The competitive dynamics of globalization have led most companies to rely increasingly on outsourcing to a web of loosely connected manufacturing and distribution partners to better satisfy the ever-increasing demands of their global customer base. The extended nature of these trading partner networks requires a more agile, flexible control structure—a Supply Chain Control Tower—to provide a centralized view of end-to-end supply chain operations while enabling faster response to frequent change.
Background

More than a decade after its emergence as a critical corporate function, Supply Chain Management (SCM) has not, for the most part, significantly advanced—at least when compared to the forward charge of globalization. Businesses all over the world have invested heavily in ERP, planning, and execution systems, but only a few can credibly claim positive return on investment (ROI). The problem is that these systems were built to manage discrete scopes of activity, in relatively static environments, addressing change on a periodic basis.

Today’s business environment consists of volatile demand, constantly changing product mixes with relatively short lives, and ever-changing supply partnerships attempting to serve them. Decision making in this environment is challenging and pressure-filled.

Periodic material requirements planning (MRP) runs and sales and operations planning (S&OP) meetings assume stable processes, predictable demand, and managed inventory. In today’s dynamic markets, change is constant. Exception management is the name of the game when balancing volatile demand and multiple tiers of outsourced supply partners. What brand owners need can be best described as “daily S&OP”—planning between the plans—characterized by frequent, complex challenges requiring urgent response. And the stakes continue to increase, as the value of customer expectations, supplier responses, inventory, and shipping costs weigh heavily on decisions and timing.

To compete effectively in this environment, supply chain professionals have to address both common (e.g., missed shipment) and crisis (e.g., tsunami, fire) situations.

I need a decision—fast!

Frontline professionals struggle to make decisions—both simple and complex—quickly and confidently:

- Can I accept a “hot order” from a key customer and let them know right away?
- How is end demand impacted by a sudden supplier component shortage?
- What orders should I prioritize to minimize late shipment impacts?
- Can I fulfill orders earlier to meet my end of quarter numbers?
- How should I respond to the widespread disruptions generated by a natural disaster?

With complex, global fulfillment networks far flung and filled with communication gaps, how can frontline professionals better manage continuous change?
Three Factors Drive the Urgent Need for Change

1. **The game has changed—but technology hasn’t kept up.**
   The progressive dismantling of vertical integration and linear supply chains (in favor of outsourced manufacturing and fulfillment, and the trading networks needed to manage them) has left brand owners struggling to manage supply and demand with software tools that were designed for factory-centric supply chains. Instead of ERP and planning systems that focus on factory asset-utilization, brand owners now need centralized, cross-network visibility, recognition, and responsiveness to assure lean product velocity. These capabilities require many-to-many collaborative execution across a network of partners and their heterogeneous systems. Brand owners need a different solution to tackle this very different problem.

2. **Data sharing is no longer taboo.**
   Lack of trust and reluctance to share demand data have long been the hallmarks of many supply chain relationships. As a result, many suppliers second guess their customer orders and pass along distorted views of demand to their next tier of suppliers—who, in turn, treat the information with equal suspicion. The end result of this dynamic is commonly known as the "Bullwhip Effect." But in an age that values time above all other commodities, companies are quickly recognizing the need to restructure their relationships with external partners in favor of more open, collaborative operations. The most profitable and innovative supply chains in the world share this critical ability to collaborate and exchange data (e.g., exceptions and forecast changes) in near real time.

3. **Decisions must be made quickly and confidently.**
   In this environment of complex demand fulfillment networks, sensing change and being responsive is straight-jacketed by information fragmentation and latency. With an increasing number of partners, systems, and spreadsheets, for example, it has become exceedingly difficult to gather, consolidate, and rationalize data quickly and reliably. Supply chain professionals are therefore forced to make decisions based on partial information or to wait until complete information is received. Both approaches result in sub-optimal decisions that are often too late to affect positive change. This failure lowers customer service levels, strains supply partner relationships, increases working capital tied up in the network, and damages both brand reputation and financial results—sometimes irreparably.

In the absence of effective technology, even leading companies bridge the intercompany information and process gaps with band-aid workarounds, relying on "management by spreadsheet" and offline communications via phone, fax, and email. In an attempt to prepare for unforeseen shifts in demand, they also
build up high levels of buffer inventory at all major nodes in the network. The impact: precious working capital is tied up in excess inventory, expediting costs skyrocket, and profitability suffers as a result of high inventory obsolescence. These and other dynamics have positioned the supply chain field for a new stage in its evolution—a stage in which multi-tier collaborative execution is a foundational, not aspirational, element of how leading companies approach their trading network planning and execution.

