

Aerospace and Defense Digital Services 2024 Market Insights™

Empowering Aerospace and
Defense with smarter, sustainable,
and secure solutions

December 2024

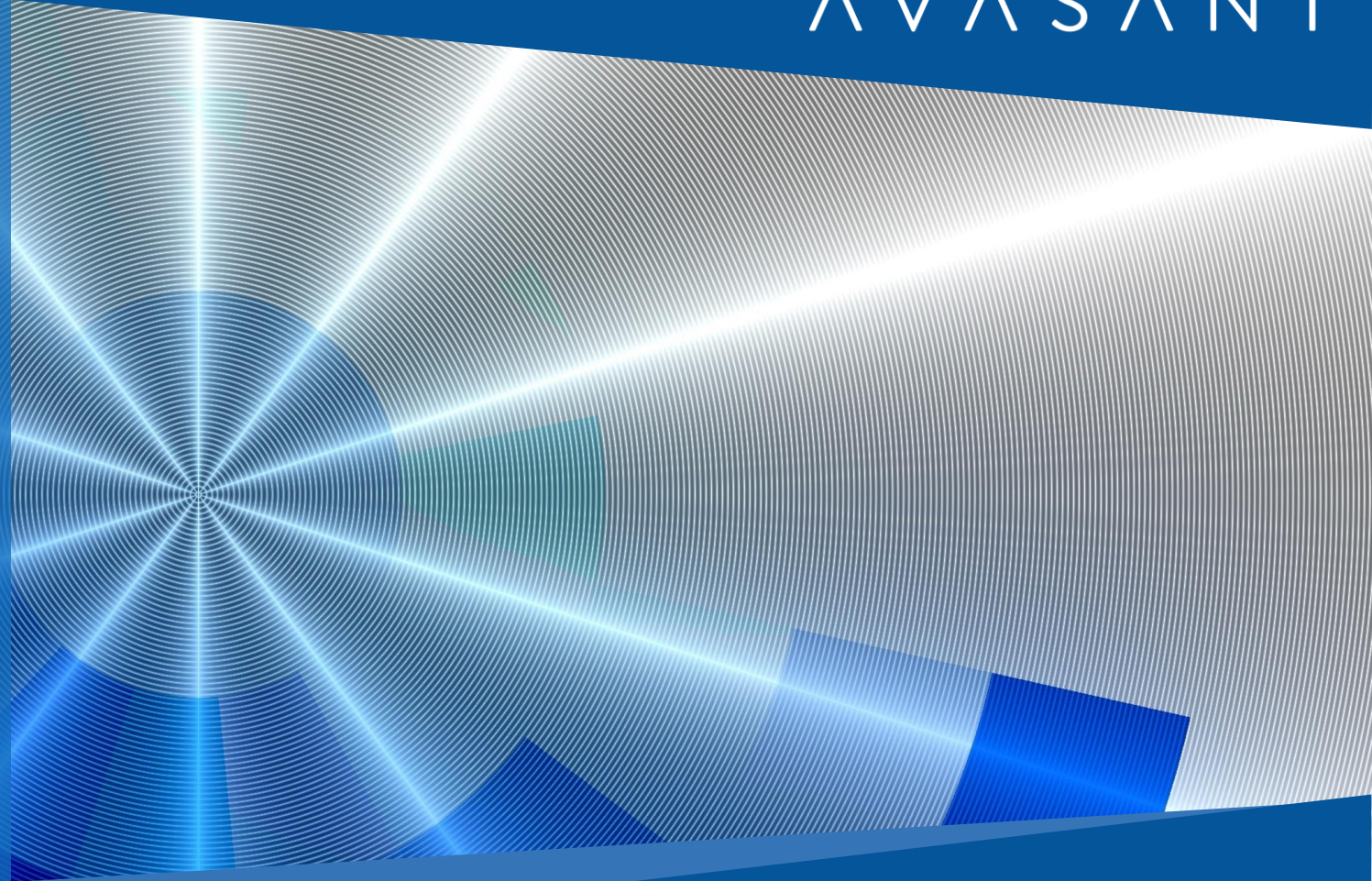
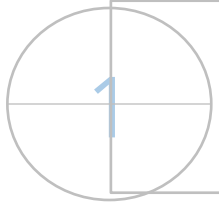


