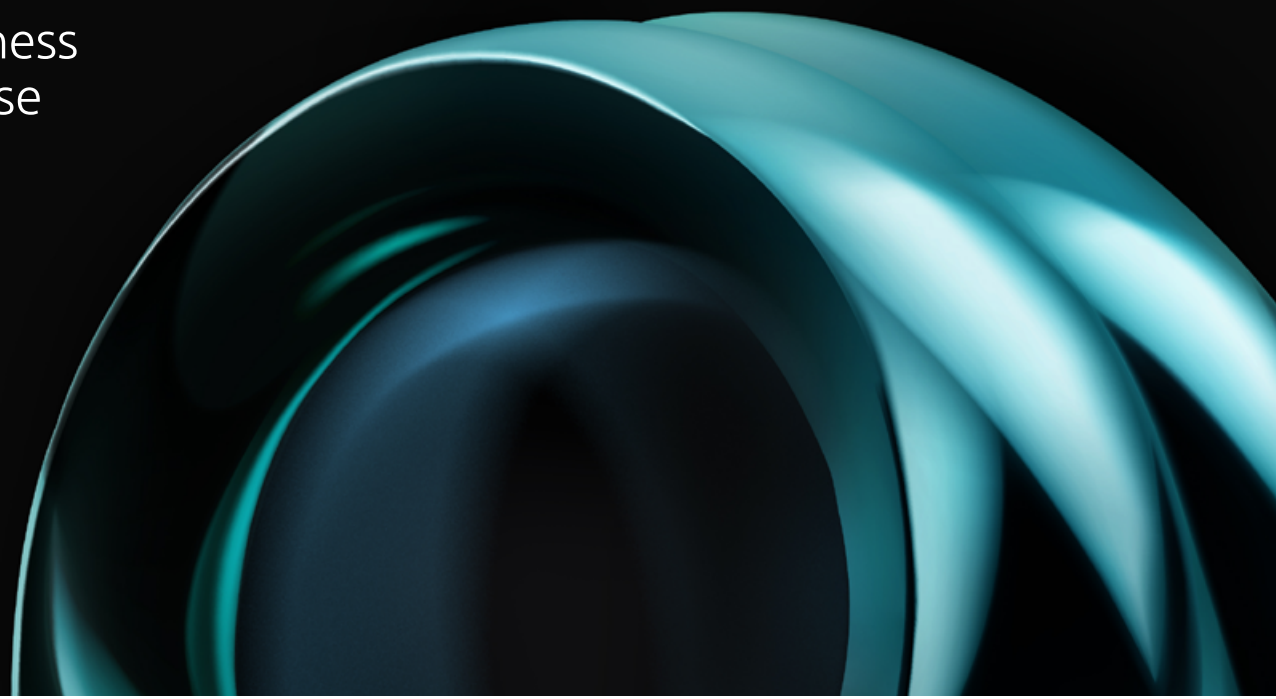
The strategic edge

How digital continuity drives business outcomes in aerospace and defense



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Executive summary

The aerospace and defense (A&D) sector faces increasingly complex challenges. Cost pressures, supply chain issues, and demand for faster development cycles are driving a worldwide restructuring of the sector. On top of these complexities, unstable geopolitical scenarios are forcing national governments to increase defense budgets. To compete more effectively in this environment, A&D organizations, already struggling with chronic delivery backlogs, are attempting to transform the product lifecycle. Digital continuity is emerging as a critical enabler of this transformation.

Our report explores digital continuity as a top priority for A&D C-suite executives. It highlights the major benefits and outcomes achieved through digital continuity and assesses current investment levels. Our research shows that A&D leaders are committed to digital continuity and regard it as essential to successfully integrating data and information flows throughout the product lifecycle. Over 80% of A&D organizations see digital continuity as a driver of business transformation and a route to gaining a competitive edge.

A&D organizations on average allocated a significant 2.1% of their annual revenue to these initiatives in 2024. These investments have brought considerable benefits, including cost reductions and shorter time to market (TTM). Our research reveals that, on average, digital continuity drives a reduction in TTM of around 13%. A&D organizations in our survey, on average, have already realized a 17% improvement in quality.

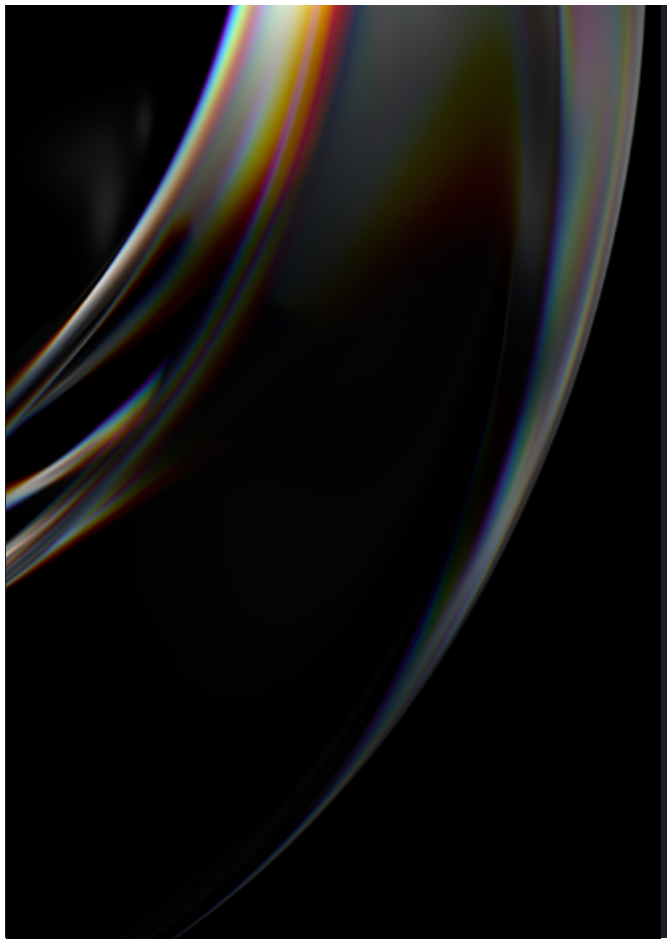
An impressive 86% of A&D organizations agree that digital continuity allows organizations to ramp up production quickly to respond to surges in demand, and 77% believe that it accelerates the process. Our research reveals that defense is better positioned for production ramp up than civil aerospace today. Forty-four percent of defense organizations are prepared to ramp up production in the majority of programs, if and when needed, compared to 34% of civil aerospace organizations.

Executive summary

We conclude the report with recommendations for accelerating digital continuity benefits:

- Design a clear digital continuity strategy
- Build interoperability across systems to close the feedback loop
- Ensure robust data and models management
- Adopt model-based system engineering
- Build a connected supply chain integrated with operations
- Implement a cultural change management strategy for digital continuity.

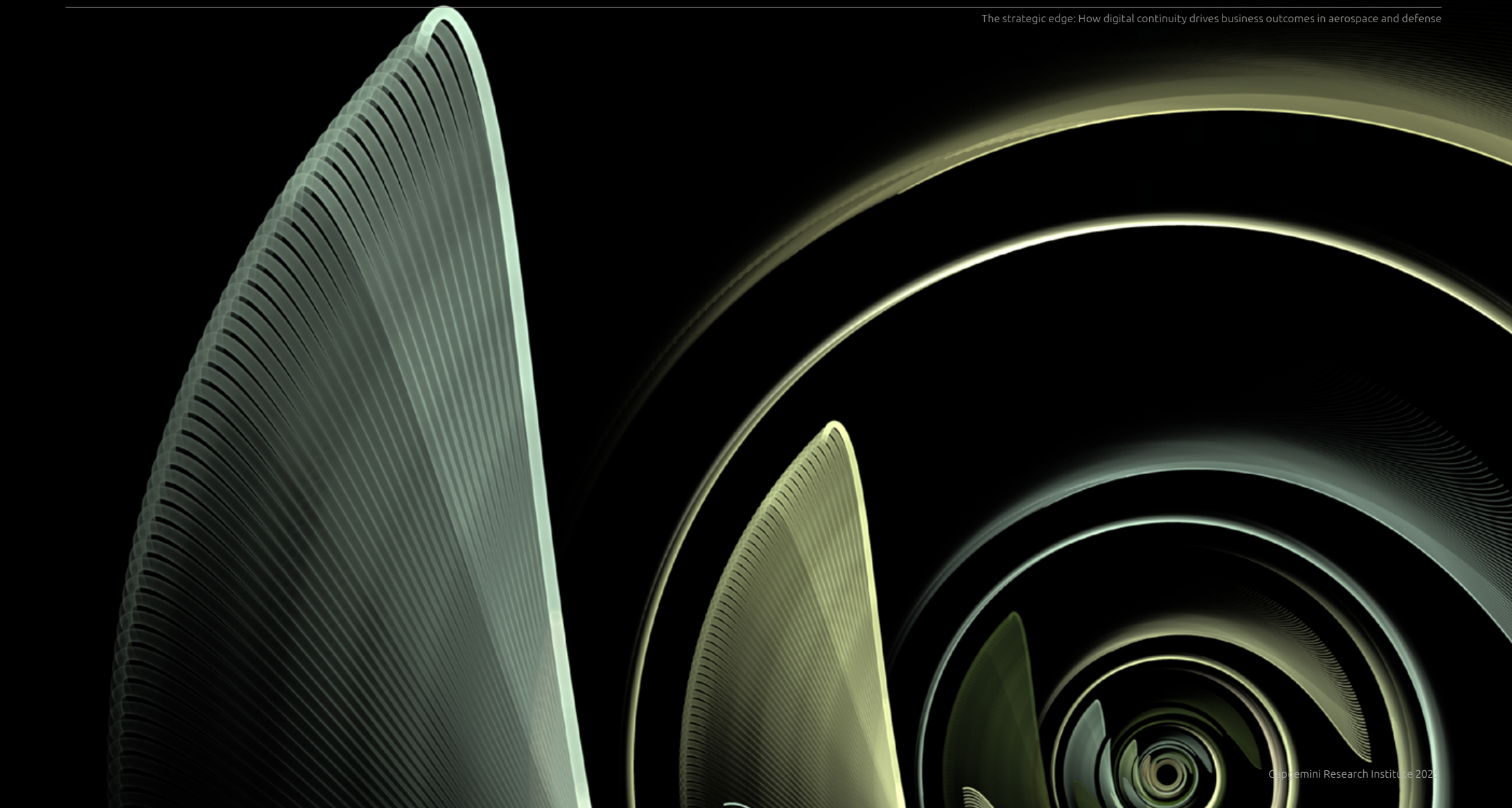
By following these recommendations, A&D executives can use digital continuity as a tool to help guide them through the pressures of transformation, toward great value and competitive advantage.



Who should read this report and why?

This report is intended for C-suite executives at global A&D organizations, including original equipment manufacturers (OEMs) and suppliers. It offers recommendations to help senior A&D leaders realize benefits quickly from digital continuity. Given the importance of digital continuity to both technical and business functions, this report will also be of high interest to the C-suite, particularly CEOs, CDOs, CIOs, and CTOs, as well as department and program heads. This report offers insights into how large and mid-sized A&D organizations can progress their digital continuity maturity. A&D organizations that aspire to end-to-end integration and visibility across the product lifecycle will find this report instructive.

This report is based on original findings from an industry survey of 179 senior executives (director level and above) at leading A&D organizations across 16 countries. All have revenue above $500 million and over half (56%) above $1 billion. The majority (71%) of executives surveyed work within business functions, and the remaining 29% come from IT, information security, or digital functions. We also interviewed six senior A&D executives/academics at leading organizations. Please see the research methodology at the end of the report for more details.



01 Why digital continuity is critical to A&D

What is digital continuity?

Program development in A&D is highly complex and requires collaborative integration of systems and subsystems across the value chain. Moreover, lead times for parts and materials procurement in A&D are particularly long, sometimes as much as two years, making careful planning essential.[1]

Digital continuity addresses these issues by integrating data and information across all stages of the product lifecycle and linking them to the external partner ecosystem. It ensures data and information are seamlessly connected and exists as a "single source of truth" for the entire product lifecycle. Digital continuity ensures accuracy, accessibility, and usability of data that is consistent across technologies while avoiding duplication.

Digital continuity also encourages coordination between mechanical, electronics, embedded software, enterprise software, and electrical departments, promoting multi-domain optimizations (e.g., enhanced aerodynamics and structural integrity). Further, it strengthens the feedback loop, streamlining design, production, operations, and service. A senior leader from a Latin American aerospace OEM says: ***"Digital continuity is the key to the evolution of processes, efficiency, and governance within the organization."***

Digital continuity helps A&D organizations deliver complex programs by transforming ways of working

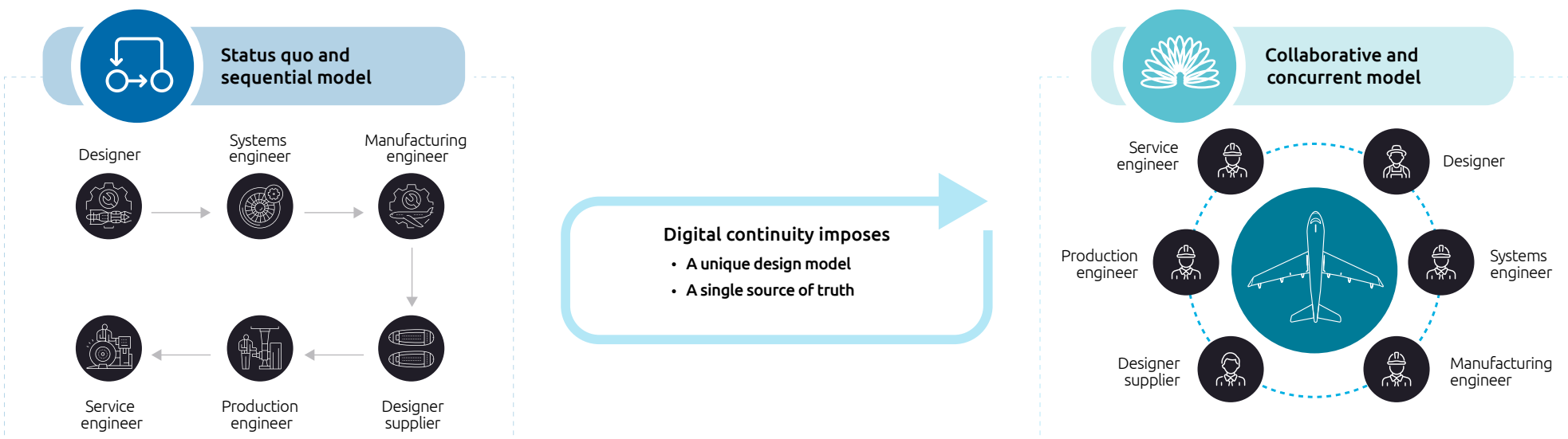
Given the complexity of A&D products, the intricacy of A&D supply chains, and the need for rapid innovation to meet evolving safety and performance requirements, collaboration is critical. But there's a problem: the traditional A&D technology stack is stuffed with legacy applications, siloed systems, and fragmented data, preventing smooth and effective collaboration, and often resulting in errors, rework, and consequently increased costs.

