



# AEROSPACE AND DEFENSE NEEDS TO DOUBLE DOWN ON DIGITAL

By Lacy Ketzner, Bill Noderer, Greg Mallory, Matt Aaronson, Nicholas Robben, and Debbie Hames

**F**OR AEROSPACE AND DEFENSE (A&D) companies, the COVID-19 crisis has served as a wake-up call in terms of digital investments. A&D has traditionally lagged behind other industries in adoption of digital, owing to long development cycles, an older workforce, and other factors. But the pandemic has led to a renewed sense of urgency.

Each year, using BCG's [Digital Acceleration Index](#) methodology, we survey senior leaders and managers at A&D organizations worldwide, including OEMs, suppliers, and maintenance, repair, and overhaul (MRO) providers. The results from this year's survey of more than 150 executives show that organizations that made digital investments before the crisis—particularly in the supply chain—generated clear value.

The current downturn represents a crucial window to focus digital investments on improving manufacturing and more dynamically managing capacity—particularly investments in supply chain control towers, robotic manufacturing technologies, and

remote-work solutions. The recovery may be several years away and could come in fits and starts, requiring a high level of flexibility and understanding. The organizations that respond fastest and with the most operational flexibility will be the ones that win market share. Forward-looking organizations are taking steps to fortify themselves and prepare—starting today.

## COVID-19 Has Been a Proving Ground for Digital

The results of our survey show clearly that more mature organizations—those that have already made investments in key digital technologies—were better equipped to mitigate disruptions from the pandemic.

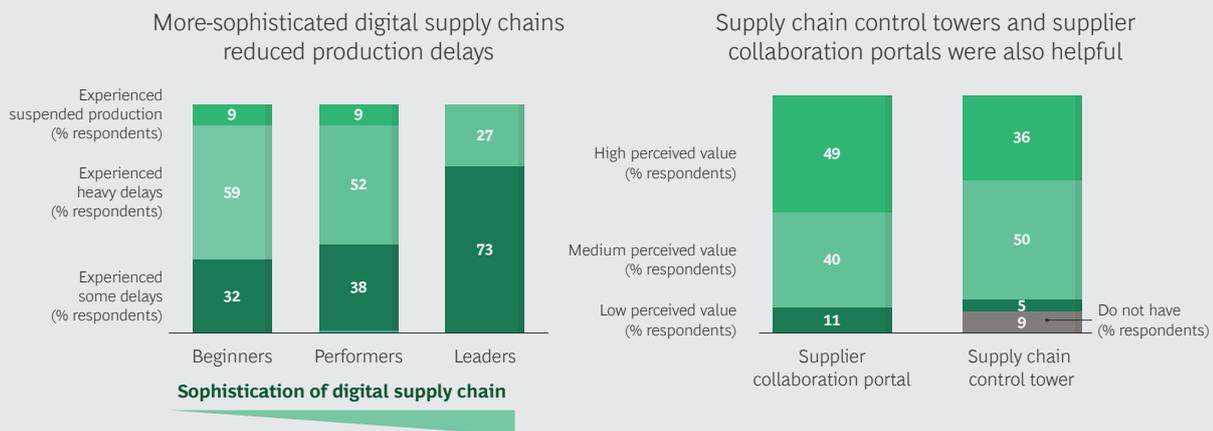
For example, as global, tightly interconnected supply chains were upended by lockdowns and transportation problems, supply chain technologies proved their worth. Companies with more visible, predictable, and flexible supply chains, typically achieved through new digital portals and machine learning, experienced fewer pro-

duction delays. And among companies with supply chain control towers or supplier collaboration portals in place, the vast majority (more than 85%) said those applications were moderately or highly valuable. (See Exhibit 1.)

