

# 2019 **FACTS & FIGURES**

U.S. AEROSPACE & DEFENSE





For over 100 years, the American aerospace and defense (A&D) industry has moved, connected, and secured the modern world. And in 2018, our industry continued to pave the way to what's next, providing world-class products to our partners and allies around the globe and developing new, cutting-edge technologies that will shape life for generations to come.

A&D is at the heart of American economic success. In 2018, continuing an eight-year trend of sustained growth, the A&D industry generated sales exceeding \$929 billion while supporting over 2.5 million U.S. jobs. Our industry helped families and friends worldwide better connect by fulfilling the growing need for U.S.-built commercial aircraft. We helped keep America and our allies safe by meeting the rising global demand for U.S. defense systems. We helped bolster American space exploration by building and supplying the space systems that allow both commercial and government space efforts to flourish.

Our global impact has also continued to grow, as exports rose to \$151 billion, generating a trade surplus of nearly \$90 billion, the second highest trade surplus ever recorded for the U.S. A&D industry. That has a big effect in the United States, as A&D continues to be by far the largest deficit reducing industry, effectively cutting the federal trade deficit by 10%.

None of this would have been possible without the innovative manufacturing that has always been the foundation of our work. Last year, A&D experienced growth in every manufacturing sub-sector, ranging from commercial aerospace to cyber. And we felt this success all across our supply chain, which grew to \$459 billion in output – a four percent increase. These products are the backbone components – the nuts and bolts, among many other things – that enable the planes we fly, the defense systems we deploy, and the satellites we put in orbit.

We are proud to support U.S. economic and national security, and to make so many facets of daily life possible. This year's edition, "2019 Facts & Figures: U.S. Aerospace & Defense" offers an in-depth look at the success of American A&D from 2010-2018, with the support of IHS Markit.

A handwritten signature in black ink that reads "Eric Fanning". The signature is fluid and cursive, with the first name "Eric" and last name "Fanning" clearly legible.

**Eric Fanning**  
President & CEO  
Aerospace Industries Association

For more information, please visit [www.aia-aerospace.org](http://www.aia-aerospace.org).

# 2018 A&D ECONOMIC OUTPUT



# 2.55M

U.S. JOBS

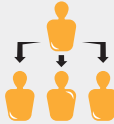
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# \$929B

IN SALES

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# 881,000

DIRECT JOBS

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# 1.67M

SUPPLY CHAIN JOBS

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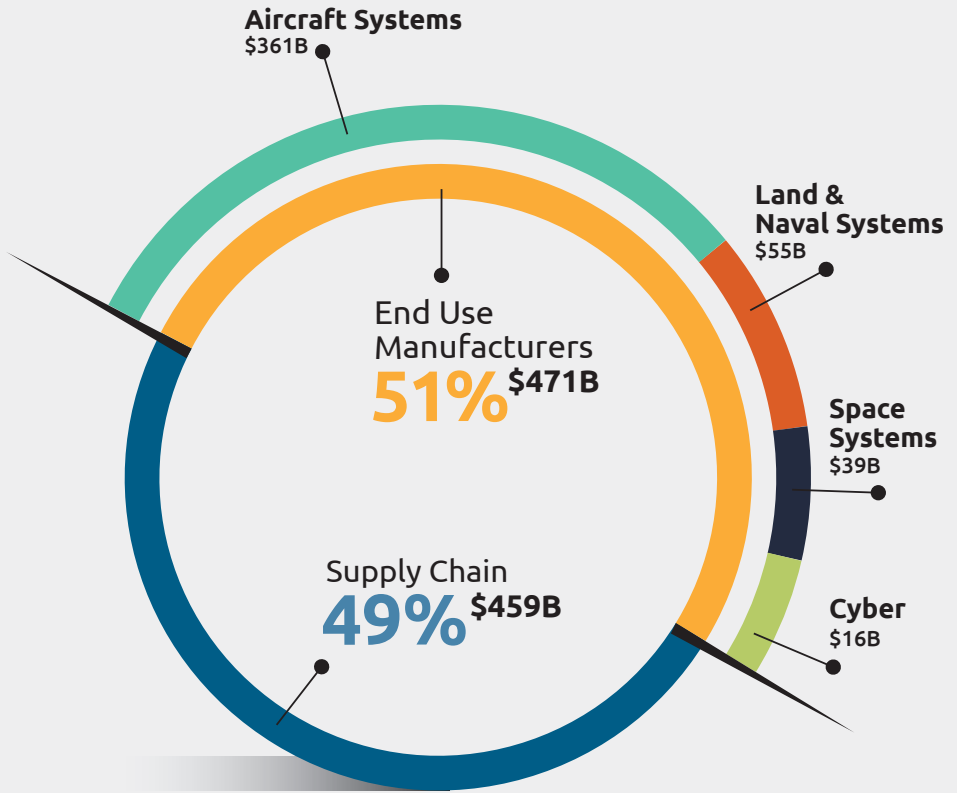
## INDUSTRY OUTPUT