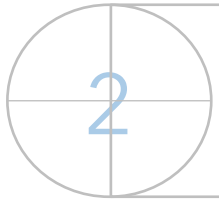
Table of contents

• About the Aerospace and Defense Digital Services 2024 Market Insights report	3
• Executive summary	4
• Demand-side trends	8
• DXC profile	15
• Appendix	19
• Key contacts	23

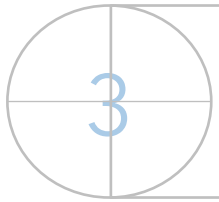
About the Aerospace and Defense Digital Services 2024 Market Insights report



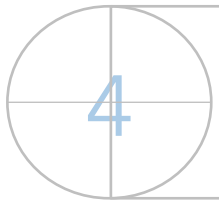
Aerospace and Defense (A&D) companies are adopting advanced propulsion systems such as electric, hybrid, and hydrogen engines to achieve zero-emissions goals. They are making significant investments in research and development, partnerships, and regulatory collaborations to drive advancements in sustainable aviation technology.



To optimize supply chains, enhance Maintenance, Repair, and Overhaul (MRO) efficiency, and bolster cybersecurity, A&D enterprises are leveraging AI, blockchain, digital twins, and robotics. Additionally, they are using technologies such as predictive analytics and automated systems to improve operational agility, risk management, and asset reliability.



Avasant's continuous engagement with industry leaders indicates that organizations are driving growth through increased investments in commercial and defense sectors, prioritizing sustainable aviation, modernizing their workforce with AI-driven upskilling initiatives and AR/VR training, and expanding their network of global capability centers (GCCs) to enhance operational readiness and long-term success.



The *Aerospace and Defense Digital Services 2024 Market Insights* report can help enterprises craft a robust strategy based on the industry outlook, best practices, and digital transformation. This report also highlights key market trends and Avasant's viewpoint on the direction of the industry over the next 12 months.



Executive summary

Scope of coverage

The report focuses on digital services delivered to enterprise customers across the following industry segments:

Subindustries	Description	Enterprise illustrative examples
Commercial	- Research, design, and manufacture engagement of civil aircraft, rotorcraft, space systems, engines, and related subsystems and parts - Providers of commercial aerospace solutions, including engineering solutions, aftermarket solutions, upgrade solutions, and training services	BOMBARDIER THALES Honeywell Raytheon NORTHROP GRUMMAN BOEING GE Aerospace AIRBUS TEXTRON SAFRAN LOCKHEED MARTIN BAE SYSTEMS Hard Stuff Done Right LEONARDO
Defense	- Research, design, and manufacture engagement of military aircraft, space systems, land vehicles, ships, and armaments - Providers of defense-related offerings, including engineering, aftermarket, and upgrade solutions and training services	

Digital services definition: Digital services accelerate digital transformation using emerging technologies such as AI and analytics, blockchain, cloud, cybersecurity, intelligent automation (IA), and IoT across the A&D value chain. Service provider offerings to be assessed in this report are advisory and consulting, proof of concept (POC) development, build and test, implementation, system integration, and development and maintenance.

We will assess service provider offerings across the following value chain components:



The geographical scope of the report is global.

Executive summary

Key drivers

1.

Regulatory and public pressures have heightened the push for sustainability and reduced carbon emissions

2.

Geopolitical tensions have exposed vulnerabilities in supply chains, driving the need for more resilient systems

3.

There is a growing demand for cost reduction and operational efficiency in aircraft maintenance and production

4.

Rising cyber threats are driving investments in cybersecurity and defense technologies

5.

There is an intensified pressure to innovate faster and maintain competitive differentiation

6.

There is a critical need for workforce modernization to handle advanced systems and address the skills shortage

Enterprise response

- A&D companies are rapidly adopting advanced propulsion technologies such as electric and hybrid engines and exploring hydrogen as a primary power source for zero-emissions aircraft.
- They are investing in research and development for cleaner propulsion systems, collaborating with regulatory bodies, and creating partnerships to advance sustainable aviation technology.

- A&D firms are enhancing supply chain visibility and agility through AI, blockchain, and cloud-based platforms to improve responsiveness and risk management.
- They are implementing digital threads for supplier collaboration, leveraging AI for predictive analytics, and embracing nearshoring and reshoring strategies to mitigate geopolitical and logistical risks.

