
November 1996

DEFENSE COMMUNICATIONS

Performance Measures Needed To Ensure DISN Program Success





United States
General Accounting Office
Washington, D.C. 20548

Accounting and Information
Management Division

B-275038

November 27, 1996

The Honorable Ted Stevens
Chairman
Committee on Governmental Affairs
United States Senate

Dear Mr. Chairman:

The Department of Defense (DOD) is in the process of acquiring the transmission services and switching technology needed to construct its future telecommunications network known as the Defense Information Systems Network (DISN). Defense's overall DISN strategy calls for the Defense Information Systems Agency (DISA) to acquire and implement DISN transmission and switching services across three regions: the continental United States (CONUS), the Pacific, and Europe. These long-haul services will, in turn, interconnect Defense's base-level and deployed communications networks.

This report responds to your request that we review the steps taken by Defense in selecting and implementing its acquisition strategy for DISN CONUS, which Defense is focusing on first. Specifically, you asked that we determine whether (1) Defense considered alternative approaches, such as use of an integrated bid, in its selection of an acquisition strategy and (2) the selected acquisition strategy will yield the best value to the government over DISN's life-cycle. Your office also requested that we determine what performance measures Defense managers are using or plan to use to objectively evaluate the outcomes and effectiveness of their DISN implementation efforts.

Results in Brief

Defense considered several options prior to selecting an acquisition strategy for DISN, including an approach that would have involved using a single comprehensive service provider to furnish an integrated set of services to the government and another one that involved separately acquiring component services with the government integrating those components itself. Defense considered the advantages and disadvantages of each option in terms of five factors: requirements, technology enhancement, schedule, management, and cost. After evaluating its options and receiving industry comments on its draft Request for Proposals (RFPs), Defense ultimately decided on an approach that calls for the Defense Information Systems Agency (DISA) to separately acquire and

integrate component services itself, using contracts awarded on a staggered schedule. Defense believes that this strategy will best meet national security needs at a reasonable cost.

In reviewing Defense's DISN efforts in 1995, we reported that Defense had yet to define the program's minimal acceptable requirements.¹ We also reported that Defense had not yet developed an estimate of what it would cost to acquire, operate, and sustain the DISN infrastructure. Without this information, Defense has no objective cost and performance baseline for measuring DISN's success. Further, without this baseline, we cannot determine whether the selected acquisition strategy will yield the best value to the government over the course of DISN's life cycle, which is estimated to be over 10 years.

Once this baseline is developed, Defense must also establish effective measures for tracking DISN's progress. At present, Defense is far from meeting federal requirements for establishing performance measures. By developing measures that focus on benefits, costs, and risks, Defense management can target problem areas, highlight successes, and ensure DISN meets its cost and performance goals.

Background

Defense has long operated multiple telecommunications systems to meet an array of mission needs, ranging from the command and control of military forces to its payroll and logistics support functions. Because military services and other Defense agencies independently procured and operated their own networks, Defense's communications environment has been fragmented and redundant. To improve the effectiveness and efficiencies of its military communications services, Defense began in 1991 to plan and implement DISN to serve as the Department's primary worldwide telecommunications and information transfer network to support national security and defense operations.

Defense's DISN strategy focuses on replacing its older data communications systems, using emerging technologies and cost-effective acquisition strategies that provide secure and interoperable voice, data, video, and imagery communications services in support of military operations. Under Defense's DISN concept, the military services and Defense agencies will still be responsible for acquiring telecommunications services for their local bases and installations, as well as deployed communications networks.

¹Defense Communications: Management Problems Jeopardize DISN Implementation (GAO/AIMD-95-136, July 13, 1995).

DISA will be responsible for acquiring the long-haul services that will interconnect these base-level and deployed networks within and between the continental United States, Europe, and the Pacific. DISA's current efforts focus on acquiring and implementing DISN CONUS services. For 10 years, Defense users obtained switched voice, data, video teleconferencing, and transmission services within the United States through the Defense Commercial Telecommunications Network (DCTN) contract with AT&T. The DCTN contract expired in February 1996. Since then, these services have been provided through a follow-on, sole-source DISN Transition Contract (DTC) with AT&T until Defense can fully implement its new DISN services. Defense estimates that DTC costs are approximately \$18.5 million per month.

