

HARNESS THE ENGINE OF INNOVATION

Elevate customer
experience to soar
in a post-digital world



TECHNOLOGY VISION 2019
AEROSPACE AND DEFENSE

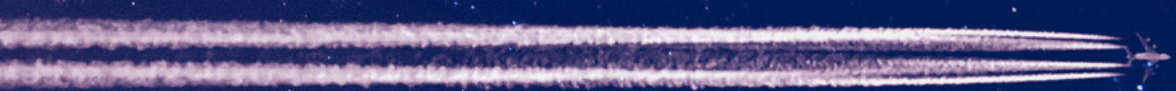
#TechVision2019

In today's tumultuous times, where aerospace and defense companies are contending with myriad challenges—from insurgent competitors and breakneck technological change to geopolitical instability—being relevant is essential. That's why many in the industry are working furiously to come up with new and innovative ways to serve the needs of their customers, suppliers, partners and workforce at those high-value touch points or “moments that matter.” In this way, they are becoming more like living businesses, building and sustaining symbiotic ties with their stakeholders as if those relationships were with dear friends.

Aerospace and defense companies are taking their first steps in a new world—one that tailors itself to fit every moment. It's a world where products, services—and even people's surroundings—are customized and where businesses cater to the individual in every aspect of their lives, shaping the very realities they live in.

What is enabling—and driving—this reality-shaping shift? The emergence of a post-digital world. Digital-era technology, which began as a differentiating advantage years ago, is now expected from every business. Looking forward into the post-digital era, how will aerospace and defense leaders set themselves apart?

In the post-digital world, every moment will represent a potential new market of one. It's where demand is communicated instantly and gratification is expected immediately. What's more, both are constantly changing, creating an infinite and never-ending stream of opportunities to be met through business-to-business (B2B) and business-to-consumer (B2C) engagement, as well as in the public sector. The post-digital world is one where technology is the fabric of reality and aerospace and defense companies can use it to meet stakeholders wherever they are, at any moment in time—if they rise to the challenge.



DISRUPTION ABOUNDS

The aerospace and defense industry is grappling with disruptive forces—from market developments to technology innovations to geopolitical upheaval. In response, companies are reshaping their portfolios through consolidation and new revenue streams, particularly in the aftermarket and sustainment segments.

Just as people no longer say they live in the “jet age,” the days of calling something digital to imply that it is new and innovative are numbered.

What does “post-digital” mean for aerospace and defense companies? Doubling down on completing their digital transformations to get the most value from those investments—and at the same time, turning a strategic eye toward what’s next. By moving the company’s focus to targets of opportunity, finding a place among the ecosystems of the post-digital era and mastering digital investments with an eye on the post-digital future, leaders will position for success for years to come.

It’s a tall order. Thanks to the power of digital now and post-digital next, the coming era will be one of massive customer, employee and societal expectations. Fortunately, it’s an era of equally tremendous possibility: to deliver for any moment, in any reality. Aerospace and defense companies are embracing digital business models to improve revenue generation, drive efficiency and improve supply chain performance.

According to our research, **93% of aerospace and defense executives report that the pace of innovation in their organizations has accelerated over the past three years due to emerging technologies.**

Meanwhile, geopolitics and commercial air traffic in the Asian and Middle East markets are continuing sources of aerospace and defense market growth—for both defense and commercial segments. A renewed space race is also underway, with new entrants pushing down manufacturing and launch costs.

Silicon Valley players continue to be active in the aerospace and defense sector. New technologies such as artificial intelligence (AI), 3D printing, extended reality, cloud computing, the Internet of Things (IoT) and blockchain all promise increased supply chain efficiencies, faster time to market and new value propositions.



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GROWTH ON THE SURFACE, TURBULENCE BELOW




While steady industry growth on the surface may indicate smooth progress, the aerospace and defense industry is changing at an unprecedented rate.

