



Aligning A&D demand and workforce capacity

How to scale engineering and digital capacity
through skill-level workforce planning



Executive summary

The aerospace and defense (A&D) sector is entering one of its strongest demand cycles in decades, driven by rising defense budgets, a rebound in commercial aviation, and expanding program backlogs. Yet execution risk is rising—not because of insufficient funding or demand, but because many organizations lack reliable visibility into workforce skills, availability, and how quickly those skills can be deployed.

Headcount is no longer the constraint. The challenge is mobilizing the right skills fast enough as work becomes more digital, software driven, and complex. Workforce composition has shifted toward junior and early career roles, while sustained cost pressure has thinned middle layers and accelerated turnover in critical digital and analytics roles. At the same time, artificial intelligence (AI) and automation are compressing timelines and pushing higher-order, judgment-intensive work to human teams earlier in program design and delivery—widening the gap between what programs require and what organizations can reliably staff.

Limited workforce visibility forces teams to plan in silos and make staffing decisions too late. Organizations respond with urgent hiring and greater reliance on senior, security-cleared, and external talent, driving higher indirect costs, weaker bids, slower program ramps, and eroding morale. Over time, these gaps translate directly into bid risk, delivery delays, and sustained cost overruns.

What increasingly separates outcomes is not access to talent, but the ability to anticipate skill needs, align work to evolving roles, and rebalance capacity before cost and schedule pressure take hold. As scrutiny on pricing, timelines, and execution discipline intensifies, organizations that move early will be better positioned to convert demand into performance—bidding competitively, ramping programs faster, and sustaining growth with lower risk.



An execution challenge hiding in plain sight

Governments are increasing defense spending globally, with the US driving growth through the National Defense Authorization Act. At the same time, commercial aviation has fully rebounded since the pandemic, with airline procurement demand outpacing original equipment manufacturer capacity.¹

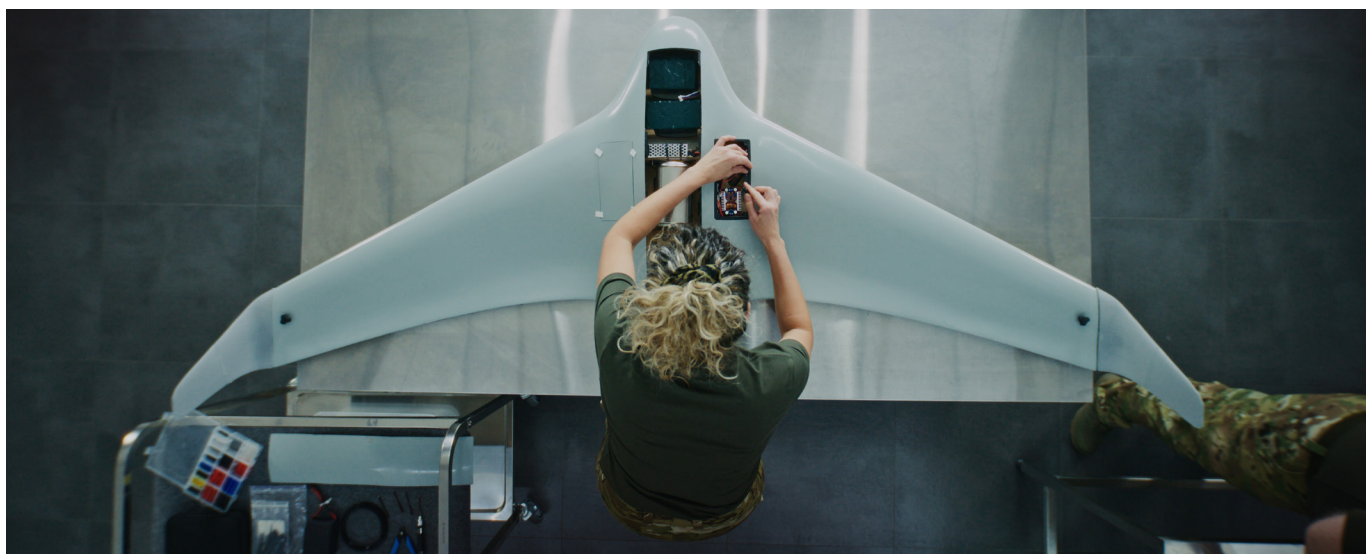
An aging and shrinking workforce tempers that momentum. A&D headcount decreased an average of 12 percent annually over the past five years,² and attrition is nearly 15 percent, more than double the average in other industries.³ While automation and digitalization reduce the need for some full-time roles, elevated turnover is eroding institutional knowledge and mentorship.