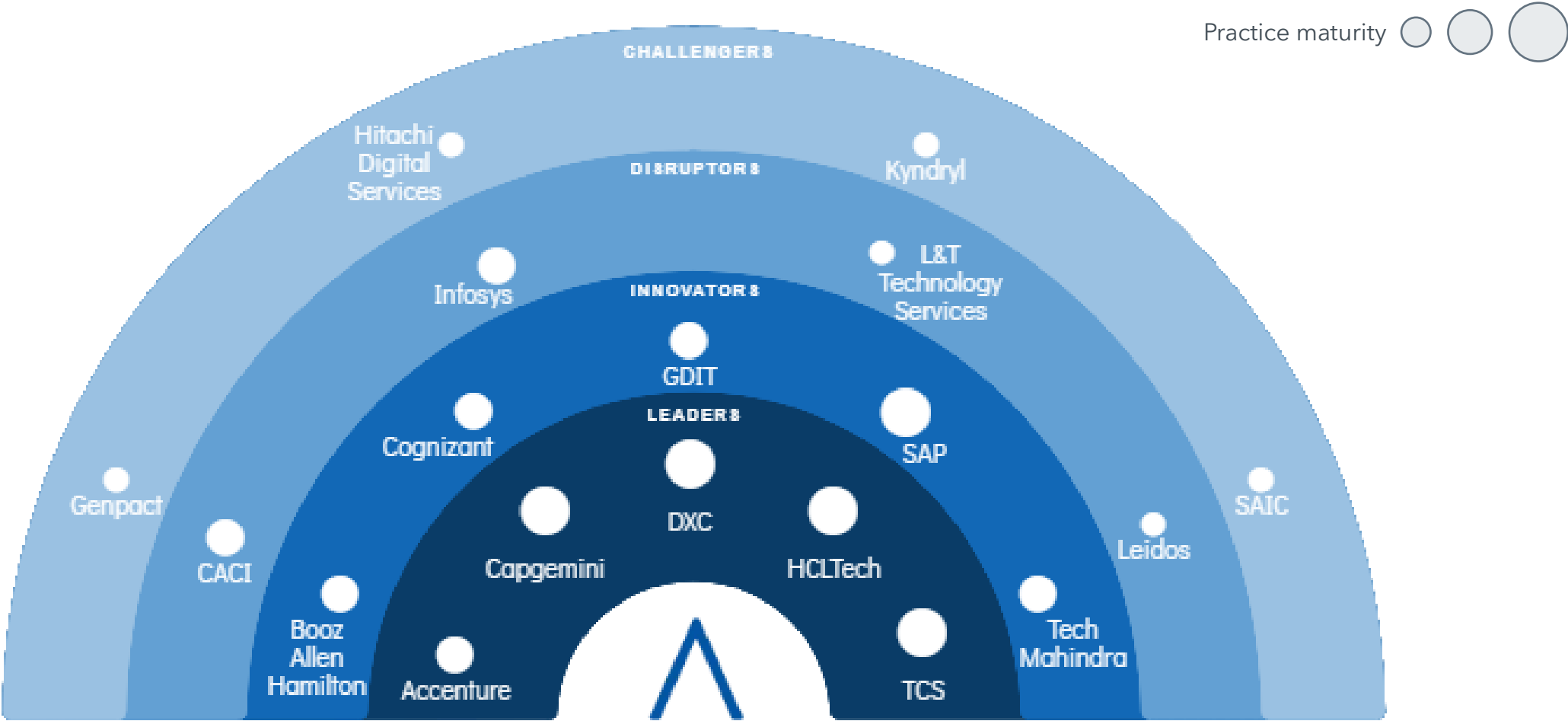
- A&D enterprises are adopting AI, 5G, digital twins, and robotics for MRO services to optimize maintenance schedules, minimize turnaround times, and ensure asset reliability.
- They are integrating advanced predictive maintenance systems, using wearables for technician training, and investing in automated inspection technologies such as drones and robotic systems.

- A&D companies are focusing on building secure IT infrastructures through GovCloud transformations, advanced encryption, and compliance frameworks, such as CMMC, to protect sensitive systems against cyberattacks.
- They are also driving significant investments in innovation such as AI, cyber defense, and autonomous systems to strengthen national security and maintain a strategic advantage.

