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Nondevelopmental item acquisition initiatives: a comparative study of implementation within Department of Defense services

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THESIS

NONDEVELOPMENTAL ITEM ACQUISITION INITIATIVES:
A COMPARATIVE STUDY OF IMPLEMENTATION
WITHIN DEPARTMENT OF DEFENSE SERVICES

by

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December, 1993

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Nondevelopmental item acquisition represents a viable approach to meet the procurement needs of the Defense Department. The reduced acquisition cycle time and resultant cost savings of this acquisition methodology/strategy presents significant potential benefits to the DoD. The objective of this research was to identify alternative solutions to counter the current impediments to the NDI acquisition initiatives defined in 10 USC § 2325. This research provides an overview of the NDI concept and the problems associated with procuring NDIs. This study analyzed the major issue of increasing the effectiveness of NDI acquisitions. Major conclusions are: NDI acquisitions represent a viable means of acquiring goods and services, many impediments (both statutory and regulatory) continue to exist despite significant study efforts, and lessons learned exist that may be exploited to facilitate more effective use of NDI acquisitions. Major recommendations are: increased awareness, training and education is required to shift the acquisition process paradigm; a more proactive measurement process should be implemented to increase the efficiency of the process; and legislative changes should incorporate more commercial standards and practices in order to more fully exploit the benefits associated with NDI acquisitions.

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Nondevelopmental Item Acquisition Initiatives:
A Comparative Study of Implementation
Within Department of Defense Services

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Submitted in partial fulfillment
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ABSTRACT

Nondevelopmental item acquisition represents a viable approach to meet the procurement needs of the Defense Department. The reduced acquisition cycle time and resultant cost savings of this acquisition methodology/strategy presents significant potential benefits to the DoD. The objective of this research was to identify alternative solutions to counter the current impediments to the NDI acquisition initiatives defined in 10 USC § 2325. The research was conducted by a review of current and proposed statutes and regulations, as well as previously published materials. Perhaps more importantly because of the evolving nature of NDI and the acquisition of commercial products in today's legislative arena, interviews with Defense Department procurement officials, industry representatives, and a Congressional staff member were conducted. This research provides an overview of the NDI concept and the problems associated with procuring NDIs. This study analyzed the major issue of increasing the effectiveness of NDI acquisitions. Major conclusions are: NDI acquisitions represent a viable means of acquiring goods and services, many impediments (both statutory and regulatory) continue to exist despite significant study efforts, and lessons learned exist that may be exploited to facilitate more effective use of NDI acquisitions. Major recommendations are: increased awareness, training and education is required to shift the acquisition process paradigm; a more proactive measurement process should be implemented to increase the efficiency of the process; and legislative changes should incorporate more commercial standards and practices in order to more fully exploit the benefits associated with NDI acquisitions.

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I. INTRODUCTION

A. AREA OF RESEARCH

A window of opportunity currently exists to exploit the lessons learned over the past 21 years in the acquisition of commercial goods and services. While a number of commissions, panels, and studies have examined the problems facing the Department of Defense (DoD) and industry in this regard, little substantive improvements have resulted. This situation could quite possibly be turned around due in part to the current Administration's resolve to bolster the integration of commercial technology into the defense industrial and technology base [Ref 27:p. 22]. Faced with rapidly declining budgets and the requirement to remain a supreme superpower, weapons and materiel must be acquired at the greatest cost savings while meeting minimum operational requirements. Likewise, the adequacy of the defense industrial base is a chief concern in the current downward economic spiral. An additional catalyst for this shift is the Report of the Department of Defense Acquisition Law Advisory Panel, generally known as the Section 800 Panel Report [Ref 10:p. 1]. The Section 800 Panel Report is a comprehensive, fresh new look at legislation in this and in the entire acquisition arena. Congress and the Administration have assumed the

responsibility to analyze the report and take appropriate legislative action in order to incentivize industry to do business with DoD. The Senate has introduced the Federal Acquisition Streamlining Act of 1993 (S 1587) as its answer to the panel's recommendations [Ref 26: pp. S14384-S14435]. Reconciliation of the Bill is anticipated to take place by the end of this Fiscal Year (FY).

A nondevelopmental item (NDI) acquisition represents a means to the end of acquiring goods and services in an economical manner while exploiting the commercial marketplace, as well as other already developed items. An NDI acquisition represents a new pathway and philosophical shift in the requirements process and material development [Ref 54: p. 1].

B. OBJECTIVE

The objective of this research is to provide alternatives to DoD for those non-statutory-related NDI impediments over which DoD has "control." In doing so, this research will assess the DoD's compliance with the NDI acquisition initiatives set forth by Congress in U.S. Code (USC), Title 10, Section 2325 (10 USC §2325) on a macro level. This assessment will attempt to 1) identify the degree of compliance with these initiatives by each of the DoD Services, i.e., U.S. Air Force (USAF), U.S. Army (USA), U.S. Navy (USN), and U.S. Marine Corps (USMC); 2) identify problems associated with NDI implementation; and 3) offer alternatives in NDI

acquisition implementation, to include sharing lessons learned by the different Services.

C. RESEARCH QUESTION

1. Primary Research Question

To what extent has the DoD implemented the NDI acquisition initiatives set forth by Congress in 10 USC §2325?

2. Subsidiary Research Questions

- What is an NDI acquisition?
- What are the 10 USC §2325 NDI acquisition initiatives?
- What are the key impediments in implementing the 10 USC §2325 NDI acquisition initiatives?
- How can DoD Services overcome these impediments in order to comply with the Congressional intent of 10 USC §2325?
- How can DoD Services use lessons learned by other DoD Services in order to implement these initiatives?
- Are there specific differences between Services that prevent the timely implementation of these initiatives? What are they? (How) can they be overcome?

D. SCOPE OF THESIS

This research will explore the implementation status of the NDI acquisition initiatives set forth by Congress in 10 USC §2325. First, this research will present a review of the background and history of NDI acquisitions within the DoD. Second, it will address associated implementation impediments encountered by DoD and the actions taken by or required to be taken by DoD to comply with the Congressional intent of 10 USC §2325. Third, this report will then identify lessons learned

by the Services, and finally, present alternatives to help achieve the NDI acquisition initiatives. This research assumes a basic understanding of the NDI concept. Therefore, a comprehensive review of NDI concepts is considered to be outside the scope of this research. Likewise, this research will review acquisitions within DoD Services only and will not review NDI acquisitions of other DoD agencies, e.g., the Defense Logistics Agency, Defense Contract Audit Agency, etc.

This research was based on a macro-level view held primarily by proponents of the NDI program, i.e., NDI Advocate Generals, members of their offices, and those in positions of direct responsibility for overseeing the implementation of the NDI acquisition initiatives. These views were specifically from the Office of Federal Procurement Policy, offices within the Office of the Assistant Secretary of Defense (OASD) for Economic Security, Deputy Under Secretary of Defense (DUSD) for Acquisition Reform, the DoD Services, i.e., USAF, USA, USN, and the USMC, and the Defense Systems Management College (DSMC). As such, this may portray an overly optimistic viewpoint to the layman in general; however, this should be tempered with the fact that NDI acquisitions were mandated by Congress with passage of the 1987 NDI Preference Act. Additionally, an industry viewpoint was included to the extent that the Section 800 Panel was represented by approximately a 50-50 Government/industry mix of panel members, consolidated industry association analyses of the Section 800

Panel Report and the Senate's version of the Federal Acquisition Streamlining Act of 1993 were reviewed, and individual industry representatives were queried. Finally, a professional staff member of the Senate Armed Services Committee (SASC) provided a legislative viewpoint of the NDI/commercial product acquisition issue.

E. LITERATURE REVIEW AND RESEARCH METHODOLOGY

The overall research strategy is an archival-based method. For this research, primary sources consist of personal interviews and a review of recently released literature on NDI acquisitions, to include official DoD documents. Secondary sources consist of publications, reports, and studies on the subject, many of which were obtained during personal interviews. The following sources were used in the literature review search:

- Defense Logistics Studies Information Exchange (DLSIE)
- Defense Technical Information Center (DTIC)
- Air University Periodical Index
- Defense Systems Management College (DSMC) Catalog
- Office of the Assistant Secretary of Defense for Economic Security (Production Resources)
- DoD Component Competition/NDI Advocate General Offices

F. ABBREVIATIONS

Abbreviations and acronyms may be found in Appendix A.

G. ORGANIZATION OF STUDY

This thesis is organized in five chapters. The remainder of this thesis is organized in the following chapters:

- Chapter II, "Theoretical Framework," which provides a general background and historical perspective of NDI acquisition.
- Chapter III, "A Compendium of Interview Responses," which provides a compilation of data collected and compendium of interview responses.
- Chapter IV, "An Analysis of Critical Issues," which provides an analysis of the issues and major problems identified as a result of this research.
- Chapter V, "Conclusions and Recommendations," which identifies the overall conclusions and recommendations of this research.

II. THEORETICAL FRAMEWORK

A. INTRODUCTION

This chapter provides the theoretical framework for the research. First, this chapter reviews the historical background of NDI acquisition in DoD. In doing so, this study will provide a series of tables consisting of former commissions, studies, and reports related to the acquisition of NDI/commercial products. Then a brief overview of several of the more "significant" studies will be provided in order to highlight the issues, concerns, and recommendations of the period. Second, the chapter provides a definition of NDI and identifies concepts, benefits and challenges of NDI. Finally, the chapter indicates impediments associated with NDI acquisitions.

B. HISTORICAL PERSPECTIVE

There have been numerous commissions, studies, and reports in regard to NDI over the past two decades. In December 1972, the Commission on Government Procurement (COGP) recommended that the Government should take greater advantage of the efficiencies offered by the commercial market [Ref 24:p. 103].

In 1973, the Defense Science Board (DSB) released its report, "*Design-to-Cost, Commercial Practice vs. DoD*

Practice." As a result of the board's deliberations several recommendations were forwarded, including:

> The implementation of the essence of commercial practice within the DoD-defense-industry environment requires a comprehensive change, rather than the selective implementation of a few isolated recommendations.... Principal recommendations included:
>
> ...4) That specifications be more nearly limited to "end-item" orientation, including performance, environment, and long-term warranty or service policy. That the thousands of detailed "how to do it" specifications be reduced, and in many cases eliminated.
>
> ...7) That for non-weapon procurement, a greater use of commercial products be made [Ref 8:pp. xvi, xvii].

The DoD attempted to promote the greater use of commercial products in several programs during the latter part of the 1970s. The Commercial Commodity Program, the Commercial Commodity Acquisition Program (CCAP), the Commercial Item Support Program (CISP), and the Acquisition and Distribution of Commercial Products (ADCoP) program were attempts by the DoD to capitalize on the acquisition of commercial products which had an established commercial market acceptability. Additionally, the ADCoP established the use of Commercial Item Descriptions (CIDs) as the preferred way to acquire commercial items [Ref 1:p. 6]. DoD's intent was to streamline and tailor the acquisition process and reduce or eliminate unnecessary Government specifications. Table 1 chronicles these efforts during the 1970s.