Many of the new AI, data, and other modern skills that A&D companies need remain underdeveloped, while the limited pool of workers who do possess

these skills is small and in high demand across all industries. At the same time, experience levels are thinning—more than half of the knowledge workforce now skews heavily junior, increasing reliance on accelerated development and supervision to meet program demands.⁴

Sustaining growth amid long-term defense and commercial demand now depends on reliable workforce capacity—planning at the skill level, preparing roles for human–AI teaming, and running service delivery models that can flex across federal and commercial portfolios.

This paper offers a blueprint for scaling engineering and digital capacity through skill-level planning, rapid redeployment, and AI-enabled delivery that improves speed, cost, and quality while reducing execution risk.



¹ “Strong 2025 Passenger Demand Masks Ongoing Capacity Constraints,” IATA, January 29, 2026.

² The London Stock Exchange Group, data accessed August 2025.

³ Brooke Weddle, Kevin Sachs, Elizabeth Mygatt, and Yasi Akbari, “Accelerating progress: Maximizing the return on talent in A&D,” Aerospace Industries Association, 2025.

⁴ Revelio Labs, function-level workforce metrics, accessed August 2025.

How digital work is reshaping the A&D workforce

A&D companies are driving a sectorwide digital transformation. Assistants enabled by generative AI (GenAI) and AI simulation tools are embedding automation across the value chain, augmenting human output and creating new roles that demand workers who can effectively leverage AI to extend their reach, speed, and judgment.

The competitive edge in A&D comes from software and connected digital ecosystems rather than hardware alone. A&D leaders compete on onboard software, integrated digital threads with end-to-end data traceability, model-based systems engineering (MBSE), and AI-enabled capability layers, placing a premium on digital and systems skills. Across aircraft, ships, satellites, ground systems, and other platforms, autonomy, predictive analytics, computer vision, and trusted AI must be built in from the start—often within secure environments.

Most A&D companies are embedding digital tools across the value chain after investing in automation across product development and scaled production.⁵ Software engineers now account for nearly half of all AI-related roles in A&D, and command the highest average salaries, reflecting their central role in AI-enabled delivery. At the same time, roughly 30 percent of product and engineering employees already possess GenAI-adjacent skills,⁶ signaling both progress and uneven capability distribution.

While AI-related roles are expanding, that growth is concentrated in a narrow set of high-demand skills. A small group of leading innovators, including Lockheed Martin and RTX, illustrates what this

looks like in practice, deploying AI-driven tools for efficiency, analytics, training in advanced simulation environments, and more,⁷ setting the pace for how human–AI teaming is beginning to redefine engineering workflows.

In practice, this concentrates execution risk in software, systems, and digital engineering roles—including cybersecurity and trusted-AI disciplines—where demand, skill scarcity, and delivery pressure now intersect.



30%

of product and engineering employees already possess GenAI-adjacent skills



⁵ "Workforce Trends in the Aerospace and Defense Industry Fact Sheet," Aerospace Industries Association, August 8, 2024.

⁶ KPMG LLP, GenAI rapid assessment, accessed in August 2025.

⁷ "2025 Facts & Figures: American Aerospace & Defense Industry Continues Economic Dominance," Aerospace Industries Association, June 17, 2025.



Growth without depth

Although total employment remains substantial—approximately 1 in 70 US employees works in the A&D industry—declining headcount and thinning experience layers are making execution harder,⁸ increasing reliance on accelerated development and supervised practice as junior employees take on more complex work.

