Deloitte.

The Supply Chain Control Tower

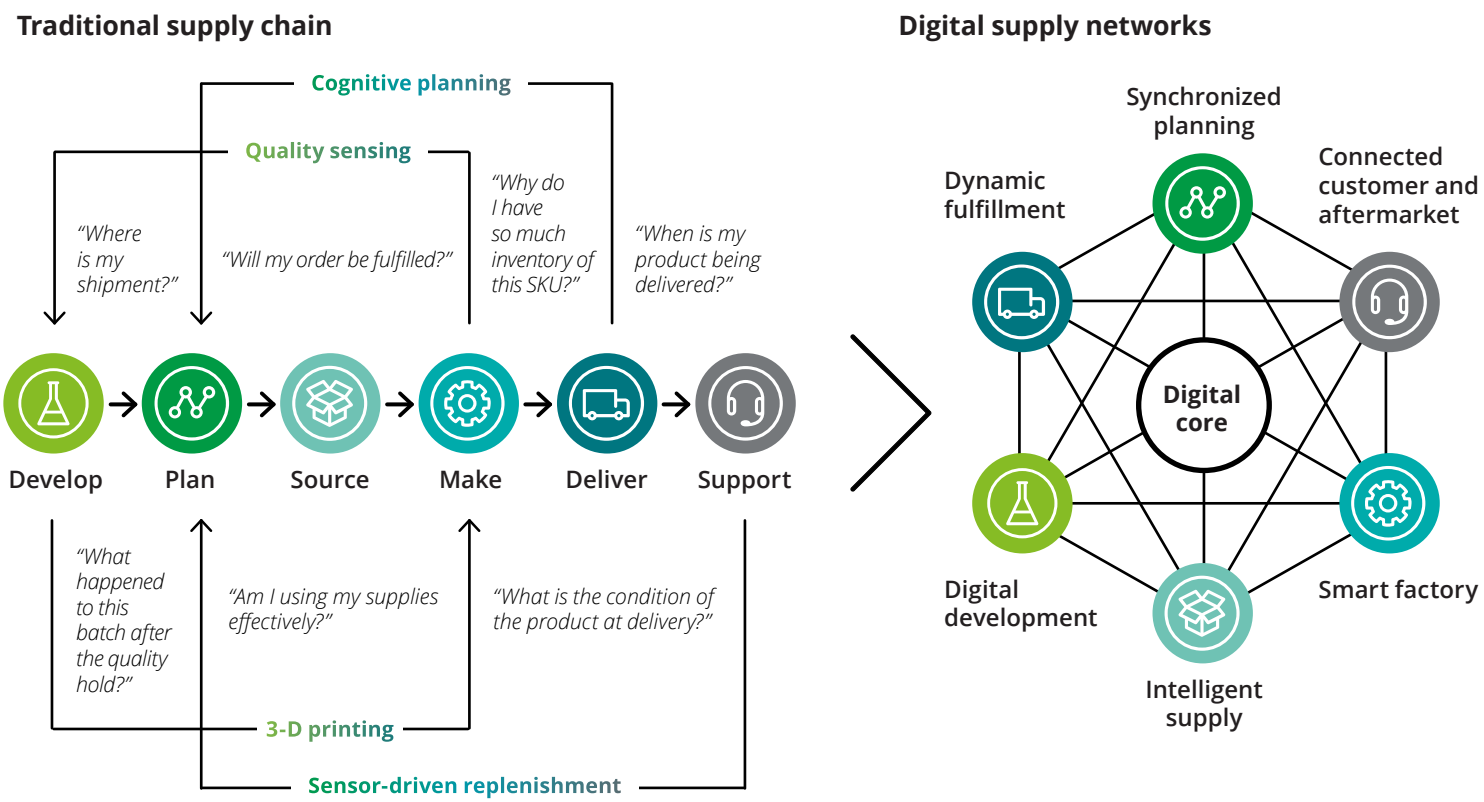
Fixing age-old issues with modern tools and techniques

The world today is more connected than ever before. Indeed, the Digital Revolution brings with it innovative and disruptive technologies that have the potential to change the way business is done—and the way the world interacts. Yet despite the promise of digital to positively transform economies, business, and society, the reality is that most organizations are far from harnessing this potential. In fact, just 20.7 percent of manufacturing organizations surveyed rated themselves as "highly prepared" to address the emerging business models the Fourth Industrial Revolution brings.[1]

What does that mean for supply chain executives responsible for solving a multitude of challenges that may arise on any given day? Many are managing within the constraints of a traditional supply chain model that moves information along with raw materials and semi-finished goods from one end of the production system to the other. Deloitte is helping organizations to incrementally begin taking advantage of the benefits digital offers with a flexible, interconnected supply chain solution called digital supply networks (DSNs).

