KPMG

2024 Global Sustainability in Aerospace and Defense report

Collaboration: A key enabler for sustainability

Global aerospace and defense organizations are working together in developing effective solutions and navigating global regulations to help achieve their sustainability goals.

KPMG International

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Foreword

The clock is ticking for the aerospace and defense (A&D) industry to achieve its sustainability goals. To be clear, the industry is actively working to decarbonize, and corporate efforts are accelerating as the industry transitions toward a more sustainable future. But aviation still contributes four percent to global warming to date,[1] and this number is likely to increase.[2] The defense industry and the global armed forces produce six percent of greenhouse gas (GHG) emissions,[3] and this number is also likely to increase due to increasing geopolitical conflicts where operational readiness is the top priority.

Competition among companies is expected to remain a key driver in helping the industry to improve its sustainability. However, recent findings in the KPMG 2024 Global Sustainability in Aerospace and Defense report suggest that a collaborative approach involving both public and private sectors is now being recognized as equally important:

58 percent

say that collaboration among industries, governments, academia and other stakeholders is among the three most important opportunities for their organization as they progress toward net-zero goals.

54 percent

of respondents say that government support for development of low carbon solutions is a top enabler for achieving organizational decarbonization goals.

47 percent

cite collaboration across the ecosystems as a top enabler in developing new technologies to help reach their decarbonization goals.

These findings reflect a growing consensus among A&D stakeholders that sustainability will increasingly depend on organizations working together more closely than ever before. Indeed, calls for "radical collaboration" among stakeholders are already being heard by leaders in related industries such as aviation.[4]

[1] Environmental Research Letters, "Quantifying aviation's contribution to global warming," 2021. See also: NOAA Research News, "Aviation is responsible for 3.5 percent of climate change, study finds," 2020

[2] EESI, "Issue Brief | The Growth in Greenhouse Gas Emissions from Commercial Aviation," 2019, updated 2022

[3] Scientists for Global Responsibility, "Estimating the Military's Global Greenhouse Gas Emissions," 2022

[4] Farnborough International, "Top Industry Leaders Call For 'Radical Collaboration' at Sustainable Skies World Summit 2024," 2024

This report is designed for A&D industry leaders looking to better understand and implement sustainability practices to achieve competitive advantage and regulatory compliance. Readers will learn more about key industry challenges in supporting sustainability, the level of preparedness by companies in developing their sustainability strategies, issues and advances in global supply chain management, recent innovations developed through collaboration, the evolving role of sustainability leaders, and new opportunities for change in the A&D ecosystem.

Results are included from the KPMG 2024 Global Sustainability in Aerospace and Defense survey. Conducted in March 2024, the survey is based on responses by over 100 senior executives from major A&D organizations and supply chain participants in 20 countries, territories and jurisdictions around the world. To gain deeper insights, we also conducted interviews with KPMG firms' clients and subject matter specialists who shared their thoughts about the industry and its sustainability journey.

Based on our survey findings and discussions with business leaders, we are optimistic about the ability of the A&D industry to reach its sustainability goals. Competition and market forces will remain critical for success, but partnerships and mutual support among stakeholders will become increasingly important. Instead of 'winner take all,' we expect to see a more collaborative approach in which everyone can win as the world transitions toward a greener future.

Grant McDonald
Global Sector Leader, Aerospace and Defense
KPMG International

"Achieving sustainability is not only a big challenge for our sector, it is a big challenge for our society. Only by forging an innovation-led path can we focus our collective resources effectively and protect our natural ones for future generations. It remains clear that any path we take must involve strong collaboration between all stakeholders involved. Be it funding, a positive regulatory environment, or other avenues, all of those stakeholders must be willing to collaborate both effectively and over a long period on investments in our industry's future. We need to start now."

Kevin Craven
CEO, ADS Group

"Aerospace & Defense is in the spotlight and will likely continue to be so for years to come with civil and defense budgets being increased to enhance and expand this growing sector. As such, purposeful planning and execution is required, to ensure that what is developed rests firmly on the principles of the United Nations Sustainable Development Goals, enabling sustainable business models which drive action on climate while supporting responsible consumption and production and enabling peace, justice, and strong institutions. This sector is at the forefront of innovations that could have a wide-reaching positive impact, such as the next generation of electrification and hydrogen applications. As such, the decisions made by the industry today will have an important impact on the future of our planet — this is an opportunity to accelerate change to benefit future generations."

John McCalla-Leacy
Head of Global Environmental, Social & Governance at KPMG International

About the authors

Grant McDonald
Global Sector Leader, Aerospace and Defense,
KPMG International

Grant has over 40 years of experience with expertise across Audit, Tax and Advisory functions.

As global sector leader for aerospace and defense (A&D), Grant is responsible for staying abreast of the current issues facing A&D companies around the world and sharing his industry knowledge with clients.Grant has prioritized ensuring KPMG A&D leaders around the world are focusing their client efforts on bringing high value sustainability solutions to help achieve their net-zero goals.

Ebony Carmichael
Global ESG Sector Executive
Senior Manager, KPMG International

Ebony is the Global ESG Sector Executive at KPMG International for industrial manufacturing including A&D, as well as the automotive, energy, natural resources and chemicals sectors.

Ebony draws on her experience across these hard-to-abate sectors to embed ESG practices into the sector strategies, thereby driving growth and aligning the focus on go-to-market lifecycles.

About the research

The survey data included in this report is based on the results of an anonymized online survey conducted by KPMG International in March 2024.

In total, 115 respondents from 20 territories and countries across the globe answered questions about the need to accelerate sustainability in the A&D sector, market challenges, policy effectiveness, and key opportunities and enablers.

66 percent from Europe

23 percent from the Americas

10 percent from Asia Pacific

1 percent from other

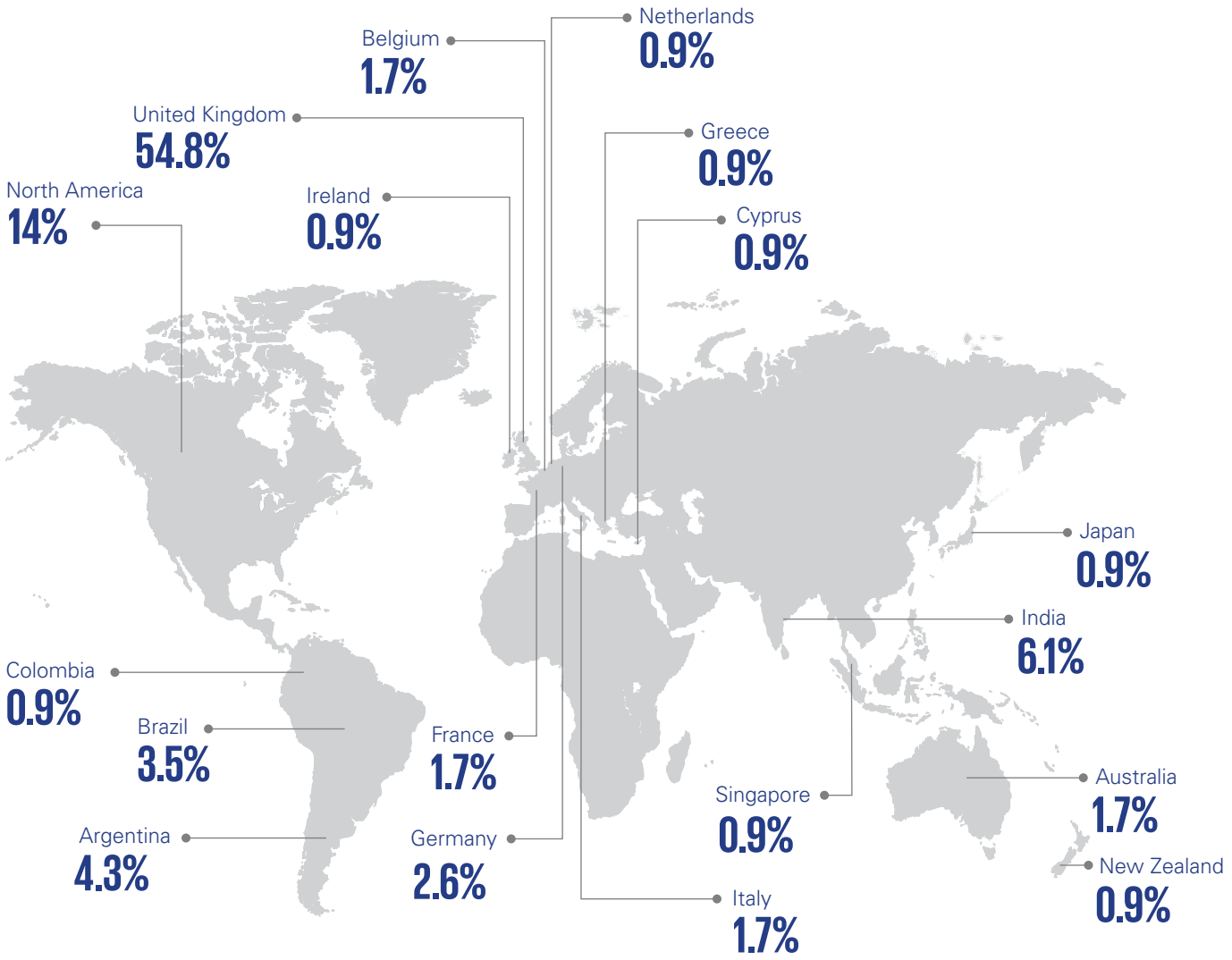
In collaboration with ADS, we gathered responses from senior leadership at many of the OEMs/primes, Tier 1, Tier 2, Tier 3, defense departments, other government or regulatory bodies, infrastructure and R&D institutions, and satellite and space technology organizations.