By 2033, A&D architecture- and engineering-oriented roles are projected to grow roughly 5.9 percent and computer and mathematical roles about 7.1 percent, reflecting the spread of automation and digitization across product development, prototyping, full-rate production environments, and sustainment. In contrast, traditional production occupations—particularly manual and shop-floor roles—are projected to decline modestly, around 3.5 percent.⁹



One in 70 US employees works in the A&D industry



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Computer and mathematical roles are about

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Product and engineering, supply chain, and information technology (IT) functions comprise the largest share of the A&D workforce, and the greatest share of execution risk. As the proportion of workers in more traditional production roles declines, roles that depend on advanced digital skills and systems integration increasingly concentrate execution risk, heightening the urgency to realign workforce skills and priorities with emerging technologies.

⁸ Press releases, Lockheed Martin and RTX Corporation.

⁹ Bureau of Labor Statistics, accessed August 2025.

The real constraint is visibility

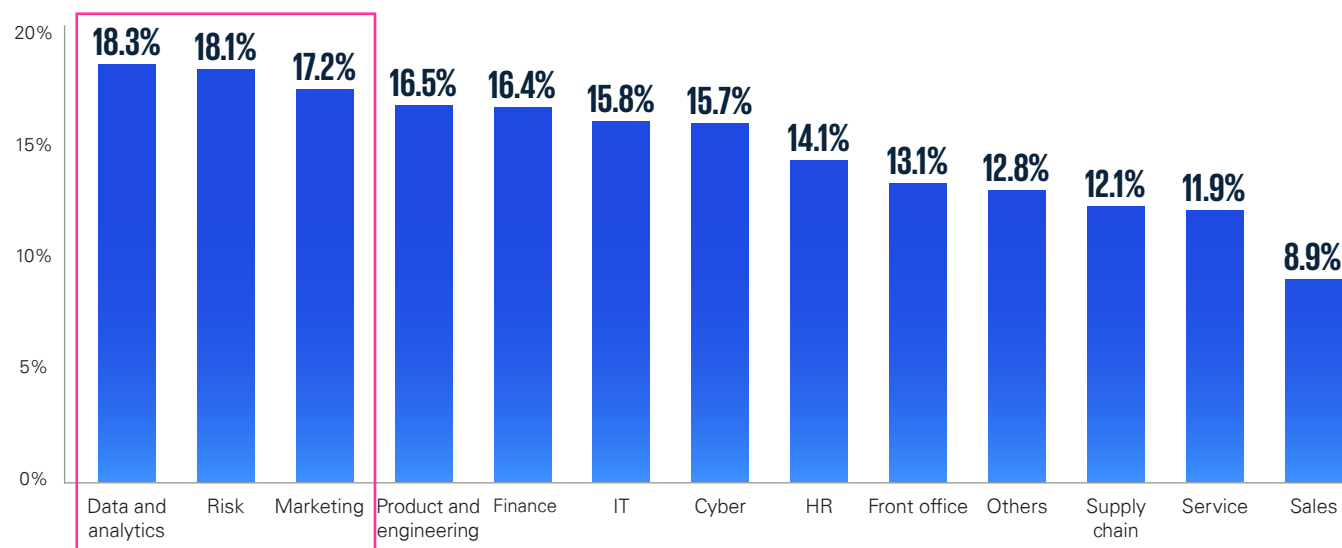
For many A&D organizations, the central failure point isn't insufficient headcount—it's leaders lacking clear visibility into skills and availability when they make decisions. When organizations lack clear visibility into skills and clearances, proposal and delivery teams pursue and win contracts without confirming that the right talent is available, driving duplicate staffing, bench time between assignments, and costly external labor. Those delays increase proposed costs by raising indirect overhead and forcing a more expensive blend of roles, making proposals less competitive and compressing margins upon award.

Ultimately, leaders make staffing and capacity decisions too late and at higher cost because they lack clear visibility into what skills they have, where those skills reside, when they will be available, and whether required clearances are in place.

Increased turnover in roles that require continuity

Rising turnover in roles that require continuity and institutional knowledge is compounding the A&D sector's looming workforce shortage. Average tenure for service roles at A&D organizations has declined from about 8.3 years in 2021 to 7.4 years in 2024, with notable drops in front office and marketing.¹⁰ Employees with AI and other digital skills are using a highly mobile job market to bid up pay, accelerating turnover in the very roles A&D companies can least afford to lose.

