THE EFFECT OF AN AGILE INFRASTRUCTURE ON THE DEPARTMENT OF DEFENSE IN THE TWENTY-FIRST CENTURY

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

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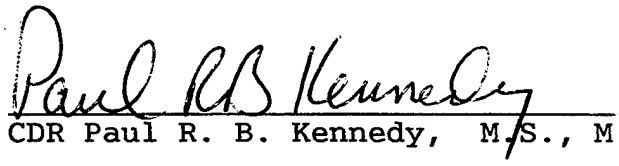

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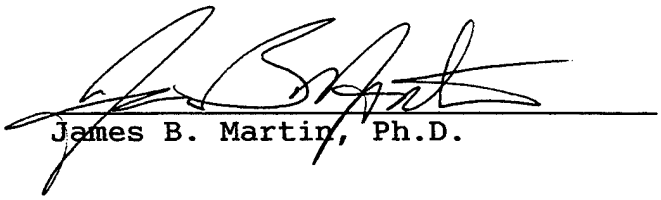

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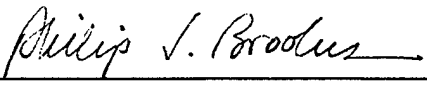

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE EFFECT OF AN AGILE INFRASTRUCTURE ON THE DEPARTMENT OF DEFENSE IN THE TWENTY-FIRST CENTURY, by LCDR Timothy J. Vohar, SC, USN, 97 pages.

By reducing the logistics footprint through the creation of an "agile infrastructure," one of the six tenets of "focused logistics," DOD anticipates having surplus funds that can be reprogrammed into other areas. This study investigates the potential effects an agile infrastructure, will have on the Department of Defense's ability to perform its logistics mission in support of its fighting forces. It focusses on: commercial business practices, outsourcing and privatization, maintenance operations and right-sized inventories. Due to the criticality of the cost savings to the success of "Joint Vision 2010" the potential for saving money is emphasized.

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LIST OF ACRONYMS

AO	Area of Operation
CINC	Commander in Chief
CONUS	Continental United States
CORM	Commission on Roles and Missions of the Armed Forces
DLA	Defense Logistics Agency
DOD	United States, Department of Defense
DSB	Defense Science Board
DVD	direct vendor delivery
FTE	full time equivalents
GAO	United States, General Accounting Office
HN	host nation
IG	Inspector General
IPL	Integrated Priority List
IT	information technology
JCS	Joint Chiefs of Staff
JHSS	Joint Health Services Support
JMRR	Joint Monthly Readiness Review
JV 2010	Joint Vision 2010
JWCA	Joint Warfighting Capabilities Assessment
MEO	most efficient organization
MOOTW	military operations other than war
OMB	Office of Management and Budget
PV	prime vendor

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CHAPTER 1

INTRODUCTION

Background

In order to comprehend the effect an "agile infrastructure" will have on the Department of Defense (DOD) in the twenty-first century an understanding of its relationship to two other military terms, "Joint Vision 2010" (JV 2010) and "focused logistics" is required. "Joint Vision 2010 is the conceptual template for how America's Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting" (Joint Chiefs of Staff 1996, 1). JV 2010 gives direction to the individual services and the ability to develop their unique capabilities within a joint framework of doctrine. One critical element of JV 2010 emphasizes a need to revitalize the logistics system to keep pace with current ongoing changes in the Department of Defense (DOD). Focused logistics is the element of JV 2010 used to describe the entire process of review and improvement in the logistics community.

Current logistics doctrine holds each branch of military service responsible for providing their own logistics support. DOD doctrine in the twenty-first century will emphasize a joint military force. To satisfy the requirements in the Joint Chiefs of Staff's, Joint Vision

2010 (1996), and the Concept for Future Operations, Expanding Joint Vision 2010 (1997), the logistics doctrine of the various branches must undergo extensive revision. One key element to the success of the vision is a more effective and efficient means of supporting U.S. forward deployed forces. The Focused Logistics Roadmap describes this end state by employing the various technological improvements in information and transportation developed during the twentieth century. It will provide the tools necessary to deploy and sustain the forces while rapidly monitoring personnel and matériel movement (Joint Staff 1997, 3).

Logistics of the twenty-first century must be swift, effective, less expensive, and joint and must include technological advances developed in the twentieth century. Focused logistics, as discussed in Joint Vision 2010, provides these basic elements.

The Tenets of Focused Logistics

The six tenets of focused logistics: agile infrastructure, joint deployment/rapid distribution, information fusion, joint theater logistics command and control (JointLog C2), multinational logistics and joint health services support (JHSS), "working in combination with one another, are designed to provide highly responsive support to the warfighter across any level of warfare, any type of engagement" (Joint Staff 1997, 1).

Developing "Focused Logistics"

Development of focused logistics will occur in three phases. The first phase, identification of the need, began with a list of warfighting deficiencies expressed by the Commanders in Chief (CINCs) and services through the Joint Warfighting Capabilities Assessment (JWCA), Joint Monthly Readiness Review (JMRR), and CINC Integrated Priority Lists (IPL). Actual movement toward and realization of these goals will occur during Phase II. The final phase will measure the effectiveness of the various programs. This measurement can either be controlled through various checkpoints during the developmental phase or discovered through review of the after action reports. It is imperative that the effectiveness of the components that will form an agile infrastructure be evaluated in advance to preclude unexpected shortfalls in times of crisis.

Agile Infrastructure

The key to success in an agile infrastructure environment is the right blending of the various services and other government agencies with the private sector both in the U.S. and abroad. It will allow swift reaction time in both peacetime and contingency operations while staying within the funding constraints. All branches of the armed forces and the defense agencies, through various initiatives, such as the Air Force's "lean logistics" and

DLA's "prime vendor" programs, are currently taking steps toward achieving this end state.

The term agile infrastructure, rarely appears in the literature. Therefore, in order to analyze the potential effects of an agile infrastructure on the DOD's ability to perform its mission, in the twenty-first century, the review centered on the components that together will create an agile infrastructure. These elements, as defined by the Joint Staff, in the Focused Logistics Roadmap (1997), include: "commercial business practices," "outsourcing and privatization," "maintenance operations," "civil engineering support," "right-sized inventories," "prepositioning," and "secondary item war reserves." Some of the more familiar concepts, such as outsourcing and right sizing were discussed and even implemented before any discussion of Joint Vision 2010 or focused logistics appeared in the literature. The following paragraphs provide a brief description of the key elements necessary to form an agile infrastructure as they appear in the Focused Logistics Roadmap.

Commercial Business Practices

The first of the seven components necessary for the development of an agile infrastructure is an integral part of many of the others. The trend of the nineties in the private sector was downsizing. The DOD often refers to this practice as right sizing. It provides one example of an

area where DOD capitalized on a previously established commercial business practice. The goal of adopting commercial business practices is to improve logistics operations, cost savings/avoidance, and reduce cycle time (Joint Staff 1997, 36). This thesis reviews the effects of adopting commercial business practices, such as outsourcing and downsizing in the DOD.

Outsourcing and Privatization.

The term outsourcing in the private sector made a strong debut in the early 1990s. Outsourcing and privatization both employ private contractors in lieu of the traditional military or civil service employees to provide needed supplies and services to the DOD.

Although some sources use the terms privatization and outsourcing interchangeably, they are not. Outsourcing applies to any private or public organization that contracts services from a third party provider. For DOD it would involve the transfer of a support function, such as ship overhaul, from a government activity like Philadelphia Naval Shipyard to a private contractor, like Newport News Shipbuilding and Drydock. Privatization is similar to outsourcing, but in a privatizing endeavor, the government would also transfer the Philadelphia Naval Shipyard assets to Newport News Shipbuilding and Drydock. Since privatization, by its commonly accepted definition, also involves the transfer of government assets, the term only

applies to the government. The DOD has employed both outsourcing and privatization in the past. This thesis will analyze the available literature discussing the pros and cons of outsourcing and privatization on the DOD's ability to perform its logistics mission in the twenty-first century. It will also address the cost savings issue related to outsourcing.

Maintenance Operations

Maintenance operations include the entire process of planning and conducting operations to keep matériel in a serviceable condition, to return it to service or to update or upgrade its capabilities. Emphasis on studying and improving the concept of maintenance operations did not begin with focused logistics, but the degree to which the U.S. military will see increased emphasis involving interservice support and the use of commercial contractors is new. Improvements in maintenance operations are currently being pursued separately by the individual branches of the service. Programs, such as "lean logistics," "precision logistics," "regional maintenance," "velocity management," and "two level maintenance" will form the basis for improvements in the total repair cycle. JV 2010, specifically, the focused logistics concept, will bring all these separate initiatives together to form a stronger alliance and a more effective unified program.

Right-sized Inventories

Efforts to right size the inventory levels throughout DOD have been ongoing since 1990. I personally witnessed a $2 billion decrease in the inventory level, over a three-year period (1994-1997), at my last command, one of the DLA Defense Distribution Depots located in Norfolk, VA. Successful implementation of the other tenets of focused logistics, such as rapid distribution and information fusion, make decreases in the inventory levels possible. When fully integrated the "Joint Total Asset Visibility Program" will give item managers even greater ability to view on-the-shelf assets. The Defense Logistics Agency is currently installing the Defense Distribution Standard System (DSS) throughout its depots. Upon completion, information will pass quickly between the DLA Item Managers (IMs), where the system is already installed, and the depots. This new technology will increase the visibility of the IM and reduce the need for "just in case" inventories. Other initiatives such as "prime vendor" and "direct vendor delivery" also reduce the requirement for DOD to hold stock readily available on the open market. Chapter 4 discusses some recent developments involving inventory management.

Civil Engineering Support

Civil engineering support, provides the needed infrastructure to support and sustain both CONUS-based and forward deployed forces. The use of civil engineer support

on a daily basis at CONUS installations is routine. Using civil engineering support during times of conflict is not a new concept either. This practice existed prior to World War II. The extent that the DOD has come to rely on the use of civil engineer support is of concern to the battlefield commander. Desert Shield/Desert Storm saw civilians employed directly in the area of operation (AO).