In July 1995, we reported on Defense's efforts to plan and implement DISN.² At that time, we recommended that Defense ensure that DISN plans and program decisions were based on a validated statement of DISN's operational requirements. By defining the minimal acceptable requirements for DISN as well as the critical technical characteristics, the operational requirements document would provide the basis for determining DISN's effectiveness. We also recommended that Defense develop an estimate of the acquisition, operations, maintenance, and support costs for DISN over its life-cycle. While Defense concurred with these recommendations, it has not yet completed either action.

Nevertheless, given the expiration of its DCTN contract in February 1996, and its desire to limit the term of the sole-source DISN Transition Contract, DISA is proceeding with its DISN implementation efforts and has issued four RFPs supporting DISN's implementation:

- DISN Support Services - Global, to provide engineering, operations, network management, and other support services worldwide.
- DISN Switched/Bandwidth Manager Services - Continental United States (CONUS), to provide the capability to switch network traffic and provide bandwidth manager devices at designated service delivery points within the continental United States.
- DISN Transmission Services - CONUS, to provide access transmission services and transmission services connecting the bandwidth managers and switches provided under the switched/bandwidth manager contract, and to connect Defense installations with the DISN network.
- DISN Video Services - Global, to provide worldwide video teleconferencing through three video network hubs located in the continental United States.

²GAO/AIMD-95-136, July 13, 1995.

The timetable for receipt of proposals and contract awards is shown in table 1.

Table 1: Expected Dates for DISN Contract Proposals and Awards

Solicitation	Receive proposals	Award contract
Support services	November 1995	June 1996
Switched/bandwidth	January 1996	August 1996
Transmission	March 1996	January 1997
Video services	April 1996	February 1997

DISA awarded the support services contract to Boeing Information Services, Inc., in June 1996, and awarded the switched/bandwidth manager services contract to MCI Corporation in August 1996. The evaluation of these proposals and subsequent contract awards addressed four factors: cost, technical, management, and past performance. DISA plans to award the video services contract on the same basis. Because transmission is a basic commodity service, Defense advised that it intends to award the transmission services contract primarily on the basis of lowest price. Defense plans full implementation of its DISN system within the continental United States by July 1997.

The switched/bandwidth manager, transmission services, and video services acquisitions were subject to a bid protest in December 1995 by AT&T, which was adjudicated by the General Accounting Office (GAO). In this protest, AT&T argued that DISA arbitrarily refused to allow offerors to submit and have evaluated a single, comprehensive proposal, what AT&T termed an "integrated bid," as an alternative to submitting individual proposals under each RFP. GAO's decision, issued on May 1, 1996, upheld the legality of the acquisition strategy that DISA has followed.³

Objectives, Scope, and Methodology

To obtain information about Defense's acquisition strategy, and the steps taken by Defense in determining and selecting that strategy, we obtained and analyzed copies of the DISN solicitations from DISA staff in the Washington, D.C., area. We analyzed studies prepared by DISA staff during April and May 1995 that identified and evaluated DISN acquisition alternatives. We reviewed Defense's DISN architecture and were briefed on steps taken to develop the DISN design by engineering staff at DISA's Joint Interoperability and Engineering Organization, Center for Systems

³The Comptroller General (B-270841; B-270842; B-270843, May 1, 1996) denied AT&T's protests regarding the terms of requests for proposals issued for DISN.

Engineering, in Reston, Virginia. In addition, in conducting our review, we used supporting documentation from our bid protest decision.

To obtain information about the specific evaluation methods and factors used to select a DISN acquisition strategy, we interviewed several DISA officials including the DISN Program Manager and the DISN Contracting Officer in Arlington, Virginia. Our review was conducted from August 1996 through October 1996 in accordance with generally accepted government auditing standards.

Defense's Analysis of DISN Acquisition Alternatives

In developing its DISN acquisition approach, Defense considered several acquisition alternatives in April and May 1995 including one—using a single contractor to furnish a comprehensive set of services to the government—that is similar to the integrated approach that AT&T had advocated. Defense also evaluated the costs and benefits of separately acquiring component services with the government integrating those components itself, and other alternative approaches as well.