In terms of the size of these organizations, our survey included large primes as well as small- to medium-sized enterprises.

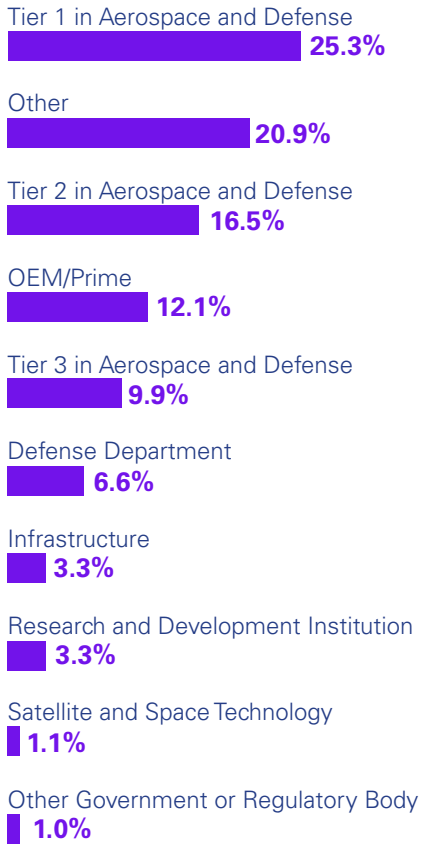
We also interviewed seven senior sustainability leaders at A&D companies:

- Dr. Deborah Allen, Group Director of Climate, Environment and Infrastructure, BAE Systems
- Dr. Victoria Coleman, Former Chief Scientist of the U.S. Air Force
- Phill Godfrey, Chief Sustainability Officer, Collins Aerospace
- Hélène Gagnon, Chief Sustainability Officer and Senior Vice President, Stakeholder Engagement, CAE
- Chris Pereira, Chief Strategy & Chief Risk Officer, GE and CEO, Aerospace Carbon Solutions, GE Aerospace
- Nathalie Stubler, Chief Sustainability Officer, Safran
- Dr. Graham Webb, Chief Sustainability Officer, Pratt & Whitney

In which country, region, jurisdiction or territory are you based?



What is the primary focus of your organization? — Selected Choice



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Key takeaways

Survey Insights

Aviation contributes about 4% to global warming to date. The global armed forces produce about 6% of GHG emissions.

81% of respondents selected supplier due diligence, visibility, and transparency as actions that could enhance supply chain sustainability.

61% of respondents said that they are still developing their strategies for sustainability. Only 15% say they are "fully ready."

47% of respondents cite collaboration as a top enabler in developing new technologies to help reach their decarbonization goals.

Innovation depends on collaboration among governments and companies.

Governments play a dual role in decarbonization with both regulatory mandates and financial incentives.

The roles of CSOs and other sustainability leaders are rapidly changing and growing in importance.

Challenges

- Rapid growth in aviation demands and military spending
- Increased government regulations

- Size, complexity and scope of A&D supply chains
- High costs and scalability issues
- Feedstock and materials sourcing issues
- Scope 3 data collection and strategy implementation

- Knowledgeability of strategic requirements
- Capacity/knowledge of sustainability teams
- Business focus and priorities
- Continuously changing regulations and policies

- Complexity of collaboration among companies, governments, military, academia, etc.
- Lack of communication among internal functions and other organizations
- Regulatory uncertainties

- Research and development costs
- Price pressures in commercial markets (especially for aerospace)
- Operational and performance requirements (especially for defense)
- Implementation costs/complexities
- Supply chain reorganization due to new products and manufacturing processes
- Regulatory readiness for alternative fuels

- Increasingly rigorous environmental regulations
- Insufficient tax incentives and funding

- Lack of understanding by executives and staff about sustainability
- Keeping the organization up to date on evolving issues
- Public perceptions of the A&D industry

Opportunities

- Government support for sustainability solutions in A&D
- Industry collaboration
- Technological innovation

- Increased due diligence in vetting suppliers
- Enhanced monitoring of supply chain activity
- Improved supply chain management software solutions
- Greater adoption of responsible sourcing

- Executive buy-in and stakeholder support for strategy development
- Close integration of sustainability strategies with business models and long-term objectives
- Understanding of sustainability as a competitive advantage

- Government support for collaborative efforts
- Partnerships and M&A transactions
- Industry-led collaborations

- Increased manufacturing efficiency
- More efficient airplane engine/wing design
- Lower costs for alternative fuels through scaling and increased adoption
- New growth markets and products for low-carbon solutions

- Government funding and tax incentives
- Leveraging regulatory incentives through early adoption

- Sustainability leaders acting as communicators, trainers, educators, agents for change, and champions for sustainability

Aerospace and defense: A vital, interdependent industry

In this report, the civil aerospace sector includes manufacturers of a wide range of commercial aircraft platforms. Such companies are supported mainly by the commercial airline market. They value continuous innovation but recognize the economic benefits of commercial-off-the-shelf (COTS) products.

The defense sector provides government customers with military capabilities across the land, air, sea/subsea and space domains. Operational readiness and dependability under extreme conditions are key priorities. Their programs are primarily government-funded and often involve customization and closely guarded research and related intellectual property.

Despite their differences, aerospace and defense share several similarities. Both sectors are high-growth industries. Both require significant investments and many years to develop their major programs. Both are subject to many regulations and certifications. And both have complex production lines, a global network of suppliers and an extensive aftermarket involving parts and long-term maintenance.

Equally important, both sectors are critical to support sustainability. Defense needs the products of aerospace, and aerospace needs defense. As Dr. Deborah Allen, Group Director of Climate, Environment and Infrastructure, BAE Systems, has said, "Without security there is no sustainability."

> "Without security there is no sustainability."

Dr. Deborah Allen
Group Director of Climate, Environment and Infrastructure, BAE Systems

Major commitments — but also major challenges

> **“Sustainability is one of the greatest challenges facing our world today. It’s a challenge we must all work together to address.”**

Ebony Carmichael
Global ESG Sector Executive
Senior Manager
KPMG International

The A&D industry is making great strides in supporting sustainability, but will current efforts be enough to achieve net zero emissions by 2050? Let’s look at the facts.

- Aviation contributes about four percent to global warming to date,[5] and the UN warns that airplane emissions could triple by 2050.[6]
- The defense industry and the global armed forces produce about six percent of GHG emissions.[7] If the world’s militaries were a country, this figure would mean they have the fourth largest national carbon footprint in the world.[8]
- Airbus and Boeing predict more than 40,000 new commercial jets will be manufactured over the next 20 years.[9]
- The US National Defense Authorization Act (NDAA) for 2024 alone includes a record US$886 billion in military spending.[10]

At the same time, sustainability commitments by A&D companies continue to grow. In Europe, the industry supports the European Green Deal, which calls for carbon neutrality by 2050.[11] Numerous companies and industry groups have also established sustainability milestones. Initiatives involving fuel-efficient aircraft, sustainable aviation fuels (SAF),[12] electric propulsion systems, hybrid/electric propulsion systems, and reusable rockets will all play a necessary part in helping to support sustainability.

Certainly, the A&D industry is not alone in striving to support net-zero goals. In a recent KPMG survey across multiple industries, Anchoring ESG in governance,[13] sustainability has arrived at the top of corporate structures. It is a board-level responsibility, led by CEOs in almost half of the corporations in the survey. Just under half of the corporations support environmental. social and governance (ESG) and sustainability through either a dedicated board-level sustainability committee or another specific committee, such as audit. Almost all the corporations have made it a strategic issue or adopted a purpose-driven approach. Decarbonizing business models and reducing GHG emissions are the topics most often reported in ESG strategies, with almost all respondents (approximately 90 percent) saying it is present to a great extent or some extent.[14] The survey also finds that despite the increasing importance of ESG, the corporations in the survey tend to have relatively small teams working on non-financial reporting with just over half having three or fewer full-time equivalent staff.

5 Environmental Research Letters, “Quantifying aviation’s contribution to global warming,” 2021. See also: NOAA Research News, “Aviation is responsible for 3.5 percent of climate change, study finds,” 2020
6 EESI, “Issue Brief | The Growth in Greenhouse Gas Emissions from Commercial Aviation,” 2019, updated 2022
7 Scientists for Global Responsibility, “Estimating the Military’s Global Greenhouse Gas Emissions,” 2022
8 Scientists for Global Responsibility, “Estimating the Military’s Global Greenhouse Gas Emissions,” 2022
9 Ainonline, “Airbus, Boeing Raise 20-Year Forecasts For Aircraft Deliveries,” 2023
10 US Senate Committee on Armed Services, “Summary of the Fiscal Year 2024 National Defense Authorization Act (NDAA)”
11 European Commission, “The European Green Deal”
12 KPMG, Evolution of Transport Fuels, 2024
13 KPMG International, “Anchoring ESG in governance,” 2024
14 KPMG International, “Anchoring ESG in governance,” 2024

