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Real-time Project Status Visibility: How Robust Are Your Contract Manufacturer's Systems?

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By Michael Schillaci

In a stable market, project status visibility among a contract manufacturer, OEM customer and supply chain is critical to ensuring adequate inventories are in place. In the current environment of imbalance between supply and demand, project status is critical to understanding the options available when a key variable changes. When the business environment begins to normalize, project status visibility will be essential in reducing inventories in a timely enough manner to avoid excess material.

Systems strategy is a priority and a strength at SigmaTron International. This whitepaper looks at three areas where systems strategy is integral in addressing current market challenges and optimizing efficiency.

- Supply chain management
- Project status visibility
- Efficiency improvements.

Supporting Supply Chain Management

Supply chain management (SCM) is one of the most critical functions an electronics manufacturing services (EMS) provider offers. In a perfect world, the combination of good systems, good supply chain partners and internal expertise creates an efficient flow of material into a production system flexible enough to deal with variations in end market demand. However, COVID created a supply and demand imbalance in both electronics components and transportation which tests SCM teams and their systems. Successfully addressing these challenges requires reimagining existing processes, tools and roles.

From a systems standpoint, SCM has traditionally been focused on automating transactions to the point where human intervention is the exception, rather than the rule. However, in the current environment, purchasing agents often start the day with a flood of supplier emails that represent mandated changes to purchase orders which must be addressed line item by line item. In short, exceptions are the rule. Systems strategy needs to align with this new reality, improving visibility and simplifying the activities the SCM now needs to perform.

SigmaTron uses a combination of proprietary and internally-developed systems for enterprise and shop floor management. All facilities utilize a common ERP system plus third-party Product Lifecycle Management (PLM) tools.

The combination of an industry-standard ERP software with an internally-developed iScore suite of supply chain management tools enables all stakeholders to track demand, material on order, inventory, work-in-process, finished goods and shipments. An MRP Share program provides suppliers with complete customer forecast visibility, plus current inventory and material on order.

On the supply chain side, this system enables the purchasing team to view consumption across the company on a given part or part manufacturer. SigmaTron's IT team has enhanced system capabilities to help reduce the workload material constraints are creating. All part fields in purchase orders now include a date wanted and supplier promise date. Larger suppliers receive a weekly spreadsheet of purchase orders so they can confirm or update promise dates. As constraints develop in a specific part, purchasing has the ability to provide early trends warning to program teams who in turn alert customers. The system's auto-replenishment feature is also being monitored for late de-commits. A third-party API that pulls broker and distributor inventory has been integrated into the iScore system for situations when a supplier de-commits or customer demand changes create potential gaps in the pipeline. This information can be viewed simultaneously with the MRP plan to determine the viability of filling shortages in real time.

The system's ability to view all material company-wide will also be beneficial when constraints start to ease, helping to ensure that ordering activities are adjusted rapidly enough to consume the higher than normal in-house inventories that have been maintained to ensure parts availability.

Robust Project Status Visibility

The combination of spikes in end market demand and material constraints is also challenging to customer teams. Having the ability to understand where their products are in the manufacturing process is critical in keeping their end customers satisfied.

At SigmaTron, customers can be given visibility into inventory status via the Score™ customer portal. Score gives customers the ability to track product through the manufacturing process with order, manufacturing and shipping status available 24/7.

Efficiency Improvements

The current supply/demand imbalance is driving increasing costs and materials constraints surprises. While it is difficult for any EMS provider to change those dynamics, it is possible for companies to focus on operational improvements that reduce manufacturing cycle time or eliminate inefficiency. The visibility that robust systems can provide, helps in this area as well.

SigmaTron International's proprietary Manufacturing Execution System (MES) system known as Tango monitors production, quality and warehouse activities. The system provides traceability, is exception-based, has enforced routing capability and integrates with the ERP system and iScore in real-time.

Tango acts as a partner with production operators tracking each assembly through all processes. On assemblies that required serialization in different formats at different parts of the process, the system ensures that the right serial number is associated with that assembly. Additionally, if any process steps are skipped or if an operator attempts to add the wrong serial number, the system notifies the operator of the error. In short, it provides project status visibility and serves a poka-yoke that prevents errors in manufacturing routing.

It also enhances real-time quality data reporting, enabling the production team to see data by serial number or the entire lot. This helps the team track trends in first pass yield and any repair activities, and quickly identify and correct their root causes.

Finally, Tango enables the production team identify production constraints more rapidly. For example, if there is a kit requirement for 1200 pieces of a part and the stockroom only has 1000 pieces in inventory, the system will warn the stockroom staff to transfer more material before parts are pulled. This gives a team that is managing a lot of daily transactions, a virtual assistant who warns them if a problem is about to occur.

The current supply/demand imbalance issues are systemic and will likely continue through much of 2022. Many best practices and industry rules of behavior have been invalidated by the shortage of chip and other manufacturing capacity. That said, while the response must be agile and creative, it also must be disciplined. SigmaTron's combination of company-wide systems visibility combined with a focus on utilizing systems to reduce its teams' exception-driven added workload, are helping to drive better outcomes in a chaotic environment.

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