The Next Evolution of the Supply Chain Control Tower
In concept, a control tower is expected to offer end-to-end visibility over a specific function or series of functions. For the supply chain, a control tower is tasked with providing a collective view of an organization’s supply chain functions and assets. In practice, the term has often been co-opted to define less-comprehensive solutions.

Because of this, “control tower” now means different things to different people. Where one practitioner may call their control tower a single solution—such as a transportation management system (TMS), for example—another may define it as a combination of multiple technologies working in tandem to enhance visibility. This second definition is closer to the truth, because a truly functional control tower requires input from multiple enterprises across the supply chain.

By its nature, a supply chain control tower tries to view all relevant supply chain activity outside its own organization, but the application of this concept varies from solution to solution. To date, most attempts at control towers have been singularly focused on transportation movements in the air, on the ground and across the ocean.
To clarify this concept, consider the air traffic control tower from which the concept of a supply chain control tower gets its name. Air traffic controllers need to do more than see all the aircraft overhead—they need to communicate with them, control them and direct them where to go. Just watching them fly serves little purpose on its own.

While visibility is essential to enabling a level of supply chain efficiency that builds consumer trust,\textsuperscript{1} it is only the first step in pursuit of more comprehensive orchestration of the supply chain. The traditional control tower was largely a visibility solution, but a next generation supply chain control tower should be capable not only of visibility, but also of acting on the visible information. Moving forward, control towers should foster collaboration with every available partner so that the full supply chain becomes visible, enabling users to make real-time decisions and timely resolutions to exceptions.

As the supply chain continues to evolve and digitize, a supply chain control tower that provides real actionability and holistic visibility is more possible than ever before. To achieve actionability, however, visibility must still come first. In a survey of 148 supply chain stakeholders conducted by Supply Chain Dive’s Brand Studio and supply chain orchestration platform MPO, only 14% of respondents said they had all the tools they needed to facilitate supply chain visibility.
The Visibility Problem

Visibility is a core element of modern supply chain digitization, and one of the top reasons companies seek to implement logistics technologies.2 The rise of Industry 4.0 and the Internet of Things is driven by the desire to provide increased visibility into assets and the supply chain.

The concept of fuller visibility remains top of mind for many enterprises and supply chain stakeholders, as evidenced by our survey, in which 44% of respondents said they wanted to gain better visibility into their downstream and upstream supply chains. Even direct shipments often lack good visibility, with 43% of respondents reporting they’d like to gain more visibility into inbound shipments, and 42% seeking additional visibility into outbound shipments.

In what areas would your organization like to gain greater visibility?*

*Respondents were asked to select all that apply

- Downstream/upstream (vendors, suppliers) 44%
- Inbound 43%
- Outbound 42%
- Reverse logistics 34%
- My organization has achieved full supply chain visibility 15%
- Aftermarket 14%
- Other 6%
“Visibility” is another buzzword that gets thrown around loosely in supply chain circles, though it may refer to a variety of things. To fully understand end-to-end supply chain visibility, it’s important to understand the various visibility terms found across the supply chain.

For example, real-time visibility offers what’s happening live, anywhere in the supply chain. Cost visibility grants insight into expenditures, providing supply chain managers the opportunity to evaluate spending and improve the bottom line. Integrated planning and execution processes fall under the visibility lens, because these decisions are based on visibility data. Visibility into upstream and downstream processes also facilitates proper benchmarking of supply chain vendors and providers.

“You work with a lot of different parties in your supply chain,” said Gerry Daalhuisen, director of implementations at MPO. “How are these parties doing? Are they executing on what they promise? What is their delivery capacity? What is their cost feasibility? Are they billing what they promised, or are there always added charges? Maybe you need to exchange them with a different vendor next year, or you can use this data to your advantage in your negotiations for the next contract. Performance visibility is definitely something you can use.”
These visibility subsets ultimately combine to provide granular or holistic visibility. In terms of visibility, granularity refers to breaking down a process or order to see into its functional parts. Supply chain practitioners seek this because granular visibility facilitates targeted action, identifying individual problems that can be fixed without interrupting or delaying other functions of the overall process.

Failing to achieve high levels of visibility can hamper logistics and supply chain operations. Forty-five percent of our survey respondents said a lack of visibility hindered them from providing adequate transparency or early warnings to their customers, while 41% said they couldn’t resolve exceptions in a timely manner.

Without a full view of the supply chain, it can be difficult to optimize and make appropriate decisions that will drive profitability and a superior customer experience. Thirty-nine percent of respondents told us that a lack of end-to-end visibility contributed to suboptimal decision-making, which often resulted in higher costs, customer-satisfaction issues, increased returns and more.

### What problems has your business experienced resulting from a lack of holistic, end-to-end visibility?*

*Percentages rounded to nearest whole number

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<thead>
<tr>
<th>Problem</th>
<th>Percentage</th>
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<tr>
<td>Unable to provide adequate transparency or early warnings to customers</td>
<td>45%</td>
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<tr>
<td>Unable to solve exceptions in a timely manner</td>
<td>41%</td>
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<td>Making suboptimal decisions (i.e., that impact inventory and cost or that don’t fully utilize resources)</td>
<td>39%</td>
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<td>Not adequately capturing cost-to-serve</td>
<td>32%</td>
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<td>Unable to effectively serve the aftermarket supply chain (including returns)</td>
<td>20%</td>
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<td>Unable to address the shrinking margins of customer orders in a timely manner</td>
<td>18%</td>
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<tr>
<td>My business has holistic, end-to-end visibility</td>
<td>14%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
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*Respondents were asked to select all that apply*
“We see this all the time,” said Tom Nightingale, CEO of third-party logistics provider AFS Logistics and an advisory board member at MPO. “We see people over-ordering inventory. A large amount of waste in a supply chain happens when people order too much buffer stock because they don’t have real-time visibility. To a certain extent, it has gotten better. Visibility used to be something like: ‘It’s on a boat somewhere from Asia; it’ll be there in the next few months.’ But the supply chain got easier to predict over the last 30 years. We know exactly how long a shipment should take. We know exactly how long the port operation should take. We’ve gotten much better, but this is still a legitimate issue for businesses that don’t have good visibility.”