Many factors must be considered, when determining the right mix of civilian contractors and organic military engineering assets. Many of the ideas and concepts pertaining to outsourcing and privatization, of other DOD functions, apply equally to civil engineering support. This paper will not provide a detailed analysis relating civil engineering support to an agile infrastructure. Further specific research, to determine if adequate numbers of military engineers are being maintained to support the fighting forces in a war time scenario, is recommended.

Prepositioned Matériel

The Focused Logistics Roadmap states, "Prepositioning . . . is a vital facet of overseas presence and demonstrates U.S. commitment to our allies" (Joint Staff 1997, 42). Prepositioning can be accomplished both on land via land-based prepositioning or at sea via maritime prepositioning. There are advantages and disadvantages to both. The main purpose of prepositioning is to allow rapid deployment within a theater of operations. Determining the right

amount and mix of land-based and sea-based prepositioned material would provide enough data for a separate topic. The use of private contractors to maintain this material both stateside and overseas is the standard. There is no evidence in the literature indicating any major changes regarding this aspect of prepositioning under an agile infrastructure model will occur. Therefore, this paper will not provide a detailed analysis of prepositioning. Research dedicated to evaluating the effectiveness of the prepositioning program on logistics of the twenty-first century is recommended.

Secondary Item War Reserves

Secondary item war reserves and the larger category of war reserve matériel include mission essential items necessary to perform a mission and sustain the fighting forces in both war and military operations other than war (MOOTW). It includes a variety of matériel ranging from tanks to blankets. To ensure its ability to support the forces operating within an agile Infrastructure, DOD must be certain that it holds the right matériel, in the right quantities, and in the right locations.

War reserves, in general, are unique to the military. The concept did not originate in a commercial business practice and is not the subject of outsourcing or privatization. Although a vital part of the DOD's plan to operate under an agile infrastructure, this area will not be

analyzed in detail in this paper. Additional research targeting the process for determining the stockage policies of the various services is recommended.

Assumptions

This research project assumes that Joint Vision 2010 and the movement to a more unified joint force will become reality in the twenty-first century. The DOD will continue to seek the most cost-effective method of supporting the fighting forces. Any money saved by the implementation of an agile infrastructure will be reprogrammed within the DOD and therefore have a positive overall impact on DOD's ability to support the warfighter. The other five tenets of focused logistics are feasible and will be in place. Specifically, various technological advances have been developed that would permit timely and accurate support to U.S. forward-deployed fighting forces especially in the area of tracking material. Information sharing among the various storage depots is fully integrated. These assumptions are not without merit since both programs, tracking matériel and stockage information sharing, are being implemented at this time.

Purpose of the Study

Vital to the success of Joint Vision 2010, future logistics must be "focused": swift, effective, less expensive and joint. Cost savings achieved, by operating within a reduced logistics footprint termed an "agile

infrastructure," will be reprogrammed into other areas of the defense budget such as weapons modernization programs. Many aspects of an agile infrastructure, including the potential for cost savings, are based on theories that have not yet been proven. This research project through a review of the available literature will attempt to determine, the effect an agile infrastructure will have on the Department of Defense in the twenty-first century?

CHAPTER 2

REVIEW OF THE LITERATURE

Background

Use of the term "focused logistics" referring to one of the four elements critical for success of Joint Vision 2010 first appears in print in 1996 (Joint Chiefs of Staff). Historical references using the term "agile infrastructure" to describe one of the essential tenets of focused logistics are basically nonexistent. The term, agile infrastructure, makes its literary debut in Concept for Future Joint Operations, Expanding Joint Vision 2010 (Joint Chiefs of Staff 1997) and is later defined in the Focused Logistics Roadmap (Joint Staff 1997). The Focused Logistics Roadmap further divides agile infrastructure into subcategories which include commercial business practices, outsourcing and privatization, maintenance operations, civil engineer support, right sized inventories, prepositioning, and secondary war reserve matériel.

Conducting the Research

Searches combining terms such as agile infrastructure and commercial business practices proved empty. Looking separately at the components that will create an agile infrastructure produced numerous sources of material printed both privately and by government agencies including the DOD.

While researching the literature it became apparent that the seven components listed in the Focused Logistics

Roadmap (Joint Staff 1997), that will form an agile infrastructure often overlap or are subcategories of each other. For example, while searching for articles dealing with maintenance operations, articles discussing outsourcing and privatization also appeared on the list. Determining the most appropriate area to report the information posed a challenge.

Commercial Business Practices

In recent years DOD, as well as the rest of government, reviewed successful business practices and extracted ideas that could be used to institute internal change. The Focused Logistics Roadmap (Joint Staff 1997) terms this method of patterning government after the private sector, "commercial business practices." Although specific studies, linking the impact of commercial business practices with the DOD were not available, examples demonstrating areas where DOD patterned a philosophy from the private sector proved researchable. In Creating a Government That Works Better and Costs Less, published in 1993, Vice President Al Gore refers to the origination of the practice, "And we listened to business leaders who have used innovative management practices to turn their companies around" (Gore 1993, ii). Many of the ideas for government change and reform including: the "top down" and "bottom up" reviews, reduction in inventory levels, and outsourcing, originated in the private sector and were later adapted for use by the

government. Apparently, so impressed by what he learned from business, Vice President Gore, chose to title the next performance review released in October 1997, Businesslike Government, Lessons Learned From America's Best Companies (Gore 1997).

Outsourcing

Literally, hundreds of thousands of references on the topic of outsourcing exist. In the business community, as well as all aspects of local, state and federal government, the use of outsourcing became a common practice in the 1990s. Articles pertaining to outsourcing in the private sector discuss contracting out various services from cleaning to information technology (IT). Upon closer examination of the articles, a common theme began to surface. Many of the authors writing articles about outsourcing were employees of companies, such as Hewlett Packard, who currently make a profit through outsourcing. Recent literature describing the use of outsourcing in both the private and public sectors stress its application only to non-core elements of the business and the need to keep core functions with the parent organization.

The federally published literature of the early to mid-nineties, based primarily on theory, stresses the projected benefits of outsourcing. In From Red Tape to Results, Creating a Government That Works Better and Costs Less, the National Performance Review lead by Vice President Al Gore

warned DOD to take advantage of outsourcing to save the money it needed for future improvements. To cajole DOD into increasing its reliance on outsourcing, the report made an accusatory statement against DOD, "But at the Pentagon, a bias against out-sourcing remains strong" (Gore 1993, 58). The DOD, March 1996, response Improving the Combat Edge Through Outsourcing to Section 357 of the National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, contains nineteen pages full of the benefits of outsourcing (DOD 1996). The available DOD literature, published in the latter part of the decade, takes a more conservative approach toward outsourcing. The Defense Reform Initiative Report, published in November 1997, stresses the value of competition and not outsourcing in lowering cost (DOD 1997).

The studies conducted by graduate students seem to contain the least amount of bias. Elizabeth A. Snyder (1995) in Public or Private: The Outsourcing Dilemma Within the Department of Defense, lists the advantages as well as the disadvantages of outsourcing. Several information reports prepared for the Office of the Secretary of Defense, such as Shaping and Integrating the Next Military: Organization Options for Defense Acquisition and Technology (Bracken, Birkler, and Slomovic 1996), prepared by RAND's National Defense Research Institute, were intended to assist DOD in their decision process regarding the use of outsourcing. These reports generally focus on the

advantages of outsourcing. When negative aspects are discussed, they provide recommendations to make outsourcing work effectively. Through research I found that these reports, although sponsored by federal agencies, were produced by outsourcing the research and writing to private companies. The most classic report in this category and most often quoted in other sources was the Report of the Defense Science Board Task Force on Outsourcing and Privatization (Defense Science Board 1996). Appendix B of that report lists the members of the task force. Every major defense contractor had at least one representative. Since the authors had a vested interest in DOD outsourcing additional work, the credibility of these reports is questionable.

Although many of the combat service support officers and soldiers are being replaced by civilian contractors, to date none of the literature discusses outsourcing the arms carrying forces. This finding is consistent with the recommendations in the literature that discuss keeping core functions with the parent organization. Apparently for DOD, many authors consider core competencies limited to the actual combatant. All other jobs are considered full time equivalents (FTE) and subject to possible outsourcing.

Privatization

The term privatization only applies to Government operations. Privatization is similar to outsourcing, but in

this instance the Government would also transfer the assets necessary to perform the mission to the private sector. The available literature supports this definition and was researchable. However, the literature pertaining to the use of privatization in DOD limited discussion to two main areas: cost savings and impact on the constituency of the Congressman. The quality of the work is rarely discussed, and the ability to perform during periods of mobilization is not even considered.

A large majority of the available literature on privatization focusses on depot level maintenance. The General Accounting Office (GAO) published eight or more reports and studies in the past four years dealing with outsourcing and privatizing the maintenance workload. The next section of this report includes discussion on both outsourcing and privatization of maintenance operations.

Maintenance Operations

Articles discussing maintenance operations appear frequently in the literature. So many of the articles written about maintenance operations discuss the possibility of outsourcing or privatization, this function could have been incorporated into one of those sections of the paper. However, it proved such a widely controversial topic, that will have a great impact on logistics in the twenty-first century, it merited separate discussion. In their report to Congress, Defense Depot Maintenance, Opportunities to

Privatize Repair of Military Engines, the General Accounting Office (GAO) discussed the entire spectrum of benefits as well as the disadvantages of privatization of depot maintenance (GAO 1996).

The closing or privatization of maintenance depots raises a great deal of controversy, and concerns for many Congressmen, because of the impact it has on their voter constituency. Articles frequently address the impact on the communities surrounding former DOD maintenance facilities. The loss of civil service jobs, to the private sector, rather than the effect on the warfighter seems to be the greater concern.

