



August 2001

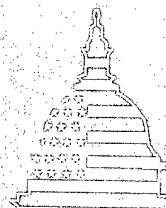
# MILITARY TRANSFORMATION

## Navy Efforts Should Be More Integrated and Focused



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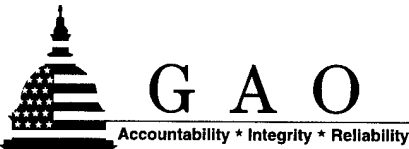
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## Abbreviations

DOD	Department of Defense
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United States General Accounting Office  
Washington, DC 20548

August 2, 2001

The Honorable Carl Levin  
Chairman  
The Honorable John W. Warner  
Ranking Minority Member  
Committee on Armed Services  
United States Senate

The Honorable Bob Stump  
Chairman  
The Honorable Ike Skelton  
Ranking Minority Member  
Committee on Armed Services  
House of Representatives

With the end of the Cold War, national security strategies changed and dictated the need for the military to “transform” itself in order to meet new global challenges. The Navy, recognizing the shift in strategy from a focus on the global threat of the Soviet Union to a focus on regional challenges, developed a new strategic direction in the early 1990s, shifting its primary focus from open ocean, “blue water,” operations to littoral,<sup>1</sup> or shallow water, operations closer to shore. The 1999 *Maritime Concept* added a new thrust, emphasizing the role that Navy combat power could play in ensuring access of joint forces to littoral areas.<sup>2</sup>

The Navy has made a concept known as network centric warfare the centerpiece of its efforts to transform its forces. Under this concept, a data network of advanced communications and computer technologies would be developed to connect different and widely dispersed forces into an effective, coordinated team. The Navy’s transformation also means (1) using innovations to introduce new technologies and advanced concepts, doctrine, and organizations to increase the Navy’s capabilities

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<sup>1</sup> Littoral areas extend from the shore to open ocean and inland from the shore over an extensive area that can be supported and controlled directly from the sea.

<sup>2</sup> The *Maritime Concept* is the Navy’s latest strategic concept that describes the organizing principles, operational concepts, and priorities by which future naval forces will exploit new opportunities and capabilities to ensure access and influence, despite an adversary’s efforts to preclude U.S. presence.

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and (2) conducting organized events (experiments) to explore and validate the major force and operational aspects of those innovations.

Because of the importance of military transformation and of the changing threats faced by the United States, we assessed the Navy's plans, processes, and initiatives to transform its forces to meet the challenges of the 21st century. This report provides our observations of key management issues that are affecting the Navy's progress. We are addressing this report to you based on your role in overseeing military programs.

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## Results in Brief

Transforming an organization with the history and size of the Navy and with a force structure that has longevity and large capital investment presents a significant challenge. Although the Navy has recently placed more emphasis on transformation, it does not have a well-defined and overarching strategy for transformation. It has not clearly identified the scope and direction of its transformation; the overall goals, objectives, and milestones; or the specific strategies and resources to be used in achieving those goals. It also has not clearly identified organizational roles and responsibilities, priorities, resources, or ways to measure progress. These shortcomings have had the following effects on its transformation efforts:

- Because transformation has not been clearly defined, there is some confusion throughout the Navy about what constitutes transformation and how all of its elements, such as network centric warfare, are related.
- The Navy's "evolutionary" approach to transformation promotes incremental changes to the existing force structure and operations. But fiscal and technological challenges suggest that more fundamental changes may be needed for the Navy to have sufficient and capable forces to conduct future missions.
- The Navy has made important organizational changes that better support its efforts, but the Navy Warfare Development Command, a key organization with responsibilities for transformation, has not been provided the necessary influence, resources, or management mechanisms for achieving its goals.
- The Navy has not given sufficient attention to long-term technology and concept experiments, which are necessary for the Navy to analyze and implement more significant force structure and operational changes.
- Innovation activities have not been sufficiently coordinated and tracked across the Navy.

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We are recommending that the Navy develop a long-term strategic plan and roadmap to manage and execute its transformation effort. We are also recommending that the Navy adjust its experimentation efforts to include exploration of long-term force structure and operational issues and that the Navy establish a central clearinghouse to coordinate and track the wide range of Navy innovation activities. In its comments on a draft of this report, the Department of Defense (DOD) concurred with our recommendations and said that our findings accurately reflect the Navy's transformation process, its current status, and the increased efforts in the Navy toward transformation.

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## Background

The need to transform the military services has been widely recognized in a number of DOD policy papers, reports, and strategy documents. The national security strategy, the national military strategy, the Secretary of Defense's guidance to the services, the 1997 Quadrennial Defense Review, and the Chairman of the Joint Chiefs of Staff's Joint Vision statements (2010 and 2020) all cite the need to transform U.S. armed forces to maintain military dominance in the new security environment.

Over the last several years, the Navy has undergone some reorganization, shifted its science and technology funding, and undertaken a wide range of experiments and innovation activities. A key organization for carrying out the Navy's transformation has been the Navy Warfare Development Command, which was established in June 1998 to develop new operational and warfighting concepts to plan and coordinate experiments based on new concepts and to develop doctrine. The Command has been preparing a capstone concept<sup>3</sup> based on network centric warfare that is to serve as a guide for future naval operations. The Command has also planned and coordinated a series of major experiments involving the fleets<sup>4</sup> to evaluate many of the concepts and technologies associated with network centric warfare. Before it established the Command, the Navy did not have an organization dedicated to operational experimentation. The Command's fiscal year 2000 and 2001 budgets are about \$45.3 million and \$44 million,

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<sup>3</sup> *Capstone Concept for Naval Operations in the Information Age*, draft. A capstone concept provides the organizing principles for future naval operations and force structure required to meet the challenges of the projected future warfighting environment.

<sup>4</sup> The Navy's operating forces are assigned to two principal, permanent fleets—the Atlantic Fleet and the Pacific Fleet—that train, support, and provide forces to five numbered fleets. The numbered fleets—Second, Third, Fifth, Sixth, and Seventh Fleets—are major tactical units that are organized for the purpose of prosecuting specific naval operations.

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respectively. In fiscal year 2002, the Command's budget is projected to decline to about \$41.7 million. Almost half of each annual budget is allocated to experimentation-related activities.

Two other organizations important to transformation are the Naval War College and the Chief of Naval Operations' Strategic Studies Group. The college conducts war games that test concepts and potential technologies.<sup>5</sup> Its close working relationship with the Navy Warfare Development Command provides an avenue for new concepts to be further evaluated and integrated into experimentation efforts. The Strategic Studies Group, comprised of a small group of senior Navy, Marine Corps, and Coast Guard officers, generate and analyze innovative and revolutionary naval warfighting concepts and reports directly to the Chief of Naval Operations. Recent studies have centered on attacking land targets from the sea, future surface ship deployments, new crewing concepts, and multitiered sensor grids.

In 1999 the Navy reorganized its science and technology resources into 12 future naval capabilities to focus more sharply on the capabilities needed over the next 10-15 years. Senior Navy and Marine Corps officials lead integrated product teams that prioritize individual efforts in the capability areas. The Navy's science and technology budget has remained relatively static over the last decade and has decreased as a percentage of its total budget. The Navy currently allocates about 35 percent of its science and technology budget to support its future naval capabilities. The Navy plans further refinements to its science and technology structure, including the possibility of adding or subtracting individual future naval capabilities. Appendix I provides further information on the future naval capabilities.

