INDUSTRY SPOTLIGHT

5 obstacles grounding your aerospace & defense supply chain

KINAXIS®

How to meet surging production demands, navigate disruptions, and maintain stringent quality control

The aerospace & defense industry features some of the most sophisticated engineering in the world. But recently, it's become a victim of its own success, overwhelmed by a surge in product demand caused by travel spikes, geopolitical escalations, and a new global space race.

Keeping up with this high demand has left A&D supply chains stretched thin. With quality control issues and sudden disruptions, manufacturers are facing heavy financial consequences for delayed orders.

All these recent issues expose a longstanding, underlying problem in A&D supply chains: high complexity at a scale that's often barely manageable. A complex product like an airplane goes through many development stages and relies on thousands of critical parts, often with long lead times, sourced from a global network of suppliers. The result is a dense supply chain with many layers that aren't always visible to key stakeholders. When disruptions happen on either end of the supply chain network, critical functions in the supply chain are either unaware or too far removed from each other to respond quickly.

How can A&D companies overcome the fact that most of their supply chains operate as a series of point-to-point handoffs with minimal communication across functions? To address disruptions from OEM down to the n^{th} tier supplier, it's extremely beneficial to adopt an end-to-end supply chain strategy via supply chain orchestration, which coordinates all the essential functions in your supply chain, from planning through last-mile delivery. Orchestration is critical to taming the complexity inherent in modern supply chains.

This guide provides a bird's eye view of the five major obstacles blocking the A&D industry from being able to meet skyrocketing demand and explores what to look for in a supply chain orchestration solution to address the unique needs of this industry.

1. Limited visibility across a globalized supply chain

Over the past two decades, many major players in the industry have outsourced their supply chains to contract manufacturers (CMOs), who in turn, outsourced again to their subcontractors and suppliers. This was done to mimic the successful model adopted by the automotive industry, with the promise of reducing costs, increasing production speed, and keeping prices competitive to attract more bids.

However, this model can backfire. Without proper processes and technologies in place to detect third party risk and coordinate with both internal and external stakeholders, disruptions spiral out of control. Lower-tier suppliers often struggle to adapt their output to demand shifts, and supply constraints don't get properly communicated to OEMs until it's too late. Poorly coordinated inbound shipments can also stall production. Thus, a single hiccup on either end of the supply chain can create a powerful ripple effect, causing inventory surpluses, delayed deliveries, and ultimately eroding profitability.

Solution: Parting the clouds in your supply chain

Bring the outsourced functions of a supply chain together on a single supply chain orchestration platform, to plan and execute successfully. Leverage a solution that can give you full visibility in your bill of materials (BOM). When there is a disruption in the multi-tier supply chain, like a component shortage, you should quickly identify orders impacted, model different mitigation strategies in scenarios, and clearly communicate decision trade-offs both upstream and downstream. For added efficiency in execution, coordinate just-in-time shipments across multiple regions and synchronize manufacturing to start once all inbound components have arrived.

LOCKHEED MARTIN

Lockheed Martin partnered with Kinaxis to gain end-to-end visibility across their entire supply chain. They implemented a robust solution in their F35 program that allowed them to see all 130 levels of their BOM. This enabled them to conduct proactive critical path analyses, gaining an understanding of how each component's supply status directly influenced the delivery schedules of aircrafts.

2. Differing truths in integrated business planning (IBP)

IBP is a key process within supply chain orchestration, as it aligns financial commitments with operational capacity across the supply chain. However, siloed systems cause finance and operations teams to see different versions of the truth. For example, finance might look at one plan and commit to way higher revenue goals than operations can support with materials and labor, which puts deliveries at risk.

In addition, circumstances can change almost immediately after plans are made. How quickly you can revise your plans determines how effective your IBP process is. However, the speed of those revisions can be hindered by outdated technology.

