White Paper

What Every CFO Should Know About Inventory Optimization

Bridging the gap between CFOs and supply chain management

Executive Summary

CFOs strongly believe that good supply chain performance is vital to financial success. Studies show that a majority of CFOs believe the supply chain is directly linked to their ability to meet corporate objectives.

Given that CFOs have varying levels of experience with inventory optimization [IO], this paper provides a few facts that every CFO should know, including:

- Top concerns of senior supply chain executives are shifting to customer service requirements
- The unique value of IO to the overall supply chain. How exactly does it reduce inventory and increase customer service?
- ERP and Advanced Planning and Scheduling [APS] systems do not optimize inventory across the supply chain
- Inventory optimization can move the organization to an entirely new trade-off curve between inventory cost and service level goals
- What role should the CFO play in IO initiatives?
- The gap in business perspective and communication styles between supply chain practitioners and members of the senior staff must be bridged

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Even if you have implemented the Ferrari of ERP solutions, without **Inventory Optimization** it doesn't have a steering wheel.

Your Supply Chain: Imperative—or Impossible—to Improve?

The supply chain is a natural focus for CFOs. It determines where a major amount of cash flow will be derived and where a major amount of capital will be consumed. CFOs across the board agree that it is imperative to transform the supply chain into a high-performance competitive advantage. In fact, CFOs report the top pressures driving their companies to improve supply chain management are, in order:

1. **Escalating customer service demands/increased demand volatility**
2. **Rising complexity of managing global business**
3. **Economic volatility**
4. **Rising supply chain management costs**[1]

Although cost savings through inventory reduction have traditionally been the number one aim, today the shift toward customer service performance is front-and-center and vital to the success of the business. The analytical insights that IO delivers can tell management what the minimum cost is to achieve a desired service level. Moving service levels up without overpaying for the improvement is a value that CFOs now require.

But what a challenge it presents! Today's supply chain network is a cross-functional, international, multi-stage beast, with many local functions managed by local rules and narrowly focused KPIs. Obstacles to improvement include internal resistance, lack of a champion, too much cost, and too little time. C-level executives cite issues such as decentralized management, unclear lines of authority, and a lack of senior management leadership.

That's why, despite the importance of the supply chain, over the years polls have shown that many financial executives lack the confidence their company can make major supply chain changes when necessary[2] [Figure 1].

[1]SCM World Chief Supply Chain Officers' Report 2010

[2]CFOs and the Supply Chain, UPS Consulting

Survey: Ability to make supply chain change

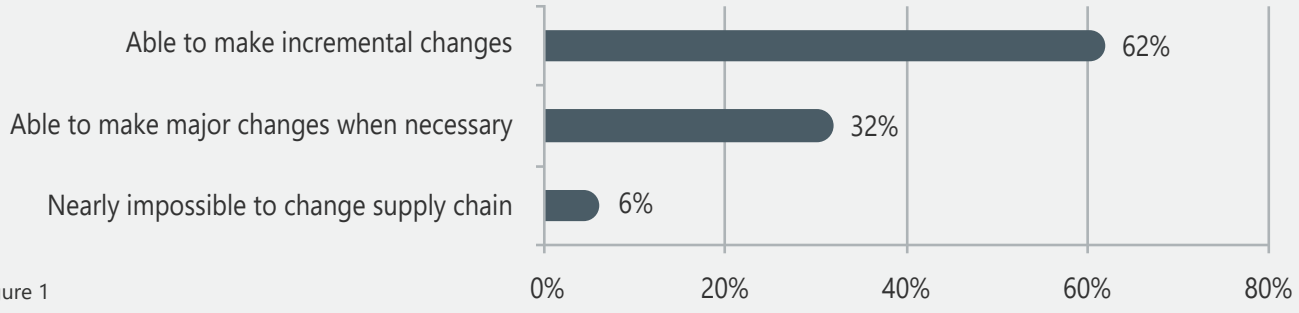

Figure 1

Source: CFO Research Services

CFOs believe that operational plans [including supply chain plans] are not well integrated with the corporate strategy. Still, as a CFO from the US food and beverage industry put it, "We're not viewing the supply chain as a cost-saving opportunity as such; we're viewing it as a strategic asset." Best-in-class performers have succeeded in integrating supply chain planning and execution to a greater extent [Figure 2].

So a practical strategy must be found to "transform the value of the supply chain." Companies cannot significantly reduce inventory levels by chipping away at the mountain with a small chisel. CFOs see that clearly, and they also see an opportunity to take matters into their own hands.

"We're not viewing the supply chain as a cost-saving opportunity as such; we're viewing it as a strategic asset."

