2020 AIAA KEY ISSUES AND RECOMMENDATIONS

AIAA
SHAPING THE FUTURE OF AEROSPACE

The aerospace and defense (A&D) industry is critical to our nation's well-being, providing major contributions to education, our economic prosperity, our national defense and homeland security, and our quality of life. A&D professionals are conducting research and working on initiatives that will soon return American astronauts to the moon and then on to Mars, growing a commercial space economy, integrating UAS more effectively into the national airspace, developing new supersonic aircraft, and modernizing our hypersonic capabilities among many other critical endeavors. There is much to be excited about and it is imperative for government, industry, and academia to continue working together to imagine and create capabilities that transform our society.

According to the Aerospace Industries Association, in 2018 the A&D sector:

SUPPORTED
2.5+
MILLION
jobs representing nearly 20% of the nation's manufacturing workforce

GENERATED
$928+
BILLION
in economic output, of which $459 billion is attributed to the industry's supply chain

CREATED
$348.3
BILLION
in value-added goods and services, contributing $324 billion to the U.S. GDP

PAID OUT
$237
BILLION
in wages and benefits, with an average wage of $92,742

EXPORTED
$151
BILLION
in goods, with a positive trade balance of $89.5 billion (reducing the U.S. trade deficit by 10%)

INVESTED
$105.9
BILLION
by the federal government for research and development

The American Institute of Aeronautics and Astronautics (AIAA), the world's largest aerospace technical society, urges lawmakers to enact and sustain policies that will enhance a robust and world-leading A&D sector. We strongly believe the accompanying key issues and associated actionable recommendations are crucial to the continued health of our industry, as well as the continued competitiveness, security, and growth of our nation.

As we strive to represent our nearly 30,000 individual members, 95 corporate members, and the broader aerospace community, we welcome and encourage feedback—our objective motive is to strengthen the profession and serve as a valued resource for decision makers.

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FUNDING STABILITY AND COMPETITIVENESS

The A&D industry has experienced growth in recent years because of a strong commercial market and increased government spending; however, major challenges exist because of mounting budget deficits, trade policy uncertainties, a lengthy acquisitions process, and foreign competitors investing heavily in military modernization, commercial development, and scientific research. The current unpredictable fiscal environment creates short-term perspectives, which increase the risk of the delay of new aerospace initiatives and the curtailment or termination of important programs. The technologies and products developed for A&D applications have been at the heart of the American technology boom driving significant improvements to economic growth and quality of life. A return to a regular appropriations process – last accomplished in the late 1990s – coupled with a long-term perspective is needed immediately so that the nation can best plan for and execute initiatives critical to a secure and economically robust future.

RECOMMENDATIONS

- Provide sustained investment for foundational and applied research in federal laboratories and universities at levels consistent with maximizing economic growth and technological leadership – this early investment is necessary to deliver new technologies within 5–10 years.[1]
- Provide the DOD with stable and predictable funding that supports efficient and effective multi-year acquisitions and operations.
- Streamline the certification and defense acquisition processes by tailoring oversight requirements to risk.[2,3,4,5]
- Provide long-term authorizations and appropriations to fund all NASA directorates properly in a balanced and predictable manner to meet short- and long-term program and mission requirements.
- Accelerate the establishment of policies for advancing the development and integration of new aerospace technologies into society, such as drones and supersonic aircraft.[2,6]
- Expand support for small businesses to foster technical innovation and facilitate the transition of those new products up the supply chain to support civil and military capabilities.
- Continue to review and roll back restrictive export controls that hinder U.S. A&D global competitiveness.