Solution: One truth to rule them all

Running an effective IBP process requires delivering consistent information to all parties, ensuring that everyone is working towards the same plan. An orchestrated supply chain unifies information and enables swift and precise adjustments. If you are behind on contracts, you can spot the risks to your customer commitments. Or, if there's available capacity, operations teams can seize those opportunities and communicate them effectively to finance, potentially securing additional revenue. To account for changes in supply or capacity, you should be able to quickly simulate their impacts to your commitments and then conduct the IBP cycle often to realign.

A US defense contractor faced major misalignment between finance and operations in their planning process. This caused excessive spending on materials and labor but still resulted in missed deadlines. The company adopted Kinaxis to transform their IBP process – Kinaxis provided a unified, comprehensive data foundation that allowed all sides to clearly see potential risks to meeting their commitments. This improved alignment between finance and operations, leading to better inventory management, more accurate cost estimates, and improved on-time deliveries.

3. Managing regulatory conditions

A single aerospace & defense organization manages multiple customer programs simultaneously, each with their own specific regulations. Often, you need to dedicate inventory specifically to certain programs to meet customer requirements. In many environments, planners only have visibility into one program. When there's a shortage, new orders might be placed even if there's inventory available in other areas, incurring high costs. In addition, difficult trade-offs must be made to prioritize critical orders such as Aircraft on Ground (AOG) or government orders or else risk the financial penalties of delays.

Each program might also have specific rules when it comes to transportation. For example, certain products require special treatment when handling sensitive or hazardous materials.

Solution: Get your network cleared for compliance

Find a solution that gives you visibility across all programs. You can use adaptable inventory control rules to accommodate multiple regulatory conditions. Segregate supplies into distinct channels, tag attributes with unique conditions, and match the correct supply to demand. In cases of shortages, you can tap into broader supply pools to reduce the cost of placing additional orders and set order priorities to ensure that you allocate supply to the most critical needs.

Your supply chain solution should allow you to account for compliance considerations when creating order flows, select the right carriers, and make sure that all shipments carry the necessary regulatory documentation before they're released.

4. Tracking changes throughout the product lifecycle

A complex product like an airplane goes through many stages, from engineer-to-order manufacturing to higher-rate production and subsequent aftermarket service. There are several changes introduced to bills of material across a product's lifecycle. Engineering changes, for example, can be introduced to upgrade a critical component for either performance, safety, or sustainability reasons. These changes, which can range from mandatory to less time-critical, not only affect equipment currently in production, but also in the field.

Customers can also select from multiple options for their orders, making changes to features such as avionics packages or engine types. Each combination results in a unique configuration of the end item, which must be precisely tracked from the initial sales order all the way through the entire supply chain.

Solution: Lock onto every revision

Managing engineering and configuration changes effectively is crucial for maintaining delivery schedules and can make or break speed-to-market. To handle configuration of products, leverage a solution that will track different BOM variations throughout the life cycle of each individual product. Run scenarios to determine the optimal break-in-date of engineering changes that will reduce impact and costs in the supply chain.

“

Engineering changes have long been banes of our existence. We’re always making changes. Doing this analysis has never been easy. You may not know the lead times on these new parts; you might have inventory obsolescence. We needed to assess the true cost of the change.

We created a balanced scorecard to assign weights to the different impacts that come with an engineering change. We can point out offending parts to our supply chain stakeholders in advance, and we can compare multiple time frames of introducing the change – this has been a gamechanger for us.

JAMES GRISSEL

BELL

5. Aligning capacity with program requirements

Capacity decisions made today need to factor in the long production timelines of programs. While new programs may require several hours to execute tasks, that time can decrease over the course of the program based on efficiency improvements. Reducing capacity in such situations could save costs, but if new programs are on the horizon, capacity reduction might not make sense.

It's also crucial that capacity allocations remain flexible, especially when material availability fluctuates so frequently. If a key component is missing that halts production on one project, it's better to reallocate capacity to ensure work progresses on another. For the best results, you must strike a delicate balance between current capabilities and long-term projections to optimize how you utilize resources.