Since March 1997, the Navy has also conducted nine fleet battle experiments. The experiments are assessed to determine which new operational concepts, tactics, and technologies prove workable and what follow-on experimentation to pursue. The Navy Warfare Development Command is also coordinating with other military organizations to jointly lease one or more dual hulled high-speed ships for a broad range of experiments. For 18 months starting in September 2001, the Navy will

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<sup>5</sup> A war game is a simulation, by whatever means, of a military operation involving two or more opposing forces, using rules, data, and procedures designed to depict an actual or assumed real life situation.

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conduct a series of experiments to explore potential uses for such vessels, including amphibious lift, armament configuration, and helicopter operations. Appendix II provides examples of issues explored in the fleet battle experiments.

Finally, the Navy conducts a wide range of innovation activities. For example, the Third Fleet has set aside a portion of its command ship, the U.S.S. *Coronado*, to test innovations related to command, control, communications, computers, and intelligence concepts. Appendix III provides some examples of these innovation activities.

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## Progress Being Made, but Key Issues Require Attention

The Navy is conducting a variety of transformation activities: it is experimenting with new technologies, it has made some organizational changes, it has introduced the new network centric warfare concept, and it is pursuing a wide range of innovations. However, the Navy has not developed an overarching, long-term strategy that integrates these activities or that clearly defines transformation goals, organizational roles and responsibilities, timetables for implementation, resources to be used to achieve its transformation goals, and ways to measure progress toward those goals. In other words, the Navy does not have a strategic plan and roadmap for its transformation that shows where it wants to go; how it proposes to get there; and how transformation will be managed, funded, implemented, or monitored. The lack of a plan and roadmap has contributed to confusion within the Navy and DOD about what constitutes the Navy's transformation.

The adoption of an evolutionary approach to transformation has so far not led the Navy toward careful and full consideration of all the strategic, budgetary, and operational elements of transformation. Additionally, the Navy's progress has been adversely affected by insufficient support for new organizations responsible for leading transformation efforts, limited conduct of long-term experiments, and a variety of Navy-wide innovation activities that are not well coordinated and tracked.

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## Navy Does Not Have a Defined, Integrated Strategy for Transformation

There is no clear consensus on the precise definition, scope, or direction of Navy transformation. In discussions with Navy and DOD officials and outside defense experts, we found there was some confusion about what constitutes transformation and about the role of the network centric warfare concept, which is the centerpiece of the Navy's transformation efforts.

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The Navy has not developed a plan that clearly identifies what transformation is and what its goals or components are. For example, although network centric warfare is clearly a fundamental concept for the Navy's future operations, the Navy still has not made it clear how the concept fits in with its many ongoing transformation activities or with its overall transformation efforts, what effects the concept will have on the types and composition of forces, or how the concept's many components will be integrated with each other or with those of the other services. The Navy plans to soon publish a capstone concept document for its future force. The concept document is expected to apply the tenets of network centric operations to the Navy's vision statements and identify some of the capabilities required to implement these tenets. Navy Warfare Development Command officials believe the concept document is critical to the success of the Navy's transformation, and they expect the concept document to be approved by the Chief of Naval Operations in the near future.

Good management practices and the advice of defense experts both inside and outside the Navy suggest that a clear strategy is central to the success of transformation efforts. DOD and Navy officials and outside defense experts identified a number of benefits that can be obtained from strategic planning. Navy officials at headquarters and several commands stated that establishing an agreed-upon definition of transformation would be vital for explaining what constitutes transformation. Most Navy officials we spoke with believe that a strategic plan and roadmap would bring greater coherence to the Navy's transformation efforts. A strategic plan and roadmap would also provide the Congress with a means to evaluate and make optimal decisions on the Navy's transformation. The need for a strategic plan when attempting major organizational and operational changes, such as those the Navy is undertaking, has also been long recognized in the private sector as a best business practice.

We discussed the need for a strategic plan and roadmap with a wide range of DOD and Navy officials and with outside defense experts, many of whom have been directly involved in advising DOD on military transformation. These individuals agreed that such a plan should clearly articulate the Navy's transformation goals and objectives, priorities, specific responsibilities, and linkages with other organizations, as well as the scope of activities and the resources necessary to carry them out. These management tools should also identify the challenges and obstacles that need to be addressed and should include understandable, simple, and reasonable metrics to provide ways to gauge progress, provide information to decisionmakers, and make necessary changes. Some Navy

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officials expressed caution that such a plan should not dictate a particular force structure but rather provide the elements of the process to guide the transformation efforts. Appendix IV provides additional information on the key factors for successful transformation planning and management.

The same officials and experts said that further complicating Navy transformation planning efforts is the absence of clearly articulated transformation guidance from the Secretary of Defense and the Chairman of the Joint Chiefs of Staff to the military services. The Secretary and the Chairman have provided only broad guidance on the direction and progress of military transformation and on the types of future capabilities required for transforming the military. The responsibility for clearly identifying priorities and developing an implementation plan for their transformations has been left to the individual services. However, it is widely recognized that the success of future joint operations requires careful joint planning and integration. Various organizations, including the Defense Science Board, have cited the need for the Secretary of Defense to provide clear guidance on transformation. In 1999, the Board called for an explicit strategy, or a master plan; a roadmap; and outcome-related metrics to assess progress.<sup>6</sup>

In its annual performance plan, issued pursuant to the Government Performance and Results Act of 1993,<sup>7</sup> DOD identified the transformation of U.S. forces among its performance goals. The act requires federal agencies to clearly define their missions, set goals, link activities and resources to goals, prepare annual performance plans, measure performance, and report on accomplishments. However, we recently reported that two of the transformation's three underlying metrics—procurement spending and defense technology objectives—do not provide a direct link toward reaching that performance goal.<sup>8</sup> Without such metrics, DOD cannot adequately assess its progress toward transforming its forces for the 21st century. The Navy would be expected to provide input to such a DOD effort and should therefore have its own clearly articulated transformation plan.

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<sup>6</sup> *Report of the Defense Science Board Task Force on DOD Warfighting Transformation*, Office of the Under Secretary of Defense for Acquisition and Technology, Department of Defense, Sept. 1999.

<sup>7</sup> Pub.L. 103-62, also known as the Results Act.

<sup>8</sup> *Department of Defense: Status of Achieving Outcomes and Addressing Major Management Challenges* (GAO-01-783, June 25, 2001).

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## Approach Does Not Adequately Address Challenges

The Navy has adopted what it calls an evolutionary approach to transformation, meaning that its effort is more about incremental changes in its force posture than in its force structure.<sup>9</sup> The Navy believes that this is an appropriate path to follow since it already is an expeditionary, self-sustaining, and mobile force with worldwide reach. What it needs to do, the Navy asserts, is to improve its expeditionary capabilities by focusing less on the types of ships in its force structure and more on linking them together through data networks—hence the network centric warfare concept.

This evolutionary approach, however, has so far not led the Navy toward careful and full consideration of all the strategic, budgetary, and operational elements of transformation. Through its approach, the Navy has also allowed almost a decade to pass with slow progress in a number of key transformation areas. Without the benefit of an overarching strategic plan and roadmap, the Navy has not taken the steps necessary to explore the possibilities of long-term changes to its force structure and operations to adequately address near- and long-term security requirements within existing and projected fiscal parameters.

