Are You Playing Ramp Up Roulette With Your Suppliers?

Aerospace and Defense Digital Supply Network Survey 2015

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Production rates in the aerospace and defense industry are increasing dramatically. OEMs and Tier 1 suppliers must transform their supply chains so that their operations can catch up with the digitally-enabled aircraft and systems that they are delivering to market.
The risks from rising demand

Commercial aircraft production rates are increasing by up to 37% over the next few years. Global defense acquisition is finally showing a forecasted uptick of 0.8% after a period of decline. While this rise in demand across the global $750B aerospace and defense market is a cause for optimism, there are also risks associated with the increased activity. Most aerospace and defense companies are only seeing the visible tip of what lies beneath—a much larger iceberg of unaddressed supply chain risks. Those unmitigated risks mean that production may often be on the brink of line stops.

Faced with this challenge, most in the industry are still trying to fine-tune their basic physical supply chains. They are striving to create the optimal mix of insourced, outsourced, onshore and offshore manufacturing to meet demand. But more needs to be done to meet customer and shareholder expectations. Achieving the best supply chain mix depends on developing sustained and insightful intelligence that will transform the traditionally physical supply chains into information-driven extended supply networks. Digital technologies, such as analytics, wearables, 3D printing and the Industrial Internet of Things (IIoT), all offer the potential to better tune the supply chain and improve visibility into potential problems.

The good news is that digital technologies are now demonstrating their power to transform traditional supply chains into dynamic supply networks. From supply chain control towers to analytics, and from smart parts tracking to collaboration across the extended supply network, aerospace and defense companies are proving the value of digital technologies. The largest challenge going forward is not the digital technologies themselves, but rather their integration with existing systems and processes.

The need for transparency, collaboration and integration

Accenture recently polled supply chain executives at 30 companies in North America, Europe and Asia Pacific to better understand their supply chain strategies and related digital systems investments. The companies surveyed in the Accenture Digital Supply Network Survey for Aerospace and Defense represented fixed wing and rotary aircraft OEMs, defense contractors, engine OEMs, aerostructures and electrical/mechanical systems suppliers.

The survey results suggest that while aerospace and defense companies are making efforts to be more proactive in managing their suppliers, challenges such as lack of transparency and weak collaboration will continue to manifest themselves as delayed deliveries and in-service problems. And while it’s true that aerospace and defense companies are beginning to sell fully-digital enabled aircraft and systems with software-driven capabilities and real-time datalinks, they are still struggling to build the digital capabilities that will achieve operational efficiency outside of engineering, particularly in the supply chain.
Accenture Digital Supply Network Survey Findings

Outsourcing is on the rise—as are the risks

Across the industry segments surveyed, 59% of respondents plan to increase their level of manufacturing outsourcing over the next two years. The rise is primarily due to limited in-house capacity (40%) and a need to reduce costs (24%). In line with this general trend, more than half of those surveyed (55%) expect to increase their share of overseas sourcing during the next two years. This is largely because of the need to satisfy end-market industrial participation or offset requirements (64%).

Despite its contribution to cost reduction, outsourcing has exposed companies to additional risks as they become more dependent on their supply networks’ ability to meet expectations of cost, quality and schedule. Meeting those demands is a priority for many aerospace and defense businesses—delivery date commitments, production planning and quality issues remain the leading supply chain improvement priority for half of respondents. Despite risk concerns, 59% of respondents have not seen their share of high-risk suppliers change over the past two years.

Getting a true picture—real visibility matters

More than 75% of respondents expect that over the next two years, they will need to increase the amount of time their staff spend on-site with suppliers to support the introduction of new parts and to transition new suppliers. This more hands-on approach is driven by the pressure to deliver on time and at scale. Nearly half (47%) of respondents indicate that their top priorities are to improve the availability of supplier delivery data, and obtain better transparency into supplier operations to deliver aircraft and equipment on time.

There are, however, emerging digital solutions that can improve supply chain insight. For example, supply chain control towers provide enhanced digital operational and financial visibility. Mobility technologies such as wearables can enable virtual production inspections. Digital technologies have the potential to improve supply chain performance while reducing the need to dispatch costly experts to supplier sites.

From the demand side, planners and supply chain managers are not fully optimizing supply to match multiple sources of demand, spanning from production to in-service support.

