

## MANUFACTURING FOCUS

Changing market and supply chain dynamics are causing companies across many sectors to rethink existing supply chain network strategies, but the imperative to do so is especially high for many manufacturers with asset-oriented supply chains.

That's one of the conclusions from a new research note by analysts Kimberly Knickle and Simon Ellis from IDC's Manufacturing Insights. Asset-intensive supply chains are most commonly found in manufacturing-centric enterprises in process (e.g., chemicals, oil/gas, paper, metals) and "hybrid" (e.g., consumer packaged goods, food/beverage) industry sectors.

Knickle and Ellis note several important trends driving the need for asset-intensive supply chains to relook at their network strategies, which include:

- Profitability that is closely linked to the cost and best use of raw materials and natural resources (including feedstocks) such as oil, metal ore, lumber, and agri-products.
- The need for significant capital investments and the reality of high operating costs make asset performance a top priority and add complexity to justifying new plants.
- Changing demand patterns that are adding strain on the supply chain because of continuing regional shifts and gaps between production and actual demand.
- Ongoing mergers, acquisitions, divestitures, and joint ventures, although at a slower pace in 2009, which usually force supply chain redesigns.

Given all that and more, Manufacturing Insights expects to see a focus on supply chain modernization, network "rightsizing," and asset optimization



# Asset-Oriented Supply Chains Need Supply Chain Network Optimization more Important than Ever

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within many of these asset-oriented companies in 2010 and beyond.

### From Strategic to Tactical

Supply chain network optimization is a term that applies to both a process as well as a set of focused software tools. These tools enable companies to understand options and trade-offs for different supply chain network designs and to answer the following types of questions:

- What is the optimal allocation of materials or customers to plants and/or distribution centers (DCs)?
- What is the best location for new plants and/or DCs to minimize freight, inventory holding, and/or rail fleet costs while maximizing customer service levels?
- How do we reallocate our capacity so we may close

(temporarily or permanently) underperforming plants?

- What capacity should we build into our plants, production lines, or processes, down to the requirements of specific machines or tools?
- Based on our inventory levels and production capabilities, what is the optimal product mix, considering co- and by-products?
- Based on seasonal demand or production limits, what should we pre-build in inventory?
- How do we optimize our production and distribution schedules for the desired levels of customer service and profitability?
- What is the profitability impact of crossing borders — from currency rates, tariffs, or duties?

Worldwide Manufacturing Supply Network Optimization Application Spending, 2009–2012 (\$M)

	2009	2010	2011	2012
Spending	23.9	24.8	26.1	27.4

Source: IDC Manufacturing Insights, 2009

In the past, supply chain network optimization tools were typically used to answer these types of questions and make decisions at a strategic level – with a time horizon of perhaps three years.

Now, says Manufacturing Insights, this network analysis is being used over different time horizons, which increasingly includes tactical planning over quarterly or monthly time buckets

As a result, such insight into the supply chain network is also being used to bridge the gap between production and demand as a precursor to more detailed planning as part of the Sales and Operations Planning process.

While all supply chains have a set of network trade-offs to manage, what makes these processes and decisions different for asset-intensive supply chains is basic and revolves around the imperative to drive improved return on assets and asset utilization.

The global recession and incredible market dynamics are making the need for such network optimization in both the strategic and tactical sense more important than ever.

“As companies have been forced to relook at their business models due to declining sales and/or profits, the supply network is an obvious candidate for transformation,” Knickle and Ellis write. “Having sophisticated tools may well make the difference between riding out the economic downturn and becoming a victim of it.”

They note that the focus of such network analysis is quite different depending on the demand-supply balance. When capacity is tight, attention is generally on logistics aspects of the supply chain to maximize the flow of goods to customers. When demand exceeds supply, the focus is on reducing capacity to improve asset utilization and per unit operating cost.

Manufacturing Insights expects growth of spending on supply chain network design tools to be in the mid-20% range over the next five years – an impressive growth rate

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that supports the likelihood that asset-oriented companies and others will be using these tools to both redesign networks and make more tactical planning decisions with increasing frequency.