Soaring Into the Next 100 Years
Perspectives on the Aerospace and Defense Industry

High performance. Delivered.

accenture
Strategy | Consulting | Digital | Technology | Operations
As the industry passes 100 years of commercial service, the centennial celebration takes us into a totally new era—an era filled with powerful market forces and disruptive technologies that are presenting entirely new mandates for building, operating and maintaining commercial, military and space products. These forces are reshaping the future of aerospace and defense. Some offer exciting opportunities. Others are less benign. Each requires a decisive response that takes the others into consideration.
Powerful Market Forces

Flat defense budgets

Defense budgets in both the United States and the European Union are either essentially flat while new platform development is being deferred or there is less commitment to purchase platforms coming into service. Asia and Middle Eastern markets are increasing, which may offset tepid traditional market performance. Overall, however, global defense acquisition spend of $436 billion is expected to grow by a very moderate 0.8 percent over the next five years.

Rising demand for airliners

In contrast to defense spending, the appetite for civil aviation is increasing with a burgeoning middle class in high-growth global regions driving demand. Airlines are also seeking the higher efficiency and better environmental performance from new aircraft. Overall, the $738 billion airline industry is expected to grow by 6 percent or higher over the next few years.

Longer, more complex programs

New aircraft program durations have doubled from four to eight years. Risk sharing is now the norm for engine programs as is system integration and peer-to-peer collaboration between suppliers and OEMs.

The explosion of big data

Aircraft are generating unprecedented volumes of data. For example, the Boeing 787 transmits 28 times more data as that of a 777—up to 500 GB for every flight. The criticality of data is also rapidly increasing in the defense industry, with connected battlefield technologies in particular raising demand for big data capabilities.

A shrinking talent pool

A significant proportion of aerospace and defense talent is fast approaching retirement. For example, the U.S. aerospace workforce has an average age of 48 and 28 percent of its employee population is at or approaching retirement age. The problem compounds as competition for science and technology talent comes from other, more visibly digital industries and demand for these skills, in Europe in particular, are expected to grow at double the rate of other occupations.

Operational cost optimization

Slashed defense budgets mean that upgrades, rather than platform replacements, are taking priority. Commercial operators are seeking greater insight and fidelity into operational data to fine tune support operations and reduce costs.
Key Technology Trends | Adding to the market forces affecting the aerospace and defense industry are significant developments in digital technologies that are exerting an increasingly decisive influence on the future shape of all industries.

Accenture's annual analysis of key technology trends, the Accenture Technology Vision 2015 (www.accenture.com/techvision2015), identifies the disruptive changes that digital is bringing to all sectors. While digital has been prevalent in the aerospace and defense industry for some time, it's not exempt. These key technology drivers and how they are manifesting themselves in the aerospace and defense industry are:

The Internet of Me
An astounding 95 percent of respondents to a survey supporting Accenture's Technology Vision 2015 reported that delivering a personalized customer experience was first among their organization's top five priorities. Major OEMs in aerospace and defense are no exception and are developing initiatives to personalize experiences—from the cabin to the flight deck. On the flight deck, flight data can now be uploaded from tablets into the avionics, increasing efficiency and customizing the avionics for a specific mission or flight.

Outcome Economy
Businesses across all industries confirm that the advent of more intelligent hardware, sensors and devices on the edge of networks will shift sales from products or services to outcomes. In line with this, OEMs and Tier 1 suppliers are competing for MRO market share with pay-by-the-hour arrangements rather than traditional break/fix repair services. Some companies have more than 75 percent penetration for their engines or system service plans, as they trade out failed equipment to keep operators flying as opposed to making them wait for repaired parts.

The Platform (R)evolution
Underpinned by the latest wave of digital technologies—social, mobile, analytics, cloud and the Internet of Things—platforms combine a well-defined technical architecture, robust governance and a set of technology services that are all focused on enabling the creation of new industry-specific applications. In aerospace and defense, Product Lifecycle Management platforms are emerging for newer aircraft programs, such as the Boeing 787 and the Airbus A350 XWB. These enable the extended enterprise to develop and share technical information in order to collaborate as efficiently as possible.

Intelligent Enterprise
Accenture's Technology Vision 2015 confirms that software is entering a new era of intelligence that will revolutionize the way we use data. That finding is backed by Accenture's recent Aerospace and Defense Product Lifecycle Services Survey, which highlighted that aerospace and defense companies are now starting to harvest the significant amount of data they generate—65 percent of respondents said that they use or plan to use analytics to enhance program management and gain better visibility into product data.

Workforce Reimagined
With the development of more natural human interfaces and smarter machines, we’re seeing intelligent technology interact as another “team member.” In aerospace and defense, this is manifesting itself in the form of greater use of technologies such as predictive maintenance to capture the knowledge of seasoned service engineers and tweak results for specific aircraft operator characteristics. Wearable technologies are being trialed in manufacturing or in-service maintenance, making technical publications and 3D visualization available to staff in real time.
The Digital Intersection | Aerospace and defense companies have been relentlessly developing digital capabilities for many years.

The Boeing 777, for example, was designed in the 1990s using a digital model. The Airbus A350 XWB has a fully 3D digital model for partner design collaboration. However, the focus of digital is now expanding beyond engineering to increasingly embrace every aspect of the industry value chain: from experience in the seat to airline operations and from design and manufacturing to service and support.

So while today aerospace and defense companies differentiate through product, digital will start to enable differentiation in their operations.

Digital will increasingly secure its place at the heart of the industry value chain, running from design to operator and all the way to the passenger experience. Accordingly, aerospace and defense companies are focused on how digital can help them reduce cost, manage product lifecycles, deliver on time, become more efficient and improve customer service. Examples of how digital is continuing to expand its presence in aerospace include:

• Inflight Wi-Fi and greater use of real-time aircraft operational communications.

• Analytic capabilities that provide insight to redirect millions of dollars of idle parts inventory and 3D printing to change the provisioning approach.

• Collaboration across the supply chain to shorten increasingly longer development cycles and ensure parts availability during production upswings.

• Using Product and Application Lifecycle Management to support digital delivery of product data, from design to manufacturing/assembly and from service and end of life.
Implications and Actions

Digital strategies offer new and improved ways to optimize the supply chain, reduce time to market and increase revenue. As a result, many aerospace and defense companies are considering how they use digital to generate and sustain business results. Accenture refers to this as a digital “coming of age” for the industry.

However, investments in digital capabilities should be carefully considered. Being able to perform endless analytics or simulations may not always be the answer. Accenture suggests that companies evaluate their digital investments and adopt a comprehensive digital strategy based on the answers to four key questions:

1. What are all the touch points with your customers, suppliers and employees and how can digital help create value at each?

2. How can you use digital to lower cost, shorten cycle time, improve quality, shorten delivery time and avoid delays?

3. How can digital help you capture new business? Or a bigger share of business by doing more with the same part or product, leveraging untapped expertise or extending an existing process?

4. What will be the impact of future developments on your products or services?
About Accenture in Aerospace & Defense

Accenture works with aerospace and defense companies throughout the world to develop and deploy solutions that harness the digital revolution to support growth, improve program performance and foster an extended enterprise for risk reduction, agility, efficiency and innovation. We provide consulting, technology and operations services to all industry sectors including commercial aerospace, defense and space.

Sources

1. Strategic Defense International
2. IATA, ICAO
3. Virgin Atlantic

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 323,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world’s most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$30.0 billion for the fiscal year ended Aug. 31, 2014. Its home page is www.accenture.com.