TABLE 1
COMMISSIONS, REPORTS, STUDIES, ETC.
RELATED TO COMMERCIAL ACQUISITIONS
(1970s)

DATE	TITLE
December 1972	COGP: *Acquisition of Commercial Products*
March 1973	DSB: *Reducing Costs of Defense Systems Acquisition*
December 1975	DoD announces establishment of the Commercial Commodity Program
April 1976	DoD announces establishment of the Commercial Commodity Acquisition Program (CCAP)
May 1976	OFPP Memoranda to DoD, GSA, VA establishing Government policy--encourage acquisition & distribution of commercial products (ADCoP)
December 1976	DSB: *Electronic Equipment*
November 1977	GAO: *Government Specifications for Commercial Products-Necessary or a Wasted Product*
November 1977	DoD establishes the Commercial Item Support Program (CISP)
December 1977	OFPP Memorandum: *Implementation of Policy on ADCoP*
June 1978	DoD begins "specification review" effort IRT OFPP's Dec 1977 Memorandum
December 1979	DUSD Memorandum: Implementation of ADCoP Policies

SOURCE: Developed by researcher.

DoD's intent was to streamline and tailor the acquisition process and reduce or eliminate unnecessary Government

specifications. However, the program's efforts were frustrated in two ways:

1) efforts did not have the force of law; and

2) the requirement met with considerable opposition from companies (mostly small businesses) whose sales were exclusively or primarily to the Federal Government [Ref 1: p. 6].

Since that time, the Defense Science Board (DSB), General Accounting Office (GAO), and Office of Federal Procurement Policy (OFPP) are among a long list of agencies whose studies of NDI-related acquisition have gained attention. In response to small business concerns about commerciality requirements, Congressional hearings took place between 1980 and 1982. These hearings resulted in language to protect small businesses within the 1983 Supplemental Appropriations Act. In June 1986 the President's Blue Ribbon Commission on Defense Management, also known as the Packard Commission, issued its final report, "A Quest for Excellence." The primary recommendation in regard to NDI was to expand the use of commercial products. Specifically, the report stated:

> Rather than relying on excessively rigid military specifications, DoD should make greater use of components, systems, and services available "off-the-shelf." It should develop new or custom-made items only when it has established that those readily available are clearly inadequate to meet military requirements [Ref 24:pp. 14,15].

In addition, a proposed legal framework to expand the use of commercial products and "commercial-style" acquisition

techniques in Defense procurement was set forth [Ref 24:pp. 71-96]. The culmination of these and former efforts in this regard resulted in the Congress passing legislation establishing a formal preference for NDI acquisitions. Section 907 of Public Law (P.L.) 99-591, the 1987 DoD Authorization Act, established a statutory preference for the acquisition of NDI by the DoD. This preference has since been codified and is contained in 10 USC §2325 (Appendix B). In addition to providing the force of law, the section established required initiatives for DoD to comply with, a universal definition of the term NDI, and the requirement for DoD to prescribe regulations to carry out the section and identify and remove impediments to the acquisition of NDI. These initiatives may be found in 10 USC §2325 (Appendix B).

In February, 1989, the General Accounting Office (GAO) released a report, "*DoD Efforts Relating to NDI*," which among other things, listed nine claimed impediments to the acquisition of NDI. Likewise, during 1989, the Senate Governmental Affairs Subcommittee on Oversight of Government Management interviewed industry representatives on the DoD's progress in reducing impediments to NDI acquisitions. Many specific examples of DoD's failures in this area were provided by contractors. Contract clause requirements, specifications, and regulations were cited as the primary causes of these problems. As a result of these hearings four significant

impediments to the acquisition of NDIs were identified. They included:

1) inappropriate product descriptions and specifications;

2) unnecessary and burdensome contract terms and conditions

3) inappropriate requests for certified cost or pricing data; and

4) unnecessarily burdensome quality assurance requirements [Ref 1:p. 8].

Later in 1989, the Defense Management Report (DMR) was issued. It recognized previous findings in the NDI arena and attempts by former commissions to enhance the acquisition of NDI. It recommended two legislative proposals dealing with NDI:

> **First**, the Commercial Products Act of 1989 authorized procurement of such products under simplified competitive procedures; and **Second**, a Commercial Acquisition Pilot Program Act was established to demonstrate advantages by adopting a full range of commercial style buying practices [Ref 1:p. 8].

These recommendations, once implemented, will contribute to the anticipated savings of $70 billion by 1999, with more than $15 billion a year in recurring savings thereafter [Ref 38: p. viii].

Finally, the National Defense Authorization Act for 1990 and 1991 (P.L. 101-189) enacted in November 1989 established the requirement for NDI training. Table 2 outlines the efforts during the 1980s to capitalize on the acquisition of NDI.

TABLE 2
COMMISSIONS, REPORTS, STUDIES, ETC.
RELATED TO COMMERCIAL ACQUISITIONS
(1980s)

DATE	TITLE
January 1980	GAO: *Implementation of Federal Policy on ADCoP is Faltering Badly*
1980-1982	Congressional Hearings: Small Businesses express fear in regard to commerciality requirements
March 1982	Executive Order 12352, "Federal Procurement Reforms" signed by President Reagan
July 1983	P.L. 98-63 (1983 Supplemental Appropriations Act) written to contain language protecting Small Business interests IRT 1980-1982 hearings
September 1983	President's Private Sector Survey on Cost Control (Grace Commission)
June 1986	President's Blue Ribbon Commission on Defense Management (Packard Commission)
October 1986	P.L. 99-591 (1987 DoD Appropriations Act) written to contain preference for NDI
January 1987	DSB: *Use of Commercial Components in Military Equipment*
February 1989	GAO: *DoD Efforts Relating to NDI*
July 1989	Defense Management Report (DMR)
November 1989	P.L. 101-189 (National Defense Authorization Act for FYs 1990 and 1991) mandated NDI training

SOURCE: Developed by researcher.

On the surface, the 1990s appear to be not much different than the preceding two decades. There has been quite a bit of "action" thus far related to NDI and commercial products. Their relationship to the defense industrial and technology base, as well as the potential cost savings involved have been topics of concern. P.L. 101-510, the 1991 DoD Authorization Act, required DoD to conduct "market research" before developing a new specification to ascertain the availability of commercial products to meet the identified need [Ref 36: pp. 3, 4]. Several publications have been released and a training course initiated during the early 1990s to assist acquisition personnel with the acquisition of NDI. Most notably, the DoD 5000-series publications; SD-2, *Buying NDI;* and SD-5, *Market Analysis for NDI*, provide direction for the acquisition of NDI. The DoD 5000-series documents was an attempt to consolidate the dozens of acquisition and acquisition-related guidance documents into a more manageable venue.

In somewhat of a departure from the past, the Streamlining Defense Acquisition Law Advisory Panel, also known as the Section 800 Panel, has provided detailed comments and recommendations in regard to the amendment and repeal of a number of acquisition statutes. Commissioned under Section 800 of P.L. 101-510, the Section 800 Panel reviewed over 600 DoD-related procurement laws in line with its Congressional charter [Ref 10:p. 6]. Chapter 8 of the Panel's report is

devoted to the extensive reforms needed to enhance the acquisition of commercial items, both as end items and as components to DoD systems [Ref 10:p. 7]. In yet another innovative move, a Deputy Under Secretary of Defense (DUSD) for Acquisition Reform has been appointed to oversee the reform effort.

In July 1993, the Report of the DSB Task Force on Defense Acquisition Reform was issued. In his memo to the Secretary of Defense, the Chairman of the DSB noted:

> The primary thrust of the Task Force was the identification of those measures which would reconnect and integrate defense acquisition with the commercial workplace from which it has been drifting apart at a steady rate [Ref 7:p. 2].

Although not new, the DSB Task Force confirmed the need for further action by providing the following two primary recommendations in regard to priority issues identified:

- Adopt commercial practices to the maximum extent possible, while assuring the mixture of tools available in the DoD and the commercial marketplace to protect public trust.
- A closer linking of the systems requirements process to the operational plans and objectives of the Unified Commands as well as the cost constraints of the long-term budgetary process [Ref 7:p. 1].

The efforts chronicled above serve as a testament to the need for taking the next step--implementation. The Senate has taken a step in this direction by introducing the Federal Acquisition Streamlining Act of 1993. Title VIII of the proposed legislation is titled "Commercial items" and

addresses the Section 800 Panel recommendations. Table 3 presents the latest round of attempts to institutionalize the acquisition of NDI.

TABLE 3
COMMISSIONS, REPORTS, STUDIES, ETC.
RELATED TO COMMERCIAL ACQUISITIONS
(1990s)

DATE	TITLE
October 1990	SD-2, *Buying NDI*, released
November 1990	P.L. 101-510 (1991 DoD Authorization Act) mandated market research for NDI
February 1991	DoD 5000-series publications released
July 1991	DoD-sponsored NDI training course established
February 1992	SD-5, *Market Analysis for NDI* released
April 1992	NDI Advocates delegated by Deputy Secretary of Defense
December 1992	Defense Conversion Commission: *Adjusting to the Drawdown*
March 1993	Section 800 Panel Report: *Streamlining Defense Acquisition Laws*
April 1993	First data call for measurement of NDI
June 1993	DUSD for Acquisition Reform appointed
July 1993	DSB: *Defense Acquisition Reform*
October 1993	Federal Acquisition Streamlining Act of 1993 (S 1587) introduced on Senate floor

SOURCE: Developed by researcher.

C. GENERAL BACKGROUND

1. Definition

NDI is a generic term describing either a commercial product or an item that has been previously developed. Its current statutory definition, also found in DoD Instruction 5000.2, may be found in Appendix B. Additionally, for purposes of measurement, DoD has expanded the definition of NDI to include upgrades, integration, and minor modifications of components and subsystems [Ref 35:p. 1-2]. Appendix C contains DoD's expanded definition of NDI for measurement purposes. Before proceeding however, a distinction is drawn between terms which are often used interchangeably. Commercial products and commercial off-the-shelf (COTS) products are a subset of what DoD considers NDI. In other words, these terms are not synonymous. Figure 2-1, below, depicts the categories of NDI and provides examples of each category. Commercial items consist of those items available in the commercial marketplace. Examples include the Beretta 9 millimeter pistol, computers and electronic equipment, and medical items. Other Service/Agency items consist of those items already developed and in use by Local, State, or other Federal Government Services/Agencies. Examples include the Marine Corps' acquisition of the Army's Armored Combat Earthmover (ACE) and the Navy's and Marine Corps' acquisition of the Air Force's C-130 defensive electronic and infrared

countermeasures suite. Foreign Military items consist of those items already developed by foreign governments with which the U.S. has a mutual defense cooperation agreement [Ref 25]. An example is the purchase of the AV-8 Harrier aircraft from the British Government.