The DSN embeds digital functionality throughout the supply chain, from development to delivery, to allow the physical world and digital world to communicate and collaborate. By translating physical events into digital information, companies generate data. Actionable insights from visualizing and analyzing these data are used to transform the physical world. These actions, in turn, yield benefits in terms of increased efficiency, quality, customer experience, and revenue growth (figure 1).

Figure 1. Evolving the supply chain to a digital supply network



1. "Distinctive traits of digital frontrunners in manufacturing: Embracing the fourth industrial revolution," Deloitte Insights, 2018, https://www2.deloitte.com/insights/us/en/focus/industry-4-0/digital-leaders-in-manufacturing-fourth-industrial-revolution.html.

Enter the DSN Control Tower

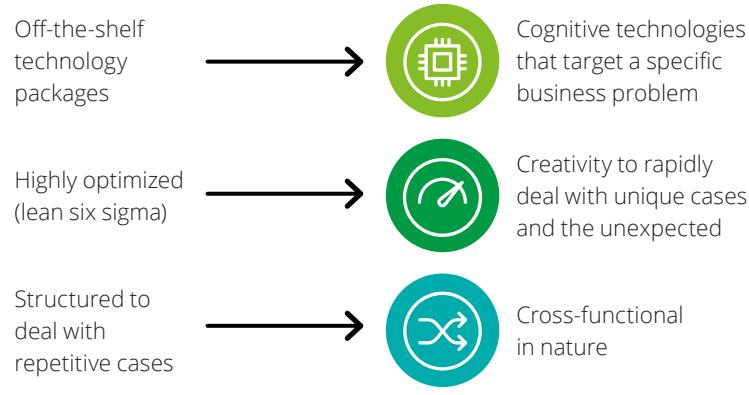
Control Tower is a set of tools and techniques that allow executives to proactively manage their end-to-end supply chains in real time and achieve new efficiencies through connected visibility, proactive exception management, and predictive insights. This targeted approach offers a way to recognize the extraordinary cases and identify the right triage and solutions to drive the maximum value without a large-scale implementation. Control Tower also allows supply chain executives to narrow their scope and focus on the few areas that are causing the majority of issues, while the rest of the supply chain can continue functioning, business as usual.

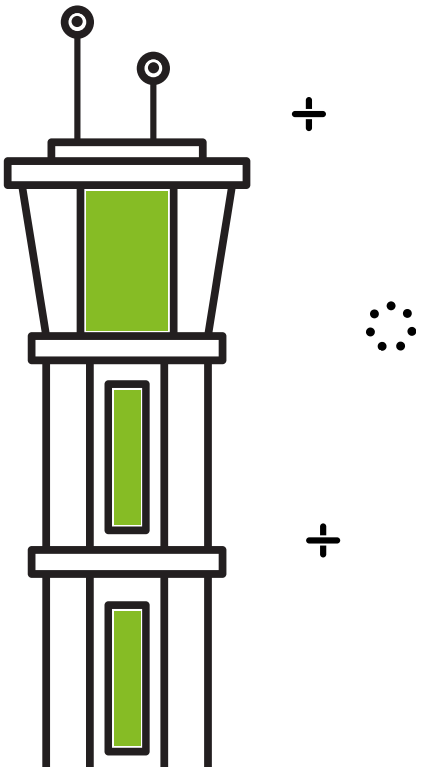
Traditional supply chain teams use software and processes to review every single transaction, which can be time consuming and, in the end, not effective. Instead, Control Tower collects and analyzes multiple sources of data and provides teams with visibility, root cause identification, prediction and alerts, response agility and performance management (figure 2).