One aspect of maintenance operations, not often seen in the other elements of an agile infrastructure, was the amount of literature that discussed increased jointness as a solution to improving maintenance operations while reducing cost. The General Accounting Office in both Navy Maintenance, Assessment of the Public-Private Competition Program for Aviation Maintenance (1996) and Closing Maintenance Depots, Savings, Workload and Redistribution Issues (1996), cited prime examples where the Navy sent workload to the private sector without even considering the Air Force depots as alternatives. Barry W. Pitcher in, Improving DOD Teamwork and Efficiency by Maximizing Depot Maintenance Interservicing (1996), presents the most comprehensive evidence for increased interservice activity

among the maintenance depots. In his report he cites specific examples for increased jointness.

Right-sized Inventories

Literature depicting the value of reducing inventory levels to increase profit margins in the private sector is readily available. The adaptation of this practice by the DOD is another example of a commercial business practice being adopted by DOD. The main focus in the literature available on right-sized inventories deals strictly with cost savings. The long-term impact of reduced inventory levels on the DOD's ability to conduct its mission during periods of mobilization or an extended operation are non-existent.

A February 1997, report by the General Accounting Office, entitled, Defense Logistics, Much of the Inventory Exceeds Current Needs, discusses nearly two million inventory items valued at approximately $40 billion considered to be excess. In his reply James B. Emahiser, assistant Deputy Under Secretary of Defense (Matériel and Distribution Management) states the fact that DOD intends to reduce its inventory levels by around $21 billion by the year 2003 (1997). Although they disagree on the definition of excess matériel, both affirm the immediate need for DOD to reduce the current inventory levels.

Additionally, other articles discuss current initiatives, such as "prime vendor" and "direct vendor

delivery," that will also reduce the required on-hand inventory levels while improving service. The entire process used to determine stockage levels is currently undergoing revision. Although this paper addresses some of those changes, new literature appears frequently. This area should be closely monitored to ensure the cuts and new programs do not negatively impact DOD's ability to support its forces in the twenty-first century.

Civil Engineering Support

The majority of the available literature discusses outsourcing civil engineering support functions to contractors to build and repair CONUS infrastructure. In addition to the articles dealing with CONUS base support, there is also literature available that discusses using host nation support to provide needed infrastructure such as warehouses, roads, pipelines, airfields, etc., overseas. Positive reports of hiring civil engineers to support DOD operations in Vietnam attest to the success of this practice.

Using contractor services to obtain needed infrastructure demonstrates a prime example of outsourcing. For the purpose of this paper, articles pertaining to this subject were considered under the outsourcing heading and were not addressed separately.

Secondary Item War Reserve/Prepositioning

Literature dealing with secondary item war reserve matériel most frequently discusses prepositioned matériel. The war reserve program and prepositioning will play a vital role in DOD's ability to perform its mission in the twenty-first century. Prepositioning the right matériel in the right place will prove extremely beneficial to the overall focused logistics strategy. An effective, comprehensive secondary item war reserve program would also provide a safe-guard against the potential negative effects caused by too aggressive a plan to right-size the inventory. Enough literature, on both of these subjects, is available to merit separate studies.

Value of This Study to the Existing Literature

Prior to this study one single source, the Focused Logistics Roadmap (Joint Staff 1997) linked an agile infrastructure with such topics as outsourcing and commercial business practices. This study expands the available information by discussing the components of an agile infrastructure as defined in the Focused Logistics Roadmap. It collects references and provides the reader a single source bibliography that can serve as a starting point to conduct further research. In a limited manner this paper analyzes source material, draws conclusions and provides recommendations for future studies dealing with the components of an agile infrastructure. It enables the

reader to begin to conceptualize logistics in the twenty-first century operating with a reduced footprint.

CHAPTER 3

RESEARCH METHODOLOGY

Background

The original intent of this project was to respond to a request from the Joint Warfighting Center, Concepts Division, Fort Monroe, Virginia submitted in a research topic data sheet, 1997. "The concepts and ideas contained in the Chairman, Joint Chiefs of Staff, Joint Vision 2010, and the Concept for Future Joint Operations provide descriptions of the concepts [of focused logistics] but do not provide the rich detail necessary to move to the experimentation or assessment phase of development" (Joint Warfighting Center 1997). In order to understand the statement, the first challenge was to understand the meaning of focused logistics. The Focused Logistics Roadmap (Joint Staff 1997), provided the background needed to begin the project. Since time would require limiting the topic, the research was confined to one of the tenets of focused logistics, agile infrastructure.

Conducting The Research

Phase I

The research was conducted in two phases. Phase 1, consisted of gathering available published material using the standard search methods through the various indexes of available literature. Studies linking an agile infrastructure with the DOD were virtually non-existent.

Searching each element of an agile infrastructure as defined in the Focused Logistics Roadmap (Joint Staff 1997), produced results. The individual topics searched included: commercial business practices, outsourcing and privatization, maintenance operations, civil engineering support, right-sized inventories, prepositioning, and secondary item war reserves. However, the information gathered did not specifically address the original question to be answered by this paper, "how well the DOD would be able to support the fighting forces operating under an agile infrastructure?" There were no references addressing that specific question, and very little discussion regarding performance.

The topics of outsourcing and privatization seemed to dominate the literature and best business practices and maintenance operations often surfaced when researching those subjects. It became apparent, that in order to analyze these four elements of an agile infrastructure, it would be necessary to approach the research by taking advantage of the existing relationship among the four sub-topics. The necessity of using a combined approach in analyzing the literature rather than studying separate entities also became apparent.

The meaning of, "The concepts and ideas . . . do not provide the rich detail necessary to move to the experimentation or assessment phase of development," (Joint

Warfighting Center 1997) also became apparent. The majority of the literature was based on theory and assumptions. To complicate the analysis, authors often disagreed regarding the projected outcome, that would result from adopting the elements of an agile infrastructure.

Phase II

To substantiate their position many of the authors referenced material published by other experts in the field. In order to validate the theories presented in the articles found in the Phase I search, it was necessary to find the original articles they referenced. Locating those original sources was accomplished during Phase II.

Organizing the Material

While attempting to organize the materials collected during the Phase I and II searches, it became obvious that the material could not be divided into the separate categories depicted in the Focused Logistics Roadmap (Joint Staff 1997). No articles linked commercial business practices with the DOD. However, several references discussed how the DOD had adopted the commercial business practice of outsourcing. Many of the articles dealing with outsourcing discussed using civil engineer support to obtain needed support services such as road repair, on-base housing and dining facilities, in the daily operating of the bases. The studies found under the subject of maintenance

operations often discussed the outsourcing and privatization of these functions.

Instead of viewing the components of an agile infrastructure separately as depicted in the Focused Logistics Roadmap (Joint Staff 1997), the outline in Figure 1 illustrates the organization used to categorize the elements of an agile infrastructure.

A. Commercial Business Practices

1. Outsourcing and Privatization
   a. Maintenance Operations
   b. Civil Engineer Support

2. Right-sized Inventories

B. [War Reserve Matériel]

1. Prepositioning
2. Secondary Item War Reserves

Figure 1

Evaluating the Material

After gathering the materials and deciding on a workable organization, determining the validity of the findings became the next step in the research process. Many of the articles contained a great deal of bias. For example, the articles dealing with outsourcing in the private sector were often written by individuals employed by an outsourcing firm. Since an outsourcing firm survives strictly by providing contract services, of a various nature, to support other businesses, the articles only discussed the advantages of outsourcing.

With the exception of the reports published by the United States General Accounting Office (GAO), and works published by graduate students, most of the articles discussing outsourcing DOD work were written by private contractors. These authors had a vested interest in the private sector winning additional government contracts. Articles published by GAO appeared to present a somewhat skeptical approach to outsourcing government work and helped to balance the information by presenting some of the disadvantages.

In most instances graduate student work portrayed the most unbiased opinion and added significantly to the analysis. However, even works in this group had to be scrutinized. One student's work was sponsored by a private organization looking to sell a service to the DOD.

So many of the sources contained bias, determining the author's motives became an important step in the research methodology. If the theories used to support the cost effectiveness of an agile infrastructure were based on incomplete or erroneous data the findings would not be accurate. Authors, who favored transferring public work to the private sector, may have used selective reporting to prove their theories. Projecting DOD's ability to save money while continuing to adequately support logistics operations within an agile infrastructure, depended heavily on accurate and complete reporting.

Revising the Strategy

The original intent of the project was to collect the opinions of the experts regarding DODs ability to perform its logistics mission operating within an agile infrastructure. Since the articles did not discuss this aspect of an agile infrastructure, I formed my own opinions.

After reading the material selected during Phase I of the search, the ability of DOD to save money by adopting the elements of an agile infrastructure appeared obvious. However, GAO questioned the financial savings, reported routinely in the other articles. In fact, the majority of the papers/articles dealing with outsourcing and privatization of government work, specifically addressed the financial aspects. Since JV 2010 relies heavily on reprogramming logistics dollars into areas such as developing new weapons systems, cost savings must be achieved. Without the added revenue for use in the rest of DOD the success of JV 2010 is also in jeopardy. Due to the overwhelming emphasis on the financial benefits of outsourcing, both pro and con, cost savings became an important part of the analysis section.

Analyzing the Literature

By studying and comparing the information being reported by the experts and attempting to understand their logic, it was possible to begin forming opinions, on the effect operating within an agile infrastructure will have on

future DOD operations. The outline that was developed proved successful in structuring the material and allowed a logical approach to the analysis. Occasionally overlapping interests presented difficulty in determining which area to report a particular finding. For example, to prevent repetition, articles discussing outsourcing maintenance operations were included only in the maintenance operations section of the paper. The results of the search along with an analysis are presented in Chapter IV of this paper.

Conclusions and Recommendations

The results of the Chapter IV analysis revealed an ample amount of material useful in forming the conclusions for Chapter V. The conclusions reached as a result of this study, in the area of direct cost savings through outsourcing, often differed from those presented by the "experts." This thesis does not attempt to disprove the theories of the other authors, instead it offers alternative theories as possibilities that should be considered when making decisions affecting the logistics footprint of DOD in the future. Wherever possible recommendations to correct potential shortfalls are included.