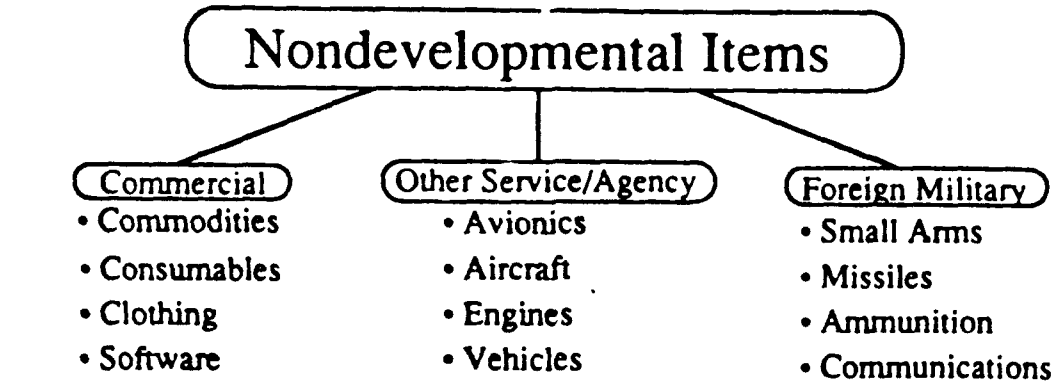

FIGURE 2-1

SOURCE: DoD Manual 5000.37-M (DRAFT), Sep 1993, p. 1-4.

2. Application of Nondevelopmental Item Acquisition

NDI acquisition applies to the entire spectrum of goods and services needed by DoD [Ref 35:p. 2-1]. The increased use of NDI in major weapon systems acquisitions to commercial off-the-shelf (COTS) acquisitions of basic consumable items seeks to exploit the benefits of reduced costs, proven quality, and timely fielding/acquisition. New start acquisition programs offer a particularly fertile target of opportunity. A full range of alternatives must be considered prior to deciding to initiate a new acquisition

program [Ref 31:p. 1-3]. Once non-materiel solutions, e.g., changes in policy, tactics, organization, etc., have been considered and rejected, potential materiel solutions must be considered. The hierarchy of potential materiel solutions, in order of preference is:

1) Use or modification of an existing U.S. military system.

2) Use or modification of an existing commercially developed or Allied system that fosters a nondevelopmental item acquisition strategy.

3) A cooperative research and development program with one or more Allied nations.

4) A new joint-Service development program.

5) A new Service-unique development program [Ref 31:p. 1-3].

The objective of obtaining best value to the Government is the primary underlying concern when faced with the issues and challenges of any acquisition [Ref 51:p. 29]. The hierarchy of materiel solutions, noted above, places a logical progression of preferences in the hands of acquisition managers to make smart business decisions.

NDI acquisitions are managed within the overall system acquisition process used for development programs [Ref 35: p. 2-3]. With NDI, however, many of the steps, procedures, requirements, and safeguards associated with the acquisition may be unnecessary or even counterproductive. Assessment of already established standard process elements, e.g., logistics support analyses, test and performance data, reliability and

maintainability assessments, etc. already available from the contractor may be adequate to fulfill Government contract requirements. Once a materiel solution has been selected, the acquisition program may be tailored to meet the specific needs of the program. Phases and milestone decision points may be waived or deleted depending on environmental, modification, and testing factors. Tailoring should reflect the environment in which the item will be used, the extent of modification necessary, and the amount of testing necessary to evaluate the item to make sound program decisions [Ref 35:p. 2-1]. Examples of tailoring programs involving NDI follow.

a. An NDI meeting operational requirement with no modification may allow a single decision review (milestone I/III) to verify the item's suitability and to initiate production.

b. An NDI requiring modification may entail an abbreviated engineering development phase to verify suitability of modifications prior to full scale development of the modifications. Thus milestones I and II could be combined with subsequent milestone III production decision upon completion of the verification testing of the modification.

c. An NDI being integrated into an existing system may also employ a combined milestone I/II decision when the integration engineering required is considered to be low risk [Ref 35:p. 2-1].

The application of NDI to an acquisition should be viewed as a matter of degree rather than an all or nothing proposition [Ref 35:p. 2-1]. NDI opportunities include the integration or insertion of NDI piece parts, components, and subsystems into higher level systems; NDI adaptation to meet

environmental factors; and off-the-shelf or basic NDI acquisition [Ref 1:p. 3]. Figure 2-2 shows the degree to which NDI can be classified.

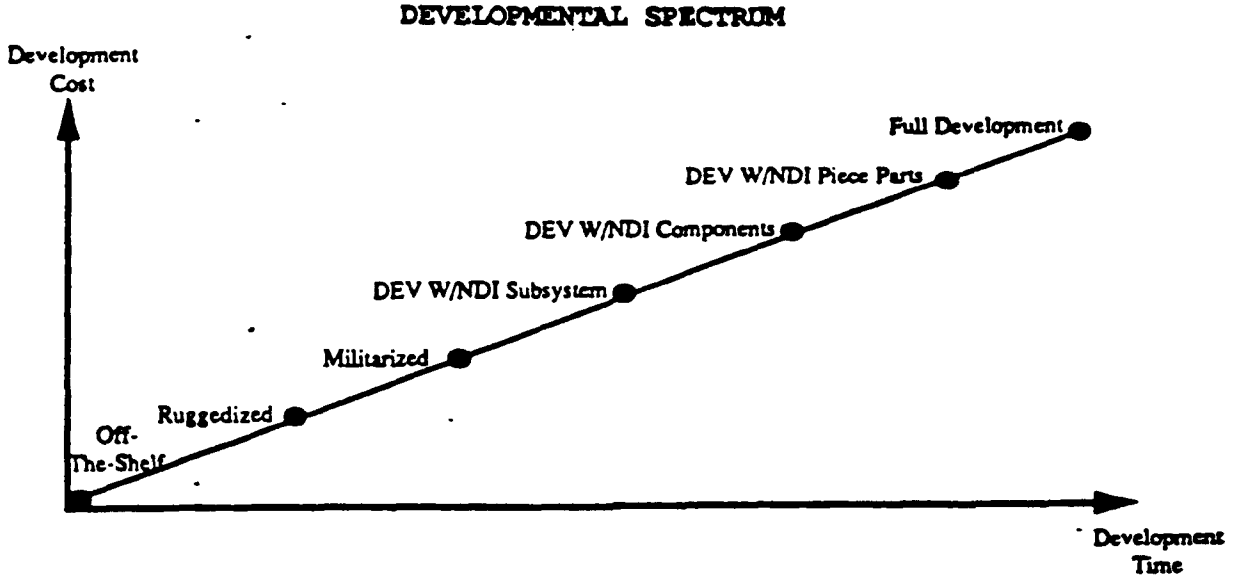

Figure 2-2

SOURCE: DoD Manual 5000.37-M (DRAFT), Sep 1993, p. 2-2.

D. BASIC CONCEPTS OF NDI

1. Introduction

The following sections discuss the basic concepts of NDI. The most fundamental NDI concept is that it must meet user's needs and function in the user's environment [Ref 35: p. 2-2]. Further, NDI solutions must represent the best value to DoD. Early identification of NDI alternatives and risk management associated with cost, schedule, and performance

trade-offs are required to increase the effectiveness of the acquisition. Risk management involves:

> Assessing program risks and risk management plans at each milestone decision point (MDP) prior to granting approval to the next acquisition phase....Critical parameters that are design cost drivers or have a significant impact on readiness, capability, and life-cycle costs must be identified early and managed intensively [Ref 31:p. 1-4].

Flexibility is another important factor to be coordinated between the user and the developer. Early and frequent communication between users and developers are important to the assessment of requirements, risks, and alternatives available and the acceptance of performance, cost, and schedule trade-offs.

2. Life-Cycle Cost

Life-cycle cost considerations are no different in the NDI acquisition as in development programs. Acquisition strategies should be tailored to accomplish established program objectives and to control risk [Ref 31:p. 1-4]. The objective is to acquire the item with the lowest projected life-cycle cost, within acceptable risks, while meeting essential requirements.

3. Logistics Support

Logistics support of NDIs require careful, deliberate upfront planning. NDI acquisitions are characteristically faster-paced than development programs because of reduced R&D requirements [Ref 51:p. 10]. This presents unique logistical support challenges. An individualized integrated logistics

support (ILS) plan, addressing the ten elements of ILS, i.e., 1) maintenance planning; 2) manpower and personnel; 3) supply support; 4) support equipment; 5) technical data; 6) training and training support; 7) computer resources support; 8) facilities; 9) packaging, handling, storage, and transportation; and 10) design interface; is needed to assure the probability of a successful outcome. Availability of spare parts, adequate technical manuals, and a workable logistical support plan require early, and often accelerated, planning to meet requirements at initial operational capability (IOC). Access to technical data rights is another significant consideration to ensure potential "second sourcing" and competitive reprocurement needs are met. Lastly, organic versus contractor support plans should be addressed in the acquisition strategy after weighing risks and benefits of the NDI.

4. Configuration Control

The topic of configuration control within the Defense Department is an evolving issue because of the current shift in acquisition strategies to prefer NDIs/commercial products. The Services and DoD components have considerably less control over configuration of NDIs than developed items [Ref 35: p. 2-4]. Commercial items, specifically the internal configuration of commercial items, change with the market [Ref 1:p. 44]. Therefore, projected life-cycle product

availability and its components must be addressed in the acquisition strategy. Likewise, technical data to support attendant acquisitions may be required to ensure support of the program.

5. Safety and Environment

Effective and efficient use of resources requires safety-conscious decision-making. Of particular concern are the safety issues when using material in a wide variety of possible environmental scenarios. NDIs may present special safety and environmental problems--when they are used in ways other than for which they were designed [Ref 35:p. 2-4]. "Appropriate system safety and health hazard objectives shall be addressed early in the program and used to guide system safety and health hazard activities and the decision process" [Ref 33:p. 6-I-1]. Acceptably safe systems are achieved through a three step process which will be performed and documented before purchase.

- Prevent the initial creation of unnecessary hazards. This is done by communicating to the developer that safety is an important system attribute that must be designed in, not added on. The design engineers must be sensitive to this.
- Establish a system safety program as described in this section. This becomes a more costly effort if the first step is omitted.
- Manage residual hazards. This is done by understanding their nature and impact and ensuring their proper disposition [Ref 33:p. 6-I-3].

6. Market Analysis

Market analysis is a process that attempts to match material alternatives to requirements. A tailored market analysis is essential to analyze the full spectrum of commercial products to meet DoD needs [Ref 36:p. 5]. This tailoring is based on the anticipated dollar value of the item, its complexity, and the number of items needed [Ref 36: p. 9]. Market analysis consists of two steps: market surveillance and market investigation. Market surveillance consists of those activities that acquisition personnel perform on an on-going basis, such as reviewing trade journals and industry periodicals, attending industry symposia, etc. in order to keep informed of the latest product and technological developments. Market investigations may be required, particularly in the case of complex items, when market surveillance is found to be insufficient. The market investigation consists of four parts:

1) identification of sources;
2) survey of manufacturers;
3) checking of references; and
4) evaluation [Ref 36:p. 10].

