

GAO

Report to the Chairman, Committee on  
Governmental Affairs, U.S. Senate

August 1994

# ORGANIZATIONAL CULTURE

## Use of Training to Help Change DOD Inventory Management Culture



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

National Security and  
International Affairs Division

B-247299

August 30, 1994

The Honorable John Glenn  
Chairman, Committee on  
Governmental Affairs  
United States Senate

Dear Mr. Chairman:

The Department of Defense's (DOD) excessive inventories of unneeded items have long resulted from a culture<sup>1</sup> that reflects the belief that it is better to overbuy items and have more than enough on hand than to try to manage with just the amount of stock needed. Training has been shown to be a key vehicle for helping organizations change their cultures. In response to your request, we reviewed the inventory management and Total Quality Management<sup>2</sup> (TQM) training that DOD provides to its approximately 150,000 civilian and military personnel involved in inventory management activities.<sup>3</sup> Specifically, we examined (1) how DOD plans to use training to help change its inventory management culture, (2) the extent to which training courses encourage or reflect cultural change, and (3) the amount of training inventory management personnel receive to help effect cultural change.

## Background

Following the large growth of unrequired inventories during the 1980s, DOD is now faced with the challenge of reducing inventory without sacrificing responsiveness. The inventory management challenge is not necessarily directed at the inventory of primary items, such as tanks, ships, and aircraft, which is more closely tied to force structure decisions. Rather, the challenge is directed at the management of secondary items, such as weapon system components, medical and dental supplies, food, and clothing. DOD's inventory of such items grew from \$43 billion in 1980 to

<sup>1</sup>An organization's culture is the underlying assumptions, beliefs, values, attitudes, and expectations shared by its members, which affect their behavior and the behavior of the organization as a whole.

<sup>2</sup>TQM is an organizational leadership philosophy and management approach that strives to create and perpetuate an organizational culture that values and strives to continually improve the organization's products and services; the methods, processes, economy, and efficiency with which the products and services are produced; the quality, value, and satisfaction provided to the organization's customers; and the interpersonal relationships that are at the heart of the methods and processes the organization uses.

<sup>3</sup>Inventory management is the process of determining how much stock, or materials, parts, and supplies, to order or requisition; of placing orders or requisitions; of receiving, storing, and caring for stock; of determining unneeded stock and making it available for disposal; and of issuing or shipping stock to requisitioners.

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\$109 billion in 1989. Even though this inventory had decreased to \$77.5 billion as of September 1993, most of the decrease resulted from revaluing rather than reducing the inventory.

We have issued a series of reports on specific types of secondary items<sup>4</sup> that identified problems, such as supplies on hand that exceed demand by several years; slow inventory turnover rates; a large portion of excess or obsolete items on hand; and the significant costs of storing, handling, and tying up funds in inventory. Our work includes analyses of how leading-edge private sector firms approached comparable inventory management problems. These firms found that a cultural change in their philosophy of inventory management was critical to making inroads against such problems. Recognized experts in the field of organizational change informed us at the time that an organization's decision to change its culture is generally triggered by a specific event or situation. They also agreed that such change takes 5 to 10 years or longer to complete.

The contrast between DOD's large inventories and sharply declining budgets comprise the right circumstances for cultural change. However, the difficulties DOD faces in such an undertaking must be recognized. DOD operates a worldwide logistics system to buy, store, and distribute inventory items. The enormity and complexity of this system is underscored by the tens of thousands of people and hundreds of facilities needed to operate it—a network that exists on a much broader scale than in most private sector companies. Moreover, because DOD's system is decentralized and involves people and facilities that perform more than just inventory management functions, it is difficult to precisely identify the people and organizations that should be involved in a cultural change.

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## Results in Brief

DOD has recognized that it must reduce the size and huge cost of its inventories because of current budget constraints. To its credit, DOD has acknowledged that it must accomplish this goal by changing its inventory management culture. Although DOD sees training as a key tool that can help it achieve cultural change, it has yet to take steps that are essential to most effectively use training to foster the desired change. Specifically:

- DOD has not developed and promulgated written plans and guidance on how to use training to effect its desired cultural change.
- DOD's training courses lack the content and emphasis necessary to foster a new way of thinking about inventory management. Although a few

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<sup>4</sup>See Related GAO Products.

inventory management courses teach TQM and modern logistics concepts, most do not. Most courses emphasize the traditional values of economy and efficiency without integrating these with modern logistics practices. As a result, DOD has not yet developed the tools it needs to effect cultural change.

- Most inventory management personnel are not receiving the training they need to effect cultural change. Most personnel at the 17 inventory management activities we visited have not received recent inventory management or TQM training, and the percentages who had varied widely among activities. Further, less than 30 percent of military inventory management personnel are even required to take training. Also, some activities maintain poor training records, impeding DOD's ability to track how many people have received the needed training.

## DOD Seeks Cultural Change Through Training, but Does Not Yet Have Plans in Place

DOD's continuing inventory management problems reflect a long-held belief that overbuying and holding large numbers of items is better than being caught short when a customer requests an item. For the most part, DOD has been held captive to ineffective and inefficient inventory management practices and systems that were developed years ago. In contrast, an intensely competitive business environment has forced private sector firms to adopt new technologies and new business concepts to cut costs while competing to provide superior customer service. Consequently, more companies have begun to adopt modern inventory management strategies, such as just-in-time and quick response philosophies,<sup>5</sup> that enable them to fill orders faster while lowering capital investment and reducing inventory levels. In many cases, to do this successfully, companies have had to change the way they think.