CHAPTER 4

ANALYSIS OF THE COMPONENTS THAT WILL FORM AN AGILE INFRASTRUCTURE

Introduction

Logistics of the twenty-first century must be swift, effective, less expensive and joint. In order to accomplish these goals logistics must be tailored, streamlined, and directed. Future logistics must be "focused." Logistics must cross existing traditional service branch lines and operate with less infrastructure and an overall reduced footprint. Focused logistics will require an agile infrastructure to accomplish these goals. The most effective method for establishing this agile infrastructure in a manner that will meet DOD requirements for focused logistics in the twenty-first century, has been the subject of much debate in recent years. This thesis attempts to analyze what the experts are saying and determine what effect an agile infrastructure, as defined by the Joint Staff in the Focused Logistics Roadmap (1997), will have on the DOD's ability to perform its mission.

Commercial Business Practices

In recent years, attempting to gather new ideas for process improvement, the DOD worked closely with the business community, in a relationship known as "benchmarking." Increased emphasis on revitalizing the way the Federal Government conducts business began on March 3,

1993, when President Clinton recommended Vice President Al Gore conduct a formal review of government practices. Although patterned after the commercial industries' top-down reviews, in order to dispel fears that the government intended to impose additional bureaucratic requirements, the review adopted a bottom-up approach. Ideas for improvement came from all citizens in all communities including: federal, state and local government employees, working class and business professionals. The finished product From Red Tape to Results, Creating a Government That Works Better & Costs Less (Gore 1993), a report of the National Performance Review, was published in September 1993. Many of the ideas for improving the government processes contained in this report were patterned after proven commercial business practices.

In October 1997 the National Performance Review, in a report entitled, Businesslike Government: Lessons Learned from America's Best Companies (Gore 1997), presented the results of those changes initiated in 1993. The report contained over 100 pages clearly demonstrating the improvements made by the Federal Government, over the four-year period, by patterning such areas as customer service, reengineering and information technological improvements from the commercial sector.

The DOD, in conjunction with the recommendations of the National Performance Review, took action in 1993 and

continues to reshape its processes now, using proven commercial business practices. In November, 1997, Defense Secretary William S. Cohen released the Defense Reform Initiative Report (DOD 1997). Chapter 1, of the report entitled, "Adopting Best Business Practices" summarizes the changes made by DOD as a direct result of lessons learned from the business community.

Many of the commercial business practices, such as: outsourcing, reengineering, downsizing, inventory reduction, being adopted by the DOD are critical elements used in formulating an agile infrastructure. These specific commercial business practices will be reviewed in detail in the following paragraphs.

Outsourcing and Privatization

A relationship exists between the terms outsourcing and privatization, but the terms are not interchangeable. When speaking of government, the terms are related in that both involve the transfer of traditional government functions to the private sector. However, privatization does not apply to commercial business since, it also includes the transfer of government property to the private sector. Although many of the references still use these terms interchangeably, most experts do not. In this paper outsourcing refers to the procurement of goods or services by a company, business or government agency from another company, business or government agency. Privatization refers to the procurement

of services by a government agency from a private contractor but also includes the transfer of "real property" formerly owned by the government.

The Evolution of Outsourcing

In recent years the term outsourcing gained significantly increased emphasis, however, the concept is not new. "Contracting out," as the practice was called in the past, often provided a way for small companies and businesses to obtain services they could not, or chose not to provide themselves. Whereas fifty years ago, small businesses hired an accountant to "keep the books" or a cleaning lady to "sweep up," in today's environment that practice would be termed outsourcing.

Although the terminology changed, the reasons businesses outsource today remain the same as they did fifty years ago. For example, the owner of a small card and gift shop needed to focus on the card and gift business. If that shop owner spent too much time learning tax laws, balancing books or cleaning the floor, their knowledge of the latest products available in the card and gift industry would decline and their business could suffer. In order to have more time to spend on their main "line of work" they simply hired help for the other things. Today the term "core competencies" replaces yesterday's term "line of work."

In business today, the same logic applies. When a small business sees an opportunity to procure services that are more efficient or cost less than can be provided in-house they contract-out, or outsource. A second reason companies outsource today, as in the past, is to keep their employees focused on the core mission.

Vice President Al Gore's, From Red Tape to Results, Creating a Government That Works Better and Costs Less (1993), started the avalanche of articles dealing with outsourcing. In that report, the National Performance Review (NPR) specifically tasked the DOD with implementing, "a comprehensive program of contracting non-core functions competitively" (Gore 1993, 58). This message delivered future promise to the many companies currently providing services to the defense industry through an outsourcing relationship. Opening additional government jobs to the private sector created a new avenue for the business entrepreneur to "make money." Defense contractors, anxious to see this trend continue, in order to increase their profits, cooperated to the fullest extent possible.

In August 1996, when the Defense Science Board (DSB) published their report on outsourcing and privatization, they interpreted Vice President Al Gore's message as a direct order to "outsource everything." As directed, they applied the many lessons learned from the business world's outsourcing experiences to the DOD. In situations where

business experiences did not apply directly to Government they shaved off enough of the differences to force the application. In other words, they "took a square peg and fit it into a round hole."

Private Industries Outsourcing Experiences

Access to Expertise

Gabig (1996), Novo (1997), Bergman (1996) all report the one reason for choosing outsourcing is increased access to expertise. Novo makes reference to the fact that in the information technology (IT) arena, 63 percent of the CIO's stated the main reason they outsource is, "to gain access to people and companies with specific expertise in client/ server technology" (Novo 1997, 5). Bergman cites the potential of using newly developed systems and practices established for other customers as one of the advantages to choosing a company that specializes in providing logistics services (Bergman 1996). By hiring an outside provider with total access to the distribution system the small company gains valuable resources that would not be available even from one full time shipping specialist. These arguments offer validity for outsourcing, however, they ignore the fact that DOD has entire agencies, such as DLA and DISA with unparalleled experts, devoted to providing these services.

Profile of Companies That Choose Outsourcing

Private industry uses outsourcing for a variety of reasons. Bergman points out that, "Of the 1.6 million firms

that Dun and Bradstreet examined, the ones most likely to use outsourced services include retailers, wholesalers and manufacturers" (1996, 19). She also found, "third-party providers are most frequently used by mid-size (sales between $1-5 million) companies, 71 percent of companies that outsource have very small staffs - less than 10 employees. Only about one percent of companies with large staffs - 500 or more - use outsourcing" (Bergman 1996, 19).

Although many of the authors quote the Dun and Bradstreet finding as a business practice from which the DOD can benefit, the relevance of the study to DOD is questionable. Due to its size and the distinct nature of DOD business, studies based on private industry practices require detailed analysis before their findings may be applied to DOD. None of the authors provide the required analysis to link the Dun and Bradstreet study to DOD.

Outsourcing Information Technology Requirements

The DSB Task Force reported the most frequently outsourced function is information technology (IT), accounting for one-half to two-thirds of all outsourcing (DSB 1996, 16A). Lynn A. Novo confirms these findings in Outsourcing-Does it Work for HP Shops?. Novo also reports that large corporations, such as General Electric, Owens-Corning, Ford Motor Company, James River, and Smith Kline Beecham, all have outsourced at least a portion of their IT functions to Hewlett Packard (Novo, 97). Some larger

corporations, mostly in the area of information technology, adopted this practice as well. In the area of IT it becomes extremely difficult to stay ahead of recent advancements without a full time dedicated staff of professionals. For example, rather than using its own IT experts, a large corporation such as General Motors, might outsource installation of a LAN system. By outsourcing the LAN functions, General Motors IT experts can focus on designing computers for use in GM products. Compatibility between systems, which often include copyright restrictions, provide additional incentive to outsource some IT requirements.

Many of the works favoring increased outsourcing, such as the Report of the DSB task force on Outsourcing and Privatization (DSB 1996), attempt to generalize the benefits derived from outsourcing IT functions to other areas. This over-generalization into non-IT areas, creates a false impression of the benefits of outsourcing. Lessons learned by studying outsourcing IT functions in the private sector should only be applied to DOD when considering outsourcing information technology services.

Focus on Core Competencies

Gabig (1996), Abdrahim (1998), Thompson (1997), all report one of the advantages to outsourcing is the fact that it allows increased focus on core competencies. The benefit of focusing on core competencies proves extremely critical to small businesses that can not afford the luxury of

separate departments for accounting, sales, distribution, manufacturing, etc. Companies that can afford to hire their own staff to perform these functions still do. No examples, or even discussion in the literature, recommend that a business should attempt to outsource all non-core functions.

One of the major proponents of outsourcing all non-core government functions, Loren B. Thompson, makes his point by using an inappropriate analogy. He cites examples where businesses chose to outsource, what they considered non-core functions, in order to focus on core competencies. Thompson states that Chrysler corporation outsources two-thirds of its automobile content, "so it can focus on engines, transmissions and skins" (1997, 31). He also points out that, "IBM has outsourced the manufacture of its computers so it can focus on design and marketing" (Thompson 1997, 31). Like many others that recommend outsourcing all non-core DOD functions, Thompson attempts to draw a conclusion where no relationship exists.

Before DOD attempts to identify core competencies and outsource all other functions, it needs to take a closer look at best business practices. The type, portion and reason companies maintain non-core functions in-house should be considered.

Saving Money

Abradrahim (1998), Novo (1998), and the DSB (1996) all agree that saving money is not the major reason companies

outsource. Even though it may cost more, gaining technological advantages seems to predominate the IT outsourcing industry. The Outsourcing Institute (1998) reports that companies usually outsource a function when the resources are not available within the company. They do not outsource available functions to save money. Abdrahim states, "Outsourcing is viewed as a more 'attractive' solution than building resources from scratch." (1998, 2)

Actual dollar cost savings, most often noted by the private sector, come in the form of reduced capital investment. Even though the actual cost of the operation may be higher, freeing up the initial investment dollars that can be channeled into more profitable areas is a good business practice. New airlines, often outsource the repair of their aircraft, because it is less costly than building an infrastructure that does not exist. They in turn can use the additional available capital, to buy more airplanes, to serve more customers, and generate immediate revenue. The older, more established airlines, that already have the infrastructure in place, keep the repair function in-house.