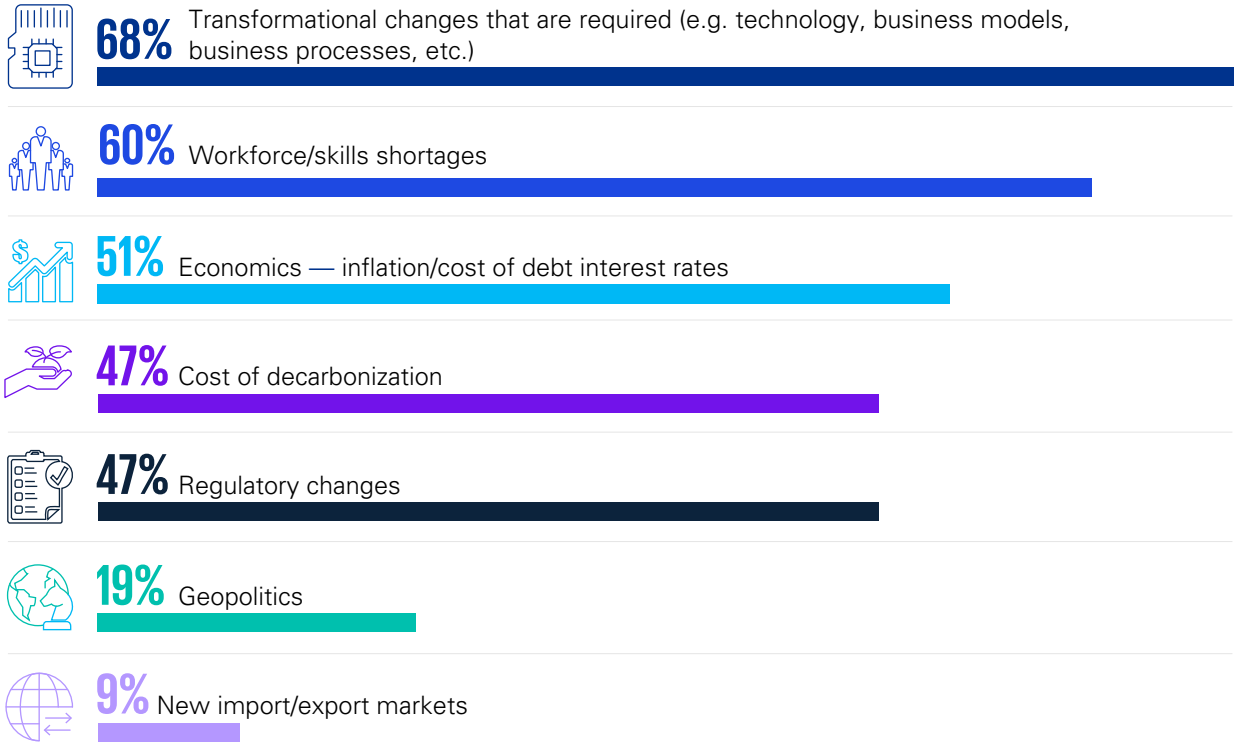
Looking at other cross-industry surveys, the KPMG 2023 Global Energy CEO Outlook found that 30 percent of respondents recognize that the challenge of getting to net zero is hampered by the complexity of decarbonizing supply chains driven by geopolitical uncertainties, the high cost of alternatives, and increasing regulations. In the long term, Scope 3 emissions across the value chain will prove challenging for energy CEOs and organizations.[15] In the immediate term, 31 percent cite the complexity of decarbonizing supply chains as the greatest challenge.[16]

In the KPMG 2023 Asset Management CEO Outlook, CEOs in several industries see ESG investments as providing returns in the medium rather than the short term, with 49 percent expecting these in three to five years, 30 percent in less than three years, and the rest in more than five years. Respondents say the greatest barriers for corporations reaching net zero are a lack of internal governance and controls to put such work into action (mentioned by 28 percent), followed by issues with supply chains and a shortage of skills and expertise.

For the A&D industry, our survey suggests that the top challenges in achieving sustainability include transformational changes involving technology, business models, and processes (68 percent); workforce and skills shortages (60 percent); economic factors such as inflation and cost of debt (51 percent); regulatory changes (47 percent); and the cost of decarbonization (47 percent).

[15] KPMG, "2023 Global Energy CEO Outlook — KPMG Global"
[16] KPMG, "2023 Global Energy CEO Outlook — KPMG Global"

Respondents chose the top three most significant challenges to their organization's net zero goals



Responses suggest that the top challenges in achieving sustainability include transformational changes involving technology, business models, and processes (68 percent); workforce and skills shortages (60 percent); and economic factors such as inflation and cost of debt (51 percent).

These challenges are compounded by the sheer size, complexity and interconnected structures of the A&D ecosystem. Even a single price increase can have a widespread, ripple effect across multiple companies and governments. As James Dennis, Director, Climate Risk and Decarbonization Strategy at KPMG in the UK, explains, "A net-zero government policy might impact certain steel plants because of their use of coal. That could increase the price of their steel, and that price increase would then be carried into every sector downstream that uses steel, including, for example warship manufacturing. That's going to affect the price of warships, and that might have a consequential effect on military spending and the number of ships produced under a specific government budget. It's all interconnected."

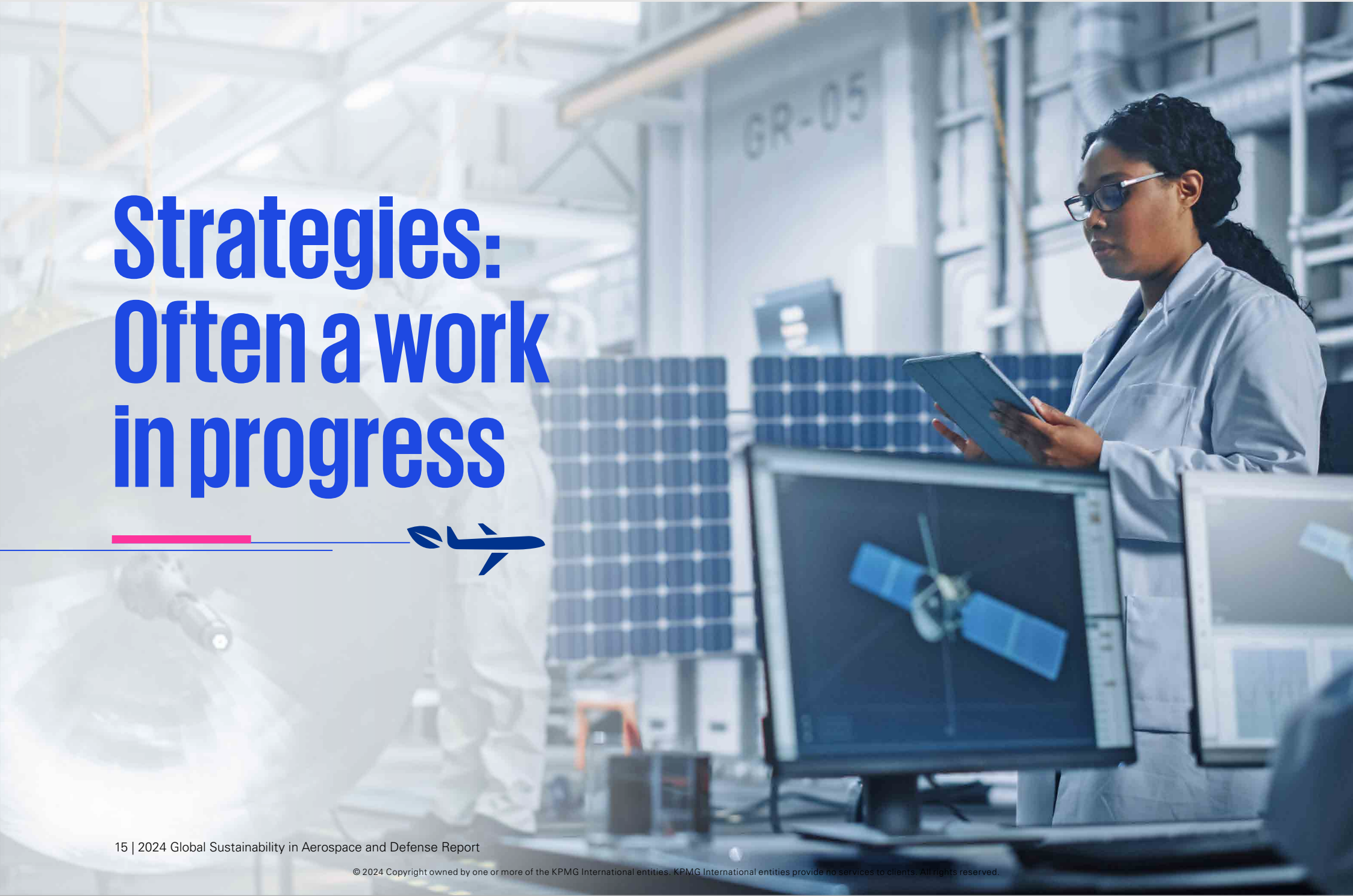
There are no simple answers in addressing these challenges. Currently, there is significant but overlapping guidance for companies and financial institutions on transition planning. General guidance has been published by organizations such as the Task Force on Climate-Related Financial Disclosures (TCFD), Task Force on Nature-Related Financial Disclosures (TNFD), Science Based Targets (SBT), Climate Action 100, Nature Action 100, and the Carbon Disclosure Project (CDP). Information in the public domain is available to help A&D companies build a robust transition plan, but the guidance may be somewhat limited and a leading-practice approach is not necessarily consistent across the industry.

In short, A&D companies need new strategies, processes, skills, technologies, business models, and, indeed, new ways of thinking about doing business in a sustainable manner — all while supporting growth and improving their market competitiveness.

