



5 Reasons Digital Transformations Fail in Aerospace and Defense

About 3 percent of digital transformation initiatives in the aerospace and defense (A&D) industry succeed.¹ This low success rate is troubling, considering the positive impact such efforts have across other business sectors.

According to the MIT Center for Information Systems Research, companies that substantially complete digital transformations have profit margins 16 percentage points higher on average than their industry overall.² This statistic is not surprising when you look at the benefits of moving from disconnected data sets to a unified data thread that feeds applications in all functions across the product life cycle: cost savings, higher productivity, and innovation for growth.

So why are so many A&D companies failing to meet their digital transformation goals and reap these benefits? The answer isn't always straightforward. If efforts to evolve your company digitally haven't panned out, the list below can help you identify and address the root cause(s) that may be preventing you from succeeding.

¹ Bain & Co.
² "Four pathways to 'Future Ready' that pay off." The European Business Review, <https://www.europeanbusinessreview.com/four-pathways-to-future-read-that-pay-off/>

1. Crippling fear of a cybersecurity breach

A&D industry executives surveyed by Deloitte cited cyber risks and data ownership as the most common technical challenges their organizations face in digital transformation initiatives,³ and it's easy to understand why. Due to the highly confidential nature of the industry, A&D companies have historically limited availability to any data deemed sensitive by restricting, or altogether blocking, access to other networked systems. While isolating these systems may prevent nefarious agents from gaining access to the data, it also limits a company's ability to leverage that data for other purposes.

In A&D, it's particularly common to airgap, or put a wall around, critical systems to protect intellectual property. Isolating systems and data in this way, however, dooms digital transformation initiatives from the start, and considering how important data is to modern business models, this type of security practice cannot be considered a viable option because it risks hindering a company's long-term health.

2. Downplaying the value of test and test data

Test systems, and the data they produce, aren't always included in organizations' digital transformation initiatives because their value is often overlooked. Program managers, CTOs, directors of operations, and CEOs don't tend to view test and test data as strategically meaningful. Some think that although the test process answers a few isolated questions in specific parts of the product life cycle, it doesn't drive improvements throughout it.

Even when a company does want to include test data in its digital initiatives, using it can be tricky for several reasons:

- The data might not be easily attainable; it might be stored in siloed systems that aren't network accessible.
- Numerous and disparate file and/or data formats may exist.

- The data might not function with legacy hardware and software, making it challenging to connect with modern systems due to incompatible data formats and communication protocols.

Overcoming these difficulties isn't usually a top priority because not many people recognize the value of this information.

But test and measurement data provide real-time knowledge about products that can be applied to improve performance in different areas. For example, consider the digital twin—a fully digital model of a system that predicts how the actual version will operate in real life. Many consider digital twins as critical to design validation. Connecting this real-time product data and including it as part of a company's digital transformation initiatives offers insights that inform the entire asset life cycle, including operations downstream in the field and upstream in supply chains.

3. Setting narrow goals instead of an enterprise-wide view

Some digital transformation initiatives are narrowly focused pilots that target specific goals intended to implement predictive maintenance, speed up product development, or improve asset utilization. Engineers who focus on enhancing one process or part of a process may not realize how their contribution affects the overall business transformation. Despite their efforts, their projects have limited impact on business results and therefore don't garner much attention or support.

Although piloting is necessary and completing interim projects is crucial to the long-term success of digital transformation, projects must be aligned with business goals, such as accelerating time to market, creating unique products, increasing operational efficiency, and improving overall mission readiness. This way, there can be one digital road map in which each local project advances at a steady march toward the ultimate goal—enterprise transformation.

³ "Aerospace & Defense 4.0," Deloitte, <https://www2.deloitte.com/us/en/insights/focus/industry-4-0/aerospace-defense-companies-digital-transformation.html#moving-to-a-more-transformation>

4. Lacking staff buy-in and alignment

Digital transformation is fundamentally about using technology to achieve business goals, but it can't be done without human input.

These improvements require connecting people as well as equipment, processes, and data. What's needed is the right cross-functional team to facilitate buy-in and ensure that each

local team can collaborate with others and understand how their work connects with corporate objectives.

It's also crucial to include IT on any cross-functional team that is leading a digital transformation initiative. Operational teams tend to exclude IT from plant-floor initiatives. However, IT governs the connectivity of equipment, so its expertise is vital.

5. Underestimating the value of data

Although A&D companies practice hyper-vigilance around intellectual property and trade secrets, they often fail to recognize operational data as crucial to competitiveness. But data about product performance, asset performance, quality, and test can be leveraged in every part of the product life cycle.

Making the right data available to the right people at the right time powers the effective execution and continuous improvement of every process. However, doing this requires

taking a high-level view of how data can help the whole enterprise instead of just the group or function where it was generated.

If a project has failed or underperformed, it may be because it lacked context that existing operational data could have provided. Before spearheading or approving any digital initiatives, leaders should ask critical questions about data to be sure that all available data has been considered.

Identify the Problem and Fix It

No matter the root cause of digital transformation failure, it's not too late to reset and plan for long-term success. Review the pitfalls covered here and avoid them by aligning project goals with strategic business objectives and taking an inclusive approach to team leadership and operational data.

To learn more strategies and insights, visit our Digital Transformation page on ni.com/aerodef-digital-transformation.



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