Companies are in business to make money. When they find areas that provide economic advatages to maintain in-house, the function stays with the company even though it may not be a core function. For example, a company such as General Motors that manufactures and sells cars and trucks still has employees who work in the accounting and payroll

division. For large corporations economic advantage is gained by retaining this type of function in house.

Economies of scale seem to be one of the most prominent determining factors in deciding which function should be performed in house. Payroll, tax preparation, and other accounting functions are more economically outsourced by small companies that cannot take advantage of recent technological advances that automate payroll and tax functions. In a situation like this, it makes economic sense to outsource these functions to an accounting firm that possesses the modern technology and staff to perform the accounting functions. Larger corporations that can afford modern technology and a full time accounting staff keep these functions in-house.

Under certain circumstances private companies do report saving money through outsourcing. The amount of savings depends largely on the size of the company and its stage of development. Each case must be viewed separately and can not be generalized.

Benefits of Outsourcing to DOD

Save Money for Use in Other Programs

The concept of the DOD saving money through increased outsourcing originated in Vice President Gore's, From Red Tape to Results, Creating a Government That Works Better and Costs Less (1993). According to the National Performance Review:

> Facing a swift falling budget, the [D]epartment [of Defense] literally can't afford to do things its usual way - especially when private firms can perform DOD's non-core functions better, cheaper, and faster. (Gore 1993, 58)

In May 1995 when the Commission on Roles and Missions (CORM) of the Armed Forces published the Directions for Defense they concurred with the Vice President; elaborated on his recommendation and stated:

> We are confident our recommendations for greater use of private competition will lower DOD support costs and improve performance. A 20 percent savings from outsourcing the Department's commercial-type workload would free over $3 billion per year for higher priority defense needs, such as the equipment modernization required in the next decade. (CORM 1995, 3-2)

The next most often quoted report comes from the report of the DSB Task Force in August, 1996. They strongly emphasize a need for the government to outsource everything it possibly can. In its final report on outsourcing the DSB recommended, "that the Secretary of Defense reiterate in a formal policy statement that the private sector is the preferred provider of support services." (DSB 1996, 53A) Their argument for this additional outsourcing is that the government can save money and invest that money in needed new weapons systems. The DSB calculates these savings to be $7 - $12 billion.

Daniel Gottlieb, in his article "Privatizing the Pentagon's Noncombat Operations," states Business Executives for National Defense (BENS): "estimates savings could hit $12 billion to $16 billion per year if just half of the $120

billion to $140 billion that DOD spends on noncombat functions were privatized" (Gottlieb 1997, 44). He then cites the example of an outsourcing project, at the National Security Agency, where all travel planning was given to American Express that resulted in cutting the indirect cost of travel in half by simplifying paperwork and speeding up reimbursement. He fails to mention the fact that major changes in the process were instituted by the National Security Agency prior to involving American Express. The internal changes account for a greater portion of the cost and time reduction than the outsourcing. This example of selective reporting plays a critical role when analyzing the data in order to reach conclusions.

Using the same logic that Mr. Gottlieb used to project savings of $12 - $16 billion, Thomas G. McInerney (CEO and president of BENS) and Erik R. Pages in their article, "Bolstering Military Strength by Downsizing the Pentagon," state:

> The Department of Defense can save nearly $30 billion by aggressively reengineering the administrative and support side of the Pentagon by taking actions such as privatizing military housing, outsourcing information technology, converting excess military bases to private use, and improving inventory management. (McInerney and Pages 1997, 78)

Later in the article they allude to the fact that base closures would account for about $3 billion of the savings. Although the article does not state that $27 billion can come from outsourcing and privatization, it never gives

further explanation from where the rest of the money will come.

Most of the proponents of outsourcing all non-core functions base this premise on the theory that outsourcing will save DOD dollars that can be programmed elsewhere. Dan King in a July 1997 article entitled, "Outsourcing is not a panacea," made a valid point regarding Navy misconceptions, that also apply to the rest of DOD. He emphasizes, that outsourcing initiatives save money because they force competition in an otherwise monopolistic arena. The Navy's entire logic for 20 percent to 30 percent savings is based on proven past cost reductions. However, these cost reductions resulted more from the competition aspect of the study than the outsourcing. Furthermore, many of the functions that remained with the government won out as the low bidder the last time they were matched against the private sector (King 1997).

Cost savings may exist as a result of outsourcing. However, they are not guaranteed and outsourcing may cost DOD more of the already scarce dollars. Each case needs to be thoroughly studied and analyzed for hidden or future costs before the outsourcing decision is made.

Focus on Core Competencies

Another benefit for DOD, often cited by the avid proponents of outsourcing, is the ability to focus on core competencies. Several authors emphasize the importance of

the DOD defining its core competencies. They propose if something is not core it should be outsourced. This recommendation to outsource all non-core functions originates in the report of the Commission on Roles and Missions (CORM) of the Armed Forces published in May 1995. Often quoted as the basis for increased outsourcing initiatives, the report states: "Outsourcing . . . has gained popular support in the private sector as companies focus on their own core competencies" (CORM 1995, 3-3).

In August of 1996 the DSB Task Force on Outsourcing and Privatization strongly emphasized the need for the services to outsource all their non-core functions. In order to do so, it strongly encourages the services to define the core competencies expeditiously so the remaining can be outsourced to save money while getting a better product. This recommendation by the DSB is contrary to their own recommendation that Government should adopt <u>best</u> business practices. Although core functions of a company are too important to risk to outsourcing and therefore are always maintained in house, the converse is not necessarily true.

There was no evidence, in any of the literature, indicating that a business would outsource all non-core functions. Furthermore, the DOD more closely resembles a conglomerate than a business. When determining core functions that must be maintained internally, DOD should

pattern their decisions on the nations conglomerates not businesses.

Competition Lowers Cost/Improves Service

Many areas where the government spends more money than it should to get a particular service performed still exist. These areas need review and reform. The one theme, central to almost every report, concurs that the government has more employees than it needs, and must trim to survive. Two main factors created this large number of excess employees, downsizing and technological advances.

McInerney and Pages point out in their article that, "Overall, [DOD] spending has shrunk nearly 40 percent since 1985." The DOD "oversized support structure has largely resisted change," claiming that the support to warfighter ratio has shifted from 50:50 to 70:30 today (McInerney and Pages 1997, 78). These ratios, widely accepted by other authors as well, attest to the need for government cutbacks and downsizing. Competition between the public and private sector, such as occurs when conducting an A-76 study in accordance with the Office of Management and Budget (OMB) Circular No. A-76 procedures, forces the government organization to evaluate the number of employees it uses to perform a mission (OMB 1996). In an A-76 study the cost to complete a specific task by government employees is compared with bids submitted by the private sector to complete the same task. Many authors agree that, this internal review

and resultant downsizing, accounts for a large portion of the savings realized when an area is reviewed for possible outsourcing. It is the competition that drives the cost down and not necessarily the outsourcing.

One of the main factors to ensure the success of any outsourcing attempt is finding enough sources to bid on the request for proposal (RFP). Tyborowski, Pimack and Matthews (1997) state, that to get the best proposals requires a minimum of three bids. If a job is too large to obtain the three bid minimum, break the job down into smaller units that will allow for additional bids. They also support the more recent findings that competition not privatization [outsourcing], "has led to cost savings and improved government service provision." (Tyborowski, Pimack and Matthews, 1997, CC.03.1) Eliminating the government from being one of those bidders is a step the DOD literally can not afford.

The figures in table 1, list the bids submitted by the various shipyards contracted to build heavy cruisers in 1927. The cost estimates submitted by private industry to build the exact same ships were approximately 25 percent higher than the public bids. By comparing the cost of the work being performed by government operated shipyards with those in the private sector, the government was able to determine if the private offeror's prices were reasonable.

Table 1. Accepted Bids for Heavy Cruiser Construction 1927

No. 26	Bethlehem	$10,675,000
No. 27	American Brown Boveri Electric Corporation	10,815,000
No. 28	Puget Sound Naval Yard	8,395,000
No. 29	Mare Island Navy Yard	7,539,815
No. 30	Newport News Shipbldg & Drydock	10,567,000
No. 31	Newport News Shipbldg & Drydock	10,567,000

Source: Secretary of the Navy, Op. cit., 1927, p.73. as cited in Mitchell, 1946, 361.

Although the government no longer builds ships, the requirement to keep organic expertise employed by the government remains. All experts agree, "competition lowers cost and improves service" and "private industry must realize a profit to stay in existence." Profit margins among companies competing for similar work in the vicinity

of 25 percent higher than the government estimates seem appropriate. However, proponents of outsourcing predict substantial savings by increasing the amount of government work divided solely among private contractors, while eliminating government entities from the competition. These predictions are based on false assumptions.

In an effort to criticize the mistakes DOD made in the past, McInerney and Pages (1997) remind their readers of the days of the $600 toilet seats. They fail to point out that the payment for those toilet seats went to a commercial contractor. Defense of the country proved quite profitable for business in the past. There is no reason to believe profit margins will not influence defense contractors bid proposals in the future. It is critical to keep the government as one of the bidders when seeking competition to get the most value for the DOD dollar.

Most Efficient Organization (MEO)

Referring back to table 1, another question is raised. If in 1927 the government could build ships 25 percent cheaper than private industry, why in 1997 is the opposite true? As was previously discussed, support infrastructure did not decrease proportionately to the downsized military fighting forces. The current numbers of DOD employees are too high. When competing with the private sector the government entity is allowed to submit its bid based on its proposed Most Efficient Organization (MEO). The MEO is the

actual number of employees the organization believes are necessary to accomplish the mission.

