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DEFENSE ACQUISITIONS

Challenges Facing the DD(X) Destroyer Program

Highlights of GAO-04-973, a report to the Chairman of the Subcommittee on Projection Forces, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The DD(X) destroyer—a surface ship intended to expand the Navy's littoral warfare capabilities—depends on the development of a number of new technologies to meet its requirements. The Navy intends to authorize detailed design and construction of the first ship in March 2005.

GAO's past work has shown that developing advanced systems that rely heavily on new technologies requires a disciplined, knowledge-based approach to ensure cost, schedule, and performance targets are met. Best practices show, for example, that a program should not be launched before critical technologies are sufficiently matured—that is, the technology has been demonstrated in its intended environment—and that a design should be stabilized by the critical design review.

Given the complexity of the DD(X) system and the number of new technologies involved, GAO was asked to describe the Navy's acquisition strategy for DD(X) and how it relates to best practices, and how efforts to mature critical technologies are proceeding.

What GAO Recommends

GAO is not making recommendations in this report. Program officials agreed with our assessment of DD(X) program risks, but believe these risks can be mitigated.

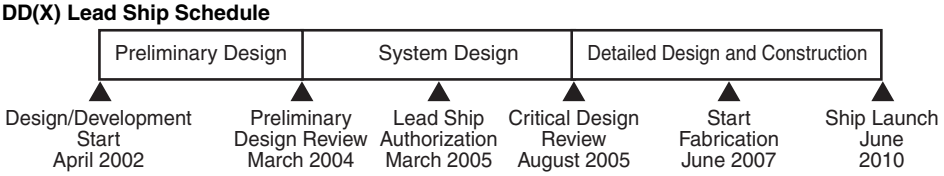
www.gao.gov/cgi-bin/getrpt?GAO-04-973.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Paul L. Francis at (202) 512-2811 or francisp@gao.gov.

What GAO Found

To reduce program risk, the Navy plans to build and test 10 developmental subsystems, or engineering development models, that comprise DD(X)'s critical technologies. While using these models represents a structured and disciplined approach, the program's schedule does not provide for the engineering development models to generate sufficient knowledge before key decisions are made. None of the technologies in the 10 engineering development models was proven to be mature when system design began, as best practices advocates. Moreover, the Navy does not plan to demonstrate DD(X) technology maturity and design stability until after the decision to authorize construction of the lead ship, creating risk that cost, schedule, and performance objectives will not be met. With many of the tests to demonstrate technology maturity occurring around the time of critical design review in late fiscal year 2005, there is the risk that additional time and money will be needed to address issues discovered in testing.

DD(X) Lead Ship Schedule



Source: GAO analysis of Department of Defense information.

Some of the technologies are progressing according to the Navy's plans, while others have experienced challenges. Four of the 10 engineering development models—the total ship computing environment, the peripheral vertical launch system, the hull form, and the infrared mockups—are progressing as planned toward demonstrating complete subsystems. However, four other models—the integrated power system, the autonomic fire suppression system, the dual band radar, and the integrated deckhouse—have encountered some problems. At this point, the most serious appear to be the schedule delay in the dual band radar resulting from the Navy's decision to change one radar type and the additional weight of the integrated power system. The two remaining engineering development models—the integrated undersea warfare system and the advanced gun system—are progressing as planned, but will not culminate in the demonstration of complete subsystems before being installed on the first ship. While the Navy has fallback technologies for the hull form and the integrated power system, it does not have such plans for the other eight engineering development models.