- A&D firms are harnessing generative AI (Gen AI) and quantum computing to transform aircraft design, mission planning, and in-flight operations.
- They are deploying quantum simulations for material optimization, using Gen AI for design exploration, and integrating technologies to improve decision-making in real-time, mission-critical scenarios.

- A&D enterprises are exploring AR/VR and AI-driven training programs to upskill personnel to adapt to next-generation technologies.
- They are rolling out immersive training solutions, leveraging AI for customized learning pathways, and creating standardized platforms to onboard and develop technical staff effectively.

Avasant recognizes 18 top-tier service providers supporting the Aerospace and Defense industry in digital transformation



Note: Please refer to Avasant's *Aerospace and Defense Digital Services 2024 RadarView* for detailed insights on the service providers and supply-side trends.



Demand-side trends

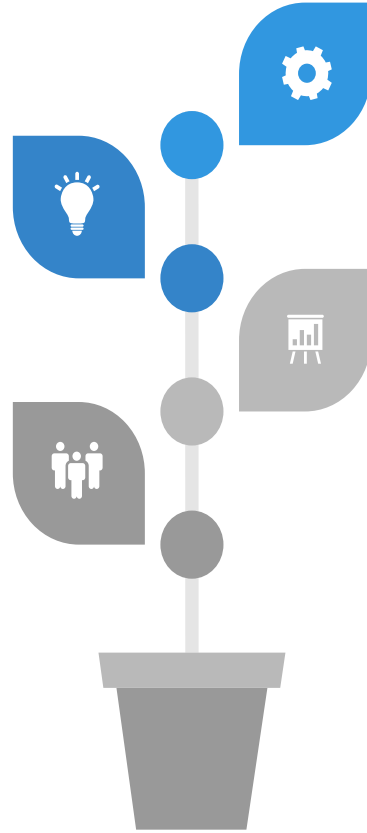
Accelerating the shift toward sustainable aviation through innovation and collaboration

A&D companies are actively adopting sustainable practices to enhance environmental efficiency and meet regulatory, public, and operational demands.

Description

A&D companies are focusing on energy-efficient manufacturing, the development of alternative fuels, and innovative propulsion designs to minimize energy consumption and reduce emissions.

They are driving sustainable innovations to align with environmental goals and regulatory expectations.



Illustrative examples

- Boeing and NASA are advancing the transonic truss-braced wing design, targeting to reduce fuel consumption by 10% using innovative aerodynamic features.



- Vertical Aerospace is pioneering zero-emissions solutions with its eVTOL* aircraft, leveraging Dassault Systèmes' virtual twin technology for efficient design and certification.



- GE Aerospace, in partnership with the US Army, demonstrated hybrid electric propulsion technology, combining electric power with traditional gas turbine engines for enhanced fuel efficiency.



- Through CFM International, GE Aerospace and Safran collaborated for the Revolutionary Innovation for Sustainable Engines program to develop a next-generation engine, targeting 20% fuel economy.



Building resilient supply chains amid global disruptions, alongside addressing vulnerabilities in sourcing, logistics, and supplier dependencies

A&D companies are actively enhancing supply chain agility and resilience to address these disruptions and maintain operational stability. Below are some examples displaying the role of digitalization, collaboration, and strategic localization in fortifying A&D supply chains.

Adopting AI, blockchain, and cloud platforms to enhance real-time visibility, enable predictive analytics, and improve responsiveness

GE Aerospace utilizes AI to optimize inventory and forecast supply chain disruptions, integrating digital tools to improve efficiency.



Focusing on nearshoring and reshoring strategies to gain control over supply chain operations and minimize logistical risks

Boeing and Airbus are increasing their reliance on regional suppliers in North America and Europe to secure critical components and mitigate disruptions.



Partnering with governments and industry organizations to build robust supply chain networks

The Aerospace Industries Association (AIA) works with its members to address geopolitical risks and develop strategies for enhanced supply chain resilience.



