

2022 AIAA KEY ISSUES AND RECOMMENDATIONS

AEROSPACE IS TECHNOLOGY. AEROSPACE IS INNOVATION. AEROSPACE IS JOBS.

The U.S. aerospace and defense (A&D) industry – which comprises *Aeronautics*, *Space*, and associated *Research and Development (R&D)* activities – is a multi-trillion-dollar enterprise. It supports millions of jobs domestically and produces out of this world technology innovations built upon our world-class, but aging infrastructure. The A&D industry is critical to our nation’s well-being, providing major contributions to education, economic prosperity, quality of life, national defense, and homeland security. In this new decade, and as the COVID-19 pandemic persists, it is critical that substantial action be taken to address the needs of the industry and the complex global economic, technological, and military competitions that are poised to affect the United States’ future as an international leader and technological and economic powerhouse.

The A&D industry, consisting of the private sector, government agencies, and academia, currently is, and will continue to be, pivotal in addressing the needs of our nation. Mitigating climate change through developing technologies that reduce carbon emissions and ensuring responsible use of outer space for a sustainable future both on and off the planet are critical to our future. The A&D industry provides opportunities for individuals from all races, nationalities, and socioeconomic statuses. Together we tackle the complex challenges associated with improving our society and defending our way of life, driving our innate desire to explore and be curious, working toward a greener future, and keeping outer space accessible to all.

The American Institute of Aeronautics and Astronautics (AIAA) – the world’s largest aerospace professional society – urges decision makers to enact and support policies that will provide for sustainment and growth of all elements of the A&D industry. The industry continues to be critical to the security and prosperity of the United States, and the actions taken (or missed) are pivotal to maintaining a robust, world-leading A&D sector and will affect the nation and our community for many years to come.

AIAA seeks support from policymakers to address the following key issues:

- Accelerate the establishment of policies that facilitate the **commercialization of space** for U.S. technological competitiveness, economic growth, and national security benefits
- Support the growth, evolution, and diversification of the **21st-century workforce** to fill the job needs in the industry
- Support long-term, robust investments in research and technologies that drive **innovation and sustainability** across the A&D industry
- Support initiatives with associated funding for the **recovery and advancement** of the A&D industry – including workforce, infrastructure, and technology advancements

A&D INDUSTRY OVERVIEW



2.09M jobs,
1.4% of all U.S.
employment



\$874B
in sales
revenues



Salaries **41%**
higher than
the national
average



Positive trade
balance of
\$40.6B



\$59B
combined tax
contributions
nationwide



The Commercialization of Space: Economic Growth and National Security

The commercialization of space is critical for U.S. economic growth and national security. The space economy was estimated at over \$350 billion in 2019, and in 2020 over \$7.6 billion was invested in space startup companies¹. With these investments at an all-time high, the pace of innovation and technology development is literally skyrocketing. Necessary to enabling this economy, which is fueled by private industry and advances U.S. technological leadership and competitiveness, is defined government needs and priorities, a skilled workforce, and research and development funding to transition technologies for national security missions. However, with multiple nations and companies seeking to operate in space, challenges exist for establishing norms of behavior – for space traffic management, responsible use of the communication spectrum, and enabling Earth orbit operations through orbital debris mitigation. The United States must act quickly and decisively to demonstrate leadership in all these areas – taking the initiative to act first and set global precedents for norms of behavior for the responsible use of outer space.

RECOMMENDATION

Provide guidance and direction to this nascent space industry to incentivize and sustain economic growth and promote U.S. leadership and national security.

¹ <https://brycotech.com/>

² <https://www.aiaa-aerospace.org/research-center/statistics/industry-data/workforce/>



Growing, Evolving, and Diversifying the 21st-Century Workforce

The future of the A&D industry relies on a properly skilled, qualified, and fully staffed workforce. This workforce, which is over 2 million strong with salaries 41% higher than the national average², forms the A&D industrial base backbone. There is currently fierce competition among employers for qualified technical talent, exacerbated by large numbers of currently unfilled jobs. Despite numerous efforts over the past decade to make significant advancements to diversify the workforce, the needle has only moved a small amount². A diverse and fully inclusive pipeline – including K-12 through trade schools and colleges and universities, as well as accommodating international students – must produce qualified workers in sufficient numbers to fill the range of skills necessary for our industry, including advanced manufacturing. Technology is advancing at an exponential rate; therefore, company leaders and policymakers must afford the workforce with continuous learning and growth opportunities to meet the current and forecasted hiring demand in a field that literally has no ceilings. Challenges remain for employers at all levels of government, industry, and academic institutions and failing to educate, attract, and retain top talent is likely the greatest threat to maintaining U.S. leadership and global competitiveness.

RECOMMENDATION

Support development of a diverse aerospace workforce for all skill types and stages of career to advance learning commensurate with technology and product advancement, such as incentives for K-12 STEM teachers, H-1B visa reform, and legislation that enhances the pipeline of STEM-competent workers.



Research and Technologies that Drive Innovation and Sustainability

The United States must continue to make research and development (R&D) investments that will result in future innovative and sustainable aviation and space products and processes. This investment is required to sustain and grow the significant positive economic impact that the A&D industry has across all segments of the economy, while ensuring national security and defense readiness. Keys enablers are development and sustainment of state-of-the-art facilities – including experimental and computational R&D capabilities – combined with predictable and stable funding to address current and emerging threats and technologies such as hypersonics and climate change. Aviation connects the world – ultimately increasing national and global productivity, economic opportunity, and quality of life. Space inspires us, fuels curiosity and learning, and benefits life on Earth – exploration of the solar system, understanding our universe, and providing critical infrastructure for telecommunications, navigation, and surveillance. A robust pipeline of research, technology maturation, and product/process development – enabled by a key funding and foundational infrastructure – is critical to the future quality and growth of the aviation and space economies.

RECOMMENDATION

Support robust, long-term funding for federal research and technology initiatives in aeronautics and space, including necessary infrastructure, to ensure U.S. leadership in critical areas such as artificial intelligence, advanced air mobility, cybersecurity, hypersonics, and robotics.

Recovery and Advancement from COVID-19 Pandemic Effects

The A&D industry was vital to the nation during the first year of the COVID-19 pandemic, e.g., ventilator and PPE production and vaccine distribution. Nearly two years later, the A&D industry continues to be severely impacted – including the workforce, infrastructure, and technology advancements. During calendar year 2020 and the first half of 2021, it was reported that more than half of the A&D workforce was working remotely³. Complexities still exist for workers who can perform their duties virtually versus essential workers who are required to be on-site. Despite government and defense spending remaining stable during the pandemic, the aerospace sector – specifically jobs and technology advancement – has been negatively impacted by the pandemic’s economic fallout. It is imperative that the government continue to provide stable and predictable funding for government programs and organizations as we rebuild our aging infrastructure (including virtual collaboration tools), support and grow our workforce while ensuring COVID-19 safety measures, and develop technologies that advance the state of the art and fuel economic growth such as achieving net-zero carbon emissions by 2050.

RECOMMENDATION

Create initiatives and provide funding for the recovery and advancement of the A&D industry – including workforce, infrastructure, and technology advancements.

³ 2021 A&D Workforce Study White Paper