7. Training

The acquisition of NDI presents a potentially challenging scenario to train users, operators, and all those individuals involved in the acquisition process. This is

particularly evident considering that DoD has identified approximately 130,000 acquisition positions covered under the Defense Acquisition Workforce Improvement Act (DAWIA) umbrella [Ref 38:p. 167]. Training may also involve formal classroom or on-the-job training in the care, deployment/employment, maintenance, and operation of recently introduced or modified products. Training with respect to market analysis and the NDI concept presents yet another challenge. The shift from a development paradigm to one which embraces NDI is arguably the greatest challenge to overcome in this area.

8. Data Rights

Data necessary to support essential requirements throughout the item's life-cycle present significant challenges to DoD. In many cases, commercial firms may not grant access to "proprietary" information which could jeopardize their competitive edge over similar firms. In any case, a cost-benefit analysis of the cost to: 1) acquire the data, 2) have access to the data, or 3) not have access to the data, should be performed. Reprocurement and competitive breakouts to procure spare parts must be assessed over the potential life-cycle of the program.

9. Survivability Requirements

Survivability requirements encompassing a multitude of potential scenarios play an increasingly more important role in acquisition decision-making based on the current budgetary

climate, reduction of new-start programs, and the continued requirement for DoD to be a force in readiness.

Survivability requirements may be critical in evaluating NDI [Ref 35:p. 2-5]. Survivability from all threats shall be considered and include:

> ...conventional; electronic; initial nuclear weapon effects; nuclear, biological, and chemical contamination (NBCC); advanced threats such as high power microwave, kinetic energy weapons, and directed energy weapons; and terrorism or sabotage [Ref 33:p. 6-F-2].

Innovative life-cycle survivability techniques, such as shielding or hardening may present options. Finally, compatibility with personnel who must use the equipment in the intended environment must also be considered.

10. Test and Evaluation Requirements

Test and evaluation requirements of NDIs present similar, yet unique benefits and challenges when compared to development programs. The goal of test and evaluation is to reduce acquisition risks and assess the ability of the NDI to meet requirements [Ref 35:p. 2-5]. Therefore, the importance of early planning cannot be over emphasized as stated in the following:

> Test planning must begin in Phase 0, Concept Exploration and Definition to ensure that the test program for the most promising alternative can support the acquisition strategy [Ref 33:pp. 8-2, 8-3].

Test and evaluation data previously available from the contractor or user should be evaluated against the NDI and its intended environment. This evaluation may identify an

increasing level of risk of accepting previously completed test and evaluation data as the NDI moves from an environment for which it was intended to be used in to an environment different from which it was intended. The Test and Evaluation Master Plan (TEMP), should focus on the overall structure, major elements, and objectives of the test program that is consistent with the acquisition strategy [Ref 33: p. 8-3].

11. Support Equipment

Rarely is an NDI, or for that matter any product, a product which stands alone. Calibration and test equipment, technical and maintenance manuals, tools, and other associated support equipment are normally required to ensure the support and operational readiness of a product. Support equipment must also be considered in the assessment of the life-cycle costs of the NDI acquisition.

12. Specifying Requirements

Requirements specification marks the initial effort to convert a mission need into a distinguishable material requirement. The Federal Government requires descriptions of agency requirements, whenever practical, to be stated in terms of functions to be performed or performance required [Ref 52: Part 10]. This statement takes its basis from 10 USC §2325, the preference for NDI which may be found in Appendix B. A similar approach which allows for design flexibility and

encourages NDI alternatives entails the use of form, fit, and function (F^3) documentation, which is described as:

> ...descriptions that include factors such as size, weight, performance, and test requirements of a component, assembly or system specified to ensure interchangeability but detailed construction and manufacturing processes are left open to industry interpretation [Ref 18:pp. 36, 37].

E. BENEFITS AND CHALLENGES OF NDI ACQUISITIONS

NDI acquisitions provide potential benefits, as well as, potential challenges for acquisition professionals. These benefits and challenges form the framework for future cost-benefit analyses.

1. Benefits

NDI acquisitions offer several major benefits:

- Quick response to operational needs
- Elimination or reduction of research and development (R&D) costs
- Reduction of item costs (lower life-cycle costs)
- Application of state-of-the-art technology to current requirements
- Reduction in technical, cost, and schedule risks [Ref 35: p. 1-5].

The main benefit offered by the acquisition of NDI is reduced fielding time and the related cost savings due to the reduced requirement for R&D. When considering NDI, thoughtful consideration of 1) increased competition, 2) proven

quality/proven capability, and 3) industrial base/dual-use technology should also be exercised.

2. Challenges

Risks are inherent in most acquisition programs. The NDI acquisition presents its own somewhat unique challenges due to the accelerated acquisition cycle and also its relatively new standing as the preferred acquisition technique/method. Similar to potential benefits, caution should be applied to the below listed challenges.

- Selection and preparation of requirements documents
- Plans for integrated logistics support (ILS) plans
- Location (identification) and evaluation of potential products
- Continued product availability in the future
- Escalation of product modifications
- Fulfillment of performance requirements

Once the (above) benefits and challenges have been considered, an analysis should take place. As is the case with most acquisitions, cost-benefit analyses must be performed between performance and cost parameters and trade-offs considered. The NDI acquisition offers trade-offs between reduced risks and development costs and those associated with performance. Acquisition managers and support personnel are responsible for ensuring that these analyses and trade-offs are conducted. Additionally, Competition Advocate Generals were delegated as NDI Advocates in this regard [Ref 4:p. 1].

F. IMPEDIMENTS TO NDI ACQUISITIONS

Impediments to NDI acquisitions may be considered an outgrowth or further extension of the challenges to NDI, listed above. Impediments can be considered to fall into two general categories--1) statutory and 2) non-statutory. Several studies have been conducted since enactment of the NDI preference. In 1989, studies were conducted by the General Accounting Office (GAO) and the Senate Governmental Affairs Subcommittee on Oversight of Government Management. Industry officials identified nine "claimed" impediments to DoD's procurement of NDI in the GAO report as opposed to the four broad areas identified in the latter report [Ref 51: p. 13].

These nine claimed impediments consisted of:

- management emphasis
- notification and training of DoD acquisition personnel on NDI
- cost or pricing data
- claimed problems related to FAR Part 11
- Government rights to technical data
- use of varying contract provisions
- use of military specifications
- modification of items to meet NDI needs
- multiple award schedule [Ref 51:pp. 13-44].

G. UNDERLYING THEORETICAL IMPORTANCE

A successful NDI acquisition demands a philosophical shift in requirements planning and material development [Ref 35: p. vi].

> The force behind this shift was the tremendous "cost of developing products to meet detailed or unique Government specifications and of duplicating existing commercial distribution systems...." Unfortunately, this is an issue we (DoD) continue to struggle with today, 20 years later! [Ref 1:p. 4].

It has been generally recognized that DoD can no longer afford to conduct "business as usual." NDI is a category of materiel acquisition strategies that has a mandated preference [Ref 54:p. 15]. In his 1992 Annual Report to the President and the Congress, then-Secretary of Defense, Dick Cheney stated:

> ...because the Department has become so accustomed to development and design, special emphasis is needed to encourage examination of commercial and NDI alternatives [Ref 38:p. 39].

The following statement further captures the reason to not only prefer NDIs but to actively pursue, acquire, and use them.

> Further, the reason for such emphasis (now even statutory) on buying NDIs rather than developing new items is obvious: NDIs are usually cheaper and available sooner...experience with NDIs (also) shows that, when they are properly bought to meet a DoD need, their quality tends to be as good as if not better than that of specially developed items [Ref 36:p. 5].

NDI acquisition therefore represents the preferred materiel solution to meet DoD's requirements. Maximum practicable use of NDIs offers opportunities to meet the challenges ahead of

meeting DoD's requirements in the downward spiral of Defense funding.

H. SUMMARY

This chapter provided a review of the nondevelopmental item acquisition concept. The objective was to provide a framework for determining alternative solutions to DoD's sluggish implementation of the NDI acquisition initiatives. Chapter III will present data collected during the research and a compendium of interview responses.

III. A COMPENDIUM OF INTERVIEW RESPONSES

A. INTRODUCTION

This chapter consists of a compilation of data collected and a compendium of 20 interview responses to a questionnaire developed for this study. By and large, personal interviews were conducted on-site in the interviewee's office to allow for clarity of each response, as well as allowing for elaboration and follow-up questions in the same regard. Telephone interviews were conducted where personal interviews were not possible. Interview questions were based on the literature review and corresponding issues from it which face the DoD or specific Service. The goal was to elicit responses that would allow for further discussion, as well as provide a basis for consistent interpretation across all interviews. The questions represent a sampling of issues previously identified as primary and subsidiary research questions and involve issues correlating to the NDI program framework of each interviewee's organization. Responses were provided with the understanding that they were on a non-attribution basis. A list of those individuals interviewed is contained in Appendix D. Those interviewed represent top-level proponents of the DoD and Service NDI programs, as well as high-level

industry representatives. Table 4 delineates the mix of offices from which interviewees were represented.

TABLE 4
A SUMMARY OF RESPONDENTS INTERVIEWED

Activity	Respondents (Number)
OASD (Economic Security)	3
OFPP	1
US Army NDI Advocate Ofc	2
US Navy NDI Advocate Ofc *	2
US Air Force NDI Adv Ofc	1
USMC NDI Advocate Ofc	1
Marine Corps Systems Cmd *	4
SASC Staff Member	1
The Boeing Company	1
Aerospace Industry Assoc.	1
DUSD (Acquisition Reform)	1
DSMC	2
TOTAL	20

* Includes a member of the 1992-93 DoN NDI Working Group

SOURCE: Developed by the researcher.

B. INFORMATIONAL DATA

1. NDI Measurement Results

Table 5 represents DoD's baseline of commercial and other NDI used to meet its procurement needs.

TABLE 5
INITIAL QUANTITATIVE NDI DATA
(FY 1992)

SVC	ACAT	C (M$)	C (%)	O (M$)	O (%)	T (M$)	T (%)
USA	**I**	192	3.6	136	2.6	328	6.2
	II	37	9.0	107	26.4	144	35.4
	III	289	18.2	489	30.7	777	48.9
USN	**I**	204	1.6	945	7.2	1,149	8.8
	II	91	6.0	243	15.8	335	21.8
	III	33	2.8	53	4.4	86	7.2
USAF	**I**	1,484	17.5	82	1.0	1,566	18.5
	II	33	7.4	**48**	**10.6**	81	18.0
	III	57	13.9	58	14.0	115	27.9
DOD	**I**	**1,880**	**7.0**	**1,163**	**4.3**	**3,043**	**11.3**
	II	**161**	**6.7**	**398**	**16.6**	**560**	**23.3**
	III	**379**	**11.9**	**600**	**18.8**	**978**	**30.7**

Source: OASD (Economic Security) Production Resources/MM

LEGEND:
C: Commercial
O: Other NDI
T: Total NDI
USA: US Army
USN: US Navy
USAF: US Air Force
M: Millions
ACAT: Acquisition Category
DOD: Department of Defense

Other:
* US Marine Corps combined under USN
* Data include major components of first-tier subsystems

The USD (A&T) is required to submit a report to the Deputy Secretary of Defense annually for the next five years on the progress made in procuring commercial and other NDI [Ref 4:p. 2]. The information contained in Table 5 was collected by OASD (Economic Security) Production Resources/Manufacturing Modernization (MM) via a database application provided to each of the Military Departments. As such, it represents a somewhat "manual" data call since Fiscal Year (FY) 1992 NDI data had not been collected as they occurred. Additionally, subjective assessment of the degree to which a program was "classified" can be seen in the following excerpt taken from the initial data call cover letter.