Solution: Calibrate your capacity

Use a robust capacity planning solution that gives you visibility into long-term capacity needs. By simulating the impact factors such as material availability, workforce attrition, and production rate fluctuations have on production schedules, you can proactively reallocate resources to optimize efficiency. This will strengthen both day-to-day operations and strategic planning, ensuring smoother production cycles and better overall business performance.

> **Our capacity plans used to be built based on an initial schedule, but with a complex supply chain and continuous supply chain challenges, the schedules changed often. With Kinaxis, we could build and adjust our capacity plan based on material availability.**

JAMIE HARSHMAN

L3HARRIS™
FAST. FORWARD.

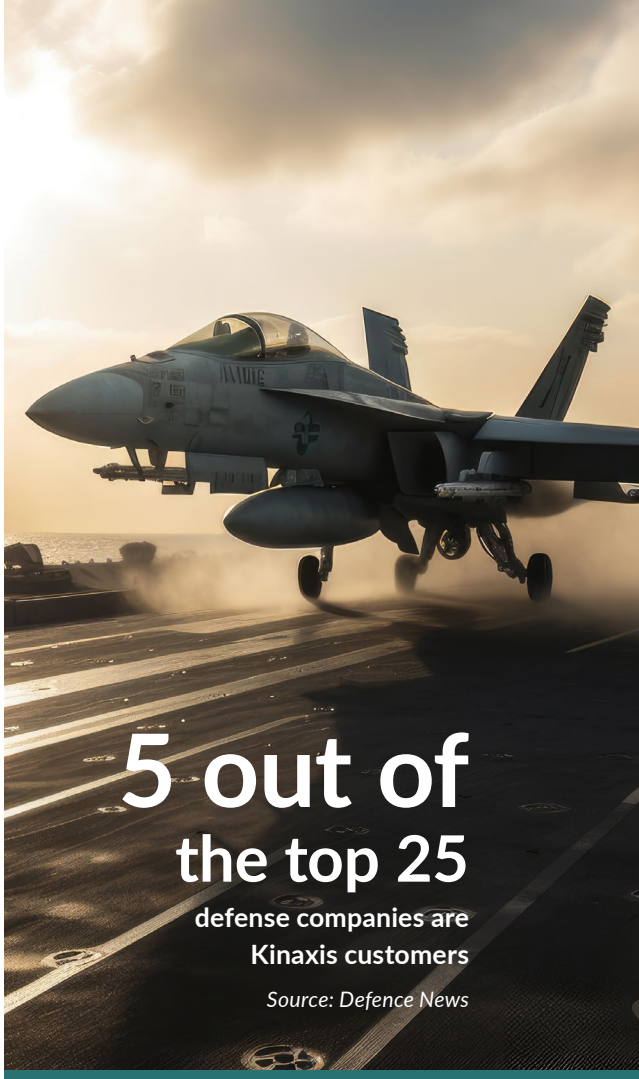
Launch your supply chain into the future

Clear the runway of obstacles to let your aerospace & defense supply chain take off. We've seen how supply chain orchestration can bring order to chaos. Kinaxis, through its end-to-end orchestration platform, can help you take your supply chain into the next frontier.

With data synchronization, smart collaboration, and AI-enabled "always learning" algorithms, you can do more with your supply chain management processes than ever before. "What-if" scenarios let you test and make decisions in real-time with partners so that every challenge is met and not a single opportunity is missed. With flexibility to easily integrate with existing ERP systems or custom apps for real-time insights, you can shorten planning and decision-making cycles and stay ahead of unexpected events.

The result is that your organization can seize on opportunities that siloed companies can't see. Find out why companies like Lockheed Martin, Honeywell, Leonardo, and Raytheon depend on Kinaxis implementations to differentiate their supply chains and gain a competitive edge.

To learn more about how Kinaxis can be implemented quickly to propel your supply chain ahead, request a personalized demo.



5 out of the top 25

defense companies are Kinaxis customers

Source: Defence News

In a heavily regulated industry, security is top of mind. That's why our platform is available on-premise or in the cloud with datacenters in every region. Our platform delivers the latest industry-standard data protection and security measures that are trusted by leaders in the field.

kinaxis®

www.kinaxis.com