In reviewing Defense's analyses of alternatives, we found that Defense evaluated the advantages and disadvantages of each acquisition alternative in terms of relative cost and how it (1) met DISN requirements, (2) facilitated technology insertion and enhancement, (3) could be implemented within schedule constraints, and (4) supported Defense's control of the network.

DISA selected an acquisition strategy that divided the acquisition into four components with four separately awarded contracts. Under this plan, DISA, with the assistance of the support services contractor, would acquire, integrate, operate, and maintain the separate DISN components rather than employ a comprehensive service provider to integrate and operate DISN. Defense believed that breaking the program into functional components facilitated control over network interoperability, integration, surge capacity,⁴ technology insertion, and security. It also concluded that by breaking the program into pieces, more vendors could bid for contracts, thus increasing competition. Further, in Defense's view, multiple contracts with frequent options made it easier to negotiate technological upgrades, and created incentives for vendors to maintain high standards of performance. Finally, Defense believed that the strategy encouraged

⁴DISN documentation defines surge capacity as the amount of excess capacity required to serve DOD requirements during a crisis when there is traffic overflow.

vendors to offer their lowest prices on each separate contract instead of just offering prices that were averaged across the entire network.

After issuing solicitations to implement this strategy, Defense received comments from industry contending that vendors could offer significant economies if they could submit one comprehensive, or integrated, bid for all of the business offered under the switched/bandwidth manager, transmission, and video services RFPs. Defense responded with an approach which staggers contract awards such that a vendor who wins the switched/bandwidth manager contract can use any economies that might accrue to its advantage when bidding for the remaining contracts. According to DISA, this approach enables the government to reap the potential cost savings of an integrated bid while maintaining maximum flexibility for cost-effective technical enhancements and continuing competition over the life of the program.

Ability of DISN Acquisition Strategy To Yield Best Value

Defense believes that it has selected the acquisition strategy that will yield the best value to the government over the course of DISN's life cycle. However, Defense lacks the baseline information needed for us to ensure whether this is the case. We recommended in July 1995 that Defense ensure that the DISN approach was based on valid operational requirements and that it identify the additional life-cycle acquisition, maintenance, and support costs that would be incurred in developing and operating DISN. In making these recommendations, we concluded that without this important information, Defense would lack a starting point for ensuring that DISN facilities and services effectively and efficiently met their requirements. While Defense concurred with our recommendations, it has not fully implemented them. Given the current advanced state of the DISN acquisition and the need to replace the high-cost transition contract, we are not questioning the need to continue to move forward with DISN. However, Defense still needs this baseline information to gauge the performance of DISN as it is being implemented.

DISN program officials in DISA and staff from the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence have told us that DISN's requirements are known and documented because they are based on the requirements developed for Defense's current communications systems. However, we believe that the operational requirements in the existing systems are not valid for DISN because they do not consider several important factors.

First, with the growth of worldwide telecommunications networks such as the Internet, the information warfare threat to Defense, and thus the need for security requirements, has significantly increased in the past decade. For example, we recently reported that Defense may have experienced as many as 250,000 computer attacks last year and that Defense estimates that these attacks are successful 65 percent of the time. We also reported that the number of attacks is doubling each year, as Internet use increases along with the sophistication of computer attackers and their tools.⁵ Second, since the new strategy calls for diversifying contractors, integration risks are significantly higher than those accompanying the previous contract and system management is much more complex. Third, users now have greater expectations for network services as telecommunications technology has made significant strides in recent years. Taken together, these changes clearly demonstrate the need for Defense to document and validate with DISN users the operational requirements for the new strategy.

Defense Lacks Performance Measures Critical to DISN's Success

By better establishing its operational requirements and life cycle costs for DISN, Defense would lay the groundwork for assessing whether the system is meeting its cost and performance goals. The next step would be to develop effective measures for tracking DISN's progress against this baseline cost and performance information. Defense has not yet established any performance measures that would allow it to track whether DISN is meeting its objectives. Since Defense plans to begin implementing DISN CONUS in less than 8 months, the absence of these measures raises concerns that the Department will not be able to effectively manage DISN's implementation and operation.