Key points

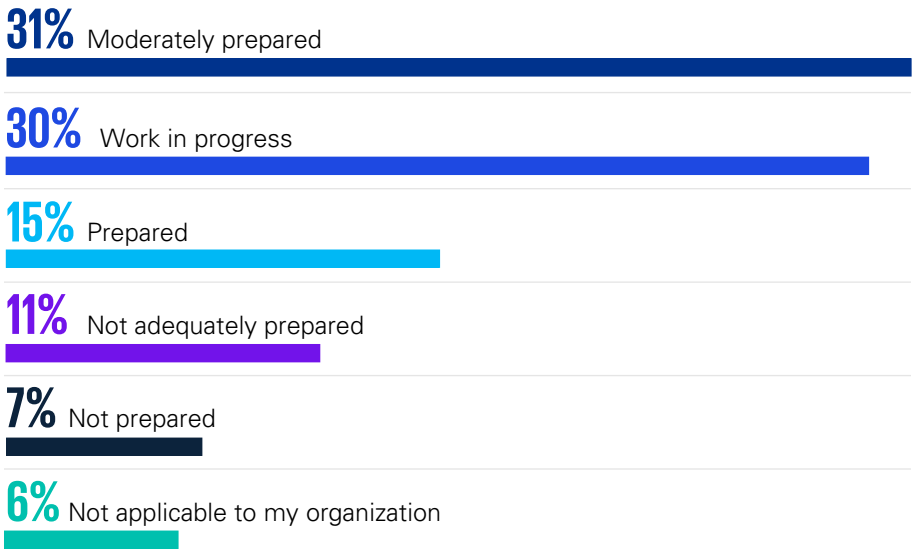
- The A&D sector is tasked with becoming more sustainable while growing larger.
- Rapid growth and increased regulations are key challenges.
- Opportunities include government support, collaboration, and technology.

Strategies: Often a work in progress



Does your organization have a strategy in place for identifying and measuring the implications of climate change, including the physical and economic risks to your business?

Level of preparedness in A&D organizations for upcoming changes and developments in the ESG regulatory and compliance landscape



> **“Many companies do not have an executable strategy that is fully formed, and I don't think we will, until we see how certain things unfold, the policy measures that are taken, actions by others in the industry, and more.”**

James Dennis
Director, Climate Risk and Decarbonization Strategy at KPMG in the UK

A well-defined strategy for sustainability is still a work in progress for many A&D companies. Most respondents (61 percent) said that they were only "somewhat ready" or "working on it" in terms of being prepared for environment, social, and governance (ESG) changes. Only 15 percent of respondents reported being fully ready, and 7 percent indicated their organization was "unprepared."

This deliberate pace in strategy development by A&D companies is understandable, given the complex challenges and potential risks involved in developing a strategic approach for sustainability. In the 2024 KPMG CEO Outlook survey, respondents cited three objectives for their ESG initiatives:[17]

1. Position ESG as a driver for value creation when it comes to business growth, rather than as a risk to be managed. New opportunities emerge when ESG is considered in the growth conversation.
2. Stay attuned to shifting ESG regulations to help maintain the brand reputation and client relationships of the business.
3. Focus ESG investments on areas in line with their values and those of the business.

Chris Pereira provides further insights about risk and strategy, having served as both Chief Strategy & Chief Risk Officer, GE along with his role as CEO, Aerospace Carbon Solutions, GE Aerospace. "Risk mitigation and strategic development are two sides of the same coin," he explains. "Risk can be defined as obstacles in meeting your objectives, and strategies have to acknowledge the risks involved. In many ways, we're reconciling different views of our business, making sure we have a long enough time horizon in our strategic planning."

Pereira adds, "It's challenging to decarbonize and balance both growth and sustainability. Analysis, modeling and talking to people around the company help us to better understand the risks and develop the appropriate strategies."

[17] KPMG, "KPMG CEO Outlook 2023"

Key points

- Most companies are still in the middle of developing a strategy for sustainability.
- Risk management and strategies are closely interconnected.
- Balancing growth and sustainability is challenging.

Case study 1

KPMG in the UK helps multinational A&D company support long-term resilience and growth

KPMG professionals recently helped a leader in the A&D industry support its long-term resilience and capitalize on emerging markets for low-carbon solutions.

Challenge

In the current environment how an organization approaches their sustainability strategy planning has a significant impact over the overall outcome and success. By working closely with senior leadership and the sustainability team, KPMG in the UK was able to identify a comprehensive list of priority focus areas across all aspects of the client's strategy.

How KPMG professionals helped

The ESG Strategy team, along with subject matter professionals from across the firm, worked closely with the client's CSO and sustainability team to provide a comprehensive range of advisory services across all aspects of the client's sustainability strategy.

Benefits to the client

The collaboration with KPMG provided the company with the necessary resources and knowledge to achieve its sustainability goals, secure its long-term resilience and capitalize on emerging markets for low carbon solutions.

The critical importance of collaboration

“We can all go faster together.”

Phill Godfrey
Chief Sustainability Officer, Collins Aerospace

The importance of collaboration in A&D sustainability cannot be underestimated. In our survey, 47 percent of respondents cite collaboration as a top enabler for reaching their decarbonization goals. Stakeholders across the A&D ecosystem can work better by working together to achieve both environmental and business goals:

Manufacturers can collaborate with one another to help share the burden of investment and risk while creating innovative solutions, identifying new markets, and achieving mutual growth.

Supply chain participants can work with their own sub-contractors to help improve product quality, enhance logistical efficiencies, and ensure sustainable sourcing.

Governments can develop regulations and offer incentives designed to balance the needs of commerce with the imperatives of sustainability.

Industry associations can provide a venue and platform where organizations can collaborate, share information, and develop industry standards.

The collaborative role of governments

Policy and regulation
Establishing emissions reduction targets, implementing carbon pricing mechanisms, and enforcing environmental standards

Investment and incentives
Investing in the development of sustainable fuels and infrastructure

International cooperation
Engaging in international agreements and collaboration to address emissions on a global scale

Research and development
Support funding for programs aimed at developing and improving sustainable technologies and fuels

"The traditional message in business is that if you want to go fast, you have to go alone," says Phill Godfrey, CSO, Collins Aerospace. "But I think we need standards when we are breaking new ground and pioneering. That requires collaboration. We can all go faster together."

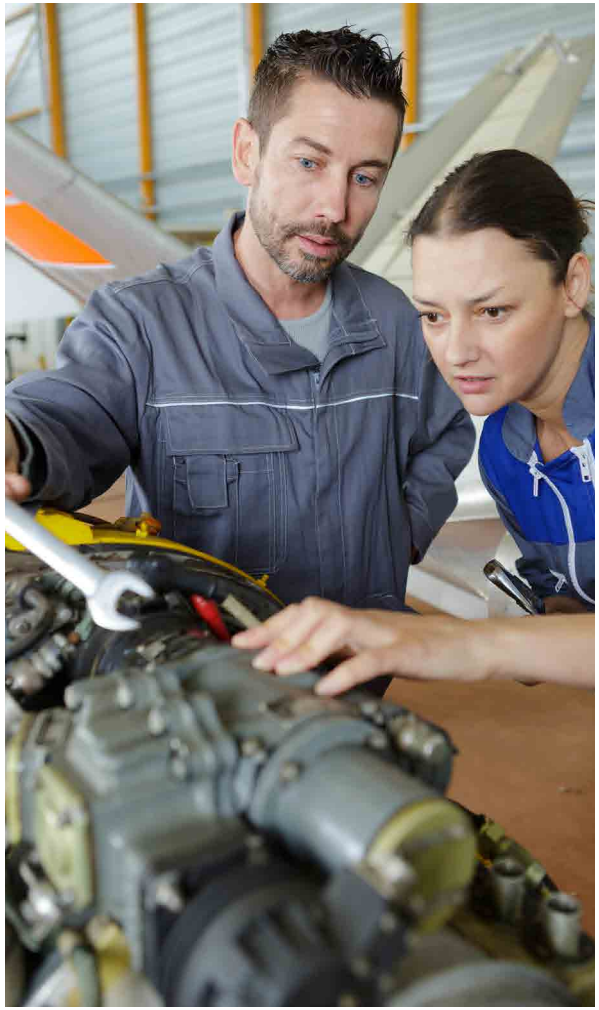
Godfrey cites a recent collaboration between Collins and the International Aerospace Environmental Group (IAEG) as a good example of industry collaboration. IAEG is a non-profit organization of global aerospace companies created to collaborate on and share innovative environmental solutions for the industry. "IAEG already has a strong compliance regime, and it gives us an opportunity to work with many of our peers. We all developed a voluntary aerospace sector initiative that included a standard for measuring sustainability risk in the extended supply chain."

Another example of industry collaboration is the CFM International, a 50 year old joint venture between US-based GE Aerospace and leading French A&D company Safran.[18] "Its RISE (Revolutionary Innovation for Sustainable Engines) program serves as the foundation for a next-generation engine that could be available by the mid-2030s and targets 20 percent fuel economy". "This program is an excellent example of the benefits available from collaboration," says Nathalie Stubler, Chief Sustainability Officer for Safran. "We won't be able to decarbonize aviation alone, and our development roadmap is a joint roadmap for the entire industry, with everyone working toward common goals."

"Without collaboration and alliances across industry networks, net zero goals might not be achieved in the sector," adds Grant McDonald. "This includes alliances between different organizations to increase innovation as well as government support that encourages collaboration. New ideas for A&D can also come from other sectors such as IT, automotive, telecommunications or maritime shipping."

Key points

- Collaboration is essential for achieving net-zero goals.
- Collaboration involves everyone — manufacturers, supply chain participants, governments, research institutions and other A&D stakeholders.
- A greater number of cross-industry alliances are emerging.



