



Artificial Intelligence in Aerospace and Defense

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Executive Summary

The aerospace and defense (A&D) industry is facing multiple concurrent challenges as it looks to the future. Limited capital availability is challenging organizations to build manufacturing capacity and meet growing and changing customer demands. Meanwhile, information technology (IT) and operational technology (OT) assets have significant technical debt, and the deployment of newly emergent capabilities requires deep expertise and new infrastructure. At the same time, workforce development remains an issue; industry is struggling to develop its workforce to meet shop floor and engineering needs as employee tenure decreases and job complexity increases. Institutional knowledge is leaving the industry, while hiring and training new talent is costly and time intensive.

This report, titled “Artificial Intelligence in Aerospace and Defense” and developed by the Aerospace Industries Association (AIA) and Accenture, offers an in-depth analysis of industry expert insights on how automation and artificial intelligence (AI) can help tackle these challenges in the A&D industry. Successful strategies include:

- Building a strong digital foundation
- Embedding AI into operational processes at scale
- Establishing an AI-ready workforce

Automation and AI have already proven successful in optimizing critical processes, extending the lifespan of existing assets by anticipating failures before they occur and reducing costly downtime. Ever increasingly intelligent forms of AI will accelerate design, modeling, and prototyping, allowing for faster, more cost-effective development of next-generation aircraft, ships, and autonomous systems.

Work is well underway across the A&D industry to move beyond experimenting with AI and to embed the technology at the core of enterprise operations. No matter where they may be on their journeys, companies can take strategic, foundational steps now to address current and emerging needs and drive new business value. At an industry level, these actions are powerful approaches that organizations can leverage to create capable workforces, accelerate IT and OT modernization, and increase the efficiency of existing assets to deliver increased manufacturing capacity.

Stretched industry capacity, strained operations

The A&D industry is facing significant capacity challenges hindering its ability to meet soaring demand. Commercial aerospace alone has a global backlog of 17,000 aircraft, nearly 80% of which are narrowbodies.¹ Both commercial aviation and defense contractors are trying to ramp up production, but as one senior industry executive noted, even major manufacturers are “struggling to meet demand” amid a post-pandemic surge. Additional challenges like supply chain bottlenecks and technical debt are leading executives to seek alternative technology solutions to improve process efficiency. However, despite some progress towards digitalization, A&D companies cannot simply spend their way out of trouble. As some executives have bluntly stated, there just “isn’t enough money” to do that. Talent challenges and rising turnover rates have further exacerbated the issue. Replacing and training new workers fast enough is a serious concern and will be essential as skill needs evolve toward software and automation.

Leveling up AI and automation to meet the moment

To address these challenges, A&D companies must leverage a step change increase in AI and automation. As one expert mentioned, “AI is really a huge umbrella of different technologies that automate and bring varying degrees of agency relative to humans who are using it...It is any number of things that enable machines with more human-like thought.”

Technology has progressed from predictive analytics to machine learning, then to Generative Pretrained Transformers (GPTs), and now to agentic systems. Each step in this evolution has enabled more autonomous and adaptive decision-making. Today, agentic architectures, which orchestrate AI agents and automatically adapt to changing conditions with minimal human interaction, are evolving to support things like autonomous supply chain.

The figure below (Figure 1) shows the AI continuum from automation to Agentic AI A&D companies have used automation and AI for decades in areas like mission systems and predictive analytics.²
















Diagnostic		Predictive	Generative	Agentic
Why did this happen?	What might happen in the future?	What should we do next?	How can AI help with the execution?	How can AI step in?
 Analyze	 Pattern	 Simulate	 Advise	 Operates independently
 Scenario	 Forecast	 Optimize	 Create	 Autonomous
 Segment	 Model	 Recommend	 Automate	 Explainable
Manufacturing RCCA Analysis	Engine Health Monitoring	Delivery Risk or Production Scenario Analysis	Generative AI Engineering Assistant	Multi-Agent Solutions Reinventing Processes

Figure 1: The Analytics Continuum

Generative AI is gaining momentum within the A&D industry: 76% of A&D organizations see greater business potential based on their experience over the past year alone.³ Looking ahead, 87% of industry respondents plan to increase Generative AI investment in 2025, highlighting its strategic value and the urgency to keep pace with rapid technological change.³ Nearly 75% of industry executives expect AI-driven automation to significantly improve operations in the next few years.⁴