A&D industry – Turnover rate by function, 2019–2024



Source: Revelio Labs, accessed August 2025

¹⁰ Revelio Labs, accessed August 2025.

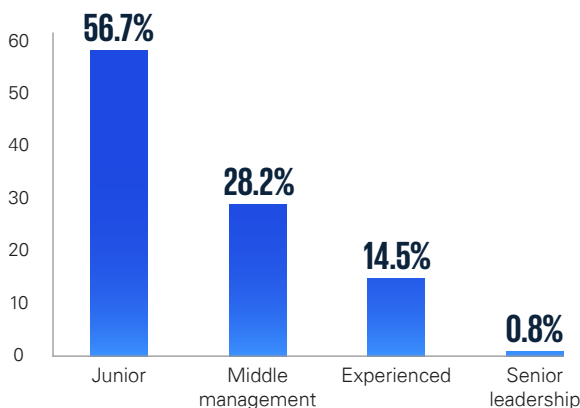
A workforce skewing junior

Hiring patterns and years of aggressive cost management have produced an increasingly junior-heavy A&D workforce by thinning middle layers of engineering, program, and supervisory roles. As demand accelerates across defense and commercial programs, and 56.7 percent of employees sit in entry-level or early-career roles,¹¹ organizations must institutionalize accelerated skill development, supervised practice, and cross-training.

Cross-training across adjacent skills offers a low-cost way to increase agility: It enables managers to reassign work and rebalance capacity within hours. However, this flexibility depends on having an always-on skills inventory, consistent competency models, and microlearning assets aligned to real tasks.

Without intervention, workforce blind spots directly drive bid risk, delay program ramps, and create sustained cost overruns. Inflated labor mixes—driven by greater reliance on senior, cleared, or external resources—and rising indirect costs weaken proposals, while clearance and hiring delays slow onboarding. These dynamics require a different approach to workforce planning, one that's centered on skills, speed, and internal mobility.

A&D workforce profile by seniority, 2025



Revelio Labs, accessed August 2025
Percentages do not add up to 100% due to rounding.

¹¹ Revelio Labs, accessed August 2025.

Workforce strategy as a cost control

Accelerating changes in industry, technology, and policy are tying cost discipline more closely to how organizations deliver work.



AI is accelerating engineering and program office work, shrinking timelines and raising the bar for software-enabled upgrades on legacy platforms.



Larger defense and commercial budgets, geopolitics, and a swelling backlog of advanced programs are driving sustained demand and complexity.



A wave of regulatory and acquisition shifts is changing how A&D companies source, comply, and price.

Tighter domestic content rules, export controls, sanctions, and cybersecurity mandates (National Institute of Standards and Technology and Cybersecurity Maturity Model Certification) are reshaping A&D sourcing strategies. As sourcing shifts toward US and allied markets, higher material costs and longer lead times are increasing program expense. Expanded use of commercial pathways and other transaction agreements, paired with tougher scrutiny of pricing, labor, and schedules, is intensifying competition in government procurement.

Shared services and AI-enabled delivery models are emerging as enablers of pricing competitiveness, helping reduce labor cost, improve throughput, and create the consistency needed for compliant bids. When integrated with program control and workforce planning, these models strengthen the link between staffing economics and contract requirements, in turn reducing reliance on expensive external labor and improving the ability to price accurately.

How to hire and redeploy your A&D workforce

Strategic workforce planning should operate at the skill level, measuring, forecasting, and rebalancing engineering and digital capacity as inventory aligns to program demand.

This blueprint for managing the modern A&D knowledge workforce centers on three interlocking moves:

Plan for skills, not roles

- Build an “always-on” skills inventory that continuously captures the proficiency, adjacent skills, clearance status, and availability across your knowledge workforce.
- Forecast demand by program and contract with scenarios tied to the bid pipeline.
- Use a detailed staffing plan or “skills bill” for each program phase, matched to clearance profiles and onboarding cadence, to anchor pricing and schedule credibility.

Prepare people and roles for AI

- Redesign certain roles for human–AI teaming so employees and AI tools work together by design. Break work into small, well-defined steps. Use the RACI matrix (responsible, accountable, consulted, informed) to define human-to-model boundaries and codify secure controls for regulated environments.
- Launch targeted upskilling in GenAI, simulation/virtual reality, MBSE, and digital quality assurance.
- Institutionalize cross-training to increase day-to-day flexibility and redeployment velocity, focusing on skill adjacencies that accelerate time to productivity.