Many authors, including the Defense Science Board, report that government employees can do it cheaper than the private sector when they reach their MEO. Before a job can be outsourced an A-76 study must be conducted to determine how much the function will cost if the government performs the mission. The cost is based on the MEO figures and not the actual past performance records. Private industry enters their bid. If the private bid is not at least 10 percent lower than the government bid, the work stays with the government employees. The organization is expected to take action to reduce its number of employees to the MEO within one month of rejecting the bid from the private offerer. The number of employees used for the bid must be reached within six months. The OMB, Circular A-76 handbook lists the penalties, that may be imposed on organizations failing to comply with this requirement (OMB 1996).

The DSB disagrees with this practice, and believes the government organization should be forced to enter their actual costs, rather than use the MEO figure. This method of bidding would allow additional work to go to the private sector and would punish those organizations, who do not reduce excess capacity when appropriate. However, it would not save DOD or taxpayers dollars. In their reports the DSB and many of the other strong proponents of "outsourcing

everything" often lose sight of the goal which is to save the money DOD needs for new weapons technology.

Business Motives for Additional DOD Outsourcing

Businesses in the 1990s still hold generating profit as their primary mission. The primary mission of government agencies remains providing a service to the American public. None of the literature identified any private businesses whose sole purpose was to provide a service to the government. The strong advocates of outsourcing government work ignore this fact in their reporting. By using words like, "private industry can do it better and cheaper than the public sector," the proponents of outsourcing lead their readers to believe this statement to be the truth. Although instances where private industry has proven more efficient and less expensive do exist, it does not mean "always" or "every time," and each case must stand on its own merit.

The majority, if not all, the articles based on the theory that, "private industry does it better and cheaper," have one common element. They were written by businessmen who stand to profit personally from increased government outsourcing. Although, Vice President Gore used the "better and cheaper" phrase referring to private industry in Creating a Government That Works Better and Costs Less, he made the statement in 1993 prior to the many government reforms that have since taken place.

Furthermore, when reviewing committee reports it is essential to understand their typical construction. Speaking from personal experience on similar committees, usually a few contracted personal actually do the research and writing and then they report their selected findings to the rest of the committee. Even though companies such as Business Executives for National Security (BENS) and RAND Corporation are non-profit organizations, they do bring a business model background into their writing. The membership of the DSB included representatives from, Boeing Defense & Science Group, Westinghouse Electronics Group, Westinghouse Electric Systems, General Electric, and private consultants (DSB August 1996, app b). It is not surprising that their findings strongly support additional unlimited and unrestricted outsourcing. J. Michael Brower agrees, "that the DSB generally consists of a membership that can be less than objective" (Brower 1997, 390).

There is no reason to believe, that in the year 2000, private industry will be more interested in defense of the country than in making a profit.

Privatization

Unlike outsourcing, common in the business world, privatization is unique to government. Under privatization government assets as well as functions are turned over to the private sector. Almost all of the advantages and disadvantages applicable to outsourcing apply equally to

privatization. Three prime candidates where DOD either previously initiated or is considering privatization efforts include military housing, utilities and depot maintenance.

Privatization of Military Housing

Often cited as an example where DOD performs a mission totally unrelated to defense of the country, military housing may be a prime example justified for privatization. However, using the same logic applied by the nations conglomerates to determine core functions should be applied by DOD before deciding whether or not to privatize military housing. Additional research and studies are warranted.

Privatizing utilities

Many military bases operate decaying and inefficient utility services. Upgrades to these old systems could cost DOD capital investments in the vicinity of $20 billion (McInerney and Pages 1997, 84). Since utilities are not a core function in the traditional sense, and expertise and technological advancements in the private sector may offer substantial improvements in service at a lower cost, this mission may be ideal for privatization. Utilities should be reviewed for possible privatization.

Privatizing Maintenance Operations

The concept of privatization of existing maintenance facilities boasts of both pros and cons. Kitfield in his article, "Depots for Sale, Privatization in Place at the Sacramento Depot," lists some of the advantages. The

proponents of privatization insist privatizing depots will allow the Pentagon to shed infrastructure and excess industrial capacity. It avoids the usual costs incurred when closing a depot and will also preserve jobs. In reality on the down side, privatization does not reduce excess industrial overcapacity. Although the employees retain jobs, they are paid less and receive fewer benefits. Furthermore, GAO concluded that privatizing the work at Newark, another depot that was privatized, may cost millions more dollars than retaining the current system (Kitfield 1995, 44).

The next few paragraphs provide additional information, on both outsourcing and privatization of maintenance facilities.

Maintenance Operations

Although previously mentioned in the sections that discuss outsourcing and privatization, maintenance operations, one of the components of an agile infrastructure merits additional separate discussion. Maintenance operations account for a large portion of the service's expenditures of the operations and maintenance (O&M) budget. The Defense Reform Initiative Report projects $11.3 billion will be spent in Fiscal Year 1999 on depot maintenance. Of that amount $7.5 billion of the workload will be performed by the public sector with the remaining $3.8 billion being performed by private contractors. The Defense Department

realizes that it needs organic assets to meet core warfighting requirements and will only outsource up to the limit determined appropriate through its own risk analysis and within statutory limits (DOD 1997, 34).

Outsourcing Generates Competition in Maintenance Depots

Like all other aspects of outsourcing, maintenance operations can benefit a great deal from the competition generated through potential outsourcing. Although not all depot maintenance can be subject to outsourcing, due to the core nature of the mission, the savings resulting from the competition will provide benefits to the DOD. Previous legislation required that 60 percent of all depot level maintenance be performed using organic assets. Revised legislation may change that figure to a 50-50 split between government and private sector assets.

Excess Capacity a Concern for Maintenance Depots

Organic maintenance operations capabilities inherent to DOD currently exceed the requirements (Kitfield 1995, 43). This condition increases the cost of repairs and therefore wastes DOD and taxpayers dollars. Excess capacity precludes the capability of the government operated maintenance facilities from being competitive with their private sector counterparts and must be reduced.

For example, the cost of having an aircraft engine repaired in a DOD maintenance facility will be inflated proportionately by the amount of overcapacity. A facility

that has 1,000 employees doing the work of 500 would have to charge its customers twice as much to meet the payroll. The cost will likely even be higher than a private contractor operating at full capacity with a 25 percent profit margin. Although the tendency of the customer, such as an air squadron, would be to send the engine to the private company and save immediate squadron dollars, this practice compounds the excess capacity problem and eventually will cost DOD more money. As additional work goes to the private sector, it creates additional excess capacity. By reducing the number of employees to the required 500, the DOD maintenance facility should be able to perform the same work for 25 percent lower cost than the private sector equivalent.

Avid supporters of outsourcing would recommend closing all the DOD repair depots and allow the work to go to private contractors. This move would compromise security, since the government would not have direct control over the repair of vital defense assets. Without the government competition, private industry could charge any amount deemed appropriate and would eventually cost the DOD more money. Ciccotello and Green in their article, Industry's Downsizing Lessons caution the DOD not to repeat the mistake made by Honda [the car manufacturer] by reducing fixed costs too drastically. They propose that DOD proceed with caution so as not to cut too deeply and not have the infrastructure there if needed (Ciccotello and Green 1995).

Currently DOD outsources slightly less than 30 percent of its depot maintenance workload. Existing laws require a minimum of 60 percent of the workload be performed in-house. Proposed changes in legislation when approved will reduce this level to 50 percent. If the services take advantage of the revised limits to the fullest extent possible, increased excess capacity forcing additional closure of government repair facilities will result. In the event requirements increase, without the organic assets available, DOD will be required to purchase the needed services from private industry regardless of the cost.

This desire to increase reliance on the private sector comes from the misconception created in 1995-1996 that private industry can "do it cheaper." In reality, with the element of competition involved, DOD can do it more cost effectively. Keeping the Government-private sector mix around 30 percent is a smart business practice. It provides the needed competition to maintain the cost of the government operated facilities in balance with the private sector while keeping the lines of communication between business and government open. DOD would also have the required organic assets for immediate surge requirements, giving private industry ample time to come on line and sustain a given operation. Private industry has traditionally responded rapidly when there is additional money to be made.

In order to reduce per item costs, first DOD must reduce repair maintenance capacity to its fare share of the estimated workload, approximately 70 percent of the total. Second, DOD must ensure its organic assets operate at full capacity before outsourcing work to the private sector. Private industry has greater ability to expand and contract its workforce, through layoffs, and therefore can adjust more rapidly to workload variations.

Interservice Repair in Maintenance Depots

Additional interservice repair provides additional potential for reducing overall infrastructure costs to DOD through increased utilization of the excess capacity inherent in the system. Responsibility for the joint aspect of maintenance tasking was assigned to the Defense Depot Maintenance Council (DDMC) in a DEPSECDEF memo dated 30 June 1990. The council membership as amended by Change 2, 10 March 1994 included: the Commanding General of the Army Matériel Command; Commander of the Naval Air Systems Command; Marine Corps Deputy Chief of Staff for Installations and Logistics; Commander of the Air Force Matériel Command, and the Air Force Deputy Chiefs of Staff for Logistics (Pitcher 1996).

In 1996 and 1997, I attended monthly Navy Regional Maintenance meetings. Although numerous initiatives were presented to improve Navy maintenance, discussion regarding interservicing was either limited or non-existent. Based on

my limited experience, it appears as though each branch of the service approaches their problems individually instead of as members of a joint team.

Many weapon systems or common sub-components exist in the various services, yet efforts to combine the repair of these like components has been slow. Exploiting these untapped initiatives could provide economies of scale, within the DOD, that could reduce the overall repair costs. Instead one service may be outsourcing repairs while another service depot has excess capacity.

JV 2010 requires logistics support to be joint. Although, the amount of inter-service maintenance support increased over the past twenty years additional cooperation between the services is warranted. Combining the receipt, storage and distribution of repair parts under the Defense Logistics Agency (DLA) appears to have been successful in breaking the service parochialism in this area. It may also be prudent to assign maintenance repair facilities to a single joint agency. This unification would also give one agency responsibility for ensuring the right mix of organic and private industry assets were being used.