— CFO of a major US food and beverage company

The Champion in the CFO's Mirror

Most CFOs agree that CFOs themselves are uniquely qualified to take the leadership role in supply chain initiatives. It's not a radical departure for the CFO to drive supply chain improvements…closer integration between financial leadership and supply chain operations produces valuable analytical advice, support and validation of improvements.

Logility estimates that today 40% or more of CFOs play an important role in supply chain decisions, or lead the effort themselves. Among all members of the senior staff, only the CEO and CFO typically look at the entire business. The discipline of a CFO's financial training provides a sound analytical framework with which to assess the impact of system-wide changes, and CFOs have no vested interest in current modes of supply and distribution [unlike sales and operations, for instance]. The CFO's combination of company-wide perspective and highly developed analytical skills are unique qualifications to help drive change.

One consumer goods company's CFO put it well when he said, "An effective finance team helps an organization see around the corners by framing the implications of the bets that are being made in a constantly changing game."

Survey: Integration of planning and execution

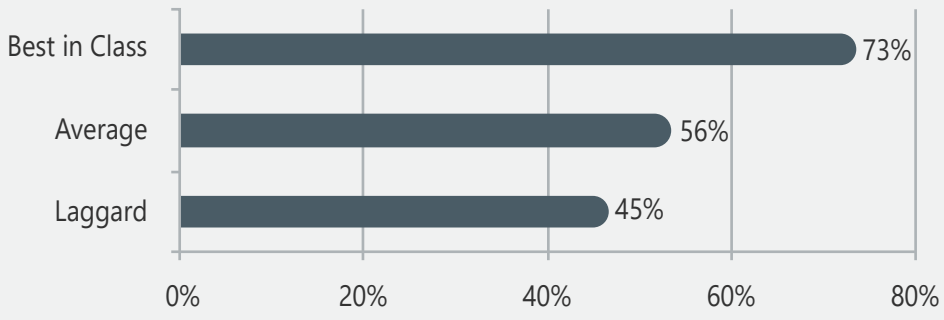

Figure 2

Source: SCM World CSCO Report

Supercharge Your ERP System

ERP and APS systems do not optimize inventory. As operational, transactional systems only, they can't "think for themselves" when it comes to setting inventory policies and targets. Inventory optimization is an independent discipline that feeds recommendations into the ERP environment. So, even if you own a Ferrari of an ERP solution, without IO it's a Ferrari without a steering wheel.

Advanced IO algorithms are based on operations research analytical methods developed to solve complex decision-making problems. They treat inventory management as a stochastic process, meaning that its behavior over time is determined both by predictable actions and by less-predictable elements. Inventory optimization algorithms are quite similar to those used in making financial investment decisions; not surprising, since inventory can be considered to be an investment in prospective return on sales.

Inventory optimization uses advanced mathematical modeling and statistical analysis to arrive at an optimal real-world objective: inventory levels and locations that deliver the maximum performance possible for minimum risk and cost.

Fortunately, unlike big, painful ERP projects, inventory optimization solutions are very straightforward implementations.

Unite Supply Chain Stakeholders

Adding state-of-the-art IO can unite the functionally disparate stakeholders around one fact-based view of the supply chain environment. For CFOs that feel their company's supply chain is poorly aligned with corporate strategy, IO tools make it possible to obtain a clear picture of where excess inventory is held and map the flow of raw materials through the stages of the supply chain, to finished goods [Figure 3].

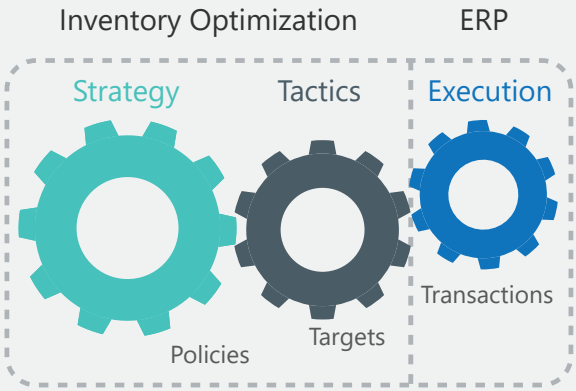

Figure 3

With such a map in hand, it is possible to reformulate the way inventory is buffered throughout the system and respond correctly to real demand [despite imperfect forecasts] over time. The comprehensive supply chain map gives isolated teams scattered across geographies and functions a shared understanding of their impact on each other. This broader understanding of the effects of inventory buffers and lead times up and down the supply chain should drive inputs to transactional systems like ERP and APS.

Taking the interdependencies between the stages and phases of the supply chain into account is called multi-echelon inventory optimization [MEIO]. As we will see, MEIO yields greater benefit than localized, "single stage" optimization efforts. It produces two uniquely powerful benefits that can change everything about how a business competes.

