



AEROSPACE AND DEFENSE

The AI-First Aerospace and Defense Company

By [Adi Zolotoy](#), [Kelly Grout](#), and [Lacy Ketzner](#)

ARTICLE APRIL 23, 2026 3 MIN READ

The aerospace and defense industry is under increasing pressure to unlock value from AI, yet progress has been uneven. While many initiatives remain stuck in pilot mode, a smaller group of companies is already scaling AI to drive meaningful, transformative impact. What sets these leaders apart?

The difference isn't technological—it's strategic. The companies pulling ahead are taking a deliberate, enterprise-wide approach, using AI to address systemic challenges across core operations like engineering and manufacturing, rather than pursuing isolated use cases.

In an industry defined by tight margins and delivery pressure, advantage will shift to players that can consistently hit cost, schedule, and quality target. AI is emerging as a critical enabler of that step change.

AI in Action in Aerospace and Defense

The defense AI landscape is evolving within a distinct set of structural constraints, ranging from security, sovereignty, and oversight requirements to the need for strict operational control. At the same time, internal challenges such as embedded risk aversion, fragmented data and talent, and legacy, capex-heavy cost structures continue to slow experimentation and increase implementation complexity. It's no surprise, then, that in a recent BCG survey, fewer than 10% of CEOs said they were very confident in AI's ability to deliver clear ROI.

Breaking through requires more than incremental progress. It means making AI a top management priority—with the C-suite setting clear direction on where to focus, how to integrate the technology into core operations, and how to scale what works. The companies getting this right are already applying AI to some of their most critical operational challenges:

- A naval equipment manufacturer facing persistent production delays as a result of late materials deliveries implemented an AI-enabled supplier risk management toolkit. By predicting late deliveries and enabling early intervention on critical components, the company improved on-time delivery by 45%.
- A global shipbuilder struggling with technical complexity and frequent design changes equipped its engineering teams with AI agents for planning and simulation. By capturing outputs into a “digital memory” for reuse, the company reduced engineering effort by 40% and cut lead times by 75%.
- An airframe maintenance, repair, and overhaul (MRO) contractor facing delays and inconsistent defect recognition—driven by reliance on tribal knowledge and manual documentation—integrated AI tools directly into daily workflows. A maintenance copilot now retrieves historical insights, supports failure diagnosis, and provides step-by-step repair guidance, reducing the time technicians spend on search and administrative tasks by around 40%.

A Strategy That Reflects Reality

Turning AI ambition into real performance impact requires a pragmatic, focused approach from the C-suite.

First, it means combining different ways of applying AI—using proven solutions where they work, redesigning workflows where needed, and selectively building new capabilities when they create real advantage. Second is setting a clear direction and breaking it down into a sequence of practical, achievable steps. Third is focusing investment on areas that truly matter—where AI can drive measurable impact on cost, speed, or quality. And finally, building the right delivery model is critical: developing certain capabilities in-house, leveraging partners where they accelerate progress, and upskilling teams in ways that reflect industry realities.

Done well, this moves organizations beyond simply layering AI onto existing processes and into reshaping how work gets done. This is where meaningful value starts to emerge.

Over time, the biggest gains will come from going further still: rethinking operating models altogether. For example, leaders are beginning to explore integrated, secure digital ecosystems that connect customers and suppliers, enabling step changes in collaboration, coordination, and data sharing.

Starting an AI rethink

Despite a slow and uneven start, AI is poised to drive structural change across the industry. Over the next decade, advantage will increasingly shift to suppliers that can execute programs faster, more reliably, and at lower cost—and AI is a key enabler of all three. Companies that embed AI into how they operate, not just what they build, will define the next generation of industry leaders.

[DOWNLOAD THE SLIDE DECK](#) 

Authors



Adi Zolotov

Managing Director & Partner,
Global Lead BCG X AI Science
Institute
Washington, DC



Kelly Grout

Principal
Minneapolis



Lacy Ketzner

Managing Director & Senior
Partner
Philadelphia



ABOUT BOSTON CONSULTING GROUP

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we work closely with clients to embrace a transformational approach aimed at benefiting all stakeholders—empowering organizations to grow, build sustainable competitive advantage, and drive positive societal impact.

Our diverse, global teams bring deep industry and functional expertise and a range of perspectives that question the status quo and spark change. BCG delivers solutions through leading-edge management consulting, technology and design, and corporate and digital ventures. We work in a uniquely collaborative model across the firm and throughout all levels of the client organization, fueled by the goal of helping our clients thrive and enabling them to make the world a better place.

© Boston Consulting Group 2026. All rights reserved.

For information or permission to reprint, please contact BCG at permissions@bcg.com. To find the latest BCG content and register to receive e-alerts on this topic or others, please visit bcg.com. Follow Boston Consulting Group on [Facebook](#) and [X \(formerly Twitter\)](#).