Over the past decade, the United States has faced a range of significant events that deeply affected international markets, including increased political gridlock in Washington, a lack of budget agreements, and multiple government shutdowns. Despite these market-altering forces, aerospace and defense's total sales have increased steadily each year. This can be attributed to an array of factors unique to this particular industry. On the commercial side, experts estimate that production will steadily increase due to a strong backlog. For defense products, a rise in geopolitical threats has resulted in increased spending on a global scale as allies in foreign markets continue to procure cutting-edge American technology.

The total sales revenue of the industry in 2018 exceeded \$929 billion, an increase of 4.17% from the previous year. The impact of this growth has been substantial for the nation's gross domestic product (GDP). In 2018 alone, A&D contributed over \$374 billion to the GDP of the United States, representing 1.8% of the entire GDP. More than \$208 billion of A&D's total contribution can be attributed to the industry's supply chain, which is responsible for supplying the many components that make up final products, such as nuts, bolts, hoses, and communications systems. These companies provide the various parts of immensely complex systems, like aircraft and satellites, that define the aerospace and defense industry.



# TOTAL INDUSTRY OUTPUT IN 2018



Total Industry Output  
**\$929B**

# TRADE

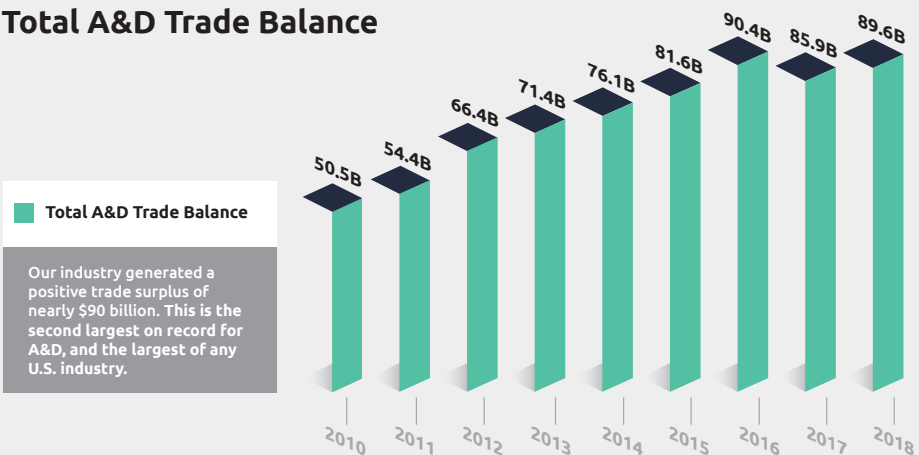
In 2018, aerospace and defense exports amounted to \$151 billion, an increase of 5.81% from the previous year. Civil aerospace accounted for the majority of exports with \$131.5 billion, while the remaining \$19.5 billion can be attributed to defense products. Meanwhile, A&D imports into the U.S. amounted to \$61.5 billion, 8.08% more than the year prior. Imports allow American companies to access the best parts and technologies at the best price from the total global marketplace. Those components then make up larger American civil and defense products that are consistently the best systems sold on the global market.