There are at least three reasons why the Navy may need to adopt a more far-reaching and considered approach to its transformation: (1) it may not be able to recapitalize its existing forces at current shipbuilding rates, which might necessitate more fundamental changes in force structure and operations than it currently plans; (2) new operational concepts and technologies needed to operate in littoral areas may be coming into the force too slowly, given the increased importance of littoral operations recognized by the Navy; and (3) there are substantial technological challenges presented by network centric warfare that could take a long time and considerable effort to overcome. DOD in its comments to a draft of this report, stated that the evolutionary approach followed by the Navy for transformation was prudent and allowed the Navy to continuously improve its combat capabilities. It also stated that Navy transformation efforts, such as the Navy's fleet battle experiment program, have not excluded consideration of innovative force structures. DOD attributed the majority of actual and perceived transformation shortfalls to the lack of an

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<sup>9</sup> Force structure refers to the numbers, size, and composition of the Navy's forces, such as ships and aircraft. Force posture refers primarily to how the ships and aircraft operate together.

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overarching strategic plan and roadmap rather than to the approach followed for transformation by the Navy.

Fiscal and Force Structure  
Challenges Require Greater  
Urgency

The Navy has not been building enough ships to maintain the roughly 300-ship force mandated by the 1997 Quadrennial Defense Review. The high costs of supporting the current force, the time needed to acquire new ships, and the prospect of a continued mismatch between fiscal resources and force structure requirements increase the urgency of planning for and carrying out transformation. Although we did not make an independent assessment of the funds needed to maintain a force of 300 ships and its associated inventory of aircraft and supporting infrastructure, the Congressional Budget Office has estimated that the Navy would require roughly \$17 billion more each year for fiscal years 2001 through 2005 than it is currently expected to receive to sustain this force level.<sup>10</sup> If current construction rates and funding levels remain the same, the Navy's force could decrease to approximately 260 ships or lower after 2020. Navy officials believe they face even bigger challenges. As part of DOD's July 2000 report on naval vessel force structure requirements, the Navy reported that its force needed to increase to about 360 ships over the next 15 to 20 years to better meet its total operational requirements and the national military strategy.<sup>11</sup>

The recent establishment of an Office of the Deputy Chief of Naval Operations for Warfare Requirements and Programs may help focus the Navy's attention on analyzing the potential for changes that might be needed to address fiscal concerns as well as current and future force structure requirements. In addition, the President of the Naval War College was recently chosen by the Chief of Naval Operations to lead a task force to analyze the force structure implications of operating the Navy on approximately the same budget level it now has.

A senior Navy headquarters official agreed that the shortfall in funding and the mismatch between requirements and resources are major drivers for transformation. But the official also acknowledged that the Navy's evolutionary approach to transformation might not address its fiscal problems.

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<sup>10</sup> *Budgeting for Naval Forces: Structuring Tomorrow's Navy at Today's Funding Level*, Congressional Budget Office, October 2000.

<sup>11</sup> *Naval Vessel Force Structure Requirements*, Department of Defense, July 2000.

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## Slow Progress in Developing Littoral Warfare Capabilities

The Navy has been slow in acquiring many of the capabilities that it needs to successfully conduct littoral operations. We recently reported on the Navy's limited countermine, antisubmarine, and ship self-defense capabilities and the lack of credible surface fire support capabilities.<sup>12</sup> Although the Navy has had acquisition programs under way to improve its capabilities in each of these areas for many years, we found progress has been slow. We also found that unless current efforts can be accelerated or alternatives developed, it will be another 10 to 20 years before the naval services have the capabilities they say they need to successfully execute littoral warfare operations against a competent enemy. Our ongoing reviews of Navy chemical and biological defense capabilities have found shortcomings in equipment and training for shipboard personnel and naval personnel ashore in high-threat areas. Such deficiencies could also seriously affect the Navy's ability to operate successfully in littoral areas.<sup>13</sup>

## Network Centric Warfare Presents Significant Challenges

The Navy faces significant challenges in developing the network centric warfare capability. Navy officials told us that they have only just begun to define and implement the concept and that making it operational involves significant challenges. Officials in the Navy's operating forces expressed a lack of a clear understanding about what network centric warfare is and how it is expected to change operations and forces. Some elements such as the Cooperative Engagement Capability<sup>14</sup> have recently deployed, while others are in the early stages of research and development and are years away from practical use. Most will rely on interoperability (compatibility with equipment used by the Navy and the other services) for their ultimate success. Yet the Navy does not have an implementation plan to integrate all the different elements. Several Navy and joint officials have indicated that some components require much more comprehensive planning and an

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<sup>12</sup> *Navy Acquisitions: Improved Littoral War-fighting Capabilities Needed* (GAO-01-493, May 18, 2001).

<sup>13</sup> We plan to report on these shortcomings in Navy chemical and biological defense capabilities later this year.

<sup>14</sup> Cooperative Engagement Capability is a Navy sensors networking capability with integrated fire control. This allows for various dispersed sensors measurements to be fused together in real time to develop and distribute a common track picture. The initial operational capability was achieved in 1996. The next group of ships with this capability (an aircraft carrier battle group) is scheduled to deploy in 2002, but it will take a decade or more to install this capability on select Navy ships and aircraft.

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integrated roadmap for their development. Others said that the Navy and the other services were not doing enough to ensure interoperability.<sup>15</sup>

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### Navy Warfare Development Command Not Firmly Established and Supported

The Navy has carried out several organizational changes aimed at moving transformation forward. But as with all of its other transformation activities, these changes have not been carried out within the context of an overarching strategy that clearly and authoritatively identifies roles and responsibilities of different bodies and stakeholders. Thus, even though the Navy Warfare Development Command was established primarily to direct the Navy's transformation efforts, the Command has had difficulty building relationships with other Navy organizations and has not yet achieved the priority for resources needed to make it an effective focal point for transformation.

Several important activities are underway at the Command. For example, it is pursuing a comprehensive review and reorganization of the Navy's doctrine structure, and it is coordinating all major Navy fleet battle experiments as well as the Navy's participation in joint experiments. Its work on the capstone concept document based on network centric warfare—the centerpiece of the Navy's transformation activities—is nearing completion. It has also established a constructive working arrangement with the Naval War College and the Strategic Studies Group.

The Command has had less success establishing itself as the Navy's focal point for transformation and has sometimes faced resistance at the fleets and at Navy headquarters while trying to carry out its responsibilities. Atlantic and Pacific Fleet officials said that while they appreciate the intent of the Command's work, fleet personnel sometimes see the Command's experiments as disruptions to their everyday operations and do not fully understand how the experiments can benefit them. They explained that the fleets are focused more on immediate issues affecting operations and are therefore less receptive to activities that might be aimed at the Navy's longer term interests. A number of senior Navy officials said that the Command has had difficulty promoting its concepts to the fleets because some fear that new concepts could threaten support and funding for existing programs.

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<sup>15</sup> For further information on interoperability issues, see *Joint Military Operations: Weaknesses in DOD's Process for Certifying C4I Systems' Interoperability* (NSIAD-98-73, Mar. 13, 1998).

