The Agile Supply Chain: Driving and Supporting Agility through Sales and Operations Planning

Agility and the Supply Chain

The supply chain is the core of the business for nearly all product-producing enterprises. It is the key contributor to the factors that drive shareholder value: **free cash flow from operations, cost minimization, tax minimization, asset utilization** and **working capital optimization**. Equally important, it is the face of the company to the customer, a major factor in both **customer retention** and **customer acquisition**. The key objective of the supply chain is to give the customer and dealer or retailer what they want, when they want it, delivered where they want it, the way they want it, and with the needed information or support services – at the best combination of profitability, liquidity, and customer service.

**Sales & Operations Planning (S&OP)**, the matching of demand and supply, is the critical element in achieving these objectives. It is the engine of the company. The S&OP plan is, in effect, the operating plan of the company. It determines the financial, operational, and customer results for the short and longer terms, enabling the company to operate with agility while managing significant changes and risk.

Risk and agility are key concepts in successful S&OP, and can be defined as such:

**Risk:** All supply chains are vulnerable to risk and unexpected events that impact the supply chain and make planning and execution increasingly complex. For agile Sales & Operations Planning, these risks fall into five broad categories:

- Customer and market risks ranging from customer needs and desired service levels that drive unexpected demand changes – both shortfalls and spikes
- Competitive and competitor action risks from new product introduction and price cutting to new trade and competitive marketing initiatives that impact demand
- Geopolitical risks such as new regulations, trade restrictions, taxes and tariffs, currency volatility, natural disasters, security, and shifting trade routes
- Infrastructure risks such as transportation capacity shortages and cost increases
- Supply and commodity risks such as commodity shortages or price increases, supplier disruptions, capacity shortfalls and sudden price increases, supplier economics (for example, bankruptcy), changes in distributor or wholesaler networks, quality issues, manufacturing cost increases, and a host of other factors

**Agility:** To anticipate and assess these risks and changes - and build the resilience to deal with them - requires an agile supply chain. Agility is the ability to respond rapidly to unplanned and unexpected changes and events in the environment, while maintaining the same customer service levels, service level agreements, liquidity, and cost structures. And one of the critical elements in achieving an agile supply chain is the S&OP process.

**Sales & Operations Planning**

Sales & Operations Planning and execution is the engine of the company. However, ‘traditional’ S&OP reflects the environment of ten years ago and can be dangerously outdated. To borrow a phrase from an old ad slogan, the S&OP process of today and tomorrow is ‘not your father’s S&OP process’. It must encompass several key tenets that reflect the competitive realities of today.

S&OP must now include supply, demand, financial results, inventory, and customer service. Perhaps, a more accurate term should be ‘SOFI&CSP’ – Sales, Operations, Financials, Inventory, and Customer Service Planning. While more accurate, we’ll continue to use the traditional ‘S&OP’ acronym to encompass this more inclusive set of activities.
A caveat here: in many industries, where demand is relatively stable, the supply chain is relatively straightforward, and disruptions are few, the traditional S&OP process is likely to be fine and relevant. While S&OP practices in many companies have not evolved too much over the last several years (for example, it’s only recently that some companies have been explicitly considering ‘inventory’ as part of the equation), many leading companies are finding deep competitive advantage in improving and expanding the S&OP function. This competitive imperative is driving several companies – even with simpler supply chains - to reconsider their approaches to S&OP.

The obstacles to getting there are also common: conflicting metrics, lack of skills, a fragmented data environment and inadequate analytical tools, lack of information from across the extended supply chain, and a mindset that focuses on the process itself to the exclusion of urgency and speed of decision making. The biggest and most common problem, though, might be the lack of a vision of the future state. Too often, the individual functions focus on meeting individual objectives and metrics, instead of coming together to address the demand-supply, inventory and customer service issues with a common strategic framework and solution. The first step, then, is to step back and formulate what an agile S&OP process looks like from the enterprise view, and then act on it.

Components of a Successful Agile S&OP: Framing and Executing the Vision

Different companies’ products, customers, suppliers, and product flows typically have both significant variances and significant commonalities among them. While processes and metrics should be specific to the organization, it can be a waste of time to re-invent the wheel at every stage. There are leading edge standard good business practices that form the basis of a successful agile S&OP design. This should not be a complicated process, but a measured and well implemented one, that addresses five key areas.
A. Organization and accountabilities: An operating model, with clear accountabilities and authority, that deals with constant volatility with a sense of urgency

For many companies, the single largest obstacle to achieving an agile S&OP environment is the fundamental design of the operating model and organization. The first step is the obvious one: clear identification of the executive sponsor(s), management, and operational accountabilities and responsibilities. This requires a cross-functional agreement at the executive management level. It requires an understanding that the S&OP organization must be planned with a strategic perspective and a view of information, insight, visibility, and coordination across the supply chain, including upstream and downstream views as well as cross-product and/or business unit (BU) views. Equally important, it must be seen as a real time fusion of planning and execution, not a monthly planning exercise.