By establishing a single source of truth for all stakeholders, digital continuity fosters the transformation from a traditional, sequential way of working to a collaborative, concurrent model (see Figure 1). This eliminates information silos, reduces errors, and shortens development cycles. For example, a designer can access real-time maintenance data from in-service products to inform a redesign. Equally, a manufacturing engineer can use a digital twin to simulate and test aircraft designs prior to physical production.

A senior leader at an India-based A&D organization says: ***"Digital workflows ensure that designs are approved by relevant authorities before manufacturing begins, streamlining the production process and ensuring compliance with regulatory standards."***

In such long, complex A&D programs, organizations often face challenges such as talent attrition or workforce relocation. But seamless digital continuity minimizes the chances of important information getting lost in such scenarios. A concurrent, collaborative way of working also boosts innovation. Digital continuity provides an integrated workflow and allows visibility of changes in real time, supporting the experimentation, feedback, and iteration that feed innovation.

Figure 1.
Collaboration is critical to A&D



Source: Adapted from Capgemini Group, "Digital continuity in aerospace and defense," 2024.

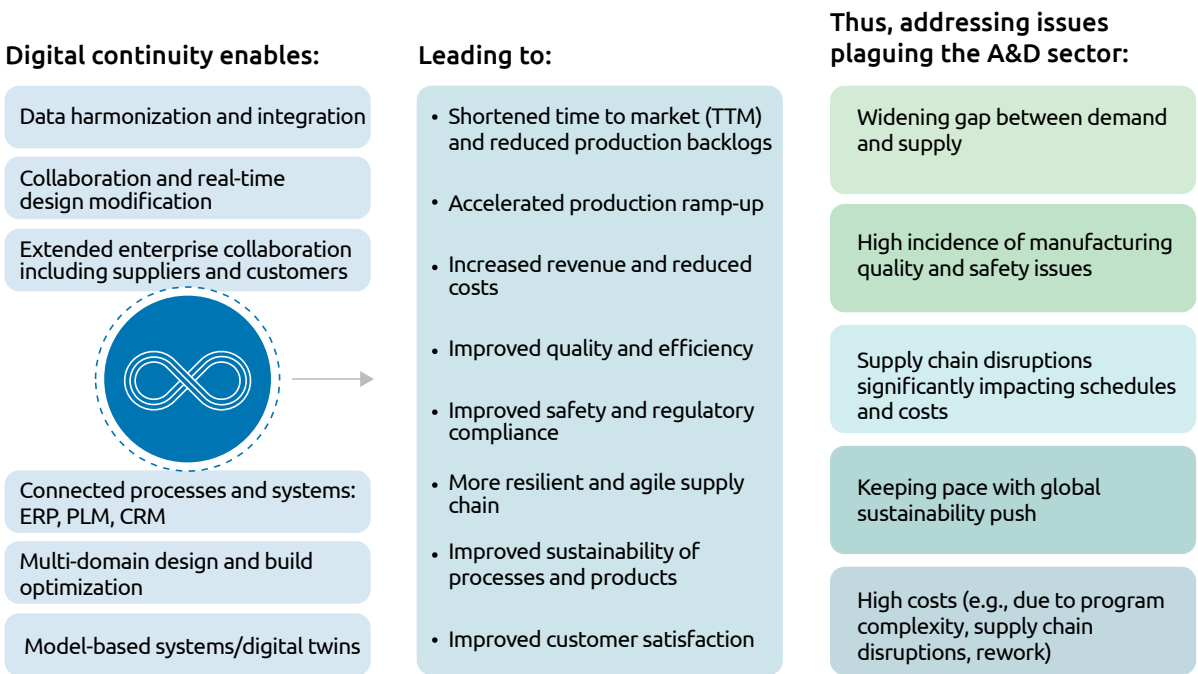
“Collaboration is digital continuity’s greatest benefit. Digital continuity facilitates collaboration among different engineering disciplines and across the product lifecycle. A manufacturing engineer and an in-service engineer can collaborate through efficient feedback loops and access a unified source of data, ensuring everyone is on the same page.”

Bruno Bouf
Executive Vice President, Global Aerospace and Defense Lead, Capgemini Invent

Digital continuity can help the A&D sector to face its challenges

By breaking down data silos and integrating disconnected systems and processes, digital continuity enables A&D organization to position themselves for growth, resilience, and adaptability in the face of evolving industry trends and challenges.

Figure 2.
Digital continuity integrates A&D data, systems, and processes



Source: Adapted from Capgemini Group, "Digital continuity in aerospace and defense," 2024.

"The objective of digital continuity is to introduce a level of agility that will allow information to be traced, understood, and modified. This decompartmentalization requires a standardization of methods, processes, and modeling tools."

Jacques Bacry
Executive Vice President, Digital Continuity and Convergence Offer Leader, Capgemini

Below, we examine A&D priorities in detail and assess the support digital continuity offers in realizing them:

- **Shorten time to market (TTM) and address production backlogs**

  At the current rate, experts estimate the global aerospace sector will need almost 14 years to clear outstanding orders.[2] By the end of 2024, Airbus had 8,658 aircraft on order, while Boeing finished the year with a backlog of 5,595 aircraft. Airbus delivered 766 aircraft for the year, close to target, while Boeing delivered 348. Demand will rise, with one prediction suggesting demand for another 32,000 planes in the next 20 years (whether newbuild or upgraded/retrofitted).[3] Project delays and schedule overruns can further increase the backlog, harming organizational finances and reputations.

  Supply chain issues, late detection of design faults, and rework arise from digital debt due to a lack of integration between project lifecycle phases. Digital continuity integrates the value chain, improving collaboration and establishing a "single source of truth." This, in turn, leads to better decision-making, enhanced product quality, and minimized rework.

  Providing ready access to correct data and models also saves engineers time and effort and improves productivity. Digital continuity also encompasses the model-based engineering (MBE) from the early design phase by allowing for real-time updates and changes to the digital models. This flexibility is essential for responding to market demand.

  For example, a defense contractor for fighter aircraft built a digital thread that connected their disparate requirements management, design, and development systems to enable real-time synchronization. With data and workflows automated, the impact of design updates on manufacturing and testing is clear. The digital thread traces the journey of every component, and all change requests and approvals are automated, meaning impacted stakeholders are notified of updates in real time. As a result, it achieved 25% faster development cycles and a 50% reduction in rework costs. [4]

- **Ensure safety and regulatory compliance**

  The A&D sector must meet stringent compliance and safety requirements. Digital continuity enables A&D organizations to transition from a reactive to a proactive, and ultimately to a predictive approach of ensuring safety and quality. Engineering teams can simulate real-world scenarios, perform quality checks, and conduct performance validation and testing through digital replicas. This ensures design and manufacturing accuracy, leading to high standards of end-product safety and quality. Digital continuity also allows continuous monitoring and tracking of the product and process data over the lifecycle, supporting proactive vulnerability detection and mitigation. Boeing, for example, collects and analyzes real-time and historical data from the digital twin about aircraft performance and maintenance. This assists in identifying issues before they become critical, improving safety and efficiency.[5] Further, rising cybersecurity threats, along with advancements around autonomous aircraft, digitization, AI, and intelligent industry (i.e. Industry 4.0), have introduced a new dimension to security challenges. By establishing secure communication channels and data flows, digital continuity can help prevent unauthorized access and data breaches and ensure data integrity and security.

  Digital continuity plays a pivotal role in regulatory compliance by ensuring that data is consistently managed, accessible, and secure throughout its lifecycle. It provides a detailed record

of every component and process, offering traceability from the design phase to end-of-life. Every change and transaction can be traced and audited, providing the transparency and accountability required to meet regulatory standards. Further, digital continuity facilitates efficient data management practices, ensuring data remains accurate and readily available for inspections and audits.

Otto Aviation, a California-based startup, established a single digital thread that covers its entire business. This is part of its drive to bring to market the world's first transonic super-laminar (TSL) aircraft, which can achieve twice the efficiency of conventional aircraft. Otto claims the digital thread will allow it to meet regulatory and certification requirements with complete transparency.[6]

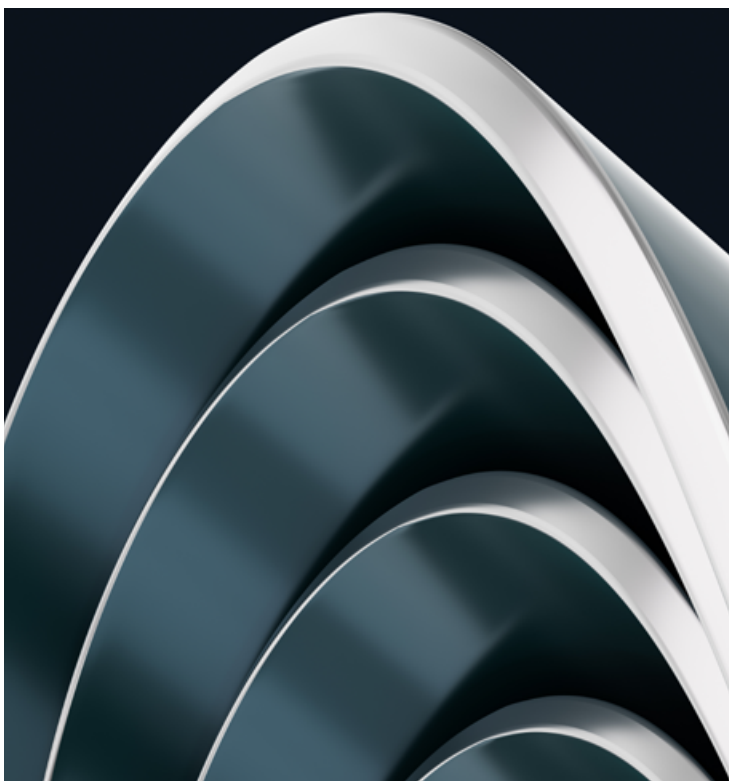
- **Build resilience and agility into the supply chain**

The IATA expects severe supply chain issues to continue to impact airline performance into 2025, raising costs and limiting growth. Aircraft deliveries have declined significantly from the peak of 1,813 units in 2018. Estimated deliveries for 2024 were 1,254 aircraft, representing a 30% shortfall compared with initial projections. For 2025, deliveries are expected to rise to 1,802 aircraft, which is still considerably lower than the forecast 2,293 units.[7] Additionally, A&D organizations, especially those with defense contracts, face a critical need for rigorous supply chain continuity.

Building resilience to absorb supply chain shocks and responding with agility while remaining cost-effective are top priorities for A&D CEOs, especially given the heavy dependence on supplier networks. A&D supply chains are typically complex (even going as many as nine layers down from OEMs),[8] making those manufacturers who are dependent upon them vulnerable. The A&D sector's global supplier base, resulting in long lead times and exposure to other risk factors such as geopolitical tensions, natural disasters, changing regulations, and evolving tariffs, stirs uncertainty among upstream stakeholders. This underscores the importance of building resilient and efficient supply chains to manage dependencies and mitigate risk.

13%

Average reduction in TTM because of digital continuity



A well-implemented digital continuity strategy facilitates transparency of supply chain operations by providing timely visibility of issues such as parts and labor shortages, escalating materials costs, and logistics issues. This allows for timely adjustments such as finding substitute suppliers or replacing components to avoid production and delivery bottlenecks.

Digital continuity enhances real-time collaboration with customers and suppliers, enabling organizations to trace any issue to its source, as well as enabling more accurate forecasting, and rapid response to changing market demand and supply.

- **Improve sustainability of processes and products**

  Regulatory bodies are imposing stricter environmental standards, compelling A&D organizations to adopt sustainable practices to remain compliant and avoid penalties. By providing accurate, real-time data, digital continuity helps to optimize resource usage and minimize waste. Continuous data tracking through the production and supply chain enhances the accuracy of monitoring of environmental impact, ensuring compliance with sustainability goals and regulations. It can also suggest adjustments to the processes, e.g., for reducing energy consumption and emissions. Digital continuity also supports the reuse and recycling of materials by maintaining detailed records of product components and their lifecycles.

- **Improve customer satisfaction**

  Digital continuity has a positive impact on customer satisfaction levels. It provides assurance of auditability for years post-purchase. Bernd Schmidt, senior director at Rheinmetall, a German defense and automotive manufacturer elaborates: ***"Digital continuity ensures that, even with staff changes, there is a clear, documented record of all actions and discussions, so new team members can easily understand past decisions and maintain process continuity. This long-term accountability and efficiency are significant advantages for customers."***

Digital continuity also reduces customer response times. A senior leader from a Latin American aerospace OEM says: ***"Integration of ERP [enterprise resource planning], product lifecycle management [PLM], and customer relationship management [CRM] for digital continuity leads to improved billing efficiency, contract management, and reduced invoicing errors. It allows for quick review of customer history and requests, cutting response times to customers by centralizing data."***

1,802

Aircraft deliveries expected for 2025, below the 2,293 forecast

"Digital continuity ensures that, even with staff changes, there is a clear, documented record of all actions and discussions, so new team members can easily understand past decisions and maintain process continuity. This long-term accountability and efficiency are significant advantages for customers."