The result is a positive trade balance of \$89.6 billion, the second highest on record for the A&D industry. In fact, since 2010, A&D has generated a steadily increasing trade surplus even as the overall U.S. trade deficit expanded significantly. For example, the U.S. trade deficit expanded from \$552.3 billion in 2017 to \$621 billion in 2018. Meanwhile, A&D eliminated \$85.9 billion from the trade deficit in 2017 and nearly \$90 billion in 2018. That makes A&D the largest reducer of the deficit of any American industry by far.

A continued increase in demand for new commercial aircraft, both in the United States and internationally, continues to be a primary factor behind the industry's growth, as new markets and routes have emerged. In fact, a recent study from Deloitte estimates that, over the next decade, annual global production for aircraft is predicted to increase by 25%.

Additionally, the two-year budget agreement signed on August 2, 2019 helps ensure that federal investments in defense systems will continue their rise. That, along with increased global demand for new systems, enables America's A&D industry to benefit from sustained growth, particularly as U.S. allies and partners in East Asia and Europe increase their defense budgets to address common national security concerns.

## Total A&D Trade Balance



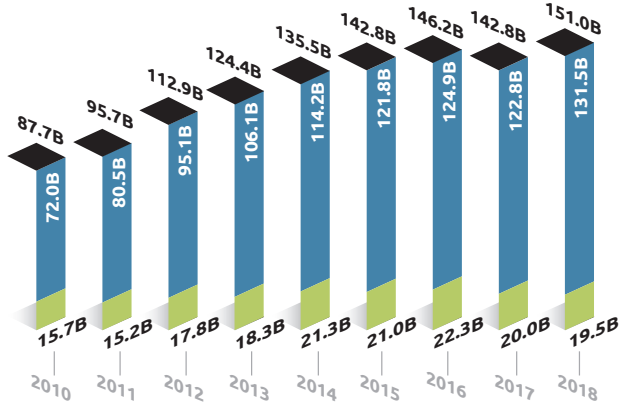
**Total A&D Trade Balance**

Our industry generated a positive trade surplus of nearly \$90 billion. This is the second largest on record for A&D, and the largest of any U.S. industry.

# TOTAL A&D EXPORTS/IMPORTS IN 2018

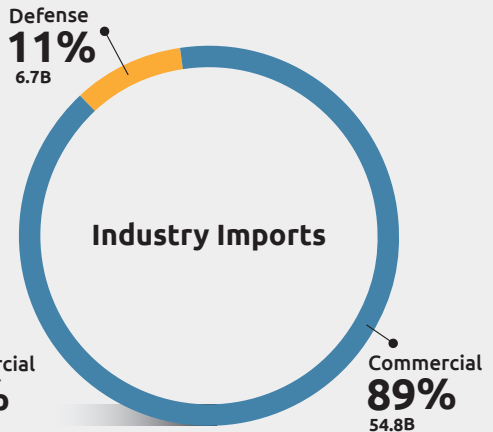
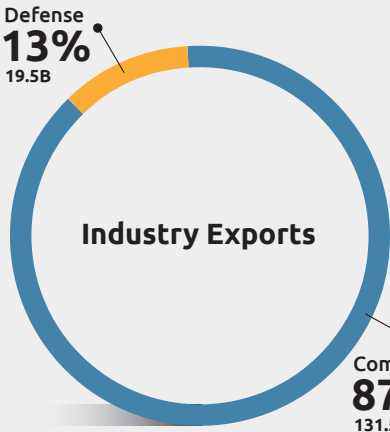
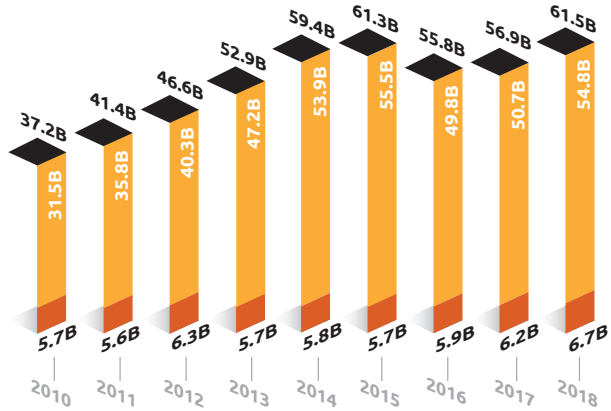
## EXPORTS