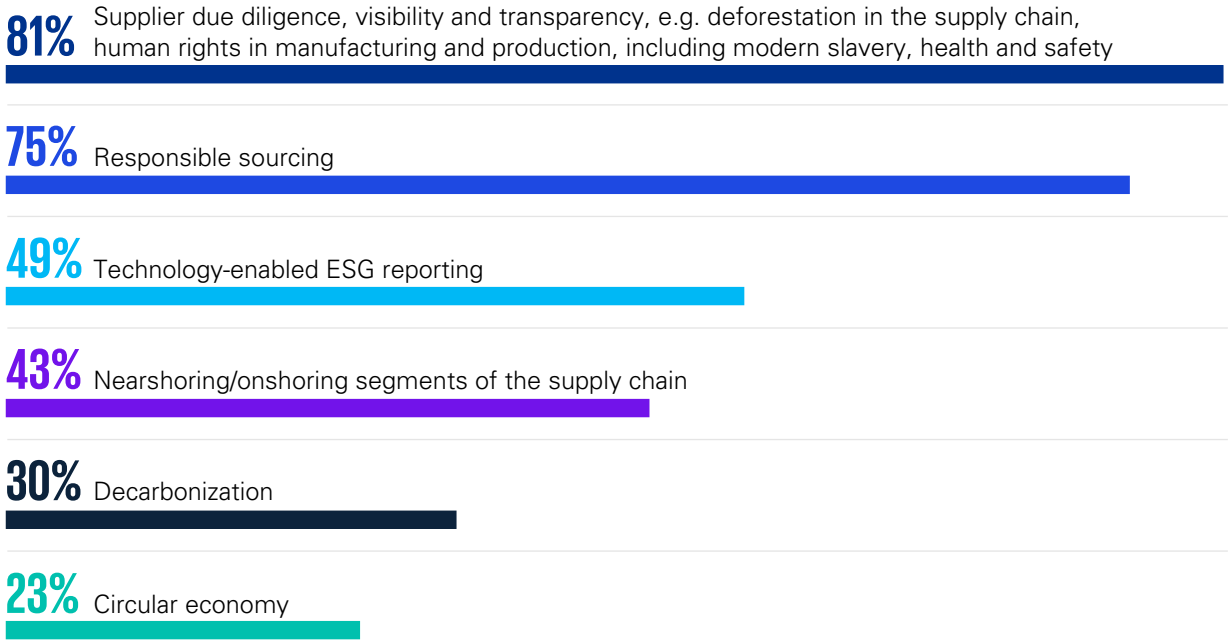
[18] GE and Safran, "CFM RISE," 2021

Points to consider for collaboration

Collaboration is a tested way for organizations to share experience, expertise, resources, industry knowledge, and leading practices, while also sharing the burdens of capital investment and risk. Organizations can consider the following points in developing and executing a strategy to support sustainability:

Managing global supply chains

Respondents chose the three most important actions that their organization might take to enhance sustainability within their supply chains.



Key points

- Due diligence, visibility, and transparency can enhance supply chain sustainability.
- Responsible sourcing is a critical element.
- Consistency is critical in supply chain management.

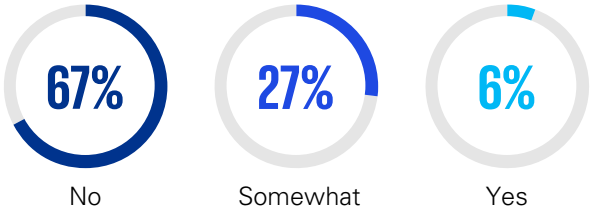
Aerospace and defense companies are supported by large, complex supply chains that influence sustainability strategies. In our survey, 81 percent of respondents selected supplier due diligence, visibility, and transparency as actions that could enhance supply chain sustainability. Responsible sourcing was chosen by 74 percent of respondents.

Because of the global nature of these supply chains, geopolitical uncertainties can reveal supply chain vulnerabilities and disruptions between the OEMs and their suppliers. To strengthen supply chain sustainability, airframers and Tier 1 suppliers can consider acquiring materials or technology at strategic parts of the supply chain to reduce risk of insufficient supplies.

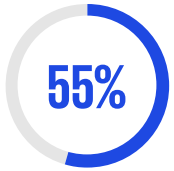
Consistency is also key in effective supply chain management, says Hélène Gagnon, Chief Sustainability Officer and Senior Vice President, Stakeholder Engagement at CAE in Canada. "The supply chain at CAE includes thousands of companies of different sizes, functions, needs, and capabilities," she explains, "so our idea is to streamline all the requirements across the supply chain. We're using tools like EcoVadis and its risk management platform. This helps us to make sure that all our suppliers are assessed in the same way with the same criteria for reports about their processes, data and other factors."

Government regulations and incentives: Both carrots and sticks

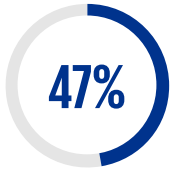
Do you believe current tax policies and incentives are sufficient to support the Aerospace & Defense sector's transition to sustainability globally?



Which are the most significant enablers for reaching your organization's decarbonization goals?



Government support for the development of low-carbon solutions



Government demand for the development of low-carbon solutions

One of the clearest signals from survey respondents was the belief that current tax policies and incentives are insufficient to support sustainability for the sector (67 percent). However, when the survey asked about the top enablers for decarbonization in their organization, 55 percent chose "government support" and 47 percent chose "government demand for the development of low-carbon solutions." That is to say, governments were seen by A&D companies as both the 'carrot' and the 'stick' in reaching their sustainability goals.[19]

According to the United Nations Environment Programme Emissions Gap Report 2023,[20] progress has been made since the Paris Agreement was signed in 2015, but "a continuation of current policies and Nationally Determined Contribution (NDC) scenarios would result in widened and likely unbridgeable emissions gaps by 2035." These gaps would be 36 percent and 55 percent higher than the levels consistent with pathways below 2°C and 1.5°C. As such, while there has been a recent surge in sustainability policies and regulations, an even faster pace of introductions is needed. This expectation was solidified in one of the key highlights related to climate policy of the first-ever Global Stocktake of NDCs[21]: "Policy guidance, incentives, regulations and enabling conditions must be strengthened to reach the scale of investments required to achieve a global transition towards low greenhouse gas emissions and climate-resilient development," according to the Global Stocktake report.

The A&D industry is subject to a number of government mandates designed to ensure net zero emissions by 2050. The European Commission has adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net GHG emissions by at least 55 percent by 2030 and achieving net-zero emissions by 2050, compared to 1990 levels.[22] This includes the ReFuelEU Aviation Regulation, which aims to reduce the environmental footprint of the aviation sector by imposing a Sustainable Aviation Fuel (SAF) blending mandate from 2025 (2 percent, increasing to 70 percent by 2050 in all EU member states) and a minimum share of synthetic fuel from 2030 (1.2 percent increasing to 35 percent by 2050 in all EU member states) for all flights taking off from an EU airport, regardless of destination. The proposed revision to the EU's Energy Taxation Directive seeks widen the tax base by removing the exemption for jet kerosene for domestic and intra-EEA flights.

In the US, the Department of the Army has mandated having carbon-free electricity for its installations by 2030, net-zero emissions from army installations by 2045, and an increasingly electrified vehicle fleet, including developing electric tactical combat vehicles by 2050.[23] In the UK, the government's SAF mandate specifies that 10 percent of all jet fuel in flights taking off from the UK will be sustainably sourced by 2030 and 22 percent by 2040.[24]

[19] See also Carrots & Sticks, "Carrots & Sticks: Beyond Disclosure in ESG and Sustainability Policy, Annual Report," September 2023
[20] Emissions Gap Report 2023 | UNEP — UN Environment Programme
[21] Global Stocktake | UNFCCC
[22] European Commission, "The European Green Deal: Striving to be the first climate-neutral continent"
[23] Department of the Army, Office of the Assistant Secretary of the Army for Installations, Energy and Environment. February 2022. United States Army Climate Strategy. Washington, DC
[24] UK Parliament, "Aviation Update," 2024

As for incentives, the US Sustainable Skies Act provides fuel blenders that supply SAF with a 50 percent or greater lifecycle GHG savings with a credit of at least US$1.5 per gallon, going up to US$2 per gallon depending on GHG savings.[25] In addition, the US SAF excise tax credit, which was introduced under the Inflation Reduction Act of 2022, aims to cut cost and rapidly scale domestic production of SAF.[26] This is designed to meet a sustainable aviation fuel goal to increase the production of SAF to at least 3 billion gallons per year by 2030.[27]

The UK Ministry of Defence is increasing the quantity of SAF it sources from World Fuel Services.[28] The fuel supplied is a 40 percent SAF blend, with the renewable part of the feedstock being produced from used cooking oil or animal fat. Meanwhile, the government is investing in the early-stage development of eight UK SAF plants through the Green Fuels, Green Skies competition.[29] The UK government has also announced that five projects will receive a share of the funding (£165 million) from the Advanced Fuels Fund, an initiative designed to develop as many SAF projects as possible through commercial-scale production.[30]

An increasingly favorable local policy environment in Asia Pacific is prompting a number of organizations to consider opportunities for SAF development in the region:[31]

- India has a SAF roadmap under development and some airlines have tested SAF blends. Vistara recently operated its first long-haul SAF flight from the country.
- Japan established a SAF roadmap in 2021. In May 2023 the government confirmed that, by 2030, 10 percent of aviation fuel used for international flights at Japanese airports will have to be SAF.
- In April 2023, Cathay Pacific committed to developing four power-to-liquid production facilities in China alongside the State Power Investment Corporation — one of the five large state-owned energy companies in the country.
- In 2022, Singapore Airlines partnered with the government in a pilot SAF credits scheme. Neste started SAF production in Singapore in May 2023.
- An SAF roadmap is currently being developed jointly by the Australian government, Boeing, and Australia's National Science Agency. In 2023 LanzaJet announced a feasibility study for an alcohol-to-jet facility in Queensland; it has received support from the Queensland Government, Qantas and Airbus as part of a multi-million dollar joint program.

