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Supply Chain News: Inventory Optimization Technology Starts to Go Mainstream

From Black Box to User Friendly; Inventory Reductions of 15-25% are Common, IDC Says

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Inventory Optimization technology, a relatively new category of supply chain software, has started to go mainstream.

That's the conclusion of a new report by IDC's Manufacturing Insights, which finds that Inventory Optimization is especially valuable in an economic downturn, when the cost of making poor inventory decisions is especially high.

What is Inventory Optimization software?

In the past, supply chain planning software in general tended to optimize inventory levels at a specific tier or facility in the supply chain, without well considering up and downstream inventory levels and requirements.

"With today's reality of supply chain complexity and constant variability, these traditional inventory management applications often all short in results," Manufacturing Insights says. This in turn fosters "higher overall safety stock levels and improper inventory mix across all the various echelons of the supply chain, resulting in deteriorating customer service levels."

The challenge continues to get worse for many companies, given the proliferation of SKU counts and inventory stocking locations.

Inventory Optimization software, on the other hand, considers these "multi-echelon" needs and solves the inventory deployment problem more comprehensively across tiers and nodes. Manufacturing Insights says that "Inventory optimization applications are

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designed to plan inventory policy across multiple dependent echelons of a supply chain, in multiple planning periods. In a simplified view, an IO application will set inventory targets up and down the supply chain on a simultaneous basis."

Often, use of Inventory Optimization tools allows companies to get very granular in their inventory analysis and stocking decisions, and the technology is especially adept at optimizing the slow moving SKUs that are increasingly part of the revenue mix for many companies affected by the so-called **"long tail" phenomenon**.

Inventory Optimization software can help companies answer the following types of questions:

- How much inventory should I hold of each product, and where is the most cost-efficient point to store that inventory?
- My products are often seasonal or cyclical in

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Global Inventory Optimization Application Spending, 2009–2013 ($M)

Year	Spending
2009	59.7
2010	65.7
2011	75.5
2012	81.2
2013	88.0

Source: Manufacturing Insights, 2009

terms of demand — how do I most efficiently plan and deploy overall inventory?

- What business policies are driving inventory investment across the entire supply chain?
- If I must improve service, how much incremental inventory investment will I need? Conversely, if I decrease service level, how much inventory can I free up?
- How will a change in a supplier or production location impact my overall inventory cost or customer service levels?
- Can I increase margins and improve service by holding inventory in a different location?
- How can I best deploy a combination push-pull supply chain or an inventory risk-pooling model?

There are actually two different modes of planner interaction with Inventory Optimization tools.

In one mode, planners work directly with the system, and interact with the application to obtain inventory targets or perform analysis.

The other mode is more of a "manage by exception," with most inventory recommendations or safety stock targets sent directly to the designated advanced planning system (APS). Planners are notified of potential issues or problems, which they deal with individually.

Moving Away from "Black Box"

Inventory Optimization technology has actually been around for a number of years, but until recently was very much a niche application that was viewed as primarily the province of operations research (OR) professionals.

That has started to change. Inventory Optimization solutions "are becoming more universally understood and accepted by business and supply chain planning professionals," IDC says. That is in part because the user-friendliness of the applications has increased substantially over the past 2-3 years.

Part of that increased acceptance also comes from a generally compelling ROI potential. Manufacturing Insights says that it is not it is unusual for a global supply chain to see inventory levels reduced by as much as 15–25%.

While the market for Inventory Optimization software is small compared to other segments, Manufacturing Insights expects it to grow rapidly over the next five years (see graphic above).

According to Manufacturing Insights' **Simon Ellis**, "The key vendors in this [Inventory Optimization] space offer

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maturing applications with strong functional capability. If IO is not on your short list of priority projects, at least look at these applications as the level of benefit may surprise you!"

Ellis emphasizes the majority of IO offerings in the current market have been built around unique algorithms and structure, which yield somewhat different approaches and results. In evaluating potential solutions, therefore, it is critical to consider how well an individual vendor's approach matches up with your specific supply chain and inventory management challenges.