To better understand what DOD needed to do to change its inventory management culture, we obtained views from experts in the academic field and officials from nine large private sector companies who were concerned about inventory management.<sup>6</sup> They indicated that a combination of many techniques are needed to bring about successful cultural change, but two are of prime importance. These techniques are

<sup>5</sup>The just-in-time concept was introduced in the manufacturing field, where supplier delivery to assembly lines replaced inventory, and on-time delivery was essential to production. Supplies are delivered just as they are needed and not before. The quick response concept originated as a link between manufacturers and the retail sector, where stores wanted to stock their shelves with just enough of the right item, in the right quantity. Quick response relies heavily on the efficiency resulting from electronic communication between retailers, wholesalers, and suppliers.

<sup>6</sup>Organizational Culture: Techniques Companies Use to Perpetuate or Change Beliefs and Values (GAO/NSIAD-92-105, Feb. 27, 1992).

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(1) top management's commitment and support for desired values and beliefs and (2) employee training to convey desired values and beliefs and develop the skills needed to implement them. When an organization strives to change its culture, it is crucial that top management communicate to organizational members the beliefs and values essential to the desired culture and the means that will be used to instill them.

DOD officials as high as the Deputy Secretary of Defense have recognized during hearings held in March 1990 the need for a culture that places more emphasis on economy and efficiency. Despite this acknowledgement, DOD has not yet developed and promulgated policies and plans that clearly and effectively communicate how training is to be used to help make the change. Consequently, the schools and activities we visited had not received written guidance that describes how training is to be used to achieve a cultural change in inventory management. The absence of delineated policies and plans dim the prospects for training to serve as a useful change agent.

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## Training Does Not Yet Generally Reflect New Inventory Concepts

Input we obtained from several logistics experts and academics shows that to help change DOD's inventory management culture, DOD should have mandatory entry-level and continuing education training requirements for all inventory management personnel. Further, the input shows that this training should emphasize the (1) modern logistics concepts, such as just-in-time and direct shipment, that leading-edge companies embrace as a means to maximize economy and efficiency without sacrificing responsiveness; (2) TQM concepts and skills that are needed to continually improve inventory management processes and practices; (3) importance of economy and efficiency as a DOD cultural value; and (4) technical aspects or systems and regulations inventory management personnel need to perform their jobs. Overall, the DOD schools we visited did not strongly emphasize the new concepts or thinking—modern logistics and TQM concepts—and the importance of economy and efficiency as a DOD cultural value. They did emphasize established systems and regulations.

Of the nine major DOD inventory management schools included in our review, only one indicated that it strongly emphasized modern logistics concepts; three indicated they had added at least some discussion of TQM concepts; and one said it planned to add TQM concepts to inventory management training. Several of the schools also indicated that they emphasized economy and efficiency in other ways, such as by stressing the importance of using judgment before ordering inventory stocks. As the

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following comments show, however, much of the inventory management training exudes a traditional emphasis on systems and regulations.

- Army Quartermaster School instructors emphasized adherence to regulations, which they equated with economy and efficiency in inventory management.
- Navy Fleet Material Support Office instructors taught students how to use computerized inventory management systems that they believed were designed to increase economy and efficiency, but in doing so focused on (1) the importance of using judgment before personnel act on computer recommendations to buy stocks and (2) any changes in policies and procedures that are intended to increase economy and efficiency. They said that the basic content of their training has not changed in the last 10 years because inventory management functions have not changed substantially.
- Air Force Technical Training Center instructors at Lowry Air Force Base taught students topics, such as stockage policy, Stock Fund concepts, inventory analysis, and problem analysis, that they believed stress the importance of economy and efficiency in inventory management. Following direction from Air Force officials, instructors were planning to insert TQM concepts into their inventory management training.
- Defense Logistics Agency (DLA) Civilian Personnel Support Office instructors believed they emphasized economy and efficiency in teaching computerized inventory management systems and stressing that students should question computer commands. In addition, they added instruction on the Defense Business Operations Fund<sup>7</sup> and TQM concepts to their inventory management training.

Comments made by recently trained inventory management personnel we interviewed at 17 activities also indicate that training placed little emphasis on concepts that will promote new thinking and strongly emphasized systems and regulations. For example:

- Army instructors of the "Basic Noncommissioned Officer Course" taught verbatim from the regulations book and did not mention economy and efficiency, although they did stress making sure actual inventory balances on hand match the balances in the computer system.

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<sup>7</sup>The Defense Business Operations Fund is a consolidation of several DOD funds and provides higher level oversight and control. Some primary goals are to encourage support organizations, such as distribution depots, to provide customers quality goods and services at the lowest cost; to operate support organizations more like businesses by charging customers for the full cost of their products and services and operating primarily from sales revenues; and, ultimately, to link support costs with customer funding.

- Army instructors of the “Defense Inventory Management Course” taught an overview of how each major DOD component’s inventory management system works and stressed not wasting paper and supplies at work.
- Navy instructors of the “Uniform Automated Data Processing System - Stock Points” course taught how to use the computer system, noting that money would be saved by using it correctly.
- DLA instructors of the “Introduction to DLA Logistics” course stressed how to order inventory items and how to dispose of them. They taught that the system is set up to ensure DLA has enough, but not too much, stock on hand.
- DLA instructors of the “DLA Supply Management Course” and “Introduction to DLA Logistics” courses taught the “best way to do the job,” how to fill requisitions, and to place priority on supplying the customer.

Overall, of the 127 inventory management personnel we interviewed at the 17 activities, 107 had received inventory management training in the previous 2 years. We grouped students’ comments about how economy and efficiency were emphasized in their courses.

