

## DIGITAL TRANSFORMATION IN DEFENSE CANNOT WAIT UNTIL 2022

The AlixPartners A&D Minute

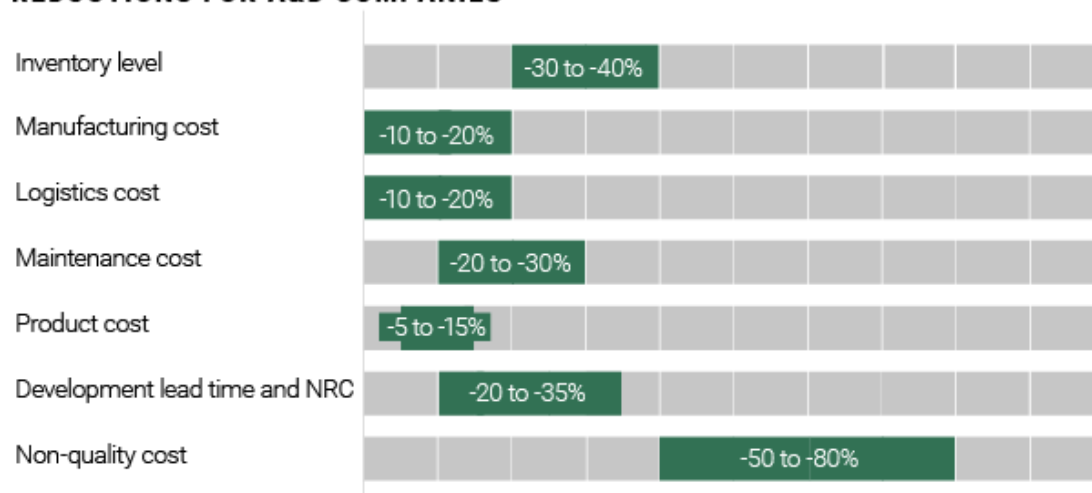
Planned reductions in the **U.S. defense budget** over the next few years mean that the Department of Defense (DoD) has been **challenged to spend less** while rebuilding military readiness. To confront this challenge, various parts of the DoD are working on making weapons systems development more agile.

The complete defense supplier ecosystem is now expected to deliver affordable, new technologies faster and maintain competitive advantage within the allocated budget, which may mean moving away from traditional cost-type contracts. The timeline for upcoming military programs is likely to be much shorter, forcing defense contractors to completely rethink their development processes. Digital transformation will be a key enabler in this scenario.

Despite a reputation for being rigid, defense companies have responded quickly over the last year to make step changes that reduced the impact of COVID-19 on their supply chain and deliveries. They must now work similarly swiftly to reap the full benefits of digital transformation: additional revenues enabled by **digital services**, operational flexibility, lower costs, optimized working capital, and increased speed-to-market.

Digitization holds the potential to unlock billions in annual value globally, making digital transformation a must to improve margins on existing programs and to be competitive on next-generation platforms. Benefits vary widely by function, by position in the defense value chain, and by transformation stage. Figure 1 shows the expected range of potential improvements, according to AlixPartners analysis.

**FIGURE 1: DIGITIZATION CAN LEAD TO SIGNIFICANT POTENTIAL COST REDUCTIONS FOR A&D COMPANIES**



Source: AlixPartners analysis

### DIGITAL FOUNDATIONS

While the disruption from COVID-19 was an unexpected catalyst for DoD suppliers to start or hasten their digital progress, A&D companies can be at risk for failing in their digital journey.

