June 2003

MILITARY PERSONNEL

Navy Actions Needed to Optimize Ship Crew Size and Reduce Total Ownership Costs

GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-03-520, a report to Congressional Requesters

Why GAO Did This Study

The cost of a ship's crew is the single largest incurred over the ship's life cycle. One way to lower personnel costs, and thus the cost of ownership, is to use people only when it is cost-effective—a determination made with a systems engineering approach called human systems integration. GAO was asked to evaluate the Navy's progress in optimizing the crew size in four ships being developed and acquired: the DD(X) destroyer, T-AKE cargo ship, JCC(X) command ship, and LHA(R) amphibious assault ship. GAO assessed (1) the Navy's use of human systems integration principles and goals for reducing crew size, and (2) the factors that may impede the Navy's use of those principles.

What GAO Recommends

To facilitate the Navy's efforts to optimize ship crew sizes and minimize total ownership costs, GAO is recommending that the Secretary of the Navy: (1) require that ship programs use human systems integration to establish crew size goals and help achieve them, (2) clearly define the human systems integration certification standards for new ships, (3) formally establish a process to examine and facilitate the adoption of labor-saving technologies and best practices across Navy systems.

In commenting on a draft of this report, DOD agreed with GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-03-520.

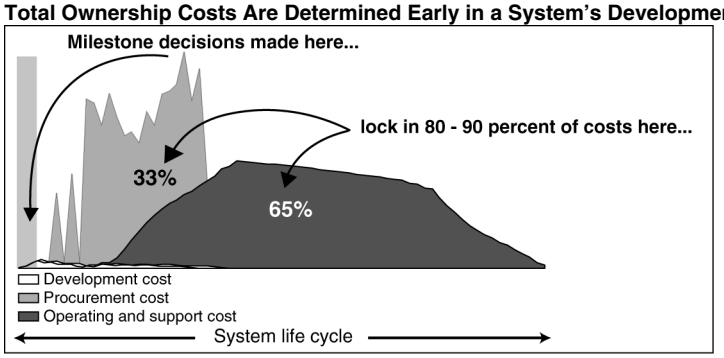
To view the full product, including the scope and methodology, click on the link above. For more information, contact Henry L. Hinton, Jr., at (202) 512-4300 or hintonh@gao.gov.

What GAO Found

The Navy's use of human systems integration principles and crew size reduction goals varied significantly for the four ships GAO reviewed. Only the DD(X) destroyer program emphasized human systems integration early in the acquisition process and established an aggressive goal to reduce crew size. The Navy's goal is to cut personnel on the DD(X) by about 70 percent from that of the previous destroyer class—a reduction GAO estimated could eventually save about $18 billion over the life of a 32-ship class. The goal was included in key program documents to which program managers are held accountable. Although the Navy did not set specific crew reduction goals for the T-AKE cargo ship, it made some use of human systems integration principles and expects to require a somewhat smaller crew than similar legacy ships. The two other ships—the recently cancelled JCC(X) command ship and the LHA(R) amphibious assault ship—did not establish human systems integration plans early in the acquisition programs, and did not establish ambitious crew size reduction goals. Unless the Navy more consistently applies human systems integration early in the acquisition process and establishes meaningful goals for crew size reduction, the Navy may miss opportunities to lower total ownership costs for new ships, which are determined by decisions made early in the acquisition process (see figure). For example, the Navy has not clearly defined the human systems integration certification standards for new ships.

Several factors may impede the Navy's consistent application of human systems integration principles and its use of innovations to optimize crew size: (1) DOD acquisition policies and discretionary Navy guidance that allow program managers latitude in optimizing crew size and using human systems integration, (2) funding challenges that encourage the use of legacy systems to save near-term costs and discourage research and investment in labor-saving technology that could reduce long-term costs, (3) unclear Navy organizational authority to require human systems integration's use in acquisition programs, and (4) the Navy's lack of cultural acceptance of new concepts to optimize crew size and its layers of personnel policies that require consensus from numerous stakeholders to revise.

Total Ownership Costs Are Determined Early in a System's Development



Source: U.S. Navy.