- Civil Exports
- Military Exports



## IMPORTS

- Civil Imports
- Military Imports





## TOP EXPORT DESTINATIONS

1. China - \$18.8B



2. France - \$14.1B



3. United Kingdom - \$12.6B



4. Canada - \$9.9B



5. Germany - \$9.4B



6. Japan - \$7.1B



7. Singapore - \$6.5B



8. Brazil - \$6.5B



9. Mexico - \$4.7B



10. United Arab Emirates - \$3.9B







## TOP IMPORTING COUNTRIES

1. France - \$12.7B



2. Canada - \$9.8B



3. Japan - \$7.4B



4. Germany - \$5.5B



5. United Kingdom - \$5.5B



6. Mexico - \$3B



7. Italy - \$2.9B



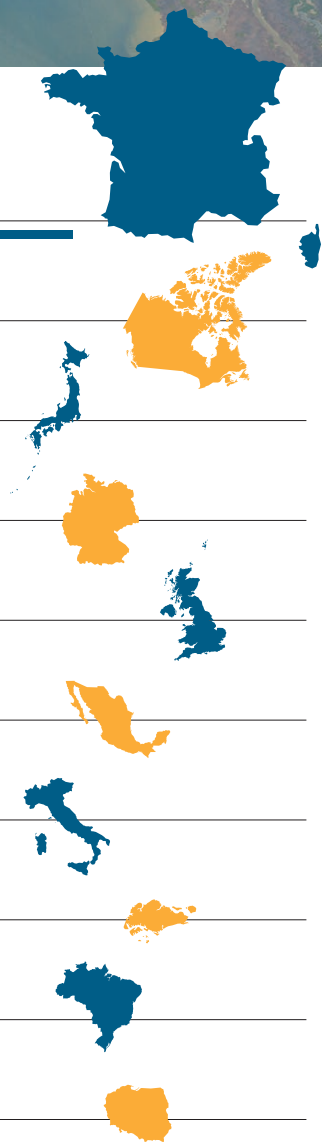
8. Singapore - \$2.2B



9. Brazil - \$2.2B



10. Poland - \$1.2B



## RESEARCH & DEVELOPMENT

Research and development (R&D) is a key driver of A&D industry growth that enables future technological innovation. Historically, the U.S. has been the world's leader in R&D spending, with U.S. defense-related R&D alone accounting for more than one-third of global expenditures in 1960.

However, over the past six decades, U.S. government investment in R&D has steadily declined, exacerbated by the Budget Control Act (BCA) of 2011. This law, designed to limit spending and thus lower the federal budget deficit, capped discretionary, non-military personnel related defense spending. As a result, R&D investment has been a bill-payer. Spending declined from \$81.8 billion in 2010 to \$67 billion in 2015. Meanwhile, America's global rivals significantly increased their R&D investments. China for example, has substantially increased their total R&D expenditures nearly 71% since 2012.

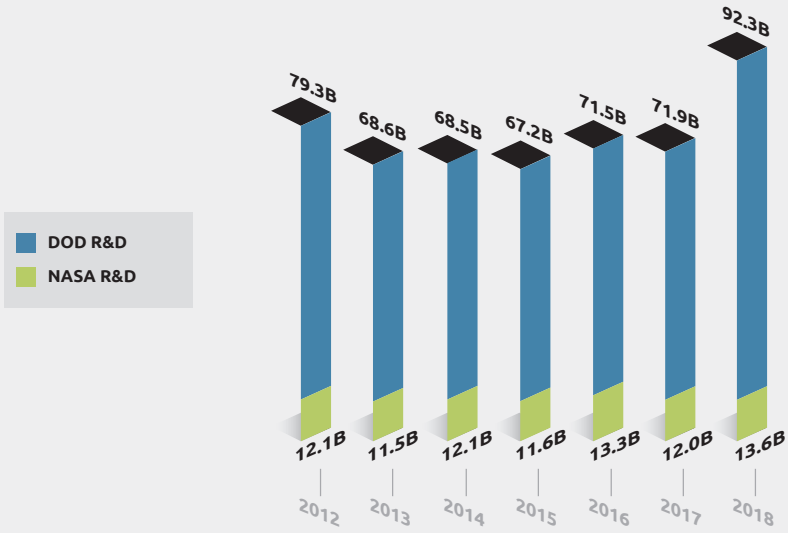
Earlier this year, Congress reached a deal to avoid the BCA-mandated budget cuts in FY2019 and FY2020. As a result, the Department of Defense R&D budget grew 29.1% from the previous year to a total of \$92.3 billion. These increases will support the ten modernization priorities identified by Under Secretary of Defense (Research and Engineering) Dr. Michael Griffin, including artificial intelligence/machine learning, hypersonics, autonomy, and quantum science.