The Need for an End-to-End Visibility Solution

Cross-network visibility is one of the key requirements for profitable demand fulfillment in today’s highly volatile, complex, and outsourced marketplace. With suppliers, contract manufacturing service providers, third-party logistics providers (3PLs), and customers spanning the globe, the lack of timely, accurate information can result in high levels of supply chain risk, strained supplier relations, poor planning, excess and obsolete inventories, and missed revenue opportunities. It is therefore critical to enable near real-time visibility and collaboration across major operations and transactions, including forecasts, orders, shipments, receipts, inventory information, and stock-in-channel and point-of-sale (POS) data. Without this visibility, it is nearly impossible to make intelligent, timely decisions to correct supply chain disruptions or to meet volatile customer demand.

Furthermore, obstacles to collaboration hinder the establishment of truly strategic partnerships, which require working across both financial and operational boundaries. All too often, brand owners make decisions to advance their own financial advantage at the expense of their partners. In order to develop trusting, symbiotic relationships, it is imperative to enable near real-time information exchange and collaboration across all tiers—and to share value among all parties involved in the extended supply network.

Another key enabler of multi-tier supply network coordination is solid B2B connectivity and seamless supply chain process management—both of which help to create a solid foundation for sophisticated business intelligence. This business intelligence “foundation” enables event recognition during supply chain disruptions and facilitates more effective risk mitigation. Supply chain business intelligence also provides an advantage by integrating data across the entire value chain to provide unique insights about demand patterns, operations, and customer service requirements. The lack of effective business intelligence tools hinders a company’s ability to monitor operations and trading partner performance—often leading to poor operational efficiency and lost revenue.
Using a Supply Chain Control Tower to Gain Visibility and Control the Chaos

A Supply Chain Control Tower can provide the extended supply chain with a more flexible and agile control structure—one that offers a centralized view of planning and execution systems and a consolidated platform for enabling rapid recognition and faster response to change. A Control Tower turns raw data feeds into “right-time” information in a central location that monitors the flow of orders, inventory, and consumption across the network. Much like the control towers used by regional utility companies, telecommunication carriers, or even NASA space centers, a Supply Chain Control Tower monitors system status and highlights business rule exceptions in real time. Supply chain professionals are able to leverage the Control Tower functionalities to collaborate with partners online for faster, more intelligent decision making.

The complexity of global supply chain integration.

The Control Tower continuously projects future demand and required inventory levels based on the latest macro and micro customer demands, planned production, in-transit and hub inventory, as well as near real-time customer consumption. However, information without action has little value, and beyond its critical role as an aggregator of supply chain execution data, the Control Tower should also drive frontline decision making in response to exceptions. Given the fragmented nature of today’s supply chains, it is imperative that the Control Tower has a dedicated team of cross-functional professionals that is willing to work closely with strategic trading partners to ensure data accuracy and facilitate goal alignment.
Control Tower Maturity

AMR Research, a leading industry research firm, developed a maturity model that demonstrates the margin and market share improvements that come with an increasingly sophisticated ability to balance supply and demand. At each stage of the model, companies can benefit from improving their business processes and supporting information technologies. The ability to implement a Control Tower maps to the highest stage of the model—“Orchestrating”—in which brand owners work with their trading partners to balance supply and demand in near real time. However, companies at lower levels of maturity can also benefit from taking the steps that build toward a Control Tower model.

Conclusion

Today’s brand owners and global manufacturers get their products to market through the orchestration of a complex network of trading partners, including suppliers, outsourced manufacturers, logistics providers, and distributors. They rely on thousands of businesses across the globe to work together to deliver the right products to the right customers at the right times. For this reason, supply chains today are perhaps better described as “business networks,” sprawling across different geographies and tiers of trading partners. For brand owners to most profitably manage the delivery of their products to market, they require a Supply Chain Control Tower to provide visibility and control over their multi-tier business network.
E2open’s role is to integrate these complex trading partner networks to enable easy data exchange and business process orchestration across the extended value chain. Using E2open, manufacturers are able to quickly detect unexpected changes in supply or demand and leverage this information to make informed, timely decisions for improved profitability and market share. This is how leading-edge brand owners like Cisco, Dell, IBM, and Vodafone keep supply aligned with demand and maintain control over costs, product quality, and service levels—even with so much of the manufacturing process outsourced.
Design Principles of a Supply Chain Control Tower

The following design principles outline the functional criteria for developing a successful Supply Chain Control Tower.