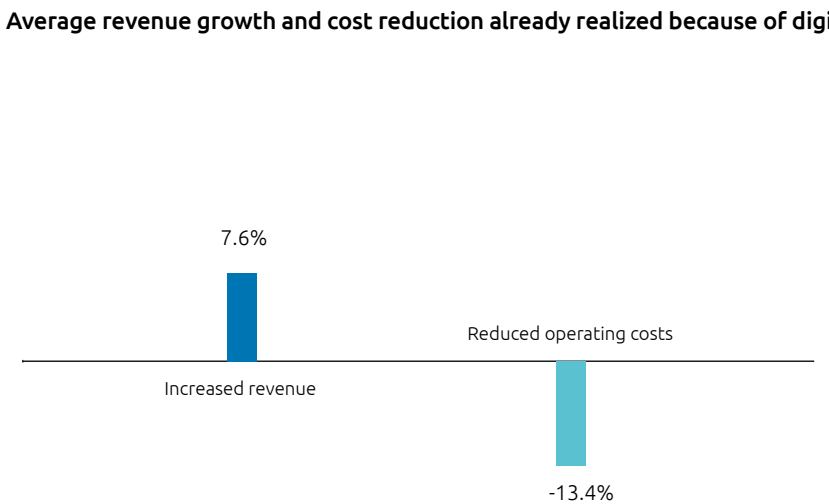
Bernd Schmidt
Senior director at Rheinmetall, a German defense and automotive manufacturer

Digital continuity drives revenue and cost reduction

In our survey, we assessed the benefits to revenue and cost reduction that A&D organizations have already realized or expect to realize from digital continuity:

- 19% of A&D organizations have already seen an impact on revenue; among these organizations, the average increase in revenue (e.g., from faster TTM) is 7.6%.
- 34% of A&D organizations have already reduced costs; the average reduction in operating costs (i.e., from reduced redundancies, improved resource allocation, and excluding those tied to production) is 13.4% (see Figure 3).

Figure 3.
A&D organizations have realized nearly 8% revenue growth and 13% cost reduction from digital continuity across the enterprise



Source: Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 A&D organizations; N = 34 A&D organizations who have already realized increased revenue; N=60 A&D organizations who have already reduced operating costs.

Unified data from digital continuity can also support predictive and prescriptive services, giving A&D organizations access to more flexible and innovative business models to conquer new markets.[9] For example, Honeywell's software subscription offering, Honeywell Forge Performance+, is based on monetizing the integration of data and intelligence from multiple systems, including asset management, worker management, and site operations, into a single offering.[10]

Dimitri Mavris, Director, Aerospace Systems Design Laboratory and Distinguished Regents Professor, Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology says: ***"A primary business benefit of digital continuity is cost reduction, particularly in labor costs through automation. A&D organizations aim to streamline operations, making processes more efficient and reducing manual work."*** Northrop Grumman has adopted a fully connected digital ecosystem to develop, analyze, build, and test the wings for its Model 437 technology demonstrator. This approach reduced engineering rework and redesign to less than 1% from the 15–20% seen with traditional methods.[11]

"A primary business benefit of digital continuity is cost reduction."

Dimitri Mavris
Director, Aerospace Systems Design Laboratory and Distinguished Regents Professor, Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology

02 Digital continuity gets products to market quicker

Digital continuity drives faster TTM

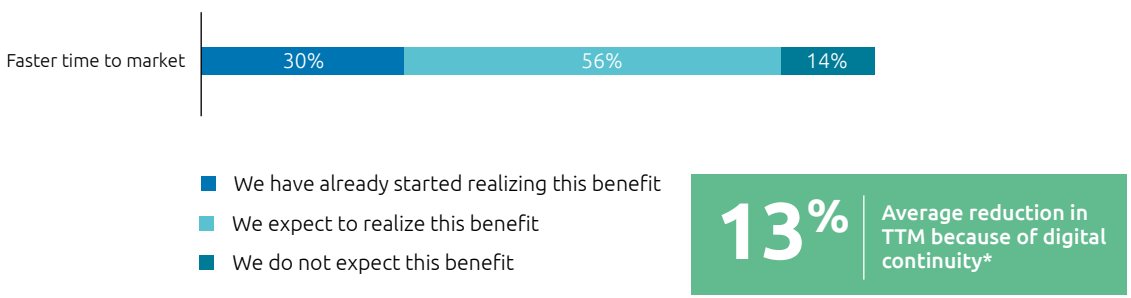
The A&D sector is under immense pressure to deliver products more quickly. With a heightened global focus on national defense budgets, demand on the A&D sector is at an all-time high. In 2024, global annual military expenditure surged to a record $2.7 trillion, up 9.4% from 2023, the steepest year-on-year increase since at least the end of the Cold War.[12] Deteriorated security environments and a generally heightened threat perception, especially in Europe, the Middle East, and North Africa (MENA), as well as strategically significant Asian countries, drove the rise.[13]

Our research reveals that eight in 10 (80%) A&D organizations say that reducing TTM – from the mission definition of the initial concept or requirement to the point where the product is commercially available – is a critical issue today. It is also the top-ranked driver of investment in digital continuity (44% of A&D organizations ranked it as their top motivator). Larger organizations find it a particularly hot topic, with 48% ranking it as their top motivator for digital continuity investments, compared with 36% of smaller organizations.

Our research reveals that 30% (53) of A&D organizations are already benefiting from reduced TTM (see Figure 4). On average, these see a reduction of 13% in TTM. To illustrate, digital continuity would trim a five-year (260-week) TTM for a new aircraft engine by 33.5 weeks (around 7.8 months).

Figure 4.
Three in 10 A&D organizations have already reduced TTM owing to digital continuity

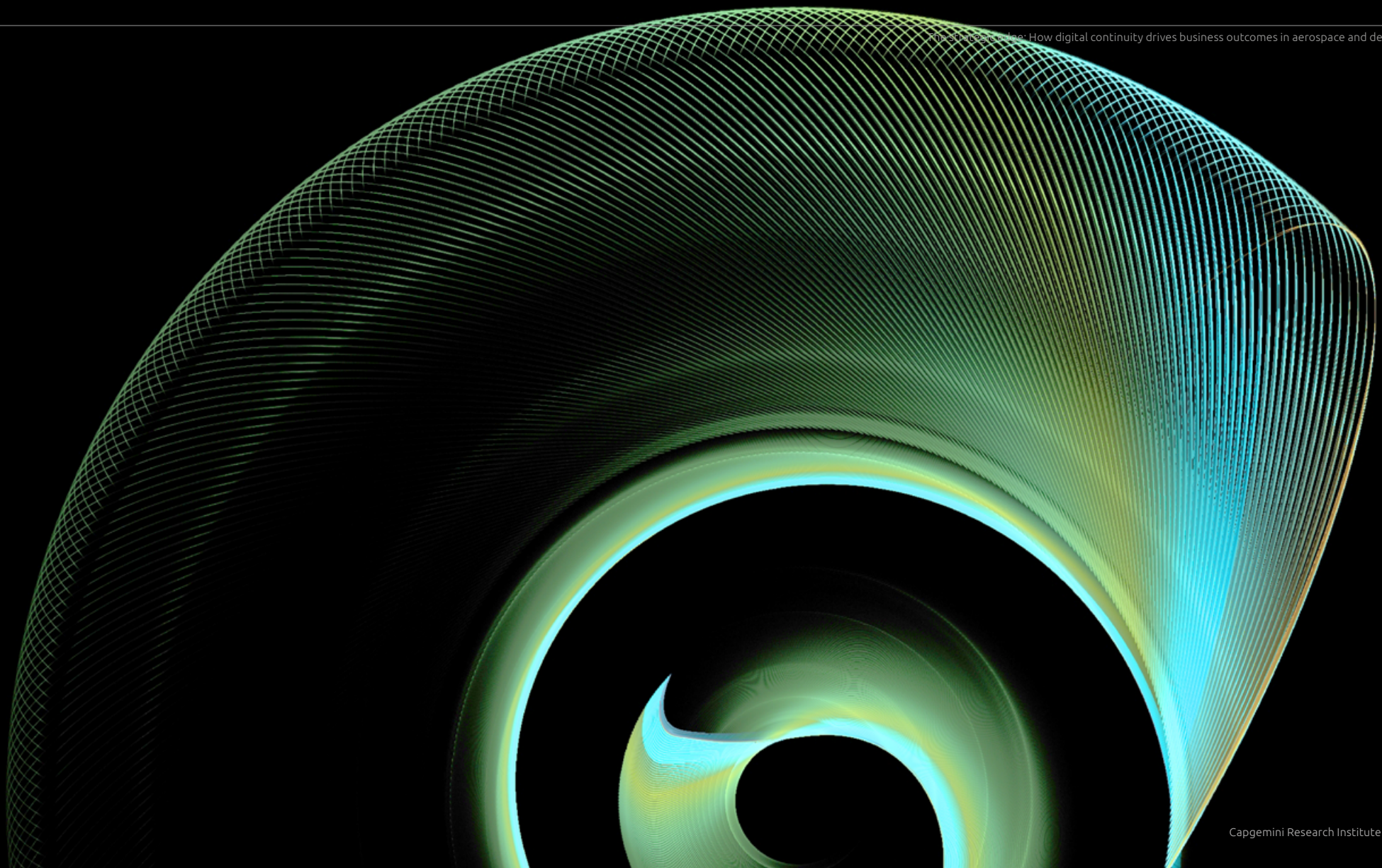
Percentage of organizations who have realized or expect to realize faster TTM from digital continuity



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations.
*Among the 30% of organizations (N = 53) that have already started realizing faster TTM.

"A key motivation for A&D organizations to invest in digital continuity is to have greater consistency of data utilized and shared among stakeholders, which leads to less rework and faster time to market. Digital continuity can also help facilitate being the first to market, which provides competitive advantage."

Dimitri Mavris
Director, Aerospace Systems Design Laboratory and Distinguished Regents Professor, Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology



Bernd Schmidt from Rheinmetall says: ***"Digital continuity can reduce TTM by 20–25%."*** Our research reveals a maximum 24% reduction. A senior leader at an India A&D organization says: ***"Digital continuity has enabled faster design, simulation, and testing processes, allowing my company to bring products to market more quickly and with greater accuracy."*** Dimitri Mavris of Georgia Tech says: ***"A key motivation for A&D organizations to invest in digital continuity is to have greater consistency of data utilized and shared among stakeholders, which leads to less rework and faster time to market. Digital continuity can also help facilitate being the first to market, which provides competitive advantage."***

11%

Average improvement in product development cycle time because of digital continuity

Several key performance indicators (KPIs) drive TTM for A&D organizations, including cycle time. Because of digital continuity:

- 18% of A&D organizations in our survey have already realized accelerated product development cycle time (i.e., total time required from design to prototype production)
- Average improvement is around 11%

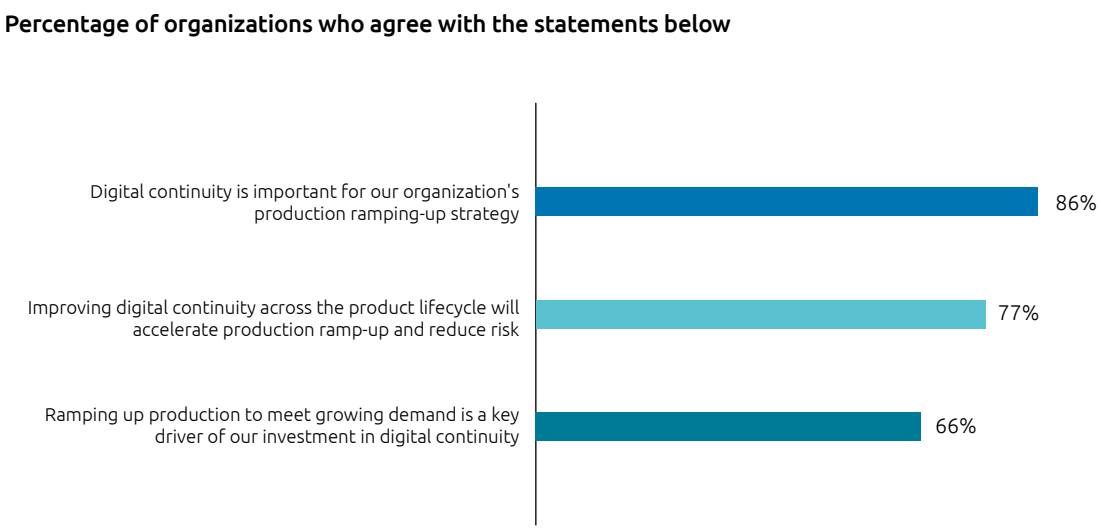
Physical aircraft prototyping is a slow and costly process that does not encourage the sparks of innovation. To reduce TTM, Istari Digital, a US-based startup, is working on a project called Flyer Øne and has signed a $19.1 million contract with the US Air Force. Flyer one will be the world's first airplane that is designed, tested, and certified using digital engineering processes. This approach will integrate all models, simulations, requirements, and certifications across the aircraft's lifecycle into a true digital thread.[14] To reduce cycle time, RTX Corporation is integrating AI, machine learning, automation, and connected equipment into its factories. This digitization of the product lifecycle across more than 20 programs has enhanced efficiency and reduced design cycle times by up to 30% for software-intensive projects.[15]

Digital continuity supports production ramp-up

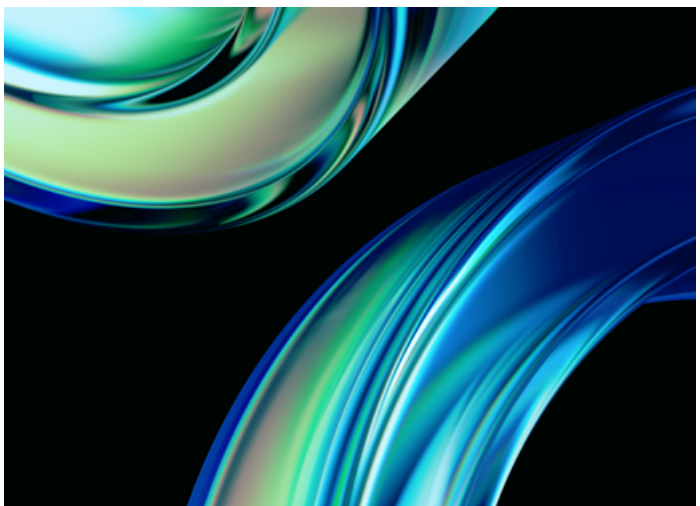
"Production ramp-up" refers to a rapid increase in the manufacturing rate of a new aircraft, weapon system, or other defense product from a low-volume prototype stage to full-scale production. This often involves rapid scaling of the supply chain and workforce to meet soaring demand.

Nearly nine in 10 (86%) A&D executives agree that digital continuity is important to their organizations' ramping-up strategies, and 77% believe that improving digital continuity will accelerate the process. Ramping up production motivates 66% of organizations to invest in digital continuity (see Figure 5).

Figure 5.
Most A&D executives agree that digital continuity is important for production ramp-up



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations.