Meanwhile, NASA saw its R&D budget increase by 13.3% to \$13.6 billion in FY2019. This increase comes at an important time for NASA as it seeks to achieve the White House's direction to return to the Moon by 2024 (and ultimately go to Mars). With strong support from the Administration and Congress, NASA has received additional appropriated funds in the areas of exploration, science, and space technology development. This funding will continue to drive American leadership in space and economic growth here on Earth.

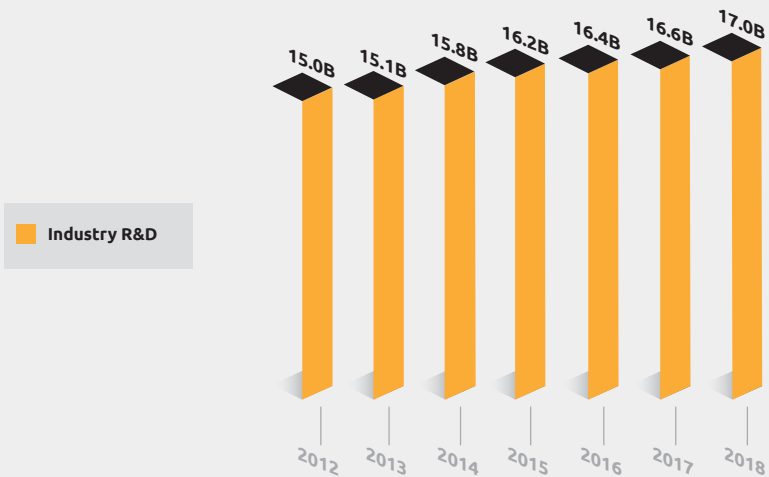
Despite decreased federal R&D investments, the A&D industry has increased its share of funding toward R&D. Since 2010, A&D's R&D spending has increased, with investment rising over 14% to \$17 billion annually, its largest number on record. However, substantial and sustained investments in R&D by both the federal government and the A&D industry will be critical to the development of new cutting-edge technologies, ultimately making the technologies and platforms described in AIA's Vision 2050 report a reality.