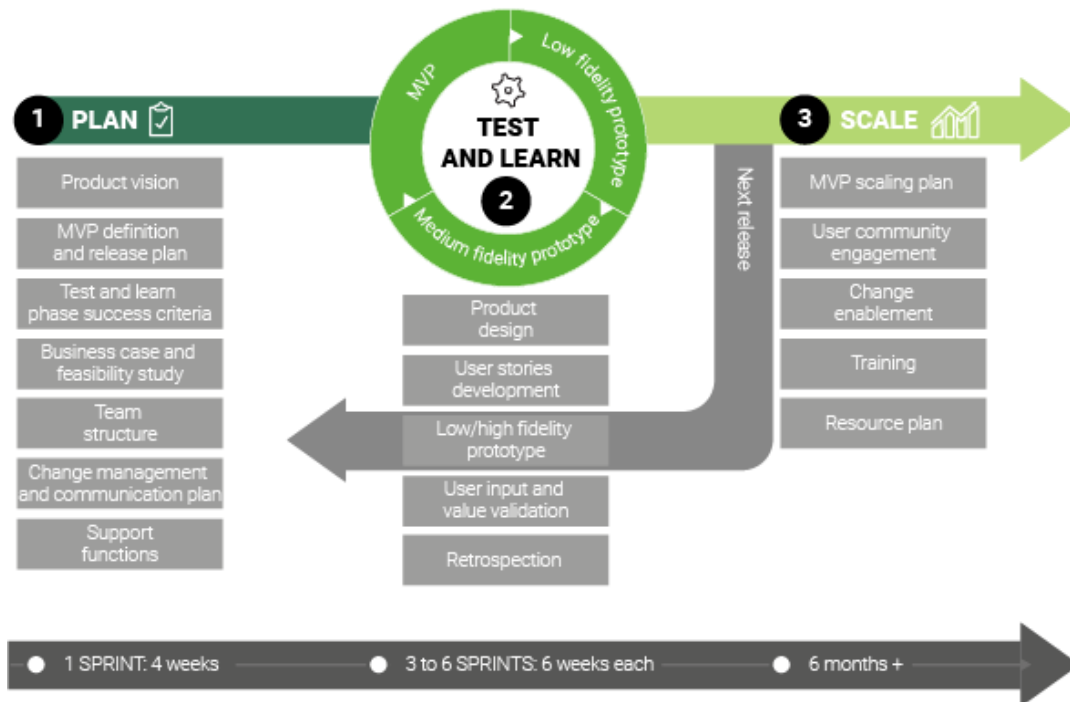
Digital transformation should be undertaken to generate value, and the sources of value need to be defined at the executive level. Improvement targets must be set and measured, and business leaders held accountable. Often, companies don't fully grasp that digital transformation is not a standalone initiative limited to one team or process but must involve the entire organization. It is not about pushing new information technology systems that still operate in functional silos. Instead, it requires fundamental rethinking of product development, production and sustainment processes, and operating models as well as the technology strategy and architecture of products.

Company leadership and management need to be believers and put digital at the core of overall corporate strategy. A key move that signals an organization's seriousness toward making a difference is appointing a chief digital officer. This can be the first step in creating necessary organizational infrastructure that ultimately leads to clear objectives, measurability, and accountability.

A&D companies can often find it challenging to shift from their traditional "failure is not an option" and "exquisite solution" paradigms to digital's "learn fast, learn often" agile mindset. The cultural changes this demands are huge but critical to attracting qualified digital talent. Competition for data scientists and software engineers is tough, as Silicon Valley is a powerful magnet. A&D companies must tailor locations, office environments, career paths, salary grids, and create flexible employment schemes to have a chance to appeal to the current and upcoming generations of digital talent.

Another paradigm shift is likely to come with the selection of the right weapons systems architecture. Rather than starting from scratch, using plug-and-play or modular building blocks drives up the level of design reuse and reduces cost, development time, and risk. An agile structure that promotes proof-of-concept design and test-and-learn cycles is essential to ensure scalability and increased speed-to-market (Figure 2).

**FIGURE 2: PoV DESIGN AND TEST-AND-LEARN CYCLES ARE KEY ELEMENTS TO ENSURE SCALABILITY**



Source: AlixPartners analysis

While many A&D players have understood the benefits of agile development, there are still challenges to pragmatic deployment and reaping full benefits. Software is leading the way, but a redesign of the engineering development process, production architecture, and a culture shift can also lead to agile development of hardware.

### HOW TO GET STARTED

To realize successful digital transformation, A&D companies must first define a scope and set specific goals built around five key value creation pillars (Figure 3).

