Executive Summary

2021

DEFENSE BUDGET

FOR UNMANNED SYSTEMS AND ROBOTICS

AUVSI™

The Association for Unmanned Vehicle Systems International, the world's largest nonprofit organization dedicated to the advancement of unmanned systems and robotics, represents corporations and professionals from more than 60 countries involved in industry, government and academia. AUVSI members work in the defense, civil and commercial markets.

Our vision is to create a future in which remotely operated and automated transportation technologies are fully accepted, valued and utilized to move people, things and data safely and efficiently — providing broad and lasting economic and social benefit.

Our community of innovators, leaders, and dare-to-dreamers is writing the next chapter of autonomous innovation, assuring its safe and seamless integration into everyday life. To learn more or get involved, visit auvsi.org/our-impact.

Association for Unmanned Vehicle Systems International (AUVSI)
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Abstract

The United States (U.S.) Armed Forces are a primary adopter of unmanned systems, and numerous facets of unmanned systems and robotics — in the air, ground, and maritime domains — are currently being used to support deployed forces and counter a range of threats posed to national security. To support the continued adoption of new technologies that maintain competitiveness in an ever-developing security landscape, the Fiscal Year (FY) 2021 budget for the U.S. Department of Defense (DOD) includes an estimated $7.5 billion to support the research, development, test, and evaluation (RDT&E) and procurement of these technologies.

Historically, unmanned vehicles (UxV) were considered simple tools which required the supervision and control of a remote operator to complete the "dull, dirty, and dangerous" tasks on the battlefield. While some of these basic forms of operation still exist, recent advancements in autonomy, sensors, energy/propulsion systems, and navigation/control systems have improved the efficiency and effectiveness of UxV, allowing them to function for long periods of time with minimal human input and oversight. Sustained investments in UxV systems will expand their uses, enabling DOD to more effectively allocate resources and speed response times in a hybrid fleet system. In fact, UxV have also ingrained themselves in the daily missions of soldiers to the extent that they are deemed an essential component of the operations team by their human operators. UxV developments have had such a significant impact on the landscape of the battlefield that in the inaugural issue of The Disruptor (Engelhardt, 2021) a quarterly newsletter from the Director of Unmanned Systems, DASN Ships, Dorothy Engelhardt wrote:

> "Advancements in technology have created the opportunity to provide our military with an operational overmatch by developing and distributing manned/unmanned command and control capabilities. The combination of artificial intelligence and autonomy stands to be the greatest transformation in modern warfare since the gunpowder revolution."

The Association for Unmanned Vehicle Systems International (AUVSI) manages a range of programs and events to support the unmanned industry, and consistent feedback from members and attendees reflects their desire for more information on how DOD funds are spent in the unmanned arena. The purpose of this research is to present information on the range of technologies being developed and acquired by the U.S. DOD to support current and future UxV operations. With the U.S. Armed Forces at the forefront in advancing unmanned systems, understanding which technologies and capabilities are being procured and developed provides a strong understanding of the current direction of the industry and can help inform future investments. This analysis highlights the various unmanned vehicle RDT&E and procurement focus areas of the U.S. Department of Defense Budget.

United States Defense Budget Structure and Methodology

The data represented in this report is captured by first scanning the President's Budget request for all Program Elements and Line Items, which either fully or partially support unmanned vehicles. The President's Budget was released in February 2020 and over 1,000 unique efforts were identified as offering some form of support for UxV. However, this is only the requested budget.

The President's Budget is then reviewed by House and Senate Armed Services Committees (HASC and SASC) which determine whether the requested amounts are suitable and authorize funding through the National Defense Authorization Act (NDAA). The final step of the budget process involves an assessment by the House and Senate Appropriations Subcommittees on Defense. For FY 2021, the resulting legislation was H.R. 133, the Consolidated Appropriations Act, which was passed by Congress on December 21 and signed by former President Donald Trump on December 27, 2020.

The parameters captured for each project include domain(s) of operation (air, ground, maritime, counter-UAV, counter-UMV); funding type (procurement or RDT&E); funding amount for FY 2019 – 2025 (some limited to only FY2019 – 2021); whether the vehicle is a new start, congressional add, or realigned to/from another program; and specific technologies supported (autonomy, communications/data management, cyber, electronic warfare, mobility, manned-unmanned teaming (MUM-T), navigation/control, platform, propulsion/energy, sensors/payloads, simulation, training, and weapons).

This data set is then imported to Tableau and the dashboards created have been made available to AUVSI member organizations (DoD Unmanned Systems Budget Report, 2021), allowing users to manipulate the infographics and find the information of interest.

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