How a Well-Executed Supply Chain Control Tower Can Accelerate Digital’s Business Benefits

Retailers, manufacturers and consumer goods companies can overcome failed and fractured supply chain digitization efforts by focusing on key performance metrics instrumented through proper predictive analytics and effective use of data shared across functional areas inside and outside the organization.
EXECUTIVE SUMMARY

As supply chains across industries grow in complexity and become more unpredictable, volatile and unstable, supply chain managers across the retail, manufacturing and consumer goods industries face unprecedented challenges. To thrive in this brave new world, companies need an agile digital supply chain to more efficiently address customer needs in today's always-on world. This supply chain embodies four qualities simultaneously:

- **Connected:** Enables communications among interconnected devices, systems and processes.
- **Informed:** Leverages a multiplicity of data sources available in today's digital world.
- **Smart:** Incorporates advanced analytics to drive real-time insights.
- **Automated:** Uses automation technologies to improve productivity and reduce costs.

A recent study that we conducted with Forbes Insights found that most companies are in the early stages of digitizing their supply chains. In fact, our study revealed that only a small group of companies (9%) are applying high levels of digitization to their supply chain planning and execution (see Figure 1).²

Given the industry's measured embrace of supply chain digitization, we believe decision-makers need to get serious about modernizing core capabilities that span the industry's value chain — from manufacturing and distribution through retailing. When applied properly, supply chain digitization can address several issues including revenue growth, our respondents believe.³

In fact, there is growing realization that despite widespread dissatisfaction with early digital supply chain efforts revealed by our study, decision-makers believe more informed, data-driven decision-making via enhanced analytics capabilities will eventually pay off. For example, nearly half of senior executives in the retail and CPG industries (49%) believe their organizations can achieve digital supply chain maturity over the next few years.⁴
Only 9% of companies can be called supply chain “progressives” – those with high levels of maturity digitizing their supply chain vs. 33% as “runner-ups” and 60% as “up and comers.”

Retailers believe supply chain digitization can enable several benefits … … including revenue growth!

Figure 1
Source: Digital Supply Chain – Are you leading the pack? Cognizant’s latest study in collaboration with Forbes.
https://www.cognizant.com/supply-chain-digitization-report

Digital technology, however, remains a double-edged sword, and is seen both as an enabler and as a top challenge for supply chain digitization by senior industry leaders. Often, user dissatisfaction is not directed at a particular technology, but with how it is integrated into a unified networked system. A significant percentage of executives believe that improved data analytics is not delivering better business outcomes, a belief that is hindering digital supply chain transformation.

We believe that organizations can overcome their digitization challenges by leveraging the supply chain control tower to create more innovative business process and analytics capabilities. This white paper will illustrate our best practices and recommendations for doing so.
DEMystifying the Supply Chain Control Tower

We define the supply chain control tower as a cross-functional team empowered to monitor, analyze and take suitable actions to improve specific KPIs across the extended value chain. The control tower team utilizes the following three key components:

- **Early 360-degree visibility:** Information from across systems and processes is shared at the right time.
- **Cognitive computing engine:** Information is monitored and analyzed; analytical tools assist decision-making.
- **Collaborative responsive mechanism:** Disparate functions across the supply chain network work in harmony via workflow management capabilities.

It is equally important to dispel myths about the supply chain control tower. A supply chain control tower is not:

- A product that one vendor provides.
- A replacement of existing ERP or MRP systems.

The Supply Chain Control Tower Trio

Supply chain control tower layered capabilities.
• A one-size-fits-all solution for end-to-end visibility. It is typically tailored to an organization’s specific needs in terms of its industry type, organizational structure, geographic reach and scope of functions and processes.

Business Architecture
As Figure 2 (previous page) illustrates, the business architecture of the supply chain control tower comprises three essential layers that power its primary capabilities.

• **Early 360-degree visibility**: Being digital requires insights. The business objective of this layer is to provide real-time or near-real-time visibility to events pertinent to the KPIs monitored by the control tower. This is enabled by:
  
  » **Data and event integration**: The KPIs are distilled into data elements to reveal which events should be tracked to provide actionable information. These data elements and events must then be mapped to enterprise systems that house such information.
  
  » **Data processing**: The data received by these systems of record is then consolidated and processed to arrive at meaningful and readily useful insights.
  
  » **Presentation**: A dashboard presents the collated information to users in an easy-to-understand and meaningful way (see Figure 3). It provides a shared synchronized view across the organization and supply chain partners, with the ability to easily identify which events the control tower team must respond to.

Control Tower Dashboard
A dashboard similar to this can be used to monitor the events and KPIs across transportation, yard and distribution center functions.

![Control Tower Dashboard](image-url)

Figure 3
A supply chain control tower not only provides visibility to what has happened and what is happening, but it also helps predict what can happen next through its predictive analytics capabilities.

- **Alert/exception management:** A supply chain control tower issues alerts when an event that impacts relevant KPIs occurs or is impending. These alerts are typically customized by organizational roles. Users can view the alerts and manage exceptions through the control tower dashboard.

- **Cognitive computing engine:** Being digital requires intelligent action. The business objective of this layer is to use data from external and internal sources to apply intelligence to business processes, anticipate and prioritize issues, predict disruptions, mitigate effectively and ensure smart autonomous decision-making. This is achieved by:

  - **Quantifying impact:** When an event has occurred, or is imminent, the team should be able to anticipate and quantify the likely impact of the event so appropriate response measures can be devised and delivered. The event could be a delay in production by an overseas vendor, or an outage at a manufacturing plant, or a delay in one segment of a multitier, multi-nodal transport network. The supply chain control tower will provide users with the capability to understand and quantify the impact of such events on the relevant KPIs (service level, fill rates and revenue).

