



MANUFACTURING AND DISTRIBUTION

Redefining supply chain strategy as planning and execution converge

As manufacturers attempt to address demand-driven expectations in their global supply chains, many are experiencing severe, escalating pressures. The struggle to adapt to increasing customer requirements and competitive alternatives with improved delivery speed, product personalization, and vendor compliance has led some manufacturers to rely too heavily on short-term responses.

The promising philosophy of “sense-and-respond” has fallen short, leading to decisions that can undermine manufacturers’ efforts to holistically enhance their value chains.

So where do we go from here?

"From a very early age we are taught to break apart problems, to fragment the world. This apparently makes complex problems more manageable, but we pay a hidden enormous price. We can no longer see the consequences of our actions; we lose our intrinsic connection to a larger whole."

Peter Senge

The Fifth Discipline: The Art & Practice of the Learning Organization

Four headwinds threatening supply chain performance

Coping with a new market environment requires understanding the modern factors impacting supply chain performance. Let's take a closer look at a few major headwinds:

The explosion of data and digital technologies. With the profusion of information comes the challenge of how to transform real-time data into meaningful action. Can insights be used to make decisions that drive better asset utilization and throughput, increase market share, and improve the bottom line? Will competition—known or emerging—do it better?

Increased access to alternatives. Customers now have many more readily-available options and alternatives. As barriers to switching sources crumble, customers have become more willing to express their pleasure or displeasure with their feet and wallets.

Perfect order performance. [Supply Chain Management Review](#) reports that only 84% of orders can be deemed “perfect” (right product, right place, right package, right quantity, right condition). That means that 16% of orders miss the mark, creating a significant window of opportunity for alternatives and competitors.

Persistent functional fragmentation. Traditionally, supply chain decisions were made discretely and sequentially by function, with little coordination to orchestrate the whole. As a result, systems and processes are often not fundamentally designed to adapt to the broader implications of changing business models, requirements, capacities, and rules. Synchronizing across functions and between long-term planning and short-term execution is hard. Companies spend millions to stitch together disparate architectures. Upwards of 50% of transformation project budgets can be spent on integration.

Supply chain innovators should realize that these dynamics are making the status quo unsustainable and ineffective. Companies need to embed the ability to access, assimilate, analyze, and act upon information at today's accelerating pace of business.

Confronting supply chain challenges

In the struggle to deal with these headwinds, many companies react reflexively, opting for “break fixes” that have short-term utility. But a compelling sense-and-respond strategy cannot simply shift issue resolution downstream. Instead, it should leverage real-time visibility and advanced analytics to drive superior decisions across time horizons—tactical, operational, and strategic.

A balance is needed between agile course corrections and longer-term holistic tradeoffs. Consider the following areas of business challenge:

- **New product success rates.** In industries ranging from high tech, food and beverage, and pharmaceuticals, to consumer products and specialty chemicals, new products can take well over a year from ideation to rollout. Much can change during this period, even when initial concepts are clear. Competition, cannibalization, and the impact of raw material transitions on production yields and capacity often go unassessed. There are also questions about what constitutes success. [Harvard Business Review](#) estimates 75% of consumer packaged goods and retail products fail to earn \$7.5 million during their first year.
- **Time-sensitive stressors on inventory strategies.** Whether triggered by short lifecycles, seasonality (either demand-driven or supply-driven), or promotional programs, the potential risk of stock-building inventory strategies drastically raises the cost of getting it wrong. The challenge is to find a dynamic balance between tailoring offerings to “markets of one” and streamlining operations for uninterrupted flows that maximize throughput and asset utilization.

