

# Issue Brief

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## DoD Needs a Strategy for Re-Designing the F-35's Central Logistics System

The F-35 is the most ambitious and by far the most costly single military-industrial endeavour in recent memory, yet without sufficient attention to the core computing-logistics capabilities of the F-35, the Department of Defense (DoD) is putting at risk the \$1.6 trillion in taxpayer money dedicated to the program. A new Government Accountability Office (GAO) study reports that the DoD has failed to improve the Autonomic Logistics Information System (ALIS), the critical computer mind of the new F-35, and glaring problems remain for its future implementation in the F-35 fleet. The Department of Defense should focus on bringing the ALIS up-to-par in order to complete an effective rollout of the F-35.

### The F-35 Project

The F-35 Lightning II was commissioned to serve as the core of the next generation of American airpower. When completed, the F-35 will service the U.S. Army, Navy, Marines, and Air Force, as well as an additional seven foreign partners. It will serve as the primary “multi-role, stealthy strike aircraft”, with a projected total buy of 3,300 planes. The United States armed forces represent 2,500 of those total purchases, while the remainder will be purchased by overseas “program partners”. The DoD began preliminary testing on the approved model of the F-35 in December of 2018 and is projected to complete its

## Key Facts:



The F-35, commissioned to serve as the next-generation aircraft across the armed services, has long been plagued by problems and cost overruns.



The F-35 relies on a central logistics system to function effectively, yet the DoD has been slow in making much needed updates and improvements to the system. The GAO has identified seven key issue areas that must be addressed for the F-35 to function at full capacity.



The DoD should make immediate and substantive improvements or risk squandering a titanic sum of taxpayer dollars. Making certain the F-35 program runs optimally is tremendously important to ensure taxpayers dollars have not been squandered on a \$1.6 trillion dollar aircraft that is rendered inoperable due to poor performing internal systems.

final iteration of test in late 2020. At the end of this year the DoD will make a decision on whether or not to scale into full production of the F-35.

The F-35 serves as a replacement for a number of aircraft currently serving throughout the U.S. armed services: the F-16, F-18, AV-8 Harrier, and the A-10. The F-35 has three production variants designed to replace and gradually phase-out the current fleet of American airpower. In an expensive irony, the Air Force has already [announced a new fighter](#) designed to replace the F-35 in 2030, despite final testing remaining for the F-35. As American taxpayers continue to foot the \$1.6 trillion bill for the DoD to continue to build shiny new aircraft, the DoD has failed to invest sufficiently in the core computer operating system of the F-35: ALIS.

## **ALIS and Its Ongoing Problems**

The Autonomic Logistics Information System is the computer “brain” of the F-35. Where the pilot simply cannot track everything going on inside the aircraft, the ALIS takes over, computing and synthesizing information in real-time to the pilot and support staff on the ground. ALIS is a set of systems that serves as the primary logistics tool to support F-35 operations, mission planning, and sustainment. It is intended to help ground crews manage tasks including aircraft health and diagnostics, supply-chain management, and other maintenance events. The F-35 without a functioning ALIS will be rendered inoperable. The DoD has identified improvements to be made to ALIS in the past; however, a number of outstanding issues remain unresolved.

**Inaccurate Data:** Inaccurate and/or missing data in ALIS has, at times, resulted in the system signaling that an F-35 aircraft should not be flown even though the aircraft has no issues that require it to be grounded. To combat this DoD employees have been working to track some data manually. Workers at one location [reported to GAO](#) that they spend an average of 5,000 to 10,000 hours per year manually tracking information that should be automatically and accurately captured within ALIS.

**Challenges Deploying:** Taking ALIS on a deployment can be challenging because the required hardware is bulky to transport, internet connectivity is frequently limited, and contractor support is needed. All five of the locations surveyed by GAO reported difficulty moving the necessary server infrastructure. Moreover, internet connectivity at the selected locations for deployment is typically spotty at best, leading to difficulties with ALIS reliability.