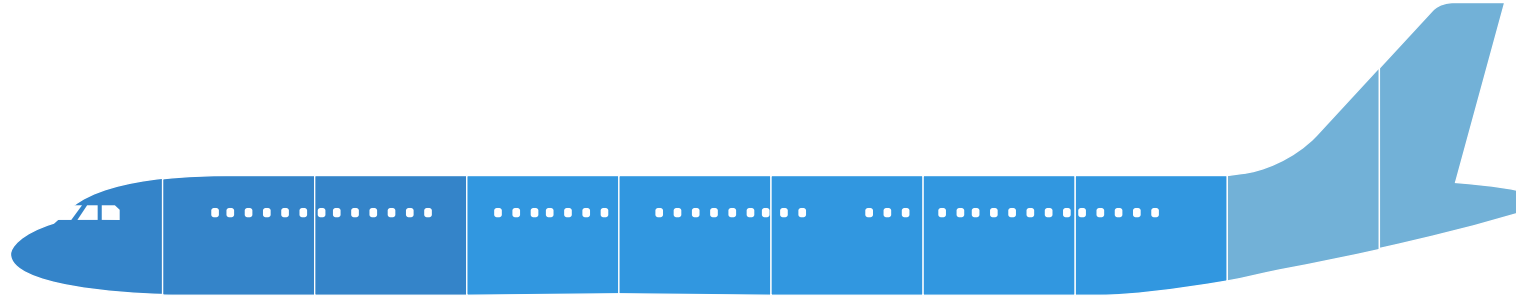
Incorporating sustainability goals into supply chain operations and focusing on greener logistics

Airbus is working on reducing emissions by rethinking logistics and materials sourcing.



Adopting cutting-edge solutions such as AI, robotics, and digital twins to revolutionize MRO operations

A&D companies are ramping up their production and aftermarket services due to the continued growth of the commercial aerospace sector and aging military and commercial fleets.



Implementing AI-driven analytics for real-time health monitoring and maintenance scheduling

Lockheed Martin uses advanced AI systems for predictive maintenance in defense aircraft to minimize unscheduled downtimes.



Using drones and robotics for structural inspections and quality assurance

Airbus integrated robotic systems to perform automated inspections, reducing turnaround times by over 30%.



Enhancing the use of digital twins for simulation and life cycle management of assets

Boeing developed digital twin ecosystems to support aircraft production and maintenance, improving predictive accuracy.



Developing private 5G networks to enable seamless data flow in maintenance hangars

Northrop Grumman pioneered the use of secure 5G networks for real-time communication during MRO operations.



Utilizing AR and wearables for remote guidance and workforce training

Collins Aerospace implemented green manufacturing processes and optimized resource usage in repair facilities.



Rising cyber threats drive strategic investments in cybersecurity and defense technologies

A&D companies are fortifying cybersecurity through advanced technologies, compliance frameworks, and innovative solutions to counter rising cyber threats and safeguard national security.

Key initiatives	Description	Illustrative examples
Secure IT infrastructures and compliance	A&D companies are upgrading IT infrastructures to meet stringent cybersecurity standards and protect sensitive systems from cyberattacks.	  - Northrop Grumman transitioned to GovCloud for enhanced security and compliance with the CMMC* standards. - General Dynamics developed advanced firewalls and encryption technologies to secure defense communications.
Invest in AI and cyber defense solutions	A&D enterprises are developing AI-powered tools to detect and mitigate cyber threats in real time while enhancing system autonomy.	  - RTX created autonomous systems to counter cyberattacks and protect national defense networks. - L3Harris invested in AI tools to optimize cybersecurity operations and protect supply chains.
Focus on encryption and data protection	A&D firms are adopting advanced encryption technologies to secure sensitive A&D data and enhance communication security.	  - Lockheed Martin implemented quantum-resistant encryption systems to safeguard critical information. - BAE Systems developed new methods for secure data sharing across global defense operations.
Enhance national security and innovation	A&D companies are prioritizing innovations in autonomous systems and encryption to maintain a strategic edge in national defense.	  - Thales leveraged AI to enhance cyber defense capabilities for military systems. - Collins Aerospace collaborated with defense bodies to develop cybersecurity solutions for next-gen avionics.
Develop partnerships and ecosystem	A&D firms are collaborating with governments, startups, and technology partners to accelerate innovation in cybersecurity.	  - Thales partnered with Kyndryl to integrate cybersecurity into A&D operations. - Airbus partners with startups to develop blockchain-based systems for improved supply chain security.

Harnessing Gen AI and quantum computing for innovation in the A&D industry

A&D companies are leveraging Gen AI and quantum computing to transform aircraft design, material optimization, and operational decision-making, thereby enabling faster, more efficient innovation in mission-critical scenarios.