AI and automation are already delivering tangible value across aerospace enterprises. For example, one A&D company deployed a Generative AI assistant to help aircraft mechanics diagnose and resolve issues faster, bridging the knowledge gap between retiring senior technicians and incoming junior staff. By capturing expert know-how and making it accessible on demand, the Generative AI capability accelerates repairs while training the next generation of workers. Meanwhile, engineers are using AI-powered software to detect design flaws early and streamline production, boosting both quality and throughput. Other A&D companies are introducing AI “co-pilots” across engineering, operations and manufacturing functions, giving employees faster access to data, automating routine tasks, and improving productivity.⁵

To scale these benefits and address industry-wide constraints such as production bottlenecks, legacy systems, and talent shortages, A&D companies should focus on three strategic actions.

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1 Build a strong digital foundation

Overview

Growing demand for increased production capacity and the urgent need to modernize aging technology infrastructure are challenges that cannot be solved with incremental improvements alone. Addressing these demands requires a strong digital foundation, one designed and flexible enough to enable AI-ready data, agentic architectures, and the untapped potential already embedded in existing systems.

1.1 Successful AI begins with AI-ready data and strong governance

To scale AI effectively, A&D companies must first modernize their data foundation. This means breaking down silos and building unified data architectures that span engineering, manufacturing, and operations. For example, one engine manufacturer company is digitizing historical records and creating a centralized data lake to give engineers consistent, high-quality inputs for AI models.

Building a strong data foundation, with the appropriate data security and controls, is a critical step in the AI journey. This involves ensuring employees can seamlessly access data while understanding the type of information needed to execute their activities - protecting not only the employee, but the overall organization. Additional data-related compliance activities include establishing the appropriate data archive and retention strategies, all captured within a strong data governance approach.

Security and privacy protections are essential to scaling AI, particularly GPTs, across the enterprise. These concerns should be addressed early during application testing and adoption. Many concerns center on scenarios where large language models (LLMs) inadvertently expose sensitive data or intellectual property, especially when users feed proprietary information into public AI tools that are vulnerable to malicious attacks such as prompt injection (hacking directly into prompt language). In response, companies are enhancing security by building on existing IT security frameworks, maintaining human oversight, and strengthening embedded protections in trusted technology and cloud platforms. As one aerospace executive explained, “We’ve blocked external LLMs and ensure all AI usage happens within a secure environment,” emphasizing the need to prevent unvetted tools from handling sensitive information. Other companies are navigating complex global regulations by embedding security and governance standards and zero-trust principles across AI deployments.

Equally important is establishing responsible AI practices. Rolls-Royce has developed the Aletheia Framework™, a 32-step framework for ethical AI use, now a reference point in the industry. The framework reviews models for bias, validating outputs with subject matter experts and securing systems against cyber threats.⁵ Regulatory alignment is also essential. A&D companies are collaborating with the Federal Aviation Administration (FAA), the European Union Aviation Safety Agency (EASA), and other defense authorities to define certification paths for AI in aircraft and defense systems. As one executive put it, meeting aviation's rigorous safety standards is "the next hill to take."⁶

For business leaders, responsible AI is both a risk management imperative and a trust enabler. Embedding responsible AI practices and ethics into the development lifecycle helps prevent accidents, protect reputation, and increasingly, secure contracts. The foundation of successful AI integration in aerospace begins with robust enterprise-level governance, whether through dedicated AI ethics boards or Centers of Excellence, to provide strategic direction and accountability. These structures anchor AI initiatives, ensuring alignment with regulatory, ethical, and safety standards. Without an enterprise-level governance team to reinforce these standards, organizations risk mismanaging machine learning efforts, leading to setbacks that could stall innovation and compromise industry progress.

1.2 Leverage and extend existing capabilities

Building a strong digital foundation doesn't require starting from scratch. Fortunately, A&D companies can leverage existing AI capabilities already embedded in their systems. Many enterprise software solutions, such as product lifecycle management, enterprise resource planning, and simulation tools, already include or are rapidly adding AI capabilities. These can also be extended with orchestration layers that sit on top of core systems to enhance user interaction, particularly for technical roles such as engineers. Internally, organizations should also inventory AI-related projects and solutions that were previously developed in silos. For instance, a predictive algorithm designed to optimize inventory in one division, such as those found in engine maintenance programs, could be adapted and applied across the broader organization. One defense company encourages such cross-pollination by having engineers share AI tools built in one program with others.⁷

Business leaders should ask: "What AI or automation do we already use, and how can we scale it?" That could mean expanding a successful pilot across multiple factories or upgrading a rules-based system with a machine learning model. Another approach is deepening vendor partnerships to deploy advanced AI modules, like digital twins or supply chain optimization tools.

