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Progress and Challenges for DOD's Advanced Distributed Learning Programs

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MILITARY TRANSFORMATION

Progress and Challenges for DOD's Advanced Distributed Learning Programs

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Highlights

Highlights of GAO-03-393, a report to Congressional Committees

Why GAO Did This Study

The Department of Defense (DOD) spends more than $17 billion annually for military schools that offer nearly 30,000 military training courses to almost 3 million military personnel and DOD civilians. DOD is transforming its forces, including the way it trains, to favor more rapid and responsive deployment. DOD's training transformation strategy emphasizes the use of advanced distributed learning (ADL) programs, such as Internet-based training, as critical to achieving its training and overarching transformation goals. ADL is instruction that does not require an instructor's presence; can use more than one media; and emphasizes the use of reusable content, networks, and learning management systems.

Because of ADL's importance to DOD's transformation efforts and pursuant to GAO's basic legislative responsibilities, we initiated this review to create a baseline document that describes the status of DOD's ADL programs. GAO reviewed these programs to determine (1) DOD's expectations for the programs; (2) the implementation status of those programs; and (3) major challenges affecting program implementation. GAO did not assess the programs' effectiveness at this time because most are in the early stages of implementation.

DOD reviewed a draft of this report and concurred with its contents.

www.gao.gov/cgi-bin/getrpt?GAO-03-393.

To view the full report, including the scope and methodology, click on the link above. For more information, contact Neal P. Curtin, at (757) 552-8100 or e-mail curtinn@gao.gov.

What GAO Found

DOD has set high expectations for ADL. They expect the programs to provide new learning opportunities and technologies across a wide range of training areas. Ultimately, a key benefit of ADL is expected to be improved readiness through reengineering of training and enhancing service members' skills.

DOD, the services, and Joint Staff are generally in the early stages of implementing their ADL programs and have made progress in several areas. OSD, with its three ADL co-laboratories; the services; and the Joint Staff chose an industry-wide ADL standard for content interoperability and collaboration across the services. They promoted experimentation with new technology and working with private industry. The services' programs generally focus on distribution infrastructure and service-specific content development. According to ADL program officials, OSD, the Joint Staff, and the services have achieved some ADL successes. For example, OSD, in collaboration with the co-laboratories, developed successful course content prototypes; and the Army's Battle Staff Noncommissioned Officer course resulted in annual savings while maintaining student performance. However, it is too early to fully assess the extent of each program's effectiveness.

DOD faces cultural, technological, policy and financial challenges that affect the ADL programs' ability to fully achieve the benefits of enhanced learning and performance and of improved readiness. Key challenges are summarized below.

Challenges Affecting DOD's ADL Programs

Challenge	Description
Cultural	• Organizational culture is resistant to change. • Senior leadership commitment varies: preference is for the more traditional schoolhouse-focused learning. • Service schoolhouses are reluctant to change since funding and infrastructure are closely tied to numbers of in-resident students.
Technological	• Bandwidth issues and unresolved network security concerns stifle utility. • The development, fielding of, and access to military skills-related content is more difficult and costly than anticipated.
Policy	• OSD is in the early stage of formulating policy that specifically addresses the use of ADL, consequently some of the military services' and 's training and education regulations are outdated and awaiting a definitive policy.
Financial	• Budget and funding issues for the long-term use of ADL are unresolved. • Allocated funds—around $431 million, less than 1.3 percent of its training budget for fiscal years 1999 through 2002—did not always meet requirements. • Projected program needs—$2.2 billion for fiscal years 2003 through 2007—is about $600 million more than currently programmed.

Source: DOD.

Note: GAO analysis of OSD, Joint Staff and service data.

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Abbreviations

ADL	Advanced Distributed Learning
AEC	Automated Electronic Classrooms
AETC	U.S. Air Force Air Education and Training Command
AFIADL	Air Force Institute for Advanced Distributed Learning
BA3	Budget Activity 3
CBT	Computer Based Training
CNET	U.S. Navy Chief of Naval Education and Training
C4I	Command, Control, Communications, Computers and Intellegence
DAU	Defense Acquisition University
DL	Distance Learning
DLRC	Deployable Learning Resource Centers
DOD	Department of Defense
DTF	Digital Training Facilities
DTTP	Distributive Training Technology Project

DUSD®	Deputy Under Secretary of Defense for Readiness
ECP	Extension Course Program
ETSC	Education and Training Steering Committee
IRR	Individual Ready Reserve
ITV	Interactive Television
JCLE	Joint Collaborative Learning Environment
JPME II	Joint Professional Military Education II
LMS	Learning Management System
MC	Marine Corps
MCDLP	Marien Corps Distance Learning Program
MOS	Military Occupational Specialty
NATO	North Atlantic Treaty Organization
NCO	Noncommissioned Officer
NIPRNET	Non-Classified Internet Protocol Router Network
NG	National Guard
NGB	National Guard Bureau
NMCI	Navy and Marine Corps Intranet
NSIAD	National Security and International Affairs Division
O&M	Operations and Maintenance
OSD	Office of the Secretary of Defense
PME	Professional Military Education
POM	Program Objective Memorandum
QDR	Quadrennial Defense Review
R,D,T&E	Research, Development, Test and Evaluation
SCORM	Sharable Content Object Reference Model
SIPRNET	Secret Internet Protocol Router Network
TADLP	The Army Distributed Learning Program
TFADLAT	Total force Advanced Distributed Learning Action Team
TRADOC	U.S. Army Training and Doctrine Command
VTC	Video Teleconference
VTT	Video Teletraining

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United States General Accounting Office
Washington, DC 20548

February 28, 2003

The Honorable John Ensign
Chairman
The Honorable Daniel K. Akaka
Ranking Minority Member
Subcommittee on Readiness and Management Support
Committee on Armed Services
United States Senate

The Honorable Joel Hefley
Chairman
The Honorable Solomon P. Ortiz
Ranking Minority Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

The Department of Defense (DOD) spends more than $17 billion[1] annually for military schools that offer nearly 30,000 military training courses to almost 3 million military personnel and DOD civilians, much of it to maintain readiness. [2] To better meet the diverse defense challenges of the future, DOD is transforming its forces, including its training, for a post-Cold War environment that favors more rapid deployment and responsiveness. DOD's Training Transformation Strategy[3] emphasizes the use of advanced distributed learning (ADL) programs such as Internet-based training, as critical to achieving the department's training and overarching transformation goals and to deliver the highest quality training cost-effectively anytime, anywhere, whether active duty, reserve, or civilian personnel. ADL is instruction that does not require an instructor's

[1]This amount includes the cost of conducting school training, including instructor's pay; classroom availability and operation; course development; and student's military pay, billeting cost, and temporary duty costs.

[2]Generally, formal military training and education occurs at centralized training facilities and lasts weeks or months.

[3]Office of the Under Secretary of Defense for Personnel and Readiness, *Strategic Plan for Transforming DOD Training*, March 1, 2002. In this plan the definition of "training" is expanded to include training, education, and job performance aiding. OSD's training transformation implementation plan should be completed by March 2003.

presence; can use more than one media; and emphasizes the use of reusable content, networks, and learning management systems.[4]

We initiated this review of DOD's ADL programs, pursuant to our basic legislative responsibilities, because of the importance DOD has placed on them as a key to achieving the department's transformation efforts. Specifically, we addressed the following questions: (1) What are DOD's expectations for the programs? (2) How is DOD managing ADL and what progress is being made in implementing the programs? (3) What major challenges are affecting the programs' implementation? We did not assess the effectiveness of the programs at this time because most are in the early stages of implementation; thus our objective was to provide a baseline document concerning the focus, status, and magnitude of DOD's ADL programs.

In late August and early September 2002, because of your continuing interest in the readiness and training of U.S. armed forces, we briefed your offices and those of Representatives John McHugh and Adam Smith on the results of our work. This report summarizes and updates the major observations provided at our briefings. (See briefing sections I through X.)

We conducted our review from February 2002 through August 2002 in accordance with generally accepted government auditing standards. Appendix I describes our scope and methodology.

Background

The increased rate of deployments in recent years of DOD's forces, which often involve rapid, unplanned movements to locations around the world, highlights the need for the services to provide training on demand to soldiers and units deployed worldwide. Accordingly, because of more demanding deployment criteria and other time-sensitive constraints, DOD recognized that yesterday's framework "right time, right place" learning, with its use of set times and places for training, may not meet future military requirements. It also recognizes that providing "anytime, anywhere" instruction is essential to maintaining military readiness in the information age, where future forces and their support activities need to be highly adaptive to meet threats effectively and rapidly.

[4]Reusable content includes, but is not limited to, courseware, tutorials, and case studies; networks are Intra- or Internet based; and learning management systems are operating systems that provide access to "content objects" and help register, track, and administer courses to a given student population.