The "Two Levers" of Inventory Optimization

Inventory optimization is a mature discipline that can both transform an organization's supply chain performance and improve the bottom line almost immediately. Inventory optimization is like having two powerful "performance levers," one of which frees up working capital while the other controls service levels.

MEIO is driven by advanced mathematical algorithms that have been deployed successfully in the field for more than a decade to accurately model inventory flows through the interdependent stages and locations of a supply chain, and analyze historical behavior under all conditions. The model is then used to create an optimal configuration of inventory buffers and locations adequate to handle any degree of demand and supply uncertainty, seasonality, etc., while achieving desired service levels for minimum cost.

From a CFO's perspective, this amounts to analysis-based expert guidance regarding how much and where inventory should exist in the supply chain. In addition to identifying the causes and types of excess stock being held at various locations, IO typically recommends specific strategies for postponing inventory at earlier stages of manufacturing and distribution processes. Postponement can take two forms:

- Pooling finished goods inventory to meet aggregated customer demand streams with less waste [lower obsolescence rate]
- Buffering work-in-progress at crucial points before costly value-add manufacturing steps. This reduces costs and increases flexibility

In a recent report, Want to Lower Your Inventory Levels? Ask the Right Questions and Start With Demand Forecasting, Gartner recommends that when a CFO or head of supply chain addresses the inventory issue, one of the first questions to ask is: "What options do I have for late-stage postponement of finished goods inventory?"

Overall, by modifying stock buffers and revamping policies and targets around the supply chain—a solid MEIO program can create reductions of 10%-30% in total inventory, freeing millions in working capital that has been trapped in excess stock and carrying costs. That's one half of the IO equation.

The other half involves the natural trade-off between service level and inventory cost. The trade-off relationship forms a curve that is often called the "efficiency frontier." The curve shows that, for any status quo, it will always cost more to achieve higher service levels. But phased IO initiatives can change the status quo, creating a series of new curves that deliver any desired service level at less cost than the former state allowed [Figure 4].

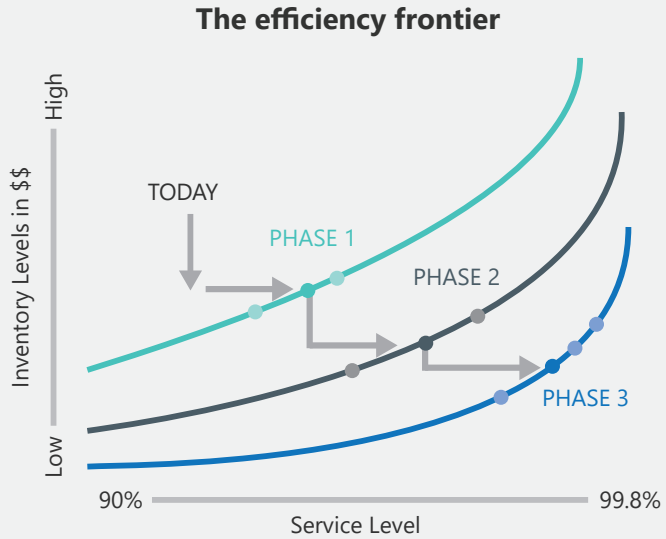

Figure 4

How Perspective Drives Directive

To lead a successful supply chain improvement initiative, the CFO must overcome the organizational challenges, and to do that it helps to understand that operations teams within the organization have a different perspective than does the senior staff. While the CFO naturally responds to issues such as "revenue shortfall" or perhaps "poor inventory turns," supply chain managers think in terms of service levels, lead times, expediting costs, and the like.

The level of aggregation is different. The CFO who sees the company through a non-supply chain filter may start from a need to know "Why we didn't hit the revenue target?" or "Why do we have so much inventory?" Nothing focuses a CFO's attention like analysts questioning how inventory turns stack up against the industry average during an earnings call.

Because operational complexity is usually hidden from the C-level executives [who think in terms of product families, quarterly results, etc.], gaps can appear between the goals of tightly focused function managers and the big-picture senior staff. To eliminate such gaps, CFOs have to understand the sources of value and cost in both the internal and external supply chains. As one CFO put it, "Take the time to understand the whole value chain and not just focus on price."

But CFOs can be guilty of short-term obsessions, too, especially when told that pursuing long-term value will cost money in the short run. In a situation where many CFOs would say, "That's nice, but I just want the cash,'' one CFO surprised the vice president of materials management by taking a more patient position: the CFO opted to optimize value.

"We created $700M in cash flow through adoption of inventory optimization technology within our supply chain."

— Chief Supply Chain Officer at a major electronics company

It Helps to Speak the Same Language

In closing the "gap" between the finance frame of reference and the supply chain practitioner's perspective, CFOs must understand the pressures on operations teams executing at the daily level [e.g. the individual retailer level], while supply chain managers have to understand that the CFO can't afford to be down in the weeds and must remain laser-focused on ROI.