In commercial aerospace, the introduction of new models, such as the Boeing 777X currently being tested and the Airbus A350 XWB aircraft now in service, are supporting the fleet growth which is needed to accommodate the growing middle classes in emerging economies driving up passenger volumes. OEMs are continuing to sharpen their focus on digital underpinnings to provide additional services and capture opportunities in the \$76 billion commercial aviation aftermarket.

In the defense sector, modernization programs and fleet recapitalizations are set to address aging military aircraft fleets, with spend growing particularly fast in the Asia-Pacific region. The integration of new technologies is a priority and all this is taking place against a backdrop of regional tensions and new security threats. Platforms have become increasingly complex, with software-driven capabilities often the principle cause of initial operating capability delays.

The space sector is continuing to see major changes. Low-cost launches from companies such as SpaceX are decreasing costs by up to 77%. New entrants are changing the game, with private-sector players such as Blue Origin taking an ever more prominent position. Space is now opening up to a much wider range of players, with an estimated 2,800 nano-satellites set to launch in the next five years.

The naval shipbuilding sector is seeing unprecedented change and disruption, under the impact of trends including rising program costs, expanding international opportunities and rising pressure from government customers seeking value for money. Australia's AU\$90 billion naval modernization, the US 355 ship fleet strategy and C4ISR fleet upgrades point to sustained growth.

COMMERCIAL 	DEFENSE 	SPACE 
Industry consolidation/ M&A	Regional tensions & security threats fueling global growth	Growing competition due to low cost launch & manufacturing
Growing middle class in emerging economies	Resolving supply chain & logistics	Low earth orbit constellations
Fleet expansion & replacement	Growing budgets & integration of new technologies	New business models & partnerships
Increased focus of OEM's on MRO/services		Private sector growth & new entrants

The aftermarket continues to see strong interest by the OEMs and prime contractors to take a bigger piece of the \$175 billion global commercial and military MRO market. Lagging aircraft retirements and additional shop visits for older aircraft will provide more opportunity for cost-competitive maintenance providers. Business models such as Boeing's US trainer aircraft award relies heavily on in-service sustainment sales to offset low production prices.

Behind all these developments lie the disruptive innovation and new business models reshaping aerospace and defense's future. Across the board, aerospace and defense businesses are investing in digital to drive innovation. They are deploying innovation labs or digital accelerators.

In fact, according to our research, **70% of aerospace and defense executives agree social, mobile, analytics and cloud (SMAC) have moved beyond adoption silos to become part of the core technology foundation for their organizations.** Aerospace and defense companies are broadening the diversity and combination of advanced technologies that they are explored.

FIVE TECHNOLOGY TRENDS RESHAPING AEROSPACE AND DEFENSE

This year's Accenture Technology Vision for the aerospace and defense industry highlights five emerging trends that will have a decisive impact on the entire value chain, from aircraft design to passenger or pilot experience. In each trend, digital saturation is raising expectations, abilities and risk across industries, as well as shaping how businesses are seeking new ways to differentiate themselves as the world moves toward the post-digital era.

TREND

1

DARQ Power

Understanding the DNA of DARQ

The next set of technologies every company will need to master? Distributed ledger technology (DLT), artificial intelligence (AI), extended reality (XR) and quantum computing. In other words, "DARQ" matters.

Individually, each of these four technologies represents opportunities for aerospace and defense companies to differentiate their products and services. Collectively, they will open unimagined new pathways into the future. AI already plays a critical role in optimizing processes and influencing strategic decision-making. XR, an immersive technology, creates entirely new ways for people to experience and engage with the world around them. Distributed ledgers will expand networks by eliminating the need for trusted third parties. And quantum technology will usher in novel ways to approach and solve the hardest computational problems.

84% of aerospace and defense companies are already experimenting with one or more DARQ technologies, expecting them to be key differentiators. Each technology is at a different point on the adoption curve, but the first wave of companies using DARQ technologies to drive differentiation is already here.

TREND

2

Get to Know Me

Unlock unique customers and unique opportunities

Technology identities are part of an emerging enterprise feedback loop, one that first began to show its potential with the personalization efforts of the digital era. Through digital technologies, aerospace and defense companies gain new, direct touchpoints with customers.