- **Difficulties comprehending and clarifying demand patterns.** Whether confronted with demand anomalies, short-term spikes, or underlying shifts, companies need enhanced insight into changes in downstream demand early enough and at a granular enough level to make more proactive decisions as to operational implications. Should inventory policies change? Should capacity be addressed? What are the implications on mix, procurement, and production pre-builds? If analysis remains only at an aggregate level, manufacturers are likely to remain vulnerable in terms of agility at the level at which they must execute.
- **Reliance on firefighting.** It is hard to achieve sustainable and profitable growth strategies when inventory, logistics, and procurement are consistently used to rapidly respond to market dynamics. An increasing call for exceptions within production, distribution, and purchasing will likely only escalate as demand for variety and convenience continues to grow. Knee-jerk responses for speed leads to an erosion of margins and flawed business practices.

So what can be done to address some of these issues in a sustainable fashion? Previously, the challenges of market dynamics existed beyond the immediate influence of supply chain managers and decision-makers. But today, these challenges can be tackled more fundamentally by new and advanced analytical solutions that, when properly thought-out and executed, can provide stability and a solid foundation for responsiveness and growth.

Unifying planning and execution in a continuous loop

Forward-looking manufacturers are now pursuing a new supply chain strategy, one with a heightened level of synchronization between planning and execution. While early sense-and-respond strategies emphasized logistics to compensate for market shifts, this left many other critical supply chain pieces untapped or sub-optimized. Can your plan factor in the advanced considerations of a multi-tiered supply chain, incorporating real-time data ranging from downstream consumption to production yields or raw material availability? These are exactly the kinds of capabilities that will be required to achieve high performance going forward.

Applying an enhanced sense-and-respond strategy

A next-generation approach to sense-and-respond would give decision-makers the insights they need to engage in more rigorous planning. Today's advanced systems make it possible to evaluate signals generated by everything from consumption (POS systems) and production yields to in-transit inbound shipments and supplier order-promising systems. This provides a means of reducing latency in managing operational risks and opportunities.

Here are some ways an upgraded sense-and-respond strategy can more effectively make an impact:

Tailoring without excessive costs. One opportunity for manufacturers is to assess when, where, and how much stock to build for peak periods when there is a need to coordinate long-lead time production processes with quick-turn demands.

One example of this is a leading global brewer that firmly committed to tailoring its product to the tastes of the various regions it supports, resulting in a rapidly growing product portfolio. With production in 20 countries, it still needed to optimize its global network capacity and fully leverage its purchasing power, despite the additional complexity that the broadening mix creates.

With an asset-intensive production process, this company must effectively synchronize long lead-time operations (e.g. brewing with complex aging, processing, clean-out, and sequencing rules) with rapid, pull-based ones (e.g. packaging) to drive down holding costs and waste while improving utilization and throughput.

By aligning planning and execution, the brewer significantly reduced idle time from 5-10% down to 1%, increasing efficiency and ultimately freeing the capacity of a tank per week. This not only represents an ongoing annual savings of millions of dollars, it provides the flexibility to support even more market-specific products for profitable topline growth. This demonstrates that manufacturers can tailor products to drive new revenue sources without incurring an exponential growth in costs.

Optimizing the ingredient mix. In several industries, a key challenge surrounds the optimization of recipes, formulas, or blends. Determining the “right” ingredient mix requires a tenuous balance of factors—capturing market-specific, dynamic demand across complex portfolios, regulatory constraints, and key ingredient attributes such as concentration, texture or flavor, margin and shelf life implications, and production capacity impact.

By unifying planning and execution, decisions can better reflect the realities of time-phased costs, demand, and availability, as well as evolving business priorities. For manufacturers with a sizeable number of raw material-specific characteristics and therefore possible plan permutations, the potential impact of ‘getting it right’ is significant. Operational performance (supply chain), financial performance (margin), and customer experience (brand loyalty) can all be simultaneously enhanced.

But these are not static decisions. Fine-tuning them involves continuous interaction between planning and execution—whether that means identifying underlying preference shifts in demand, product characteristics of a supply stream (seasonality, availability), or throughput results (production yield, changeovers, labor, lines, and mix).