In response to the DOD 1997 Quadrennial Defense Review,[5] the department developed a DOD-wide strategy to use learning and information technologies to modernize education and training. The initial effort in that development was the ADL Initiative. Its intent was to set forth a new framework to provide DOD personnel access to high quality education and training, tailored to individual needs and delivered cost-effectively, whenever and wherever it is required. DOD envisioned using the Internet and other virtual or private wide-area networks, distributed learning experts, learning management, and diverse support tools to ensure a "learner-centric" ADL system that delivers high quality training, education, and job performance aiding. DOD sees ADL programs as part of a continuum[6] of learning that encompasses many learning methodologies, as shown in table 1.

[5]William S. Cohen, Secretary of Defense, *Report of the Quadrennial Defense Review*, May 1997.

[6]A continuum is defined as a whole characterized as a collection, sequence, or progression of elements varying by minute degrees.

Table 1: Continuum of Learning Methods

Right time, right place		Anytime, anywhere
Classroom delivery method	**Distance/distributed learning delivery methods**	**Advanced distributed learning delivery methods**
•Instructor-led training	•Video tele-training •Embedded training •Computer conferencing •Interactive television •Electronic classrooms •Interactive multimedia •Computer-based training •Audio-graphics •Audiotapes/videotapes •Correspondence courses	•Integrated networked systems •Integrated platforms •Reusable learning objects •Widespread collaboration •Global knowledge databases •Intelligent tutoring systems •Performance aiding •Digital knowledge repositories •Internet-based instruction •Virtual libraries •Simulations •Virtual classrooms

Source: Defense Acquisition University.

Note: The data displayed in the table is based on data provided in the Defense Acquisition University's *Strategic Plan 2002-2009 Training Transformation* (T2), *The DAU Road Map for e-Learning and On-line Performance Support*.

In April 1999, DOD issued its ADL strategy[7] in response to the 1997 DOD Quadrennial Defense Review. The strategy also responded to (1) the directive in the National Defense Authorization Act for Fiscal Year 1999[8] for DOD to develop a strategic plan to guide and expand distributed learning initiatives and (2) Executive Order 13,111[9] that tasked DOD to provide guidance to Defense agencies and advise civilian agencies in developing and implementing collaborative distance learning standards. DOD's strategic plan defined ADL as a way to leverage the power of computer, information, and communication technologies through the use of common standards in order to provide learning that can be tailored to individual needs and delivered anytime, anywhere, in either training or education environments. It also includes establishing an interoperable "computer-managed instruction" environment to support the needs of developers, learners, instructors, administrators, managers, and family. An

[7]Office of the Under Secretary of Defense for Personnel and Readiness, *Report to the 106th Congress*, *Department of Defense Strategic Plan for Advanced Distributed Learning*, Apr. 30, 1999.

[8]Public Law 105-261, sec. 378, Oct. 17, 1998.

[9]Exec. Order 13,111, *Using Technology to Improve Training Opportunities for Federal Government Employees*, sec. 4 (c), Jan. 12, 1999.

ADL implementation plan followed in May 2000 to provide a federal framework. It described the department's approach to carrying out its strategic plan and provided an update on each of the services' and the Joint Staff's programs. [10] Since 1995, OSD, the services, and the Joint Staff have established ADL programs in concert with key executive, congressional, and departmental guidance discussed above. See appendix II for a timeline of key events.

OSD's March 2002 Training Transformation Strategy emphasizes the use of ADL programs as critical to achieving the department's training and overarching transformation goals and ensuring that training is readily available to both active and reserve military personnel, regardless of time and place. The training transformation strategy and soon to be released implementation plan are intended to reengineer training; enhance service members' skills; and provide capabilities-based training to support service, joint, interagency, intergovernmental, and multinational operations.

Summary

Officials from OSD, the services, and the Joint Staff have set high expectations for ADL. They expect the programs, which include the various delivery methods cited in table 1, to provide new learning opportunities and technologies and improved readiness. In terms of new learning opportunities and technologies, DOD expects

- increased accessibility to training for personnel,
- interoperability of instruction components in varied locations by different services,
- reusability in multiple applications,
- durability, despite changes in technology, and
- affordability.

[10]Office of the Deputy Under Secretary of Defense (Readiness), Director for Readiness and Training, *Department of Defense Implementation Plan for Advanced Distributed Learning*, May 19, 2000.

With regard to improved readiness, DOD expects ADL to improve readiness by

- supporting the training transformation initiative and the combatant commanders,
- enhancing training opportunities for joint assignments,
- enhancing training opportunities for reserve personnel,
- improving mission performance through anytime, anywhere, and just-in-time assignment-oriented and job performance enhancement training, and
- improving manning by reducing personnel's nonavailability and unit turbulence and reducing time for in-resident training with large return-on-investment for temporary duty costs, while increasing retention and quality-of-life enrichment. (See briefing section II.)

OSD, the services, and the Joint Staff are generally in the early stages of implementing their ADL programs and have made progress in several areas. OSD's Office of the Deputy Under Secretary of Defense for Readiness provides executive policy and programmatic oversight and guidance for the department's ADL implementation. That office also leads a collaborative effort to produce ADL policy, plans, and procedures for developing and implementing ADL technologies across the department. This collaboration involves the services, Joint Staff, other DOD components, the ADL collaborative laboratories (co-labs), the Coast Guard, and the Department of Labor. For example, OSD in collaboration with its partners, chose an industry-wide ADL standard for content interoperability to be used throughout DOD, which allows for collaboration of course content across the services. The standard, Sharable Content Object Reference Model (SCORM), is an evolving set of technical specifications designed to ensure the interoperability, accessibility, and reusability of on-line courseware. The Joint Staff and the services agree that future course content will be designed to conform to SCORM. OSD, with the National Guard Bureau (NGB) and the Department of Labor, established three ADL co-labs to experiment with new technology and leverage experience between private industry and military components. It also participates in an international partnership co-lab in Telford, England, to promote collaboration and global e-learning. The services' and Joint Staff's programs—individual programs designed by and tailored for the specific needs of each service or joint position—share a

similar vision of providing learner-centric (i.e., on demand, "anytime, anywhere") training and focus on, among other aspects, distribution infrastructure and service-specific content development. (See briefing section III.)

OSD, the Joint Staff, and the services note that they have achieved some ADL successes, such as the following:

- OSD—with the co-labs, military services, Joint Staff, and co-sponsors—developed successful content prototypes, including one joint professional military education course.[11]

- The Joint Staff's Joint Collaborative Learning Environment prototype established an initial joint personnel tracking and portal capability.

- The Army's Battle Staff Noncommissioned Officer course conversion to an ADL format resulted in a $2.9 million annual cost avoidance while maintaining student performance.

- The Navy—to promote interoperability, ease of access to DOD Internet sites, and reduce training time—established both .mil and .com access to ADL courses.

- The Marine Corps' distance learning application in terrorism awareness reduced training time from 11 hours to 6 hours and increased the average exam scores by 7 percentage points.

- The Air Force developed CD-ROM training for hazardous material incident response for DOD firefighters and law enforcement personnel that reportedly resulted in a significant increase of certified responders and a projected $16.6 million cost avoidance.

Additionally, the Defense Acquisition University's (DAU) ADL program is cited by DOD ADL program officials as a success and an example of "best practices." [12] According to university officials, since 1998 on-line

[11]Joint professional military education is a Joint Chief of Staff-approved body of objectives, policies, procedures, and standards supporting the educational requirements for joint officer development.

[12] Defense Acquisition University, the "corporate university" for DOD, provides the acquisition, technology, and logistics community with learning products and services. Its distance learning program currently provides 19 on-line courses.

instructional time increased from 15,750 hours to 1.4 million hours; graduates attending on-line training courses increased 38 percent; and the on-line program management curriculum reduced annual student training weeks from 36,120 to 10,000—a real savings of 300 annual work years or $17.4 million. The university's program was awarded the U.S. Distance Learning Association Award for Excellence in Government in 2001 and 2002 for the quality of its on-line offerings.

A number of cultural, technological, policy, and financial challenges affect OSD's, the services' and the Joint Staff's ability to execute programs that achieve the attainable benefits of enhanced learning and performance and improved readiness in concert with DOD's ADL vision and training transformation strategy. According to DOD officials, there is a strong interrelationship among the challenges and that a solution for one challenge may have an impact on the others.

Cultural

A major cultural barrier, according to DOD ADL program officials, is the varying level of commitment of senior military and civilian leadership in the military. The consensus view of the ADL program officials we contacted was that not all senior military and civilian leadership is committed to ADL, preferring the traditional, schoolhouse-focused approach to learning. Hesitance to embrace ADL is also explained as a function of less familiarity and comfort by senior officials with computers, advanced technologies, and emerging policies. Similarly, ADL program officials told us that the military services' schoolhouses are reluctant to change, in large part because their funding and infrastructure are tied so closely to the number of students actually trained on-site.