• **Partner connectivity is critical.**
  The key challenge of a fragmented supply chain is the many-to-many synchronization of the information flows that are needed to source, make, and deliver a product—as well as handle all the planning and execution exceptions that need prompt response. A solid integration backbone that accommodates various information systems and data formats—including management by spreadsheet—is a foundational element of the Control Tower.

• **Establish meaningful key performance indicators (KPIs).**
  Defining and building a performance measurement platform will define the underlying logic to the Control Tower mission. The tracked KPIs must be meaningful and their number manageable. Furthermore, a good rule of thumb when defining/selecting a KPI is to measure only what you can influence.

• **Define a clear governance model.**
  Ensure that the cross-functional team that forms the full-time staff of the Control Tower has the authority and underlying processes to act on exceptions. Periodic assessments of the group performance will help fine tune the working model (with regard to exception thresholds, for example).

• **Don’t underestimate the importance of change management.**
  Ensuring cross-functional alignment and partner adoption will be critical to the success of a Supply Chain Control Tower. Working across organizational boundaries by ensuring full-time functional representation and tight integration with key trading partners (e.g., suppliers, contract manufacturers, 3PLs, etc.) cannot be underestimated.

• **It’s not planning. It’s execution!**
  The primary mission of a Control Tower is superior execution of supply chain plans and management of change in between plans. The modus operandi is “sense and respond,” which requires constant monitoring of system health indicators and exceptions (e.g., a delayed shipment or non-adherence to schedule) and prompt intervention to resolve or mitigate the impact of the exceptions.

• **Define an exception-handling model.**
  The exception management framework—which outlines the metrics to be tracked based on business needs, the tolerances that trigger alerts, and
the work flows that implement corrective actions—needs to be properly defined and built. Furthermore, a continuous improvement mind set is needed to ensure that this exception-handling model is constantly assessed and improved.

Implementation Approach

The implementation approach should be based on the specific business requirements for the Control Tower. It is therefore important to make sure those requirements are derived from the business objectives for visibility and control. Successful implementations rely on a process that takes the objectives and matches them to the strategies and practices to be deployed—taking into consideration the current capabilities—and then builds upon them to deliver the Control Tower. The design should include key performance indicators for the measurement of success, with targets set as part of the roll out.

The most successful implementation approach to date has been to break the delivery into a series of iterative “business releases” that meet specific business requirements, with each release forming a building block (e.g., functionality, data, business and system processes, policies, performance measurements, new customer and trading partner B2B connections) of the Control Tower.

At the end of each major program phase, a Phase Gate Exit meeting should be held with appropriate stakeholders to review the status and major deliverables of the project. The sign off on a particular Phase Gate indicates that all deliverables in the current phase have been completed to the stakeholders’ satisfaction, all critical issues have been identified and reviewed, and the project is ready to progress to the next phase.
Change management and adoption, within both the lead company and its trading partners, are critical to the success of the Control Tower. This starts with clear executive sponsorship of the initiative. The executive sponsor is responsible for ensuring that the implementation and operation of the Control Tower is afforded adequate staff and that success can be measured. This includes holding the teams accountable for measurable targets on the specific KPIs that will be used to drive performance improvement and measure the success of the Control Tower. Typically some of these KPIs are directly related to the business case, requiring participation from the finance organization to “audit” the business benefits.

In the most successful Supply Chain Control Tower implementations, the metrics cascade down to individual performance metrics and incentive compensation plans for Control Tower and trading partner users to ensure alignment with the KPIs—including bonuses for successful business releases and trading partner onboarding and solution adoption.

A continuous improvement process should also be put in place, whereby exceptions and business trends are analyzed after each business release and root causes of any problems are addressed.

Finally, executive sponsors need to incentivize their staff to embrace the changes driven by the Supply Chain Control Tower. A critical starting point is to ensure that all participants view the Control Tower as the main execution platform and “single version of the truth” for all supply chain-related exceptions.
About E2open

E2open is the leader in collaborative execution, delivering a strategic, cloud-based solution for brand owners managing business across global trading partner networks. Today E2open helps more than 45,000 trading partners and 120,000 individuals collaborate intelligently to manage multi-enterprise business processes, execute supply chain plans, and resolve disruptions rapidly for lower costs and better service levels. E2open customers include Celestica, Cisco, Dell, Hitachi Global Storage Technologies, IBM, LSI Corporation, Motorola, Panasonic, Research In Motion, Seagate Technology, and Vodafone. E2open is headquartered in Foster City, California with operations worldwide. For more information, visit www.e2open.com.

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