Similarly, companies that are more advanced in terms of AI and machine learn-

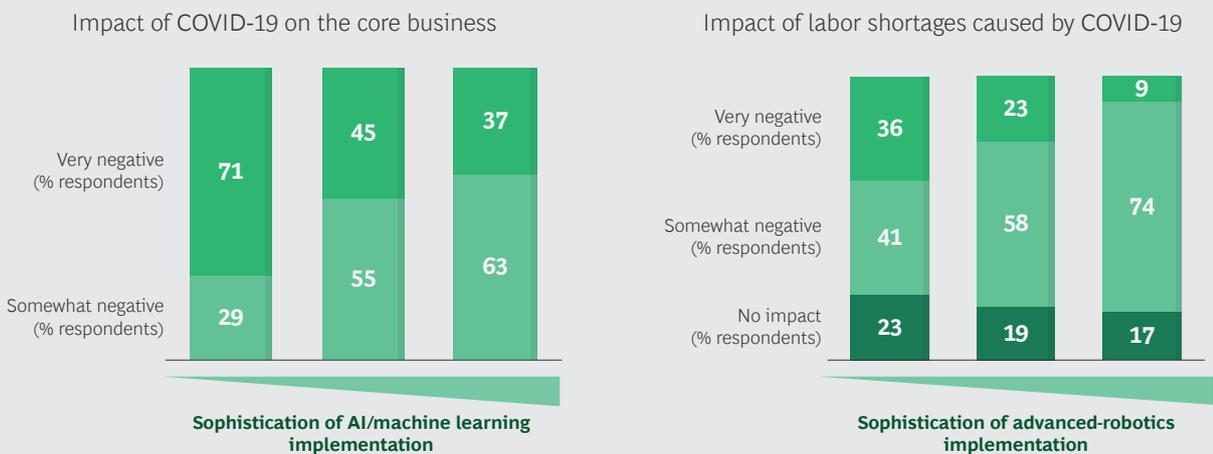
ing reported fewer negative impacts from COVID-19, and organizations with a greater reliance on advanced robotics had fewer labor shortages caused by lockdowns. (See Exhibit 2.) We have observed similar outcomes among our clients. Analytics improve a company's ability to anticipate and react to rapid changes in the operating environment. Advanced robotics in factories

### EXHIBIT 1 | Digital Supply Chain Technologies Helped Companies Navigate Disruptions During the Pandemic



Sources: BCG Worldwide Aerospace and Defense Index survey, 2020; BCG analysis.

### EXHIBIT 2 | AI, Machine Learning, and Advanced Robotics Have Made Companies More Resilient



Sources: BCG Worldwide Aerospace and Defense Index survey, 2020; BCG analysis.

reduces the manpower required and allows companies to keep the production lines running despite disruptions.

### Increased Spending in New Areas

Our survey also revealed that even as A&D organizations are investing more in digital—75% of respondents reported a moderate or significant increase—they are directing those investments to different types of solutions and technologies. (See Exhibit 3.) The biggest category of digital investment right now is tools to support remote work. Many organizations likely had little in the way of this technology at the beginning of 2020, and lockdowns forced them to scramble to catch up. Companies are also increasing their investments in big data and real-time monitoring applications, along with integrated supply chains.

Drilling down one level, the remote-work investments are in both infrastructure and software. (See Exhibit 4.) Although these investments were made as a direct response to COVID-19 lockdowns—and most organizations plan to return to prepandemic levels of remote work once more normal conditions resume—the technology represents a significant, long-term opportunity for A&D companies to rethink how employees work and how the organization functions.

As the pandemic eases and the industry returns to something close to normal operations, we expect remote-work investments to ease. Other digitization initiatives, however, will likely continue and even see increased investment, such as supply chain technologies. And some of the categories that saw a reduction in investment—like digital simulations and computer-aided design, 3D printing, and drones—may well experience an increase.

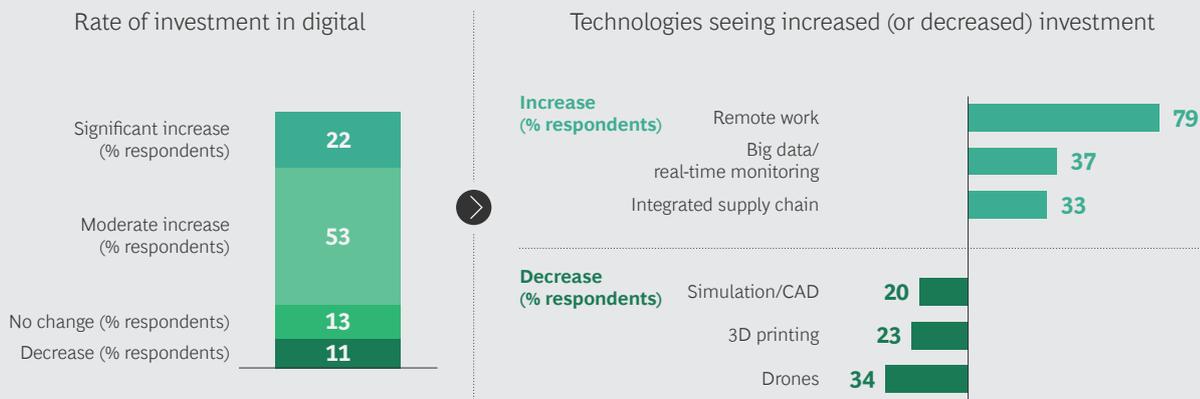
### Where to Target Future Investments

We conducted our survey at an early stage of the pandemic, when its scope and duration were highly uncertain. Now it's clear that it is not likely to end soon—and could dramatically worsen. In this environment, leadership teams are focusing on managing capacity and ensuring that production levels are scalable. When the recovery finally comes, the company that can best adjust to changing demand will win.