> This first report was based on Fiscal Year (FY) 1992 dollars and included acquisition categories (ACAT) I, II, and III. Classification of a system as "commercial" or "other NDI" involved consideration down to major components of first tier subsystems. Determination of the percentage of a system being"commercial" or "other NDI" was vested in the Program Executive Officer (PEO), Program Manager (PM), Army Major Subordinate Command, Navy Major Systems Command, or Air Force Major Command assigned responsibility for the system. This authority was delegatable to whatever organizational level deemed necessary to accomplish the undertaking [Ref 6:p. 1].

Expanded definitions of both commercial and other NDI were used for the data collection process. As previously discussed, the main thrust of these expanded definitions evolved around modifications, upgrades, and integration of components and subsystems. Appendix C contains the DoD expanded NDI definition for measurement purposes.

2. Training

P.L. 101-189, the National Defense Authorization Act for Fiscal Years 1990 and 1991, directed the Secretary of Defense to establish a program for training appropriate acquisition personnel in the acquisition of NDI. This training was required to include instruction on:

1) pertinent regulations and statutory references;

2) fundamental principles of price analysis and other alternative means of determining price reasonableness; and

3) market research techniques and drafting of functional and performance specifications.

In July 1991, a two-day workshop in the fundamentals of NDI was established. The course curriculum consists of an overview of NDI--its historical and legislative background, associated concepts, and the benefits and challenges of using NDIs; practical application exercises using case studies; and several quality video segments involving the paradigm shift phenomenon. The course is presented via contractual arrangement with a civilian firm. To maximize participation, the courses are funded by the Defense Acquisition University (DAU) and conducted on-site around the United States. The course is designed to accommodate 25 students per session and 50 sessions per year. Thus far participation has averaged approximately 21 students per session; however, an average of only 25 sessions have been conducted annually. Table 6 indicates NDI training conducted in Fiscal Years 1991 through 1993.

TABLE 6
DoD-SPONSORED NDI ACQUISITION COURSES

ARMY

Fiscal Year	Courses	Students
1991	11	224
1992	7	181
1993	10	228
Total	**28**	**633**

Navy

Fiscal Year	Courses	Students
1991	6	122
1992	4	84
1993	8	177
Total	**18**	**383**

Air Force

Fiscal Year	Courses	Students
1991	10	204
1992	10	206
1993	10	215
Total	**30**	**625**

DoD (TOTAL)

Fiscal Year	Courses	Students
1991	27*	550*
1992	21	471
1993	28	620
Total	**76***	**1641***

* Does not include DLA (seven courses/167 students in FY 91)

SOURCE: OASD (Economic Security) Production Resources

C. INTERVIEW RESULTS

This section discusses the nine questions used during interviews with the 20 interviewees noted in Appendix D. These nine questions were formulated with the intent of surfacing issues related to the source of DoD's inability to fully implement the statutory NDI initiatives. The underlying objective of all nine questions was to solicit responses that might come to help improve DoD's implementation of the NDI initiatives

1. Definition

The objective of this question was to validate previously established positions in regard to the clarity of the definition of NDI. Previously published articles and other material on NDI seemed to indicate inconsistencies in defining NDI.

Question#1: How would you define an NDI acquisition?

a. Discussion

The definition of NDI caused very little controversy for the respondents. The preponderance of interviewees concurred with the existing statutory definition contained in Appendix B. An opposing view held by two of the respondents separated "already developed" products from "commercial" products as two separate entities. This is as opposed to the current understanding that commercial products are a subset of what DoD considers NDI. The reason given for

the separation of these terms dealt with the preference hierarchy of NDI alternatives. The two respondents referred to above stated that commercial products should head the list, in line with the Administration's commercial-military technology integration policy.

The definition of commercial product, commercial item, commercial off-the-shelf item, and commercial-type product were not nearly as well understood as the definition of NDI. Many respondents referred to definitions in the Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and DoD Instruction 5000.2. However, respondents felt that there was a lack of clear understanding among the terms. Several respondents felt that there was not a need for all of these terms.

Similarly, the meaning of minor modification was less clear in the minds of the respondents. "Minor modification" is defined as a modification to a commercial item that does not alter the commercial item's function or essential physical characteristics [Ref 30:Part 211.7001 (d)]. Respondents referred to this definition and its failure to include other NDI and the integration of components and subsystems.

b. Sample Responses

The following sample responses are representative of the responses provided by interviewees in regard to this question:

> The definition of NDI may be found in 10 USC §2325 and DoD Instruction 5000.2, Part 6, Section L. Additionally, DoD has come out with an expanded definition of NDI for measurement purposes. This expanded definition was provided in DoD's tasker for measuring the progress in acquisition of NDI. It involves integration of NDI at the subsystem and component level and minor modifications to achieve successful integration.
>
> NDI includes commercial items and already developed items by other domestic Government, and in some cases, foreign government agencies.

In contrast to the norm, which pointed to the statutory definition, the following response is representative of two interviewees that broke out commercial products separately from NDI:

> There is a proposal where commercial items will no longer be a subset of what DoD considers NDI. This set of definitions would be more in line with the current Administration's preference for commercial products. The definition would set up the distinction such that commercial products would take preference over already developed products.

2. Extent of Implementation

This question was formulated to get to the "heart" of the research purpose. Based on the position of those interviewed in this regard, the assumption was that these interviewees were in the best position to objectively assess

the degree to which individual Services were complying with the NDI initiatives.

Question #2: To what extent has DoD/your Service implemented the NDI initiatives set forth in 10 USC §2325?

a. Discussion

Initially, all but one respondent agreed that a quantitative answer to this question was not possible. One reason given for this was that measurement data and statistics had not yet been collected. In the minds of those respondents there was a clear link between measurement data and the question. Likewise, several respondents were apprehensive about the validity of such data, once collected, because of the subjective nature of its intended collection methodology. One Service already had an automated means of tracking NDI data. There was a consensus that laws such as the Truth in Negotiations Act (TINA) prohibited full implementation of the initiatives, as well. The primary reason provided by respondents in this regard was the incompatability of many industry firm's accounting systems with the requirement to provide the Government with cost or pricing data. Therefore, respondents rallied around the point that legislative action was required to fulfill greater usage of NDI. Additionally, all respondents acknowledged that improvements in the acquisition of NDI were possible.

Nine respondents felt that the requirement to conduct market research/analysis had not been adequately undertaken. Training in market research techniques, time available to conduct market analysis, and management emphasis were reasons provided for this shortcoming. Six respondents identified the Government's culture as a primary reason for DoD's failure to fully implement the initiatives. Specifically, DoD's propensity to prefer development efforts and for using military-unique specifications and standards were cited as primary limiting factors in DoD's implementation of the NDI acquisition initiatives. Three interviewees noted that the extent of implementation varies by the type of commodity procured.

b. Sample Responses

The following sample responses are representative of interview replies to the research question:

> We have always been in compliance with 10 USC §2325; however, our emphasis on its implementation has been redoubled.

In contrast to the above positive-natured response, the following responses generally reflect a more pessimistic outlook on implementation of NDI acquisition initiatives:

> Lip service is paid to NDI.

> It varies by commodity area. In total, NDI usage has been tough to measure. DoD has just initiated a somewhat quantifiable measurement system and the results are not in yet.

DoD has a long way to go. There are still many inconsistencies with existing laws and Governmental practices. Examples of these inconsistencies include the Government's use of inappropriate clauses and military specifications, inappropriate requests for certified cost or pricing data, and excessive Governmental requirements.

DoD "talks the talk" but does not "walk the walk."

Generally, there has been more acceptance to using commercial products but it varies by commodity area and product.

Trying to quantify "modification" is not clearly addressed. It is clearly a subjective measure.

3. Recommendations for Improvement

The primary purpose of asking this question was to elicit responses that presented recommendations that were either new and innovative ways of looking at the issue or previously identified recommendations that may now be appropriate given the evolving nature of NDI acquisition issues. The overarching goal was to solicit recommendations that could enhance DoD's efforts to implement the NDI initiatives.

Question #3: What recommendations do you have for DoD/your Service in attempting to implement NDI acquisition initiatives?

a. Discussion

The majority of respondents believed that, besides the actions pending on legislation directed toward implementing the Section 800 Panel Report recommendations, other actions were required to implement the NDI initiatives.

There were no quick-fix, easy solutions offered by those interviewed. Training and the underlying goal of shifting the acquisition process paradigm permeated the responses. All responses referred to training either directly or indirectly. Six responses referred to a need to shift toward more commercial practices and performance based specifications. In each case, the respondents referred to educating personnel in these disciplines, as well as more definitive action such as specification reviews and challenging restrictive specifications. It was generally understood that this (and all recommendations) would require unswerving leadership, focus on the "big picture," sacrifices, and above all--time and patience. Dr. William Perry, Deputy Secretary of Defense, addressed this very issue with the DUSD for Acquisition Reform, the DoD Standardization Executives, and NDI Advocates. Before the first meeting of a process action team (PAT) tasked with developing a plan of action to ensure that military documents are not used in an acquisition unless they are the only practical way to ensure that DoD needs are met, Dr. Perry stated that:

> ...our goal in shifting away from military specifications and standards is not a numbers game to see how many documents we can convert to commercial item descriptions (CIDs) or nongovernment standards, but rather to determine how DoD can change its way of doing business...(Dr. Perry also tasked the Standardization Executives and NDI Advocates) to provide real leadership required for this cultural change, provide concrete guidance to the field on how to change and what to change in order to implement the cultural change, and to push the leadership to modify policies to facilitate the change [Ref 40:p. 13].

b. Sample Responses

The following sample responses are a representative specimen of replies to the research question:

> The Section 800 Panel recommendations are clearly a good start to help DoD implement the NDI initiatives.
>
> Basic training in awareness of NDI opportunities is required. The target audience should be those individuals involved in requirements generation, contracts, and logistics at a minimum. A "meeting of the minds" is needed to assure optimal use of NDIs.
>
> More training on the requirements generation process is required. That is where NDI solutions are born or aborted. Specifically, we need to do a better (more realistic/factual) job of performance trade-off and determinations. Goes hand-in-glove with the need to do better market investigations and general surveillance. Also, I would recommend that we manage risk rather than avoid it.
>
> Training! Training! Training! In particular DoD needs to require cross functional training.
>
> Training is the most important thing we can do for our people. We need to increase our training for those generating the requirements to ensure performance based specifications are used to the maximum extent practicable.