A specialty chemicals company, for instance, was significantly constrained by supply due to the attributes of key natural raw materials. Through a convergence of planning and execution, this firm reduced inventory on an ongoing basis by a month, or nearly 10%, paying for the entire project in under a year.

A new era of prescriptive decision-making

Digital technologies abound—sensors, machine learning, artificial intelligence, and the Internet of Things (IoT). To tap the potential of these advances requires the adoption of new business and technical architectures to converge processes and time.

Hype aside, effective supply chain leaders will embrace the ability to “self-learn” and make a fundamental shift from the concept of presenting data to generating feasible plans that reflect key priorities and demonstrate a clear business impact.

Prescriptive analysis empowers users to consider alternatives. It is driven by conscious decisions to relax constraints, reprioritize objectives, alter networks, or change rules. Software supporting such an environment must be designed to be intuitive and configurable (not hard-coded); built with the understanding that supply chains are dynamic.

Highly-responsive algorithms should sense deviations and imbalances between demand and supply—and consider broad options to course correct. This means not simply looking at isolated metrics, but holistically at supply chain objectives. Competitive supply chains will reflect unique industry complexities, and instead of managing around them, leverage them to outperform market alternatives.

Now is the time to seize the opportunities that new technologies represent. According to a McKinsey Global Institute report, “[Unlocking the Potential of the Internet of Things](#),” linking physical and digital worlds could generate up to \$11.1 trillion a year in economic value by 2025. Looking deeper, researchers found that that factories are where the greatest opportunities for growth were likely to exist—with estimates ranging from \$1.2 to 3.7 trillion, double the potential of other settings.

Postponing commitments to finished goods inventory.

Another area of opportunity for converged planning and execution is in better informing the irrevocable decision point at which raw material is allocated to specific finished goods.

Many industries must take all incoming supply and commit it to finished goods long before end-demand is known. Consider dairies (process milk, cream, butter, or milk powders), protein producers (cut ground beef or filet mignon), lumber (paper, pulp, or building products), or even petroleum. In each case, decisions carry significant margin, shelf-life, production, market, storage, and transportation implications.

Advanced technology can support decision-making by capturing rules, constraints, dependencies, and opportunity costs, and identifying optimized plans based on real-time visibility and user-defined priorities.

The world's second-largest producer of corn flour has six plants in Mexico and two in the US, and 46 distribution centers. It sought to improve purchase plans at the region and plant level, while optimizing plant capacity and reducing supply chain costs in the face of increasing competition and rapid growth. With an advanced planning solution, it was able to holistically balance purchasing, production, and distribution options to better meet market needs.

According to the organization's Planning and Systems Corporate Manager, "With Infor, we found a way to do more with less. Could [we] earn more money buying the same amount of raw materials, selling the same volume at the same price, and with the same fixed costs? Yes, by modeling the entire supply chain to create integrated plans for supply, production, and distribution; and then to determine where, what, and how much should be bought, produced, stocked, and transported."

Conclusion: Striking a new balance

Supply chain innovators elevate operations by pursuing a purposeful convergence between planning and execution. By putting systems and processes in place, and building the operational strengths needed to strike a new balance, they drive greater profitability and sustainable agility.

They can address business challenges without fostering short-term-only thinking and fire drills. They can meet the expectations of channel partners and the customers they ultimately serve, whether through more responsive fulfillment or by coming to market with more targeted products backed by sound procurement, production, storage, and distribution decisions. Further, they can execute operational decisions that strategically use assets and optimize utilization and throughput.

The ability to leverage real-time visibility need not simply be hype. And with access to cloud-based architecture, intuitive advanced analytics, and extended networks, the potential for impact can be tapped by an innovative supply chain team of any size and maturity. But make sure it is not simply about access to data. Enduring success lies in assimilating, analyzing, and acting upon data to make decisions that reflect the wider strategic interests of your enterprise.

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