- 77 students indicated that (1)economy and efficiency concepts were emphasized in terms of systems and regulations or conserving resources, such as packing materials or paper, or were not emphasized or (2)they could not recall how economy and efficiency were addressed or emphasized;
- 26 students said they were addressed through an emphasis on avoiding overbuying and excess inventories or on a general need to “do more with less” because of budget constraints;
- 3 students said economy and efficiency were discussed in relation to modern logistics concepts; and
- 1 student said they were discussed in relation to TQM.

The grouping of students’ comments further illustrates that little emphasis is placed on concepts that will promote new thinking. Even the emphasis noted by 26 interviewees on conserving resources and avoiding overbuying, although compatible with changing culture, alone is unlikely to produce the desired change. Rather, the results of our interviews with both students and school instructors reflect the absence of a training plan that is clearly linked to a new inventory management policy. Under these circumstances, new inventory management concepts are emphasized only on the initiative of an individual school, activity, or instructor.



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## Most Inventory Management Personnel Have Not Received Recent Training

Most personnel at the 17 inventory management activities we visited have not received recent inventory management or TQM training, and the percentages who had varied widely among activities. Overall, of the nearly 5,000 personnel, shown in table 1, for whom we were able to analyze data, about 17 percent had received recent inventory management training, and about 20 percent had received recent TQM training.<sup>8</sup> Most personnel had not received recent training partly because the Office of the Secretary of Defense, DLA, and the services have not established mandatory training requirements for most inventory management personnel. DOD does not require any of its nearly 89,000 civilian inventory management personnel to have training, although it is recommended for some. Further, less than 27 percent of its almost 61,000 military inventory management personnel are required to have training. However, the logistics experts and academics we contacted indicated that to effectively use training to help change its culture, DOD needs to have requirements for mandatory entry-level and continuous education training for all of its approximately 150,000 inventory management personnel and to train them all in the elements important to the desired culture.

As shown in table 1, about 6 percent of the 1,311 inventory management personnel at one depot had taken classroom training on inventory management during the 17 months before our visit, and 1.4 percent had taken TQM training courses. In contrast, a sample of the 931 inventory management personnel at another activity showed that about 30 percent had taken classroom training on inventory management during the 18 months before our visit and about 42 percent had taken TQM training courses. Local activity training programs provided most of the TQM training.

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<sup>8</sup>Our figures are based on a 95-percent confidence level, with a precision of plus or minus 2 percent.

**Table 1: Inventory Management Personnel Receiving Recent Inventory Management or TQM Training**

Activity	Number of inventory management personnel	Records analyzed	Percentage recently trained in	
			Inventory management	TQM
Naval Aviation Depot Norfolk	249	All	0	7.2
Naval Aviation Depot Pensacola	55	All	1.8	3.6
Naval Supply Center Norfolk	369	All	5.4	18.7
Directorate of Logistics and Medical Activity Logistics Division, Ft. Stewart	125	All	5.6	0
Defense Distribution Depot Susquehanna Pennsylvania (17 mo.)	1,311	All	5.9	1.4
Naval Supply Center Pensacola, Inventory Control Division (25 mo.)	48	All	14.6	54.2
Naval Air Station Norfolk, Supply Department	130	All	14.7	30.0
Defense Electronics Supply Center, Supply Operations Directorate	328	All	15.5	77.1
USS Dwight D. Eisenhower	103	All	33.0	1.0
Directorate of Logistics, Installation Supply and Services Division, Ft. Bragg	114	Sample of 30	20.0	53.3
Defense General Supply Center, Supply Operations Division	141	Sample of 88	27.3	13.6
U.S. Army Tank Automotive Command	959	Sample of 192	27.6	8.8
U.S. Army Missile Command	931	Sample of 93	30.1	41.9
24th Mechanized Infantry Division, Division Support Command (15 mo.)	65	Sample of 20	40.0	0
Naval Air Station Pensacola	34	The 25 available	4.0	4.0

Note: Figures in table 1 are only an estimate of the percentage of personnel who have taken recent inventory management and TQM training. This is because (1) we did not factor work starting dates into the analysis and some personnel had been working in inventory management at their activity for less than the 1-1/2 years before our visit, the time period we used for developing the table, (2) in interviewing 127 personnel at the activities, we discovered some errors in the training information activities had provided, and (3) some activity officials cautioned us that their training records and information might not be accurate.

Local training programs supplement the schools' training and increase the overall amount of training available to inventory management personnel. For example, most of the activities we visited have begun TQM training programs, and many of the people who had taken TQM training courses received them through these programs. Still, as previously noted, only about 20 percent had received recent TQM training, although some activities said that all their personnel would eventually receive it. Less

than half the activities we visited provided local inventory management training.

Overall, the extent of inventory management and TQM training available through local training programs varied widely.

- The Army Missile Command's Integrated Materiel Management Center uses local instructors to teach four different inventory management courses, which last from 20 hours to 32 hours. The Command also has a Quality Institute, which has taught over 300 personnel to be TQM consultants in offices throughout the Command. One of the first TQM consultants trained is now the Director of TQM for the Center and has managed an extensive TQM training program for the Center. In addition, the Command organized a logistics university, which is a consortium of local universities,<sup>9</sup> that teaches university courses on site and encourages Command personnel to earn college degrees in logistics.
- The Defense Electronics Supply Center at Columbus, Ohio, relies on instructors from DLA's Civilian Personnel Support Office, which is also located in Columbus, to provide local inventory management training. It provides TQM training to all its inventory management and other personnel at the Wright-Patterson Center for Quality Education, which is located close by in Dayton, Ohio.
- The Defense Distribution Depot Susquehanna Pennsylvania's local instructors do not teach any inventory management courses that last 8 or more hours, and its TQM specialists have no scheduled TQM training courses. The TQM specialists provide training only when managers request it for their personnel.
- Fort Stewart has no local inventory management training courses lasting 8 or more hours for inventory management personnel, and it has no local TQM training program.