1 Aeronautics R&D: A Key to Economic Prosperity
2 UAS: Expanding Transportation and Driving Growth
3 FAA NextGen: Modernizing Our Nation's Skies
4 Hypersonics: A Game-Changing Technology
5 Aircraft Certification: Accelerating Innovation in Civil Aviation
6 Supersonic Flight Over Land: High-Speed Flight for the 21st Century
Papers can be found at: aiaa.org/advocacy/Policy-Papers/Information-Papers

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R&D AND INNOVATION

Since the dawn of aviation and through the advent of the space age, the United States has been the world leader in aerospace technologies. The federal government has played an important role in supporting research and development (R&D) efforts by academia, industry, and government labs leading to a myriad of scientific discoveries and innovations.[1] While there has been a recent uptick in federal funding for R&D and the United States still represents nearly half of global aerospace R&D spending, our foreign competitors continue to invest significantly in technologies critical to aerospace and defense. Sufficient and sustained R&D investments are therefore crucial to maintain our preeminence in this sector and to create more high-paying jobs.

RECOMMENDATIONS

- Support robust, long-term federal civil aeronautics and space research and technology initiatives[1] funded at a level that will ensure U.S. leadership.
- Invest in computational modeling and simulation technologies, as well as experimental ground and flight-testing capabilities, to advance basic and applied research and development of new military and commercial products.
- Ensure sufficient and stable funding for federal programs in critical areas to accelerate innovation and technology transition to operational applications.
- Create programs that enable greater interaction and cooperative arrangements between federal research laboratories, academia, and industry to foster innovation and growth.
- Offer incentives for research by large corporations and small businesses including the commercialization of that research into new products and services.
- Streamline the government A&D product development process by tailoring risk acceptance to better align with timeliness and lifecycle cost management.
- Ensure that federal agency R&D budgets provide sufficient funding to maintain long-term U.S. technical leadership in critical areas such as autonomy, hypersonics,[4] and space.
- Re-energize the Small Business Innovation Research (SBIR) program with adequate funding and adequate government resources to execute the Commercialization Readiness Program, emphasizing new initiatives that address barriers in bringing SBIR/STTR technologies to the marketplace.

1 Aeronautics R&D: A Key to Economic Prosperity
4 Hypersonics: A Game-Changing Technology
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WORKFORCE DEVELOPMENT AND ENHANCEMENT

The U.S. A&D sector enjoys a prominent position in terms of global competitiveness and technical superiority; however, the sector faces a skills gap that will threaten our future standing in the world. A large percentage of the workforce is or will soon be eligible for retirement. While demand for highly skilled workers has reached levels not seen since the 1960s, the A&D industry faces a number of significant hiring and retention challenges: achieving greater workforce participation by women and ethnic minorities, retaining qualified and trained personnel facing recruitment by other industries, processing background checks without long delays for classified work,[7] and hiring well-qualified international workers without impediment. Federal and state policies can enable significant progress in addressing each of these challenges.

Jobs today are heavily reliant on technology, yet our education system is largely not preparing students to be STEM-literate and adaptable to rapidly changing technologies.[8] Additionally, many schools are underfunded, teachers receive inadequate support, and there is an absence of direct mentoring. These factors have helped create a national workforce crisis. Industry leaders and policymakers alike must tackle this crisis sooner rather than later to address the forecasted demand for skilled technical workforce.[8]

RECOMMENDATIONS

- Pass legislation, such as the Higher Education Act, that enhances the pipeline of STEM-competent workers into the U.S. economy, including initiatives aimed at underrepresented communities.[8]
- Promote educational and training programs for both the existing workforce and new entrants, as well as encourage the recruitment and professional development of K-12 STEM teachers through federal incentives and grants.[8]
- Support programs that specifically focus on technical jobs, improve the pipeline from high schools, and provide grants for these activities.
- Incentivize industry and the military to engage directly with recruiting military personnel transitioning to the civilian workforce such as creating a standard to process and categorize military skill sets.
- Pass visa legislation that welcomes and retains highly educated international professionals who earn advanced STEM degrees from U.S. colleges and universities.

7 Security Clearance Reform: Reducing Backlogs to Meet Government Needs
8 STEM Pipeline
Papers can be found at: aiaa.org/advocacy/Policy-Papers/Information-Papers