

# AVIATION WEEK

## & SPACE TECHNOLOGY

# HOW SPIRIT AEROSYSTEMS KEEPS SUPPLY CHAIN ISSUES UNDER CONTROL

Supply chain disruptions were a key theme of first-quarter 2022 earnings reports, and few places in aerospace manufacturing better illustrate the crunch than Tier 1. There, companies such as Spirit AeroSystems face pressure from their OEM customers to perform—as well as live with their vagaries—while managing the distress below in Tier 2-3.

For Wichita-based Spirit, the crunch equals real red ink; cash burn this year could be \$175-225 million compared with prior breakeven expectations. In early May, the company acknowledged intense supply chain problems along with a slower-than-expected pickup in work for Boeing, which is suffering ongoing 737 MAX and 787 production issues.

- Partnership with analytics provider LeanDNA has cut chaos
- Project is one of many levers Spirit has in supplier base

What is Spirit doing in response? The answer is a lot, on its own and with the help of others. Amazingly, if they are successful—which managers expect to be—supply chain disruptions may not be as big a deal as other challenges outside Spirit's control.

“With regard to supply, we don't anticipate any supply constraints,” Spirit CEO and President Tom Gentile said about future production rate changes. “We have some disruption in our supply chain, but we're mitigating it,” he told a May 4 teleconference while announcing the Tier 1's latest quarterly results.

Spirit has many proverbial levers to pull, some of them known and others less so.



**“This is a state-of-the-art system that can move parts from suppliers to the factory floor in the most efficient way possible,” Spirit AeroSystems CEO Tom Gentile says. Credit: Spirit AeroSystems**

“One thing that we have is a very strong fabrication operation,” Gentile continued. “We make over 32,000 parts ourselves. And we have a lot of what we call ‘blue streak’ capabilities. So if a supplier gets into trouble, we can quickly manufacture that part. Many of the parts we used to manufacture ourselves, and things always are moving in and out of our own fabrication shops. There is no constraint in terms of supply in meeting any production rate increases in the future.”

What is more, Spirit Chief Operating Officer Sam Marnick said the Tier 1 is working closely with its own suppliers to support their rate readiness. “Just like the rest of the industry, our supply chain is experiencing some challenges,” she said. “Examples of the types of support we are providing to assist include logistics, raw material sourcing and inventory management, and in some cases, we are also extending contract terms where the suppliers have

demonstrated excellent performance.” At the same time, Spirit is dual-sourcing some parts to mitigate risk.

Spirit provides around 70% of the content of every 737. Boeing is responsible for the majority of Spirit's annual revenue. As Boeing's fortunes have faltered, Spirit has felt the ripples. But observers have lauded the company's take-charge approach during recent crises (AW&ST Feb. 7-20, p. 10).

The aerostructures giant and growing defense supplier has been taking advantage of the historic gutting of commercial aircraft production due to the COVID-19 pandemic and Boeing production issues to reset Spirit's manufacturing capabilities permanently. The future will look less populated by workers, more productive and, above all, profitable.

Yet less-visible efforts also play a greater role in securing supply, some of which predate recent crises. Since its founding in 2005, the company was chal-

lenged by timely delivery of highly customized products, increased reliability on globalized supply and dramatic rate changes. In turn, Spirit managers needed wider visibility into inventory levels, standardization for its purchasers and automated processes to help them.

Enter LeanDNA, an Austin, Texas, analytics provider for factory inventory optimization and management. Spirit started tapping LeanDNA in 2018 to deploy its cloud-based platform across several manufacturing sites, especially in Wichita. The software runs outside large general enterprise resource planning (ERP) systems, such as SAP's, to provide a bespoke dashboard to Spirit procurement managers, program leaders and suppliers. While Spirit has not commented about the partnership itself, LeanDNA was cleared to talk with Aviation Week about the challenges and results.

"It's trying to look at, 'What do we need at the factory?'" LeanDNA founder and CEO Richard Lebovitz explains in an interview. "What are those needs from the supplier in terms of dates? We're trying to help get those commitments back and forth so that we understand what can meet a need date and what can't."

The challenges were numerous, according to LeanDNA:

- An "extremely" high volume of ERP action messages bogged down Spirit's team and required constant workforce attention.
- A lack of prioritization of ERP action messages or inventory tasks wasted time on lower-value activities.
- Buyers and managers regularly exceeded 40-hour workweeks, often coming in on weekends to catch up.
- Shortages and missed on-time deliveries were causing significant problems for OEMs, and customer representatives had to be deployed to Spirit sites.
- Lack of visibility across multiple sites and ERPs created excess inventory at one site while another site was in shortage.
- Reporting processes lacked standardization and accountability, making it hard for executives to get a comprehensive view of problems across all sites.



**LeanDNA helped Safran Seats achieve a 36% inventory reduction within months of the supplier's implementation of the supply analytics. Credit: Safran**

Currently, 10% of Spirit's 600 suppliers can access reports in Spirit's LeanDNA portal. A representative describes it as essentially an inventory worksheet that gives suppliers data and signals on risk. "It helps them determine when they are going to be in trouble with parts and when that will affect Spirit," the spokesperson says. Spirit plans to introduce 15-20 additional suppliers every month to the system; its goal is to end 2022 with more than 300 suppliers online.

LeanDNA's system was initially applied across four original sites and later expanded to 19 more. Within six months, one division reported an \$80 million reduction in working capital that could be attributed directly to inventory reduction through the LeanDNA platform. A single site was able to sell \$500,000 of obsolete inventory to other sites. Branch sites were able to achieve more than 90% of deliveries on time, whereas previously it was 70-80%. Spirit saw a 16% inventory reduction.

"We also tend to see improvements in just the teams," Lebovitz says. Heroics and burnout become smaller issues. "There's some labor savings just on information technology report generation, you know, time spent communicating."

In December, LeanDNA won the 2021 Supplier Innovation Award from Spirit AeroSystems. The ana-

lytics provider, which started by addressing automotive industry needs, is increasing its aerospace presence with other large suppliers. Safran Seats' partnership with LeanDNA, also stemming from 2018, resulted in a 36% inventory reduction in just three months. Lebovitz says Thales Group, Bombardier, Triumph Group and Morgan Advanced Materials also are customers.

For Spirit, supply chain management is one of the issues it must control as it entices Wall Street with returning to long-promised 16.5% operating margins, assuming Boeing can raise its MAX production rate to 42 new aircraft a month someday. Although that is up to Boeing—which itself faces several challenges beyond its control, such as Chinese recertification of the narrowbody—Spirit wants to show it is doing what it can in the meantime.

"As I've always said, in this industry, you have to run fast to stand still," Gentile told the teleconference. "And even though we're driving productivity in supply chain and in our factory operations, we have headwinds in terms of labor increases, raw material increases, other inflation and things like logistics or utilities. So we have to offset all those in order to achieve the 16.5%, and we are taking that into account as we make those projections."