On a more comprehensive note, one Service representative outlined a more detailed approach:

> Change the current limiting paradigm to the more flexible-tailorable acquisition process spectrum defined and authorized in DoD Instruction 5000.2. This will require:
>
> 1) The USD (A&T) to issue a policy guidance memorandum on the DoD Instruction 5000.2 authorized acquisition process spectrum.
>
> 2) Development of an executive brief on the acquisition process spectrum to be used to educate the acquisition chain-of-command.
>
> 3) Revise mandatory acquisition training to address the new acquisition process spectrum paradigm.

4) Develop a brochure describing the acquisition process spectrum paradigm to be signed out by the USD (A&T) and distributed to all levels and all members of the acquisition workforce.

Industry representatives made the following comments in response to this question:

> We must move toward industry standards and performance-based specifications.
>
> DoD must take the existing acquisition system and use more commercial practices.
>
> Reverse the psychology where NDI is the norm. This will involve a top-down approach. With the recent change in leadership (Administration) and their commercial-military integration focus, the time is right.

4. Key Impediments

The objective of this question was to evoke real-time impediments facing the Defense Department. The underlying objective was to validate previously published impediments and to solicit any newly identified barriers to NDI acquisitions.

Question #4: What are the key impediments facing DoD/your Service in implementing the 10 USC §2325 NDI acquisition initiatives?

a. Discussion

Not surprisingly, all interviewees identified legislative barriers to the acquisition of NDI. The primary example cited in this regard was the TINA requirement for cost or pricing data. Most respondents felt that the recommendations made by the Section 800 Panel to amend or repeal existing laws would significantly increase the

acquisition of NDI. The main reason cited was that industry would be more willing to enter into business arrangements more in line with generally accepted commercial business practices. Two respondents felt that additional legislative measures were needed to ensure the viability of the preference for NDI to truly take seed and grow. The focus of this argument centered on the perceived adversarial relationship between DoD and industry. These same two respondents noted that DoD practices and industry (commercial) practices were incongruent. This failure to "see eye-to-eye" impeded the DoD's ability to attract some potential commercial product alternatives in their opinion. Eight respondents identified the culture/cultural mindsets as the primary impediment to implementing the NDI acquisition initiatives. The underlying challenge is the knowledge that change of any kind is often resisted. Specification issues were entwined with the culture issue to a large degree. Six respondents felt that over specification of DoD needs lead to less than optimal use of NDI alternatives. One interviewee noted that there are approximately 35,000 military specifications and standards on the books today [Ref 38:p. 39]. The challenge to review them was viewed as a monumental task. Two respondents identified advance planning and the time required to do so as a key impediment. Particularly for ILS issues, advance and often accelerated planning is needed to ensure supportability at IOC.

b. Sample Responses

The following responses are a compilation of interview responses that form a relative sampling of replies received.

> Chapter 8 of the Section 800 Panel Report says it best. Briefly, the procurement process (how DoD buys) is a major impediment.
>
> The plethora of military-unique specifications and standards and our inability to let them go is a major impediment.
>
> Clauses and their flowdown provisions, as well as the TINA requirements for certified cost or pricing data represent the biggest challenges for DoD to overcome in the commercial products arena.
>
> The narrow interpretation of TINA exemptions must be overcome. Contracting Officers should not require certified cost or pricing data just to "cover" themselves. Additional cost savings and a more non-adversarial business relationship are natural byproducts.
>
> There are a number of impediments that limit DoD's ability to procure NDI. The improper use of military specifications and standards, the TINA requirement for cost or pricing data, and the cultural mindsets of the DoD acquisition workforce seem to be the most prevalent.
>
> Industry's aversion to doing business with DoD because of excessive requirements such as separate accounting systems, inappropriate requests for cost or pricing data, etc.
>
> Streamlining requires a lot more up front work to describe requirements precisely and concisely.
>
> Knowledge of what is out there.

5. Service Attempts to Overcome Impediments

The goal of this question was to elicit responses that provided methodologies to help overcome the barriers to acquiring NDIs. The underlying purpose was to identify

workable solutions that might prove to be beneficial to other Services.

Question #5: How is DoD/your Service attempting to overcome these impediments in order to comply with Congressional intent of the USC?

a. Discussion

Responses ranged from proactive, detailed, integrated plans to more reactive "wait and see" attitudes. Training was a common approach expressed by all of those interviewed. However, because of the limited availability of opportunities to be trained at the DoD-sponsored course, respondents expressed a desire for additional opportunities to acquire training for their personnel. Five respondents noted that regulations were being updated and in three cases, new material was being developed. This new material was aimed at disseminating information and making the NDI acquisition more "user friendly." Two respondents noted increased emphasis on market analyses of requirements to identify commercial or other NDI alternatives. Four respondents identified increased review and challenges of military specifications and standards as a means to overcome barriers to NDI acquisitions. Two interviewees responded that a network of NDI Advocates were in place to provide upper-level attention to NDI. One respondent noted the on-going efforts to cancel inappropriate specifications and convert military specifications and

standards to CIDs, where possible. The respondent identified a Center for Strategic and International Studies (CSIS) report entitled: *Road Map for MilSpec Reform--Integrating Commercial and Military Manufacturing*. The report highlighted DoD's systemic roadblocks to using commercial products and processes and provided several recommendations to help overcome them [Ref 40:p.8].

b. Sample Responses

The following sample responses represent a representative continuum of the degree to which Services have attempted to overcome impediments to NDI acquisitions. The first response is taken from a Service representative's plan forwarded to DoD in response to DoD's request for initial measurement progress of NDI.

> Our Service has outlined our efforts in our response to DoD's tasker on the progress in measuring commercial and other NDI. **First**, we are actively pursuing the hard cultural changes that will significantly enhance our usage of commercial and other NDI strategies. **Second**, we have established a network of Associate NDI Advocates, bringing local executive level NDI emphasis to acquisition sites. **Third**, our Acquisition Improvement Seminars, more commonly known as the "Road Shows," is one of our hallmark initiatives. **Fourth**, an important adjunct to the Road Shows has been our concentrated, executive reviews of Requests for Proposal (RFP), better known as "RFP scrubs." **Fifth**, related to the RFP scrubs, we have recently instituted a comprehensive multi-disciplinary team review of selected acquisition strategies specifically focused on eliminating low value-added functional requirements. **Sixth**, development of a guidebook to assist field personnel in preparing performance based specifications is underway. **Seventh**, we have increased (two-way) communication with industry, which is an important

> underpinning to enhance access to the commercial marketplace, its products, and manufacturing "know how." **Eighth**, we have conducted a study in association with the Department of Commerce, of DoD accounting practices that were identified by industry as major deterrents to doing business with DoD. **Finally**, we continue to emphasize communication with foreign governments via data exchange agreements, technology assessment visits...
>
> Training at both of the DoD-sponsored NDI training courses--the two-day NDI Acquisition Workshop and the tailored Executive Seminar is one method of bridging the gap.

Focusing on other than training issues, other DoD Service representatives identified the following steps to help overcome barriers to the acquisition of NDIs:

> Specification review groups have been set up and are an on-going effort within DoD. The other part of the equation involves the field and their part in identifying and challenging inappropriate specifications. In too many cases, outdated or cancelled specifications are referenced in contracts.
>
> Market analysis plays a large part in our efforts to maximize the use of NDIs. It appears to be one of the keys to unlock the NDI door.
>
> One command has set up a data base for communication-electronic equipment that will be continually updated.

Industry representatives had the following to say about the DoD's overcoming of barriers to NDI acquisitions:

> It is easy to say, "buy commercial," but quite a number of things need to change. Legislation and training are (or should be) the cornerstones of this issue.
>
> The Section 800 Panel recommendations and the introduction of the 1993 Acquisition Streamlining Act in the Senate certainly will help alleviate many of the impediments that have plagued NDI over the years. The question now is--how much and how soon?

6. Implications of Military Service Differences

The primary purpose of this question was to identify any unique circumstances that might inhibit a Service from complying with the Congressionally-mandated NDI acquisition initiatives. The underlying goal was to validate the across-the-board similar treatment of all Services in regard to NDI acquisitions.

Question #6: To what extent are there specific differences between Services that have prevented/allowed for the more timely implementation of the Title 10 NDI acquisition initiatives? What are they? (How) can they be overcome?

a. Discussion

Responses primarily identified subtle differences among the Services. While many of the Services share common functions, all have somewhat unique roles that help explain one reason for these subtleties. One reason related to common functions involves the military hardware acquired by the respective Services. In order to perform these common (often secondary) functions, similar material is required. In the recent review of the *Missions, Roles, and Functions of the Armed Forces of the United States* by the Chairman of the Joint Chiefs of Staff, many of these overlapping functions were validated by way of association with the currently embraced joint doctrine [Ref 29:p. II-18]. Typically, the material associated with these overlapping functions represents a

"pocket of success." Examples include jet engines, safety and survivability equipment, and medical supplies and equipment. Some specific differences involve unique environmental requirements such as diesel vice gas-powered generating equipment for shipboard use and safety. Another common response was the potential differences associated with support plans.

b. Sample Responses

The following sample responses are a representative compilation of replies received from interviewees:

> There are subtleties that separate the Services. Benign and potentially hostile environments exist for all of DoD. Some would argue that one Service or another performs in a more harsh environment, i.e., potentially hotter, colder, drier, wetter; forward deployed versus "in the rear"; fluid versus static...but it comes down to the different weaponry and materiel that a particular Service procures.
>
> One argument is concerned with support strategies. Commercial versus organic support should be a major consideration when planning an acquisition. In the case of the Services, maintenance and support strategies must consider where the product will be supported from. If forward deployed in the field, organic support seems to make the most sense. Another important consideration is the economics of the decision.
>
> Pockets of success have suggested that there are no real boundaries as far as the Services go. Service requirements that more closely fit commercial capabilities have provided the most success. Examples include safety and fire-fighting equipment, computers and electronics equipment, medical supplies, clothing and textile products, jet engines, and transport aircraft to name just a few.

7. DOD/Service Guidance

The primary purpose of this question was to identify present and expected future DoD and Service guidance on NDI and any shortfalls in this area. The underlying goal was to identify potential notions on improving the awareness of NDI via this medium, as well as to enhance NDI guidance (short of supplementation).

Question #7: What specific DoD/Service guidance, i.e., directives, instructions, pamphlets, etc., has been issued? Planned?

a. Discussion

In general, there was not a great deal of concern about additional Service guidance in this area because of the stipulation within the DoD 5000-series that supplementation of guidance was not authorized. However, many respondents felt that some type of implementing document was required which would address any unique issues and relationships. An example is the network of Associate NDI Advocates in some Services, their roles, reporting relationships and requirements, etc. In one case a respondent felt that a simple pamphlet on the NDI acquisition process should be developed and distributed to the entire acquisition workforce.

b. Sample Responses

The following responses include a sampling of headquarters-issued guidance on NDI. Caveat: the below list

does not represent an all-inclusive listing, realizing that in many cases subordinate command's, e.g., Systems Commands, have issued their own guidance based on individual organizational structures, responsibilities for specific types of programs, etc.