Technological

According to DOD officials, the services are all moving toward Web- or Internet-based access to course content in support of DOD's vision of "anytime, anywhere" delivery of training. The officials stated that much progress has been made to enable this type of access. However, according to OSD and service officials, bandwidth is generally insufficient to support interactive, multimedia learning content and simulations; and unresolved network security concerns stifle utility. For example, we recently reported

that the National Guard Bureau cannot ensure that GuardNet[13] will perform as intended or provide its users with reliable and secure services because the requirements, configuration, and security processes for managing the network are ineffective. [14] DOD ADL officials acknowledge the same issue exists throughout DOD. Perhaps more significantly, the development of, fielding of, and access[15] to military skills-related course content that could most positively impact readiness continue to be more difficult than anticipated, leading to higher costs and slower content availability than forecasted.

Policy

Some of DOD's training policies are obsolete; consequently, some of the military services' training regulations do not reflect the availability or use of new ADL technologies. [16] For example, according to DOD officials, DOD is in the early stage of formulating policy that specifically addresses the use of ADL. DOD officials believe that without an OSD-specific ADL policy, many of DOD's policies and guidance documents will require updating, so as to provide a requirement for the military service's in turn, to update their training and education regulations that address the use of ADL. Also, the Army's primary training regulation[17] has been awaiting

[13]National Guard Bureau's GuardNet, the NGB's wide-area network, was initially established to support Web-based distance learning for its units in the states, the U.S. territories, and the District of Columbia. GuardNet, a network of interconnected federal and state military networks across the United States, can connect to a defense network operated by the Defense Information Systems Agency, and through this network to the Internet. GuardNet has recently been used to support homeland security activities such as emergency command and control functions, airport security activities coordination, and public service announcements.

[14]U.S. General Accounting Office, *National Guard: Effective Management Processes Needed for Wide-Area Network*, GAO-02-959 (Washington, D.C.: Sept. 24, 2002).

[15]For this report, access refers to the availability and ability to access computer hardware, sufficient bandwidth to support multimedia, interactive course content, and/or available duty time to accomplish ADL.

[16]DOD policies and regulations include, but may not be limited to, Department of Defense Directive 1200.16, *Contracted Civilian-Acquired Training (CCAT) for Reserve Components*, May 30,1990; Department of Defense Directive 1322.18, *Military Training*, Jan. 9, 1987; Department of Defense Directive 1430.13, *Training Simulators and Devices*, Aug. 22, 1986; Department of Defense Directive 8320.1, *DOD Data Administration*, Sept. 26, 1991; Department of Defense Directive 8000.1, *Management of DOD Information Resources and Information Technology*, Feb. 27, 2002; and Department of Defense Instruction 5200.40, *DOD Information Technology Security Certification and Accreditation Process*, Dec. 30, 1997.

[17]Department of the Army, Army Regulation 350-1, *Army Training*, Aug. 1, 1983.

revision for 3 years, in part, due to a lack of consensus on integrating new technologies, including ADL, with traditional training approaches.

Financial

Funding and budgeting issues similar to those we reported for DOD's distance learning programs in 1997 remain unresolved.[18] Funding allocations of more than $431 million for fiscal years 1999 through 2002 (less than 1.3 percent of its training budget during that period) did not always meet program requirements, which were difficult to determine for a new program where standards were evolving and the technology changing rapidly. It is not likely that planned funding levels will meet future expected requirements. DOD program officials project that over $2.2 billion will be needed for ADL programs through fiscal year 2007 but currently have programmed about $1.6 billion—a more than $600 million funding gap. Furthermore, according to DOD program officials, in some cases, anticipated training savings attributable to ADL implementation were removed from the budget as savings before they were realized. According to service officials, some training facility commanders continue to be concerned that ADL will reduce their resources because of the decrease in the number of students receiving traditional schoolhouse training. Finally, the Joint Staff and the services are still considering how to budget for the long-term use of ADL. (See briefing section IV.)

Agency Comments

The Deputy Under Secretary of Defense (Readiness) provided written comments on a draft of this report, which are reprinted in their entirety in appendix III. In its comments, DOD concurred with the content of the report. DOD also provided technical comments to the draft, which we have incorporated as appropriate.

[18]U.S. General Accounting Office, *Distance Learning: Opportunities Exist for DOD to Capitalize on Services' Efforts*, GAO/NSIAD-98-63R (Washington, D.C.: Dec. 18, 1997). We reported that the resolution of funding and budgeting issues would benefit the services' distance learning initiatives. These issues are the (1) extent of investment that will be needed to convert selected courses and delivery infrastructures; (2) dollar savings that can be realized; (3) impact on the current training infrastructure, in terms of requirements for instructors, training developers, training equipment, course maintenance, and training facility operations; and (4) process for budgeting for long-term use of distance learning. Distance learning is structured training that can take place almost anywhere and anytime without the physical presence of an instructor and may use one or more media but, unlike ADL, does not emphasize the use of reusable objects, networks, and learning management systems.

We are sending copies of this report to Representatives John McHugh and Adam Smith and other congressional members as appropriate. We will also send copies to the Secretary of Defense; the Secretaries of the Army, the Navy, and the Air Force; and the Commandant of the Marine Corps. We will make copies available to others on request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov .

If you or your staff have any questions, please call me on (757) 552-8100 or Clifton Spruill, Assistant Director, on (202) 512-4531. Major contributors to this report were Claudia Dickey, Arnett Sanders, James Walker, M. Jane Hunt, Susan Woodward, and Scott Gannon.

Neal P. Curtin
Director, Defense Capabilities
and Management

Briefing Section I: Background on DOD's Advanced Distributed Learning Programs

Background

DOD's ADL Programs Requirements and Directives

- 1997 Quadrennial Defense Review (QDR) – Directed DOD-wide strategy to use learning and information technologies to modernize education and training.
- 1999 Defense Authorization Act – Directed DOD to develop a strategic plan to guide and expand distributed learning initiative.
- 1999 Executive Order 13,111 – Tasked DOD to lead federal agencies in developing collaborative standards.
- 2001 QDR – Recognized training transformation as key to achieving DOD-wide transformation goals.
- FY 2003-2007 Defense Planning Guidance – Directed OSD to develop a DOD-wide training transformation strategy to ensure distributed learning technologies are used to reengineer training and enhance service members' skills.

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Background

Table 2: Potential Students within DOD by Component

Active	Officer	Enlisted	Total
Army	76,067	401,138	477,205
Air Force	69,466	288,720	358,186
Navy	53,972	323,745	377,717
Marine Corps	18,393	154,348	172,741
Total Active			1,385,849
Reserves			
Army	41,908	171,961	213,869
Air Force	17,730	60,043	77,773
Navy	19,660	73,464	93,124
Marine Corps	4,026	37,441	41,467
Army National Guard	36,056	316,382	352,438
Air National Guard	13,790	98,123	111,913
Total Reserve			890,584
Civilians			
Army			228,987
Air Force			150,940
Navy/Marine Corps			181,972
OSD and other Defense Agencies			102,405
Total Civilians			664,304
Grand Total			**2,940,737**

Source: Washington Headquarters Service Directorate for Information Operations and Reports and Defense Manpower Data Center.

Notes: Data is as of Apr. 2002.

Reserve Component numbers include Selective Reserve Personnel, Individual Ready Reserve (IRR) and Standby Reserve personnel.

Briefing Section II: DOD's Expectations for Advanced Distributed Learning Programs

DOD's Expectations for ADL

ADL is Expected to Improve Learning and Readiness

- OSD expects ADL implementation to provide a continuum of life-long learning environment that includes
  - improved learning opportunities and new learning technologies and
  - improved readiness to support the combatant commanders.
- The services and Joint Staff expect their programs to provide similar learning opportunities and technology improvements but are more focused on improved performance and readiness.

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DOD's Expectations for ADL

ADL Has the Potential to Provide Improved Learning Opportunities and Learning Technologies

ADL has the potential to provide improved learning opportunities and technologies that may result in improved:

- Accessibility
  - Ability to access instruction from one remote location and deliver it to many other locations, and training and technology reach-back for deployed soldiers.
- Interoperability
  - Ability to use instruction components developed in one location in another location, or by more than one service.
- Reusability
  - Ability to design instruction components that can be incorporated into multiple applications.
- Durability
  - Ability to continue using instruction components without redesign or recoding when base technology changes.
- Affordability
  - Ability to reduce instruction time, number of students per course at a resident schoolhouse and, education infrastructure cost.

DOD's Expectations for ADL

ADL Applications Have the Potential to Improve Readiness

ADL has the potential to improve readiness by

- Supporting the training transformation initiative and combatant commanders.
- Enhancing training opportunities for joint assignments.
- Enhancing training opportunities for reserve personnel.
- Improving mission performance through anytime, anywhere and just-in-time assignment-oriented and job performance enhancement training.
- Improving manning by reducing personnel's non-availability and unit turbulence, time for in-resident training with large return-on-investment for temporary duty costs, while increasing retention and quality-of-life enrichment.

DOD's Expectations for ADL

ADL Is a Key to DOD-wide Training Transformation

- OSD's March 2002 training transformation strategy emphasizes ADL as a key to meeting DOD's training transformation vision and goals by
  - reengineering training and enhancing service members' skills, and
  - providing dynamic, capabilities-based training in support of national security requirements for service, joint, interagency, intergovernmental, and multinational operations.
- OSD's training transformation implementation plan is to be completed by March 2003.