Most of the key tenets in the design of an agile S&OP operating model seem pretty obvious: multi-functional executive sponsorship, specific accountabilities, and nominating a head of the process. But one of the key actions often ignored is the clear executive (preferably the executive team) communication to the organization outlining the key accountabilities, objectives, scope of responsibilities, team to design the process, importance to the company, and what's expected of the other functions. This is a first step to ensuring success.

B. Process and metrics: Driving towards low latency and coordination

Among the major challenges in executing a responsive agile S&OP function are including other functions for insight, decisions, and execution, getting the right information, assessing and evaluating this information and the supply chain impacts, and having decisions made in a rapid and timely fashion.

Ideally, organizations should adopt an integrated, comprehensive S&OP and interlock process with daily updates, linking planning with execution. The process should be near continuous, and drive towards zero latency between information and execution. Shown below is an example of a planning process that is integrated, close looped, and focused on execution and measurement. This is not a new process, but an enhanced version of the ‘traditional’ S&OP process, emphasizing urgency, decision making, and focus. It explicitly includes inventory, financials, BU consensus, and the customer, and relies on timely information, ‘what-if’ analysis, and joint and rapid decision making. Some of the major design criteria are shown here. Equally important, the process must focus on the things that are strategic, important and require full attention – leaving the rest to automated rules and auto-execution.

The metrics (shown here) must address overall business metrics (for example, cash-to-cash) as well as specific operations metrics (such as days sales inventory – a forward looking inventory measure) dealing with the customer, liquidity, risk, and costs.

Critical design criteria
- Organization(s): Should there be different planning functions by BU and supply chain segments (for example, Engineer to Order vs Build to Stock)? And, if so, how should they be aligned and integrated? After all, a strategic goal should be simplicity in operations! Common suppliers, commodities, and customers usually mean common processes.
- Structural factors such as customer segmentation, business model, geography and product characteristics
- Interaction with integrated supply network planning, global trade management, logistics and fulfillment strategies
- Planning changes with different supply chain segmentation strategies
- Philosophy of ‘make what we sell’ AND ‘sell what we make’ i.e., providing the information to sales and marketing for demand shaping to deal with inventory excesses and shortages

Metrics must be aligned and appropriate for success. Example metrics to prioritize:
- Availability
- On-Time Delivery (OTD) to customer request or need
- Time and costs to recovery
- Fulfillment costs – standard and/or expedited by customer segment
- Costs-to-serve by customer segment
- Inventory (Day Sales of Inventory or DSI, turns, ageing, costs)
- Customer satisfaction
- Order to fulfillment lead times by product
C. Analytics: New analytics and tools to predict, analyze, and make superior decisions

With new capabilities in collecting and managing a wide variety of data (including sensor and equipment data, partner data, and unstructured data), and the use of more sophisticated analytics tools and techniques, managers can achieve new levels of understanding of what is happening in the supply chain in real time, as well as analyze the options and their impacts, enabling them to act more quickly and with greater flexibility. This is a high level of decision support capability where different attributes of supply, demand, availability, financial targets, predictive modeling and ‘what if’ tools are used to rapidly evaluate options and trade-offs. In the agile S&OP environment, information and analytics must underpin everything.

The core of these tools generally falls into two major categories:

Predictive analytics for ‘intelligent’ forecasting and demand sensing using all aspects of demand, including consumption, point of sale, usage, channel needs, market factors, and customer behavior by segment and geography to determine likely future demand.

‘What-if’ and scenario modeling and analysis for demand and supply scenarios. This enables decision makers to evaluate different options to arrive at the best operational set of decisions that trade-off and achieve the key objectives of total cost, inventory, and customer satisfaction at minimum risk.
Obtaining these tools and capabilities would appear to be a daunting and time consuming task in terms of people and time. However, waiting for them is not a good option. A good way to start immediately is to develop spreadsheet based tools linked to real time data as much as possible. For the rest, rely on ‘sneakernet’. What companies often find is that such an approach gives their people experience and expertise in the process, in what works and what doesn’t, in the types of information and analysis they really need. And, in some cases, companies have found this to be a perfectly adequate solution. The key is getting started and not postponing change in order to wait until a perfect toolset is implemented.

**D. Information, data and technology: The glue of the supply chain**

Information – accurate, complete, standardized, and real time (or as near real time as possible) – is the glue of the supply chain and its currency. The Enterprise Resource Planning (ERP) system environment is a key element in bringing the enterprise together and coordinating activities. But there are some issues resident at most organizations:

- **Multiple systems**: Many companies are saddled with a variety of ERP systems, whether they are different systems or different instances of the same system. Added to this are various partner, channel, and customer systems. This makes integration a key issue. Pre-configured process maps that can be customized quickly, and integration tools and capabilities can be useful implementation accelerators. The application portfolio must be coordinated, consolidated, harmonized, and implemented fast and well, and maintained to reflect changing conditions, process and market factors.

- **Table stakes and differentiators**: While ERP systems are core to the enterprise i.e., ‘table stakes’, the key technology differentiators in the market are the analytics and modeling and management initiatives that drive ‘class A’ data accuracy and integrity.