DoD: Issued:

SD-2, *Buying NDI*

SD-5, *Market Analysis for Nondevelopmental Items*

DoD Directive 5000.1, *Defense Acquisition*

DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures*

DoD Manual 5000.2-M, *Defense Acquisition Management Documentation and Reports*

Planned:

DoD Manual 5000.37-M, *Commercial and Other Nondevelopmental Items* (to replace SD-2)

Army: Issued:

None

Planned:

Department of the Army Pamphlet 70-XX, *Materiel Acquisition Handbook*

Air Force: Issued:

None

Planned:

Air Force Instruction 63-401, *Competition Advocacy*

Navy: Issued:

SecNavInst 5000.2A, *Implementation of Defense Acquisition Management Policies, Procedures, Documentation, and Reports*

SecNavInst 5200.32A, *Acquisition Management Policies and Procedures for Computer Resources*

Planned:

NDI Pamphlet

Marine Corps: Issued:

Marine Corps Order P5000.10C, *Systems Acquisition Management Manual*

Planned:

Marine Corps Order P5000.XX, *Implementation of Defense Acquisition Management Policies, Procedures, Documentation, and Reports*

8. Extent of Training

The primary objective of this question was to identify the degree to which the DoD acquisition workforce had received training on the concepts associated with NDI acquisitions. The underlying objective was to identify NDI training opportunities, training shortcomings, and to validate the NDI training requirement.

Question #8: To what extent have DoD/Service acquisition personnel been exposed to, trained, educated in the concept of NDI acquisitions?

a. Discussion

All respondents were aware of the DoD-sponsored two-day NDI workshop, encouraged acquisition workforce attendance, and noted the void to reach the entire target audience. The target audience consists of the acquisition workforce, which for DAWIA purposes is estimated at 130,000 personnel [Ref 38:p. 167]. Additionally, one respondent felt as though the NDI course would become a DAWIA requirement in the near future. In three cases, respondents identified internal Service-related efforts to enhance the ability to reach more of the target audience in a more timely manner. In this regard, five respondents felt that improvements were required in Defense Acquisition University (DAU)-sponsored acquisition courses. This included increased NDI coverage in already developed courses and the need for a separate NDI course within the DAU curriculum. All respondents noted that there was no market research training course available within DoD.

b. Sample Responses

The following responses provide a representative sampling of interview replies:

> The DoD offers a two-day on-site NDI Workshop. The course has been offered approximately 30 times a year and is capable of training 25 people per class session.

Service representatives made the following comments in regard to NDI training:

> In FY 93 we have 10 of the 28 OSD offerings. In FY 94 we are trying to set up six to eight of the 18-20 total offerings. We are also assisting DSMC to build in NDI blocks into their larger offerings.
>
> We are limited to the DoD-sponsored course. We have no Service-sponsored courses on NDI.
>
> Besides the NDI course, we have trained over 1500 of our middle managers and acquisition managers in an Acquisition Streamlining course since FY 87.
>
> Quotas to some program management courses are hard to come by. We have Service-sponsored short courses in Project Officer Systems Acquisition Training, which are generally not well received. Additionally, we have a local familiarization/introductory course on the recent changes caused by the new DoD 5000-series. We are trying to shift the paradigm via our training program.

A DoD official commented on the importance of the NDI training course by stating:

> In all likelihood, the DoD NDI course will become a DAWIA requirement. With the immenseness of the target audience, this is the only way to ensure the acquisition workforce "gets the word."

An industry official summed up the task ahead of DoD by stating that:

> Training the acquisition workforce is a daunting challenge.

9. Statistical Data

The primary purpose of this question was to establish if a measurement process had been established and instituted within the DoD for NDI acquisitions. A secondary purpose of this question was to identify the collection methodology used and the perceived utility of the data with the goal of

attempting to identify shortcomings which might be corrected to enhance the efficiency and effectiveness of the process.

Question #9: Does DoD/your Service compile statistical data on NDI acquisitions?

a. Discussion

During initial interviews most respondents unequivocally responded, no. DoD was in the process of responding to the Deputy Secretary of Defense Memorandum of 24 April 1992 requirement to report the progress in the acquisition of commercial and other NDI for five years. Shortly before this writing, the final data were reported to DoD. Table 5 presented these data. This initial report forms the baseline upon which future trends and decisions will be based. Interviews following the initial report revealed that the results generally mirrored expectations. In two cases, respondents were mildly surprised at results in a particular ACAT--one positively (thought results would be lower) and one negatively (thought results would be higher). Most respondents felt that the data had inherent inaccuracies built-in due to the subjective nature of the collection methodology.

b. Sample Responses

The following sample responses are a compilation of interview replies:

> At this time (June 1993) we do not collect measurement data on NDI; however, the requirement has just been levied on us and we are scrambling to respond to DoD.

In contrast, one Service respondent stated:

> We have a measurement system, the Acquisition Milestone Management System (AAMS), that helps us identify what is and is not NDI--on a binary basis. Other than that it is not that useful. The OASD requires that we establish a baseline of NDI usage.

In regard to the utility of the data, respondents stated:

> To be meaningful...we should wait and see what next year's data show us. We should proceed slowly and not be so quick to assign any percentage goals or the like, similar to competition requirements, until we assess what the data tells us. Additionally, we should be looking at what it (will) cost us to collect the data.
>
> The quality of the data within the report is suspect. The subjective nature of assignment criteria allows a lot of room for interpretation.

In contrast, a DoD official stated that:

> Although there was a lot of judgmental decision-making involved, I have a high degree of confidence in the statistical report. Granted, if a different cast of characters were to do the same thing we would probably have slight variances. Without the benefit of parts being coded, i.e., commercial, already developed (other NDI), or other, a degree of subjectivity is to be expected. It is a matter of a cost-benefit trade-off and the expense of coding parts/part numbers is prohibitive at this time.

D. SUMMARY

Chapter III presented the first-ever measurement data of commercial and other NDI, the results of training efforts since FY 1991, as well as, a representative compilation of interview responses. Many responses echoed the same themes that have been surfaced over the past two decades. However,

"real" progress was a common thought expressed by respondents because of hard evidence in this regard--the Section 800 Panel Report recommendations and the recently compiled DoD NDI measurement results. No simple, clear-cut ideas emerged which would transform the current situation. A late breaking event however shows great promise. The Senate's introduction of the Federal Acquisition Streamlining Act of 1993 (S 1587) clearly signifies Congress' resolve in this matter. The proposed Act is the next step to initiate the Section 800 Panel recommendations into law. Chapter IV will identify and analyze the major issues and concerns that have surfaced because of this research effort.

IV. A COMPARATIVE ANALYSIS OF CRITICAL ISSUES

A. INTRODUCTION

This chapter consists of a comparative analysis of the critical issues and problems identified as a result of interviews and research conducted. The following discussion involves an interpretation of responses to the research questions, researcher views of responses, and researcher synthesis of the foregoing with information gathered during the literature review. In doing so, the goal of this chapter is to scrutinize the data presented in the preceding chapters. Three significant issues have been identified for analysis. First, legislative barriers to the acquisition of NDI will be discussed. A two-part focus will be used. The first portion of the discussion will focus on specific legislative issues which limit NDI acquisitions. The second portion will focus on evolving initiatives to overcome legislative barriers which limit the acquisition of NDIs. Second, measurement processes and results will be evaluated. The underlying concerns are the reactive nature of the process, the subjectivity involved with the identification of NDI, and the unclear interpretation and utility of the data. The final issue involves the acquisition process paradigm and the need to shift to the

paradigm embracing the preference to procure commercial products (NDI) and use commercial practices.

B. LEGISLATIVE BARRIERS

A number of legislative barriers to NDI acquisitions are currently being addressed by the Congress in the Senate's proposed Federal Acquisition Streamlining Act of 1993 (S 1587). Industry is playing an active role in providing recommendations to (and corresponding rationale) conform more to industry standards.

1. Legislative Issues

Legislative barriers to the acquisition of NDI have a long and documented history. Legislation such as the Buy America Act, TINA, and socioeconomic statutes provide for protection against a myriad of factors and protection of large voting constituencies. In defense of the actions taken by Congress in this respect, many of the barriers are a result of Congress' concern to protect the interests of the American public. The history of commercial product acquisition efforts is one of good intentions that have failed to bear fruit because none of the efforts to date have created a complete, systematic statutory and regulatory structure for buying commercial products [Ref 39:p. 8-10]. As previously depicted in Tables 1 through 3, found in Chapter II, numerous efforts have taken place over the years to study legislative issues facing NDI. In 1988, then-Congressman Les Aspin was quoted as

saying that perhaps the next executive commission on acquisition should be created, not to propose the reforms, but to implement them.

2. Current Legislative Initiatives

The DoD's Acquisition Law Advisory Panel went about as far as one could expect to help implement acquisition reform from a legislative standpoint from within the Defense Department. The comprehensive report consists of approximately 1800 pages, is broken down into eight chapters, and includes dozens of recommendations. In spite of this voluminous effort however, there is industry concern that the Panel's recommendations have not gone far enough. In particular, industry is concerned with socioeconomic issues that fail to consider normal industry practices and the issue of waivers. A specific example was identified whereby the waiver process was considered to be lengthy and difficult.

> A request for waiver of Government clauses in a basic ordering agreement for standard commercial aircraft spare parts took four years to process and ultimately provided only a small part of the relief required to achieve commercial equivalence [Ref 2:p. 3].

Another issue of great concern to industry is the Government's propensity for cascading of regulations in response to Congressional enactment of new statutes. The Section 800 Panel reviewed this issue and made the following comment:

> While the Panel's charter called for legislative rather than regulatory reform, there is an important linkage,

> often missed in public and congressional criticism of DoD contracting methods: Many of the regulations which impose the most burdensome controls are specifically mandated by statute. This "missing link" between law and regulation was addressed in a study specifically prepared for the Panel by the American Defense Preparedness Association (ADPA). It found that acquisition laws represented the apex of a "cascading pyramid" of restrictive regulations, overly detailed military specifications, and common procurement practices that typically added 30-50 percent to the costs of doing business with the Department of Defense [Ref 10:p. 3].

An industry analysis of the Panel's chapter 8 (Commercial Items) recommendations applauded their efforts but offered several recommended changes. The thrust of the industry analysis focused on:

> ...one of the economic principles underlying the proposed commercial items statute is that the forces of the commercial marketplace may be relied upon as much by the U.S. Government as they are by all other buyers to assure that prices and terms are fair and reasonable and that the product quality meets contract requirements [Ref 2:p. 2].