While maximizing existing investments can accelerate return on investment (ROI), integration remains a challenge. Legacy systems may often require updates, and employees may need support to adopt new workflows. Still, extending current capabilities is typically more cost effective than starting from scratch.

To deliver real value, A&D companies are focusing on use cases with clear, measurable business impact. The figure below (Figure 2) includes examples across the value chain.





	 Design and Engineering	 Supply Chain Optimization	 Predictive Maintenance	 Quality & Yield Improvement
Use Case	Through AI-assisted design tools and simulation accelerators, algorithms can propose lighter or more efficient components and AI can run faster simulations	AI forecasts for demand and supply, dynamic scheduling and risk detection help avoid delays on large programs	Using AI to predict equipment failures before they occur, reducing downtime and maintenance costs	AI computer vision and analytics in manufacturing detects defects or optimize production processes
Business Outcomes	Faster R&D cycles and better-performing products	Predicting a potential parts shortage months ahead allows mitigation, keeping production on track	Leveraging AI-driven digital twins to optimize maintenance intervals, saving airlines millions by preventing disruptions	Using AI-powered inspection (with cameras and drones) to identify aircraft assembly issues faster than manual methods, improving quality and throughput

Figure 2: Building on AI Capabilities for Business Impact

AI use cases, when driven by a tangible value case that delivers ROI rather than tech novelty, translate into cost savings, revenue enhancements and risk reduction.

2 Embed AI into operational processes at scale

To scale AI across the enterprise, A&D companies must move beyond isolated pilots and embed AI into core business processes. As of January 2025, 60% of executives expect their Generative AI solutions to be scaled across the organization, which is up from 36% in 2024. Building scaled solutions requires thoughtful decisions on operating models, governance and standardization, striking the right balance between centralized coordination and domain-specific agility.

2.1 Centralized vs. distributed operating models

A key decision is whether to centralize AI capabilities or distribute them across business units. Centralized models, often built around an AI Center of Excellence, enable consistent governance, shared tools, and company-wide knowledge transfer. For example, one A&D company created a central AI council to align architecture and strategy while empowering business units to lead execution.⁸ This approach avoids silos by ensuring visibility into AI initiatives across the enterprise, achieving commonality where it makes sense and autonomy where necessary. A defense integrator similarly formed a central AI specialist group to set standards, distill best practices, manage risk, and maintain visibility.⁹

However, the diverse needs of A&D business units often require local autonomy. This is similar for platform providers serving the industry. One large platform provider emphasized a balanced approach, with a central IT group governing AI policy while domain experts within business segments drive product-focused deployments. Another engine manufacturer follows a top-down strategy combined with local AI leads, allowing flexibility in selecting use cases while adhering to enterprise-wide governance.¹⁰

Industry interviews indicate that most organizations are adopting hybrid models that balance security, resilience, Responsible AI, and cost-effectiveness with operational agility. Smaller companies may embed a few AI specialists directly in projects, while larger companies invest in centralized governance bodies.¹¹ The goal is the same: to unify core AI practices, ensuring compliance and quality, while allowing enough decentralization to meet mission-specific needs.

“We focus a lot on what we call the ‘well-architected principles’, which are design conditions that we try to meet: good security, high availability, redundancy, fault tolerance, and cost-effectiveness. When we work with customers, we try to apply those principles.”

– Platform provider executive to the aerospace industry

2.2 Standardization or customization

Alongside operating models, A&D companies must determine how much to standardize AI tools and workflows. Common platforms and frameworks can reduce duplication, speed development, and simplify governance. Many interviewees stressed the value of a sanctioned set of AI tools, including data platforms and processes, from data cleaning scripts to machine learning frameworks. One A&D technology company published a vetted list of approved tools, ensuring teams start with a “common language” rather than each duplicating existing work. At the corporate level, it created “communities of interest” to share techniques and converge on preferred tools and practices.