They use the resulting “snapshots” of insight into customer needs and goals to deliver personalized products and services, which, in turn, give them even more insight into their customers.

Now, that technology-driven feedback loop is about to kick into overdrive. As the world moves into the post-digital era, aerospace and defense companies are beginning to build new products and services that shift to individualized experiences, creating a one-to-one relationship with each customer where technology plays the starring and ever-present role.

76% of aerospace and defense business leaders agree that understanding customers’ behaviors around technology will be critical for their organizations to increase customer loyalty. To this end, savvy aerospace and defense businesses are taking their first steps with technology identities to personalize their existing product and service offerings. Leaders can push even further to craft new individualized, experiential business models entirely around the technology identities of their customers.

TREND

3

Human+ Worker

Change the workplace or hinder the workforce

Aerospace and defense companies have not been going through their digital transformations alone. Today’s workers are equipped and empowered by technology, incorporating it to perform existing roles in new ways and to adapt for new roles that did not exist in the pre-digital era. The workforce is becoming “human+”: each individual is empowered by their skillsets and knowledge plus a new, constantly growing set of capabilities made possible through technology.

But as the line between employees and the technology they use blurs, a new divide is emerging. The workforce is evolving at a rapid pace, incorporating new technology-driven abilities and skills to deliver value for the company—while the enterprise itself is still optimized for the workforce of the past. **69% of aerospace and defense executives believe that their employees are more digitally mature than their organization, resulting in a workforce ‘waiting’ for the organization to catch up.**

TREND

4

Secure US to Secure ME

Enterprises are not victims, they're vectors

Today's ecosystem-dependent business world amplifies the impact of cyberattacks. Incidents that cripple one enterprise can grow rapidly and expand to threaten a company's ecosystem, industry and beyond. As aerospace and defense companies work more and more extensively within complex ecosystems, they are simultaneously extending, and absorbing, their ecosystem partners' risks and vulnerabilities. Those risks include the loss of current and future defense contracts as a result of not protecting client information or failing to comply with national cybersecurity regulations.

Threat actors targeting highly sensitive and proprietary data see aerospace and defense ecosystems as an ever-widening attack surface. But most companies still view cybersecurity as strictly an individual effort. **Only 40% of aerospace and defense business and IT executives report that they know their ecosystem partners are working diligently, like they are, to be compliant and build security resilience.**

To respond to this dichotomy, organizations must include growing ecosystem dependencies and risks as part of their own security posture and make security a cardinal component of how they build, assess, monitor and manage partnerships. Interconnectedness increases companies' exposures to risks. Leading aerospace and defense companies are recognizing that while they already collaborate to deliver best-in-class products, services and experiences, it is high time security joins that effort as well.

TREND

5

MyMarkets

Meet customer's needs at the speed of now

With companies, workforces, consumers and industries now inextricably connected, being digital is no longer enough for an aerospace and defense firm to differentiate itself. But it does give organizations a foothold for their next big opportunity: capturing moments.

With direct digital access to customers and increasingly powerful analytics capabilities, aerospace and defense companies can understand their current and potential markets better than ever before. And with sophisticated backend technology that can reorient the business quickly, they can deliver for those momentary markets faster than ever before. Put those capabilities together and every moment is a chance to deliver a new product or service designed not just for a specific customer, but for their needs at a specific point in time.