## DOD & NASA R&D SPENDING



## INDUSTRY R&D SPENDING





## EMPLOYMENT

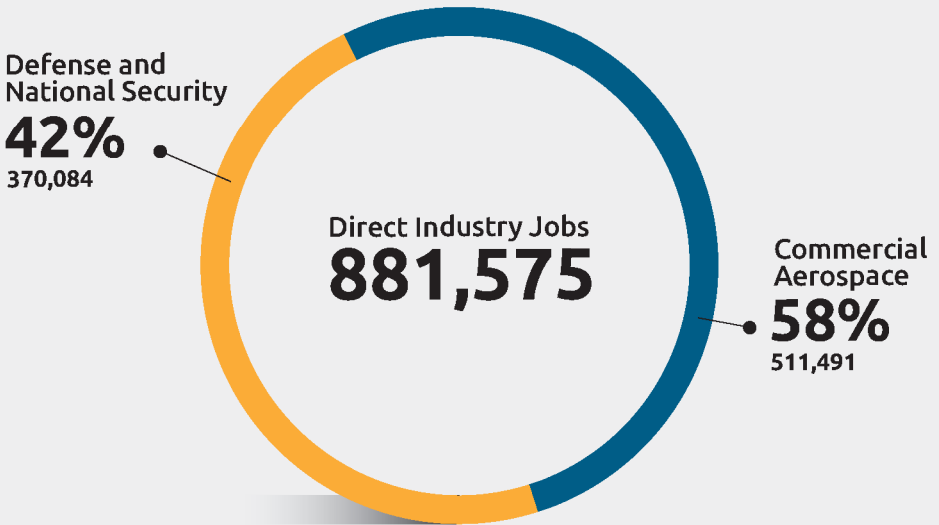
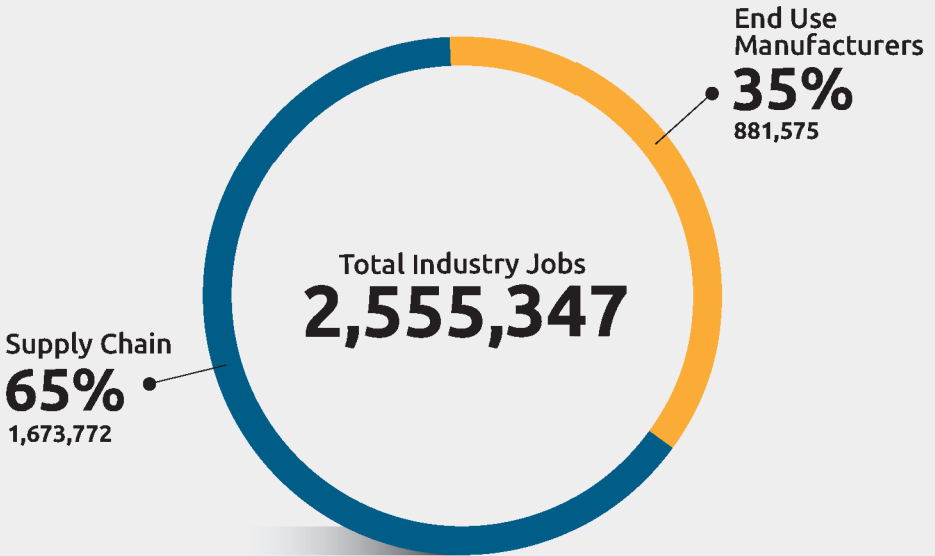
Employment in the American A&D industry means challenging and exciting work, high paying jobs on the leading edge of technology and innovation, and a patriotic mission for millions of American workers and their families. In 2018, the aerospace and defense industry supported over 2.5 million American jobs up and down the industry's supply chain, a 3.7% increase from the previous year. This number, which has increased relatively steadily over the last decade, accounts for approximately two percent of the nation's total employment base and 20% of the nation's manufacturing workforce. In recent years, even in times of economic decline and recession, the A&D industry has remained a positive indicator and a fundamental economic driver.

Furthermore, the A&D industry has consistently been a source of high wages, a trend that has continued in 2018. For that year, the average wage and benefits of an A&D worker was \$92,742. This is

significantly higher than the average salary of an American worker, \$49,389. In total, the A&D industry paid nearly \$237 billion in wages and benefits in 2018, a 7.72% increase from the previous year.

The A&D workforce is the industry's strongest asset but growing the workforce and increasing diversity will be essential to maintaining the American A&D industry's position as a world leader in the years to come. A diverse labor base, composed of individuals from different backgrounds with unique perspectives, will ensure that innovation is fueled by the best ideas, allowing American A&D companies to maintain their high-level of performance.

