NTT DATA

Integrated Demand & Supply Planning

Supply chain control towers

End-to-end visibility and actionable insights you can count on

The supply chain control tower concept isn't new. It's been here for years, and despite that, misconceptions about what a control tower solution can do abound. These misconceptions complicate the process. That's why it's essential that — in your attempt to implement a functional supply chain control tower solution — you also have a comprehensive vision of what this solution can and will do for you. Imagine the value you could deliver and then build a scalable solution that aligns with your vision.

This guide will help develop your understanding of what a supply chain control tower solution can do, some common misconceptions and the challenges of design consideration and implementation.

While plans are important, they can often clash with reality

Demand and supply plans make it possible for companies to align various business functions with their long-term goals. You'll need to supply resources for production and distribution along with the machinery, labor, inventory and working capital necessary to meet expected demand.

These motivate success for any company. But there are some operational and executional levels that organizations manage asynchronously. This management method is due to a lack of better processes, an inability to evaluate available options and the need to avert cascading crises.

Usually, these plans (production, procurement and distribution) are set and reviewed weekly. So, when facing disruptions, supply network entities make intra-day decisions that are based on what is best for the corresponding function. This approach invariably leads to siloed decisions. In response, escalation only occurs for a cross-functional evaluation. The ripple effect of these decisions is a much larger crisis, one which proper decision support could have averted.

The overarching vision behind a supply chain control tower

Traditionally, control towers have been use-case-driven. The most common function of a control tower is focused on transportation — providing visibility on real time in-transit flow of goods along with insights and alerts about logistics data within the in-transit window.

Transportation-centric control towers obtain data from multimodal, multi-leg transportation and third-party logistics providers (3PL). These supply detailed shipment data for raw materials and semi-finished and finished goods. Integration with transportation management systems (TMS) enhances and extends visibility of near real-time data changes. They can also supply descriptive disruption alerts and predict the effect those disruptions will have on service-level agreements (SLAs).

Use-case localized control tower applications provide insights into the flow of goods. But these may fall short when trying to supply a comprehensive view of effects. They're not able to support end-to-end (E2E) insight into disruptive transportation events, reinforcing the siloed decision approach.

The full extent of a supply chain control tower solution should be based on customer-centric detail visibility of the E2E — and often multi-enterprise — supply chain network. These solutions provide visibility into disruptive events and provide actionable insights that are crucial to accessing options that can mitigate the impact of these disruptions.

Control towers will usher in a whole new way of working

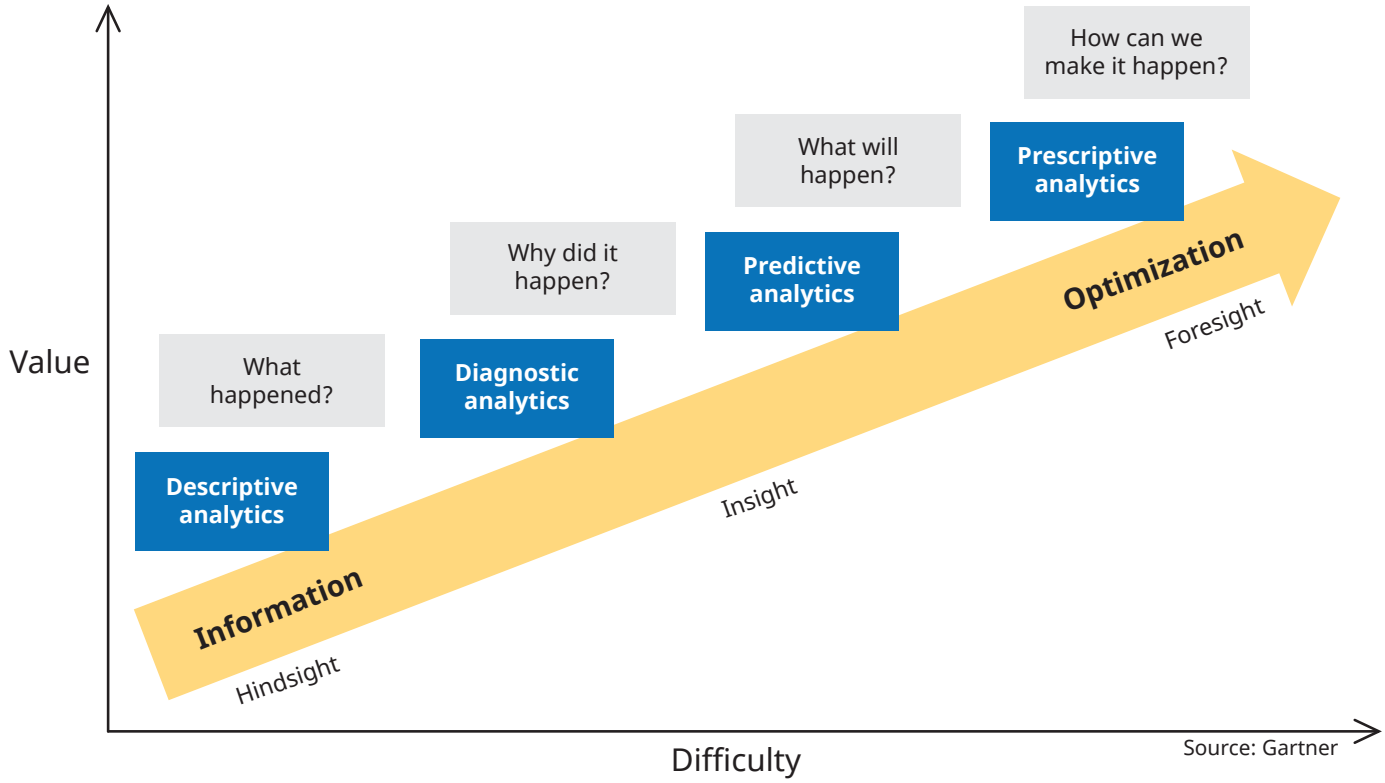
Organizations usually structure supply chain processes and roles in a linear model. Each function (production, inventory, distribution, transportation and logistics) is encouraged to improve its own performance metrics. Manufacturing, for example, decides on production costs and avoids added changeovers. Within a frozen planning window, these serve to address sudden changes in customer orders.