Deliver through modern service models

- Modernize service delivery with a central Human Resources (HR) operations hub that uses AI-enabled shared services to speed recruiting, handle HR cases, track security clearances, and run learning programs.
- Integrate shared services with program control so talent redeployment is proactive, compliant, and aligned to program milestones.
- Include skills and clearance readiness on the same dashboard with cost and schedule, enabling earlier staffing decisions, reducing idle time, and cutting dependence on external labor.

Team leads can shift skills in hours rather than weeks, supported by live skills inventories and adjacency maps. Program managers staff faster with internal, clearance-ready talent, while capture and pricing teams bid with confidence anchored to real capacity. HR moves people where they’re needed and gets them productive sooner, and learning and development delivers targeted and role-based curricula. Leaders see skills and clearance readiness alongside cost and schedule in a single view, enabling earlier calls, faster cycle times, and better decisions.



The operating system for workforce execution

Turning program demand into delivery at scale requires analytics and AI-enabled tools to manage the A&D knowledge workforce. To execute a skills-based workforce strategy at scale, organizations need an operating system that connects program demand, skills data, and deployment decisions in real time. These tools inventory skills, pinpoint roles that are ready for AI augmentation, and forecast demand by program. The most AI-forward domains today are IT, product, and engineering. Software and systems engineering roles carry the greatest delivery impact and command the highest salary leverage, so they should be first in line for role redesign and targeted learning.



Core solution components include:

- **AI workforce assessment**
Perform a four- to six-week sprint to baseline current skills, map adjacent capabilities, and produce a phase-by-phase “skills bill of materials” tied to near-term bids, program milestones, and clearance status. This creates a defensible basis for staffing and pricing models.
- **GenAI role playbooks and microcurricula**
Define the human–AI task split, set guardrails for secure environments, and deliver short, role-based lessons to cut time to productivity. Playbooks show teams how to work with models using MBSE, keep engineering data connected across the lifecycle (digital thread), and use AI responsibly for coding, documentation, and analytics.
- **AI-enabled service delivery**
Stand up a shared-services hub for HR that embeds GenAI-enabled assistants and analytics to speed sourcing, track clearances, manage redeployment cases, and run learning operations, reducing reliance on external labor.
- **Engagement and retention**
Make progress visible with clear metrics, build trainer pathways, and recognize contributors, especially in roles without linear promotion tracks. Software and systems engineering, cyber, and data analytics are where demand for AI skills is rising the fastest and work must follow strict security and clearance rules.

How KPMG can help

KPMG LLP brings deep industry insight, advanced analytics, secure AI enablement, and hands-on implementation experience across HR, learning, and program operations to help A&D organizations navigate today's workforce challenges. Our global network—supported by thousands of professionals and strong relationships with leading A&D companies—allows us to rapidly assess needs and tailor solutions. Our approach integrates AI-enabled workforce transformation, skills analysis, and strategic workforce planning to reduce talent risk, boost productivity, and sustain competitive advantage. Support includes:



AI workforce assessment

Identifies AI-adjacent roles, baselines current capabilities, and pinpoints where augmentation can immediately improve productivity and readiness



GenAI workforce transformation

Redesigns work with human–AI teaming in mind—defining new role structures, workflows, and governance for secure, scalable AI adoption



Digital learning and skills acceleration

Deploys targeted upskilling and reskilling programs in GenAI, robotics, digital engineering, and advanced manufacturing to close critical skill gaps fast



Digital workforce experience transformation

Implements integrated workforce technologies that streamline work, enhance productivity, and improve employee experience across the talent lifecycle



Global HR operating model transformation

Modernizes HR through AI-enabled shared services, intelligent case management, and automated clearance and staffing workflows



Change management and adoption support

Guides organizations through complex workforce shifts with high-engagement change strategies that accelerate adoption of new tools and ways of working



Regulatory compliance and workforce strategy

Navigates sourcing shifts, export controls, and evolving policy environments while aligning workforce planning to regulatory and supply chain realities

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