Establishing good performance measures is not only critical because of the risks confronting the DISN program, it is central to the success of any significant information system undertaking. We have previously reported, for example, that successful organizations rely heavily upon performance measures to achieve mission goals and objectives, quantify problems, evaluate alternatives, allocate resources, track progress, and learn from mistakes.⁶ For service-oriented programs such as DISN, these may include such measures as the percent of mission improvements resulting from the new service in terms of cost, time, quality, and quantity; the percent of

⁵Information Security: Computer Attacks at Department of Defense Pose Increasing Risks (GAO/AIMD-96-84, May 22, 1996).

⁶Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology (GAO/AIMD-94-115, May 1994).

customers satisfied with certain telecommunications services; or the number of problems resolved within target times. Once the right measures are chosen, they help management target problem areas, highlight successes, and generally increase the rate of performance improvement through enhanced learning.

Further, several statutory requirements call for Defense to define cost, schedule, and performance goals for major defense acquisition programs and for each phase of the acquisition cycle of such programs. These include the Federal Acquisition Streamlining Act (FASA) of 1994 and the recently enacted Clinger-Cohen Act of 1996.⁷ The requirement to establish program cost estimates and performance measures of operational effectiveness are also embodied in Defense acquisition guidance.

At present, Defense is far from meeting any of these requirements. For example, even basic objectives, such as DISN's ability to provide its users with the needed quality and volume of communications services, have not been validated by users and lack evaluation criteria upon which to measure success. Without this type of information, Defense has no way of knowing whether it will be spending billions of dollars acquiring, operating, and maintaining DISN facilities and services that efficiently and effectively meet its needs.

Conclusions

Defense is striving to fully implement its DISN CONUS system by July 1997. However, it has yet to establish the basic cost and performance baseline information critical to laying the groundwork for assessing DISN's success. We continue to believe that Defense should expeditiously implement our previous recommendation to develop and document DISN operational requirements and to identify DISN life cycle costs.⁸ In addition, Defense has not established performance measures that would determine how the implementation of this multibillion dollar initiative measures up to its cost and operational goals. Establishing such measures now for DISN would markedly improve DOD's and the Congress' ability to manage and oversee implementation of this system by providing the basis for independent analysis and evaluation.

⁷Under Section 2220 of Title 10, United States Code, added by FASA, the Secretary of Defense is required to approve or define the cost, performance, and schedule goals for major defense acquisition programs and for each phase of the acquisition cycle. Section 5123 (3) of the Clinger-Cohen Act states that agency heads shall ensure that performance measurements are prescribed for information technology used by or to be acquired for an agency and that the performance measurements gauge how well the information technology supports agency programs.

⁸GAO/AIMD-95-136, July 13, 1995.

Recommendation

We recommend that the Secretary of Defense direct the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence to establish the objective measures needed to gauge DISN's success. At a minimum, these measures should include the concerns of DISN customers and should correspond to the five factors—requirements, technology enhancement, schedule, management, and cost—that DISA used to select its acquisition strategy.

Agency Comments and Our Evaluation

We obtained written comments on a draft of this report and have incorporated those comments where appropriate. These comments are presented in appendix I.

In commenting on the draft report, Defense concurred with our recommendation. We are encouraged that Defense intends to develop cost estimates and performance measures for major DISN components from this point forward. It is likewise important that Defense does so for the DISN-CONUS component currently being implemented. As stated in our report, these actions are critical in order for Defense to have an objective cost and performance baseline for measuring the success of this acquisition.

As agreed with your office, we will send copies of this report to the Ranking Minority Member of the Senate Committee on Governmental Affairs, Chairman and Ranking Minority Member of the House Committee on Government Reform and Oversight, other interested congressional committees, the Secretary of Defense, and the Director of the Office of Management and Budget. Copies will be sent to others upon request. Please contact me at (202) 512-6240 if you or your staff have any questions. Major contributors to this report are listed in appendix II.

Sincerely yours,



Jack L. Brock, Jr.
Director, Defense Information and
Financial Management Systems

Comments From the Department of Defense



COMMAND, CONTROL,
COMMUNICATIONS, AND
INTELLIGENCE

ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

November 20, 1996



Mr. Gene L. Dodaro
Assistant Comptroller General
Accounting and Information Management Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Dodaro:

This is the Department of Defense response to the General Accounting Office (GAO) draft report dated October 24, 1996, "DEFENSE COMMUNICATIONS: Performance Measures Needed to Ensure DISN Program Success" (GAO Code 511367/OSD Case 1244). Specific comments on the recommendations and further comments on the content of the report are provided as the enclosure.