Given that imperative, we believe that three areas should be priorities for virtually all A&D companies.

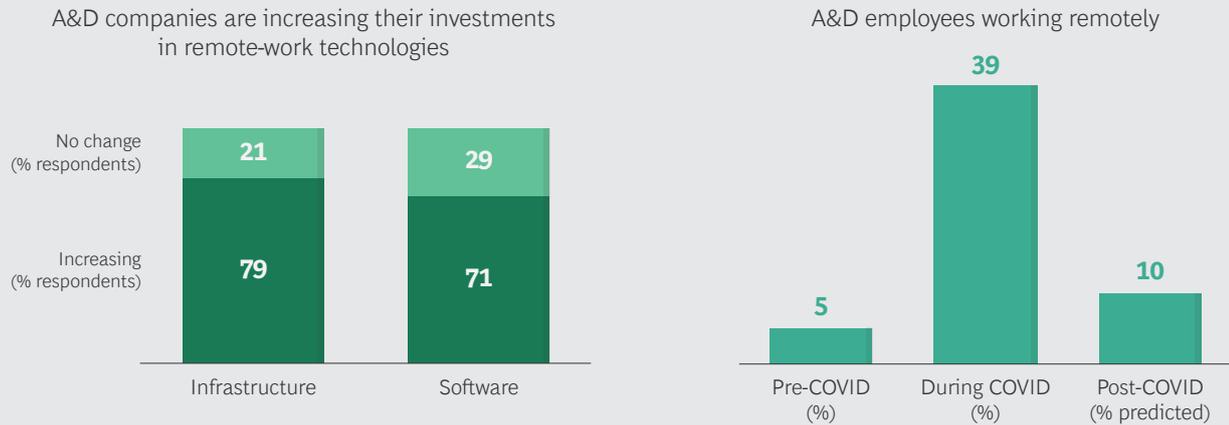
First, supply chain applications and solutions will continue to unlock value—particularly those that help companies smartly manage supply capacity. Specifically, firms are investing in supply chain control towers

EXHIBIT 3 | COVID-19 Has Changed the Profile of Digital Investments



Sources: BCG Worldwide Aerospace and Defense Index survey, 2020; BCG analysis.

## EXHIBIT 4 | Investments in Remote Working Will Help Companies Rethink the Workplace



Sources: BCG Worldwide Aerospace and Defense Index survey, 2020; BCG analysis.

to help them forecast and orchestrate the capacity reduction. The right solutions will provide insights into capacity risk in the supply chain and ensure that companies have reliable access to key components even as overall capacity contracts.

The second main priority is to build smart, flexible manufacturing facilities that can scale up capacity as demand resumes. In a sense, the current production slowdown represents an ideal window to redesign sites for the future, with tools such as advanced robotics, 3-D printing, and digital twins that can simulate the impact of production changes virtually, before companies move physical assets. Similarly, digital R&D tools can help companies develop new products faster and more cost efficiently.

Third, technologies that support remote working should remain a priority in the short term, as they enable companies to not only manage the current challenges of the pandemic but also scale up the workforce quickly as needed. Remote work dramatically increases the potential recruiting and hiring pool for companies. They can

attract top-tier talent—particularly in areas like digital and analytics—without a physical presence in high-cost cities.

For existing staff, remote work opens up new opportunities for upskilling, along with richer and more varied career paths. It will also increase retention, particularly among younger talent—a clear focus area for the A&D industry. Perhaps most important, remote-work solutions will make companies more responsive and flexible. As one survey respondent put it, “We want our functions to be agile, and remote working will be a big part of the whole process.”

**C** OVID-19 HAS PRESENTED huge challenges to the A&D industry, but it also creates an opportunity to make needed upgrades in digital adoption. The experience with remote-work solutions shows how much progress companies can make when they have to. By applying that same sense of urgency to investments in supply chain and manufacturing technologies, organizations can equip themselves to power out of the pandemic.

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