  - **Scenario analysis:** This pivots around the analytic capability to develop and analyze various scenarios to solve an exception. Importantly, this capability allows users to perform what-if analysis of scenarios and understand the impact of pursuing one or more scenarios. This helps the team evaluate different solution options.

  - **Predictive analytics:** A supply chain control tower not only provides visibility to what has happened and what is happening, but it also helps predict what can happen next through its predictive analytics capabilities.

- **Collaborative responsive mechanism:** Being digital requires automation and collaboration. The business objective of this layer is to provide the means to collaborate across multiple functional areas both within and outside the organization to effectively respond to an event. This is achieved by:

  - **Workflow process management:** This allows various teams to leverage workflow capabilities to orchestrate an effective response to an event. For example, if a delivery is delayed then process management could trigger notifications to buyers, logistics managers and transportation planners. These stakeholders can be empowered to provide feedback on a mobile-enabled workflow tool for immediate feedback.

  - **Workflow tool integration to enterprise systems:** The workflow tool can be integrated with enterprise systems to automate certain types of response mechanisms when initiated by the control tower team.
Organizations have often mistaken the control tower construct to be the same as a visibility solution. This has often led organizations to undertake large, complex engagements to provide so-called “end-to-end” visibility.

**SETTING UP A CONTROL TOWER**

Control towers have been on the agenda for a long time as a mechanism to improve key metrics in the increasingly complex supply chain landscape. However, organizations have often mistaken the control tower construct to be the same as a visibility solution. This has often led organizations to undertake large, complex engagements to provide so-called “end-to-end” visibility. These programs have met with varying levels of success and in many cases caused disenchantment with the concept of a control tower.

We believe the focus of control towers should be on specific metrics/KPIs rather than on trying to solve all issues in the supply chain. While visibility to events relevant for the KPIs is a must-have for control towers, we believe analytics and process orchestration are two key components required to inform and deliver sustained and meaningful business impact (see Figure 4).

### The Virtues of Supply Chain Control Towers

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<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>IDENTIFY &amp; PRIORITIZE BUSINESS OBJECTIVES</strong>&lt;br&gt;Identify and prioritize the supply chain functional areas.&lt;br&gt;Define problem statements.&lt;br&gt;Identify the target KPIs.</td>
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<tr>
<td>2</td>
<td><strong>DEVELOP DETECTION AND RESPONSE MECHANISM</strong>&lt;br&gt;Identify data elements pertinent to target KPIs.&lt;br&gt;Define thresholds.&lt;br&gt;Develop response strategy – processes and workflows.</td>
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<tr>
<td>3</td>
<td><strong>ENABLE THROUGH TECHNOLOGY</strong>&lt;br&gt;Identify control tower building blocks.&lt;br&gt;Create roadmap.&lt;br&gt;Design and deploy.</td>
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<td>4</td>
<td><strong>EVOLVE THROUGH CONTINUOUS IMPROVEMENT</strong>&lt;br&gt;Post-implementation benefit realization.&lt;br&gt;Continuously assess value creation by monitoring KPIs.&lt;br&gt;Provides input to the roadmap in recommending enhancement of capability maturity.</td>
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- ✔ Business objective-driven.<br>- ✔ Focus on specific metrics/KPIs.<br>- ✔ Leverages analytics & process orchestration.<br>- ✗ Big-bang approach to solve all issues in supply chain.<br>- ✗ Limited to just a visibility platform.
We suggest an evolutionary approach for setting up a control tower (see Figure 5). The steps include:

- **Identify and prioritize business objectives.** The organization should identify and prioritize supply chain functional areas for the control tower. For the prioritized areas, organizations must define the problem statements and identify the target KPIs. The initial objective needs to be improvement on the prioritized KPIs.

- **Develop detection and response mechanisms.** Identify data elements that can help detect events pertinent to KPIs. These data elements can be distributed across multiple enterprise systems. An effective response strategy is to develop processes and workflows across teams to enable efficient and effective management of KPIs.

- **Enable through technology.** Once the organization has the detection and response mechanisms/processes defined — and perhaps honed manually over a period of time — these processes can be technology-enabled.
» **Identify control tower building blocks.** Once the business objective are defined and prioritized, the organization must identify the technology capabilities required to meet those objectives. All business objectives do not need every control tower capability – visibility, predictive analytics and process orchestration – to achieve them.

» **Create a road map.** The next step is to create a road map for the control tower that aligns with business objectives and leverages technology levers as needed.

» **Design and deploy.** The next step is to finalize the process and system design and implement the solution. Organizations should operationalize the suggested practices and process improvements through timely training and communication.

* **Evolve through continuous improvement.** Once the solution is operational, the supply chain control tower continuously assesses its value creation by monitoring KPIs and continues to deliver post-project benefits. This KPI assessment provides input for guiding the enhancement of capabilities to enable continuous improvement on the path to digital supply chain maturity.

**FOOTNOTES**

2. Ibid, p. 2 [PDF p. 4].
3. Ibid, p. 2 [PDF p. 4].
4. Ibid, p. 5 [PDF p. 7].
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