Briefing Section III: Implementation Status of DOD's Advanced Distributed Learning Programs

Status of ADL Programs

OSD Provides ADL Program Policy, Oversight and Collaboration

The Deputy Under Secretary of Defense for Readiness (DUSD(R))

•Provides executive policy and programmatic oversight and guidance for the department's ADL implementation and

•Leads a collaborative effort with the services, Joint Staff, combatant commands, other DOD components, the ADL co-laboratories, the Coast Guard and Department of Labor to produce ADL policy, plans, and procedures for developing and implementing advanced distributed learning technologies across the department.

- Leads a multinational effort with international military programs such as the NATO Training Group.

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Status of ADL Programs

OSD's ADL Vision and Strategy Target "Anytime, Anywhere" Training

Vision

- To provide a federal framework for using distributed learning to provide the highest-quality education and training, tailored to individual needs, and delivered cost effectively anytime and anywhere.

Strategy

- Exploit existing network-based technologies.
- Create interoperable, reusable courseware and content.
- Promote widespread collaboration.
- Enhance human performance.
- Promote common specifications and standards.
- Provide incentives for organizational and cultural change.

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Status of ADL Programs

OSD Provides ADL Program Policy, Oversight and Collaboration

- Education and Training Steering Committee (ETSC)
  - Chaired by DUSD(R), provides executive policy and program oversight and guidance, to help ensure creation of "anytime, anywhere" learning environment, and membership is comprised of one general or flag officer from various joint offices, the military services, reserve components, other defense agencies, and the Coast Guard.
- Total Force Advanced Distributed Learning Action Team (TFADLAT)
  - Working group chaired by DUSD(R), Readiness and Training, Plans and Programs, advises and assists DOD on all aspects of ADL, and membership is comprised of action officer personnel from various joint offices, the military services, reserve components, other defense agencies, and the Coast Guard.
- Sharable Content Object Reference Model (SCORM)
  - Specifications adapted from multiple sources to provide a comprehensive suite of e-learning capabilities that enable interoperability, accessibility and reusability of web-based learning content, initiated in coordination with the ADL co-laboratories and industry as the standard—although still evolving–that DOD will use for producing reusable learning content.

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Status of ADL Programs

OSD Provides ADL Program Policy, Oversight and Collaboration

ADL Co-Labs

- Co-sponsored by OSD, the National Guard Bureau, and the Department of Labor, the co-labs were established to provide an open collaborative environment for sharing learning technology research, development, and assessments.
  - ADL Co-Lab—Located in Alexandria, Va., coordinates DOD, federal, academia, private-sector, and international research and development of ADL specifications, guidelines, policy, standards, and prototypes.
  - Joint Co-Lab—Located in Orlando, Fla. on site with the military services' training systems acquisition commands to support cooperative research; development; demonstrations; and assessments of ADL technologies, tools, prototypes, and guidelines.
  - Academic Co-Lab—Located at the University of Wisconsin in Madison, Wis., coordinates and leverages research and development across academia.
- Partnership Lab located in Telford, England, recently added to collaborative effort to promote global e-learning.

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Status of ADL Programs

Military Services' and Joint Staff's ADL Programs Generally Support DOD's Plan

The services' and Joint Staff's programs generally support DOD's ADL program and training vision of "anytime and anywhere" for improved readiness. (See table 3.)

- The services' and Joint Staff's programs in general have
  - very little service-specific or joint individual skill training content;
  - considerable technology access, although it is far in advance of course content development and conversion into electronic format; and
  - numerous "contractor-off-the-shelf" content and correspondence courses available.

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Status of ADL Programs

Table 3: Comparison of DOD, the Military Service and Joint Staff Programs

	Vision	Strategy	Implementation	Success	Challenges	Funding (Millions)	
						FY 99-02	POM FY 03-07
OSD	Framework for Anytime Anywhere	Network based technology Collaboration Common standards Reusable courseware	ETSC TFADLAT ADL Co-labs SCORM	SCORM ADL Co-labs Plugfests	Funding Metrics, Content Culture	$48	$70
Army	Individually Tailored Training Anytime Anywhere	Internet, CD, VTC Online Learning Management System Fielding Deployable Systems	Fielding Digital Training Facilities Redesigning Courseware for active, reserve, NGB	Battle Staff NCO Course UH-60 Repairer Transition Course	Funding Culture–school houses Technology-content	$285	$906
Navy	Quality Training to Right People Right Time Right Place	Enterprise Strategic System System Architecture Evaluating Prototypes	.mil and .com sites Deploy Learning Mgmt. System Course conversions	Interoperable C4I Content Medical Courseware	Funding--Not sufficient to run content Technology-accelerate content development	$27	$462
Marine Corps	World Class Training via MC learning network Where and when needed	Automated electronic classrooms Video TeleTraining Learning Resource Centers	Developing Deployable Learning Resource Centers Convert courseware for PME and MOS courses	Terrorism Awareness Basic Electronics Improve Efficiency & Effectiveness	Funding- mgmt. Technology-access Culture-schoolhouse	$58	$93
Air Force	Leverage Technology to provide the right training and education anytime, anywhere	Strategy and Implementation plans being developed Emphasize centralized vision direction and standardization	AFIADL as Executive agent Print based, interactive TV LMS operational for internet-based ADL	Civil Engineer Support Firefighter course	Funding not sufficient to field program Culture Technology	$13	$29
Joint Staff	Increase Joint Readiness Access to high quality joint opportunities	Develop and publish Joint ADL policy Develop content architecture and integration of systems	Developing ADL courses Develop linkages from combatant commanders to joint learning requirements	Joint ADL portal prototype Reserve officers complete JPME II	Culture-Joint vs. Service Regulatory-No directives Funding-Inadequate for implementation	$0	$0

Source: DOD.

Note: GAO analysis of OSD, Joint Staff, and military service data.

The Joint Staff reportedly added $650,000 per year to its fiscal years 2003 through 2007 POM after we completed our audit work.

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Status of ADL Programs

OSD and the Services Have Achieved ADL Program Successes - 1

- OSD

  According to ADL Program officials:

  - SCORM standard for producing interoperable courseware is working but still evolving, and all the services are willing to develop content that is SCORM compliant.
  - ADL co-labs have generated successful prototypes for OSD, the services, Joint Staff, and co-sponsors.
    - The Joint Staff's Joint Collaborative Learning Environment (JCLE) prototype established the initial joint personnel tracking and portal prototype capability.
  - OSD and co-lab sponsored "Plugfests" offer a venue where all ADL partners could test and synchronize content authoring tools, learning management systems, and web-based course content to SCORM.

- Joint Staff

  According to Joint Staff officials:

  - ADL portal prototype established.
  - Joint Operations course developed, delivered and evaluated.
  - Through U.S. Joint Forces Command developed web-based joint training to prepare for Joint Task Force Headquarters Staff and Combatant Commander Battle Staff exercises.

Status of ADL Programs

OSD and the Services Have Achieved ADL Program Successes - 2

- Services
  - Army

    According to Army ADL officials, Battle Staff Noncommissioned Officer (NCO) course, a two-phased training approach–asynchronous ADL instruction at soldiers' location and residence; training or ADL via Video Tele Training (VTT) at remote locations—resulted in a $2.9 million annual cost avoidance and soldiers perform equal to resident course.
  - Navy

    According to Navy ADL officials, E-learning courses, now available on .mil and .com, promote interoperability, efficient distribution, and reduced training time.

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Status of ADL Programs

OSD and the Services Have Achieved ADL Program Successes - 3

- Services
  - Marine Corps

    According to Marine Corps ADL officials, DL application in Terrorism Awareness course reduced training time from 11 to 6 hours and increased average exam scores from 85 to 92 percent.
  - Air Force

    According to Air Force ADL officials, a CD-ROM based hazardous material incident response training course for DOD firefighters and law enforcement personnel, resulted in a significant increase of certified responders, and a projected $16.6 million cost avoidance.

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Status of ADL Programs

OSD and the Services Have Achieved ADL Program Successes - 4

- Other DOD
  - Defense Acquisition University (DAU)
    - ADL program is cited as a success and an example of "best practices." Awarded the U.S. Distance Learning Association Award for Excellence in Government (2001 and 2002) for quality of its 19 on-line offerings.
    - According to DAU ADL officials:
      - On-line program management curriculum reduced annual student training weeks from 36,120 to 10,000—a real savings of 300 annual work years or $17.4 million.
      - Since 1998:
        - graduates attending on-line training courses increased 38 percent;
        - on-line instructional time increased from 15,750 to 1.4 million hours resulting in a 48% increase in student throughput, 40 percent decrease in student travel costs, and 24 percent decrease in faculty and staff.

Briefing Section IV: Major Challenges Affecting DOD's Advanced Distributed Learning Programs

ADL Program Challenges

Challenges Affect OSD's, the Services', and Joint Staff's ADL Execution

Various cultural, technological, policy, and financial challenges affect OSD's, the services', and the Joint Staff's ability to execute programs that fully achieve their ADL vision and training transformation strategies.