Some activities have not adequately tracked their personnel's training or did not provide us with sufficient data to determine how many personnel had received recent training. For these reasons, only 15 of the 17 activities we visited are included in table 1, and 3 of those included are for time periods other than the 1-1/2 years before our visit. The Defense Distribution Depot Richmond Virginia was not included because it did not keep individual records at the time of our visit. The 18th Airborne Corps' 1st Corps Support Command was not included because it provided

<sup>9</sup>The Logistics University's undergraduate program is comprised of a consortium of the University of Alabama at Huntsville, Alabama; Alabama A&M University; and Athens State College. Its graduate program is comprised of a consortium of the University of Alabama at Huntsville, Alabama; Alabama A&M University; and the Florida Institute of Technology.

records for only 24 of its over 1,100 inventory management personnel. One activity only had records going back 17 months before our visit, and two activities only provided the year or other time period in which personnel received training rather than the actual dates.

## Recommendations

Clear and effectively communicated plans and guidance for using training to help change inventory management culture must exist before training can most effectively serve as a change agent. Accordingly, we recommend that the Secretary of Defense direct the Secretaries of the Army, the Navy, and the Air Force, as well as the Director of the Defense Logistics Agency, to

- Develop training plans and provide guidance to ensure that DOD schools and inventory management activities provide training that can help bring about the desired cultural change. Against the general backdrop of economy and efficiency and its importance as a DOD inventory management cultural value, such plans and guidance should emphasize modern logistics concepts and TQM concepts and tools as key training vehicles.
- Establish mandatory entry-level and continuing education training requirements for all DOD inventory management personnel, along with requirements and procedures that ensure each employee's progress in completing required training is accurately recorded and tracked.

## Agency Comments and Our Evaluation

DOD generally agreed with the findings and recommendations in this report and stated that it currently has actions underway or planned that will use training to bring about the desired change in its inventory management culture. Specifically, DOD stated that by the second quarter of fiscal year 1995, it will provide the Secretaries of the Army, the Navy, and the Air Force, and the Director of the Defense Logistics Agency guidance to review, update, and maintain training plans and ensure that its schools and activities provide training that is in line with current policies. DOD also stated that it will determine which training courses are most appropriate for entry-level inventory management personnel and direct the services and DLA to require that these personnel complete them. Additionally, DOD stated that it will communicate to the services and DLA the need for continuing education training and for tracking this training.

In a draft of this report, we recommended that DOD develop and promulgate a written statement of its desired cultural values and beliefs in

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inventory management. In commenting on the draft, DOD stated that its Materiel Management Regulation 4140.1-R, dated January 1993, reflects modern approaches to inventory management, and that its Logistics Strategic Plan, issued in June 1994, articulates a vision of its desired inventory management culture. Although the regulation is consistent with using modern inventory management practices, it does not, in our opinion, clearly articulate a vision of DOD's desired new inventory management culture. However, DOD's Logistics Strategic Plan, issued after the completion of our review work, includes a vision that states the DOD logistics system will achieve a lean infrastructure and provide reliable, flexible, cost-effective, and prompt logistics support, information, and services. Because DOD has taken actions that are responsive to the intent of the recommendation included in our draft report, we have deleted this recommendation from our final report.

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Details on our scope and methodology are in appendix I.

We are sending copies of this report to appropriate congressional committees; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Director of the Defense Logistics Agency; the Director of the Office of Management and Budget; and other interested parties. We will also make copies available to others on request.

Please contact me on (202) 512-8412 if you or your staff have any questions concerning this report. Other major contributors to this report are listed in appendix III.

Sincerely yours,



Donna M. Heivilin  
Director, Defense Management and  
NASA Issues

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Table 1: Inventory Management Personnel Receiving Recent  
Inventory Management or TQM Training

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## Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense
TQM	Total Quality Management



# Scope and Methodology

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We reviewed how the Department of Defense (DOD) used classroom training courses in inventory management and Total Quality Management (TQM) lasting 8 hours or more to help change its inventory management culture. To limit the size of our review, we did not evaluate other types of training used by DOD, such as classroom training lasting less than 8 hours, classroom training in inventory management taken from non-DOD institutions, on-the-job training, correspondence courses, satellite television courses, and computer-based courses.

In gathering information for this report, we reviewed documents and discussed training, including training plans and requirements, with DOD officials. We discussed the inventory management and TQM training they provide with most of the major schools DOD identified as providing inventory management training. These included the Defense Logistics Agency Civilian Personnel Support Office, the Army Logistics Management College, the Army Quartermaster School, the Army Materiel Command's School of Engineering and Logistics, the Navy Supply Corps School, the Naval Postgraduate School, the Navy Fleet Material Support Office, the Air Force Institute of Technology, and the Air Force's Lowry Technical Training Center.

We visited 17 activities that represent a cross-section of DOD's major types of inventory management activities, including 4 inventory control points or supply centers, 2 wholesale distribution depots, 2 major maintenance depots, and 9 supply support activities. At the time we selected activities to visit in mid- to late 1992, DOD said it had 20 inventory control points, 26 wholesale distribution depots, 38 major organic maintenance depots, and hundreds of supply support activities, although officials said they had no complete count or list of the supply support activities. Several of these activities are now planned to be closed, realigned, or relocated as a result of decisions made under the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510).