**FIGURE 3: EXAMPLES OF SOURCES OF VALUE THROUGH DIGITIZATION AND KEY LEVERS**

VALUE CREATION PILLARS	KEY LEVERS	DIGITAL ENABLERS
<b>Business capture</b> <ul style="list-style-type: none"> <li>Boost business capture</li> <li>Explore new services and business models</li> </ul>	<ul style="list-style-type: none"> <li>Collaborative bidding: CRM, configurators</li> <li>Connected products and services</li> <li>New usage-based business models</li> <li>Big data-enabled spares and repair pricing</li> <li>Digitally enabled costing</li> </ul>	<ul style="list-style-type: none"> <li>Leadership</li> <li>Talents</li> <li>Cloud</li> <li>Big data analytics</li> <li>AI</li> <li>IoT/Connectivity</li> <li>Digital continuity</li> <li>Factory of the future/Advanced manufacturing</li> <li>Collaborative platforms</li> <li>Cybersecurity</li> </ul>
<b>Product development</b> <ul style="list-style-type: none"> <li>Complete cost breakthrough</li> <li>Reduce development time</li> </ul>	<ul style="list-style-type: none"> <li>Agile development for software and hardware</li> <li>Product architecture</li> <li>Future PLM/end-to-end digital continuity</li> <li>Factory and industrial process simulation</li> <li>Design for X, reuse, and standardization</li> <li>MBSE, off-cycle product models</li> </ul>	
<b>Manufacturing and supply chain</b> <ul style="list-style-type: none"> <li>Raise production efficiency</li> <li>Minimize production delays</li> <li>Reduce non-quality cost</li> </ul>	<ul style="list-style-type: none"> <li>Manufacturing execution systems deployment, industrial IoT, shopfloor analytics</li> <li>Factory of the future (Automation, augmented reality, 3D printing)</li> <li>Digitally enabled S&amp;OP planning</li> <li>Supply chain watch tower, supplier data integration</li> </ul>	
<b>Sustainment</b> <ul style="list-style-type: none"> <li>Boost fleet reliability, availability and mission readiness</li> <li>Reduce maintenance costs</li> </ul>	<ul style="list-style-type: none"> <li>IoT, sensors, connectivity</li> <li>Predictive maintenance</li> <li>Digitally enabled spares &amp; repair forecast</li> <li>Faster loop to manufacturing and engineering to fix in-service issues</li> <li>3D printing for spares</li> </ul>	
<b>Support functions</b> <ul style="list-style-type: none"> <li>Break functional and divisional silos</li> <li>Reduce cost/manual errors and improve visibility</li> </ul>	<ul style="list-style-type: none"> <li>Robotic process automation and digitization of support functions</li> <li>Demand forecasting using machine learning</li> <li>Real-time financial reporting</li> <li>AI for recruiting</li> </ul>	

Source: AlixPartners analysis

For each value creation pillar, business leaders must honestly answer the following key questions:

- What sources of value will be driven by the planned digital transformation?
- What benefits will be generated through each targeted source of value and by when?
- What are the key levers to achieve these goals?
- What are the digital enablers needed to support the implementation of these levers?
- How can any gaps be filled?

The next step in the journey is an assessment of the digital maturity of the organization. This should be done across ten A&D-specific tenets:

1. Clear vision and objectives
2. Quantitative targets
3. Clear timeframe
4. Common understanding of digital transformation
5. Single source of truth
6. Low functional barriers
7. Agnostic tools
8. Enhanced design to lifecycle trade capability
9. Specific deliverables and formats
10. Detailed business case for the transformation

Getting started on the right track does not require costly technology or IT investments; efficiencies of 1 to 3% can be achieved simply by leveraging existing data. The value generated by this low-hanging fruit can then be reinvested in new digital initiatives to make further progress. Defense companies that climb the ladder of digital transformation and become digitally agile will be able to position themselves as partners of choice for the DoD on future acquisition programs.

**FOR A DEEPER DISCUSSION ABOUT THE CHALLENGES AND SOLUTIONS ASSOCIATED WITH THIS TOPIC, CONTACT:**

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These are the moments when everything is on the line – a sudden shift in the market, an unexpected performance decline, a time-sensitive deal, a fork-in-the-road decision. But it's not what we do that makes a difference, it's how we do it.

Tackling situations when time is of the essence is part of our DNA – so we adopt an action-oriented approach at all times. We work in small, highly qualified teams with specific industry and functional expertise, and we operate at pace, moving quickly from analysis to implementation. We stand shoulder to shoulder with our clients until the job is done, and only measure our success in terms of the results we deliver.

Our approach enables us to help our clients confront and overcome truly future-defining challenges. We partner with you to make the right decisions and take the right actions. And we are right by your side. When it really matters.

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