manufacturer's production plans and quality statistics, and its parts and integration test results. Collaboration amongst the manufacturers and the supply chain's engineering and test teams helps improve product quality and innovation.

Serenic's solutions ensure that key supplier information flows to the people who need it.

3. Visibility of Supplier Milestones for Value Billing
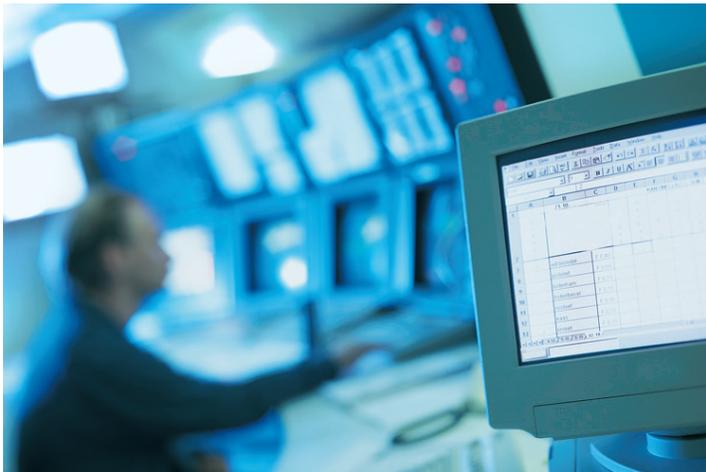
It is worth a separate point for how the solutions for supply chain collaboration help with a manufacturer's cash flow — an issue that can plague manufacturers who win contracts with long production cycles and upfront costs.

With traditional ERP systems, shipment of a sub-assembly through ASN or receiving notices may be the only milestone a manufacturer is aware of. But for long lead-time items, it can be advantageous to track more milestones for more granularities in progress reports.

Knowing major suppliers' production milestone completions on sub-assemblies provides valuable input into the overall contract's percentage completion reports, which helps manufacturers document the contract's progress for progress payments or value billing.

4. Information Exchange to Maintain Quality, Compliance and Competitiveness

More and more, manufacturers are required to provide product genealogy and individual parts traceability, testing and quality reports, hazardous material content reports, etc. to comply with customer and regulatory requirements.

It's no longer just documentation a manufacturer compiles for its own records or service department. It's a condition of a contract. It's a requirement to sell into some jurisdictions, such as the EU through regulations such as WEEE and RoHS.

Cradle-to-grave parts tracking can only be done effectively if a manufacturer's supply chain collaborates. The precedent for supply chain commitment was set with customer-compliant labeling. The bar was raised with the unique identifying label requirements of US Department of Defense's UID Registry.

Now, manufacturers must demand supply chain collaboration to provide the same information required of them: unique parts ID, product genealogy and materials content, production quality and test results.

Through supply chain portals and data exchange networks, our supply chain collaboration solutions can ensure timely availability of data for a manufacturer's quality and recall teams, as well as for customer or regulatory compliance reporting and UID registry.

Summary

Collaboration with supply chain improves a manufacturer's production workflow and its visibility of production schedules and work-in-process, which results in higher levels of on-time deliveries and productivity. More importantly, this visibility helps reduce waste associated with excess or idle inventory, unnecessary movement and product defect. A manufacturer that collaborates with its supply chain will be more agile, productive and profitable.

Whether outsourcing part and sub-component design, manufacturing or testing, we can help bridge the distance, exchange the data, and share the knowledge gained from supply chain collaboration.

About Serenic Software

Serenic Software develops and delivers mission-critical ERP software solutions for public service organizations including: K-12 school districts/boards, public sector, nonprofits (NPOs), and international non-governmental organizations (NGOs). Serenic is a Gold ERP and ISV vendor and a development partner for Microsoft. Serenic public service solutions are trusted by over 1,000 organizations around the globe. You can learn more about Serenic Software at www.serenic.com.

Serenic Software

USA | Canada | UK

NORTH AMERICA
(+1) 604.273.9146

UK
+44 1635 521140

info-ed@serenic.com
www.serenic.com

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