The activities we visited included the Defense General Supply Center, the Defense Electronics Supply Center, the Defense Distribution Depot Richmond Virginia, the Defense Distribution Depot Susquehanna Pennsylvania, the Army Missile Command, the Army Tank Automotive Command, the Fort Bragg Directorate of Logistics, the 18th Airborne Corps' 1st Corps Support Command, the Fort Stewart Directorate of Logistics, the 24th Mechanized Infantry Division Support Command, the USS Dwight D. Eisenhower, the Naval Air Station Pensacola, the Naval Aviation Depot Pensacola, the Naval Supply Center Pensacola, the Naval



**Air Station Norfolk, the Naval Aviation Depot Norfolk, and the Naval Supply Center Norfolk**

We examined over 3,000 training records or information for inventory management personnel at all 17 of the activities we visited and discussed local inventory management and TQM classroom training at most of them. We also individually interviewed 127 inventory management personnel who had recently received inventory management and/or TQM training about their views of economy and efficiency in inventory management and their perception of the emphasis placed on economy and efficiency in training. The 127 interviewees were from a variety of civilian and military inventory management job classifications and job levels at the 17 activities and had recently received a variety of inventory management and TQM training courses.

Due to the relatively small number of Marine Corps personnel involved in inventory management, we did not visit Marine Corps schools or inventory management activities. Therefore, the results of our review may not reflect the Marine Corps use of training as a technique in changing organizational culture. Also, although we discussed training with Air Force officials and visited Air Force schools, we did not visit any Air Force inventory management activities because we felt we had sufficient coverage at other services' activities. Additionally, we did not visit ordnance or fuel supply activities. Further, we did not include in our review personnel in activities closely related to inventory management or those whom some might consider a part of inventory management, such as procurement and contracting workers, transportation workers, and quality assurance workers, nor did we include them in the 150,000 estimate of inventory management personnel.

We conducted our visits to schools and activities from March 1992 through April 1993. We continued our analysis of data collected at the sites through October 1993. Our audit work was conducted in accordance with generally accepted government auditing standards.

# Comments From the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



ACQUISITION AND  
TECHNOLOGY

(L/MDM)

## OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON  
WASHINGTON DC 20301-3000

28 JUL 1994



Mr. Frank C. Conahan  
Assistant Comptroller General  
National Security and International  
Affairs Division  
U.S. General Accounting office  
Washington, D.C. 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "ORGANIZATIONAL CULTURE: Use of Training to Help Change DoD Inventory Management Culture is Largely Untapped," dated June 22, 1994, (GAO Code 398109, OSD Case 9719). The DoD generally concurs with the report.

Although the Department generally agrees with the report findings and recommendations, the DoD does not agree that there has not been documentation of its desired inventory management values and beliefs. The Department has promulgated policies in the DoD 4140.1-R, DoD Materiel Management Regulation, dated January 1993, that reflect new, modern approaches to inventory management such as those used in the private sector. The DoD has also articulated a vision of inventory management goals in the 1994 DoD Logistics Strategic Plan.

In addition, the Department maintains that the statistics cited by the GAO would have been more representative if the GAO had visited the Air Force Materiel Command, the five Air Logistics Centers, and the two Navy Inventory Control Points. Had the GAO visited those locations, it would have found that a significant number of inventory managers have received Total Quality Management and inventory management training reflecting modern commercial practices. Also, the GAO reviewed training that was taken only during the last two years. The emphasis on Total Quality Management training began well before the last two years. If the GAO had included training taken during more than the last two years, given the relatively stable work forces at the sites identified above, the GAO would

See comment 1.

See comment 2.



Appendix II  
Comments From the Department of Defense

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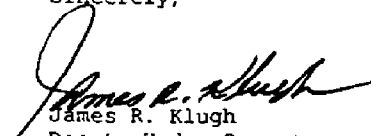
have found that a large number of employees have received Total Quality Management training.

The GAO defines inventory management very broadly. Many of the personnel the GAO counts are at the consumer level, including maintenance activities, and have substantially different training needs than managers at the major supply management activities.

The Department generally concurs with the GAO draft report recommendations. Actions are currently underway or planned that will utilize training to bring about the desired culture change within inventory management.

The DoD detailed comments are provided in the enclosure. The Department appreciates the opportunity to comment on the draft report.

Sincerely,

  
James R. Klugh  
Deputy Under Secretary  
of Defense (Logistics)

Enclosure

See comment 3.

Appendix II  
Comments From the Department of Defense

GAO DRAFT REPORT - DATED JUNE 22, 1994  
(GAO CODE 398109) OSD CASE 9719

"ORGANIZATIONAL CULTURE: USE OF TRAINING TO HELP CHANGE DOD  
INVENTORY MANAGEMENT CULTURE IS LARGELY UNTAPPED"

DEPARTMENT OF DEFENSE COMMENTS

\* \* \* \* \*

FINDINGS

- o **FINDING A: The DoD Inventory Management Culture.**  
The GAO reported that, following the large growth of unrequired inventories during the 1980s, the DoD is now faced with the challenge of reducing inventory without sacrificing responsiveness. The GAO noted that the inventory management challenge is not necessarily directed at the inventory of primary items, such as tanks, ships, and aircraft, which is more closely tied to force structure decisions. Rather, the GAO point out, the challenge is directed at the management of secondary items, such as weapon system components, medical and dental supplies, food, and clothing. The GAO determined that the DoD inventory of such items grew from \$43 billion in 1980, to \$109 billion in 1989. The GAO pointed out that, even though the inventory had decreased to \$77.5 billion as of September 1993, most of the decrease resulted from revaluing, rather than reducing the inventory.