Enabling advanced A&D systems to achieve workforce modernization to address the talent gap

A&D companies are embracing AR/VR training, AI-driven learning, and digital platforms to upskill talent, onboard effectively, and address skills shortage for next-gen technologies.



Immersive training solutions with AR/VR

Boeing implemented augmented reality for assembly line training, increasing comprehension and reducing onboarding time.



AI-driven training and customized learning

Northrop Grumman has implemented AI-enabled systems to assess the skills gap and design targeted training programs.



Digital transformation for workforce development

Airbus has introduced a digital training platform to onboard new employees efficiently and standardize technical upskilling.



Partnerships for skill building programs

Boeing has launched partnerships with universities for aerospace engineering programs focusing on emerging technologies including AI and quantum computing.





AVASANT

DXC profile

DXC Technology: RadarView profile



Practice maturity ★★★★★
Investments and innovation ★★★★★
Partner ecosystem ★★★★★

Modernizes IT systems, increases cyber resilience, and delivers manufacturing services for the A&D industry, with focused capabilities for defense customers.

Practice overview		Industry-specific solutions/offerings		Sample clients
- Practice size: ~10,000 - Active clients: N/A - Delivery highlights: 40+ delivery centers worldwide				- A global Aerospace and Defense manufacturer - A naval shipbuilder and strategic military supplier - A space agency - An aerospace manufacturer - A US naval shipbuilder - A military
\$1B-\$2B 40%-60% Revenue from A&D industry, FY 2024 Digital revenue share from A&D industry, FY 2024				
		DXC Security	An offering for military suppliers to enhance security measures and align with DoD Zero Trust overlays	
		DXC Uptime™ Experience Platform	A centralized AI-driven workplace offering that delivers personalized and optimized employee experience	
		DXC Intelligent Boost	An IoT and analytics platform that delivers smart factory solutions using Microsoft PaaS cloud services	
		DXC Platform X™	An AIOps delivery platform that improves governance, visibility, and automation with cost efficiency	
Partnerships/alliances				
	Leveraged its cloud services for IT modernization and integrating data analytics and AI solutions		Used its enterprise technology solutions to manage multicloud systems and migrate applications	Product engineering/design
	Utilized its virtual desktop and apps to deliver Windows, Linux, web, and SaaS applications		Utilized its IoT cloud services to provide smart factory offerings to A&D customers	Manufacturing
	Used its platforms to deliver manufacturing execution systems and operations management		Leveraged its Solumina platform to deliver MES solutions to A&D customers	Procurement and supply chain
	Leveraged its Teamcenter software to deliver product life cycle management services to A&D		Connected people, processes, and data using Microsoft Azure, Microsoft 365, and Dynamics 365	Aftermarket
				Business operations

Darker color indicates higher industry concentration: ●●●●●

DXC Technology: RadarView profile

Case studies

Client	Capability	Summary	Business impact
An aerospace manufacturer	• Analytics	• The client wanted an integrated environment with increased visibility, improved flow, additional capacity, and actionable information. • DXC implemented the Synchrono Manufacturing Platform, which included a scheduling and planning engine, alert management, and a visual factory information system. It also reduced the complexity of multiple systems by using SyncAlert, a real-time alert notification management software.	• Saved USD 15M per year by eliminating non-value-added head count • Improved productivity by 35% • Increased throughput by 12 times • Reduced sensitive material scrap by 97%
A global Aerospace and Defense manufacturer	• Analytics	• The client wanted to implement a real-time, labor-focused production schedule to effectively manage the production and reduce delays. • DXC analyzed the factory operations and delivered a detailed production scheduling solution to optimize the production of critical products. It also identified the IT capabilities required for real-time visibility into labor, materials, equipment, and tooling.	• Saved over USD 3.2M in inventory costs • Saved nearly USD 1M in quality, warranty, and other production efficiencies
A space agency	• Automation	• The client wanted to efficiently manage its large application portfolio and keep services up to date. • DXC provided next-generation application management services for corporate applications, which included corrective maintenance and continuous innovation. It also implemented automation to support the client's digital transformation.	• Increased the security of services • Increased cost transparency • Improved responsiveness to business requests
A naval shipbuilder and strategic military supplier	• Digital twin	• The client wanted to build a digital twin to help its engineers visualize and collaborate on ship designs. • DXC delivered the digital twin program by creating an application on Microsoft HoloLens, which displayed the digital twin of the vessel. This provided 3D models of the vessel to represent the design and the current state of the vessel.	• Guided workers through safe work procedures

