

# AERONAUTICS R&D

## A KEY TO ECONOMIC PROSPERITY



Aeronautics – the science of flight – is a cornerstone of economic prosperity and is critical to maintaining our national security and defense. Federal investments in aeronautics have dramatically improved aviation safety, made air travel affordable for most Americans, and significantly reduced the environmental impact of aviation through reduced community noise and emissions. Moreover, U.S. leadership in aerospace has established the United States as the destination for undergraduate and graduate students from around the world who seek to avail themselves of the opportunities at the world's leading research universities and to learn from the world's leading authorities in this field.

## FUNDING CHALLENGES

While civil aviation markets have grown, NASA's aeronautics funding has declined significantly over the last two decades to \$655.5 million in fiscal year 2018. By comparison, fiscal year 2004 funding was \$1.3 billion in comparable dollars. The reduced funding has prevented NASA from contributing as substantively as they are capable of to help the United States keep pace with near-peer nations who have invested heavily in aviation. Federal investment in aeronautics research and development has become inconsistent and insufficient while international competitors, like China and the European Union, have developed and are funding long-term strategies to wrest aeronautics leadership, and the resulting business opportunities, from the United States.

## AERONAUTICS INVESTMENTS

Aeronautics research and development remains a priority for NASA, investing in the most critical concepts and technologies required to support continued global leadership in civil aviation. NASA's Aeronautics Research Mission Directorate is executing a plan that:

- › Develops the experimental aircraft, or X-Planes, that will demonstrate quiet overland supersonic flight and ultra-efficient airplane technologies, thus enabling U.S. industry to cultivate new markets and to stay competitive in existing markets.
- › Continues to develop and mature key promising subsonic aircraft technologies that dramatically reduce fuel consumption, noise, and emissions.
- › Develops and tests key technologies required to integrate UAS into the national air space, as well as realize the safe, low-altitude operations UAS Traffic Management (UTM) system.
- › Demonstrates new air traffic management tools that integrate aircraft arrival, departure, and airport surface operations to reduce flight delays and increase air traffic capacity and safety.
- › Performs fundamental research in areas such as advanced composite materials for strong, lightweight aircraft structures to develop emerging capabilities such as electric and hybrid-electric propulsion systems and to study the challenges associated with hypersonic flight.
- › Supports the continuous development and nurturing of the world's premier aeronautics workforce and the maintenance and upgrade of NASA's world-class aeronautics facilities to keep pace with emerging technologies.

## WHAT'S NEXT

The U.S. government must support robust, long-term federal civil aeronautics research and technology initiatives funded at a level that will ensure U.S. leadership in aeronautics. Congress should support NASA's ten-year Strategic Implementation Plan at the levels recommended in the fiscal year 2020 NASA budget request to sustain a strong economy, maintain a skilled workforce, support national security, and drive a world-class educational system.



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