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ADL Program Challenges

Cultural Challenges

According to DOD ADL officials, top down commitment varies, and focus of traditional schoolhouse learning culture is difficult to overcome.

- Top military and civilian management commitment is not always apparent in all the services; unit commanders and civilian managers resist allowing daily ADL training time; and reserve components have not always provided ADL training time during normal training periods or additional periods in a paid status.
- Schoolhouses are most resistant to change because their current infrastructure—funding, faculty, and facilities—is closely tied to student throughput.
- Lack of widespread computer literacy among older military and civilian decision makers is a barrier to implementing ADL.

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ADL Program Challenges

Technological Challenges

Existing course content and technology does not always support "anytime, anywhere" delivery.

- Bandwidth is often insufficient to support desired use of multi-media interactive courseware, especially for deployed soldiers.
- Emphasis on securing networks may impede learner's ability to access education and training anytime, anywhere.
- ADL standards and specifications are still evolving and it is difficult for programs to keep pace.
- Good military occupational skill related learning content is crucial to program success but currently there is little available because content is more complicated to develop than expected.

ADL Program Challenges

Policy Challenges

DOD is in the early stages of formulating policy that specifically addresses the use of ADL. DOD ADL program officials stated:

- Some of DOD's training policies are obsolete and consequently some of the military services' training regulations do not reflect the availability or use of new ADL technologies.
- Without specific OSD policy or guidance, the services do not have a requirement to change or update their regulations to reflect the availability of or use of new ADL technologies.
- Changes occur at a very slow pace.

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ADL Program Challenges

Financial Challenges - 1

OSD, the Joint Staff and the services allocated more than $431 million–only about 1.3% of the total training budget–to implement ADL programs during fiscal years 1999 through 2002. (See table 4.)

- Funds allocated did not always meet program needs (content development and delivery infrastructure), although allocations at times equaled or exceeded funding requests. (See table 5.)
  - Program and consequently funding requirements are difficult to determine for a new advanced technology program where standards are evolving and the technology changes rapidly.
  - Prior to fiscal year 2003 the Joint Staff and the services had no single accounting code to account for the total amount of funding spent to develop and implement ADL projects and programs.
- Allocated funding mix did not always work well for a new program.
  - O&M funding—available for obligation for only 1 year—is difficult to manage, especially for courseware development which often exceeds 18 months and costs more than anticipated.
  - Procurement funding–allocations did not always meet needs because of significant up-front investment for facilities and equipment required to realize long-term return on investment.

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ADL Program Challenges

Table 4: Training and ADL Allocations By Component for Fiscal Years 1999 through 2002 (in Millions)

Component	FY 99 Allocation	FY 00 Allocation	FY 01 Allocation	FY 02 Allocation	FY 99-02 Total
Total DoD					
Total Training	$7,532	$7,973	$8,868	$9,361	$33,734
ADL	$88	$94	$116	$133	$431
ADL Percent of Total Training	1.17%	1.18%	1.31%	1.42%	1.28%
Army					
Total Training	$3,239	$3,394	$3,762	$4,047	$14,442
ADL	$60	$58	$75	$92	$285
ADL Percent of Total Training	1.85%	1.71%	1.99%	2.27%	1.97%
Navy					
Total Training	$1,789	$1,862	$2,064	$2,135	$7,850
ADL	$6	$4	$7	$10	$27
ADL Percent of Total Training	0.34%	0.21%	0.34%	0.47%	0.34%
Marine Corps					
Total Training	$433	$450	$478	$478	$1,839
ADL	$10	$14	$16	$18	$58
ADL Percent of Total Training	2.31%	3.11%	3.35%	3.77%	3.15%
Air Force					
Total Training	$1,870	$2,033	$2,304	$2,439	$8,646
ADL	$2	$4	$4	$3	$13
ADL Percent of Total Training	0.11%	0.20%	0.17%	0.12%	0.15%
OSD and Joint Staff					
Total Training	$201	$234	$260	$262	$957
ADL	$10	$14	$14	$10	$48
ADL Percent of Total Training	4.98%	5.98%	5.38%	3.82%	5.02%

Source: DOD.

Notes: GAO analysis of OSD, Joint Staff and the military service budgetary data.

Total Training amount includes all component O&M training funding allocated as reported in the DOD budget for Budget Activity 3 (BA3) for the indicated fiscal years. Budget Activity 3 funds all training and recruiting programs.

Reserve component funding is included within the active duty component totals.

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ADL Program Challenges

Table 5: ADL Funding History by DoD Components

Component	Category of Funding	FY 99 Budget Request	FY 99 Allocation	FY 99 % Difference	FY 2000 Budget Request	FY 2000 Allocation	FY 2000 % Difference	FY 2001 Budget Request	FY 2001 Allocation	FY 2001 % Difference	FY 2002 Budget Request	FY 2002 Allocation	FY 2002 % Difference	Total FY 99-02 Budget Request	Total FY 99-02 Allocation	Total FY 99-02 % Difference
DoD																
Grand Total		$79.1	$88.6	112.01%	$78.4	$93.3	119.01%	$92.0	$115.0	125.00%	$138.0	$133.1	96.45%	$387.5	$430.0	110.97%
Army																
	O&M	$41.8	$42.2	100.96%	$51.4	$46.2	89.88%	$46.2	$44.3	95.89%	$92.2	$64.7	70.17%	$231.6	$197.4	85.23%
	Procurement	$30.4	$17.7	58.22%	$17.8	$11.6	65.17%	$28.0	$24.6	87.86%	$28.1	$25.1	89.32%	$104.3	$79.0	75.74%
	R,D,T&E	$0.0	$0.0		$0.0	$0.0		$4.9	$5.8	118.37%	$2.2	$2.1	95.45%	$7.1	$7.9	111.27%
Subtotal		$72.2	$59.9	82.96%	$69.2	$57.8	83.53%	$79.1	$74.7	94.44%	$122.5	$91.9	75.02%	$343.0	$284.3	82.89%
Navy																
	O&M	$6.9	$6.3	91.30%	$9.2	$4.1	44.57%	$12.9	$7.3	56.59%	$13.0	$10.3	79.23%	$42.0	$28.0	66.67%
Subtotal		$6.9	$6.3	91.30%	$9.2	$4.1	44.57%	$12.9	$7.3	56.59%	$13.0	$10.3	79.23%	$42.0	$28.0	66.67%
Marine Corps																
	O&M	$0.0	$10.3	0.00%	$0.0	$7.9	0.00%	$0.0	$9.1	0.00%	$0.0	$11.9	0.00%	$0.0	$39.2	0.00%
	Procurement	$0.0	$0.0		$0.0	$6.5	0.00%	$0.0	$6.9	0.00%	$0.0	$6.5	0.00%	$0.0	$19.9	0.00%
Subtotal		$0.0	$10.3	0.00%	$0.0	$14.4	0.00%	$0.0	$16.0	0.00%	$0.0	$18.4	0.00%	$0.0	$59.1	0.00%
Air Force																
	O&M	$0.0	$2.1	0.00%	$0.0	$3.4	0.00%	$0.0	$3.5	0.00%	$2.5	$2.5	100.00%	$2.5	$11.5	460.00%
	Procurement	$0.0	$0.0		$0.0	$0.1	0.00%	$0.0	$0.0		$0.0	$0.0		$0.0	$0.1	0.00%
Subtotal		$0.0	$2.1	0.00%	$0.0	$3.5	0.00%	$0.0	$3.5	0.00%	$2.5	$2.5	100.00%	$2.5	$11.6	464.00%
OSD & Joint Staff																
	R,D,T&E	$0.0	$10.0	0.00%	$0.0	$13.5	0.00%	$0.0	$13.5	0.00%	$0.0	$10.0	0.00%	$0.0	$47.0	0.00%
Subtotal		$0.0	$10.0	0.00%	$0.0	$13.5	0.00%	$0.0	$13.5	0.00%	$0.0	$10.0	0.00%	$0.0	$47.0	0.00%

Source: DOD.