CEOs and CFOs should remember that supply chain executives may have a hard time speaking their language. As one EVP of Supply Chain pointed out, "Every supply chain initiative is judged on economic profit. We look at how we can reduce working capital and cost while making sustained improvements in product availability. All of our initiatives must have a return greater than the weighted average cost of capital for our firm."

Supply chain managers must think in terms of concrete plans, couched in the "terminology of the boardroom." It may take some extra training to get there. For supply chain professionals to speak "CFO" they've got to think "CFO." They may need to be guided in terms of their proposals:

- There is room on the docket for 3—5 major initiatives per year. Inventory optimization is a game-changing transformation that can easily make the cut, but it must be succinctly presented.
- Show the benefit IO will achieve at its full order of magnitude. Think in terms of revenue implications, cash flow improvements and cost reductions. How far will the profitability needle move?
- Think comprehensively—what is the real dollar amount to be expended? Remember that the senior staff looks at the ALL-IN project cost.
- Help to produce a solid/reasonable/achievable estimate of ROI for this initiative, taking realistic costs and benefits into account over a multi-year timeframe.

CEOs and CFOs should remember that supply chain executives may have a hard time speaking their language.

Normally I Can't See the Big Picture From Where I Am

CFOs should require the supply chain staff be prepared to pitch the real value of IO to a senior staff audience, pretty much on demand. The senior staff will likely not dig into the details of a proposal, but will judge it on big-picture terms. Supply chain staffers must remember not to be too technical, not to split hairs regarding detailed alternatives, and keep the business benefit front-and-center at all times.

"It's so easy for us as accountants to look at, "How much did you pay for that piece? That's the wrong way to think about it. We have to first understand the business, and know how the value chain can best support it."

— CFO at a leading American furniture manufacturer

Rather than be deluged with details, CFOs need to see "how we get closer to best-in-class." A strong project will produce relatively simple, repeatable changes over multiple years that make the business better. No-one should expect miracles right away, but on the other hand, all the benefits should not come in year five, either.

Many CFOs were once operations managers themselves, and should remember they share an analytical background with the supply chain managers. With encouragement, operations people will take the time to thoughtfully consider IO from an overall business benefits point of view.

IO Leadership Tips Every CFO Should Know

- Unite the teams, connect the silos
- Not all inventory is created equal
- Don't be stopped, or even slowed down, by ERP issues
- Keep the stakeholders focused
- Encourage more enlightened KPIs
- Teach supply chain managers how executive managers think about major business decisions
- Remind everyone that it's about achieving business goals over time, not just getting the lowest price

Conclusion

In today's business climate, escalating customer service requirements and increased demand volatility are the top concerns of senior supply chain executives. The sophisticated discipline of IO can transform an organization's supply chain performance and improve its bottom line by freeing up working capital and improving service levels for minimum cost. CFOs who understand these two powerful "performance levers" are natural choices to lead these game-changing inventory initiatives, but they must understand and remember certain key "ins and outs" of IO.

- First it is important to understand that ERP and APS systems do not optimize inventory and are inadequate for setting inventory policies in today's complex supply chain networks.

- An important aspect of best-in-class IO programs is mapping the locations, causes and costs of buffer stocks across all stages of the supply chain, creating a comprehensive view that can be shared by all stakeholders, regardless of function, department or geography.

- Inventory optimization tools recommend modifications to buffers of various types of inventory [safety stock, pipeline stock, etc.] through improved polices and inventory targets. By implementing these changes as a part of the normal supply chain management process, service levels can be met with less overall inventory, waste and obsolescence rates are reduced, and flexibility is improved by postponing certain work-in-progress value-add steps. Ultimately, an entirely new, more cost-effective trade-off curve can be achieved for inventory cost versus service level goals. Businesses typically realize a 10%-30% decrease in inventory from these initiatives.

Armed with a deeper understanding of the nature and benefits of IO, a CFO is better prepared to lead the organization in a transformative IO initiative.

- CFOs must also understand that there is indeed a gap in business perspective, KPIs and even communication styles between supply chain practitioners and members of the senior staff. Supply chain and operations managers should be encouraged to evaluate the ultimate business value of their IO program and become adroit at demonstrating that value to the senior staff.

About Logility

Accelerating the sustainable digital supply chain, Logility helps companies seize new opportunities, sense and respond to changing market dynamics and more profitably manage their complex global businesses. The Logility® Digital Supply Chain Platform leverages an innovative blend of artificial intelligence [AI] and advanced analytics to automate planning, accelerate cycle times, increase precision, improve operating performance, break down business silos and deliver greater visibility. Logility is a wholly owned subsidiary of American Software, Inc. [NASDAQ: AMSWA].

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