The Department concurs with the need to develop performance measures for major acquisition components of the Defense Information Systems Network (DISN). We appreciate your interest in our efforts to improve Command, Control, Communications and Intelligence for the Warrior, as well as the concerns raised and comments expressed in the draft report.

DISN is an umbrella effort designed to efficiently provide the Department's warfighter with a global, integrated, interoperable telecommunications capability and service. DISN has been managed in an innovative manner based upon our desire to transition off expiring contracts and capitalize on the positive aspects of telecommunications reform. Additionally, Department validated requirements directed that the DISN satisfy pressing requirements to support joint operations, promote interoperability, and move quickly towards more efficient technology while reducing costs.

The DISN implementation strategy, with its modular structure and flexibility, accommodates change while it also provides a foundation of communications services. The strategy includes multiple procurements (or acquisitions) designed to incrementally improve the Department's global information transfer capabilities over time and within a constrained budget environment. It also provides the Department with the ability to keep pace with changing operational requirements and rapidly evolving communications technology capabilities. The Department finds this incremental approach to meeting the warfighters' needs to be the only logical strategy given the volatile nature of the telecommunications industry and the rapid pace of technological



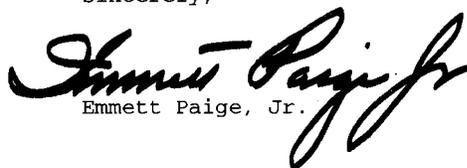
Appendix I
Comments From the Department of Defense

change. This approach is encouraged by the Information Technology Management Reform Act, as well as recommended in numerous GAO information technology reports and executive guides.

Since DISN is not a new start but an evolutionary change to an operational baseline, there is a documentation void as noted in the draft report. However, this void is being addressed and documentation is being developed and tailored to the incremental, evolutionary nature of the global DISN. At this juncture, the Department has validated and approved a DISN Mission Need Statement and a Joint Capstone Requirements Document, both of which drive the DISN implementation strategy.

I agree with the need for documentation and an analysis that supports the Department's investment in the DISN and I have requested that the Defense Information Systems Agency update the DISN strategic plan, currently contained in a draft program management plan. This document shall form the foundation for the entire DISN effort and will be used to identify and plan future DISN increments while ensuring integration among the projects. Major DISN projects will be supported by analysis and documentation appropriate to the nature and risk of that project or component. As the ASD(C3I) the DISN decision authority, I am tailoring my oversight of DISN to its evolutionary, incremental implementation strategy. I will be reviewing and assessing each increment or major component of DISN based on its contribution to the overall strategy and to the Department's missions. It is my goal to ensure that the DISN strategic plan provides the framework to evolve the Department's telecommunications capabilities in the future and, as these capabilities evolve, that the Department receives the best performance and value for its investment.

Sincerely,



Emmett Paige, Jr.

Enclosure

GENERAL ACCOUNTING OFFICE DRAFT REPORT
(GAO CODE: 511367) OSD CASE 1244

"PERFORMANCE MEASURES NEEDED TO ENSURE DISN PROGRAM SUCCESS"
DATED OCTOBER 1996

DOD RESPONSE TO GAO DRAFT RECOMMENDATIONS

RECOMMENDATION: The GAO recommended that "the Secretary of Defense direct the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) to establish the objective measures needed to gauge DISN's success. At a minimum, these measures should include the concerns of the DISN customers and should correspond to the five factors-- requirements, technology enhancement, schedule, management, and cost--that DISA used to select its acquisition strategy."

DoD RESPONSE: Concur. DISN is an incremental effort composed of multiple projects designed to evolve over time. The Department intends to develop performance measures for the major DISN component projects. As the network evolves, so will our ability to measure performance. We are in the process, like other federal agencies, of establishing guidance to meet the performance measurement requirements of the Information Technology Management Reform Act, which became effective August 8, 1996. It is our intent to ensure that information technology investments are supported by sound analysis and are linked to warfighter requirements--either by reducing cost or improving operational capabilities. From this point forward, performance measures will be developed for the major increments or components of DISN which will be aligned with the Department's strategic goals being developed under the Government Performance and Results Act. These measures will be used to track the progress and success of DISN's evolution.

Major Contributors to This Report

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