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Part of the difficulty of building relationships with other Navy organizations is that the Command is just 3 years old, and its mission is not well known throughout the Navy. During our fleet visits, we found that with the exception of fleet battle experiments, the Command's overall role, responsibilities, and relationships were not fully understood. Several senior Navy officials noted that the Command has not been afforded a high priority for staffing. For example, only 46 of its 60 authorized positions for military personnel were filled as of June 2001.<sup>16</sup> The Command's detachments at the Atlantic and Pacific Fleets have several important responsibilities, including providing support for experimentation, innovation activities, and concept and doctrine development and acting as the liaison between joint and fleet organizations and the Command.<sup>17</sup> However, they have only a skeletal number of authorized staff to carry out these responsibilities, and even these positions have not always been fully staffed. An official of the Command's Pacific Fleet detachment said that lack of personnel prevents the detachment's staff from attending key meetings and making visits to Navy organizations throughout the region. Officials at the Command's Atlantic Fleet detachment expressed similar limitations to involvement with organizations in that area. Additionally, the Command has been unable to assign a permanent representative to the U.S. Joint Forces Command to represent the Navy on joint experimentation issues.

The Command has also had some difficulties with funding needed to support its activities. An official in the Command's Pacific Fleet detachment told us the detachment has had to rely on other Navy organizations, such as the Third Fleet, to provide funds for basic support such as office space, telephones, heating, and lighting. Plans for prototyping of ships and other weapon systems will require additional funds over the Command's current funding. Navy Warfare Development Command officials expressed concern that about 75 percent of the Command's research and development budget for fiscal year 2002 will be spent to support its portion of one single experiment—the U.S. Joint

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<sup>16</sup> As of June 2001, the Command's total authorized personnel was 81 military and civilian positions. All of its 21 authorized civilian positions are filled.

<sup>17</sup> The Navy Warfare Development Command has detachments at Norfolk, Virginia, and San Diego, California, to support the Command's mission at the Atlantic and Pacific Fleets, respectively.

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Forces Command's Millennium Challenge.<sup>18</sup> To cover its other experimentation requirements, it will need to obtain additional funds from the Navy and other organizations with which the Command cooperates on experimentation projects.

## Reorganization May Help

Recent organizational changes at Navy headquarters should help overcome some of these difficulties. The establishment of the Office of the Deputy Chief of Naval Operations for Warfare Requirements and Programs provides a clearer link between headquarters and organizations vital to transformation. This link may help increase the visibility of the Navy Warfare Development Command's efforts and could afford more support for promising new ideas that may not otherwise be embraced by other Navy organizations.

The Warfare Requirements and Programs Office was created to separate requirements and resource allocation functions that had previously been handled by a single office. The office's responsibility for balancing warfighting requirements with available resources could also provide a better means for the Navy to assess its resource priorities and make the necessary budget trade-offs between current and future needs. The Navy is also considering establishing "mission capability packages." Rather than focusing on individual platforms (ships, submarines, or aircraft), the packages would examine requirements in terms of all the capabilities needed to perform a specific mission. Officials at Navy headquarters and the Navy Warfare Development Command said these packages could help the Navy focus more on the capabilities it needs to clarify funding priorities.

Officials at Navy headquarters and the Navy Warfare Development Command have told us that since the reorganization, the Command has begun to obtain greater acceptance from other Navy organizations, and its ties with headquarters have improved. The Navy is also considering changing the Command's link to the fleet to provide the Command with more visibility and influence. One possibility under consideration is to place the Command under the Commander in Chief of the Atlantic Fleet. While this could increase the Command's visibility and influence with the fleet, some Navy officials said it could also have the consequence of

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<sup>18</sup> Millennium Challenge 2002 will be the first major joint field experiment to incorporate the Navy's and each of the other military services' individual experimentation efforts. The Navy's next fleet battle experiment—Juliet—will be conducted as part of the joint experiment. The joint experiment is scheduled to take place during summer 2002.

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focusing their efforts on more near-term fleet issues over longer term transformation.

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### Long-Term Experimentation Has Not Received Adequate Attention

While the Navy has actively conducted experimentation over the last 4 years, it has focused its experiments on near- and mid-term operational and force issues and much less on long-term issues.<sup>19</sup> In spite of the importance of experimentation for transformation, the Navy has not developed a comprehensive strategy that places long-term goals and resources for experiments within the context of its overall transformation objectives and priorities.

Experimentation allows the Navy to explore new operational concepts, identify alternative force mixes and capabilities, validate promising technologies and system concepts, and serve as an overall mechanism for transformation. Most importantly, it helps to shape and challenge ideas and thinking about the future.

Despite the Navy's increased experimentation effort since 1997, Navy officials at headquarters, fleet, and other organizations believe the Navy needs to expand its experimentation activities to explore major long-term operational and force concepts to provide better information on future requirements and capabilities. A wide range of Navy officials and defense experts stated that the Navy needs to explore new ship design concepts—possibly revolutionary ones—and employ prototypes to experiment with them. Such experimentation is necessary for the Navy to analyze potential force structure and operating options in the face of likely budgets and opportunities possible in emerging technologies. An example of this type of effort is the Navy's current plan to begin at-sea experimentation with a high-speed ship concept.

Resource priorities also affect the Navy's ability to experiment and address long-term issues. The Navy has stated that operating a smaller force in a period of increased level of overseas operations has limited the number of ships it can assign to experimentation. It has worked around

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<sup>19</sup> The Navy defines the scope of near-term (or short-term) experimentation to be from the present to 2 years out and is aimed more at enhancing current systems and processes. Mid-term experimentation focuses on 2 to 4 years out and may affect budget and requirements decisions. Long-term experimentation focuses on 5 to 15 years out and involves new warfighting concepts and technologies that could cause significant force and operational changes.

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this limitation by conducting its experimentation, such as fleet battle experiments, as part of its major fleet exercises.<sup>20</sup> Another resource issue is the limited staff available to support the Navy experimentation program. Since 1997, the Navy has conducted fleet battle experiments at the rate of two each year. In addition to drawing heavily on the staff and resources of the Navy Warfare Development Command and the fleets, the Navy believed this pace did not allow sufficient time to plan and prepare for experiments beforehand and assess the results afterward. In 2001, it changed the schedule to approximately one experiment each year.

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### Innovation Activities Are Not Well Coordinated or Tracked

We learned that many of the Navy's innovation activities are not well coordinated or tracked between different organizations. The Navy has been undertaking a wide range of innovation activities. Some of these activities are directed at specific problems, while others have a broader servicewide focus. Some are aimed at best business practice innovations; others are operational in nature. These activities contribute to the incremental, evolutionary approach the Navy has adopted for transformation, and if sufficiently orchestrated and sustained, they can lead to substantial change.

Many Navy officials throughout the organizations we visited believed that the Navy needs to improve the servicewide coordination and tracking of innovation activities. An official at the Pacific Fleet headquarters stated that the Pacific Fleet has attempted to identify and track these innovation activities, both within the Fleet and in other parts of the Navy. However, the official said that it was not possible to determine the extent to which all activities were captured because of the large number of and differences in activities. Several Navy officials from various fleet and headquarters organizations stated that a central Navy clearinghouse for maintaining and disseminating information about ongoing and past activities would benefit, promote, and accelerate other innovation efforts. Various Navy officials suggested that the Navy Warfare Development Command would be an appropriate organization to manage and maintain this information. The Navy Warfare Development Command has proposed an effort to provide greater servicewide coordination of innovation and transformation-related activities. According to the proposal, the Navy would develop web-based

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<sup>20</sup> An exercise is a military maneuver or simulated wartime operation for the purposes of training and evaluation. An experiment is an event to further define a new concept or refine an established concept.

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tools to further enhance coordination efforts. It would also focus on coordinating innovation efforts with the other services and the U.S. Joint Forces Command. However, no decision has yet been reached by the Navy's leadership on who will lead the coordination effort.