77%

Share of A&D organizations who believe digital continuity accelerates production ramp up

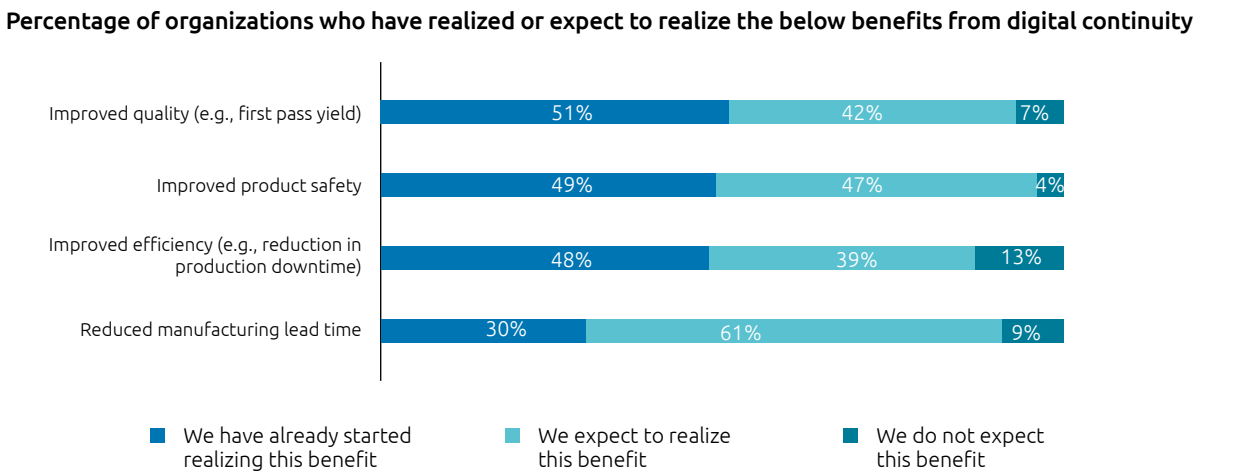
"Digital continuity is the backbone of a successful production ramp-up in A&D. The seamless integration and flow of data and information across design, engineering, and production minimizes delays, reduces errors, and empowers teams to scale with the quality and reliability our industry demands."

Lee Annecchino
Executive Vice President, Global Industry Lead,
Aerospace and Defense, Capgemini

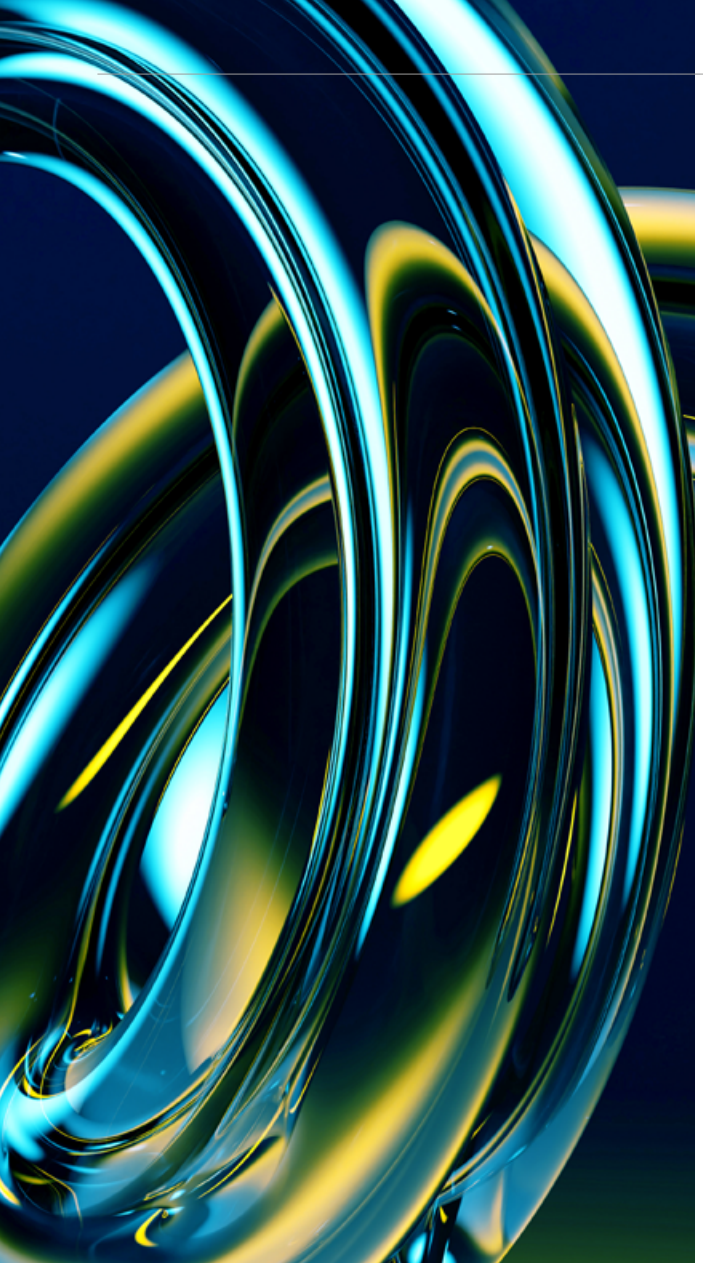
Manufacturing engineering and production also benefit from digital continuity

Slightly over half (51%) of A&D organizations have seen improved quality, such as "first pass yield" (i.e., the percentage of products that pass all quality inspections and tests without requiring rework). A similar share have seen improved product safety and efficiency (i.e., reduced production downtime). One in three A&D organizations has already seen a reduction in manufacturing lead time (i.e., total time from the start of the manufacturing process to final delivery) because of digital continuity (see Figure 6). While achieving end-to-end digital continuity is a journey, organizations can start reaping "quick wins" around lead times and production efficiency. Integrating and closing the loop between engineering and manufacturing is one way for organizations to realize the benefits of digital continuity more quickly.

Figure 6.
Three in 10 A&D organizations have already reduced TTM owing to digital continuity



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations for safety benefits; N = 151 organizations for quality, efficiency, and manufacturing lead time.



Airbus embarked on a Digital Design, Manufacturing, and Services (DDMS) program – an enterprise-wide transformation centered around digital continuity. This data-driven approach toward interconnected platforms and increased data exchange is being implemented across all divisions and at every stage of product development for its next-generation aircrafts, with digital twin acting as a key catalyst. Airbus aims to achieve five key benefits:

17%

Average improvement in quality because of digital continuity

- Revolutionize how next-generation products are designed, manufactured, operated, and supported
- Enable an accelerated timeline to adapt to changes in production rate
- Secure operational performance and maturity
- Reduce product development lead time
- Increase customer satisfaction thanks to flexibility for later-stage customization.

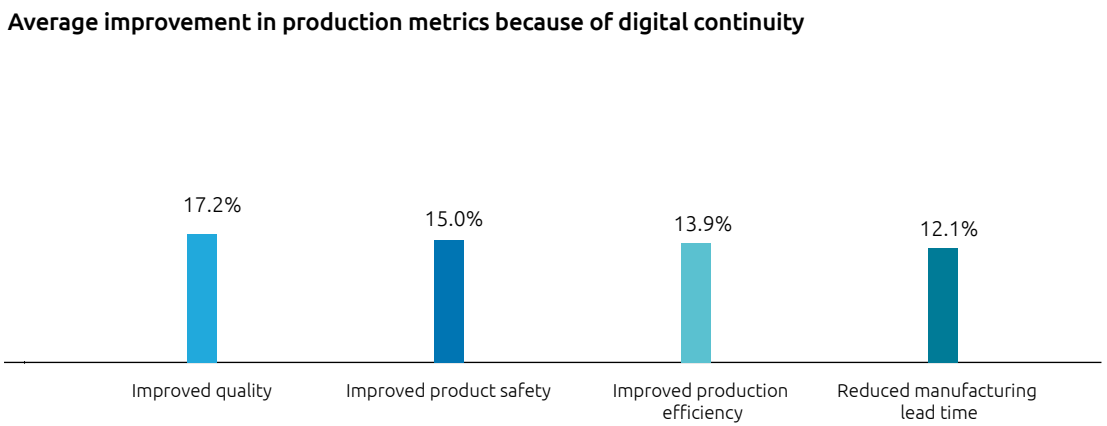
Airbus' A321XLR is one project that was delivered based on this digital continuity-centered DDMS program. The A321XLR created 30% lower fuel burn per seat than previous-generation competitor aircraft.[16]

KPIs show the benefits of digital continuity

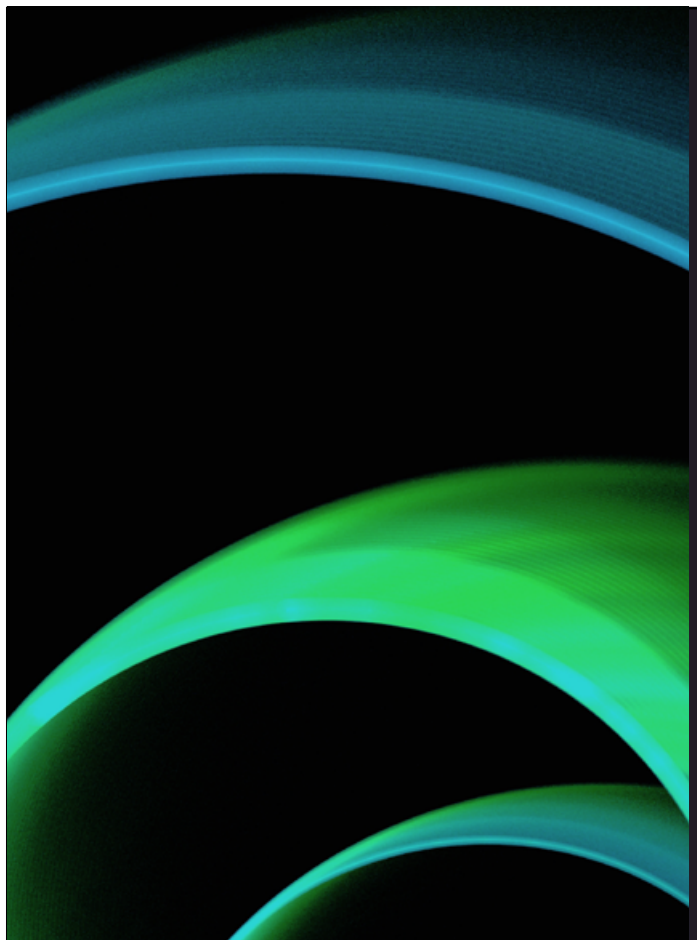
Organizations have already hit double-digit benefits in quality, safety, and efficiency because of digital continuity, demonstrating that there is payback on investments in digital continuity. The average improvement is 17% in quality and 15% in safety. The average improvement in production efficiency is 14%, and 12% is the average reduction in manufacturing lead time (see Figure 7).

A&D organizations are partnering with external experts to streamline processes. In the UK, BAE Systems has collaborated with the University of Sheffield's Advanced Manufacturing Research Centre (AMRC) to integrate digital innovations such as data visualization, automation, and digital inspection into aircraft maintenance processes. This initiative aims to reduce costs, improve efficiency, and lower carbon emissions.[17]

Figure 7.
On average, A&D organizations have realized 17% improvement in quality owing to digital continuity



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations; 88 A&D organizations who have already seen safety benefits, 77 for quality benefits, 72 for efficiency, 46 for lead time.

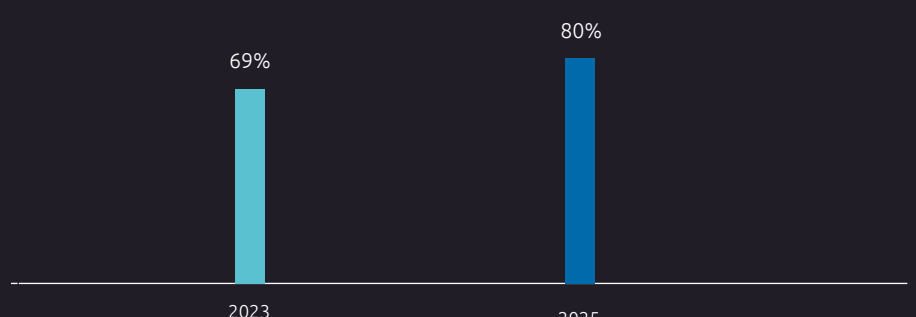


Digital continuity and digital twins

Eight in 10 A&D organizations agree that digital continuity along the system lifecycle and across ecosystems is foundational to implementing digital twins, up from 69% in our 2023 research (see Figure 8). In this year's research, 61% of A&D executives also agree that digital continuity makes it easier to manage digital twins to facilitate horizontal collaboration (i.e., between different teams and organizations across various systems or within the supply chain). Dimitri Mavris of Georgia Tech explains: ***"Digital continuity ensures bidirectionality and consistency of data across the phases of the product lifecycle and across OEMs, suppliers, and operators. As such, digital continuity is foundational to the realization and effective management of digital twins. Digital continuity (through the digital thread) is also key to digital twins' analytical capabilities (e.g., predictive analytics, prescriptive analytics). Without digital continuity, digital twins are limited in scope and accuracy."***

A digital twin allows A&D organizations to identify the combination of product design, production lines, shifts, and employee configurations. This technology allows them to observe predicted interactions and material flow within the facility and then adjust until they optimize overall operations. For example, Sierra Nevada Corporation (SNC), an American aerospace, defense, electronics, engineering, and manufacturing corporation plans to create a near-digital twin of the replacement for the "Doomsday plane" (E-4B Nightwatch, a specially modified Boeing 747 used by the US Air Force) to reduce engineering rework and accelerate development.[18]

Figure 8.
Digital continuity is foundational to digital twins



Source: Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations; Capgemini Research Institute, A&D digital twin survey, April 2023, N = 150 A&D organizations.

