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Navigating Supply Chain Challenges: Realities and Viable Workarounds

Navigating Supply Chain Challenges: Realities and Viable Workarounds

By John Sheehan

The material constraints caused by supply and demand imbalances over the last three years are starting to improve as demand in many industries normalizes. Logistics capacity is also improving, particularly in LTL freight, so transportation costs are more reasonable. That said, every major semiconductor manufacturer still has a selection of components on global allocation and extended non-cancellable, non-returnable (NCNR) windows are still in place at some suppliers, which limits rescheduling flexibility.

The team at SigmaTron International has systems and tools in place to address these challenges. This whitepaper looks at best practices in navigating current challenges.

Much of the supply-demand imbalance of the past three years was driven by shifts in infrastructure requirements, a need to fill inventories depleted by factory shutdowns and the impact of economic stimulus on consumer behavior. Demand for products driven by those changes in behaviors is normalizing. At the same time, vehicle electrification initiatives and government provided incentives for both electric vehicles and clean energy are driving continued demand and component constraints in those industries. Geopolitical unrest may create unplanned supply chain disruptions or spikes in demand for military-related equipment. Consequently, component manufacturers still have some uncertainty in planning capacity and still have segments of constrained products.

Material unpredictability during the same timeframe drove an increase in inventories at electronics manufacturing services (EMS) providers and OEMs. Lengthening lead-times for constrained components also drove orders being placed for timeframes as long as 18-24 months in advance. In a normal market cycle, easing of component constraints would be followed by a focus on rescheduling this longer lead-time demand at both component manufacturers and product manufacturers. This would help shrink inventories and would free committed capacity at semiconductor manufacturers to be re-directed to areas of the market with growing demand. In the current market, semiconductor manufacturers are not relaxing extended NCNR policies. Other types of parts manufacturers and distributors are adding some levels of flexibility, generally for parts in high demand or for orders that are further than 90 - 180 days out.

The challenge for EMS providers and their customers is finding the right balance in this still somewhat unpredictable market to managing varying NCNR policies while working to draw down excess inventories.

Aligning Systems, Processes and People

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

The combination of an industry-standard ERP software with an internally-developed iScore suite of supply chain management tools enable 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. SigmaTron's IT team has enhanced system capabilities to help reduce the workload material constraints are creating. All part fields in purchase orders include a date wanted and supplier promise date. Larger suppliers receive a weekly data file of purchase orders so they can confirm or update promise dates. A third-party API that pulls broker and distributor inventory is 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.

Program managers are working with customers on a case-by-case basis to develop specific plans that draw down inventories in relation to customer forecasted drops in demand.

SigmaTron's SCM organization was modified during the pandemic to change roles to better adapt to the workload driven by the supply and demand imbalance. A Manager of Account Planning role was created and filled by a material analyst who interfaced with purchasing agents, program managers and customers on the most rapidly changing programs.

Material analysts, material systems people and quote specialists were refocused to assist with performing many purchasing agent functions, while select purchasing agents have become more customer facing on programs with needs for expedited approvals on fabricated parts, approved material list (AML) additions or purchase price variance (PPV) approvals. Purchasing agents with the heaviest workload are getting assistance from the team at SigmaTron's Taiwan-based International Purchasing Office (IPO).

At a senior management level, there is strong focus on communicating with component manufacturers as well as distributors to highlight the criticality of projects and push back on policies that drive unacceptable risk such as requests for extended NCNR periods.

Program teams are running horizontal MRPs to view the total demand from each account and monitor the way consumption and demand is changing in upcoming weeks to look for early indicators of changes in demand. Some of the IT tools being utilized include:

- Inventory vs. demand in relation to the next 90, 120 and 180 days
- Dollarized push-pull reports that include dollarized cancellations to make it easier to view inventory status in both units and actual cost.

Purchasing and program teams continue to review and resize material bonds and finished goods kanbans on a much more frequent basis than in periods of stable demand.

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While pandemic-era NCNR policies are slowing down the ability to draw down some inventories, real-time systems visibility combined with human judgment and enhanced stakeholder communication has helped to ensure an agile response to changing market conditions. iScore's ability to enable SigmaTron's team to view all material company-wide is also helping align demand and inventories.

John Sheehan is President, EMS Operations at SigmaTron International. He can be reached at john.sheehan@sigmatronintl.com. For more information on SigmaTron International's capabilities, visit www.sigmatronintl.com or call 510-477-5004.