The GAO issued a series of reports on specific types of secondary items that identified problems, such as supplies on hand that exceed demand by several years; slow inventory turnover rates; a large portion of excess or obsolete items on hand; and the significant costs of storing, handling, and tying up funds in inventory. The GAO also included in its work analyses of how leading-edge private sector firms approached comparable inventory management problems. The GAO noted that those firms found that a cultural change in their philosophy of inventory management was critical to making inroads against such problems. The GAO asserted that recognized experts in the field of organizational change claim that an organization's decision to change its culture is generally triggered by a specific event or situation, and such change takes 5 to 10 years or longer to complete.

The GAO reported that the contrast between the large DoD inventories and sharply declining budgets comprise the right circumstances for cultural change; however, the difficulties the DoD faces in such an undertaking must be recognized. The GAO noted that the DoD operates a worldwide logistics system to buy, store, and distribute inventory items.

Enclosure

The GAO further noted that the enormity and complexity of that system is underscored by the tens of thousands of people and hundreds of facilities needed to operate it--a network that exists on a much broader scale than in most private sector companies. Moreover, the GAO concluded that because the DoD system is decentralized and involves people and facilities that perform more than just inventory management functions, it is difficult to precisely identify the people and organizations that should be involved in a cultural change. (pp. 2-3/GAO Draft Report)

**DOD RESPONSE:** Concur. The Department agrees that this is the right time for a cultural change. The DoD further agrees that it will be a difficult task to accomplish the change, given the enormity and complexity of the worldwide logistics system with its decentralization and personnel performing more than just inventory management functions.

- o **FINDING B: The DoD Seeks Cultural Change Through Training, But Does Not Yet Have Plans in Place.** The GAO determined that the DoD continuing inventory management problems reflect a long held belief that overbuying and holding large numbers of items is better than being caught short when a customer requests an item. According to the GAO, for the most part, the DoD has been held captive to ineffective and inefficient inventory management practices and systems that were developed years ago. The GAO noted that, in contrast, an intensely competitive business environment has forced private sector firms to adopt new technologies and new business concepts to cut costs, while competing to provide superior customer service. The GAO observed that, as a result, more companies have begun to adopt modern inventory management strategies, such as just-in-time and quick response philosophies, that enable them to fill orders faster, while lowering capital investment and reducing inventory levels.

To better understand what the DoD needed to do to change its inventory management culture, the GAO obtained views from experts in the academic field and officials from nine large private sector companies who were concerned about inventory management. The GAO reported that the experts indicated that a combination of many techniques are needed to bring about successful cultural change, but two are of prime importance: (1) the commitment and support of top management for desired values and beliefs and (2) the training of employees to convey desired values and beliefs and develop the skills needed to implement them. The GAO concluded that, when an organization strives to change its culture, it

is crucial that top management communicate to organizational members the beliefs and values essential to the desired culture and the means that will be used to instill them.

The GAO asserted that DoD officials as high as the Deputy Secretary of Defense have recognized during hearings held in March 1990, the need for culture that places more emphasis on economy and efficiency and helps reduce high inventory levels. The GAO noted, however, that the DoD has not yet developed and clearly articulated a vision of the desired inventory management culture and has not yet developed and promulgated policies and plans that clearly and effectively communicate how training is to be used to help achieve it. The GAO concluded that, consequently, the schools and activities visited had not received written guidance that describes how training is to be used to achieve a cultural change in inventory management. The GAO further concluded that the absence of delineated policies and plans dim the prospects for training to serve as a useful change agent. (pp. 4-6/GAO Draft Report)

Now on pp. 3-4.

**DOD RESPONSE:** Partially concur. The Department agrees that there should be guidance on how training should be used to achieve a cultural change. Additional guidance will be provided to the Services and the Defense Logistics Agency (DLA) by the second quarter, FY 1995. The Department does not agree that there has not been documentation directing a change in inventory management culture. As stated in the letter, the Department has promulgated policies in the DoD 4140.1-R, DoD Materiel Management Regulation dated January 1993, that reflect new modern approaches to inventory management such as those used in the private sector, and has articulated a vision of inventory management goals in the 1994 DoD Logistics Strategic Plan.

- o **FINDING C: Training Does Not Yet Generally Reflect New Inventory Concepts.** The GAO reported that input obtained from several logistics experts and academics shows that to help change the DoD inventory management culture, the DoD should have mandatory entry-level and continuing education training requirements for all inventory management personnel. According to the GAO, that training should emphasize the (1) modern logistics concepts, such as just-in-time and direct shipment, that leading-edge companies embrace as a means to maximize economy and efficiency without sacrificing responsiveness; (2) Total Quality Management concepts and skills that are needed to continually improve inventory management processes and practices; (3) importance of economy and efficiency as a DoD cultural value; and (4) technical aspects or systems and regulations inventory management personnel need to perform

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their jobs. The GAO noted that, overall, the DoD schools visited did not strongly emphasize the new concepts or thinking--modern logistics and Total Quality Management concepts--and the importance of economy and efficiency as a DoD cultural value. The GAO pointed out that the DoD schools did emphasize established systems and regulations.

The GAO observed that, of the nine major DoD inventory management schools included in the review, only one indicated that it strongly emphasized modern logistics concepts; four indicated they had added at least some discussion of Total Quality Management concepts; and one said it planned to add the latter concepts to inventory management training. The GAO noted that several of the schools also indicated that they emphasized economy and efficiency in other ways, such as by stressing the importance of using judgment before ordering inventory stocks. The GAO concluded that much of the inventory management training exudes a traditional emphasis on systems and regulations. The GAO further concluded that comments made by recently trained inventory management personnel interviewed at 17 activities also indicate that training placed little emphasis on concepts that will promote new thinking and strongly emphasized systems and regulations.