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## Conclusions

The complexities and uncertainties that underlie the Navy's transformation require that clear direction and guidance be given to all levels of the organization on what transformation is and how it will be carried out. While the Navy has initiated a number of activities to transform its forces, it has not articulated and promulgated a well-defined transformation program. Current activities have not been conducted within the context of an overall strategic plan and roadmap to provide the direction, goals, priorities, scope, options, and resource requirements necessary to achieve a successful transformation. The importance of such planning to effective and efficient management of federal programs is recognized under the Government Performance and Results Act of 1993.

Implementing the Navy's transformation will be complicated and will require careful consideration of near-term needs, as well as fundamental changes in the force structure, concepts, and organizations required to meet future security challenges within likely budgets. Actions need to be planned and orchestrated as part of a broader, well-developed strategy designed to achieve long-term objectives and not simply to satisfy immediate requirements. Development of a long-term strategic plan and roadmap would help to maintain the delicate balance between current and future requirements as the Navy transforms. It would also provide the necessary guidance to better focus and direct the Navy's transformation activities and tools to guide and oversee progress toward achievement of goals and objectives. Such a plan, for example, could also address the coordination and monitoring of innovation activities and delineate the authority of the Navy Warfare Development Command in carrying out its mission. Without such a plan, it can be difficult for senior leaders, the Congress, and others to provide the necessary support and make optimal decisions on priorities and the effective use of resources to successfully transform Navy forces.

Although the Navy has stated that its transformation efforts are focused on force posture and not necessarily force structure, there is a clear and persistent need for the Navy to explore potential fundamental changes in its force structure and operational concepts that would permit it to carry out its requirements within certain fiscal parameters. The time required to design and build ships further compels urgent action by the Navy. Without

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an experimentation effort that includes evaluating long-term issues such as new ship designs and operational concepts, the Navy will be less able to make the difficult but important decisions that will be needed regarding the size, shape, and composition of its future fleet.

The wide range of innovation activities being conducted throughout the Navy contributes to the Navy's overall transformation efforts. But the lack of adequate Navy-wide coordination and tracking limits the potential benefits these activities could have for all organizations. The creation of a Navy-wide clearinghouse would provide a central repository for all organizations—in the Navy and elsewhere in the Department of Defense—to exchange information and lessons learned on innovation activities.

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## Recommendations for Executive Action

To more clearly determine the Navy's direction and promote better understanding of actions taken to transform its forces for the 21st century, we recommend that the Secretary of Defense direct the Secretary of the Navy to develop a long-term strategic plan and roadmap that clearly articulates priorities, objectives, and milestones; identifies the scope, resource requirements, and responsibilities; and defines the metrics for assessing progress in achieving successful transformation.

We also recommend that the Secretary of Defense direct the Secretary of the Navy to (1) adjust the Navy's experimentation program to provide greater exploration of long-term force structure and operational issues and (2) create a clearinghouse for Navy-wide innovation activities to improve coordination and monitoring of such activities.

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## Agency Comments and Our Evaluation

We received written comments from the Department of Defense on a draft of this report, which are included in their entirety as appendix V. The Department agreed with our recommendations but did not elaborate on how it would address them. DOD generally believed that our findings accurately reflect the Navy's transformation process, the current status, and the increased efforts in the Navy toward transformation.

DOD agreed with our overall conclusion that the Navy needs to develop a strategic plan and roadmap to manage and execute its transformation efforts. In its comments, DOD stated that the Navy is implementing near-, mid-, and far-term steps to achieve a transformation goal of assured

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access,<sup>21</sup> which was identified by the Navy's 1999 *Maritime Concept* as a key operational challenge. We agree that these steps are an element in the development of a comprehensive long-term strategic plan and roadmap that we recommend for Navy transformation. However, such a plan and roadmap must also articulate the priorities, objectives, and milestones; identify the scope, resource requirements, and responsibilities; and define the metrics for assessing progress. By including these additional elements, the plan and roadmap would provide the clear direction, focus, and integration necessary for the Navy to carry out a successful transformation.

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## Scope and Methodology

To develop criteria for assessing the Navy's management of its transformation, we identified several key factors important to success in military transformation (see app. IV). We identified these factors from our review of a wide range of DOD and Navy publications and statements, open literature, academic research on the subject of military innovation and transformation, and case studies of past transformation efforts. To assess the reasonableness and completeness of these factors, we discussed them with Navy and DOD officials and outside defense experts from various research and academic organizations. We also used the principles laid out in the Government Performance and Results Act of 1993 as additional benchmarks for our assessment.

To determine the Navy's transformation-related activities and develop our observations of the key management issues affecting progress, we obtained information, documents, and perspectives from officials at all levels of the Navy, including Navy headquarters, the Navy Warfare Development Command, the Naval War College, the Atlantic and Pacific Fleets, and the Offices of the Secretary of Defense and the Chairman of the Joint Chiefs of Staff. We discussed Navy transformation with the former Secretary of the Navy (1998-2001) and with several senior Navy leaders who have responsibility for various aspects of the Navy's transformation. We also obtained perspectives from several defense experts and academicians who have followed military and Navy transformation. Appendix VI lists the principal organizations and offices where we performed work. We reviewed an extensive array of policy, planning, and guidance documents; intelligence documents; posture statements and

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<sup>21</sup> Assured access is the ability of the U.S. military to have immediate and sustained access to any region of the world at any time.

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speeches; congressional hearings and testimonies; open literature; and studies and assessments. We also made extensive use of information available on public and DOD Internet web sites.

To develop a better understanding of the Navy's transformation and the actions it has taken to carry out the transformation, we obtained information on various areas related to concept development, experimentation, innovation, research and development, and other transformation activities. We reviewed the concept of network centric warfare with Navy officials at several organizations and offices responsible for developing and implementing the concept. To ascertain the Navy's experimentation and innovation efforts, we discussed the plans, content, and results with officials at the Navy Warfare Development Command, Atlantic and Pacific Fleets, and research and development organizations. To obtain information on the Navy's participation in joint experimentation efforts, particularly Millennium Challenge 2002, we met with officials at the U.S. Joint Forces Command and the Joint Staff's Joint Vision and Transformation Division. To be cognizant of the security environment in which the Navy is likely to operate its forces through 2020, we obtained an intelligence briefing from the Defense Intelligence Agency. To attain information on the Navy's investment in research and development to support transformation, we met with officials at the Office of Naval Research, the Space and Naval Warfare Systems Command, and the Defense Advanced Research Projects Agency. Although we did not include a review of Marine Corps transformation activities in our review, we did meet with a senior Marine Corps official responsible for the service's transformation to discuss coordination and joint transformation-related efforts between the two services. We did not include the Navy's management of service Defense Reform Initiatives in our scope.

Our review was conducted from August 2000 through May 2001 in accordance with generally accepted government auditing standards.

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We are sending copies of this report to interested congressional committees, the Secretary of Defense, the Secretary of the Navy, the Chairman of the Joint Chiefs of Staff, and the Chief of Naval Operations. We will also make copies available to others upon request.

Please contact me at (202) 512-3958 if you or your staff have any questions concerning this report. Major contributors to this report were Marvin E. Casterline, Mark J. Wielgoszynski, Joseph W. Kirschbaum, and Stefano Petrucci.