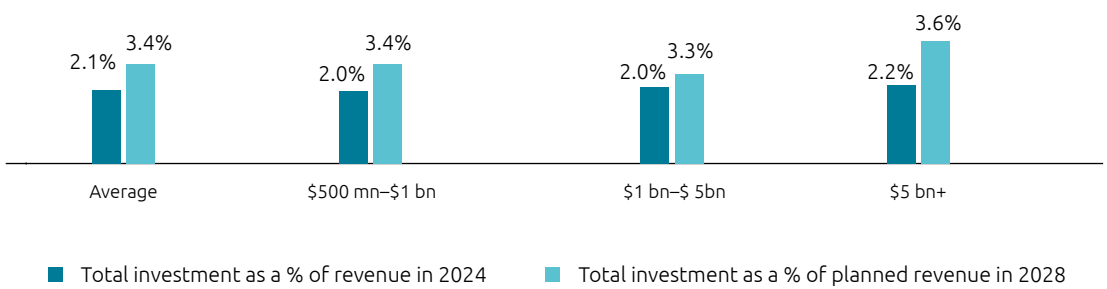
03 Investment in digital continuity will surge to 2028

Digital continuity investment is projected to increase 13% annually through 2028

On average, organizations surveyed allocated 2.1% of total revenue to digital continuity in 2024 (see Figure 9). This is anticipated to increase to 3.4% by 2028, representing 12.8% CAGR for 2024–28. Nearly seven in 10 A&D organizations (68%) have established strategic goals for digital continuity for the next three years, a key driver of this investment.

Figure 9.
A&D organizations are, on average, investing 2.1% of revenue in digital continuity

Average investment in digital continuity in 2024 and planned for 2028 as a percentage of revenue, by company size



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 70 organizations with $500 m–$1 bn, 41 organizations $1 bn–$5 bn, 40 organizations with $5 bn+.

"Investing in digital continuity isn't just a technology decision. It's a strategic imperative. It enables real-time collaboration, reduces risk, and builds the foundation for smarter, faster decision-making across the organization."

Antoine Scotto d'Apollonia
Vice President, Digital Continuity Advisor, Capgemini Invent

Digital continuity enables business transformation

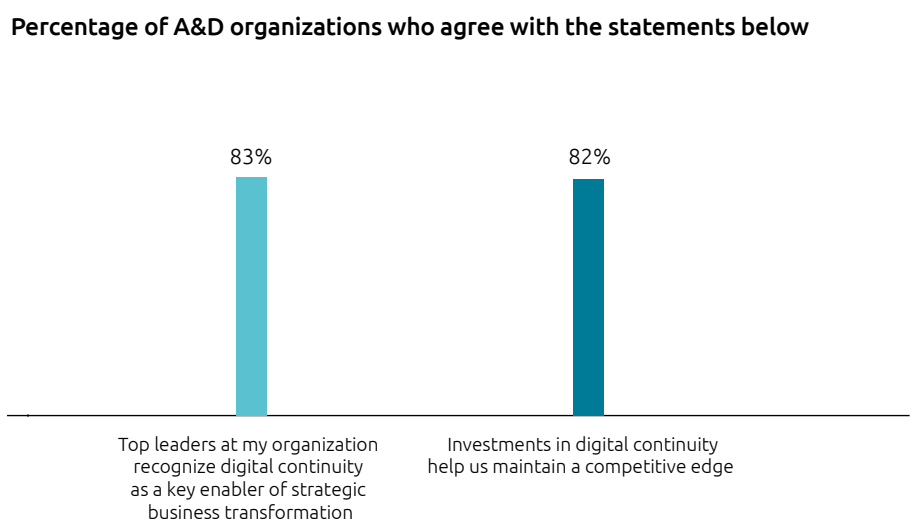
The majority (83%) of A&D executives agree that digital continuity is an enabler of business transformation and over eight in 10 executives believe investments in digital continuity have helped sharpen their competitive edge (see Figure 10).

- Nine in 10 (90%) smaller A&D organizations (i.e., with revenue between $500 million and $1 billion) agree that digital continuity investments have improved their competitiveness, compared with 74% of large organizations (i.e., $1 billion in revenue or more).

- US A&D organizations are slightly more likely to agree on the link between digital continuity and competitiveness than their European counterparts (86% versus 72%).

A&D organizations are undertaking various initiatives to transform their business processes. For example, Lockheed Martin's 1LMX program is intended to revolutionize end-to-end business processes and systems by creating a model-based enterprise with a fully integrated digital thread throughout the product lifecycle.[19]

Figure 10.
Most A&D organizations understand digital continuity enables business transformation and drives competitiveness



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 179 organizations.

Today's defense sector faces a rapidly evolving geopolitical and technological landscape

In 2024, 92 countries were involved in conflicts outside their borders, the most since 2008.[20] This record rise in the number of international conflicts and the consequent rise in military expenditure has put immense pressure on the global defense suppliers. More than six in 10 (63%) defense organizations in our survey say that increasing defense spending driving production demand is a top trend impacting the sector today.

Defense organizations are better positioned to ramp up production than civil aerospace organizations

Geopolitical uncertainty has led to heightened defense spending and increased demand for military equipment. Our research reveals that 44% of defense organizations are prepared to ramp up production in the majority of programs, if and when needed, compared to only 34% of civil aerospace organizations.

Defense organizations, particularly in Europe, are leading the charge. In March 2025, the NATO secretary general called on members to ramp up defense spending and production in order to secure Europe and meet future challenges.[21] Also in March 2025, German lawmakers voted to allow an exemption to the country's strict debt rules for defense and infrastructure spending, paving the way for as much as €1 trillion in civilian and defense investments.[22]

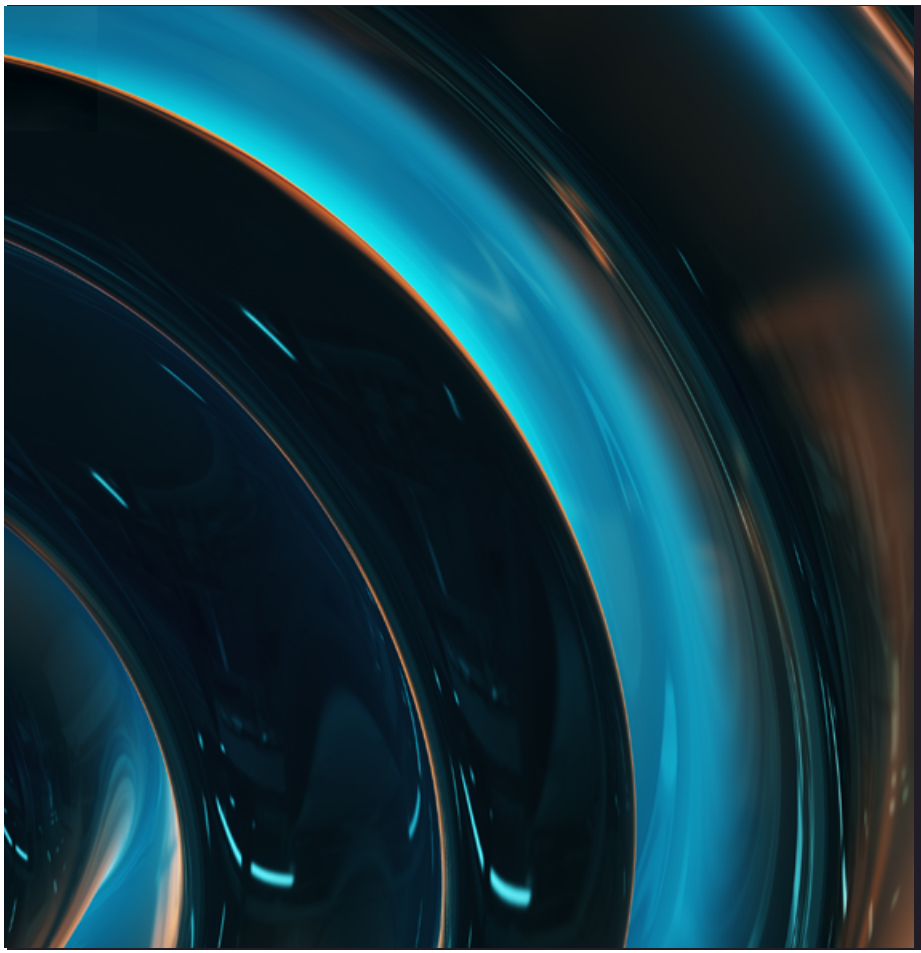
India, which has the 5th largest military expenditure globally, is also actively engaging with private defense manufacturers to boost the supply of crucial military equipment. For example, companies like Bharat Forge and Mahindra & Mahindra's defense division have been given specific instructions from the Indian government to increase their output.[23]

The ability of defense organizations to ramp up production can also be driven by technological and infrastructure investment including a more flexible manufacturing execution system (MES) and a more resilient, flexible supply chain (see Figure 11).

Figure 11.

65% of defense organizations say their supply chain is adaptable to changing customer demands

Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 80 defense organizations; 71 civil aerospace organizations.

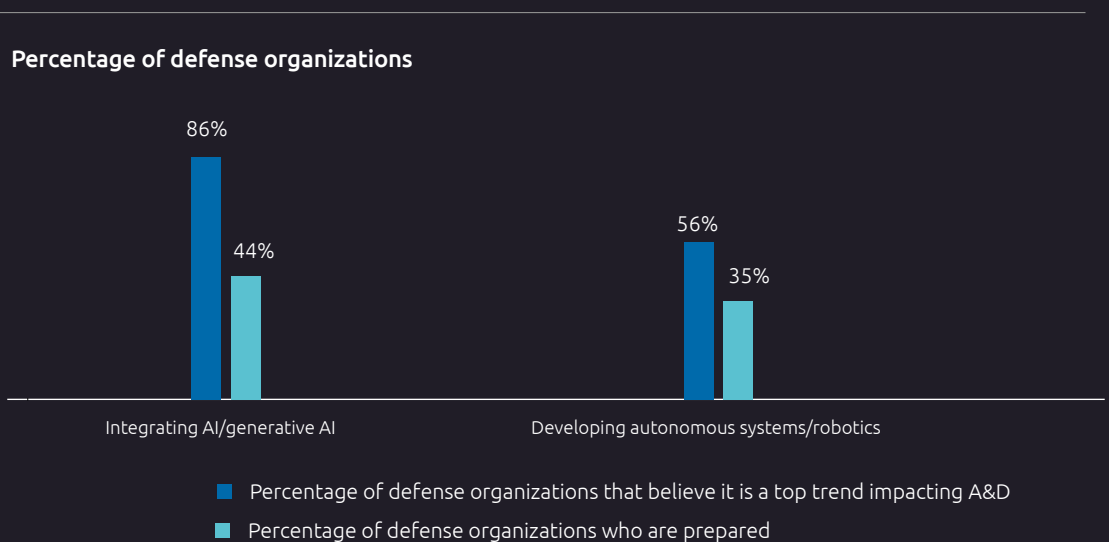


Defense organizations face an increasing influence of AI

Amid rapidly changing technologies, AI is accelerating its influence in the defense sector. Our research reveals that the majority of defense organizations believe the need to develop autonomous systems (56% among defense versus 37% among civil aerospace organizations) and integrate AI/generative AI (similar shares across defense and civil aerospace, 86% and 83%, respectively) are top trends impacting A&D today. Dimitri Mavris of Georgia Tech says: ***"AI/Gen AI is impacting the defense sector in many ways. Generative AI helps accelerate design and prototyping. It also supports intelligent automation across the lifecycle, reducing time and cost. Given the growing geopolitical tensions and the technological advancements in AI, we can expect investments in digital to accelerate in the years to come."***

Only 44% of defense organizations in our survey say they are prepared to integrate AI/generative AI, while 35% are prepared for autonomous systems/robotics (see Figure 12). For example, 30% of defense organizations say they have piloted generative AI initiatives in engineering/ product development compared to 54% of civil aerospace organizations.

Figure 12.
Nearly nine in 10 defense organizations believe integrating AI/generative AI is the most critical trend in the sector today



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 80 defense organizations.

A discussion with an A&D leader

Armel Djeukou
Senior Vice President, Digital and Head of Digital Design and Manufacturing and Services Transformation, Airbus

How does Airbus define digital continuity?

Digital continuity is a seamless and two-way flow of connected data across the product's lifecycle enabling real-time traceability and decision-making. Digital continuity as a backbone for digital twins is helping us move faster, smarter, and more sustainably across the entire product lifecycle.

What are your primary motivations for investing in digital continuity?

As a pioneer in sustainable aerospace, Airbus has adopted a digital-first approach at all company levels for the design, manufacture, and operation of its current and future aeronautical products. The aim is to reduce product development lead time while increasing environmental performance and safety.

How far along is Airbus in its digital continuity journey?

The digital continuity and digital-twin approach started six years ago and spans several areas across all Airbus divisions, such as the Eurodrone and Future Combat Air System (FCAS) at Airbus Defense and Space, new programs at Airbus Helicopters, and for Commercial Aircraft business with both current A320 and A350 families.

Concretely, this means we are working towards "full digitalization." We have converted all aircraft information, production, and maintenance systems into 3D models and functional descriptions. This unified data, connected across the lifecycle, creates a single source of truth, essential for digital continuity and digital twins. This transformation demands a robust, consistent digital architecture built on secure, sovereign cloud platforms, revolutionizing the way aircraft are designed, built, and maintained.

It is important to collaborate with partners and suppliers to ensure their systems can connect seamlessly to our digital thread. In this way, we can move away from point-to-point connections to a more integrated approach.

What are the primary benefits you've observed from implementing digital continuity?

The use of connected models and simulations accelerate the time to market while improving the quality and performance of our products. On the A320 family "heads of version" – the first of a series of aircraft which are strictly identical for a given customer – using 3D data as master and automation significantly reduces quality issues and notably shortens design and production lead times for this aircraft.

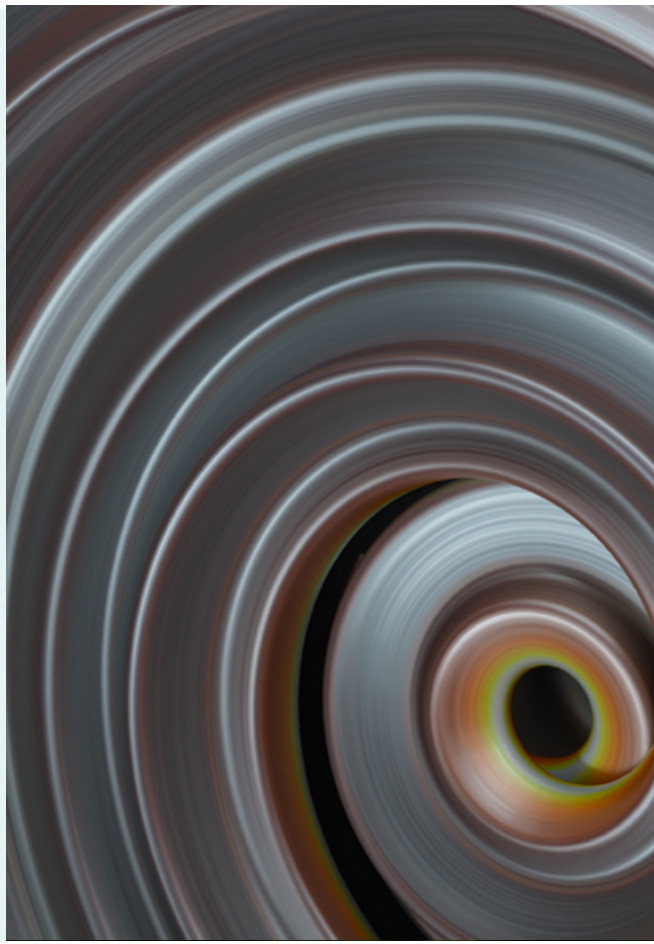
What is a key challenge that Airbus faces as it implements digital continuity?