Achieving broader and deeper visibility of both demand and supply will require digitally-driven vendor management and analytics. These elements tie together to drive the ability to surface issues sooner and avoid costly surprises. With this in mind, respondents see digital supplier collaboration, analytics and simulation of products during development and testing as having the greatest positive impact on more effectively managing suppliers.
Further strides are needed

Digital technologies are transforming industries, with aerospace and defense prominent among them. Expectations for a positive impact on the supply chain are high. In fact, the respondents to our survey expect that within the next two to three years, the greatest impact on supplier collaboration will come from digital technologies such as virtual product simulation, collaboration and analytics.

Analytics

Analytics is perhaps furthest along in terms of supporting supply chain functions, especially for supply chain execution, planning and forecasting. Analytics for supply chain execution is currently used or planned by over three-quarters of respondents. Analytics for planning and forecasting is currently used or planned by two-thirds of respondents.

3D Printing

Additive manufacturing is making progress toward delivering on its promise of moving beyond prototyping and into certificated production, enabling bill of materials (BOM) consolidation and the ability to fabricate parts on demand. Aerostructures (26%), components/mechanical sub-assemblies (37%) and mechanical systems (33%) are the primary applications being used or planned for in-house 3D printing. Certification of process and parts remain the most daunting challenges to implementing 3D printing, with 40% of respondents citing this as a barrier to adoption.

Mobility

The use of mobility tools such as tablets, wearable and personal electronic devices to support supply chain functions is also set to increase. Mobility is used or planned in logistics and supply chain execution by approximately half of respondents; another 20% are discussing its use for logistics and 13% for supply chain execution.

Cloud

There are plans to use cloud technology across a wide spectrum of functions, with a strong emphasis on supplier collaboration. Cloud is currently used or planned by 34% of respondents and under discussion at an additional 30%.
Making the shift from supply chain to digital supply network

Complex processes, legacy operating models, data security, and certification all stand between the aerospace and defense industry and its digital coming of age. Nevertheless, the direction of future travel is set. Aerospace and defense companies are becoming digital extended enterprises. In our view, achieving a smooth transformation to this future state requires three fundamental steps in order to accelerate the shift towards the all-digital supply network:

1. **Envision the Power of the Network**
   Digital transformation begins with defining a vision for the digital supply network, the business outcomes that it will deliver and the services companies must offer to deliver on those outcomes. For example, the growing pressure to support increased production rates, particularly for commercial single-aisle aircraft, will force the digital supply network to support on-time delivery at a predictable cost, while reducing the risk of production disruptions. The emerging digital vision must encompass the new demands and services that airlines, operators and defense agencies require—both today and in 10-15 years from now.

2. **Forget Functional Excellence**
   Aerospace and defense companies are global leaders in designing and implementing highly engineered processes and systems. They have relied on this heritage for their initial forays into digital. While there has been some success to date, the true value of digital to the industry will not materialize until companies define and adopt capabilities and services that generate value for their customers and their extended enterprise. Until aerospace and defense companies are able to clearly define the platform of capabilities and services that can generate external value for their “digital customers” and internal value to their “digital enterprise,” they will only be able to deploy well-designed, but disconnected, digital projects. They therefore need to migrate from a program-centric approach to identifying the value-creating activities that will be at the core of the digital supply network, allowing for better time to market and shorter maintenance and overhaul cycles.

3. **Map Your Digital Journey**
   With the vision defined and the core activities revealed, the next stage is to create a digital blueprint for the organization. The blueprint sets the milestones for the transformational journey and offers a guide and set of priorities to follow that will ensure production rate increases and in-service support transitions are as smooth as possible. The blueprint should be comprehensive in scope, taking into account the people, process, technology, regulatory and governance aspects of the transformation. This blueprint will look different for each company, depending on which digital capabilities drive value for its customers and extended enterprise. Some companies will focus on building out their supply chain network visibility into multiple tiers of suppliers. Others may prioritize a digital infrastructure to deploy 3D printing to their in-service network.
Taken together, these three steps will help identify the individual changes that aerospace and defense companies can make to realize their supply network blueprint, built with digital DNA.
The survey is based on a series of telephone interviews with C-level executives involved in decisions related to supply chain processes and systems from 30 Aerospace and Defense companies in North America, Europe and Asia. This document is produced by consultants at Accenture as general guidance. It is not intended to provide specific advice on your circumstances. If you require advice or further details on any matters referred to, please contact your Accenture representative.