[25] US Congress, "H.R.3440 — Sustainable Skies Act," 2021
[26] US Internal Revenue Service, "Sustainable Aviation Fuel Credit"
[27] US Department of Energy, "Sustainable Aviation Fuel — Alternative Fuels Data Center"
[28] Ainonline, "SAF Deliveries Set to Increase for UK Military Aircraft," April 2024
[29] UK government, "Government Response to Developing a UK Sustainable Aviation Fuel Industry Report," 2023
[30] UK government, "Government Response to Developing a UK Sustainable Aviation Fuel Industry Report," 2023
[31] KPMG, "Is Asia Pacific a game changer for the global SAF industry?," 2024

These examples highlight the myriad of different policy measures and approaches that are taken by governments globally to drive sustainability in the A&D sector — from regulatory mandates for "minimum targets" and introducing taxes, to providing tax credits and funding. When taken together, companies — especially those with global operations and complex supply chains — are not only faced with a rapidly evolving regulatory landscape but also tasked with navigating the different requirements imposed by each regulation in different countries.

This poses multiple challenges for organizations. They must ensure compliance with new legislation, assess and understand the resulting underlying tax and legal implications, determine future investment and funding requirements and capitalize on available grants and incentives while implementing clear, actionable transition strategies.

In addition, both regulations and incentives by governments require a number of detailed reports from A&D companies. For smaller companies in particular, this can place a burden on existing resources to generate reports in an accurate, consistent, and timely manner. Leveraging digital platforms or the services of third-party consultants can sometimes help alleviate this burden. In any case, continued collaboration between governments and companies will support continued progress toward global net-zero objectives.

Key points

- A&D leaders do not believe that current government incentives are sufficient to drive sustainability
- Governments can use both "carrots and sticks" to drive sustainability
- Government programs are in place for both aerospace and defense companies

Case study 2

KPMG in the US has been working closely with a large Aerospace & Defense manufacturer to understand and address their current state of climate reporting and identify any gaps in relation to the EU CSRD and SEC proposed climate reporting requirements.

Challenge

In a changing global regulatory environment, the client embarked on a project to ensure reporting readiness prior to their auditor's assurance activities. This project to identify gaps in relation to the EU CSRD and the SEC proposed climate reporting requirements, including non-financial reporting requirements helped to identify a full list of actions the client could take to ensure compliance and be assurance ready.

How KPMG professionals helped

The KPMG in the US team's approach enabled the client to have visibility of integrated workstreams and a roadmap that not only considers compliance but also efficiency. By staggering the workstreams the team was able to gather information that will be vital to appropriately scope the next steps in the client's journey while leveraging insights and tools to provide high level perspectives on SEC and ISSB disclosure maturity.

Benefits

Drawing on expertise in data mapping allows the client to not only address regulatory reporting, but also identify ways they can maximize reporting for ratings and ranking agencies.

Using KPMG tools and accelerators based on the work performed over CSRD disclosures and metrics KPMG in the US provided not only the roadmap but also high-level perspectives on the maturity for SEC and ISSB disclosures efficiently while enabling the design of an implementation roadmap with a level of detail that enabled maximum reporting for ratings and ranking agencies.

CPRD showcases climate policy expertise across KPMG firms

Around the world KPMG teams are supporting clients to navigate the impacts of an accelerating climate agenda. Their focus on climate policies, regulation and incentives is likely to increase in importance over the coming years as countries implement the commitments they have made, particularly at COP28. To respond to these trends, KPMG has a dedicated Climate Policies Incentives Hub which brings together its global subject matter multidisciplinary specialists including Tax and Legal, the Global Decarbonization Hub and the Grants and Incentives Practice. Together with the help of these professionals and in response to clients needs, the CPI Hub has developed the CPRD which is a self-service regulatory intelligence tool to provide clients with a high-level, user-friendly understanding of key climate policies.

Unlock advisory opportunities with local SMEs, supported by the global KPMG organization. Opportunity to promote local contacts on entry pages alongside thought leadership.

Supports global ESG priority solutions

ESG strategy, transformation and implementation
Integrating climate policy into internal transformation

Decarbonization, climate and nature
Current and future climate/ decarb policy implications

ESG tax and legal
Tax and regulatory implications of climate policy reforms

Sustainable supply chain
Support for supply chain decisions based on implications of climate policy

Circular economy
Advice on product lifecycle implications of circularity policy

ESG deals and value
Climate policy-related analytics to guide asset management and M&A

Social
Insights into Just Transition implications and policies, and their impact on organizations

Access to global practices

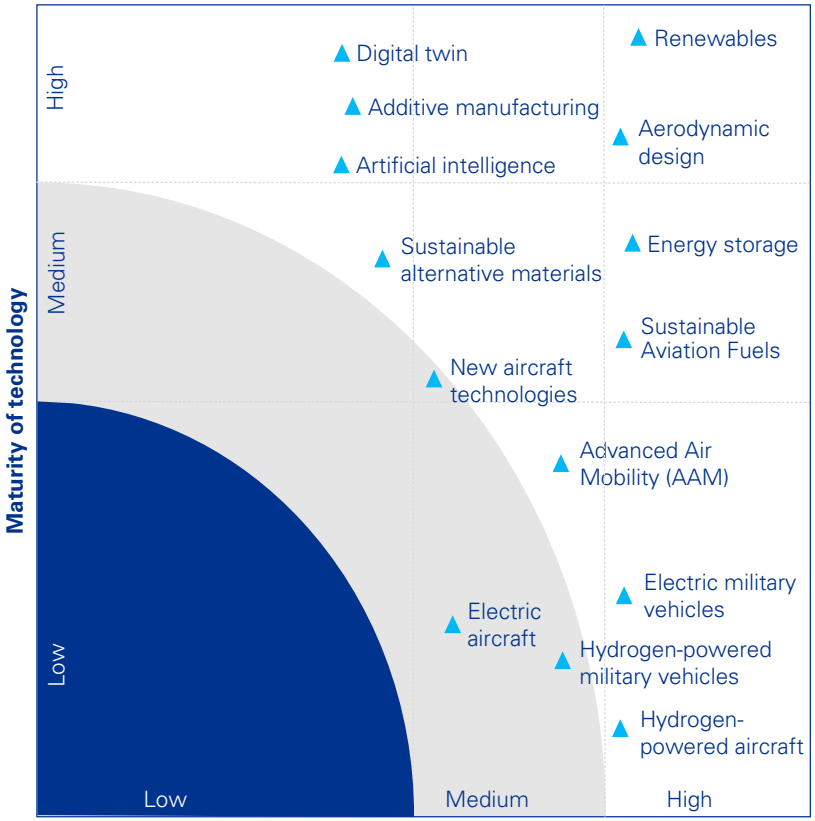
Climate policy advisory & incentives hub
A variety of specialists across the full spectrum of climate-related transformation. Already led development of offerings on CBAM, EU Deforestation Regulation and other key reforms. Will lead deployment of the CPRD.

Global ESG tax & legal practice
Advises clients on the tax and regulatory implications for their business across a range of ESG topics, including climate. Includes a Virtual Center of Excellence on Indirect Taxation for policy practitioners who are intimately familiar with their local climate taxation reform agendas.

Global credits, grants & incentives practice
Provides clients with professional advice and support in accessing governme tax and market-based incentives to encourage climate-related goals.

Innovation through public and private support

In our survey, 61 percent of respondents chose R&D innovation and new technologies as a key opportunity in their organization's progress toward net-zero goals. Innovation provides another example of public and private sectors working together to advance sustainability in the A&D industry. According to estimates, an investment of nearly US$5.3 trillion will be required to decarbonize the aviation sector, with a high level of dependence on public funding during the initial stages of technology development.[32]



[32] ICAO, "Chapter One: Aviation and Environmental Outlook, Financing aviation decarbonisation"
[33] KPMG, "Evolution of Transport Fuels", 2024
[34] KPMG, "Aviation Leader Report 2023"

SAF: Possibilities and obstacles

New technology is not necessarily a silver bullet when it comes to addressing sustainability challenges. A case in point is SAF. The fuel represents a crucial component of the aviation industry's net-zero pathway, offering a drop-in replacement for conventional jet fuel with the capability to significantly reduce lifecycle greenhouse gas emissions.[33] Made from non-petroleum feedstocks, SAF can be blended at varying levels with conventional fuel, offering flexibility in its application.

However, key problems remain. "We are a long way from having anywhere near a meaningful SAF supply," says Christopher Brown, Partner, Head of Strategy, KPMG in Ireland. By 2050, according to recent models, there will still be a significant shortfall in SAF supply, potentially reaching only a third of the global fleet energy need.[34] Demand-side mandates will likely not be enough to get there; significant supply-side incentives are expected to be required.

In addition, biofuel SAF has a number of key constraints preventing it from scaling much beyond five percent of the total energy needed for the sector's growing fleet. The alternative is synthetic SAF, which does not have the same feedstock, food security, biodiversity obstacles as biofuel, but instead requires a significant investment in dedicated low carbon power.

Brown also points out that jet engine fuel burn, whether from flight or aircraft taxiing on the ground, together contribute only around 40 percent of the total aviation CO_2 equivalent footprint. Therefore contrail management and ground ops warrant more attention, along with airspace modernization. In short, even if the sector had a sufficient supply of SAF, it would still only address about 40 percent of the total problem.