*Carol R Schuster*

Carol R. Schuster  
Director, Defense Capabilities  
and Management

# Appendix I: Future Naval Capabilities

To more sharply focus on the capabilities the Navy will need in the next 10 to 15 years, in 1999 the Navy reorganized its science and technology resources into 12 future naval capabilities. The objective is to focus on capabilities and not platforms. The future naval capabilities are managed by integrated product teams, which include senior Navy and Marine Corps military and civilian officials. These teams focus on the overall capability by prioritizing the individual efforts and supporting technology areas. Table 1 lists the 12 future naval capabilities and provides examples of individual technology efforts for each capability.

**Table 1: Future Naval Capabilities and Examples of Supporting Technology Efforts**

Future naval capability	Examples of supporting technologies
Autonomous operations	<ul style="list-style-type: none"> <li>• Sensor data processing</li> <li>• Unmanned aerial vehicle propulsion and power system</li> <li>• Maritime reconnaissance</li> <li>• Tactical unmanned ground vehicle</li> </ul>
Capable manpower	<ul style="list-style-type: none"> <li>• Simulation-based warfighter test battery</li> <li>• Cognitive modeling capability</li> <li>• Artificial intelligence data quality tools</li> <li>• Integrated maintenance training and performance support through distance technologies</li> </ul>
Decision support system	<ul style="list-style-type: none"> <li>• Intuitive/interactive visualization tools</li> <li>• Network-based knowledge operations</li> <li>• Management of collaboration services and tools</li> <li>• Resource/asset optimization</li> </ul>
Expeditionary logistics	<ul style="list-style-type: none"> <li>• Automated warehousing system</li> <li>• Asset visibility</li> <li>• Optimization tools</li> <li>• Shared data</li> </ul>
Information distribution	<ul style="list-style-type: none"> <li>• VHF/UHF/L-band antenna systems</li> <li>• Dynamic network for tactical links</li> <li>• Underwater surveillance data link network</li> <li>• Allied/coalition command and control applications</li> </ul>
Littoral antisubmarine warfare	<ul style="list-style-type: none"> <li>• Lightweight broadband variable depth sonar</li> <li>• Cross-platform data fusion—common tactical picture</li> <li>• Deployable shallow water autonomous systems</li> <li>• Weapon/platform connectivity</li> </ul>
Missile defense	<ul style="list-style-type: none"> <li>• Infrared sensors</li> <li>• Affordable ground based radar</li> <li>• Distributed weapons coordination</li> <li>• Reactive material advanced warhead</li> </ul>
Organic mine countermeasures	<ul style="list-style-type: none"> <li>• Autonomous undersea vehicles</li> <li>• Wide area surveillance</li> <li>• Influence sweeping</li> <li>• Remote buried mine detection</li> </ul>
Platform protection	<ul style="list-style-type: none"> <li>• Surface ship acoustic control</li> <li>• Advanced degaussing/deamping</li> <li>• Missile warning system</li> <li>• Damage tolerant advanced double hull</li> </ul>

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Appendix I: Future Naval Capabilities

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Future naval capability	Examples of supporting technologies
Time critical strike	<ul style="list-style-type: none"><li>• Enhanced targeting acquisition and location system</li><li>• Barrage round</li><li>• Advanced gun barrel and propulsion technology</li><li>• Capabilities against moving and hard and deeply-buried targets</li></ul>
Total ownership cost reduction	<ul style="list-style-type: none"><li>• Advanced coating and longer life components</li><li>• Corrosion preventive compounds for aircraft</li><li>• Real-time structural diagnostics</li><li>• Ground tests of components and materials</li><li>• Enhanced cost estimating tools</li></ul>
Warfighter protection	<ul style="list-style-type: none"><li>• Hemostatic field dressing</li><li>• Portable medical water producer</li><li>• Agile laser</li><li>• Occupational fitness for injury reduction</li></ul>

Source: Office of Naval Research.

# Appendix II: Fleet Battle Experiments

Since March 1997 the Navy has conducted nine fleet battle experiments. Each of these experiments has focused on some of the Navy's core missions, such as land attack, or those it expects to conduct in the future. These experiments have also enabled the Navy to assess how new technologies and approaches could enhance fleet capabilities and operations with joint and allied forces. The experiments rotate among the Navy's fleets and are scheduled to coincide with a major fleet exercise. Roughly \$5 million is dedicated to each fleet battle experiment. This amount does not include the operation and maintenance funds expended by a fleet during the actual experiment. Upon completion, each experiment is assessed to determine which concepts proved workable and what follow-on experimentation should be pursued. Table 2 provides some examples of issues addressed in the fleet battle experiments.

**Table 2: Examples of Issues Addressed in Fleet Battle Experiments**

Name and date	Issues addressed
<b>Alfa</b> Mar. 1997	<ul style="list-style-type: none"> <li>• "Ring of Fire" naval surface fire support concepts and systems, such as the arsenal ship.</li> <li>• C4ISR* systems and concepts for sea-based joint task force commander, including computer assisted collaborative planning tools and common tactical picture.</li> </ul>
<b>Bravo</b> Aug.-Sept. 1997	<ul style="list-style-type: none"> <li>• "Ring of Fire" joint fire support coordination processes and systems.</li> <li>• Joint task force targeting for satellite-guided munitions.</li> </ul>
<b>Charlie</b> May 1998	<ul style="list-style-type: none"> <li>• Systems and procedures for coordinating area air defense.</li> <li>• Distributed collaborative planning tools and single air picture.</li> </ul>
<b>Delta</b> Oct.-Nov. 1998	<ul style="list-style-type: none"> <li>• Data exchange between Navy and Army radar and mission coordination between the AEGIS combat system and the 2nd Infantry Division.</li> <li>• Collaborative planning tools and procedures for joint theater air and missile defense.</li> </ul>
<b>Echo</b> Mar. 1999	<ul style="list-style-type: none"> <li>• Countering asymmetric threats in the littorals. Focus on urban warfare.</li> <li>• Network centric antisubmarine warfare.</li> </ul>
<b>Foxtrot</b> Nov.-Dec. 1999	<ul style="list-style-type: none"> <li>• Integrating and coordinating joint fires to destroy fixed and time critical targets.</li> <li>• Concepts and procedures for mine warfare, antisubmarine warfare, and force protection.</li> </ul>
<b>Golf</b> Apr. 2000	<ul style="list-style-type: none"> <li>• Effective response to time critical targets.</li> <li>• Coordinating theater air and missile defense with U.S. allies.</li> </ul>
<b>Hotel</b> Aug.-Sept. 2000	<ul style="list-style-type: none"> <li>• Application of network centric operational principles to ensure access in littorals, including antisubmarine warfare, mine countermeasures, theater air and missile defense, information operations, and strike support.</li> <li>• Digital Fires Network.</li> <li>• Concepts for remote sensors and underwater unmanned vehicles.</li> </ul>
<b>India</b> June 2001	<ul style="list-style-type: none"> <li>• Operational and tactical concepts and procedures for littoral operations in the 2005-2010 time frame.</li> <li>• Focus on forced entry and access for expeditionary/contingency operations.</li> </ul>

\*Command, control, communications, computers, intelligence, surveillance, and reconnaissance.

Source: Navy Warfare Development Command.

# Appendix III: Navy-Wide Innovation Activities

A wide range of innovations and transformation-related activities are being conducted at the fleet level and in many other Navy organizations. For example, the Second Fleet has been evaluating the concepts, technologies, and procedures for network centric antisubmarine warfare. This concept employs collaborative tools to link ships and aircraft to greatly increase the effectiveness of antisubmarine forces. It assists the Navy in implementing its plan to distribute antisubmarine warfare capability throughout its forces rather than in only a few dedicated platforms. Table 3 provides examples of Navy innovation activities.