The GAO reported that, overall, of the 127 inventory management personnel interviewed at the 17 activities, 107 had received inventory management training in the previous two years. The GAO noted that the students comments further illustrates that little emphasis is placed on concepts that will promote new thinking. The GAO concluded that the results of the interviews with both students and school instructors reflect the absence of a training plan that is clearly linked to a new inventory management policy. Under those circumstances, the GAO stated that new inventory management concepts are emphasized only on the initiative of an individual school, activity, or instructor. (pp. 6-10/ GAO Draft Report)

**DOD RESPONSE:** Partially concur. The DoD agrees that there should be mandatory entry-level and continuing education training requirements for inventory management personnel in the following job series: 2003, Supply Systems Analyst; 0343, Program Analyst; 0346, Logistics Management Specialist; and 2010, Inventory Management Specialist. The DoD does not agree that there are not any plans in place that seek inventory management cultural change. The Services and the DLA currently have inventory management courses that include Total Quality Management and other modern logistics concepts that have changed the emphasis from "how" to "why" certain functions are performed.

Now on pp. 3-6.

See comment 3.

See comment 4.

- o **FINDING D: Most Inventory Management Personnel Have Not Received Recent Training.** The GAO reported that most personnel at the 17 inventory management activities visited have not received recent inventory management or Total Quality Management training, and the percentages who had varied widely among activities. The GAO noted that, overall, of the nearly 5,000 personnel who recently received training--as reflected in Table 1 of the report--about 18 percent had received recent inventory management training, and about 20 percent had received recent Total Quality Management training. The GAO pointed out, however, that most personnel had not received recent training partly because the Office of the Secretary of Defense, the Defense Logistics Agency, and the Services have not established mandatory training requirements for most inventory management personnel. The GAO also pointed out that none of the 89,000 DoD civilian inventory management personnel are required by the Department to have training, although it is recommended for some. Further, the GAO pointed out that only 16,000 of its 61,000 military inventory management personnel are required to have training. The GAO stated, however, that the logistics experts and academics contacted indicated that to effectively use training to help change the culture, the DoD needs to have requirements for mandatory entry level and continuous education training for all 150,000 inventory management personnel, and to train them all in the elements important to the desired culture.

The GAO analysis indicated that about 6 percent of the 1,311 inventory management personnel at one depot had taken classroom training on inventory management during the 17 months before the review, and about 1.4 percent had taken Total Quality Management training courses. In contrast, according to the GAO, a sample of the 931 inventory management personnel at another activity showed that about 30 percent had taken classroom training on inventory management during the 18 months before the GAO visit and about 42 percent had taken Total Quality Management training courses, with local activity training programs providing most of the latter training.

The GAO reported that, overall, the extent of inventory management and Total Quality Management training available through local training programs varied widely. The GAO pointed out that some activities have not adequately tracked their personnel training or did not provide sufficient data to determine how many personnel had received recent training. The GAO pointed out that for those reasons, only 15 of the 17 activities visited are included in analysis reflected on Table 1 of the report. The GAO also noted that the Defense Distribution Depot in Richmond, Virginia was not



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included because it did not keep individual records at the time of the visit. In addition, the GAO noted that the 18th Airborne Corps' 1st Corps Support Command was not included because it provided records for only 20 of its 1,100 inventory management personnel. The GAO emphasized that one activity only had records going back 17 months before the visit and 2 activities only recorded the year in which personnel received training rather than the actual dates. (pp. 10-14/GAO Draft Report)

Now on pp. 7-10.

**DOD RESPONSE:** Partially concur. It is likely the statistics reported by the GAO would have been more representative if the GAO had visited the Air Force Materiel Command, the five Air Logistics Centers, and the two Navy Inventory Control Points. Had the GAO visited those locations it would have found that a significant number of inventory managers have received Total Quality Management and inventory management training reflecting modern commercial practices. In addition, the GAO reviewed training that was taken during the last two years. The GAO results would have more fairly represented the extent of Total Quality Management training if it had included the organizations cited above and Total Quality Management training that was taken more than two years ago. The Air Force Logistics Civilian Career Enhancement Program at the Air Force Civilian Personnel Management Center, Randolph Air Force Base, Texas, is a good example of a training program that includes Total Quality Management concepts and modern logistic practices. Many of the personnel the GAO identified as inventory managers are at the consumer level and have substantially different training needs than managers at the major supply management activities.

See comments 1, 2, and 3.

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**RECOMMENDATIONS**

- o **RECOMMENDATION 1:** The GAO recommended that the Secretary of Defense develop and promulgate a written statement of the DoD desired cultural values and beliefs in inventory management that marks a clear departure from the historical reliance on large inventories as the means for being responsive. (p. 15/GAO Draft Report)

Now on pp. 10-11.

**DOD RESPONSE:** Partially concur. The DoD has already promulgated written guidance in the January 1993, DoD 4140.1-R, DoD Materiel Management Regulation, that addresses new and innovative approaches to inventory management, such as those used by the private sector. In addition, the 1994 DoD Logistics Strategic Plan includes a

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See comment 5.

vision for the logistics system to provide reliable, flexible, cost-effective and prompt logistics support, information, and services; and to achieve a lean infrastructure. The DoD will meet that vision by making selective investments in technology; training; process reengineering (including benchmarking); and employing the most successful commercial and government sources and practices. The report refers to the DoD reliance on large inventories as a means of being responsive. That is an inaccurate interpretation of the DoD policy and vision for managing and sizing its inventory. The DoD has reduced inventories substantially since FY 1989 and plans to reduce it further.

