Network Optimization: Changing Your Thinking About Success

Jim Nelles, Partner
Roland Berger Strategy Consultants
+1.312.607.1772; jim_nelles@us.rolandberger.com

95th ISM Annual International Supply Management Conference, April 2010

Abstract. The lion's share of our supply chain networks were designed several decades ago with an eye towards minimizing production costs through large-scale, flexible manufacturing runs – meaning that large regional demand for multiple products could be met with a minimum number of large manufacturing facilities. Today's world is a much different place as product proliferation, consumer preferences, and the need for customization is driving the need for more responsive supply chain networks. Winning companies have recognized this trend and have decided to challenge conventional wisdom. They are re-conceptualizing the definition of scale to develop competitive advantages by developing regional service areas sized to minimize combined transportation, distribution, and production costs – changes that allow them to respond more quickly to customer requests and regional micro-trends in a cost effective manner.

Background. The network footprint of most of America's manufacturing organization can be characterized as follows:

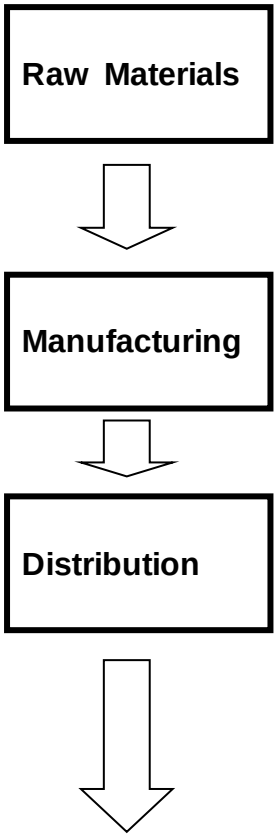
- High volume, dedicated manufacturing lines
- Few, large plants
- Few, large distribution centers, co-located with plants
- Large, slow turning inventory
- Focus on full-truckload freight, with simple load plans
- Mostly internally owned

This network design model worked quite well, given the limited technology and the "customer profile" of the time. During this time, the idea of network optimization was simple: design a network that optimized the Procurement, Manufacturing, and Distribution functions. The manufacturing footprint outlined above was taken as a "given," and all other functions were optimized around it. Manufacturing experts looked to squeeze out the incremental widget while their counterparts in procurement looked to obtain the next penny in price concessions from a generally domestic supply base. Supply chain experts sought to find ways to ship only full truckloads and then to move those truckloads to either rail or barge…all in the name of optimization and cost reduction. This work was conducted in a silo with little-to-no cross-functional coordination or collaboration. The result was that, while each function was optimized given the production constraints, network optimization was never fully achieved. It took the combination of changing customer requirements, the idea of the cross-functional team, and advancements in information technology to drive the change in thinking needed to revolutionize the advanced theory of network optimization.

As thinking evolved, leading companies looked for opportunities to have their supply chain network evolve into a competitive weapon that offered the ability to respond to customer and consumer needs in a fast, low-cost manner. Specifically, companies looked for supply chains that had the right combination of:

- Mixed (high and low) volume, with flexible lines
- A mix of large, and small plants
- More distribution centers, de-coupled from plants, with advanced cross-docking capabilities
- Small, fast-turning inventory levels
- Mostly full truckload freight, but a focus on complex/mixed load plans
- A new mix of owned and "rented/outsourced" assets

In fact, winning companies began to think about their footprint in the following manner:



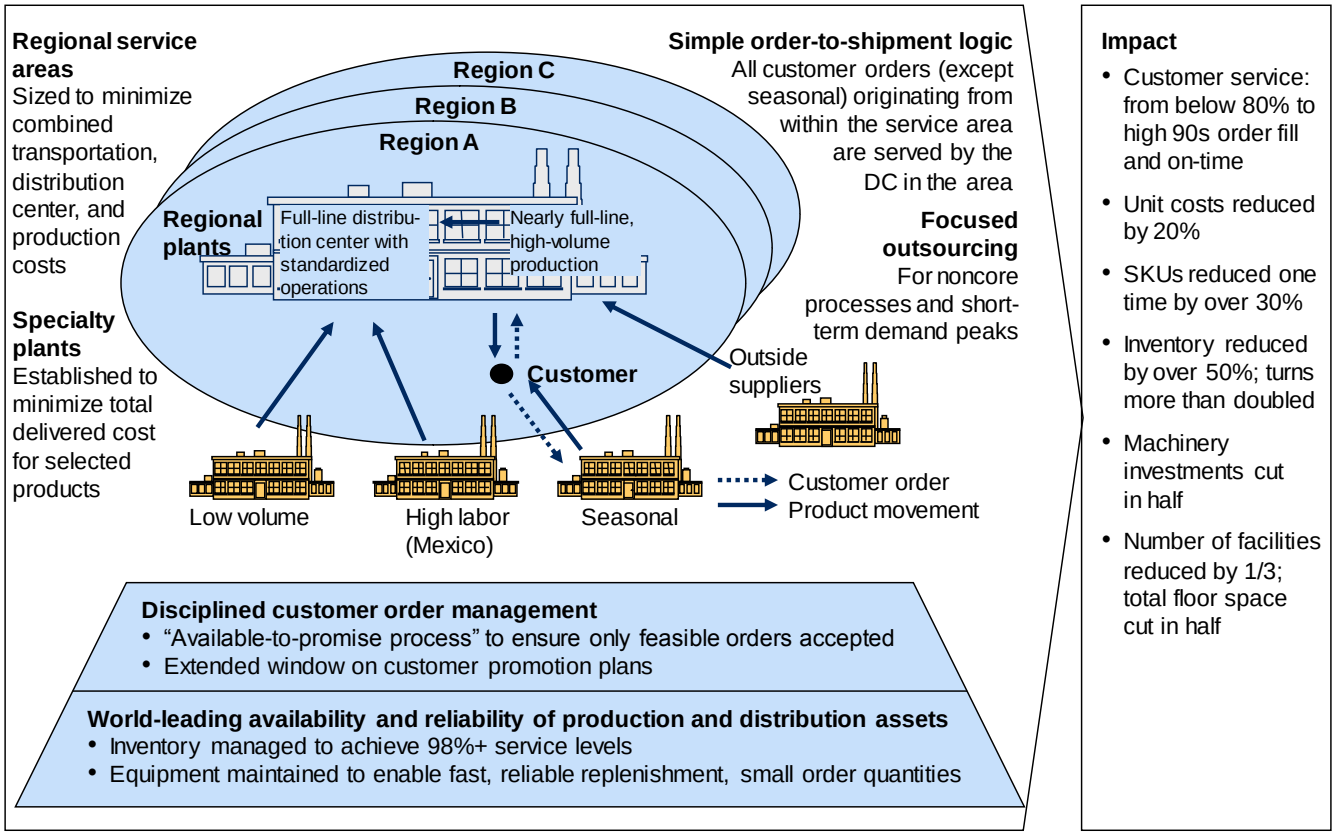
- Leverage global sources of supply that minimize total raw material costs
- Ship raw materials as close to customers as possible in bulk form

- Manufacture as close to customer as possible/feasible
- Focus on late stage differentiation

- Combine with manufacturing locations whenever possible
- Service all customer orders from within service orbit (with the possible exception of promotional and/or seasonal requirements)

- Manage product all the way to the shelf
- Strive for near instantaneous replenishment of high-value SKUs

In fact, one winning organization in the consumer goods space accomplished the following, with tremendous results:



Additional examples abound across multiple industries such as heavy equipment manufacturing, beverage manufacturing, high-tech, and retail.

So what does this mean for network optimization and logistics? First, and perhaps foremost, we must remove the barriers that drive us to optimize our organizations in silos – that model simply does not work any longer. Second, we must be prepared to retool our thinking to focus on minimizing total delivered costs, which means optimizing the portfolio of procurement, manufacturing, and distribution costs. To achieve this goal, we must be willing to accept higher costs in any one function in order to drive the total delivered cost of any product to its theoretical minimum. Third, we must embrace technology. Point of sale data, real-time inventory levels, and satellite shipment tracking are all tools that can help us with this challenge. In addition, we need to understand the latest optimization and cost modeling software to ensure that we are leveraging the best opportunities to optimize service and minimize costs.

Last, we must be willing to look outside of our own industries for optimal solutions: What can the clothing manufacturer learn from the steel mini mill? What can an heavy equipment manufacturer learn from a soup maker?

Winning organizations break down traditional functional barriers and challenge conventional wisdom. Are you willing to rise to the challenge?