DXC Technology: RadarView profile

Analyst insights

Practice maturity



- DXC Technology excels in delivering secure manufacturing services across A&D industry, including commercial aerospace, surface defense, and shipbuilding. Its solutions span manufacturing, quality, connected factory, dynamics planning, and MRO, emphasizing Industry 4.0 transformations with digital threads and MES. By leveraging connected ecosystem model across the value chain, it helps organizations foster efficient, transparent, and data-driven manufacturing environment.
- More than 40% of its A&D revenue comes from the defense subsegment with its clientele including departments and ministries of defense. Of its 10,000 employees dedicated to A&D, around 7,000 are focused on delivering digital services to defense customers.
- It specializes in hybrid multi-cloud transformations and legacy modernization, delivering end-to-end secure cloud infrastructure services leveraging Azure and AWS capabilities in both commercial and government clouds.
- It enhances training for naval defense organizations through VR and extended reality. It collaborated with a strategic supplier to create an onboard training system. It also developed a virtual simulation to enhance combat training without relying on operational ships.

Investments and innovation



- DXC Technology invests in its nearshore International Traffic in Arms Regulations (ITAR) development and support center in Puerto Rico to deliver mission-critical programs cost-effectively for its A&D customers. It also operates a nearshore ITAR center in New Orleans, Louisiana, focused on research, development, and customer design thinking. Additionally, it hosts the Argo design thinking lab for A&D customers, offering demos and simulations of digital thread transformation.
- It has an A&D dedicated AI CoE through which it invests in identifying AI use cases for A&D and developing accelerators. It has developed 25 A&D AI use cases, including predictive maintenance for aircrafts and shipyards, supply chain optimization, quality control, and operational visibility. It extended consulting services to A&D to help develop AI strategies to identify use cases, assess readiness, and create solutions for deploying secure and compliant AI systems.

Partner ecosystem



- DXC Technology collaborates with cloud providers such as Microsoft and AWS to build IoT-enabled smart factory solutions. With AWS, it developed the DXC SPARK platform to drive Industry 4.0 initiatives and digital transformation. It also utilizes Microsoft's PaaS cloud services to provide smart factory solutions to clients. Additionally, it offers an OT Security practice to assist A&D customers with IT/OT convergence and meet CMMC Level 2 compliance requirements.
- It partners with multiple platform providers, such as iBase-t, Critical Manufacturing, Dassault Systemes, and Synchrono, delivering MES and PLM solutions to its customers in the A&D industry.
- It partners with SAP, Oracle, and Microsoft to utilize their ERP solutions, helping A&D clients streamline operations and reduce transformation risks and costs.



Appendix: About RadarView

The Aerospace and Defense Digital Services 2024 RadarView assesses providers across three critical dimensions

Practice maturity

- This dimension evaluates the type, market acceptance, and quality of offerings in the Aerospace and Defense space. It also assesses the strength of the overall practice with respect to its size, certified employees, embedded expertise in emerging technologies, and value chain coverage.
- The width and depth of the client base, practice revenues, the use of proprietary/outsourced tools and platforms, and future strategy are important factors that contribute to this dimension.

Investments and innovation

- This dimension measures the strategic direction of investments and resultant innovations in the offerings and commercial model and how these align with the future direction of the industry.
- The overall strategic investments, both organic and inorganic, in capability and growth, technology development, and human capital development, along with the innovations that the service provider develops, are critical aspects of this dimension.

Partner ecosystem

- This dimension assesses the nature of the provider's partnerships and ecosystem engagement. It evaluates the partnerships' objective (codevelopment or co-innovation) and the provider's engagement with technology solutions or product providers, startup communities, and domain associations.
- The kind of joint development programs around offerings, go-to-market approaches, the overall depth of partnerships, and their leverage to deliver superior value to clients are this dimension's important aspects.