Rightsized Inventories

Managing DOD's multi-billion dollar inventory continues to be one of the most costly aspects. In addition to the capital investment inherent in a large inventory, the infrastructure to house, and the related maintenance,

continues to drain DOD dollars. DOD has taken action to reduce its overall inventory levels, including individual service and DLA matériel, from an all time high of $107 billion in 1989 to $69.6 billion in 1995 dollars. DOD predicts additional inventory reduction to around $48 billion by the year 2003 (Emahiser 1997).

A report, Much of the Inventory Exceeds Current Needs, by the General Accounting Office (GAO) issued February 28, 1997 analyzing the results of a study conducted between April 1996 and January 1997 confirmed DOD has sufficient on-hand stock to perform its mission. Although DOD and GAO disagree as to the method of determining the needed and excess quantities, both agree there exists excess stock in DOD that can be right-sized with no apparent detrimental effects on DODs ability to perform its mission.

Jointness in Receipt, Storage and Issue of DOD Stock

Before the various reviews of the early nineties, DOD realized there were economies of scale to be achieved in the way it managed its stock levels. Many changes took place in the last two decades with regard to managing the DOD inventories. Previously, wholesale levels of consumable stock were maintained by the Defense Logistics Agency (DLA) while the individual services kept their own retail levels. This two tier system was both cumbersome and costly. Under the revised procedures the individual services retain the responsibility for procurement and determining stock levels

for service unique items. DLA receives, stores and issues all DOD inventory at one of its depots.

The former service supply centers and depots were either closed, many through BRAC actions, or placed under the management of the Defense Logistics Agency (DLA). Although the concept was first rejected by the services for fear that they would lose control over vital assets, the idea was gradually accepted and continues to move forward. Combining the various individual service depots under DLA management provided other benefits in addition to reduction in required inventory levels.

Procurement of the latest available warehousing information technology by DLA for use throughout all DOD storage facilities eliminates the need for the various services to procure technology separately. Single system purchases of IT provide economies of scale and assures compatibility. Upon completion of installing a new state of the art stock information system, the Defense Distribution Standard System (DSS), DLA Item managers will have total asset visibility of all DLA stock located in their twenty-one depots. Providing the item managers visibility of stock, the moment it is placed on the shelf in a DLA Depot, will allow for reduced inventory levels and rapid distribution.

Combined with a rapid transportation system that employs DLA transportation assets, TRANSCOM assets, FEDEX,

UPS, USPS and private contract carriers allowed DOD to move from the old "just-in-case" inventory model closer to the newer business like approach of "just-in-time." However, as LTG Cusick, USA Director for Logistics, J-4 of the Joint Staff, pointed out in a panel discussion, the DOD must be prepared for war and can not operate solely on a just-in-time inventory model. A safety level must always be maintained (Cusick, Willis, Kracja, Turner, et al, 1997, 14). DOD's new approach to stock distribution meets the "Joint Vision 2010" criteria of swift, effective, less expensive and joint.

Moving Matériel Into the Theater of Operations

Lessons learned from the Gulf War stressed the importance of total asset visibility until the matériel is actually delivered to the war fighter. DOD made significant progress in this area which will result in its ability to provide lean and focused logistics. Recent developments in information technology that will assist with total asset visibility include: bar code tagging, relational database systems, miniature global positioning system receivers and position-reporting transmitters, satellite and fiber command and control communications links, and predictive planning tools (Muczyk 1997). Monitoring the movement of the matériel to the end-user, employing advanced technological developments will prevent sending unnecessary duplicate

shipments and therefore reinforces DOD's ability to operate with reduced inventory levels.

DLA Initiatives Prime Vendor (PV)/
Direct Vendor Delivery (DVD)

Often heralded as the forerunner in obtaining best value, the Defense Logistics Agency (DLA) continues to initiate new approaches to inventory management. In an effort to further reduce the on-hand stock levels, and related expenses, DLA instituted two promising initiatives. "prime vendor" and "direct vendor delivery." Although some authors refer to these initiatives as a form of outsourcing, they are not.

Under the prime vendor concept, a single vendor is awarded a contract for a common commodity such as food or medicine. The contractor agrees to fill the requirements ordered by a customer which could be a ship, base unit, or shore establishment. As the vendor's reward for maintaining ample stock to meet the demands of the customer, the government agrees to place all orders for the items listed in the contract from that one vendor. Thus far the results have been rewarding. Customers are pleased with the product and the reported fill rates are satisfactory.

The greatest benefit from both of these systems is the elimination of the role of the "middle man" from having to receive, store and issue the matériel which saves DOD dollars. These functions previously performed at the Defense Depots were eliminated and the personnel reassigned.

DOD no longer maintains large inventory levels of these items, saving both warehousing costs and reducing other on-hand inventory level expenses. DLA predicted that by the end of FY 1997 half of its supply transactions would involve deliveries direct from the vendor to the end-user (Thompson 1997). Although this goal may not have been achieved use of direct vendor deliveries continues to increase.

The types of items, such as food and medicine, being procured using this approach are readily available on the open market. The contracts are written in a manner that ensures the vendors have contingency plans in the event of unexpected rapid deployment. DLA no longer stocking these types of matériel should have no negative impact on the DOD's ability to provide these types of materials to its fighting forces.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Joint Vision 2010 requires logistics of the twenty-first century to be swift, effective, less expensive, and joint. Through implementation of various initiatives, DOD continues to strive toward adopting the agile infrastructure necessary to achieve these goals. As evidenced by the review of the literature, individuals in Congress and private industry often attempt to influence DOD decisions for their personal benefit and make progress difficult.

Articles written from 1993-1997 contain many accusations of the inefficient ways DOD manages its budget. In response DOD's Defense Reform Initiative Report, published in November 1997, addresses these charges by providing a sound plan for the future of the DOD. Applying the principles stated in that report, DOD can continue to pursue the many initiatives currently in progress that will enable it to move successfully into the twenty-first century. Additional areas to be considered that will allow DOD to effectively operate within an agile infrastructure are presented.

Conclusions

Commercial Business Practices

One area which seems to have the most influence in DOD's ability to perform within an agile infrastructure is

its ability to learn from the private sector. Many of the ideas for reform in DOD were adapted from established commercial business practices. Although some of the authors, concluded that the private sector always performs better than the government, the conclusions formed as a result of this study did not substantiate those findings. Several areas that may improve the way DOD conducts business are presented.

Process Review

When deciding whether or not to privatize a traditional government function, one question must first be answered, how can private industry do it better, for less cost and still generate a profit? Detailed process analysis should be conducted before considering turning a government function over to a private contractor. In fact, in about 50 percent of the A-76 studies conducted, business could not perform better and cheaper than the government entity. In those instances the function remained with the DOD provider. The percentage of bids submitted by the nonprofit government organization that win the competitions should be greater than 50 percent.

DOD activities should not wait to have competition forced upon them. Through their own initiative they should begin studying the processes used by commercial activities involved in the same type of work. If they find the process being used by the private sector is more efficient and

streamlined, they should be given authority to make immediate process changes. Revising the current government procedures, rather than abandoning the mission, could improve service, reduce cost, and generate even greater revenue savings that can be reprogrammed into other DOD areas, such as weapons modernization. By taking a pro-active approach the activity would be in a more favorable position to make the right decisions.

Learning From Business through Benchmarking

One method of improving government services that gained increased emphasis around the time of Vice President Gore's initiative to re-invent government in 1993, known as "benchmarking" proved successful. In a benchmarking study the business community cooperates with government agencies by sharing ideas, offering personalized facilities tours, and providing high-level executives to attend meetings and answer questions. This practice benefitted both the government representatives as well as the private industry leaders. DOD should continue to stay involved in benchmarking studies and evaluate their methods for applicability in the government.

DOD Will Continue to Work With Business

In his opening address to the Defense Reform Initiative Report, Secretary of Defense William Cohen clearly indicates that DOD will stay abreast of modern business practices. Most authors, including this one, agree that DOD can benefit

by remaining innovative in their approach to the future, and American business is a proven leader in this arena. Chapter one of the Defense Reform Initiative Report entitled, "Adopting Best Business Practices" reinforces DODs commitment to keep an open dialogue with American business.

Outsourcing and Privatization

One component of an agile infrastructure adopted from the business world seems to dominate reform in DOD, outsourcing. All of the findings and recommendations presented here apply equally to one specific type of outsourcing unique to the government called privatization. The findings resulting from this study did not agree with those reported in most of the literature from 1993 - 1997. Although initially it appeared as though outsourcing could save DOD dollars, increased familiarity with the literature caused the reported direct savings to become less apparent. Other factors, resulting from the outsourcing studies, appear to have significant influence on DOD's ability to save money.

Efficiency Versus Outsourcing Can Save Even More Money

Efficiency in operating DOD activities should save more money than outsourcing the work. Since DOD activities do not have to realize a profit to stay in existence, they should be able to provide the same services as the private sector for a lower cost. When DOD finds activities where

this is not the case, it should determine the reason for the higher cost and attempt to eliminate it.

Most authors agree, that despite technological advances and force reductions over the past several decades, the federal government has not reduced its work force proportionately. This inefficiency causes the cost of work performed by the public sector to be higher than its private sector counterpart. From 1993-1997 many authors proclaimed outsourcing as the way of the future for DOD to reduce its cost. In fact it is the efficiency of private companies that often allows them to perform the work cheaper than the government equivalent. By instilling efficiency in the DOD work force, current costs can be lower than the offers made by private concerns. DOD should set a goal to operate at a cost 25 percent lower than the private sector.

Efficiency Through IG Inspections

Attempts to reduce the cost of government work began 20 years ago. In an effort to combat fraud, waste and abuse, Congress passed the Inspector General Act in 1978. Auditors assigned by the Inspector General (IG) periodically review efficiency at various government organizations, including DOD, to determine if the right number of personnel are assigned in the correct pay grades at a given organization. This method of monitoring government spending has proven ineffective and will likely be revised in the near future.

Efficiency Through Most Efficient Organization (MEO) Studies

The resultant downsizing generated by the possibility of outsourcing appears to be more effective in reducing cost at government activities than outsourcing the work. When attempting to win a bid as occurs in an A-76 study the government agency is forced to determine the most efficient organization (MEO). The organizations often eliminate more positions than previous IG inspections recommended. One explanation for this difference is that the IG staff members do not have the same degree of technical expertise as those they are evaluating. They can not adequately evaluate the internal processes of the organization. When conducting a MEO study, the command looks for steps and functions that can be combined or eliminated without degrading the service provided.