A key challenge is the adaptation of our ways of working to a digital-first approach both internally and also externally with our ecosystem of partners and customers. Building on our history of innovation, this transformation focuses on aligning people's mindset, processes, and technologies.

How has Airbus prepared its workforce for this transformation?

The technological transformation goes hand-in-hand with a steep ramp-up of change management, upskilling, and user adoption of the new collaborative ways of working around digital twins in all divisions. Digital, classroom, and on-the-job training/tutoring programs are rolled out at scale to equip our people and partners with the required skills, competences, and mindset.

Capgemini Research Institute interview, April 22, 2025.



Who are the digital continuity leaders?

To gain a sense of where organizations are in their digital continuity journeys and identify the leading organizations, we mapped their digital continuity maturity across three dimensions.

1. Enablers: leadership, strategy, and talent and skills required for digital continuity
2. Accelerators: enterprise-wide processes required for digital continuity
3. Foundations: tools, technologies, data, architecture, and systems required across four stages of the product lifecycle:

- Engineering/ product development
- Manufacturing engineering/ production
- Supply chain
- Support and service

Based on these building blocks, we identified three cohorts by their digital continuity maturity:

23%

Leaders: better progression along the three dimensions

29%

Experimenters: low maturity in one of the three dimensions

48%

Beginners: low maturity in two of the three dimensions

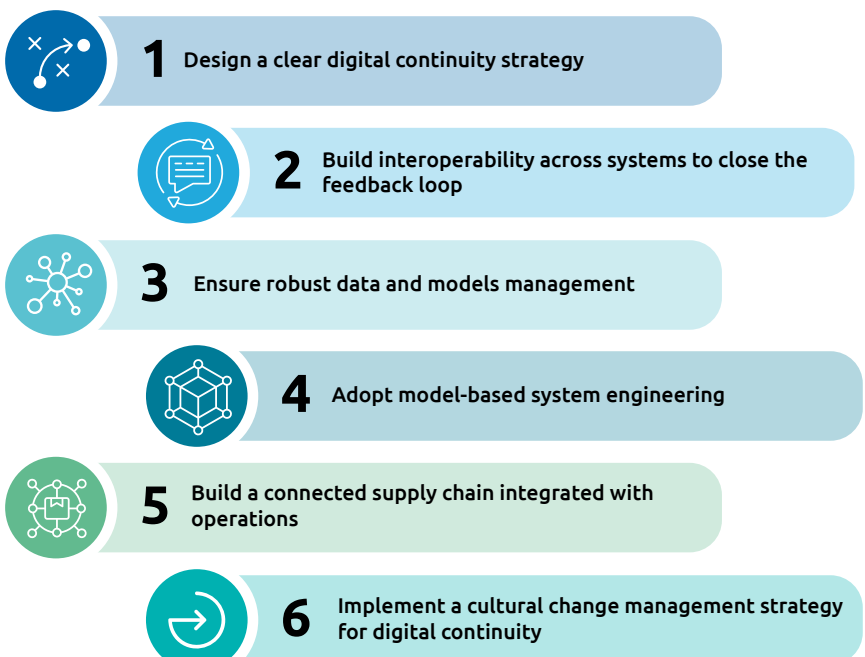
Our framework includes 37 statements to assess the maturity of the organizations. About one in four organizations (23%) in our survey is categorized as a digital continuity leader. Please refer to the full list of statements in the appendix.

04 How A&D executives can accelerate digital continuity benefits

Most organizations are still in the early or middle stages of realizing their digital continuity potential. As organizations mature in terms of systems integration, process changes, and change management, the benefits will continue to accumulate. While the complete journey toward digital continuity in aerospace will take time and deliver substantial benefits, organizations can start achieving quick wins. These include improvements in production efficiency through incremental steps and integrations.

Through our research, discussions with A&D experts, and experience of working on digital continuity initiatives at leading A&D organizations, we have formulated six recommendations for A&D executives to accelerate digital continuity benefits.

Figure 13.
Recommendations for A&D executives to accelerate digital continuity benefits



Source: Capgemini Research Institute analysis.

"The transformation toward digital continuity in A&D is not without its challenges, but embracing this change is necessary if organizations want to remain competitive."

Shobha Kulavil
Vice President, Industry Platform, Aerospace and Defense, Capgemini

Design a clear digital continuity strategy

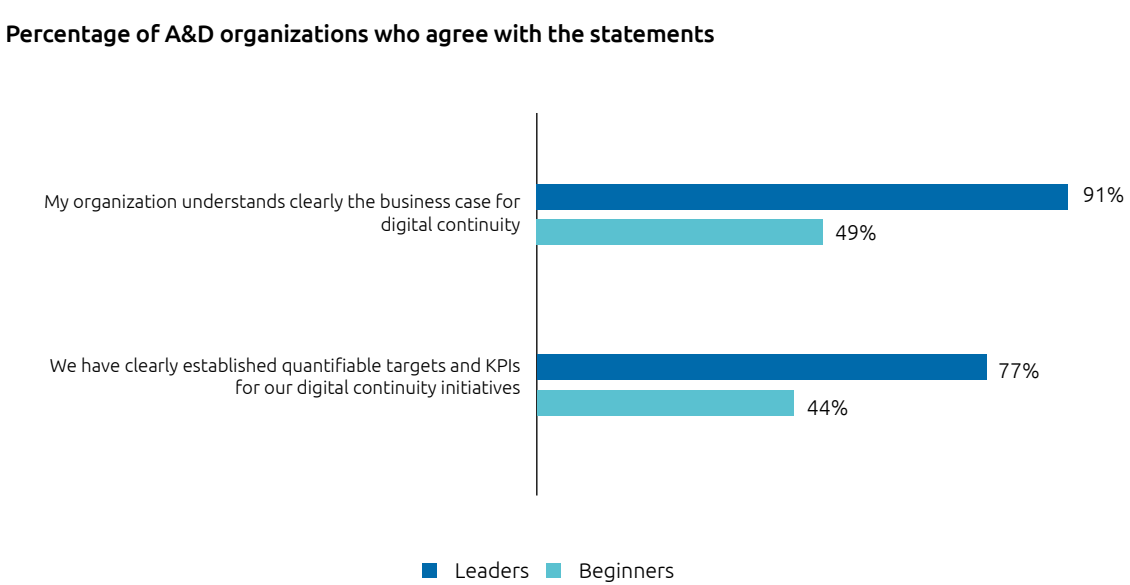
It is important to recognize that digital continuity is not a one-way process but includes a feedback loop where manufacturing and operational data is used to modify the design process. As Armel Djeukou from Airbus affirms in his interview: ***"Digital continuity is a two-way flow of data. It integrates data from design, production, supply chain, and in-service operations ensuring continuous improvement and accuracy."*** But today, there is some ambiguity around true digital continuity. For example, one in three executives in our survey feels that digital continuity is just about PLM implementation.

Similarly, organizations need to be clear on the business case and realistic about desired outcomes. Our research shows that 91% of digital continuity leaders have a clear understanding of the business case, but only 49% of digital continuity beginners have this clarity (see Figure 14).

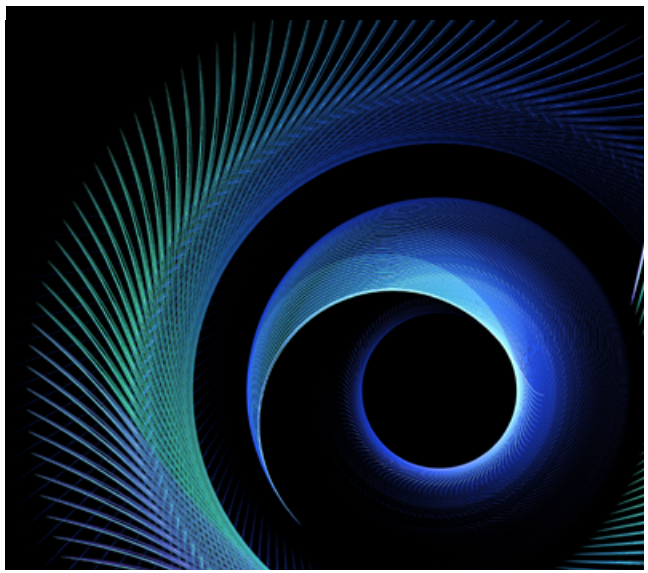
91%

Share of digital continuity leaders who understand the digital continuity business case

Figure 14.
Digital continuity leaders understand business cases and targets



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 35 leaders; 73 beginners.



Digital continuity leaders have clearly defined KPIs and targets for digital continuity. Highlighting the challenge and importance of measuring the impact of digital continuity, a senior leader at a US space technology organization says: ***"It is extremely difficult to measure the impact of digital continuity. Driving the cause and effect is not easy. But it's worth doing because you need to understand which needles you're moving."***

37%

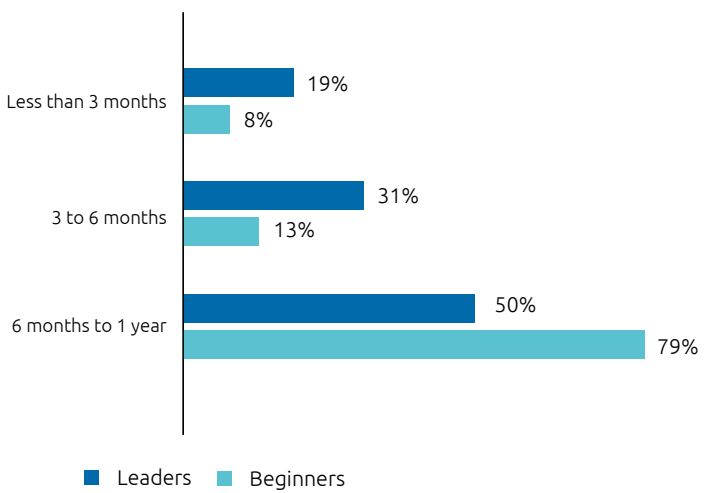
Share of A&D organizations who are ready and able to ramp up production

There is no one-size-fits-all approach for A&D organizations regarding digital continuity targets and KPIs. A&D organizations need to identify the metrics that are most relevant to their organization's current stage of digital continuity maturity. For example, evaluating the impact of digital continuity on production ramp-up – i.e., the capability to ramp up production quickly – could be particularly valuable. Amid the chronic backlog issue outlined above, this is a crucial concern for the A&D sector. Similar capabilities that support an organization's ability to ramp-up can allow for other production adaptations such as ramping down during time of decreased demand.

Only 37% of A&D organizations in our survey say they are ready and able to ramp up production for most programs. But our research reveals that half of leaders are prepared to adapt production in less than six months, compared with just 21% of beginners (see Figure 15).

Figure 15.
Digital continuity leaders are prepared to adapt production more quickly

Percentage of A&D organizations who say their organization can plan and adapt manufacturing/production due to supply chain disruptions in the time frames below



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 16 leaders; 24 beginners.
*Given the small sample size, the data in this chart is not statistically significant, but rather intended to be directional in nature.

Build interoperability across systems to close the feedback loopy

Over the years, A&D organizations have built a complex legacy stack of tools and systems that span the design and development processes. Integration of legacy systems into new digital platforms is one of the biggest challenges in achieving digital continuity. Digital continuity is about appropriately connecting these different platforms around shared databases and aligning them on standards and protocols. A senior leader at a US space technology organization says: ***"Integrating multiple subsystems from different suppliers is very complex, which makes achieving a 10 out of 10 in digital continuity maturity extremely challenging."***

50%

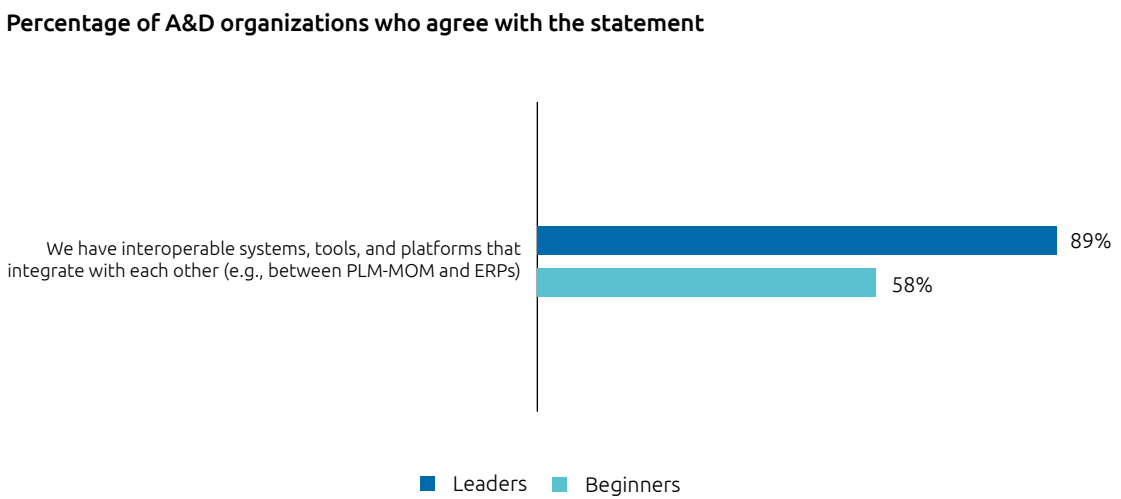
Share of digital continuity leaders who can adapt production in 6 months or less

In our research, 89% of digital continuity leaders say they have integrated systems, compared with only 58% of digital continuity beginners (see Figure 16). The percentage of organizations with an appropriate level of interoperability across their systems may be lower. This discrepancy arises as, today, most organizations lack an understanding of what interoperability really means. For example, contrary to popular assumption, the ERP system feeding into PLM does not qualify as part of an interoperable system, unless and until there is a closed feedback loop established across the two. Organizations should establish a clear understanding of both digital continuity and interoperability in their processes.