**Increasing Personnel Needs:** F-35 squadrons are finding that they need more personnel than originally planned to support ALIS operations. These needs have increased by more than 30% compared to the original DoD estimate, with some locations requiring outside contractors to keep up with the demands of maintaining the ALIS system. This leads to increased cost for taxpayers that was not initially accounted for in the original DoD estimate.

**Inefficient Issue Resolution Process:** Solutions to overall F-35-related issues, including ALIS-related hardware and software problems, are not shared in ALIS across the fleet, resulting in a reliance on contractor support to address problems that may have already been resolved. GAO reported the loss of more than 11,000 hours of flight time from just two locations due to complications with ALIS software being unable to communicate solutions from other contingents in the F-35 fleets. Problems would arise in one location and take valuable time and resources to solve, only to find out after the problem had been resolved that another location of the F-35 fleet had the same problem and already resolved it. This cloistered system leads to lost man hours and taxpayer dollars.

**Poor User Experience:** ALIS is not very user-friendly or intuitive, can be difficult to navigate, and standard functions can take more time than users expect to complete. The slow software within ALIS increases

maintenance time and costs, with some users experiencing a full program freeze or being booted out of the application after hours of work, losing valuable progress. In an era of rapidly improving user interfaces, the DoD should prioritize the workability of the ALIS software.

**Immature Applications:** The Training Management System (TMS) application within ALIS does not fit the needs of most users and remains unused by them, while the Offboard Mission Support (OMS) application remains difficult to navigate without the help of contractors. The TMS software is critical to tracking the schedule and overall progress of maintenance on the aircraft itself, but due to the sluggish pace of the ALIS system, ground crews are making use of legacy software in order to meet maintenance demands on time. This results in old software being used to leapfrog newly paid-for software due to shortcomings in design. The OMS, used by pilots for critical mission planning and debriefing, is so unintuitive, time consuming, and difficult to operate that contractors are relied upon to complete necessary tasks within ALIS.

**Ineffective Training:** Current training for ALIS generally does not prepare users to operate the system, and most knowledge about it is obtained through on-the-job-learning. There remains little to no formal training for the operation of ALIS for service members, and they are instead expected to begin learning how to operate this unwieldy program on-the-job. Given there is insufficient instruction in the operation of ALIS, some parts of the fleet have developed unique methods of operating the software, creating logistical mismatches throughout the F-35. Such mismatches are not trivial quirks of different working environments when dealing with trillion-dollar hardware and human lives. The DoD should immediately set about instituting clear training regimens for experienced and inexperienced ALIS operators.

## Considerations for Savings

The Congressional Budget Office (CBO) has [suggested previously](#) the F-35 program be scaled-back or discontinued entirely due to its astronomical cost. The CBO has suggested rather than purchasing additional units of the F-35, the DoD should purchase the most advanced models of the older F-16 and F/A-18, aircraft already in service. Purchasing these older planes, rather than the new and terribly expensive F-35s would save taxpayers roughly \$16 billion over the next ten years. This option would reduce the amount of resources needed to improve the ALIS, as the total size of the F-35 fleet would be reduced and the burden on American taxpayers would be similarly lessened.

## Conclusions

The F-35 is one of the most expensive DoD projects in history, engaging tens of thousands of contractors, government employees, and service members. The final product of the F-35 Lightning II must serve as the next generation of American warplane for the U.S. armed services and our allies. With the current and past problems of the ALIS, American taxpayers are on the hook for a \$1.6 trillion aircraft that we cannot effectively operate. Ample attention and resources must be focused on the functionality of the ALIS, making certain the critical operating system of the F-35 is fully developed with a robust network of support. Hundreds of billions of dollars have been spent researching and developing engines, rotors, cockpits, weapons systems, and landing gear. Failing to invest time and attention to the central hub which allows full operation of the aircraft sees those same taxpayer dollars squandered. The DoD should make immediate and substantive improvements to the ALIS or risk squandering a titanic sum of taxpayer dollars.

## About the Author

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