Though these conversations clearly demonstrated that some level of standardization is critical to avoid chaos, too much can limit flexibility. One senior executive noted that a purely centralized, one-size-fits-all approach doesn’t work well for those with varying requirements.¹² Leading companies find middle ground—standardizing the foundation (data definitions, cloud platforms, security protocols) while allowing customization at the project level. As one senior executive emphasized, “success lies in navigating the trade-off between strong governance and preserving innovation.”¹³ Rather than enforcing a rigid, centralized AI model, another aerospace company empowers individual business units to lead their own AI initiatives, while fostering collaboration through shared learnings and a unified architectural framework.¹⁴

Preventing fragmentation through visibility and reuse is essential. One engine manufacturer’s internal governance board requires documentation for experimental AI projects. An industry platform provider advised companies to maintain centralized project catalogs to track initiatives and avoid redundant or incompatible efforts.¹⁵ Standard process frameworks like common stage-gates in AI model development and code review requirements further ensure consistent quality across teams.

2.3 Moving from pilot to production

Despite widespread experimentation, many A&D companies struggle to convert promising pilots into production-grade solutions. Interview insights suggest several practices to bridge the “pilot purgatory” gap and operationalize AI for real business impact (Figure 3).¹⁶

“2023 was a year of experimentation, 2024 was pilot, 2025 is production”

—Aerospace senior executive



Figure 3: Elements for Accelerating Pilot Adoption

Too often, pilots fail to progress because they are overly isolated, lack a strong business case, or are treated as one-off experiments rather than the foundation of future products. As one aerospace executive noted, enterprise-wide adoption stalls when AI is siloed within functional areas, rather than being architected with end-state goals and cross-functional value in mind. The absence of proper guardrails, scale-readiness, or senior sponsorship can all lead to well-intended pilots stalling before they reach a broader impact.

2.4 Measuring outcomes

Bridging the gap between AI experimentation and scale also requires clear metrics and repeatable practices. Companies must measure what matters, utilize leading indicators when key performance indicators (KPIs) are immature, and embed AI into existing performance frameworks.

Early AI efforts often focus on technical metrics, such as accuracy, computational efficiency, and system reliability, but companies are now evolving toward business KPIs and value capture capabilities, tracking metrics such as time saved, throughput gains, or cost reduction. One technology company evaluates “planned vs. realized value” by measuring how AI eliminates major engineering time wasters. Others link AI projects to contract win probability or operational ROI.¹⁷

In early stages, some teams track anecdotal evidence, such as an engineer reducing a week of coding to an afternoon or using an AI assistant. These insights, while qualitative, help build the case for AI while formal measurement systems develop.

Finally, several companies integrate AI initiatives into broader operational excellence programs, applying standard KPIs like units per hour or defect rates to track AI's impact.¹⁸

The bottom line? To operationalize AI at scale, A&D companies should adopt a hybrid model that combines centralized governance with localized execution, supported by standardized tools, responsible AI practices, and business-aligned KPIs. This approach ensures both control and adaptability, essential in an industry where safety, performance, and innovation must go hand in hand.

3 Establish an AI-ready workforce

As institutional knowledge departs industry, the urgency to secure and develop new sources of talent is intensifying and will continue to shift towards automation and AI acumen. Companies are ramping up recruiting and upskilling efforts to establish a more tech-forward workforce, but executives believe the demand for AI talent exceeds the supply.¹⁹

However, hiring AI-skilled professionals is both costly and competitive; while reskilling existing employees requires deliberate strategy and sustained investment. The challenge for A&D leaders is that while AI can be tested and adopted at current talent levels, scaling will be difficult. To stay ahead, the industry must take a dual-track approach: attracting top AI talent and equipping their current workforce to thrive alongside emerging technologies.

3.1 Attract and hire the right AI talent

According to a recent industry survey, 98% of aerospace organizations are revising their talent strategies to accommodate AI, acknowledging that securing the right talent is the first step toward building an AI-ready workforce.⁴

Intense competition for AI-skilled professionals requires creative strategies to attract top talent. Traditional A&D players are expanding recruitment efforts by recruiting data scientists, machine learning engineers, and automation specialists. Tactics include offering targeted incentives, such as referral bonuses for AI hires and forging partnerships with universities, research labs, and tech hubs to tap into emerging talent pools. Highlighting innovative roles in autonomous flight and predictive maintenance rather than positioning themselves as “legacy” manufacturers can help A&D companies attract forward-thinking candidates.