89%

Share of digital continuity leaders who integrated systems

Figure 16.
Digital continuity leaders have integrated systems, tools, and platforms



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 35 leaders; 73 beginners.

Ensure robust data and models management

Along with maintaining interoperability of systems, it is also important to invest in data-management technologies to support digital continuity, including integrated data lakes, cloud storage, data sovereignty, data models, APIs, and data security. Having a single source of truth for data ensures all data remains findable, accessible, interoperable, and reusable (FAIR), avoiding errors and costly rework at design or production stages. With everyone defining their own models and following different formats, data quality, integrity, and flow will remain a challenge.

Our research shows that 57% of digital continuity leaders have minimal replicated data compared with 45% of beginners. Similarly, having a robust cloud infrastructure is crucial to managing and processing large volumes of data to ensure scalability and flexibility. Another aspect not to be ignored is data security. Interconnected systems mean that a breach in one could compromise the entire network.

Adopt model-based system engineering

Current production systems are typically siloed, document-centric/not data-model centric, and incapable of meeting today's advanced digital demands. A&D organizations must transition to seamless, integrated program development, supporting multidisciplinary collaboration, fast decision-making, and minimized incidence of error and rework.

Model-based system engineering (MBSE) replaces document-centric methods with advanced virtual modeling, allowing engineers to work in a single data and collaboration environment that can simulate, test, and refine complex systems at the design stage. System engineering and MBSE is more efficient to create highly accurate design iterations, enabling earlier entry into production, and greater ability to scale without losing visibility or control. It also offers engineers a way to create digital twins of complex products and use them to establish digital continuity between multiple design teams in various disciplines. This level of digital continuity also results in greater predictability, quality, and scalability. Instead of sharing physical prototypes with the customer for approval, you can share the digital twin for feedback, which can be integrated pre-production. Building a digital twin of the supply chain also enhances visibility and traceability. In addition, since manufacturers rely on a complex, expanding network of suppliers, it is critical that A&D organizations encourage suppliers to embrace MBSE and participate in their digital ecosystem. To fully realize the benefits of using MBSE, the engineering and manufacturing workforce must be engaged and supportive. A&D organizations need to address this by investing in structured training programs to familiarize teams with MBSE methodologies and technologies.

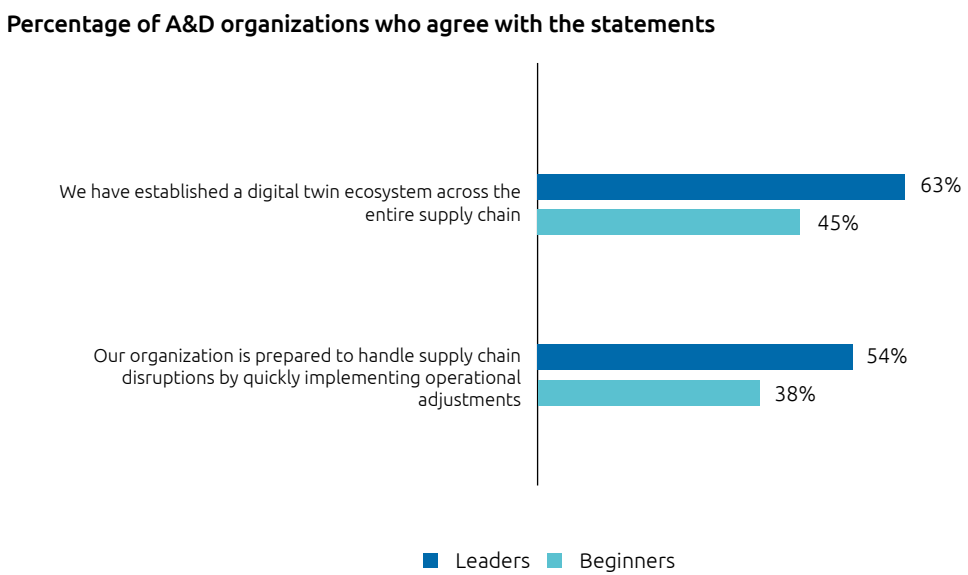
63%

Share of digital continuity leaders who have a digital twin ecosystem across the supply chain

Our research also shows that 63% of digital continuity leaders have established digital twins across the supply chain, compared with 45% of beginners, demonstrating the greater agility of their supply chain operations. For example, 54% of digital continuity leaders are prepared to handle supply chain disruptions by quickly implementing operational adjustments, compared with just 38% of beginners (see Figure 17).

Digital twins integrate data across various stages of the product lifecycle to create a comprehensive digital representation of the physical product. This provides visibility across various areas and entities, ensuring free flow of information and data. It also makes the entire production process more flexible, agile, and resilient, with all changes seamlessly communicated to the rest of the system, ensuring timely action and minimal errors and rework.

Figure 17.
Digital continuity leaders use digital twins for their supply chains



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 35 leaders; 73 beginners.

Build a connected supply chain integrated with operations

Digital continuity foundations rely on integrating data, information, and workflows across all components of the organization's operations including forecasting, ideation, design, sourcing, engineering, manufacturing operations, production, and aftermarket services. This integration should extend to the external partner ecosystem also including suppliers, customers, ER&D partners, and service partners.

Organizations need to reconstitute their supply chain to ensure seamless two-way information flow, real-time access, collaboration, consistent formats, and traceability across all these components, thereby enhancing overall agility, resilience, and efficiency.[24]

86%

Share of digital continuity leaders who say their engineering, manufacturing, and service teams collaborate easily

As discussed earlier, siloed operations, fragmented data, and disparate non-integrated systems hinder supply chain connectivity. Another key challenge that organizations face in building digital continuity is lack of supplier buy-in. Greater transparency would support optimization, but many suppliers are reluctant to expose their operations and processes to such scrutiny. Another challenge in the path to supplier connectivity is that different suppliers have achieved different levels of maturity in terms of infrastructure, technology, operating methods, and processes. They vary widely in their capabilities and readiness to adopt digital solutions, making the introduction of digital continuity across the supply chain a daunting task.

So, it is crucial to demonstrate the benefits and explain the win-win situation to suppliers. A senior leader at a US space technology organization explains: ***"Visibility into the OEM data provides suppliers with an opportunity to scale operations as needed and provide proactive support to OEMs for their planned and unplanned production changes. Similarly, if they have visibility into the supplier ecosystem, OEMs can identify and prepare themselves for supplier bottlenecks."***

It is equally important to build connectivity with customers. Smart and connected products and systems are key enablers of digital continuity, as agreed by 77% of digital continuity leaders in our research (compared with 67% of beginners). They enable closure of the feedback loop with the customer, while ensuring that relevant customer data is collected and analyzed to improve product quality and safety. A senior leader from a Latin American aerospace OEM says: ***"Digital continuity enables the collection of in-service data, which can be used to support customers while aircraft are in operation. This data can also provide valuable feedback for improvements to engineering, suppliers, and maintenance teams."***

Implement a cultural change management strategy for digital continuity

Digital continuity is not just about breaking barriers between technological domains and services. It also requires innovative collaboration between internal teams within the organization and externally across the value chain. It is a reimagining of how the broader enterprise works, moving focus from local efficiencies to a global lens. The majority (86%) of digital continuity leaders agree that their engineering, manufacturing, and service teams can collaborate easily (compared with 70% of beginners).

Collaboration between IT and business stakeholders is crucial to driving this change and overcoming resistance to implementation of new technologies in processes and ways of working.

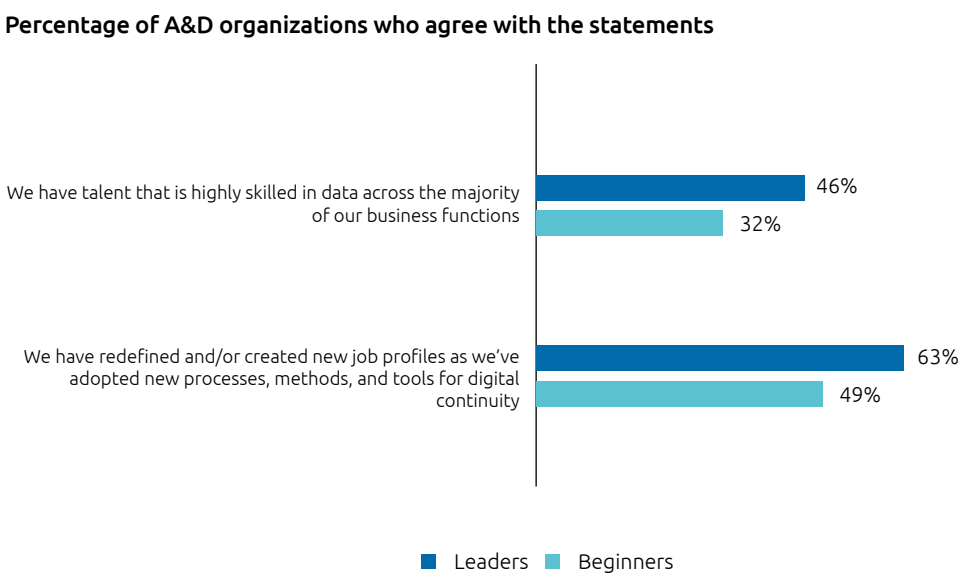
Nor is this purely an IT initiative. Rather, it requires redesigning processes. Having consistent and standardized methods, processes, and tools supports reliability and interoperability. Bernd Schmidt from Rheinmetall comments: ***"One thing is to centralize IT teams, but digital continuity also needs centralized processes. Additionally, having standardized models and processes enables new team members to get up to speed quickly."***

In addition to processes, digital continuity requires sharing unique or at least common concepts and principles that drive end-to-end product identification (i.e., product structure and multi-view concepts) and also the configuration management principles that support the end-to-end development activities.

Digital continuity also requires a focus on skills. Our research shows that 63% of digital continuity leaders (compared with 49% of beginners) have defined and/or created new job profiles as they adopted new processes, methods, and tools for digital continuity (see Figure 18). As Armel Djeukou from Airbus says: ***"Along with all the benefits of models and simulation, there is also a risk that people stop using their engineering judgment."*** Hence, it is important to create roles where humans actively participate in the decision-making process alongside or after automated systems, rather than being passive observers. This will prevent engineers from becoming complacent, as well as having an opportunity to use and refresh their technical skills.[25] Ensuring talent is prepared and skilled in new technologies that enable digital continuity will also attract the next generation of talent who are already digital leaders and expect their employer to be the same. Dimitri Mavris of Georgia Tech says: ***"Any A&D organization that adopts modern, integrated digital architecture and tools signals innovation and forward-thinking and is more likely to attract future talent."***

Also, to effectively implement digital continuity across the organization, it is important that all functions demonstrate data and models skills. Nearly half of leaders have highly skilled talent in data across most business functions, compared with about one-third of beginners.

Figure 18.
Digital continuity leaders ensure talent is spread across business functions



Capgemini Research Institute, A&D digital continuity survey, March 2025, N = 151 organizations; 35 leaders; 73 beginners.

63%

Share of digital continuity leaders who have created new job profiles

Conclusion

For the A&D sector, digital continuity is a transformative force. It can help address some of the critical issues the sector faces, offering significant benefits across business operations. By integrating data and information across all stages of the product lifecycle, digital continuity facilitates collaboration and decision-making. This integration not only reduces TTM and accelerates production but also enhances product quality and innovation.

As A&D organizations mature in their digital continuity journeys, they will realize even greater benefits, including improved supply chain resilience, enhanced regulatory compliance, and increased sustainability. But to harness the full potential of digital continuity, A&D organizations must focus on building interoperability across systems, ensuring robust data and models management, and adopting model-based system engineering. Additionally, a cohesive change-management strategy incorporating processes, skills, and ways of working, is essential to fostering digital continuity as part of a collaborative culture.

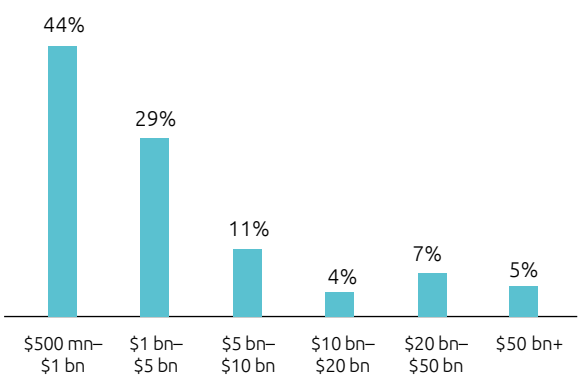
But it is important to recognize that digital continuity is a journey. To stay relevant and thrive, A&D organizations must continually evolve in terms of skills, processes, technologies, security methods, and compliance policies. By embracing digital continuity as a way of working, A&D organizations can navigate the complexities of their sector more effectively, achieving operational excellence, and positioning themselves for long-term success.

Research methodology

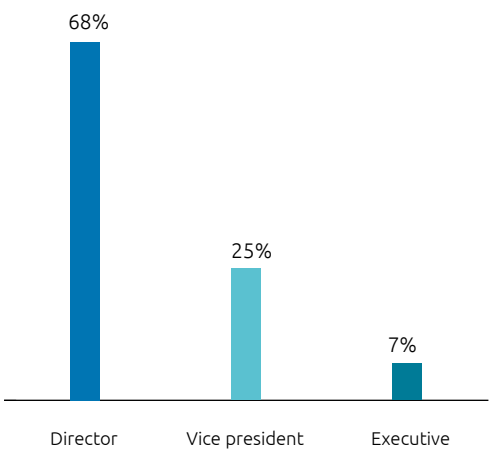
We carried out extensive research to understand A&D organizations' maturity in digital continuity and benefits achieved. We surveyed 179 A&D organizations across 16 countries in Asia-Pacific, Europe, the Americas, and the Middle East. Over half (51%) are US-headquartered organizations. The survey included 28 public sector/government organizations. The majority (56%) of the total sample has annual revenue greater than $1 billion and all have annual revenue over $500 million. The majority (71%) of executives surveyed work within business functions, and the remaining 29% come from IT, information security, or digital functions. The global survey was conducted in March 2025. We also interviewed six senior A&D executives/academics at leading organizations.

The study findings reflect the views of the respondents to our online questionnaire for this research and are aimed at providing directional guidance. Please contact one of the Capgemini experts listed at the end of the report to discuss specific implications.