It is vitally important to understand that **technology is not a solution, it is just an enabler!** On the other hand, new developments and innovation in technology can drive changes in process. The business strategy must always lead the solution; the human elements of organization, adoption and governance are essential, and the processes must be aligned to goals. Technology follows and supports the solution, can occasionally drive aspects of the solution, but it is not the solution itself.

**Key information systems and technology enablement design points**

- Supplier and partner connectedness and data integration with suppliers, providers, channels, and customers
- ‘Class A’ accurate data along the supply chain
- Supply chain and pipeline visibility
- Systems functionality that can anticipate tomorrow’s needs
- Ad-hoc and flexible reporting
- Dashboards and as-near-as-possible real time status and information
- Rapid implementation and integration of systems, with a Minimum Viable Product (MVP) philosophy, and quick time to benefit
- Use and integration of mobile technologies and tracking and tracing technologies along the supply chain
- Leveraging all the structured and unstructured data in the “eco-system”

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**Key elements in ‘what-if’ modeling and analysis**

- Fulfillment costs, including standard and expedited costs, small shipment costs, consolidation and partial shipments
- Supply sources, costs, constraints and changes, penalties
- Customer changes, cancellations, orders, potential orders, and other demand variables
- Lead times – supply to fulfillment
- Fulfillment models and customer service levels
- Excess and obsolete, end of life, end of service life inventory
- Inventory deployment and postponement, including spares and service
E. The extended enterprise: Embrace the extended supply chain network

An agile S&OP process must include the key players in the extended supply chain network. Some leading companies have certain critical suppliers and channel partners present in S&OP discussions. This includes suppliers, contract manufacturers and co-packers, third-party logistics and lead service providers, channel partners and fulfillment partners.

The key here is the information, capability, and decisions to synchronize the supply chain and response to changing conditions. While collaboration and shared visibility improve decision-making performance and speed, partners can also be used to gain expertise beyond the internal company’s ranks. After all, they are on the front lines, probably pursuing their own supply chain optimization efforts, and can share information on trends, market insights, their own best practices and learnings in the S&OP process. Collaborative planning, deployment, replenishment, and fulfillment harness the power of many to provide an agile supply chain.

No unnecessary excellence

Many companies believe they should be good at everything to succeed in the marketplace. It’s important to remember that the smart organization prioritizes its S&OP metrics, focus, actions, and capabilities to achieve the things that matter – in terms of customer service, inventory, costs and supply stability. We believe that it is best to have a philosophy of ‘no unnecessary excellence’, focusing on those metrics and actions that are important to the company, shareholder outcomes, and the customer.
Getting started and executing

Every company has a lot, if not most, of the pieces in place. The key is to build on this, incorporate the basics, and then extend the process and operation to the next level. Equally important is implementing in ‘chunks’, while learning and revising – often called the Minimum Viable Products approach.

Setting the stage: This is the critical first phase – getting the organization ready. It requires getting and publicizing multi-functional executive sponsorship, appointing a corporate S&OP or planning head, identifying a small multi-functional core team, specifying objectives and metrics, and then communicating this very clearly to the organization.

Building on what we have and incorporating the basics: This means taking the existing S&OP structure and building on it to develop the enhanced process. It also involves defining and getting the necessary data from the ERP systems and the extended supply chain – by ‘sneakernet’ if necessary, starting the definition and development of the necessary analytics and ‘what-if’ decision support (spreadsheets are a great way to start), defining owners, responsibilities, and then executing the process. It must be understood that there will be initial problems, disagreements, false starts, and the process will be refined and revised. But it is essential to start and move quickly. This stage will also include setting the technology requirements, data requirements, what systems need to be enhanced, and what new capabilities are needed. And, given the new operating philosophy, new people are likely to come into the process and all the participants will need to be educated and trained. A critical part of this stage is reporting results and metrics to senior executives. After all, everyone looks for ‘quick wins’ to validate their decisions.

Extending: Once the process is moving smoothly, organizations will need to extend the S&OP process to include new technologies, integration, and systems functionality. A critical aspect of extending is negotiating with and including the major supply chain partners such as logistics providers, key suppliers, and channel partners. And, all the while, refining the process and structure.

Conclusion

Change, not stability, is the true reality of supply chain operations today. Every company is dependent on the actions, capabilities, and response of its supply chain partners. Urgency, speed of response with high financial performance and customer satisfaction, is the action imperative – in other words, the responsive, agile, resilient, and proactive supply chain. The agile S&OP process is the engine for achieving this future state.

About the Author

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Chris works with the Supply Chain Management Transformation Practice of the Enterprise Solutions unit at Tata Consultancy Services (TCS). He is an expert in global supply chain strategies, manufacturing and outsourcing, demand and supply planning and management, operations execution, process transformation and improvement. He is the co-author of three books, including ‘Supercharging Supply Chains: Creating Shareholder Value through Operations Excellence’, and has been recognized as a global thought leader on topics related to supply chain and operations management.
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