**Table 3: Examples of Navy Innovation Activities**

Activity	Description	Participants
Mission Support Center	This center provides a central location for gathering data and information from multiple sources and integrating it into a single command picture.	Commander, Naval Special Warfare Group One
Sea-Based Battle Lab	A portion of the Third Fleet command ship, U.S.S. <i>Coronado</i> , is dedicated to configuring technology for experiments with new command, control, communications, computers, and intelligence concepts.	Third Fleet
Smart Ship	This program focuses on identifying and implementing labor saving technologies in Navy surface ships with the potential of saving funds and allowing personnel to concentrate on their warfighting mission.	Fleets and Navy headquarters
Cross-functional Support Team	These teams evaluate new concepts and projects for command, control, communications, computers, and intelligence and manage priorities within associated programs.	Pacific Fleet
Manpower Personnel Database Project	This system allows the Pacific Fleet submarine force to better coordinate and manage its personnel.	Commander, Submarine Force, Pacific Fleet
Afloat Supply Department of the Future	This initiative optimizes supply operations to coincide with such efforts as reduced manning aboard Navy ships.	Naval Supply Systems Command and the Atlantic and Pacific Fleets
Network Centric Innovation Center	This small organization is focused on evaluating the innovations possible within the 18-24 month range and integrating them into the force.	Third Fleet
Disruptive Technologies	A small staff cell has been dedicated to evaluating disruptive technologies that could have a significant potential impact on future operations.	Office of Naval Research

Source: GAO interviews and Navy data.

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# Appendix IV: Factors for Successful Transformation

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A number of factors are important for the Navy or any military organization to successfully transform its forces and operations. On their own or in combination, these eight factors are useful in establishing effective planning mechanisms for managing transformation efforts. We identified these factors from our review of a wide range of Department of Defense (DOD) and Navy publications and statements, open literature, academic research on the subject of military innovation and transformation, and case studies of past transformation efforts. To assess the reasonableness and completeness of these factors, we discussed these factors with Navy and DOD officials and outside defense experts from various research and academic organizations.

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## Policy

A clear and authoritative statement of vision, rationale, and direction of transformation efforts is necessary. The precise shape and structure of the future Navy is difficult to determine. But the direction of development for required capabilities can be outlined to the extent that lines of effort can be delineated, priorities established, and responsibilities for executing them assigned. The Navy's leadership must ensure that such policies are communicated throughout its organization.

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## Organization and Process

This factor involves the details of transformation and how an organization should carry them out. This entails a delineation of organizational elements responsible for converting concepts and ideas into practical operational and force structure changes.

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## Resources

It is important that personnel and funds are dedicated to innovation and transformation-related efforts. These efforts include experimentation, prototype development, and acquisition. For example, the period of the 1920s and 1930s was one of fiscal constraint for the Navy. But it devoted considerable resources to the development of aircraft carriers and naval aviation, which later contributed to the Navy's success during the Second World War.

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## Metrics

Clear and adaptable measures of effectiveness are required for experiments to determine the value of innovations and for procedural matters to determine the progress of transformation.

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Linkage Among Technology, Concepts, and Doctrine

Innovation and transformation must include changes in how the Navy operates at all levels. There must be feedback among innovators, operators, experimenters, doctrine writers, and the training and education establishment. Many defense experts have recognized this linkage as one of the most important elements of military transformation.

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Organizational Support

This is the “culture” aspect of transformation. Leaders from all levels of the organization should provide tangible commitment to Navy transformation and to those who make contributions to that end. Innovators must be given incentives to innovate, allowed to take reasonable risks in areas such as experiments, and given the authority to conduct energetic analyses to address the Navy’s future warfare challenges.

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Congressional Support

The active support of the Congress is vital to effecting transformation in the Navy. In some cases, this may be resource-oriented. In others, such support would involve congressional oversight, as it has in the past, and provide incentives and direction when and where appropriate. For example, during the development of naval aviation, the Congress mandated that those officers seeking to command the new aircraft carriers had to be flight qualified.<sup>1</sup> This mandate stimulated the career path. To better ensure an effective transformation, the Navy needs to coordinate its plans and efforts with the Congress as well as the other services and joint organizations.

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Joint Interconnectivity

Individual Navy efforts must be interoperable with the other services in order for future joint operations to be viable. This is applicable to the specifications of individual capabilities, such as communication equipment, as well as to the broader issue of developing integrated operational level capabilities and concepts.

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<sup>1</sup> Flight qualified was determined to be that the officer was qualified as either a naval aviator or as an “observer.”

# Appendix V: Comments From the Department of Defense



STRATEGY  
AND  
THREAT REDUCTION

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE  
3500 DEFENSE PENTAGON  
WASHINGTON, DC 20301-2900

12 JUL 2001

Ms. Carol R. Schuster  
Director, Defense Capabilities and Management  
U.S. General Accounting Office  
Washington, DC 20548

Dear Ms. Schuster,

This is the Department of Defense (DoD) response to the GAO draft report, "MILITARY TRANSFORMATION: Navy Efforts Should Be More Integrated and Focused" dated June 20, 2001 (GAO Code 350009/OSD Case 4024). DoD concurs with the report and GAO's overall conclusion that the Navy needs to develop a strategic plan and roadmap to manage and execute its transformation efforts. Enclosure (1) contains the DoD response to GAO's specific recommendations, and enclosure (2) contains a list of substantive and general comments with supporting rationale.

In general, the Department believes that the GAO findings accurately reflect the Navy's transformation process and current status, and the increased efforts in the Navy towards transformation. The report is fair and balanced in that it acknowledges the Navy is taking many positive steps to advance its transformation, while identifying some shortfalls in the effort.

The Department appreciates the opportunity to review and comment on the draft GAO report.

Sincerely,

Christopher J. Lamb  
Deputy Assistant Secretary of Defense  
For Requirements, Plans and Counterproliferation Policy (Acting)

w/enclosures



GAO DRAFT REPORT DATED JUNE 20, 2001  
(GAO CODE 350009) OSD CASE 4024

"MILITARY TRANSFORMATION: NAVY EFFORTS SHOULD BE  
MORE INTEGRATED AND FOCUSED"

DEPARTMENT OF DEFENSE COMMENTS  
TO THE GAO RECOMMENDATIONS

**RECOMMENDATION 1:** The GAO recommended that the Secretary of Defense direct the Secretary of the Navy to develop a long-term strategic plan and roadmap that clearly articulates priorities, objectives, and milestones; identifies the scope, resource requirements, and responsibilities; and defines the metrics for assessing progress in achieving successful transformation. (p.16/GAO Draft Report)

Now on p. 17.

**DOD RESPONSE:** DoD concurs with comment.

The Navy recognizes the importance of a transformation roadmap and is currently implementing a 3-step plan to achieve its transformation goal: assured access. As articulated in the Maritime Concept in 1999, the key operational challenge for the Navy today, and in the near term, is sustaining assured access to deny the ability of any prospective adversary to be successful in employing an area denial strategy. The key to sustaining assured access lies in the Navy's evolution from a platform-centric to a network-centric force. Naval forces already forward, properly programmed, will deliver the sustained assured access from the first day of conflict that is needed for joint forces to flow into theater to carry out U.S. military strategy. While no one Service can assure access on its own, by dint of already being forward and immediately employable, the Navy plays a key role in enabling the rapid deployment of decisive combat power to the theater of operations.