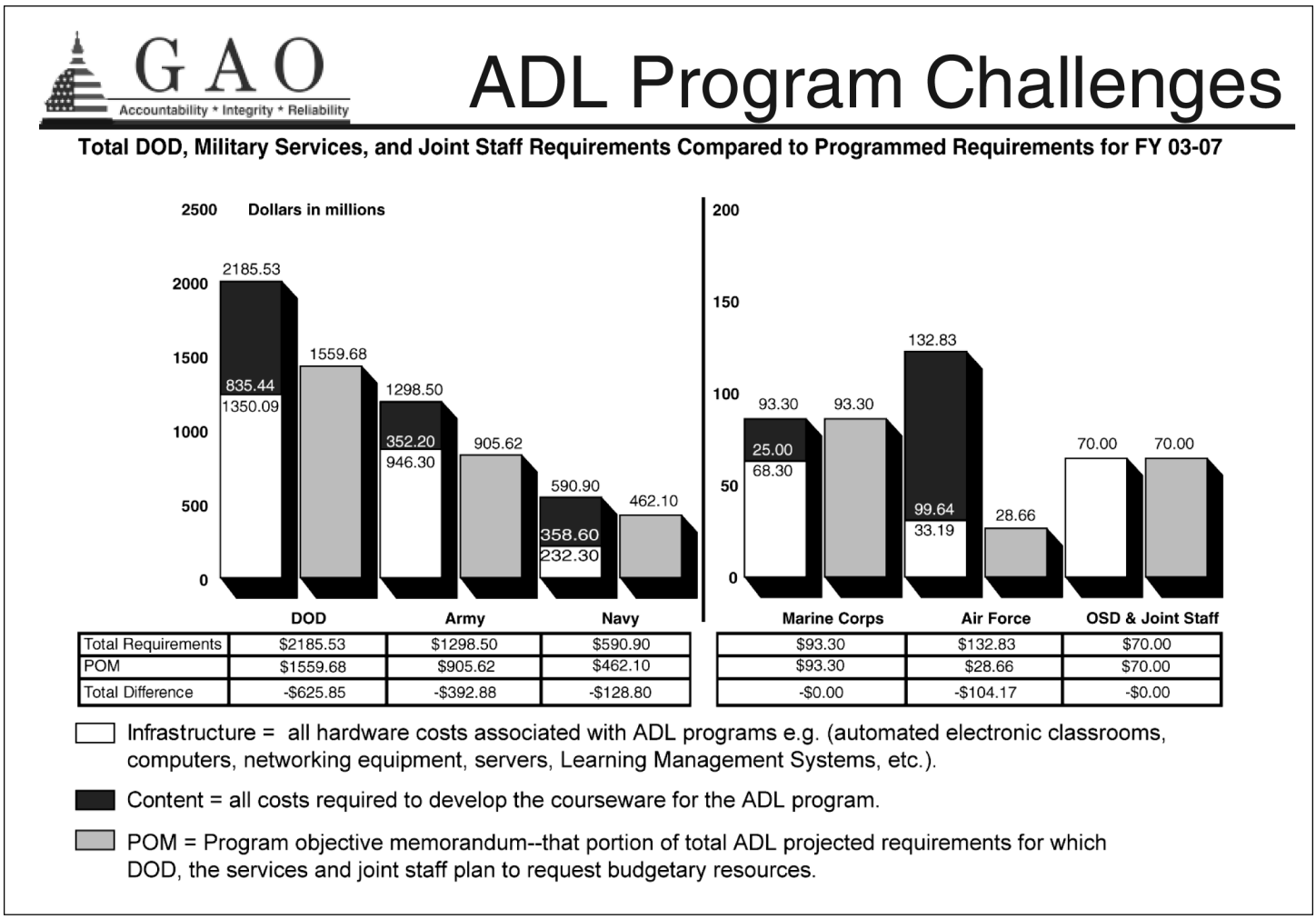
Notes: GAO's analysis of OSD, Joint Staff, and military service budgetary data.

Reserve component funding amounts were included with the active component funding data.

ADL Program Challenges

Financial Challenges - 2

- Future funding levels may not meet future program requirements. (See figure 1.)
  - OSD, the Joint Staff and the services project they will need more than $2.2 billion to implement ADL programs for fiscal years 2003 through 2007, but have planned to budget for only about $1.6 billion–$626 million less than projected requirements.
  - The Joint Staffs' program is dependent upon the combatant commanders for funding.
- Anticipated return on investment savings have been taken from the programs before they were realized.
- Services are still trying to determine how to budget for long-term ADL use (currently budgets are still based on student throughput).



	DOD	Army	Navy	Marine Corps	Air Force	OSD & Joint Staff
Total Requirements	$2185.53	$1298.50	$590.90	$93.30	$132.83	$70.00
POM	$1559.68	$905.62	$462.10	$93.30	$28.66	$70.00
Total Difference	-$625.85	-$392.88	-$128.80	-$0.00	-$104.17	-$0.00

Source: DOD.

Notes: GAO analysis of OSD, military service, and Joint Staff budgetary data.

The DOD bars reflect the total requirements of the services, OSD and Joint Staff.

Total requirements include both infrastructure and content requirements.

Joint Staff requirements are included in the "OSD and Joint Staff" total because Joint Staff receives, funding for ADL projects from the funds allocated to OSD for ADL projects. The Joint Staff, along with the military services, competes for funds allocated to OSD for ADL prototypes projects.

Briefing Section V: Conclusions

Conclusions

- The need to transform training within DOD has been demonstrated over time by its difficulties in sustaining unit and individual readiness. The scope of OSD's, the services' and Joint Staff's ADL programs demonstrates the extent to which they see ADL as a means to save money.
- ADL appears to offer opportunities for substantial learning and performance enhancements, anytime and anywhere. Enhanced learning, performance and readiness opportunities may outweigh simple return-on-investment calculations. Developing good, relevant and military occupational skills-related content that improves both learning and readiness is crucial to ADL program implementation success.
- Existing cultural, technological, policy, and financial challenges, create implementation barriers for DOD leadership to address before it can fully reap what appear to be achievable benefits of enhanced learning and performance and improved readiness.

Briefing Section VI: Army's Advanced Distributed Learning Programs

Army's ADL Plan

The Army Distributed Learning Program (TADLP)

Vision

"Deliver high quality, individually tailored, and cost effective training and education to soldiers and leaders anywhere, anytime through an integrated network of technological capabilities and processes."

Strategy

- Initiated in April 1996, acquisition program coordinated with U.S. Army Training and Doctrine Command (TRADOC).
- Provide improved access, reach back capability and lifelong learning.
- Complete implementation by FY 2010.
  - Fielding digital and deployable digital training facilities throughout the world to ultimately provide 95% force coverage.
  - Redesigning standardized Army courses for various DL delivery via the Internet, CD-ROM, and VTC when needed.
  - Implementing an on-line learning management system to track students through their courses.

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Army's ADL Plan

Implementation

TADLP covers Active, National Guard, and Reserve components

- Digital Training Facilities (DTFs)
  - Goal – 850 DTFs to cover 95% of the force
  - Completed – 522; 207 Army DTFs and 315 DTTP DTFs
- Courseware Development
  - Goal – 525 courses at 47 per year by FY 2010, for Active Component, Reserve Component and civilians
  - Completed – 63; 43 courses developed through TRADOC, 20 courses through National Guard completed.

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Army's ADL Plan

Army National Guard Bureau (NGB) Distributive Training Technology Project (DTTP)

Vision

- "Anywhere, anytime" distance learning for improved readiness.
- Command and control.
- Shared use with local communities.

Strategy

- Initiated in 1995, DTTP network established with Congressional plus-up funding.
- Complete implementation by FY 2010, coordinating with TRADOC in fielding facilities and designing courseware.

Army's ADL Plan

Other Army Distance Learning (DL) Programs

- Army University Access On-line (eArmyU)
  - Provided computers and Internet access to registered soldiers to take on-line courses at no-cost.
- Army Correspondence Course Program
  - Self development training – 300 courses and 1,800 subcourses available.
- Army War College – Department of Distance Education
  - Two year program of ten correspondence courses and two resident courses.
- Computer Based Training and "Smartforce" Courses
  - Information technology, business, and interpersonal skills training – 1,500 courses.

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Army's ADL Plan

Program Successes

- Battle Staff NCO Course – Army
  - Combines asynchronous instruction at soldiers' location with resident schoolhouse training or DL via VTT at remote locations.
  - Based on an Army Research Institute study, soldiers' performance was equal to resident course based on performance assessment.
  - Cost $759 thousand to develop; annual cost avoidance of $2.9 million.
- UH-60 Helicopter Repairer Transition – Army NGB
  - 7-week resident course converted to 1-weekend training period for 5 months and a 2-week training period using VTC.
  - Additional 52 new mechanics qualified over concurrent resident training; improved state's combat readiness posture.

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Army's ADL Plan

Challenges

Cultural
- Acceptance tied to age of user and computer literacy.
- Schoolhouses most reluctant to change.
- Top-down commitment.

Technological
- Courseware developed and fielded slower than desired.
- Good military occupational skill related content is important to program success but there is little available because it is more complicated to develop than expected.
- Contracting difficulties.

Regulations
- Do not incorporate ADL and have changed at a very slow pace.

Financial
- Early harvesting of anticipated savings before realized.
- Lack of current funding to meet requirements.

Briefing Section VII: Navy's Advanced Distributed Learning Programs

Navy's ADL Plan

Vision

"To deliver quality education and training—to the right people, at the right time, and at the right place—as part of a career long training continuum supporting Navy operational readiness and personal excellence."

Strategy

- Developed in December 1998, serves all active duty, reserve, and Department of the Navy civilian employees.
- Five Phase implementation plan.
  - I Develop Enterprise Strategic Plan.
  - II Refine Enterprise Strategic Plan.
  - III Design and develop system architecture.
  - IV Evaluate prototype.
  - V Incorporate enhancements prior to fielding.