The 2018 Deloitte Industry 4.0 investment survey found that when executives were asked, "what functions are you prioritizing for future [digital] investment?" the supply chain emerged as the top overall answer, with **62%** overall responding—ahead of planning, product design, and substantially ahead of smart factories.[2]

But despite the clear desire to prioritize the digital supply chain, only **6%** of supply chain leaders feel that they have the visibility they need.[3]

Figure 2. Legacy solutions vs. Control Tower





2. "The supply chain paradox: High priority, low stakeholder engagement," Deloitte Insights, 2018, https://www2.deloitte.com/insights/us/en/focus/industry-4-0/challenges-on-path-to-digital-transformation/supply-chain-paradox.html.
3. "Embracing a digital future: How manufacturers can unlock the transformative benefits for digital supply networks," MAPI and Deloitte Insights, 2018, https://www2.deloitte.com/content/dam/insights/us/articles/4181_embracing-a-digital-future/embracing-a-digital-future.pdf.

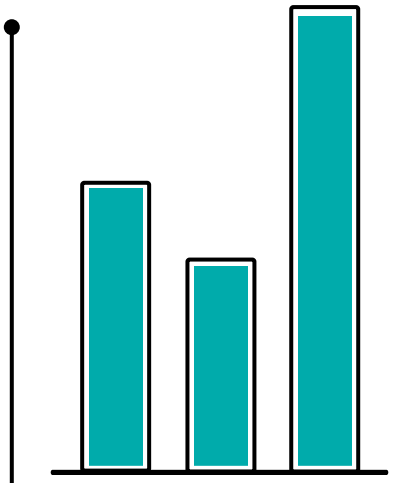
Three critical inputs are needed to establish a well-functioning Control Tower: data, analytics and visualization, and user-based insights.

The first input is data—there's no doubt that a plethora of data exists. Despite the collective understanding of the value of data, and the desire to use it, there can be a lack of understanding of how to use it to extract meaningful insights. Control Tower can leverage an organization's existing data and merge it with new insights from internal systems, sensors, Internet of Things (IoT), connected devices, partner and supplier data—even external data, such as weather, geopolitical risk sensing, and more.

Once data sources have been identified, the next input is analytics and visualization. Data have no real value without the right techniques and analysis to generate insights. Traditional supply chain professionals often waste time reviewing every piece of data looking for a needle in a haystack. Instead, Control Tower uses exception-based handling to analytically detect anomalies and extraordinary cases that require action, allowing teams to focus on solving tangible business challenges. By using machine learning and unique algorithms to sift through data, Control Tower can quickly spot issues, identify the root cause, and route alerts to business leaders to solve issues quickly and effectively.

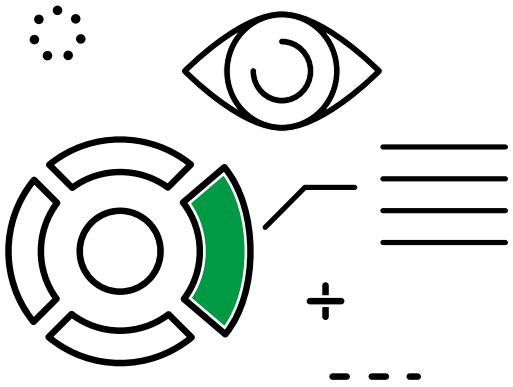
Lastly, a crucial component that unlocks the incremental value is user-based insights. When issues are identified, those alerts and insights must be delivered in the right context to the right individuals to drive improved business outcomes. From the start of implementation, a user experience (UX) design team is engaged to develop the right form factor to meet the needs of the unique persona that requires specific insights at that point in time. Every insight, alert, and message is delivered through persona-based design, enabling personalized visualizations, insights, and views for specific functions and roles.

