

Change How Info Is Managed and Controlled

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By placing the Navy and Marine Corps on the same network, the Navy Marine Corps Intranet allows future expeditionary forces to plan, change, and execute missions seamlessly.

In October 2000, the Department of the Navy awarded the largest information technology (IT) outsourcing contract in government history to EDS Corporation for the Navy Marine Corps Intranet (NMCI). Two years after initial development, NMCI appears to be moving past its growing pains and evolving into what it was designed for: an enterprisewide integrated network to deliver operational capabilities and business solutions for the Navy and Marine Corps, now and into the future.

In June 2002, Naval District Washington users were included in the 20,000 Increment 1 seats designated to transition to NMCI. In the three months following, the Navy and EDS worked together to overcome problems brought about by undefined business processes, technological impediments, software applications reduction, and a cultural shift to an outsourced networking arrangement. This phase of the transition process revealed a lot about how the Navy had been doing IT business. Our legacy networks were not as secure or robust as we had thought. Outsourcing IT network operations is not a new concept within industry or government, but NMCI has the unique distinctions of having a servicewide scale and trying to reverse decades of disparate IT infrastructures, undisciplined acquisition methods, incompatible legacy applications, and nonstandardized business practices.

NMCI began merging IT systems of the Increment 1 sites and, in the short term, brought about better information sharing, improved security, and an equal IT playing field for smaller commands. In many cases, EDS began enforcing Navy IT and security policies that had been

ignored or poorly managed. During the early deployments of NMCI, some commands believed their networks were too complex or specialized to be integrated into the NMCI environment. However, during the past year, EDS has overcome significant technology and process hurdles to deploy NMCI and has improved automation of product ordering and trouble response. The most visible experience of NMCI for most users has been the torturous process from the acceptance of responsibility (AOR) phase, in which EDS maintains and operates the legacy network, to the cutover to the NMCI environment. While the AOR to cutover process probably deserves the notoriety it has earned, it is finite in length and leads to a more secure and modernized IT network.

The pain of this transition has caused some commands to cling to their legacy networks, quietly hoping that they will not make the transition to NMCI. But NMCI no longer is a beta test. The 190,000 seats that have cut over represent a critical mass of Navy and Marine Corps users operating on the same network, with another 170,000 to go. The task at hand is to enable this network with formally approved applications that commands at every echelon can use to enhance the effectiveness of their operations. Task Force Excel, Navy Enterprise Portal, and Navy Knowledge Online are the pioneering efforts in realizing these types of enterprisewide platforms. Recent initiatives to formalize a Navywide server consolidation strategy are important steps in enabling efficiencies in current operations and eventually migrating all server operations to NMCI. Other efforts to better manage the enterprise include the Navy-Marine Corps Portal, the Enterprise Software Initiative, and the Navy Data Environment.¹ Goals for these initiatives, designed to ensure support for the war fighter, are expressed in Table 1.

NMCI provides the opportunity to enhance the IT interoperability of the Navy-Marine Corps team by sharing data in standardized ways and eliminating network barriers born from dissimilar acquisition decisions. Integrated operations across both services will become easier and more commonplace.

Cultural Change

The full benefits of NMCI will not be realized, however, until we change how information is managed and develop new attitudes about control. We still control our IT networks, but under NMCI the methods for exercising it have changed. Users must master the new methodology to accomplish their missions. The Navy Network Warfare Command (NNWC) now acts as the designated approval authority for all Navy enterprise networks. NNWC issues warnings about vulnerabilities or threats to our networks, to which the NMCI Information Strike Force responds. Security control is exercised through existing policies, directives addressing emerging threats, and Navy personnel involved in overseeing global network operations. Network security implementation methods are different under NMCI, but the Navy still controls the parameters.

The NMCI contract contains service-level agreements regarding system performance, stability, and security that are updated as conditions change. The agreements ensure all users receive appropriate service regardless of their budgets or echelons. Because NMCI funding is managed higher in the enterprise, funding delegated for sensors, weapons, and combat operations will not have to be siphoned for IT hardware and software.

Local issues should not forestall or undermine enterprise goals. The nature of network-centric operations places a greater responsibility on personnel at all levels to understand enterprise capabilities and operational goals. Navywide alignment requires an education campaign that continuously communicates organizational goals and reinforces the need to act as one force. Local commands can use enterprise-approved technology resources to work synergistically across the organization and concentrate on business execution, outputs, and outcomes rather than technology management. The price of this flexibility is

that homegrown IT solutions that do not support enterprise goals must be abandoned or realigned.