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Navy's ADL Plan

Implementation

- Program fielded in May 2001 with .com and .mil websites; classified site expected in early fiscal year 2003.
- Working to expand course content, deploy the learning management system (LMS) regionally, and provide similar accessibility to afloat community.
- Course conversion concentrated on Navy–specific courses.

Courses

- Currently offered:
  - 50 Navy–specific courses,
  - 800 NetG technical courses,
  - 580 Skillsoft business and management courses.
- Course conversion and LMS implementation have been slow, but progressing in a phased approach.
- Chief Naval Education and Training (CNET) projected 25 new Navy courses per year. 50 have been completed since May 2001.

Navy's ADL Plan

Program Successes

Navy E-Learning Courses

- C4I Content for Cryptologic Technicians.
  - Using the same schoolhouse curricula, produced to shorten the time taken for facilitator stand-up training.
  - Interoperable between a number of ratings and skill sets.
- Differentiation between Chemical, Biological, and Radiological Casualties (Navy Medical).
  - Presented through Navy E-Learning because CD distribution and/or resident training was inefficient.
  - High importance to the Naval Surgeon General.

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Navy's ADL Plan

Challenges

Technological

- Course conversion and LMS implementation have kept pace with execution year funding–need to accelerate.
- Small ship communications infrastructure upgrades, to permit NIPRNET and SIPRNET access.
- Bandwidth limitations for deployed units.

Financial

- Funding gap for course development funding.
- Need additional funding for classroom hardware to run content—Navy and Marine Corps Intranet (NMCI) hardware is inadequate to execute all web based training course content.
- Anticipated return-on-investment savings are notably less than anticipated life cycle costs.
    - Significant up-front costs are required to achieve life-cycle costs.

Briefing Section VIII: Marine Corps' Advanced Distributed Learning Programs

Marine Corps' ADL Plan

Vision

"Deliver world-class training and education … enabling Marines (active, reserve, and civilians) to learn via the appropriate media, when and where learning is most needed. The learning experience will be part of a Marine's career-long learning continuum that supports the operational readiness of the Total Force..."

Strategy

Initiated in fiscal year 1997, establish a network of Automated Electronic Classrooms (AEC), Video TeleTraining, Learning Resources Centers, and Deployable Learning Resources Centers that utilize ADL technology to provide the total force with training wherever and whenever they require it.

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Marine Corps' ADL Plan

Implementation

- Program delivers anytime, anywhere training and education with emphasis on right time, right place with appropriate media.
- .com connection not yet implemented to facilitate at home training–but scheduled for implementation by December 2003.
- Developing Deployable Learning Resource Centers (DLRC) for deployed Marines, compatible with Navy Shipboard Network.
- Developing web compatible course content in absence of an evolving SCORM standard–will have to retool some courses once SCORM is more robust to ensure durability.

Courses

- Focused on Professional Military Education (PME) and military occupational specialty (MOS) courses or traditional classroom training.
- 800 courses currently available;
  - 25 Marine Corps-specific courses are available now,
  - Remaining courses are Commercial IT (Smartforce) and Skillsoft business/management courses.
- 32 Marine Corps-specific courses will be available soon.
- Minimal or no impact on entry-level and unit-level training.

Marine Corps' ADL Plan

Program Successes

- Terrorism Awareness Course – updated from paper-based to interactive multimedia instruction.
  - Improved Efficiency – Time to complete course reduced from 11 hours to 6 hours.
  - Improved Effectiveness – Average exam score increased from 85% to 92%.
- Basic Electronic Theory and Labs – updated with multimedia software and appended training devices
  - Improved Efficiency – Course length reduced from 55 days to 40 days.
  - Improved Effectiveness – Failure/recycle rates reduced from 46% to 6%.

Marine Corps' ADL Plan

Challenges

Cultural

- Resistance to change compounded by lack of personal experience with DL technology.
- Success of DL tied to developing incentives for completing DL courses to ensure utilization.
- Schoolhouse culture most reluctant to change.

Technological

- NMCI computer purchase moratorium delaying Automated Electronic Classrooms deployment.
- Strict Marine Corps firewall policies may limit access.
- Course conversion process can take longer than expected.

Financial

- O&M funding for ADL is difficult to manage because it is available for obligation only 1 year–lead time for course conversion can exceed 18 months.
- Program requires significant up-front procurement costs to realize long-term return on investment.

Briefing Section IX: Air Force's Advanced Distributed Learning Programs

Air Force's ADL Plan

Vision

- Leverage technology to provide the right training and education anytime, anywhere.
- Envisions enterprise-wide ADL applications that improve readiness, provide efficient delivery, and support the Air and Space Expeditionary Force and force development construct.

Strategy

- Program intended to serve all active duty, air reserve component, and Air Force civilian employees and support Air Force goals for its force management and force development construct.
- Air Force strategic plan and proposed implementation plan will result in centralized vision and direction, and standardization of ADL roles and responsibilities.

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Air Force's ADL Plan

Implementation

- Air Force Institute for Advanced Distributed Learning (AFIADL), initiated in February 2000, is focal point for ADL activities, including print-based and interactive television activities; print-based distance learning activities performed since 1950 and interactive television activities since 1991.
- There is no centrally funded Air Force ADL system, learning management system is operational for Internet-based ADL, and enterprise-wide implementation depends on course content standards and technology infrastructure development.

Courses

- Air Education and Training Command (AETC)–105 courses
- Extension Course Program (ECP)–439 courses.
- Air Technology Network (ITV)–3,500 hours.
- Computer Based Training (CBT)–over 1,400 courses.
- In fiscal year 1998, AETC contracted evaluation of its technical training and Air University Courses for DL conversion: Analyzed 1,154 courses and identified 128 for conversion; approved 74 courses for conversion, or technology insertion in fiscal years 2000 through 2007; converted 13 technical training courses and 20 Air University courses.

Air Force's ADL Plan

Program Successes

Air Force Civil Engineer Support Agency

- Needed to train and certify a large number of emergency responders in hazardous material training. Training capability was 1,500 students per year, available only at the Air Force Firefighting School in the basic firefighter course.
- Developed series of CD-ROMs at cost of $1 million. Projected cost avoidance of $16.6 million (compared to pursuing continued contract training).
- Trained DOD firefighters, law enforcement and security police, with about 60,000 certificates awarded since August 1994.
- Utilized a cooperative agreement that allows the product to be packaged and sold to the commercial sector, generating 8-9 % profits for the Air Force.

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Air Force's ADL Plan

Challenges

Cultural

- Overcoming existing learning culture is difficult.

Technological

- Current technical infrastructure and bandwidth need to be evaluated to determine future ADL needs.
- Many existing ADL applications are "just-in-time" and need to be standardized.
- Course conversion process slow.

Financial

- Funding has not always met program vision.

Briefing Section X: Joint Staff's Advanced Distributed Learning Programs

Joint Staff's ADL Plan

Vision

To increase joint readiness by providing access to the highest quality joint training opportunities through the exploitation of advanced distributed learning, learning enablers and resident instruction.

Strategy

- Establish an information system that effectively supports Distributed Learning anytime, anywhere through the appropriate exploitation of information technology across all joint areas (e.g. training, personnel, doctrine, standard operating procedures, campaign planning, operational art, lessons learned, etc.).
- Effort began in fiscal year 1999; prototype site initiated in fiscal year 2001.

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Joint Staff's ADL Plan

Implementation

- Develop and Publish Joint ADL policy.
- Advance the Joint Advanced Distributed Learning Portal and integrate DOD, Joint, and Service ADL systems.
- Coordinate transformation of joint courseware; currently there are no ADL courses.
- Develop Joint core curriculum.

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Joint Staff's ADL Plan

Program Successes

According to Joint Staff officials:

- Prototype Portal established.
- Beta test of the FY 01 Joint Operations course allowed Reserve Component Officers to complete a portion of the JPME II education requirement through ADL utilizing the Internet.
- Through U.S. Joint Forces Command developed web-based joint training to prepare for Joint Task Force Headquarters Staff and Combatant Commander Battle Staff exercises.
- Established the first Joint Staff ADL program element code and included program requirements in the fiscal years 2003 through 2007 program objective memorandum (POM).

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Joint Staff's ADL Plan

Challenges

Cultural

- Services' unit commanders need trained and ready joint staff officers upon arrival.
- Course material and lessons plans are not shared.

Policy

- OSD policy that specifically addresses the use of ADL is in an early formulation stage.
- Without specific OSD policy or guidance, the Joint Staff and services:
  - have no requirement to change or update their regulations to reflect the availability of or use of new ADL technologies; and
  - are hindered from developing coordinated and integrated policy that reflects guidance that promotes ADL implementation.

Financial

- Current projected funding does not ensure full implementation of the program.
- Funding is dependent upon combatant commanders' voluntarily reprogramming funds to support program.
- Joint courseware funding and management not systematically integrated into planning, programming, and budgeting system.