Control Tower



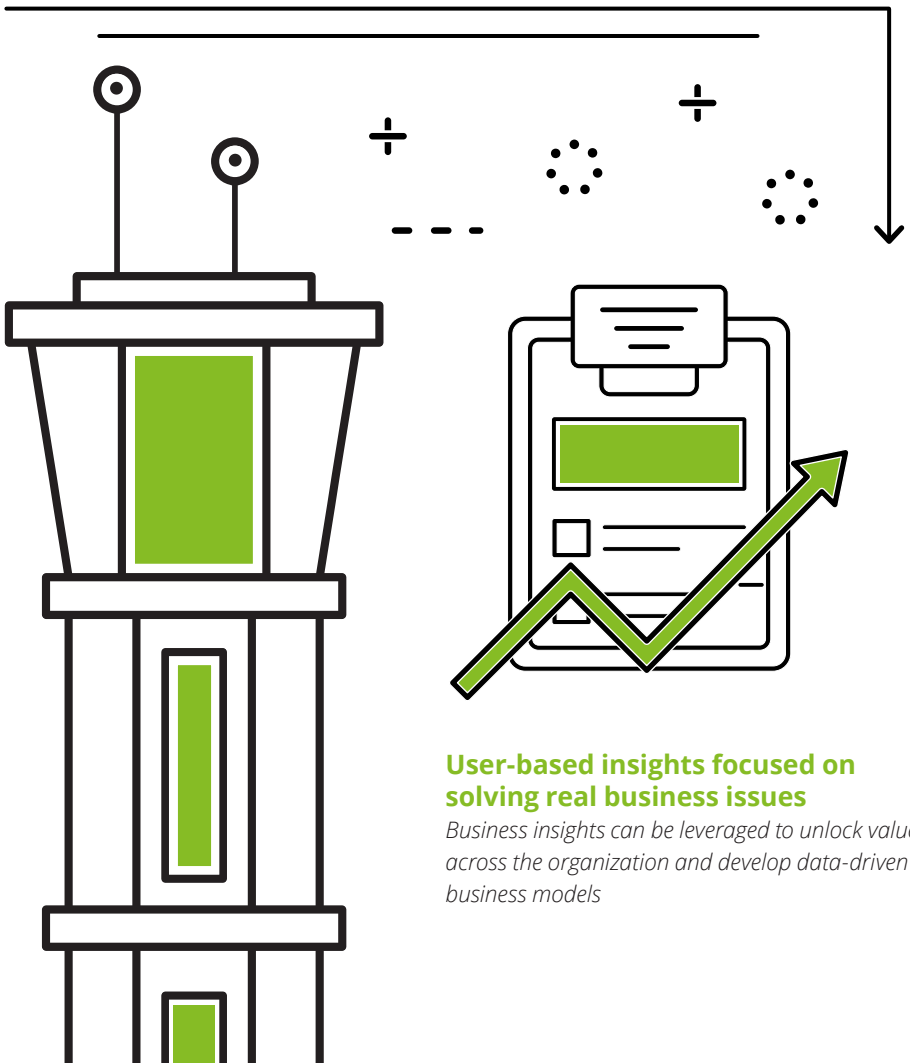
Data

An insights and decision-support platform that monitors transactional data from internal and external sources and automatically separates issues from the mass



Analytics and visualization

Advanced analytics provide a holistic view of supply chain information through data consolidation and help identify risks; high risks identified are then analyzed in detail using case level reports to uncover specific issues



User-based insights focused on solving real business issues

Business insights can be leveraged to unlock value across the organization and develop data-driven business models

Getting started with Control Tower

Developing and enabling a Control Tower capability can take different forms, depending on the organization and inherent business issues. It is an iterative process that begins with the identification of a problem that needs to be solved and the business outcomes desired. There are some clear signals that can indicate potential benefits of a Control Tower:

- Lack of visibility in the supply chain
- Highly complex system/data landscape
- Frustration about next-gen capabilities
- "Firefighting" in the organization
- High amount of errors in processes
- Customer sentiment not matching internal metrics
- Lack of end-to-end orchestration
- Difficulty to generate insights from data sets
- Heavily relying on external partners

Reaping the benefits: Clear visibility ahead

Control Tower is scalable and adaptable. It can be used to address many issues within the supply chain to deliver tangible benefits: increased revenue, better margins, asset efficiency, enhanced risk mitigation, and increased responsiveness. Additionally, developing a Control Tower can offer many indirect benefits that help improve the efficacy of a supply chain organization—helping organizations understand their data sources and shining a light on potential process improvements.

In an increasingly connected, digital world, it is easier than ever before to implement stand-alone tools and systems intended to enhance the supply chain. Control Tower enables organizations to distinguish the critical issues from business-as-usual through an insights and decision-support platform to significantly impact performance. Instead of just talking about digitalization or embarking on large-scale transformation, organizations can take action today by developing a Control Tower capability, harnessing the power of data to gain clear visibility and, in the process, drive real business results.

