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# What Are the Effects of Consolidated Afloat Networks and Enterprise Services (CANES) on Navy Manpower, Personnel, and Training?

The various command, control, communications, computers, and intelligence (C4I) and warfare systems on naval ships and onshore installations are now developed, fielded, and supported largely independently of each other. The Navy is introducing Consolidated Afloat Networks and Enterprise Services (CANES) to consolidate and improve the networks on tactical platforms, largely through a common computing environment.

This study, funded by the Navy's Program Executive Officer (PEO) C4I, broadly assesses the manpower, personnel, and training implications associated with introducing CANES. The research focused on selected systems, certain Navy Enlisted Classifications (NECs) in two ratings—Information Systems Technician (IT) and Electronics Technician (ET)—and two types of ships (carriers and destroyers).

## Study Findings

CANES has only limited implications for the information technology community because the Navy lacks a single “czar” who can integrate technological change, ship structure, manpower and manning processes, and operational practice to produce change. Thus, gains in efficiencies and effectiveness from converting to CANES will be difficult to realize fully without close collaboration and alignment of interests among the stakeholders.

The manpower requirements for IT personnel are determined by watch station and depend only slightly on maintenance needs. Thus, the CANES conversion to a common computing environment with improved reliability will result in only modest manpower reductions. Further, these manpower reductions are feasible only with changes to legacy IT watches or by adopt-

## Abstract

An analysis of the impact of introducing CANES on Navy manpower, personnel, and training shows only limited implications for the information technology community, mostly because of the Navy's organizational nature. Manpower reductions are feasible but limited. Greater reductions are possible by making changes in legacy Information Systems Technician (IT) watches or by adopting a different model for calculating manpower requirements. Further, improved training and manning could increase effectiveness, reduce manpower, and possibly result in overall savings.

ing a different model for calculating manpower requirements.

The analysis suggests several manning changes. Insights from the manning strategy proposed for the Littoral Combat Ship (LCS) inform two issues: manning to specific positions and reconsidering using junior personnel onboard ships. Given the optimized manning plan for LCS, the Naval Sea Systems Command has developed more-effective manning processes to reduce the use of personnel: finding the right person for a particular position, training such individuals sufficiently en route, and sharing the common ship's duties that cannot be relegated to shore-based contractors. These guiding principles are not specific to CANES, and they may not be appropriate to all personnel on Navy ships, or even to all IT personnel on Navy ships. None-

theless, the training investment in IT personnel (especially if that investment increases) suggests that the policies have merit and would likely result in more-effective IT personnel with CANES.

Planned changes to IT training have positive implications for CANES. First, the Defense Department's requirement that IT personnel be Level One Information Assurance (IA)-certified will introduce additional training and capability to IT personnel who manage and administer CANES systems. This certification is partly the reason that IT A school—specialized skill training after boot camp—will be lengthened, also increasing new IT personnel capability. This study supports the revised A school length but recommends that a remedial program be added to reduce possible attrition from the more difficult training and certification. Also, the possible resequencing of NEC training and moving C school—which provides even more specialized training after A school—to immediately after A school increase IT personnel capability and, thus, result in positive outcomes for CANES.

To test this, RAND researchers simulated the training changes and conducted a benefit and cost analysis of the capability gains possible by ensuring that ITs are fully trained before assignment to a unit, reflected in the planned lengthening of A school and the possibility of moving C school to immediately follow A school. Given a base case that reflects the planned changes to A school, the study analyzed cases that increase the percentage of IT recruits with a contract for six years of service (YOS) instead of four and the percentage of such recruits who take C school immediately after A school.

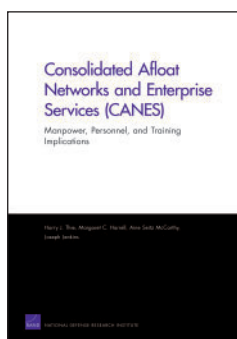
This analysis supported the Navy decision to increase the number of ITs who receive early C school. However, the study found that the best gains are made when all ITs enter with a 6YOS contract and are fully trained before assignment to their first unit. The analysis indicated that, even under more conservative assumptions about retention rates, the long-term cost of sending all ITs to early C school is roughly comparable to that of the base case. Further, all ITs would be fully trained, and the research team's interviews with ITs

and other shipboard personnel suggest that change from the status quo would have significant performance implications because a fully trained IT force could result in greater effectiveness of CANES and other IT systems. Alternatively, those effectiveness gains could be converted to manpower savings with current effectiveness levels held constant. Different Navy stakeholders held different perspectives on the ideal outcome and on whether it is more important to minimize cost or to maximize performance.

## Recommendations

Study recommendations include the following:

- Have the PEO C4I work with the Navy Manpower Analysis Center and with organizational stakeholders to either reduce watches for ITs or move to a different model for addressing manpower requirements.
- Proceed as planned with longer A school to provide IA certification to IT personnel, but also institute a two-week remedial program for those personnel who are not initially successful with certification.
- Add critical training elements from some of the ET training to IT network training to facilitate the absorption of some ET tasks among ITs.
- Consider greater use of the LCS detailing strategy.
- Enlist all IT personnel with a 6YOS contract and send all ITs to C school following A school to dramatically increase the number of trained ITs associated with CANES.
- Explore whether early C school can reduce the length of system-specific NEC training; if early C school is not instituted for all ITs, still consider resequencing NEC training such that network training is a prerequisite for system-specific training.
- Consider whether the productivity gains from early C school should result in greater effectiveness or in manpower savings.
- Consider whether the traditional use of junior personnel onboard ships remains appropriate and effective, especially for highly trained technical personnel. ■



This research brief describes work done for the RAND National Defense Research Institute documented in *Consolidated Afloat Networks and Enterprise Services (CANES): Manpower, Personnel, and Training Implications*, by Harry J. Thie, Margaret C. Harrell, Aine Seitz McCarthy, and Joseph Jenkins, MG-896-NAVY (available at <http://www.rand.org/pubs/monographs/MG896/>), 2009, 104 pp., \$30.00, ISBN: 978-0-8330-4885-1. This research brief was written by Paul Steinberg. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

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