Visibility data can be gathered through numerous technology solutions. Shippers and other supply chain operators use an expansive range of logistics technology to gain better visibility.
“The technology continues to advance,” said Bryce Boothby, advisory board member at MPO and a former executive at multiple large technology firms. “I’ve been involved with the idea of control towers since the ’90s, when the technology was telephones, spreadsheets and memos, and a lot of people in a room. It advanced from there to having all manufacturers, suppliers and customers on a hub, which was very expensive to hook up to. Now the technology has become much more affordable and flexible for everyone to use. It’s easier to onboard all the people you need from your supply chain, virtually instantaneously. The pace of technology has enabled much more advanced capabilities.”

Bryce Boothby, advisory board member at MPO and a former executive at multiple large technology firms
Achieving the Perfect Order With Holistic Visibility

Full supply chain orchestration is the end goal of the supply chain control tower. The control tower must see a number of activities in the supply chain, including inventory at rest across internal and external locations, in-transit products, inbound and outbound shipments, and full customer order statuses. Like a conductor, the control tower must use its connection to each piece of information to direct every action within the supply chain.

“Once you get beyond the visibility piece, you go to the orchestration piece,” Daalhuisen said. “I see it as orchestrating—you are the conductor of an orchestra. You are in front of the orchestra, making sure that the tunes are played, that the orchestra is playing in harmony with each other. The players within the supply chain are in harmony. You’re using all the data that you collect and information that you collect for the benefit of the supply chain.”
Without the ability to see and control each link in the supply chain—each instrument—siloed functions tend to borrow resources from one another. For example, expediting a full shipment inadvertently negates cost-efficiency. Conversely, using a cheaper, inexperienced carrier may save money up front but cost more in delays and customer relationships.

“I’ve seen this throughout my career. You find one geographic or business silo taking an action that would be harmful to another area of the business or another geography. The concept of a global control tower allows you to see through that. It’s really a silo-busting enabler,” Nightingale said.

A fully orchestrated model is order-centric, using a 360-degree view of every order to balance the customer side of the order with operational excellence. With visibility into every silo, it’s possible to see how a decision in one area affects other links of the supply chain as you plan and execute the order.

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Gerry Daalhuisen, director of implementations at MPO
“Think of a simple supply chain—so inbound from manufacturer to a DC, and from a DC to a customer,” said an executive at a large global logistics provider. “You have the inbound flow, the outbound flow and the in-between warehouse flow. Even in that simple supply chain layout, for example, three different third-party logistics service providers could be involved, maybe even a fourth-party logistics provider above that. Everybody is looking to their own silo, but if you have the data available from a visibility platform then you can look into solutions that benefit the overall cost. For example, you can bypass a DC to save money and transport may be a little more expensive, but in the end the overall cost is lower.”

Shippers and suppliers are under constant pressure to pack, ship, and deliver orders as fast as possible, but fast delivery is rarely cost-effective. In a customer-centric model, the shipper pays whatever it takes to please the customer. In an organizational model, the customer experience suffers at the expense of using the most affordable delivery solution. With better visibility and actionability into the entire order, however, it's often possible to please everyone.
The ability to balance operational efficiency with customer satisfaction is often referred to as “the perfect order.” For instance, meeting tight shipping goals for the end customer may be important, but expediting every item in an order may not be the most cost-effective solution on the shipping side. In an order-centric model, problem orders can be broken down to the item level to solve this issue. If one item in the order is further away, backlogged, or out of stock, the rest of the order still ships normally and the missing item can be expedited to catch up with it. By expediting only the single missing item, the overall shipping cost is much cheaper than what it would’ve taken to expedite the entire order last-minute once the missing item was in hand.

This optimizes the shipping cost of the order for the shipper without sacrificing customer expectations—a perfect order. Forty-nine percent of our survey respondents claimed they had the technology necessary to achieve the perfect order, while 51% did not.

Visibility is only the first step toward a full supply chain orchestration environment that will allow businesses to achieve perfect orders. The latest evolution in supply chain control towers offers more than just holistic visibility—it grants the ability to act on what the organization can see. While the perfect order may seem out of reach for many supply chain stakeholders, establishing relationships with the right partners now can help an organization achieve the true perfect order capability they will need to remain profitable and competitive in an increasingly digital world.

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**Is the perfect order possible with the technology currently available to you?**

*Percentages rounded to nearest whole number*

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<td>No</td>
<td>51%</td>
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MPO
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MPO offers the world’s only natively unified cloud platform for Supply Chain Orchestration. The platform complements existing enterprise systems with visibility and control, and optimizes order, inventory, and transportation across dynamic, multi-party networks. MPO processes over 2 million orders per day, helping hundreds of manufacturers, distributors, retailers, and logistics service providers—as well as millions of end customers worldwide—benefit from more service options, faster delivery, reliable performance, and lower costs.

For more information, please visit www.mpo.com. To learn more about the key differentiators of MPO’s Control Tower for supply chain orchestration, download the white paper and/or solution brief.
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