



# What Every Candidate Should Know About the Aerospace Workforce and STEM

A highly skilled and robust defense and aerospace workforce is essential to our nation's security and economic prosperity, and today that workforce is at risk. Our industry faces a wave of impending baby boomer retirements along with a shortage of trained technical graduates, while work and skills requirements become increasingly advanced. The situation is challenging today and forecast to worsen in the next decade. At issue is a nationwide shortage of workers for jobs requiring skills in science, technology, engineering and mathematics (STEM). These workers form the backbone of an aerospace and defense industrial base that is counted on to provide sustained innovation, economic growth, global competitiveness and security for the United States and its allies. AIA and our member companies are committed to working with government at all levels and other stakeholders to ensure the availability of a well-educated and trained, globally competitive workforce.

## Benefits of the American Aerospace and Defense Industry

- > **National Security:** The strength of the aerospace and defense industry helps keep our nation safe and secure while assuring that our men and women in uniform are successful on the battlefield.
- > **Economic Strength:** The industry consists of more than 1 million Americans across 50 states and is one of the largest contributors to annual GDP.
- > **U.S. Global Competitiveness:** The U.S. aerospace sector achieved a record \$66.7 billion trade surplus in 2015.

**Innovation:** The aerospace industry is at the forefront of new technologies including virtual prototyping for jet and rocket parts and 3D printing on the International Space Station and for advanced aircraft materials and design. High visibility innovation in the aerospace industry attracts students to a variety of STEM careers, both in aerospace and other sector.

## Key Facts about the Aerospace Skills Gap

- > The skills gap is real and positions are going unfilled; 39 percent of aerospace companies predict an "extreme" impact on their business growth caused by the STEM labor shortage. Among U.S. manufacturers, talent shortages cost an estimated \$14,000 per unfilled position.
- > The skills gap is expected to increase further, as current aerospace employees retire. In 2015, 18 percent of all U.S. aerospace engineers and 24 percent of all aerospace manufacturing employees were eligible for retirement. It is predicted that 41 percent of skilled tradesmen in the aerospace industry will retire by 2017. At the same time, only 1.5 percent of the nation's 25- to 34-year-olds has a science degree, putting the U.S. at the bottom third of all countries in the Organization for Economic Cooperation and Development.
- > AIA member companies are engaged in a number of best practices to develop their workforce including: employer-driven training partnerships, (where employers communicate the skills they need to area schools, and help develop curriculum); work-based learning, including internships, mentorships, apprenticeships (registered and non-registered), on-the-job training, job shadowing and simulated work environments; engagement with other stakeholders through programs like the White House's "Change the Equation" initiative and the Business Higher Education Forum; support for a variety of STEM contests and challenges targeting students from primary school through post-secondary education.
- > Since 2010, AIA and the National Defense Industrial Association have collaborated to host regional STEM forums in 16 states and the District of Columbia to develop state STEM networks and share best practices to coordinate collaborative action to produce systemic impact on STEM education and workforce development.

## Actions needed to build a 21st Century STEM Workforce

**Support legislation and regulatory actions to create and expand access to STEM careers:** AIA urges candidates to support long-term policies that help create access to STEM education, training and employment opportunities for students and professionals nationwide. These include measures to make college education affordable, lower student debt, align education resources to workforce needs and engage employers.

**Stabilize funding for government innovation:** Federal agencies such as the Department of Defense, Federal Aviation Administration and the National Aeronautics and Space Administration help launch the careers of thousands of STEM professionals while benefitting from an ability to attract top talent for some of the country's most important defense, exploration and safety missions. However, their work is threatened by policies such as sequestration, as well as short-term funding measures and program cancellations that limit their ability to act as incubators serving national priorities. Funding threats also undermine the ability of government researchers to convert technologies for use in non-military markets, which has long been a boost to the economy and a spark for commercial and consumer innovation. Stable, long-term funding for research and development among these agencies must remain a priority.

**Promote STEM education policies and retention of U.S. educated workers:** AIA supports a commonsense STEM immigration policy and encourages candidates to take action to retain foreign borne U.S. educated STEM talent within the American workforce.

## AIA's Signature STEM Program: Team America Rocketry Challenge



Each year, AIA and the National Association of Rocketry organize the world's largest student rocketry competition, the Team America Rocketry Challenge (TARC). The competition is designed to provide participating middle and high school students with firsthand engineering experience and expose them to careers in aerospace and STEM. Students participate as teams and are tasked with designing, building and flying model rockets to meet specific targets for maximum altitude, flight duration and payload. More than 60,000 students have participated since the contest began in 2002. In 2015, 700 teams representing 48 states, the U.S. Virgin Islands, Puerto Rico and Washington, D.C., participated in TARC's qualifying rounds. A student team from Alabama beat teams from the United Kingdom and France at the Paris Air Show to take home the international title

