

SUPPLY CHAIN PLANNING & OPERATIONS

IN THE AGE OF EXPERIENCE

Position Paper

BY BECOMING MASTERS OF THEIR SUPPLY CHAINS, BY EXTENDING OPERATIONS MANAGEMENT AND OPTIMIZATION UP AND DOWN THEIR ORGANIZATION'S EXTENDED VALUE CHAINS, MANUFACTURERS CAN REAP ENORMOUS REWARDS.

Supply chains, broadly defined, are where manufacturers face their greatest variable costs. It's well-known that labor amounts to just a few percentage points of the costs of making an industrial product. Capital invested in plant and equipment is another piece of the equation. But the rest is in the supply chain writ large.

Supply chain planning and operations technology allows a manufacturer to manage the entire chain of suppliers and distributors, whether internal or external, to achieve major gains in profitability while improving predictability, agility and speed.

It is predicated on the belief that the traditional definition of a supply chain must be expanded to include not only materials in the hands of suppliers, but the products *as* they are being manufactured, as well as *after* they've been made. Do they go to a warehouse? If so, they are still in a company's possession and information about them should be integrated into an operations plan for optimization.

And once the products are in a customer's hands, information also can be gleaned and integrated. For some products, maintenance or servicing should be part of the equation and information from customers can be used as part of a process of continuous improvement in the products themselves.

One flaw in many companies' systems today is that they consider their supply chain data to be separate and distinct from their shipping information—meaning which truck or which airplane is being used and where it is currently located. That information is essential to advanced supply chain management and it should be integrated into the overall supply chain system.

Once manufacturers have the right systems in place, they can decide how much capacity they need and where they need it.

Using supply chain analytics, they can improve their visibility into a global manufacturing and supply chain footprint and better synchronize it.

Similarly, in modeling production and distribution processes, manufacturers can synchronize, organize, and balance suppliers, as well as their own production capacity, storage and transportation needs. Bottlenecks through the entire value chain can be attacked and solved efficiently.

Achieving that visibility through Tier 1, 2, and 3 suppliers, extending back to their purchase of raw materials, is powerful. If a Tier 2 supplier, for example, suffers a labor disruption or if its own purchase of materials has suffered an interruption, the end-manufacturer can recognize that its own production schedules could face delay or interruption. The manufacturer will have time to find other solutions.

Ultimately, mastering the supply chain means that a company can move away from a "make to stock" model in which goods simply accumulate in a warehouse or in distribution channels. That model is inherently expensive and inefficient because it obviously costs money to leave goods stacked in a warehouse. Why make a product that is not certain to be sold?

A far better model is "make to order," meaning the supply chain is flexible enough to allow manufacturing of an item after it has been ordered, not before. Information is projected backward up the value chain. After a customer has asked for a specific product, the company must instantly know whether that product is "available to promise."

That means the manufacturer must be able to take an end product and break it down into its basic components and the basic processes needed to make it. The manufacturer needs to achieve a perfect view of this activity because otherwise key

executives are just guessing about whether a product can be made in time to satisfy the customer.

Does satisfying the customer mean that a manufacturer needs a different raw material than the one in stock? A decision-maker can instantly decide to turn to an outside vendor and will know if that vendor has adequate supplies of the material because the systems are linked. For parts and components, the manufacturer can likewise make a rapid decision on whether to make them or outsource them.

All this greatly reduces lead times. Manufacturing can happen quickly enough to satisfy the customer. Far fewer warehouses are required.

A corollary is that products can be customized for individual customers, a concept called "mass customization." Long a gleam in the eye of many manufacturers, this reality can only occur if the supply chain is mastered. Manufacturing runs will become shorter. There will be a shorter order book, and less money tied up in stock.

Creating these complex systems with multiple vendors obviously requires relationships based on trust. Ideally, these systems should be open to the parties that are involved in them even though there can be different levels of visibility. These systems also require the right security safeguards to protect against parties that are not part of the value chain.

The gains that manufacturers can realize by extending operations management and optimization up and down their organization's extended value chains, by becoming masters of their supply chains, are enormous.

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