- o **RECOMMENDATION 2:** The GAO recommended that the Secretary of Defense direct the Secretaries of the Army, the Navy, and the Air Force, as well as the Director, Defense Logistics Agency, to develop training plans and provide guidance to ensure that DoD schools and inventory management activities provide training that can help bring about the desired cultural change. The GAO indicated that, against the general backdrop of economy and efficiency and its importance as a DoD inventory management cultural value, such plans and guidance should emphasize modern logistics concepts and Total Quality Management concepts and tools as key training vehicles. (p. 15/GAO Draft Report)

Now on p. 10.

**DOD RESPONSE:** Concur. By the second quarter, FY 1995, the DoD will provide guidance to the Secretaries of the Army, the Navy, and the Air Force, as well as the Director, Defense Logistics Agency, to review, update, and maintain training plans and ensure that DoD schools and inventory management activities provide training using the January 1993, DoD 4140.1-R, Materiel Management Regulation, and the 1994 DoD Logistics Strategic Plan as guides.

- o **RECOMMENDATION 3:** The GAO recommended that the Secretary of Defense direct the Secretaries of the Army, the Navy, and the Air Force, as well as the Director, Defense Logistics Agency, to establish mandatory entry-level and continuing education training requirements for all DoD inventory management personnel--along with requirements and procedures--that ensure progress in completing required training of each employee is accurately recorded and tracked. (p. 15/GAO Draft Report)

Now on p. 10.

**DOD RESPONSE:** Concur. The DoD acknowledges that the Services and the DLA have not uniformly established mandatory entry-level and continuing education training requirements for inventory management personnel. To address that situation, the DoD will first determine which courses

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are most appropriate for entry-level inventory management personnel and then, by the end of the second quarter, FY 1995, will direct the Services and the DLA to require that entry-level personnel complete the selected course(s) within a reasonable period of time, given budgetary and work load constraints. Continuing education training and tracking are also considered important. Therefore, those needs will also be communicated to the Services and the DLA.

The following are GAO's comments on the Department of Defense's (DOD) letter dated July 28, 1994.

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## GAO Comments

1. We believe that selecting activities to visit based on DOD's view of which activities' personnel have received the most training would have biased our results. Also, realizing that inventory control points play an important role in the inventory management process, we visited a greater percentage of them than of other types of inventory management activities. To have visited even more inventory control points would have skewed our results. As noted in appendix I, we believe the inventory management activities we visited were representative of DOD's major types of inventory management activities.
2. Several of the activities we visited provided training data for their inventory management personnel that went back 5 years or longer; the percentage who had received TQM training still varied widely from activity to activity. Also, the percentage of personnel who received TQM training in the 1-1/2 years before our visit and the percentage who received it in the 5 or more years before our visit varied significantly at only a few of these activities. Thus, we believe our data on TQM training to be representative of DOD's inventory management personnel. We also note that TQM training is only one form of training that has potential for changing inventory management culture.
3. We used a definition of inventory management for this review that includes what DOD normally refers to as the wholesale and retail levels because both levels are important to achieving a change in DOD's inventory management culture. Army Logistics Management College officials describe what DOD refers to as the wholesale level of its inventory management system as including the inventory control points, which determine how much stock to order and subsequently order it; the wholesale distribution depots, which store and care for the stock and send it wherever asked to by the inventory control points; and the communications system, which allows communication among the various wholesale and retail inventory management activities. The officials describe what DOD calls the retail level (DOD referred to this in its letter as the consumer level) of the inventory management system as including the supply support activities. They noted that supply support activities carry various quantities of as many as 20,000 different kinds of items in stock for issuance as needed at consumer activities, and that many supply support activities have warehouses to store and care for the stock. Major

maintenance depots are considered wholesale-level repair activities, but retail-level parts managers. We agree that the training needs on the technical aspects of doing the job are different for inventory management personnel working in the various parts of DOD's inventory management system. However, both the wholesale and retail levels are important in economically and efficiently managing DOD's huge inventories. Therefore, we believe the definition we used is appropriate and that DOD needs plans and guidance for required entry-level and continuing education training for all these personnel.

4. Although the services and DLA may have some inventory management courses that include TQM and other modern logistics concepts, this is not synonymous with developing and promulgating policies and plans that clearly and effectively communicate how training is to be used to help effect cultural change. To the contrary, the schools and activities we visited had not received written guidance that describes how training is to be used. Thus, DOD schools and local activity instructors are left on their own to decide whether and how to use their training to help change the culture.

5. Regardless of DOD's vision and policy for managing and sizing its inventory for the future, DOD's current excessive inventories have resulted from a long-held belief that holding large inventories is better than being caught short when a customer requests an item. Most of the decrease to the current \$77.5-billion inventory level resulted from revaluing rather than reducing inventory. We recognize that DOD is trying to change that culture and that its recent policies and the vision it published in June 1994 are a part of this effort. However, cultural changes require the use of a combination of many techniques and can take 5 to 10 years or longer to complete.

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DOD Food Inventory: Using Private Sector Practices Can Reduce Costs and Eliminate Problems (GAO/NSIAD-93-110, June 4, 1993).

Commercial Practices: DOD Could Save Millions by Reducing Maintenance and Repair Inventories (GAO/NSIAD-93-155, June 7, 1993).

Defense Inventory: Applying Commercial Purchasing Practices Should Help Reduce Supply Costs (GAO/NSIAD-93-112, Aug. 6, 1993).

Defense Transportation: Commercial Practices Offer Improvement Opportunities (GAO/NSIAD-94-26, Nov. 26, 1993).

Commercial Practices: Leading-Edge Practices Can Help DOD Better Manage Clothing and Textile Stocks (GAO/NSIAD-94-64, Apr. 13, 1994).

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