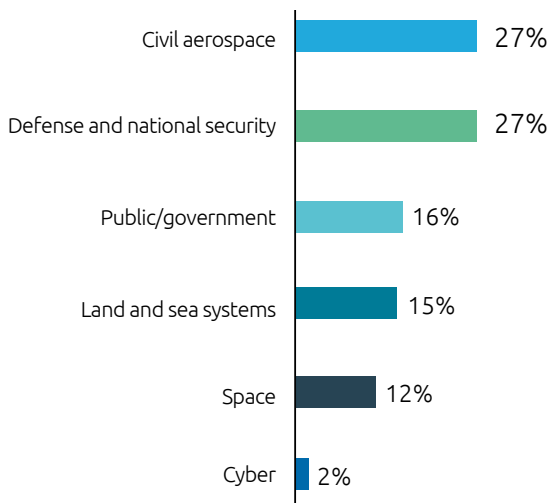
Percentage of A&D organizations by annual revenue/budget



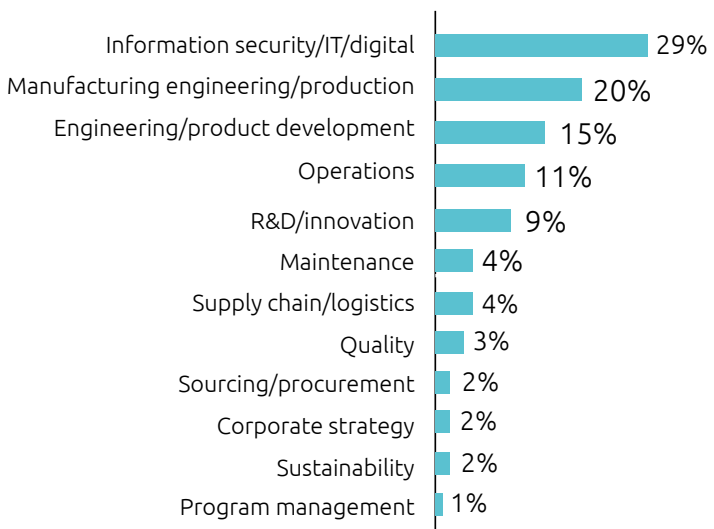
Percentage of A&D organizations by job title of respondent



Percentage of A&D organizations by aerospace and defense subsector*

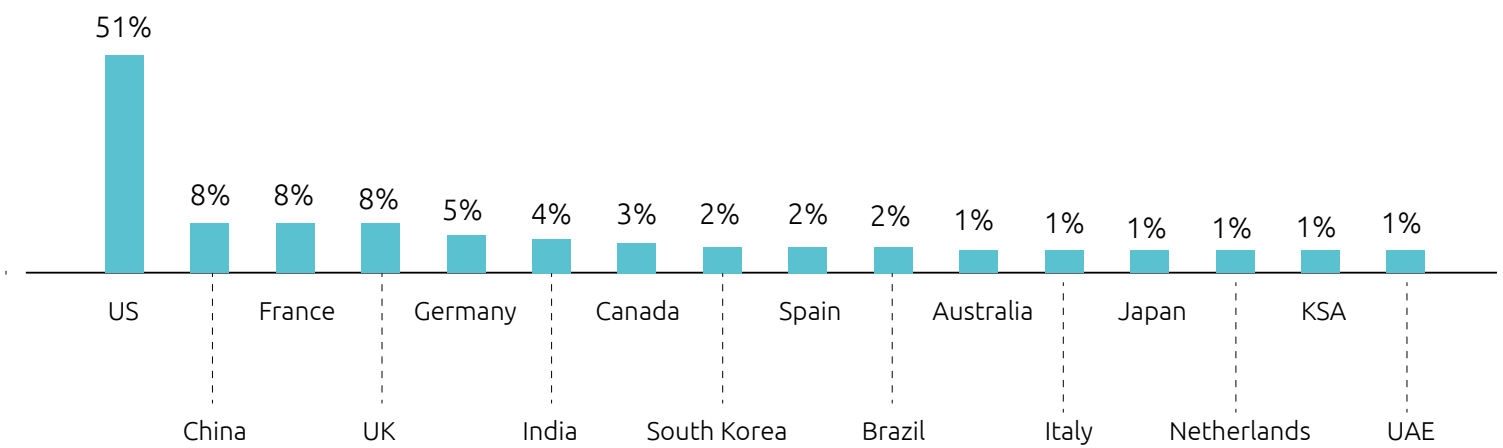


Percentage of A&D organizations by function



*Land and sea systems defined as the development and production of weapons, surveillance equipment, and armed aircraft for military use); Space defined as the development and production of rockets, launch vehicles, satellites, and other systems for space exploration and scientific research; Cyber defined as the development and production of cyber systems for defense and national security).
**Defense organizations are classified in our analysis as including the subsectors: defense and national security, land and sea systems, and cyber (44% of the total sample).

Percentage of A&D organizations by country



Source: Capgemini Research Institute, Digital continuity survey in A&D, March 2025, N = 179 organizations.

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Digital continuity maturity model

The 37 statements used to build the digital continuity maturity model are below. Questions were asked on an agreement rating scale from 1 to 7, where 1= strongly disagree and 7= strongly agree.

Digital continuity category	Statement
Leadership/strategy	Digital continuity is recognized and understood by top leaders as a key enabler of strategic transformations
Leadership/strategy	Digital continuity is part of our CEO's agenda
Leadership/strategy	Top leaders are strong advocates for implementing digital continuity
Leadership/strategy	We have established strategic goals for digital continuity in our organization for the next three years
Leadership/strategy	We have communicated our digital continuity ambition at all levels of our organization
Talent and skills	We have talent that is highly skilled in data across most of our programs
Talent and skills	We are investing in reskilling/upskilling our workforce in new and emerging technologies

Digital continuity category	Statement
Talent and skills	Employees understand how digital continuity benefits our business and customers
Enterprise-wide processes	We can share data and models internally cross-functionally/cross-discipline without replicating them
Enterprise-wide processes	We can share data and models with our suppliers without replicating them
Enterprise-wide processes	Separate teams across the organization can access the same datasets in a unified way (i.e., we have eliminated data silos)
Enterprise-wide processes	We are replacing local/legacy processes and tools with unified toolsets
Enterprise-wide processes	We can easily integrate data from external stakeholders (e.g., customers, partners) to help us to co-implement and co-validate complex systems
Enterprise-wide processes	We have a strong enterprise governance system for data and models across the organization
Enterprise-wide processes	We find it easy to create, access, and reuse information on how a product was designed, manufactured, and serviced
Enterprise-wide processes	Business-critical data flow across product lifecycles is managed by our information system (IS)
Engineering/product development	We have deployed digital twin technologies to assist in our design and production processes

Digital continuity category	Statement
Engineering/product development	We have implemented product lifecycle management (PLM) tools
Engineering/product development	We have implemented enterprise resource management (ERP) tools
Engineering/product development	We have implemented ERP tools coupled with PLM
Engineering/product development	Sales/marketing and engineering/product/manufacturing/service teams gather and manage requirements collaboratively
Engineering/product development	Engineering/product development and production/service teams collaborate early in the product development process
Engineering/product development	We have real-time integration between engineering/product development and manufacturing/production and service
Manufacturing engineering/production	We have implemented manufacturing operations management (MOM) tools (including a manufacturing execution system [MES])
Manufacturing engineering/production	We have implemented strong governance, processes, and tools to manage a smooth transition between manufacturing engineering and production
Manufacturing engineering/production	We have implemented MOM tools coupled with PLM
Manufacturing engineering/production	Our MES can adapt to changing customer needs and new product configurations

Digital continuity category	Statement
Manufacturing engineering/production	We use predictive maintenance models for manufacturing equipment connected in real time to our production scheduling systems
Manufacturing engineering/production	We have implemented PLM tools to manage our production asset lifecycle
Supply chain	Our supply chain is well connected and collaborates easily with our organization
Supply chain	We have developed custom-built forecasting tools for more precise demand forecasting and resource allocation
Supply chain	We are investing in advanced technologies including internet of things (IoT), AI, and machine learning (ML) to improve end-to-end visibility across our supply chains
Supply chain	We have deployed the latest technologies that automate repetitive and time-consuming tasks, such as order processing and inventory management
Supply chain	Our supply chain is adaptable to quickly changing customer demands
Supply chain	We have established feedback loops between forecasting tools and PLM-MOM-ERP
Support and service	We use embedded systems data from our products in the field/in-use to gain insights that complete the feedback loop with design and engineering manufacturing
Support and service	We use service and maintenance log data from our products in the field/in-use to drive improvements in product design, performance, and reliability

Authors

Meet the experts

Lee Annecchino
Executive Vice President, Global Industry Lead,
Aerospace and Defense, Capgemini
lee.annecchino@capgemini.com

Lee has over 25 years of experience driving growth, innovation, and revenue in a series of executive and leadership roles in the aerospace industry. As Global Aerospace and Defense Leader at Capgemini, Lee is responsible for creating the global A&D industry strategy that drives a portfolio of capabilities and the ecosystem needed to address the evolving needs of the industry. Lee believes that data-driven connected A&D ecosystems and resilient supply chains will drive efficiencies in the aerospace and defense industry.

Antoine Scotto d'Apollonia
Vice President, Digital Continuity Advisor,
Capgemini Invent
antoine.scotto-d-apollonia@capgemini.com

Antoine has more than 30 years in civil aerospace leading engineering transformation and digital continuity and PLM implementation for new programs. He is driven by the ability to develop new Digital Design-Manufacturing-Service platforms and ways of working and deploy global business transformation for his clients. He manages aerospace transformation best practices for Capgemini Invent and leads digital continuity insights for the aerospace and defense industry.

Bruno Bouf
Executive Vice President, Global Aerospace and
Defense Lead, Capgemini Invent
bruno.bouf@capgemini.com

Bruno has 20 years of experience in operational excellence and digital transformation. He has advised segments across the aviation value chain, including operators, airlines, aircraft manufacturers, OEMs, MROs, service providers, and Tier 3 suppliers. Bruno has also founded and grown an innovative start-up and is an active member of aerospace research and innovation clusters.

Shobha Kulavil
Vice President, Industry Platform, Aerospace and Defense, Capgemini
shobha.kulavil@capgemini.com

Over a career spanning 26 years, Shobha has held multiple leadership roles in the aerospace and defense, energy, and railways sectors. Her experience in the A&D industry spans across key domains like aerostructures, aero-systems, avionics, aircraft engines, and aftermarket. In her role at Capgemini, she brings thought leadership from India to drive the definition of industry strategy and its execution to deliver greater value to A&D clients.

Jacques Bacry
Executive Vice President, Digital Continuity and Convergence Offer Leader, Capgemini
jacques.bacry@capgemini.com

As Digital Continuity Group Offer Leader, Jacques's objective is to define and execute the strategy in this dynamic domain including PLM and digital twin. His work is focused on unleashing the promise of end-to-end digital continuity across the entire product lifecycle, by seamlessly integrating ideation, engineering, manufacturing, and aftersales into one unified digital collaboration. He is a champion of PLM as an enabler for Industry 4.0 because it integrates the development of products, production, and services.

Authors

Meet the Capgemini Research Institute

Jerome Buvat
Head of Capgemini Research Institute
jerome.buvat@capgemini.com

Marisa Slatter
Director, Capgemini Research Institute
marisa.slatter@capgemini.com

Tvishee Kumar
Senior Manager, Capgemini Research Institute
tvishee.kumar@capgemini.com

Anil Sharma
Senior Consultant, Capgemini Research Institute
anil.f.sharma@capgemini.com

The contributors would also like to thank Philippe Abdiche, Bruno Cathala, Frederic Combes, Frédéric Grousson, Udo Lange, Tarun Philar, Pierre-André Vandelle, and Christine Svitila for their contributions to the research.

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Source: Capgemini, "Digital continuity for design, and manufacturing engineering in aerospace and defense," 2024.

For more information, please contact:

Global

Lee Annecchino
lee.annecchino@capgemini.com

North America

Nicolas Croue
nicolas.croue@capgemini.com

Anijay Zinzuwadia
anijay.zinzuwadia@capgemini.com

Tarun Philar
tarun.philar@capgemini.com

France

Marc Ferrer
marc.ferrer@capgemini.com

Matthieu Ritter
matthieu.ritter@capgemini.com

United Kingdom

Ian Hampson
ian.hampson@capgemini.com

Spain

Salvador Cabrero
salvador.magan-gomez-cabrero@capgemini.com

Germany

Dirk Sapatka
dirk.sapatka@capgemini.com

Christopher Gaube
christopher.gaube@capgemini.com

Italy

Giuseppe Razzano
giuseppe.razzano@capgemini.com

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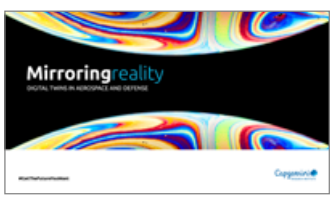

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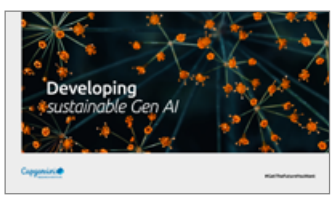

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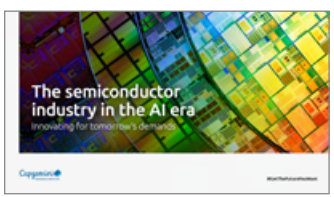

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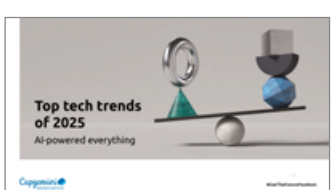

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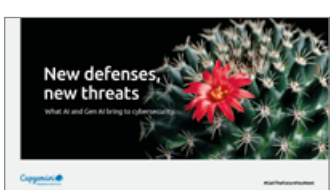

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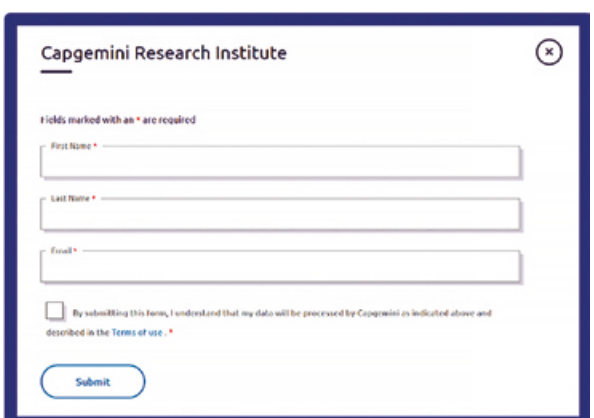

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