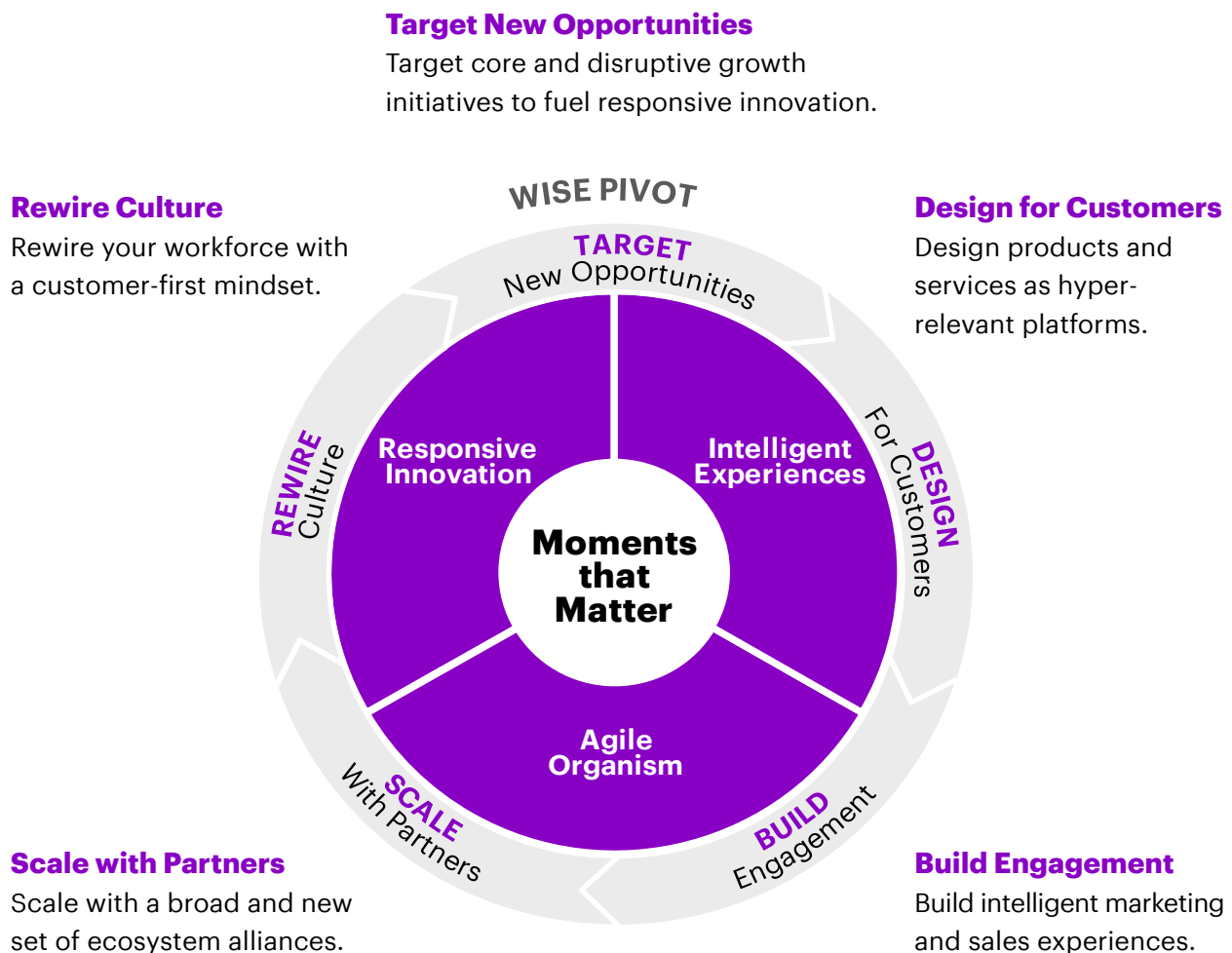
81% of aerospace and defense companies agree the integration of customization and real time delivery is the next big wave of competitive advantage.

The workforce is evolving at a rapid pace, incorporating new technology-driven abilities and skills to deliver value for the company—while the enterprise itself is still optimized for the workforce of the past.

THE ANSWER? A NEW KIND OF LIVING BUSINESS

Aerospace and defense companies have been developing digital capabilities for years. Yet the urgency to harness digital to deliver the “moments that matter” across the organization, partners and customers has never been greater.

PATHWAYS TO A LIVING BUSINESS



With every business embracing the importance of digital transformation, companies need to look toward their next opportunity for differentiation—momentary markets. Internally, this means preparing the organization to be a truly agile company with the capabilities to identify opportunities and deliver exactly what customers want. In other words, they're striving to become more like living businesses—to build and sustain symbiotic ties with every stakeholder in their ecosystem.