Under its Sustainable Flight National Partnership (SFNP), NASA Aeronautics has invested in new technologies such as Internet of Things (IoT), digital twins, and light-weight parts and paints.[35] These investments could support a step-change improvement in fuel efficiency. SFNP is also supporting the development of new narrow-body aircraft in the 2030s and new wide-body aircraft in the 2040s that could potentially consume 25 to 30 percent less fuel as compared to current aircraft.

A&D companies are investing in propulsion technologies (electric and hydrogen-powered), alternative energy sources (SAF and hydrogen), and changes in overall airplane configurations and operations to reduce emissions and improve overall efficiency.

Combustion and electric propulsion systems can be used in combination during take-off to provide maximum thrust, and the combustion engine can be throttled back when the aircraft is in cruise flight or descending. Combustion engines could also be smaller and reduce on-board weight.

In terms of design, a promising option is blended wing — a thick, airfoil-shaped fuselage section that combines the engines, wings, and body into a single lifting surface. "The primary objective around blended wing body design is energy efficiency," explains Dr. Victoria Coleman, Former Chief Scientist of the US Air Force. "The design can potentially reduce per-seat fuel consumption by around 30 percent. The startup JetZero was selected to develop a prototype that will help demonstrate this technology."

The blended wing body project is an example of how the US Air Force works with the private sector to advance sustainability. "When you look at both aerospace and defense, we have more in common than we don't have in common," explains Dr. Coleman. "The overall mission is different, of course, but we are similar in the way we approach things like energy consumption. For example, the Air Force can learn from commercial aviation how to reduce the fuel load on a flight. Over the years, commercial carriers have honed their operations to make sure that a plane takes off with just the amount of fuel it needs to safely perform its mission. That approach can help us optimize our own fuel loads. At the same time, the Air Force supports new research and development that often involves commercial companies. The project with JetZero is a good example of that."

Dr. Graham Webb, chief sustainability officer, Pratt & Whitney, an RTX business, explains how one of the world's leading manufacturers of propulsion systems leverages private-public partnerships and collaborates within the aviation industry to develop technologies that support the design of next-generation engines. "A key part of our approach is to augment our own investments in more sustainable technologies with funding provided by U.S., Canadian, and European governments. We've found this to be an effective way for us to build momentum and accelerate the development and deployment of new technologies that support our customers' objectives," says Dr.Webb.

A&D companies are investing in propulsion technologies, alternative energy sources, and changes in overall airplane configurations and operations to reduce emissions and improve overall efficiency.

[35] US NASA, "Sustainable Flight National Partnership"

Dr. Webb also points out the benefits of collaboration with other companies. "Throughout our history, Pratt & Whitney has been focused on improving the efficiency and thrust of our engines while decreasing their emissions, which are central to our industry's sustainability goals. Today, we collaborate with Collins Aerospace — also an RTX business — on new designs for hybrid-electric engines. Collins is one of the world's leaders in aircraft electrification, and along with the capabilities of the RTX Technologies Research Center, we're able to explore ways to incorporate electrical machines into thermal engines to achieve tangible improvements in fuel efficiency and reduced emissions for a wide range of future aircraft."

Dr. Webb discussed how the two companies are creating new electric machines and thermal engines to create hybrid-electric propulsion systems that provide greater efficiency from the combination. "We've identified a number of interesting possibilities, all the way from some very small devices, maybe 150kW, to the megawatt class for the large, single-aisle aircraft. We've put together teams and made quite a bit of progress. We've also set up a lab in the RTX Technologies Research Center dedicated to these efforts called the Scalable Turboelectric Powertrain Technology (STEP-Tech) demonstrator." Also note: Pratt & Whitney and Collins are developing a hybrid-electric GTF engine demonstrator as part of the SWITCH project, a collaborative consortium supported by the European Union's Clean Aviation Joint Undertaking.

Dr. Webb explained the role that government support has played in the R&D efforts of the company. "We've been looking to the future of aerospace and thinking about hydrogen powered aircraft, so we launched a research program funded by the US Department of Energy's ARPA-E organization.[36] In the program, we are evaluating innovative advanced cycle concepts that increase energy recovery, specifically water and heat recovery from the exhaust gas stream. In effect, we are looking at ways to shrink the overall size of the engine while developing a cycle that has very high efficiencies — an ideal combination for future hydrogen-fueled aircraft."

Key points

- R&D innovation and technologies are recognized as key opportunities in supporting sustainability
- SAF is a promising alternative fuel, but issues remain
- Both public and private support is driving innovation in the A&D industry

[36] US Department of Energy, "Advanced Research Projects Agency-Energy (ARPA-E)"

The evolving role of sustainability leadership

> “Our sustainability leaders of tomorrow are honing their skills and shaping their views today. It's essential to engage them in our conversations now to pave the way for a greener future.”

Ebony Carmichael, Global ESG Sector Executive
Senior manager, KPMG International

According to the KPMG CEO Outlook 2023 survey,[37] global CEOs are very much aware of new regulations and shifting politics when it comes to sustainability and their ESG goals. Despite this, 68 percent of respondents indicate that their current ESG progress is not strong enough to withstand potential scrutiny from stakeholders or shareholders. The difficulty in balancing progress with business growth is further supported in our ESG Assurance Maturity Index,[38] where more than half of senior executives who consider themselves ready for ESG assurance said it was a challenge to balance assurance goals with the profit expectations of shareholders.

Our interviews with chief sustainability officers (CSO) and other executives confirmed the importance of corporate leadership in achieving sustainability.

In the past, sustainability initiatives were sometimes supported by the finance or legal function. However, these professionals are now taking a more independent and strategic role as educators and communicators, helping their organizations better understand the importance of sustainability and how their organization can contribute to a greener world in the years ahead.

“CSOs are becoming the agents of change,” explains Gagnon of CAE. “We have to be a role model and show our employees and other companies that climate change is important. Being carbon neutral is not easy. There’s a cost to it. There’s an invoice that comes every year, but people need to take action. Carbon neutrality allowed us to raise awareness about carbon at the executive level.

Scope 1, 2, and 3: What’s the difference?

Scope 1, 2, and 3 emissions are categories of GHG emissions that are classified according to the level of control a company has over them.

- Scope 1 emissions are direct emissions that are owned or controlled by a company, such as fuel combustion or refrigerant leakage.
- Scope 2 emissions are indirect emissions related to operational electricity use, such as purchased electricity or heat.
- Scope 3 emissions are indirect emissions that are produced by a company’s customers and supply chain, such as transportation, waste disposal, or product use.

[37] KPMG, “KPMG CEO Outlook 2023.” 9th edition. Conducted with 1,325 CEOs between 15 August and 15 September 2023.
[38] KPMG, “ESG Assurance Maturity Index,” 2023

Now that we have submitted aggressive decarbonization targets to SBTi (Science-based target initiative), we will transition away from carbon neutrality to accelerate our own decarbonization."

Much of this action involves internal education. "I often present to my board of directors on carbon and climate change," says Gagnon."The tone at the top is so important. I did the same thing with my management team so that they could really understand the difference between scope 1, scope 2, scope 3, and where we need to act. I train them on the importance of having decarbonization targets."

"Last year we also started our first supplier forum and invited all the strategic suppliers that support our full-flight simulators. Everyone was there in person, in the same room. We started with the basics of climate change and decarbonization. We also brought our engineers in the room to help them start thinking about their carbon inventory. All this has made a big difference. At first, we didn't have a baseline of carbon from the supply chain. We started putting together a baseline in the bigger categories like purchased goods and services, which represent 70 percent of our scope 3 emissions according to spend. Now we have a much better idea of how we can work with our suppliers and embark them with us on our journey to decarbonize."

Education is critical because a company's commitment to sustainability is often a reflection of the company as a whole. Sustainability strategies need to be based on a clear understanding of the company's core values and priorities, says Dr. Allen, BAE Systems. This includes a strong level of support for ESG agendas. "Business sustainability and environmental sustainability go hand in hand," she says. "We have to be an attractive workplace, an employer of choice, and that means creating an inclusive environment, investing in people, and bringing in new skills."

Ebony Carmichael, also stresses the importance of investing in people, including young professionals. "Our future leaders need to be part of the conversation, part of a future-focused approach. We need a wide range of people from different backgrounds to question long-standing assumptions and develop new and more effective sustainability solutions. This will require not just major changes in the business world but social changes as well."

Key points

- The roles of CSOs and other sustainability leaders are rapidly changing and growing in importance
- Sustainability leaders act as communicators, trainers, educators, agents for change, and champions for sustainability
- Leadership could be better positioned for success by including people from different backgrounds and ages, now and in the future.