Research methodology and coverage

Avasant has based its analysis on several sources:

Public disclosures	Publicly available information from sources such as Securities and Exchange Commission filings, annual reports, quarterly earnings calls, and executive interviews and statements
Market interactions	Discussions with enterprise executives leading digital initiatives and influencing service provider selection and engagement
Provider inputs	Inputs collected through the service provider capability decks and structured briefings from August-October 2024

Of the 48 service providers assessed, the following are the final 18 featured in the Aerospace and Defense Digital Services 2024 RadarView:

 **accenture**

Booz | Allen | Hamilton®

CACI
EVER VIGILANT

Capgemini

 **cognizant**

DXC
TECHNOLOGY

GENERAL DYNAMICS
Information Technology

 **genpact**

HCLTech

 **Hitachi Digital Services**

Infosys®

kyndryl


L&T Technology Services

 **leidos**

SAIC

SAP

tcs **TATA**
CONSULTANCY
SERVICES

Tech Mahindra

Note: Assessments for Accenture, Booz Allen Hamilton, CACI, GDIT, Kyndryl, Leidos, SAIC, and SAP were conducted based on public disclosures and market interactions only.

Reading the RadarView

Avasant has recognized service providers in four classifications:



Leaders show consistent excellence across all key dimensions of the RadarView assessment (practice maturity, investments and innovation, and partner ecosystem) and have had a superior impact on the market as a whole. These service providers have shown true creativity and innovation and have established trends and best practices for the industry. They have proven their commitment to the industry and are recognized as thought leaders, setting the standard for the rest of the industry to follow. Leaders display a superior quality of execution and a reliable depth and breadth across verticals.



Innovators show a penchant for reinventing concepts and avenues, changing the very nature of how things are done from the ground up. Unlike leaders, innovators have chosen to dominate in a few select areas or industries and distinguish themselves through superior innovation. These radicals are always hungry to create pioneering advancements in the industry and are actively sought after as trailblazers, redefining the rules of the game.



Disruptors enjoy inverting established norms and developing novel approaches that invigorate the industry. These service providers choose to have a razor-sharp focus on a few specific areas and address those at a high level of granularity and commitment, which results in tectonic shifts. While disruptors might not have the consistent depth and breadth across many verticals like leaders or the innovation capabilities of innovators, they exhibit superior capabilities in their areas of focus.



Challengers strive to break the mold and develop groundbreaking techniques, technologies, and methodologies on their way to establishing a unique position. While they may not have the scale of the service providers in other categories, challengers are eager and nimble and use their high speed of execution to great effect as they scale heights in the industry. Challengers have a track record of delivering quality projects for their most demanding Global 2000 clients. In select areas and industries, challengers might have capabilities that match or exceed those of the providers in other categories.

Key contacts

Primary contact:



Jyotika Jain

Senior Analyst

jjyotika.jain@avasant.com

Contributors:



Bharat Amin

Avasant Fellow

bharat.amin@avasant.com



Jay Weinstein

Avasant Fellow

jay.weinstein@avasant.com



Naresh Lachmandas

Senior Partner

naresh.lachmandas@avasant.com



Swapnil Bhatnagar

Partner

swapnil.bhatnagar@avasant.com



Sahaj Kumar

Associate Research Director

sahaj.kumar@avasant.com

Disclaimer

Unauthorized reproduction or distribution in whole or in part in any form, including photocopying, faxing, image scanning, e-mailing, downloading, or making available any portion of the text, files, data, graphics, or other materials in the publication is strictly prohibited. Prior to photocopying items for internal or personal use, please contact Avasant to ensure compliance with Avasant or third-party intellectual property rights and usage guidelines. All trade names, trademarks, or registered trademarks are trade names, trademarks, or registered trademarks of Avasant, its licensors, or the applicable third-party owner. No express or implied right to any Avasant or third-party trademarks, copyrights, or other proprietary information is granted hereunder. Avasant disclaims, to the fullest extent under applicable law, all warranties and conditions, expressed or implied, with respect to any content provided hereunder, including, without limitation, warranties of merchantability and fitness for a particular purpose. Avasant does not assume or guarantee and hereby disclaims any and all liability for the quality, accuracy, completeness, or usefulness of any information contained herein, which shall be inclusive of any and all direct or consequential damages or lost profits. Any reference to a commercial product, process, or service does not imply or constitute an endorsement of the same by Avasant. This publication is for information purposes only. By distributing this publication, Avasant is not engaged in rendering legal, accounting, or other professional services. If legal, accounting, or other advisory services or other expert assistance is required, the services of a competent professional person should be sought.

AVASANT

EMPOWERING BEYOND

GET CONNECTED



www.Avasant.com