Using Inspector General (IG) Auditors to Maintain MEO

A valid concern appeared in much of the literature. Without the ongoing competition of the private sector, once a government organization wins a bid, what incentive does that organization have to ensure it continues to operate efficiently and maintain its MEO? To make certain DOD and the American public receive the most value from their defense dollar, a system to ensure MEO must be developed.

One possible solution involves using the IG inspectors in a different role. The IG team can become experts at cost comparisons between government activities and similar

activities in the private sector. Rather than conducting week or month long inspections and attempting to tell an organization how to reach the best cost, they would simply give them the bottom line figure that must be achieved. The organization could then determine if it will achieve that figure, through increased workload, reducing its number of employees or reduction in pay grades. If the organization fails to meet the cost established by the IG inspectors, bids from the private sector should be sought and compared against the actual cost of the government organization.

Competition not Outsourcing Lowers Cost/Improves Service

Despite the convincing argument presented by the Defense Science Board (DSB) that outsourcing is the right method to get the most value for the taxpayers dollars this theory may not be true. In fact, one central theme that appears to dominate all of the literature, regardless of the author, is competition lowers cost and improves service. In DOD's, Defense Reform Initiative (1997), references to outsourcing as a means of saving money were omitted. References to competition as a method of saving money and improving service are abundant. Although the threat of outsourcing is often needed to generate a sense of urgency in government organizations to cause them to do internal reviews, it is the competition and not the outsourcing that produces the savings and improved service.

Creating Internal Competition

In lieu of involvement by an external audit service such as the IG inspectors discussed in the previous section, DOD can establish an ongoing method to keep competition an integral part of day to day operations. For example, DLA reduced delivery times within its depots through internal competition. First, it established a desired goal and then challenged the depots to meet the goal. The performance records of each activity were made available to all depots and each organization was able to compare their performance against the other depots. Within a short period of time the first depot reached the goal and the remaining depots followed.

Similar competitions, internal to DOD, could be used to generate a variety of desired results. For example, statistics showing cost comparisons and production hours among DOD maintenance activities performing similar missions could be compared.

Determining Which Functions Should be Outsourced

Corporate America determines which functions are core to its mission. These areas, considered vital to an organization, are never risked to outsourcing. DOD should continue to define the core missions that will not be outsourced. When determining core missions in DOD, consideration must be given to the fact that DOD is not one single organization. It is comprised of many smaller units

such as, the Department of the Army, the Defense Logistics Agency, and the Defense Finance Accounting Service each with their own core missions.

Despite recommendations by the DSB and the CORM, allegedly based on best business practices, that DOD should define its core activities and outsource all other missions, major corporations do not operate in this manner. Large corporations do the same thing DOD has done for many years. They hire contractors or contract out certain functions where it makes economic sense to do so. Businesses do not define their core mission and attempt to outsource everything else.

Efficient businesses get the most value for their dollar. In the spirit of adopting the best commercial business practices, DOD should look at the major industry giants to see how they define core competencies and which functions they typically outsource. DOD should also look closely at the non-core functions that businesses retain in-house.

Maintenance Operations

Critical to the effectiveness of DOD operating effectively within an agile infrastructure is its ability to keep the various weapons systems operational. In order to ensure a constant state of readiness, while staying within its limited budget, DOD must ensure it obtains the most efficient repair services for dollars spent. Many of the

authors using false logic insist greater reliance on the private sector will deliver the needed repair services for the best price. However, it is doubtful that this solution is accurate. Other ways to achieve cost savings exist and should be considered.

Reduce the Excess Capacity

One of the major problems in the area of maintenance is excess capacity. Excess capacity increases the cost of repairs and wastes DOD dollars. Although in some instances various activities were able to save money by outsourcing repairs, this practice compounds the excess capacity problem and wastes DOD dollars.

Privatization which involves turning a former DOD maintenance depot over to a private contractor to perform the same mission occurred in several states. Although many of the Congressman are pleased with this process since it saves voter jobs in their district, it does nothing to reduce excess capacity. In fact evidence now suggests it may even cost DOD more money than operating the facility itself. The majority of the authors, including this one, see little benefit being achieved by DOD through privatization.

In the Defense Reform Initiative Report, DOD outlines its intent to seek additional rounds of BRAC closures from Congress. When DOD determines it has more depot repair

facility capacity than it needs, it should be allowed to close the facilities without Congressional interference.

Increased Emphasis on Joint Maintenance Facilities

Economies of scale is another term that frequently appears in the literature when discussing cost savings. Maintenance operations is a multi-billion dollar business in the DOD. However, the services continue to operate separate repair facilities and often prefer to send work to a private contractor rather than cross service boundaries. This piecemeal approach to maintenance severely degrades DOD's ability to take advantage of economies of scale.

Joint Vision 2010 stresses commonality in weapons systems and their components, helicopters, and other end items wherever possible. Although focused logistics also emphasizes the need to be joint, very little discussion in the literature stresses the importance of moving from the current service oriented to Joint maintenance facilities. More discussion involved sending additional DOD business to the private sector.

Over the past several years DOD has successfully combined other service functions to produce organizations that produce economies of scale. Increasing the role of the Defense Finance Accounting Service (DFAS) and the role of the Defense Logistics Agency (DLA) are two examples where the DOD took the initiative to cross service boundaries for the good of the entire DOD.

The time for management of the depot maintenance facilities by one central agency vice individual services may be now. In addition to the economies of scale produced by a single agency, it could also make the tough decisions that will be required to solve the excess capacity dilemma without loyalty to a single service. Having a single agency negotiating contracts with the private sector may also prove cost efficient. DOD should review its interservice repair maintenance policy and determine if revision is warranted.

Right-Sized Inventories

The many improvements in tracking and rapid distribution of matériel enabled the Department of Defense to begin successful right-sizing of its inventory as required to operate in an agile infrastructure. Although DOD still holds in excess of $60 billion in inventory, it has made significant progress in the area of inventory reduction. Additional improvements in inventory management will support further drawdowns of excess matériel.

Matériel Management

One area where DOD made significant progress toward becoming "joint" is matériel management. The Defense Logistics Agency currently manages 100 percent of the consumable matériel used by all branches of the service. In the near future it will also manage 100 percent of the non-repairable repair parts. Although opportunity for increased jointness exists is repairables (components that can be

repaired at the depot level) management, DLA projects this phase will be accomplished within the next eighteen months.

These consolidation efforts greatly enhanced DOD's ability to take advantage of economies of scale and reduce infrastructure. By utilizing the expertise of buyers and up to date innovative procurement methods at the DLA Supply Centers, the number of procurement specialist employed by the individual services was lowered. Making purchases in larger quantities effectively reduces the per item cost and gives DLA leverage to establish delivery order contracts.

DLA Initiatives

The Defense Logistics Agencies initiatives, prime vendor and direct vendor delivery, made a significant difference in DOD's ability to reduce the inventory levels of stocked matériel. In both systems matériel flows directly from the vendor to the customer. The use of prime vendor contracts to supply food and medical supplies proved successful thus far in peacetime operations. Since both of these commodities are readily available on the open market, their use during periods of mobilization should prove satisfactory as well. Direct vendor delivery of common spare repair parts works well in the private sector and its application for military use should be effective.

Recommended Future Studies

As stated earlier in this paper due to time constraints not all areas of an agile infrastructure were given the in-

depth look needed to determine their effectiveness on DODs ability to perform in the twenty-first century. In addition, the results of those areas that were reviewed revealed questions which should be addressed in future studies.

Maintenance Operations

Benefits to DOD by Combining Maintenance Operations

Although some efforts in the area of combined maintenance operations have been started, there are likely additional possibilities in this area which should be investigated. Future studies should address the degree interservice maintenance has increased in the last ten years and the potential for additional consolidation.

Eliminating Depot Maintenance Excess Capacity

This study identified excess capacity in DOD maintenance depots as one major waste of DOD dollars. A thorough look at the excess capacity problem with recommended solutions is warranted.

Civil Engineering Support

Can DOD Afford to Continue Increasing Civil Engineer Support?

One component of an agile infrastructure not reviewed in depth in this study was the use of civil engineering support. The effect of its increased use by DOD should be more closely examined to ensure sufficient assets are maintained within DOD to respond in a crisis. One aspect which should be considered when reviewing the need for civil

engineering support is the fact many DOD missions today involve military operations other than war (MOOTW). The cost of this support is reimbursed by the Department of State and therefore it may be economically prudent not to keep these assets on the military payroll when they are not being utilized.

Secondary Item War Reserves/Prepositioning

Secondary Item War Reserves, Will the Matériel be Available?

Another component of an agile infrastructure not addressed in this study which warrants further study is DOD's secondary item war reserves programs. Maintaining sufficient quantities of war reserve matériel will have greater importance as DOD continues to draw down its regular inventory.

Prepositioning, Where Is the Best Place to Stage Matériel?

"Joint Vision 2010" emphasizes "force projection" vice a "forward deployed force." Strategic prepositioning of war reserve matériel will be a critical element for the DOD to perform its mission effectively in the twenty-first century.

Summary

The Department of Defense's initiatives to instill change in its organizations during the past decade have proven successful. "Joint Vision 2010" requires additional innovative approaches to logistics support. These changes will occur as a result of DOD adopting the total logistic

package termed "focused logistics." Critical to the success of focused logistics, and therefore the success of "Joint Vision 2010" is the ability of DOD to provide adequate logistics support operating with a smaller footprint termed an "agile infrastructure." Although there exists a great deal of controversy regarding the best method to achieve the cost savings that will be needed for future improvements, the potential for cost savings does exist. DOD should be able to operate effectively within an agile infrastructure environment and provide the required logistics support needed to sustain its forces. In order to ensure this success, constant monitoring during this transition will be required.

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