The transformational capabilities of NMCI can be realized only through leadership and commitment to change. We should not settle for mere improvements in technology capabilities, such as network speed and hardware refresh rates. Instead, cultural changes should make us more adaptive in our operations and provide faster, better business execution. As EDS takes over responsibility for connectivity of ships at naval bases, fleet forces will need to adapt to and make use of the new partnership. Bold, innovative leaders will explore new capabilities and services and will recognize and capitalize on opportunities.

The speed of technological advancement far outpaces our ability to change organizational mind-sets, vertically or horizontally. Now is the time to start making those changes. Cultural change should focus on three areas: policy, strategic sourcing, and information management/information technology (IM/IT).

The Culture of Policy

The changes necessary for efficient business execution must be backed by policies that remain current with rapidly changing conditions. Outdated policies or those based on antiquated premises must be replaced by documents that maintain their credibility over time and provide flexibility for the war fighter. A business case analysis should be conducted on new policies to determine the investment required to implement them. This is especially important in outsourced environments, where contracts stipulate that private industry adhere to Navy policies. The pace of technological change usually has resulted in policy lagging enterprise actions and requirements. Especially in an outsourced environment, lagging policy changes could stall process implementation, or cause commands to be noncompliant with their own or the Navy's directives. Policy must be aligned across the enterprise for issues that affect everyone within the organization, with flexibility granted as appropriate to deviate for operational effectiveness within prescribed bounds. We need to flatten policy-making authority and give lower echelons license to create exceptions and manage them. As the operational concept of deliberate planning gives way to adaptive planning, this type of flexibility will allow supporting forces to provide better service to the war fighter.

The director of the Department of Defense Office of Force Transformation, retired Vice Admiral Arthur Cebrowski, recently stated that trends in networks and networking behavior already are appearing whereby policy changes when the rate of transaction exceeds the resources.² Policy need not lag change; it should provide the guidance for implementing our vision strategies, such as "Sea Power 21."

The Culture of Strategic Sourcing

Attitudes and policies should foster integration of contractors into management and supervisory positions. Control over the outcome of a process does not necessarily require

ownership of the resources. The level of control in an outsourced environment can be delineated clearly and can include a bias toward government control if necessary. NMCI reflects an excellent first step in this direction, and can teach us to better structure similar initiatives in the future. The President's Management Agenda specifies competitive sourcing as one of five key areas for reform and states that "by focusing on desired results and outcomes, the objective becomes identifying the most efficient means to accomplish the task."³

Physical ownership of noncore mission resources, especially at the local level, must be reduced. However, the argument should not be ownership versus nonownership of resources. Government and contractor partnerships need to occur more regularly in delivering noncore mission capabilities and services. Leaders should be confident they can create a desired outcome using outsourced resources. Admittedly, there will be circumstances where complete ownership of resources may be required. Therefore, commensurate with this shift should be a renewed analysis of inherently governmental positions across all functional areas. The job-title nomenclature "inherently governmental" limits the Navy's ability to tap top talent. We can learn from the problems associated with the development and execution of the NMCI contract to structure more effective partnerships with private industry.

Strategic sourcing solutions could be more easily tailored for specific tasks and terminated when they are no longer required. The level of service derived from a contract depends on the people overseeing it; as service outsourcing grows, we must develop better contract management skills within our ranks. Speed of execution should be a primary attribute in this process, along with adherence to service-level agreements and government contracting requirements.

Strategic sourcing opportunities should require the Navy to examine the role of Navy working capital funds (NWCF). While some such funds provide unique capabilities for the war fighters, those that cannot compete effectively with private industry or have lost business to strategic sourcing solutions should be realigned. The NWCF portion of the systems commands should provide the substantial amount of their service to naval organizations, rather than non-Navy Department ventures.

The Culture of IM/IT

Institutionalizing business process revolutions will be even more challenging than the physical installation of NMCI. Changing the processes by which we collect, analyze, and share information requires new training techniques and in some cases drastic restructuring. Rationalizing the current set of Navy applications is but the first step in developing a Web-enabled, enterprisewide application portfolio for the Navy and Marine Corps that will reduce duplicative databases and foster easier and more reliable data sharing. Beyond that, the development of knowledge repositories can ensure "corporate memory" is never lost. A policy of inclusion (versus exclusion) of data into such repositories will ensure parochial or personal interests do not hinder access to information others require. Modifications in procurement procedures can help enforce this culture.