Decisions that improve localized functional metrics can make sense in some cases. But, in the case of overriding exceptions, the impact of reacting to a disruptive event can cause a greater negative impact than what it tries to solve for. This situation shows the true value of a supply chain control tower. It makes it possible to access cross-functional insights into each disruption. Anticipating the effects and recommending options to address events as they unfold. These options, along with the tradeoffs of each, enable well-informed decisions.

So far, this makes sense, right? Sure, it does, but it simply isn't enough if people don't follow the processes so the goal here is getting all the supply chain parties to work in unison and make the entire supply chain network more resilient. This collaboration is crucial in the face of ever-changing, disruptive events and inevitable deviations from the plan.

And here we see a new breed of planner come to the fore, one whose main role is to span functional silos and make full use of the overarching visibility. A planner that can supply insights and make trade-off decisions delivers enhanced customer experiences and sustainable business value.

Gartner: Is there a path to demystify E2E supply chain control towers?



"Businesses are looking for a capability that simulates preparedness and response to disruption and provides insights into the E2E dependencies and impacts across units and partners; then acts on those insights so that decisions become actions. This represents the main characteristics Gartner references in its frameworks for supply chain visibility (SCV) and E2E planning, to ultimately achieve supply chain convergence."

Visibility is critical, but it's how you use it that defines its ultimate value

Quantifying and analyzing every piece of demand and supply data is an exacting task. It's extremely difficult to track customer orders, transit orders, shipments and manufacturing operations. Dealing with this complexity is what an effective supply chain control tower does.

The key element — the digital supply chain twin — is critical to a mature solution. However, visibility for its own sake has no value if not coupled with effective ways to manage exemptions. For single events, the "So what?" question is part of the process, and, at this point, it becomes essential to not only understand the disruptions but also prioritize them based on their potential impacts. Recommending a proper course of action to manage the risk of these events is vital.

A control tower can provide the ability to make informed decisions, avoid a crisis and get to an issue's root cause. It creates the opportunity to take proactive action and position the supply chain to avoid disruptions. Mature solutions refer to this added layer of protection as the "supply chain digital brain." A brain that makes use of advanced analytics to continually improve capabilities using cognitive feedback loops and data-science-driven algorithms.

Prepared people with the right options can solve issues at the proper time

For example, take an anticipated stockout due to a surge in demand at a regional distribution center (DC). An effective control tower solution will call attention to this issue. It'll recommend some proper actions that'll mitigate near-term issues but also avoid extended negative effects on regional

service levels. Measures often include alternate orders from other regions or central DCs. That said, direct shipments to customers from production, and expediting manufacturing orders from vendors are also common, as are prioritizing deployments from production and consolidation DCs. Supply chain managers need to evaluate these based on cost impact estimates and the risk of revenue loss.

If this potential issue registers on the control tower radar, network planners can alert the right supply chain parties and trading partners and prescribe a course of action. They'll reduce the risk of near-term revenue loss and avoid a crisis further out. Additionally, situational analyses will find weak links in the supply chain and suggest revisiting contingency plans. These could include working with second-party logistics providers (2PLs) and third-party logistics providers (3PLs), to review service-level agreements and better manage future demand disruptions. Evaluating different upstream flow-of-goods scenarios will help create more supply chain resilience in case of future disruptive events. These could include, for example, a shift from a make-to-stock (MTS) to an assemble-to-order (ATO) production strategy for specific products.