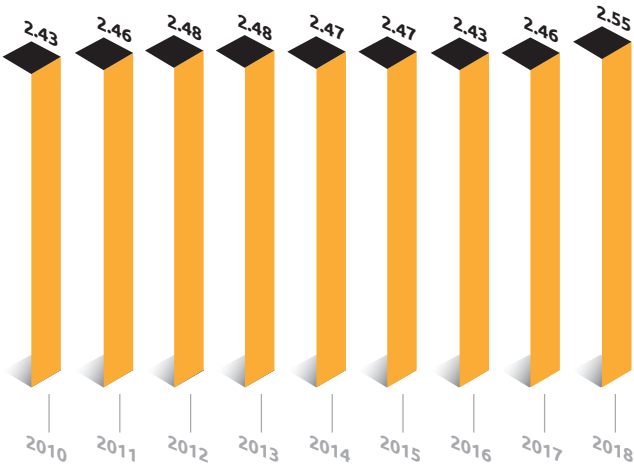
## TOTAL INDUSTRY JOBS



# EMPLOYMENT TRENDS

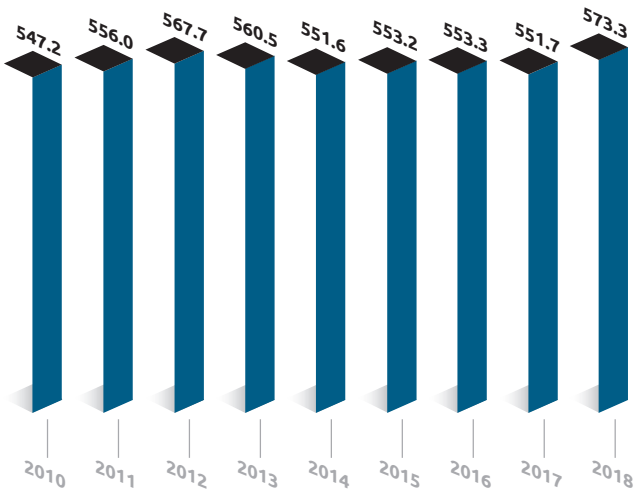
## TOTAL EMPLOYMENT IN U.S. A&D

(jobs in millions)



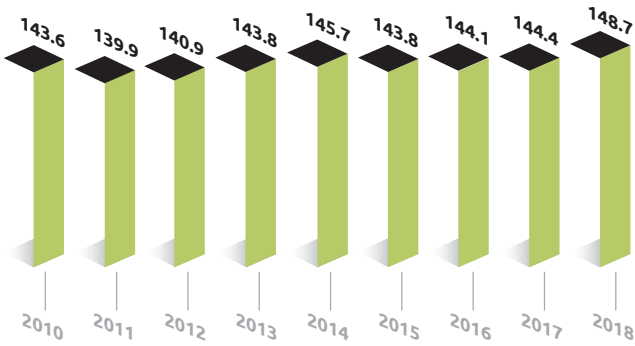
## AIRCRAFT SYSTEMS

(jobs in thousands)



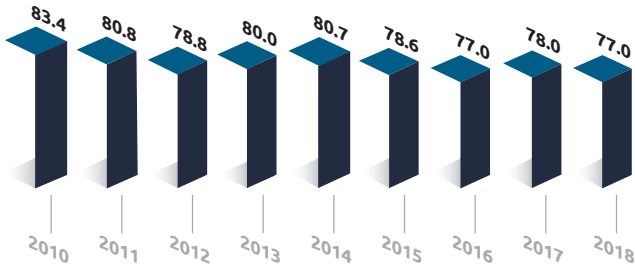
## SPACE SYSTEMS

(jobs in thousands)



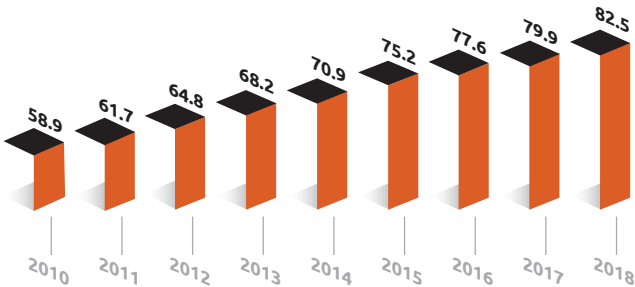
## LAND & NAVAL SYSTEMS

(jobs in thousands)



## CYBER

(jobs in thousands)









## OUTLOOK

As the aerospace and defense industry looks to another year and further into the future, we have reason to believe the progress we've seen will not only continue, but continue to grow. Global demand for U.S. products is steadily rising. The end of budget sequestration will help provide a sense of stability for companies. And new, substantial investments in research and development should keep America at the forefront of technological innovation. Our industry is constantly changing, with the emergence of new entrants, development of new technologies, and companies and customers evolving with a growingly complex world. But one thing is certain: the U.S. aerospace and defense industry will continue to drive American economic prosperity and strengthen America security for the next 100 years and beyond.





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