The culture of IT as an enabler has been relatively accepted by Navy and Marine Corps leaders. However, management of information remains a centralized process, even though many initiatives are in place to deliver information to the edges of the operational scene. The “publish and subscribe” philosophy of the ForceNet architecture (whereby information is delivered in real time to the users who need it) is the type of cultural change that will push operational information across both services. This same philosophy should be implemented for the Navy’s Sea Enterprise infrastructure.

The new culture should include a virtualization of resources, in which the physical location of information and processing capacity are irrelevant, allowing assets to be allocated as needed. A first step has been taken by requiring all new applications to be born Web enabled. We must continue to extract capabilities from our developing IM/IT infrastructure. Our culture should change to allow for interactions at a different level than with the keyboard and mouse, especially for end users. Intelligent agents and expert systems that can interact with sailors and Marines can deliver capabilities Web pages cannot.

One example is a University of Southern California research project called Virtual Steve, sponsored by the Office of Naval Research. Currently, Virtual Steve is programmed to train sailors in operating and maintaining high-pressure air compressors on board gas turbine-powered Navy ships. Collaborating with students in a virtual reality environment, Virtual Steve autonomously interacts, gives advice, corrects students, and explains his actions. He even can adjust on the fly when a student does the unexpected. He has speech recognition properties and natural language capabilities that allow him to serve as a real-time instructor to students for training tasks.⁴

Interactive intelligent agents like Virtual Steve eventually can make IM easier in disciplines that require large-magnitude data manipulation or expert knowledge. The sophistication of intelligent agents is variable and can be based on different methods of complexity. In a military environment, intelligent agents could assist with financial management, customer service desk operations, consulting services, and possibly combat systems management. As intelligent agents continue to demonstrate their capabilities, the worth of these options will be realized only if we can step down from the cultural firmament that assumes human involvement is necessary in information processing and dissemination.

These types of innovative solutions make knowledge flow more efficiently to end users and can be provided in a just-in-time manner. Physical presence becomes a tertiary consideration when delivering capability or service. Implementation of IM/IT initiatives now becomes as important as their technological development. Advances in technology alone will not ensure expected benefits are realized. Institutional barriers must be negotiated, which can take longer than developing the technology. Applying foresight regarding cultural challenges will yield great benefits when the technology is ready to arrive.

The naval enterprise should be on the cutting edge of the very best capabilities our society and industry can offer, in categories beyond weapons and combat platforms. Effective support for modern war fighting will require modernizing our current business practices. As the new Navy enterprise architecture takes form, the portions of the Navy that are not IT savvy need to understand what capabilities are present and which are coming. The convergence of information into central knowledge repositories can enable capabilities insofar as people are empowered and enabled to use the information. Through flexible policy implementation, we can capitalize quickly on new opportunities and should not become paralyzed by administrative blockades. The Navy and Marine Corps must avail themselves of the best talent and resources in the private and public sectors by developing new partnerships that integrate smoothly with our operations.

The ingenuity and industry of sailors and Marines always has been the keel on which we have built new capabilities and won battles. The information age brings great opportunities for those willing to embrace cultural change. Removing existing cultural barriers enables us to see what lies within our grasp and determine whether it is worth pursuing. We can always resurrect the barriers if we are wrong.

Endnotes:

1Department of the Navy, Information Management and Information Technology Strategic Plan for fiscal year 2004-2005.

2As quoted in A. Roosevelt, "Network-Centric Warfare Emerging, Industry Must Help," *Defense Daily*, 22 January 2004.

3President's Management Agenda for fiscal year 2002, Office of Management and Budget, U.S. Government Printing Office, 2002.

4Jeff Rickel and Stacy Marsella, *Toward a New Generation of Virtual Humans for Interactive Experiences* (Piscataway, NJ: IEEE Intelligent Systems, 2002).

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Table 1: Naval Enterprise Goals

1. Develop and maintain a secure, seamless, interoperable naval IM/IT infrastructure.
2. Transform applications and data into Web-centric naval capabilities.
3. Provide full-dimensional protection that ensures naval warfighting effectiveness.

4. Ensure naval IM/IT investments are selected, resourced, and acquired to optimize naval mission accomplishment.
5. Create optimized processes and integrated systems that enable knowledge dominance and naval transformation.
6. Shape the IM/IT workforce of the future.

Source: Department of the Navy Information Management and Information Technology Strategic Plan for fiscal year 2004-2005.