Beyond recruitment, defining clear AI roles and career paths demonstrates long-term investment in AI talent. Many A&D companies have established Chief AI Officers, AI team leads, and dedicated data science units to drive AI strategy and shape AI adoption beyond technical implementation.²⁰ However, AI transformation does not merely mean adopting tools and recruiting talent, it also means reconsidering the very nature of business processes – understanding traditional processes, why they exist as they do, and reimagining them with AI.

3.2 Reskill the current workforce

Attracting new talent is essential, but equally important is empowering existing employees with automation and AI skills. Nearly half of A&D organizations have trained more than 60% of their employees on Generative AI tools, reflecting a broad industry push for upskilling.²¹ The aerospace workforce is rich in domain expertise such as engineering, operations, and maintenance, and combining that know-how with AI literacy is a powerful formula. Companies are launching extensive training programs to teach AI basics, data analytics, and tool-specific skills to their staff at scale. Many have established internal “AI academies,” offered online courses, or partnered with educators to certify employees in areas such as machine learning.²²

According to industry respondents, best practices include identifying tech-savvy individuals in each department to become “AI champions” and providing them with advanced training, support, and the appropriate tools and platforms. Some A&D companies run competency and credentialing programs to continuously elevate the skills of engineers and analysts in AI techniques. Others promote cross-functional learning by rotating traditional engineers into data science teams and vice versa, fostering hybrid skill sets.²³ The goal is to create a workforce in which AI isn’t confined to a small expert group but is a skill across the organization. This approach not only fills the talent gap from within but also boosts morale by investing in employees’ growth.

3.3 Maintain human oversight (human-in-the-loop)

An AI-ready workforce isn’t one that is replaced by AI, but one that works alongside it. On average, Generative AI has the potential to impact 53% of all hours worked by employees in functional roles within the A&D industry. Of this, 28% of the time is susceptible to automation, while 26% could be augmented, indicating that a significant portion of workers’ tasks may be transformed by Generative AI.²⁴ However, even as large language models mature, humans will remain essential for the foreseeable future. A&D companies are embedding human-in-the-loop controls into all AI deployments to ensure employees remain central to critical decisions. For example, AI may recommend a design change, but a certified engineer must approve it before implementation. As one aerospace executive noted, “We manage those systems with humans in the loop, not just letting these things run free.”²¹

This model enhances decision-making, builds trust, and reinforces employees’ value alongside emerging technologies. As systems prove their reliability, some may gain limited autonomy, such as predictive algorithms auto-adjusting processes within set boundaries, but robust oversight and fail-safes will remain. Human-in-the-loop is both a safety philosophy and a change management strategy, ensuring responsible integration and collaborative adoption.

3.4 Install a culture of AI and innovation

To build an AI-ready culture, leaders must strike a balance between hype and fear by setting realistic expectations and communicating transparently. Many A&D companies are framing this moment as a learning phase, emphasizing incremental wins and positioning AI as a tool that will handle tedious tasks and free people for higher-value work.

“We need to be in a position where we are not just catching up to AI advancements, but setting the pace in aerospace and defense. That requires structured governance, but also an agile innovation mindset.”

– Aerospace senior executive

Fostering innovation involves top-down vision and bottom-up initiative. Leaders should clearly define how AI will shape the company’s future, embedding AI objectives into strategy and values. Progressive A&D organizations encourage cross-functional teams to pilot AI ideas and then share successful innovations across the enterprise, often through an AI center of excellence.

3.5 Foster continuous learning and engagement

Eighty percent of A&D professionals express a positive outlook on AI’s business potential, with many investing personal time each week to learn it—an encouraging sign of strong engagement.²⁵ Yet as AI technologies evolve rapidly, with new algorithms, tools, and paradigms emerging every few months, keeping the workforce engaged and up to date requires continuous effort.

The most effective companies make learning a constant priority, offering regular training updates, workshops, and access to online courses. They also keep employees informed about new AI capabilities being evaluated or deployed, including opportunities for involvement. Some organizations use internal newsletters or tech-focused communities to fuel curiosity. Listening and responding to employee feedback, whether addressing tool frustrations or change anxiety, is equally important. By treating employees as partners in the AI journey and supporting them along the way, companies foster higher engagement, greater adaptability, and faster progress toward AI maturity.