That granularity of understanding will allow aerospace and defense companies to meet stakeholders in their moment of need in a post-digital world—to in fact become a different business to every single customer. It is all about choosing the right moments. How will your company choose them? By conveying exactly the right message or offer in exactly the right context. And delivering truly intelligent experiences that shape offerings and adapt in real time to the needs and preferences of customers, partners, suppliers and employees. It's about the moments that matter, whether that's using Big Data to predict when an aircraft will need maintenance, or deploying augmented-reality to provide over-the-shoulder coaching to field technicians or mechanics on the other side of the world.

On another level, living businesses enable responsive innovation, allowing companies to get ahead of the curve in markets by creating a culture and infrastructure that continuously embrace new ideas, behaviors and technologies. Lower-cost space launches from Blue Origin and SpaceX are great examples of responsive innovation. Both enable the acceleration of new communications and earth observation services at revolutionary price points and at an unprecedented pace.

To create intelligent experiences and responsive innovation, companies need to become agile, shifting to a more fluid, nimble and open relationship model that enables dynamism across the organization, its partners and customers. Ultimately, a company's infrastructure will be primed to embrace new ideas and technologies and anticipate and respond to changing customer and market opportunities. Consider the example of Airbus Aerial, which fuses a space-based, earth-observation satellite fleet with unmanned aircraft to create timely and actionable data for its customers, such as disaster response or being able to perform runway maintenance under extremely tight timeframes.

PATHWAYS TO A LIVING BUSINESS

To become living businesses, aerospace and defense companies should transform based on five key pathways:

1. Target core and disruptive growth initiatives

This path involves identifying new value and business models by rethinking investments based on a better understanding of customers' digital needs. With that understanding in place, it's a matter of deciding whether a new idea or opportunity is worth it. **67% of aerospace and defense executives anticipate the combination of DARQ technologies will be transformational or extensively transform their organization over the next three years.** Does an idea solve existing customer pain points? Could it open new sources of value? Or is it a "flavor-of-the-month" distraction? These new business models or services are funded by optimizing costs elsewhere.

2. Design products and services as hyper-relevant platforms

The second path is about innovating compelling new experiences and maximizing the relevance of a product, service, or experience to customers. **71% of aerospace and defense executives report that customer digital demographic information is expanding the number of ways their organization delivers products and services to customers.** Should products be flashy and bleeding edge? Or staid but practical? Answers will come from customer-needs assessments that steer design decisions. Smart, connected technologies are leading the pack in terms of aerospace and defense technology investment.

3. Build, prototype and scale new and innovative experiences

This third pathway to becoming a living business is all about developing the kinds of engagement channels that allow continuous evolution—and an organization that can prototype, deliver and scale the most innovative experiences at breakneck speed. **93% of aerospace and defense executives report that the pace of innovation in their organizations has accelerated over the past three years due to emerging technologies.** The top technology solutions driving intelligent experiences are extended reality, IoT devices and autonomous robots.

4. Scale by plugging into a broader set of ecosystem partners

Embracing this approach means formalizing new or established collaborative relationships with alliance partners. It requires employing technologies like cloud and blockchain to connect employees and partners with the customer data that matters, and to do so seamlessly and securely. With this collaboration comes a strong requirement for security and trust. **82% of aerospace and defense executives agree that to be truly resilient, organizations must rethink their approach to security in a way that defends not just themselves, but their ecosystems.**

5. Rewire the culture by infusing a mindset that keeps customers at the core

Relevance demands constant reinvention. On an organizational level, that means changing the company's mindset to put customers front and center, then equipping employees with the skills they need to become responsive. **The majority (67%) of aerospace and defense executives believe that at least 40% of their workforce will move into new roles requiring substantial reskilling due to the impact of technology.**

Ultimately, the key is pushing past the comfort zone to develop a new stronghold. The process of becoming a Living Business not only offers a way to retain or regain traction now, but also ensures readiness.

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