Opportunities for change

Respondents chose the three most important opportunities to progress their net-zero goals

64% Access to government support, e.g. funding/tariffs, tax

61% Development of new R&D innovation and technologies

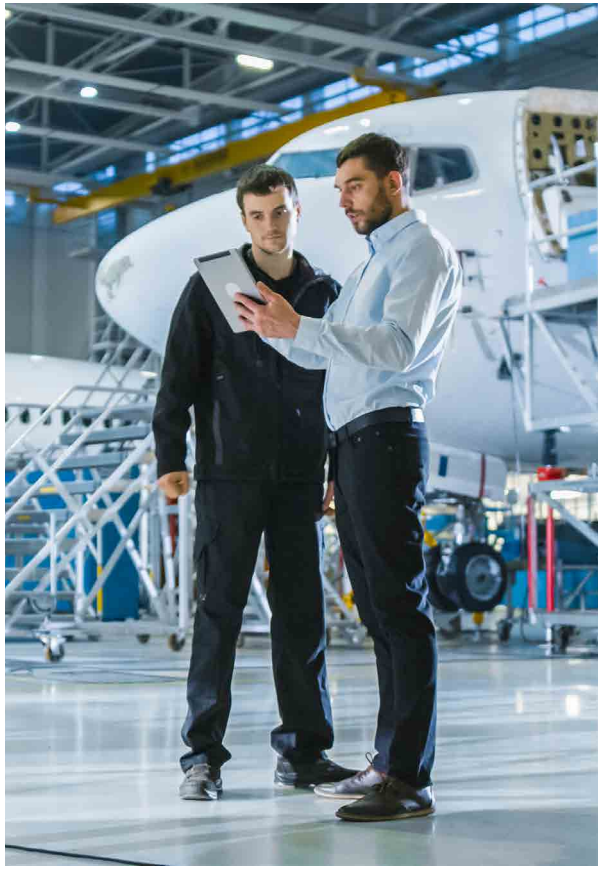
57% Stakeholder collaboration (industry, government, military, academia, etc.)

54% Improved skillset and diversification of workforce

46% New revenue streams and business units

11% M&A opportunities

4% New import/export markets



Our survey asked respondents to select the most important opportunities they see for their organization regarding sustainability. Reflecting some of the findings we have seen with previous questions, the highest percentages were government support (64 percent), innovation (61 percent) and stakeholder collaboration (57 percent).

Corporate Power Purchase Agreements (PPAs) can help drive GHG emissions reduction and will play a vital role in decarbonizing global economies by 2050. A PPA is a long-term agreement for renewable electricity supply with an energy generator. Until recently, energy procurement has mostly been treated as a cost to be managed rather than a strategic area for risk reduction and value creation that can provide long-term energy security. It can be a key factor in reducing Scope 2 emissions.

Another opportunity for increased sustainability can be new analytic technology. For example, James Dennis, Director, Climate Risk and Decarbonization Strategy, KPMG in the UK, leads the development of Climate IQ, a risk management tool that can run multiple scenarios to understand a company's exposure to climate change. "Climate IQ models impacts and interdependencies. You might have 150 sectors with maybe a 100 different resources or commodities, with all the data points linked together across the global economy. With that analysis in hand, a company can identify, quantify, and manage their physical and transition risks due to climate change and understand the impacts these have on their business."

Now is the time for A&D companies to begin or accelerate their progress toward sustainability.

Case study 3

KPMG in the UK utilizes Climate IQ to assist an A&D manufacturer in analyzing its climate-related risks and regulatory requirements

KPMG in the UK recently helped a leading A&D manufacturer to better identify, quantify, and manage the company's transition risks due to climate change.

Challenge

Regulations play an increasingly important role in the journey toward net zero, and the costs of providing accurate, detailed, and timely reports for compliance only continues to grow. Aligning with the recently mandated Task Force on Climate-Related Financial Disclosures (TCFD) a leading UK A&D manufacturer conducted its first TCFD assessment of risks and opportunities involving governance, strategy, risk management, metrics, and targets. Based on the assessment, the company decided to undertake a quantified scenario analysis to help inform their strategic planning decisions and consider the broader climate impacts that could affect their business. Accordingly, the company engaged the KPMG UK's Climate Risk and Strategy (CR&S) team for a Climate IQ engagement. Climate IQ is a risk management tool that can run multiple scenarios to address questions that organizations might have about their exposure to climate change and potential regulatory requirements.

How KPMG professionals helped

The KPMG team undertook a quantified scenario analysis using Climate IQ. In the first phase of the project, the team helped the company to consider broader climate impacts that could affect their business. Climate IQ provided outputs based on the company's financial and operational data that required further analysis to provide greater insight about key risks and opportunities.

Benefits to the client

Backed by KPMG experience and knowledge, the Climate IQ analysis provided bespoke outputs based on the company's financial and operational data enabling the company to prioritize their short and long term focus areas, increase organizational awareness of climate change impacts and drive conversations on how they could minimize and maximize climate change risk and opportunities being built in to their strategic plan.

A well-defined pathway may result in availability of funds from government and private investors, which can help in commercializing upcoming technologies.

Companies can consider the following steps:

- Quantify and analyze emission profile across the full value chain including Scope 3 by partnering and collaborating with suppliers and industry coalitions.
- Engage with suppliers and encourage them to set their own emission reduction targets.
- Enable technical and commercial viability of SAF and manufacturefuel-efficient aircraft.[39]
- Invest in cleaner technologies that are key in driving decarbonization in the sector.

Key points

- Government support, innovation and new technology are driving progress toward sustainability goals.
- Corporate PPAs can help support GHG emissions reduction.
- Analytic tools are proving valuable in measuring climate impacts on companies.

[39] KPMG, Evolution of Transport Fuels, 2024

Conclusion

The A&D industry faces genuine, urgent challenges in becoming leaner, greener, and more resilient in terms of sustainability. Competition will remain a driving force in the development of better products, services, operational efficiencies, and pricing. But A&D companies are also committed to developing successful collaborations among themselves and with suppliers, governments, investors, research institutions, industry organizations, and other stakeholders. By working together, organizations can maintain their commitments to sustainability even as they deal with volatile markets, changing regulations, talent scarcity, rising costs, and geopolitical factors.

As Grant McDonald notes "We believe that the A&D industry is up to the task of building a sustainable future. With the aid and guidance of today's sustainability leaders, the A&D industry can become a model for other industries as the world works to reach its net-zero goals in the 21st century."

Key points

- The A&D industry is facing major challenges but also maintaining a commitment to sustainability.
- Sustainability in the A&D industry involves collaboration, innovation, and education among a large number of stakeholders.
- The A&D industry is positioned to not only achieve its net-zero goals but also serve as a model for other industries.

How this connects to what KPMG professionals can do

In an evolving A&D industry marked by significant challenges and opportunities, KPMG professionals aim to be at the forefront as a leader to help provide insight, strategy, and actionable guidance. We understand the intricacies of the industry and the necessity for businesses to adapt and thrive amid these complexities.

The impact of ESG issues cannot be denied. That's why we're committed to strengthening our global ESG offering — backed by the recognition of our responsibility to help build a better future for all. ESG is the watermark running through our global organization — from empowering our people to become agents of positive change, to providing better solutions and services to KPMG clients.

KPMG has been recognized as a global leader in the Verdantix Green Quadrant: ESG and Sustainability Consulting 2024.[40] "Through the integration of sustainability into its broader offerings," the report states, "KPMG has enhanced its ability to support large firms seeking to address sustainability concerns holistically."

KPMG has also been named a global market leader by ALM Intelligence in their latest Pacesetter research, "ESG: Environmental, 2023-2024."[41] For KPMG, the report explains, "ESG is everything a business does and how it does it. Therefore, authenticity in an organization's ESG approach is critical to developing a sustainable future. In addition, to optimize ESG and build sustainability, KPMG works with organizations to embed ESG into the business strategy with board-level support to drive financial value, and effectively communicate goals throughout the organization using ESG metrics to understand KPIs. As a result, KPMG provides an integrated and holistic ESG framework that is embedded throughout the organization to ensure a successful transformation."

KPMG member firms provide audit, tax, and advisory services to A&D companies around the world. KPMG are leaders in identifying critical trends in the A&D sector — sustainability, innovation, and efficiency, and transforming them into actionable strategies. Our global A&D practice helps top companies in the industry plan and execute strategies to make the most of these trends. Our data-driven approach allows us to quantify the impact of trends such as sustainability for Tier 1, Tier 2, Tier 3 and other players so they can identify and prioritize emerging opportunities and requirements. KPMG colleagues assist clients in defining the investment and development roadmaps to enhance and pursue these opportunities.

In addition, KPMG firms support clients with operating model and business transformations to prepare their organizations for building new types of products and doing business in new ways. The ESG team comprises transformation, measurement, and reporting specialists. They can help you:

- Assess and design your ESG strategy
- Embed ESG across your operations
- Measure progress and tell your ESG story
- Make future steps transformational.

KPMG has also been named a global market leader by ALM Intelligence in their latest Pacesetter research, "ESG: Environmental, 2023-2024." For KPMG, the report explains, "ESG is everything a business does and how it does it.

[40] KPMG, KPMG firms recognized as a global leader in ESG and Sustainability Consulting, 2024
[41] KPMG, KPMG recognized as 'a global market Leader in ESG Environmental Services', Nov 2023

For A&D clients, our audit, tax, and advisory teams serve Tier 1, 2, and 3 organizations in areas such as satellite and space technology, research and development institutions, defense departments, cyber security departments, and other government and regulatory bodies. Examples of recent projects include:

- ESG reporting: double materiality assessment and the EU's Corporate Sustainability Reporting Directive (CSRD)
- Development and evolution of sustainability strategy
- Net-zero strategy and roadmap
- ESG tax and assessments
- Supply chain risk management

One crucial tool in the decarbonization journey is the Corporate Power Purchase Agreement (PPA). This approach allows companies to directly purchase electricity from energy generators, bypassing traditional utilities. PPAs offer a range of potential benefits, from facilitating decarbonization through green power adoption to immediate cost savings and risk reduction. KPMG firms offer a wide-ranging suite of services, from advising on global PPA opportunities to full implementation support, leveraging the global organization of firms and their strong developer relationships to deliver holistic energy solutions. KPMG professionals' expertise covers risk mitigation strategies, trading strategies for renewable platforms, and ESG reporting to help ensure that the transition to cleaner energy aligns with your sustainability goals.

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