4 Implementing the next-generation vision

Now

The A&D industry stands at an inflection point. Faced with backlogged demand, strained production capacity, outdated systems, and widening talent gaps, leaders are increasingly turning to AI, not just as a lever for optimization, but as a catalyst for reinvention. The shift from isolated experimentation to enterprise-scale adoption is well underway.

Companies across the sector are laying the groundwork for transformation by investing in the infrastructure, skills, and governance needed to embed AI across the enterprise. These efforts go beyond deploying standalone tools, they reflect a growing recognition that AI must become a foundational element of future operations.

Next

In the longer term, the potential of AI, particularly generative and agentic systems, extends far beyond efficiency gains. These technologies are poised to fundamentally change A&D operations. Processes that operate independently today like inventory, demand, and supply planning can be unified into intelligent, continuously optimized systems and processes. Rather than inserting AI into legacy workflows, companies are beginning to reimagine entire value streams through adopting agentic architectures, asking how AI/Generative AI can eliminate bottlenecks, collapse silos, and streamline low-value activities.

This reinvention journey marks a shift from incremental process optimization to holistic business reinvention. But rethinking work isn't just a technical challenge. It requires alignment across the broader A&D ecosystem. Many industry processes are safety-critical or subject to strict regulatory oversight, meaning that internal transformation must be matched by external coordination, all done with a responsible AI mindset.

To that end, companies are engaging early with customers, suppliers, and regulators to shape shared data standards, ensure transparency, and demonstrate traceability in AI-enabled systems. Today's proofs of value offer more than operational benefits, they provide practical lessons that can inform the policies and safeguards needed to scale AI responsibly across the industry.

5 Appendix

Research Methodology

This report is based on insights gathered from 25 senior executives within the aerospace and defense ecosystem, including original equipment manufacturers (OEMs), Tier 1 suppliers, defense contractors, engineering service providers, and enterprise software companies. Our interviewees, ranging from C-suite leaders to AI strategists and operational decision-makers, offered firsthand perspectives on the opportunities and challenges of AI adoption in the industry. These discussions focused on four key areas: Strategic Plans—AI Adoption & Business Impact, Operating Model & Organizational Impact, AI, Generative AI, Digital Foundation, & Responsible AI (RAI), and Talent & Skills—Building an AI-Ready Workforce. Their insights shaped the core of this report, providing a nuanced understanding of how organizations are integrating AI into their business models, operations, and workforce strategies.

To complement these qualitative findings, we incorporated recent Accenture industry research and market analyses to ground insights into broader industry trends, such as the Accenture 2025 Technology Vision and CXO Pulse Survey. AI-powered tools such as Copilot and ChatGPT Deep Research played a key role in this process, helping to transcribe interviews, summarize key themes, refine insights, and enhance clarity. By integrating executive perspectives, market research, and AI-driven analysis, this report delivers a comprehensive view of AI adoption and readiness within the aerospace and defense industry.

Endnotes

¹Supply Chain Issues Continue to Negatively Impact Airline Performance into 2025, IATA, 2024

²Accenture Technology Vision, 2025

³Accenture CXO Pulse Survey, 2025

⁴AIA-Accenture Research, Executive Interviews

⁵The Alethia Framework, Rolls-Royce

⁶AIA-Accenture Research, Executive Interviews

⁷AIA-Accenture Research, Executive Interviews

⁸AIA-Accenture Research, Executive Interviews

⁹AIA-Accenture Research, Executive Interviews

¹⁰AIA-Accenture Research, Executive Interviews

¹¹AIA-Accenture Research, Executive Interviews

¹²AIA-Accenture Research, Executive Interviews

¹³AIA-Accenture Research, Executive Interviews

¹⁴AIA-Accenture Research, Executive Interviews

¹⁵AIA-Accenture Research, Executive Interviews

¹⁶AIA-Accenture Research, Executive Interviews

¹⁷AIA-Accenture Research, Executive Interviews

¹⁸AIA-Accenture Research, Executive Interviews

¹⁹AIA-Accenture Research, Executive Interviews

²⁰AIA-Accenture Research, Executive Interviews

²¹Accenture CXO Pulse Survey, 2024

²²AIA-Accenture Research, Executive Interviews

²³AIA-Accenture Research, Executive Interviews

²⁴Work, Workforce, Workers Research Program, Accenture Research, 2022

²⁵Accenture EMP Pulse of Change Survey, 2025