Appendix I: Scope and Methodology

We reviewed the Department of Defense's (DOD) Advanced Distributed Learning (ADL) programs to determine the programs' expectations, implementation status, and major challenges. We collected, reviewed, and analyzed relevant program information and conducted interviews with DOD officials responsible for distance learning programs and from the Office of the Deputy Under Secretary of Defense for Readiness and Training; Advanced Distributed Learning Co-Laboratory, Alexandria, Virginia; Joint Advanced Distributed Learning Co-Laboratory, Orlando, Florida; Department of the Army, Deputy Chief of Staff for Operations—Training; the Army Distance Learning Program, U.S. Army Training and Doctrine Command; U.S. Army National Guard Bureau, Distributed Training Technology Project; Department of the Navy, Office of the Chief of Naval Operations—Education; U.S. Naval Education and Training Command, Office of Naval Education and Training; U.S. Marine Corps Training and Education Command, Distance Learning Center; Department of the U.S. Air Force, Office of the Deputy Chief of Staff for Personnel, Learning and Force Development; U.S. Air Force Air Education and Training Command, Air Force Institute for Advanced Distributed Learning; U.S. Air Force Office of Air Force Reserve, Education, Training, Readiness Policy; U.S. Air National Guard, Distributed Learning Program; Office of the Chairman of the Joint Chiefs of Staff, Joint Doctrine Education and Training Division; and Department of Defense, Defense Acquisition University.

To determine DOD's expectations for its programs, we reviewed executive, congressional and departmental guidance related to developing DOD-wide ADL programs. We reviewed and analyzed the Office of the Secretary of Defense's (OSD), the military services', and the Joint Staff's ADL strategy and implementation plans and OSD's Training Transformation Plan. We interviewed OSD, service, and Joint Staff ADL program personnel to obtain their views about OSD's and their service- or Joint Staff-specific ADL program expectations.

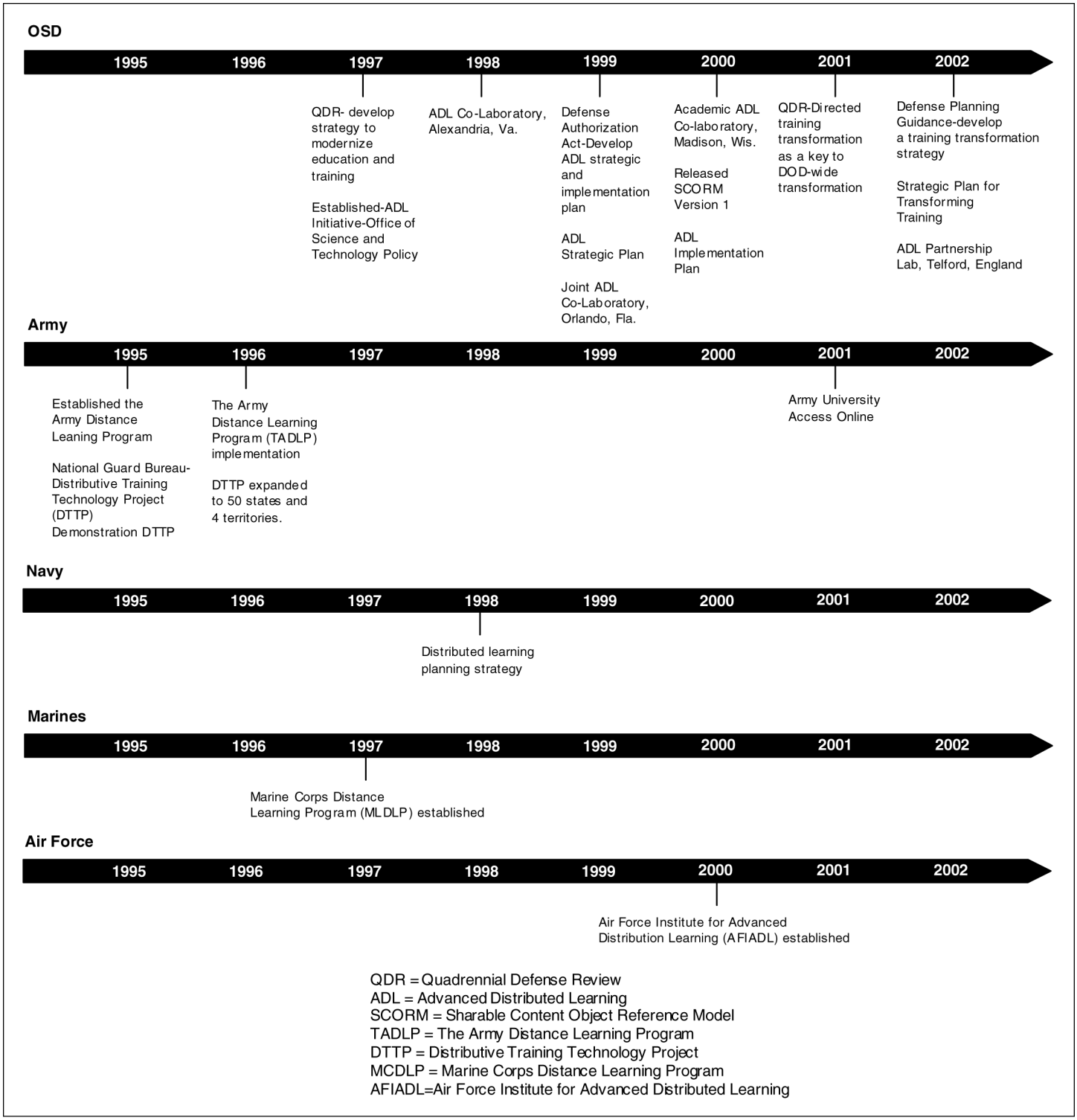
To determine the implementation status of OSD's, the services', and Joint Staff's ADL programs, we provided OSD, service, and Joint Staff ADL program officials a detailed list of questions concerning program vision, strategy, implementation status, number of ADL courses, program successes, and challenges. We reviewed their written responses, if provided, and followed up with face-to-face interviews to clarify or obtain additional information if necessary. We reviewed, and compared OSD's, the services', and Joint Staff's ADL strategies and implementation plans. We interviewed ADL program officials and collected other documents as necessary to determine the status of the programs as compared to their

ADL program implementation plans. Additionally, for fiscal years 1999 through 2002, we obtained, analyzed, and compared information about the amount of funding OSD, the services, and the Joint Staff reportedly received for their ADL programs. For the same fiscal years, we obtained and reviewed the amount of funding DOD and the services received as reported for Budget Activity 3 in each of the components Operations and Maintenance budgets (BA3 funds all training and recruiting programs) and compared the overall training budgets to the amount of funding each reportedly allocated for ADL programs. In addition, we obtained and analyzed the amount of funding that OSD, the services, and the Joint Staff reported that they need and have programmed for future ADL requirements for fiscal years 2003 through 2007. We compared the amounts reported as needed to implement program plans with the amounts included in OSD's, the services', and the Joint Staff 's program objective memorandums for fiscal years 2003 through 2007. The dollar amounts shown in this report are as of August 31, 2002. We did not independently verify the dollar amounts reported in OSD's and the services' budgets, nor did we independently verify the amount of funding OSD, the services, and the Joint Staff reportedly allocated for their ADL programs.

To determine major challenges affecting OSD's, the services' and the Joint Staff's ADL program implementation, we provided ADL program officials a detailed list of questions that included specific questions related to challenges ADL program managers face that affect their ability to execute programs that achieve their expectations. We reviewed their written responses, if provided, and followed up with face-to-face-interviews to clarify or obtain additional information as necessary. We did a comparative analysis of the comments they provided. We compiled a list of challenges for OSD, each service, and the Joint Staff. We provided the lists to each for their review and verification. The challenges cited by ADL officials were grouped into four basic categories. During our exit briefing, we provided ADL representatives from OSD, the services, and the Joint Staff with a summary of the challenges noted during our review and asked for their comments. It was the consensus of those ADL program officials that the challenges we identified are valid.

We did not assess the effectiveness of the programs at this time because most are in the early stages of implementation.

Appendix II: Timeline of Key Events, Directives and Guidance for DOD's ADL Programs



Source: DOD.

Appendix III: Comments from the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

February 20, 2003

Mr. Neal P. Curtin
Director, Defense Capabilities and
Management
US General Accounting Office
Washington DC 20548

Dear Mr. Curtin,

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, GAO-03-393, "MILITARY TRANSFORMATION: Progress and Challenges for DOD's Advanced Distributed Learning Programs" dated January 24, 2003. The Department concurs with the draft report as presented.

Your report closely captures the present baseline of Advanced Distributed Learning (ADL) for the Office of the Secretary of Defense and Services. While concurring with the report, the Department makes the following observations:

- ADL is an evolving program and is a critical enabler for transforming DoD training.
- Beyond the successes identified in the report, there are numerous excellent ADL projects that are ongoing within various DoD Components and Agencies.
- The ADL effort has been recognized by national organizations with awards for its leadership role in establishing a new distributed learning framework for government, industry, and academia.

The Department appreciates the evaluation team's inclusion of our previously provided informal comments and this opportunity to provide further comments on the draft report. Technical comments were also provided to the GAO for consideration in the final report.

Sincerely,

Paul W. Mayberry
Deputy Under Secretary of Defense
Readiness

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