In the mid term, geographically dispersed and interoperable naval forces will take advantage of network centric operations to maintain a dominant military advantage, enhancing the Navy's ability to assure access when and where our nation chooses to fight, and thereby deterring potential adversaries. The Navy will leverage its unmatched battlespace awareness with the capability to project offense ashore in effects-based attacks with vast volume from stealthy strike platforms and "artillery from the sea", holding even time critical targets at risk.

In the far term, the Navy transformation will result in a universally netted force of dispersed manned and unmanned systems that leverages knowledge superiority with improved lethality. With assured access now established in all warfare dimensions, forward deployed naval forces will play a vital role in dissuading potential adversaries from pursuing policies inimical to U.S. interests.

**RECOMMENDATION 2:** The GAO recommended that the Secretary of Defense direct the Secretary of the Navy to (1) adjust its experimentation program to provide greater exploration of long-term force structure and operational issues and (2) create a clearinghouse for Navy-wide innovation activities to improve coordination and monitoring of such activities. (p.16/Draft Report)

Now on p. 17.

**DOD RESPONSE:** DoD concurs with both (1) and (2).

Enclosure (1)

DoD Comments on GAO Draft Report #350009

CRITICAL COMMENTS – None.

SUBSTANTIVE COMMENTS

1. COMMENT. Page 8, FISCAL AND FORCE STRUCTURE CHALLENGES REQUIRE GREATER URGENCY section, paragraph one. Change paragraph to read:

“ The high costs of supporting the current forces, the time needed to acquire new ships, and the prospect of a continued mismatch between fiscal resources and force structure requirements increase the urgency of planning for and carrying out transformation. Although we did not make an independent assessment of the funds needed to maintain a force of 300 ships, the Congressional Budget Office has estimated that the Navy would require roughly \$17 billion more each year than it is currently spending to achieve this force level.”

RATIONALE. Accuracy and completeness.

GENERAL COMMENTS

1. ISSUE. Page 8, NAVY’S “EVOLUTIONARY” APPROACH TO TRANSFORMATION section, third paragraph, “This approach... has so far not led the Navy toward careful and full consideration of all the strategic, budgetary, and operational elements of transformation. ...”

COMMENT. DoD disagrees that an “evolutionary” approach is an inappropriate means to conduct Navy transformation efforts. Such a prudent approach allows the Navy to continuously incorporate strategic, budgetary and operational elements, as well as rapidly advancing technologies, to improve their combat capabilities. The majority of actual and perceived transformation shortfalls are due to the lack of an overarching strategic plan and roadmap – not a result of an evolutionary approach.

2. ISSUE. Page 14, INNOVATION ACTIVITIES ARE NOT WELL COORDINATED OR TRACKED section, first paragraph, “The Navy has been undertaking a wide range of innovation activities... These activities contribute to the incremental, evolutionary approach the Navy has adopted for transformation, and if sufficiently orchestrated and sustained, they can lead to substantial change.”

COMMENT. We agree with GAO’s comment. For the Navy to continue to meet its national security obligations while simultaneously accelerating the development of its transformation, it must continue to develop innovative tactics, techniques, and procedures (in support of Network Centric Warfare) while iteratively developing the hardware and software necessary to maximize the potential of these concepts.

3. ISSUE. Page 15, INNOVATION ACTIVITIES ARE NOT WELL COORDINATED OR TRACKED section, second paragraph, comments regarding need for “INNOVATION CLEARINGHOUSE”

Enclosure (2)

Now on p. 9.

Now on p. 15.

Now on pp. 15-16.

COMMENT. DoD agrees that a central “clearinghouse” for transformation and experimentation is needed to “benefit, promote, and accelerate other innovation efforts.” While the GAO Draft Report specifically conveys the view that the Navy Warfare Development Command (NWDC) would be “an appropriate organization” to do so, it should be emphasized the report also states that “no decision has yet been reached by the Navy’s leadership on who will lead the coordination effort.”

4. ISSUE. Page 7 and page 16, APPROACH DOES NOT ADEQUATELY ADDRESS CHALLENGES and CONCLUSIONS sections, “The Navy has adopted what it calls an evolutionary approach to transformation, meaning that its effort is more about incremental changes in its force posture than its force structure.” “Although the Navy has stated that its transformation efforts are focused on force posture and not necessarily force structure, there is a clear and persistent need for the Navy to explore potential fundamental changes in its force structure and operational concepts that would permit it to carry out its requirements within certain fiscal parameters.”

COMMENT. DoD agrees that the Navy currently faces urgent fiscal and force structure challenges – especially regarding force recapitalization and modernization. However, DoD maintains that Navy transformation efforts focusing on how to best improve the combat capabilities as well as innovative concepts on how to network its existing and programmed forces (network centric operations) acknowledges the reality that the preponderance of Navy platforms have exceptionally long service lives.

Navy transformation efforts to date have not excluded consideration of innovative force structures. Since 1997, the Navy’s Fleet Battle Experiment program has extensively considered/ tested innovative force structures and operational concepts – including forces and concepts focused on operations in the littorals and the application of network centric warfare principles.

Now on pp. 8 and 16.

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# Appendix VI: Organizations and Offices Contacted

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## Washington, D.C., Area

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- Department of Defense
- Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, Science and Technology Plans and Programs
  - Office of the Assistant Secretary of Defense for Strategy and Threat Reduction
  - Defense Intelligence Agency
- 

- The Joint Staff
- Joint Vision and Transformation Division
  - Joint Advanced Warfighting Program
- 

- Department of the Navy
- Office of the Director for Navy Test and Evaluation and Technology Requirements
  - Office of the Deputy Chief of Naval Operations for Plans, Policy and Operations, Strategy and Policy Division
  - Office of the Deputy Chief of Naval Operations for Warfare Requirements and Programs
  - Office of the Deputy Chief of Naval Operations for Resources, Requirements and Assessments
  - Secretary of the Navy (November 16, 1998 – January 20, 2001)
  - Office of Naval Research
  - Marine Corps Combat Development Command
- 

## Other Organizations

U.S. Commission on National Security/21st Century

Brookings Institution

Center for Strategic and Budgetary Assessments

Center for Strategic and International Studies

DFI International

Elliot School of Security Studies, George Washington University

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Appendix VI: Organizations and  
Offices Contacted

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Newport, Rhode  
Island, Area

Naval War College  
Navy Warfare Development Command  
Chief of Naval Operations' Strategic Studies Group

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Norfolk, Virginia, Area

U.S. Joint Forces Command, Joint Experimentation Directorate  
U.S. Atlantic Fleet  
• Headquarters  
• Naval Surface Force  
• Naval Air Force  
• Naval Submarine Force  
U.S. Second Fleet  
Navy Warfare Development Command, Norfolk Detachment

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San Diego, California,  
Area

U.S. Third Fleet (U.S.S. *Coronado*)  
Naval Surface Force, U.S. Pacific Fleet  
Naval Air Force, U.S. Pacific Fleet  
Naval Special Warfare Command  
• Naval Special Warfare Group One  
Space and Naval Warfare Systems Command  
Navy Warfare Development Command, San Diego Detachment

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Honolulu, Hawaii,  
Area

U.S. Pacific Command  
U.S. Pacific Fleet  
• Headquarters  
• Naval Submarine Force

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