Control Tower framework

Real-time connectivity, no data-dumps or logging indicators and 24/7 always-on

Focus on the exceptions in the bulk of all transactions

Continuously track the **signals** of a specific business issue from its **symptom** to its **root cause**

Delivering data-driven actionable insights that are new and can only be achieved using analytics

Based on a Use Case with data, analytical solutions, and processes tailored to that

Control Tower in action

Automotive

The business challenge

An automotive company was experiencing an increasing number of quality, warranty, and safety issues. In addition, more than 10 systems were used to store and analyze data and run the business. The company relied on "firefighting" and reactive identification to manage the issues.

The solution

A Control Tower solution was deployed, using "fault codes" from sensors on vehicles to predict component failures. The solution applied natural language processing, machine learning, and statistics to identify issues from unstructured data.

The impact

- Enabled rapid detection and prioritization of vehicle safety issues
- Saved $200 million in annual recall-related costs
- Provided more accurate scoping of recalls, which could lead to significant cost savings

Aerospace

The business challenge

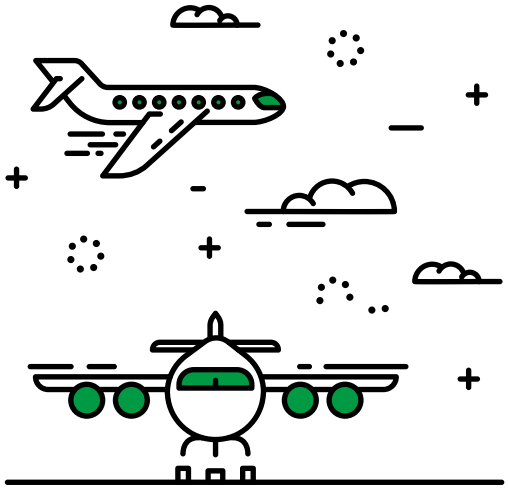
A global airline suffered from poor service levels for critical parts and had an excessive amount of inventory supply. Processes were not efficient and parts were slow to move across the network. In addition, they had low to no visibility into external vendor and supplier performance.

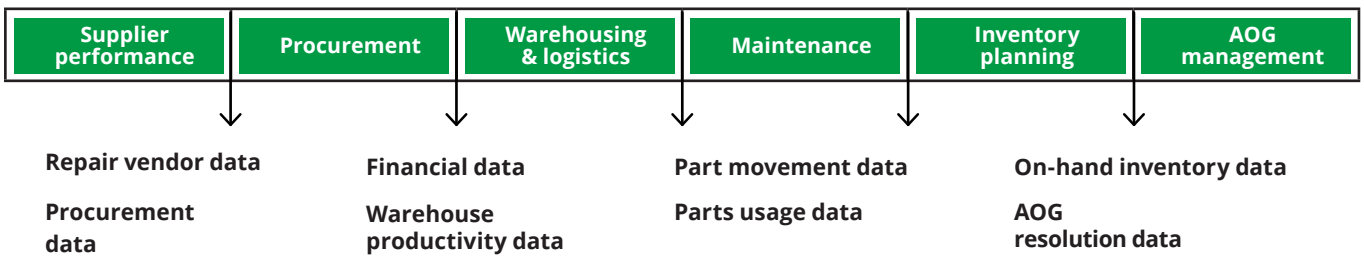
The solution

Control Tower was implemented to help right-size the inventory and improve the service for critical parts. The solution provided real-time insights into operations, actionable root-causing capabilities, and informed decision making for everyone from executive leadership to shop floor employees.

The impact

- Reduced instances of out-of-service aircraft
- Increased part movement velocity





Manufacturing

The business challenge

An industrial equipment manufacturer faced incoming material quality issues, which were causing costly assembly line shutdowns. This manufacturer, which had thousands of commodities, suppliers, and plants, had siloed views about quality and safety. As such, quality and safety personnel were in a never-ending cycle, trying to address the issues.

The solution

Control Tower was implemented with a focus on improving process efficiency.

The impact

- Fewer assembly line disruptions
- Increased issue resolution
- Decreased warranty and repair costs

Let's talk

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