Essential features

Supply chain control towers fuel collaboration and effective management of the whole supply chain network. Achieving this requires the following basic capabilities:

- **E2E supply chain visibility**
  Control begins with the alignment of people and the organization towards supply chain visibility. A control tower supplies real-time insight based on operational, tactical and strategic supply chain intelligence.
- **Responding and adapting to disruptions**
  Visibility doesn't mean that you're necessarily in control. A supply chain control tower allows a centralized view of disruptions and the ability to quickly resolve them.
- **Multi-tier processes and supply chain collaboration**
  Managing global supply chains networks demands multi-tier process coordination. A supply chain control tower makes integration with your trading partners possible.
- **Predictive decision-making and dynamic supply chain network execution**

Supply chain agility requires adapting to a constantly changing environment. A supply chain control tower feeds you actionable information, allowing predictive decisions and avoiding potential bottlenecks.

Principal benefits

The benefits of a supply chain control tower that enables collaboration between supply chain stakeholders for operational management include:

Revenue and margin realization

- Improved communication of available-to-promise (ATP) and estimated time of arrival (ETA) of placed orders to your customers.
- Improved customer service levels and on-time and in-full (OTIF) deliveries.
- Reduction of at-risk customer orders and cancellations.

Planner productivity

- A single source of truth: what happened, why did it happen and what's likely to happen? What preventative or corrective actions should you take?
- Address impacts with reduced reaction time. Seize the opportunities presented by disruptive events.
- Break functional silos to enable collaboration with various supply chain stakeholders.
- Enhanced visibility reduces the time necessary to compile data from assorted system sources.

Optimizing inventory

- Increase your finished goods inventory by evaluating alternate order fulfillment locations.
- Optimize your inventory levels by reducing unnecessary buffer inventory.
- Balance your distribution network inventory in alignment with demand.

Flow of goods

- Find transport carrier synergies that can lead to cost reductions.
- Reduce expedited expenses and total landed costs.
- Improve execution of sourcing strategies, supplier location shifts and commercial terms.
- Reengineer logistics through better transport solutions.
- Raise load efficiency for outbound and inbound flows.
- Deliver the correct ETA estimates to customers.

Manufacturing throughput

- Refine ATP estimates by factoring in upstream work-in-progress (WIP) manufacturing and planned production.
- Enhance scheduling by reducing cycle time as well as inventory levels of raw materials and semi-finished goods.
- Align manufacturing operations with critical expedited needs from customers.
- Optimize product cycle, batch size, raw material and semi-finished goods inventory policies through review of make-to-order (MTO), MTS and ATO scheduling strategies.

Supply chain control towers – reality vs. hype

By now, you have a rather good idea of what a supply chain control tower can achieve. It can improve customer experience and service levels while supporting revenue and margin targets and reducing lead times and transportation costs. It'll also add resilience to your supply chain network through visibility, data governance and regulation. The control tower enhances collaboration by connecting supply chain managers with trading partners, allowing you to predict challenges and regulate the flow of goods through the network. But, even with these benefits, it's essential to acknowledge some of the misconceptions about the control tower concept. So, let's manage expectations and separate reality from the hype.

Hype	Reality
A control tower is a plug-and-play solution.	Building a control tower is a transformational effort that has as much to do with people and process changes as it has to do with technology and solution design. There's no one-size-fits-all, out-of-the-box solution. It's about bringing processes, people, technology and, most of all, experience together.
Control towers provide plenty of data quality by themselves.	Implementing a control tower is no guarantee of data quality. You need to dedicate the appropriate people and technology to clean and manage data. Design a data structure that harmonizes data from different supply chain ecosystem sources. Managing data is vital to enabling cognitive feedback loops. This data structure should include information from all available sources. Use everything you have at hand: enterprise resource planning systems (ERP), manufacturing execution systems (MES), warehouse management systems (WMS) and transportation management systems (TMS). Be sure to include planning systems, 2PLs, 3PLs and cloud services — the more sources of dependable data, the better.
Control towers guarantee the cohesive integration of trading partners.	Control towers provide insights on supply chain challenges as well as prescriptive ways to coordinate supply chain parties and trading partners. However, it takes the right people in the right roles and suitable processes to fuel ongoing collaboration.

Design considerations for a supply chain control tower may seem simple upon first examination. You define a vision and develop a way to get there, right? Well, not quite. However straightforward it may seem, the process involves many layers of complexity. If you don't have experience with the particulars of supply chain control tower configuration, it can be quite easy to lose your way.

The most important step you can take is to seek out the right partner. One with E2E knowledge of supply chain control tower best practices and the mastery that comes with profound experience.

Contact us and let's discuss how NTT DATA Supply Chain Consulting will help you accomplish your supply chain management goals and build the ideal control tower for your specific use case.

Visit nttdata.com/supplychainconsulting to learn more.

NTT DATA is a $30 billion trusted global innovator of IT and business services. We help clients transform through business and technology consulting, industry and digital solutions, applications development and management, managed edge-to-cloud infrastructure services, BPO, systems integration and global data centers. We are committed to our clients' long-term success and combine global reach with local client service in over 80 countries.