The focus of industry's counter-recommendations is to enhance the business relationship between the DoD and industry to become as non-adversarial as possible and provide incentives to both parties. As previously identified, industry has expressed concern in regard to the waiver process. "In industry's experience, the waiver process is lengthy, difficult, and less than satisfactory" [Ref 3:p. 3]. The following two examples reflect industry's sentiment:

- Exemption from TINA and the requirement for cost or pricing data because many/most commercial companies do not have accounting systems set up to provide the necessary data required by Government regulations.
- Use of uniform terms and conditions that provide for only those contract clauses determined to be consistent with

standard commercial practices or required to implement provisions of the law applicable to commercial item acquisitions [Ref 2:pp. 2,5].

Congress has attempted to strike a balance between the needs of both parties, as well as, to preserve the National good. Title VIII-Commercial Items, of the proposed Federal Acquisition Streamlining Act of 1993 incorporates many of the Section 800 Panel recommendations. Specifically:

- Section 8001 would amend the OFPP Act to add new definitions of "commercial item," "nondevelopmental item," "component," and "commercial component."
- Section 8002 would add a new section 31 to the OFPP Act to create a preference for the acquisition of commercial items and other nondevelopmental items.
- Section 8003 would add a new section 32 to the OFPP Act to require the issuance of uniform contract clauses for commercial item contracts.
- Section 8004 would authorize the applicability of future enacted procurement statutes to contracts and/or subcontracts for the acquisition of commercial items to be waived on a class basis, through the FAR.
- Section 8005 would exempt commercial items procurement from the requirement to identify suppliers and sources of supplies, the prohibition on contingent fees, the requirement to identify suspended or debarred subcontractors...
- Section 8006 would authorize greater flexibility in setting deadlines for the submission of offers in contracts for the purchase of commercial items.
- Section 8007 would amend the OFPP Act to expand the responsibilities of OFPP's commercial items advocate and to give agency competition advocates the added responsibility of promoting the acquisition of commercial items and other NDIs.
- Section 8008 would identify certain provisions that are not intended to be affected or modified by the Title.

- Section 8009 would require a Comptroller General review of Federal Government use of market research [Ref 26: p. S 14423].

Conversely, the Senate version of the Act did not adopt several Section 800 Panel recommendations. Some of these recommendations involved exemptions to the Buy American Act, special provisions regarding disabled Vietnam veterans and the handicapped, and exemptions to small business subcontracting plans [Ref 26:p. S 14423].

As would be expected, industry provided the Senate Armed Services Committee with an analysis of issues which echoed many of the same concerns voiced in their previous analysis (of the Section 800 Panel recommendations). This analysis identified several "pen-change" type corrections to the proposed Act, in addition to some more pressing issues. Exception was taken primarily with portions of Sections 8001, 8003, and 8005 (noted above). In particular, the term NDI contained in Section 8001 of the Act was determined to have no appropriate application to commercial item procurements in their view. Moreover, the industry analysis identified the term as a "confusing factor when dealing with commercial products" [Ref 3:p. 22]. Additionally, exception was taken with the phrase, "inclusion of contract clauses that are essential for the protection of the Federal Government's interests in all acquisitions of commercial items" [Ref 3:p. 22]. Industry's concern was based on the perceived practice of Government officials to broadly interpret regulations to be

deemed "essential to the protection of the Federal Government" [Ref 3:p. 22]. Finally, the listing of specific exemptions to statutes contained in Section 8005 caused industry concern. The industry position was that additional statutes contained in Section 8005 should be added to the list, e.g., Buy America Act, Trade Agreements Act, Affirmative Action for Handicapped Workers, etc., or a blanket waiver should be granted for the acquisition of commercial products [Ref 26:p. S 14417, S 14418].

There are many practical and legal issues that have not been adequately addressed. Given the Administration's policy of military-commercial integration, it is important that the Congress closely consider industry's recommendations in regard to the acquisition of commercial products. Likewise, compromises may be required by industry. It is likely that the solution--the language of the Federal Acquisition Streamlining Act, lies somewhere between the positions held by industry and that of the Congress. The reconciliation of a Bill within Congress takes time. Once enacted, implementation of the contents takes time. If adjustments are required after implementation, the process of legislation takes time. Therefore, it is incumbent on all parties, i.e., Government and industry, to work out a compromise acceptable to all parties (to the maximum extent practicable) in as timely a manner as possible. The underlying goal of the legislation should be to maintain (or

enhance, if possible) the defense technology industrial base and to provide DoD with the tools to accomplish its mission, realizing the many other concerns of the American public, e.g., jobs, financial stewardship of tax revenues, etc. Thoroughness should override time considerations to the maximum extent, as well.

As proposed by industry, a Government-industry team approach to regulatory negotiation for commercial items regulations would facilitate the process of statute enactment taking into account the impact on contractors [Ref 3:p. 24]. The proposals from both Government and industry and the attendant effects of decisions made by the Congress warrant no less effort. In many cases, such as the shipbuilding industry, any less effort could result in the loss of portions of the defense industrial technology base, opportunities to procure cost-effective material, and possibly jobs within industry.

C. MEASUREMENT PROCESS AND RESULTS

Three challenges have been identified with the current NDI measurement process and measurement results. These challenges involve the reactive nature of the process, the subjective nature of the process, and finally, the utility of the data.

1. Reactive Nature of the Process

The first challenge with the measurement process is the reactive nature of the measurement data collection

process. Measurement of progress in DoD's use of NDI was established as a requirement in April 1992 [Ref 4:p. 2]. A year later, in April 1993, the initial data call was promulgated by the Defense Department [Ref 6:p. 1]. Touted as an automated process, the initial data call was more of a manual manipulation of input keyed into a database. A preponderance of respondents noted difficulty in amassing the initial data requested by DoD. These problems were in spite of the 90-day turnaround requirement. As noted by one respondent, an extension of nearly an additional 90 days was required by one Service. The primary problem encountered by all DoD Services was the identification of "commercial" or "other NDI" down to the major components of first tier subsystems. According to one respondent, the field (those collecting and inputting the data) did not fully understand what the breakdown of percentages meant. In the same Service, there were many phone calls received from the field that initially believed the NDI issue to be black or white--it either was or it was not NDI. The concept of technology insertion or integration was not fully understood. This may help explain the deviation noted in the case of ACAT III percentages for the USN. In only one case had a Service been collecting any such data. Generally, all respondents were (unofficially) opposed to future data calls but were resigned to carry out future collection efforts. The rationale for opposing future data calls was the inordinate (but

unspecified) amount of time and effort exerted to collection of the initial data. A general consensus was established that future data calls should not differ radically/significantly from the initial effort. Given the continued requirement for an emphasis on measurement data one would expect an increase in both efficiency and effectiveness of the results due to the nature of the learning curve. However, due to the normal rotation of assignments, the improvements due to learning may be cyclical with downward fluctuations upon reassignment of those individuals responsible for submitting the reports, e.g., PEOs, PMs, etc.

It is important that DoD consider the impact of having such a reactive collection process for measuring NDI usage. There is increasing concern that the acquisition of commercial products and a measurement mechanism to take full advantage of a more proactive approach could improve the data's accuracy. The premise involves the theory that time erodes our memories and small incremental tasks are often easier to accomplish than one larger task. However, the goal should be to report the data as accurately as possible given resource constraints and not necessarily to have 100% accuracy.

2. Subjective Nature of the Process

The second problem noted with the current measurement process is the subjective nature of the identification of "commercial" or "other NDI" in the collection process. All

respondents noted a rough order of magnitude for initial measurement statistics due to the subjectivity of the collection process. The current practice--that determinations as to what percentages a system is or is not "commercial" or "other NDI" will be made by the PEO, PM, Army Major Subordinate Command, Navy Major Systems Command, or Air Force Major Command assigned responsibility for the system provides support for the notion of subjective and therefore "rough" estimates of NDI usage [Ref 6:p. 1 (attachment)]. One method of reducing the subjectivity of the collection process was identified in a DoD study. In order to make the process more objective a recommendation to code parts/part numbers was identified. This coding would entail manufacturers or commands exercising configuration control to identify parts as "commercial," "other NDI," or "other." This proposal was rejected after a cost-benefit analysis because of a lack of current and projected resources, i.e., funding, personnel, and time, to establish and run the program. The upshot of the proposal is an almost certain increase in the accuracy and reliability of the report. Another potential benefit of the proposal would be the *future* resource savings for the upfront effort.

Similar to the previous section on the reactive nature of the collection process, it is essential that DoD consider the impact of having such a subjective process for measuring NDI usage. The increased focus on the acquisition of

commercial products has resulted in the requirement for DoD to report its progress on measuring the acquisition of commercial products and other NDIs. Data accuracy has been questioned primarily due to the prevalent reliance on the subjective determination of percentages of NDI usage by those responsible for specific acquisition programs. DoD's goal in this regard is to report data as accurately as possible given resource constraints. The introduction of a more objective means to process the collection of NDI data may increase reporting accuracy but in all likelihood will increase costs considerably. It is important that DoD consider the degree to which they desire NDI data to be accurate.

3. Utility of the Measurement Data

The third problem identified with regard to the NDI measurement process involves the interpretation and use of the measurement data. The initial data provide little more than a baseline snapshot of FY 1992 NDI acquisitions. As one would expect, the measurement data follow the trend of increasing NDI percentages as the acquisition category moves from ACAT 1 to ACAT 3. There was a fear expressed by many respondents that the initial measurement data would become a benchmark to exceed in future years. A common concern expressed was the danger facing the DoD if and when Services attempt to "shoe-horn" in an NDI. Just as in the case of competition, NDI for the sake of NDI may not necessarily be a good thing. Gaming

the system in order to meet some preconceived goal may invite perverse outcomes. One respondent felt that the only organization that could realistically identify the percentages of commercial or other NDI was the contractor. Several respondents noted a potential future problem of passing the requirement to identify NDI on to the contractor via a contractor's data requirement list deliverable and the attendant charge being passed on to the Government. The current data do not allow for much additional interpretation. Respondents felt that future analyses should combine quantitative measurement and qualitative evaluation/analysis. The rationale for this feeling was that respondents felt that some valuable results are impossible to quantify [Ref 19:p. 355]. Additionally, respondents noted a preponderance of NDI at the ACAT IV level and below but stopped short of advocating collecting such data. During the research, the researcher found that no clear direction was established for evaluation of future data. Given that it normally takes several years to develop adequate measures it should not come as any big surprise that an agency's first attempt at measurement often falls short of expectations [Ref 19:p. 349].

The utility of the NDI measurement data is not addressed in any literature reviewed by the researcher nor was there any clear understanding of the utility of the data exhibited by those interviewed. It is important that DoD consider not only the utility of the data but the motivations

of those collecting the data when no clear explanation is given for their future utility. It was generally understood by the respondents that the initial data collected formed the baseline of NDI measurement data. However, there was no clear understanding of what future utility the data held. The intent of the data is to be used as a measure against which the Congressionally-mandated NDI acquisition initiatives can be measured, in the estimation of the researcher. This is only one measure which is required. Furthermore, future programs to measure other NDI acquisition initiatives, e.g., use of market research, should make adjustments based on the lessons learned in NDI measurement.

D. THE ACQUISITION PROCESS PARADIGM

Many respondents identified the culture of the acquisition workforce as the heart and soul of the acquisition reform movement. The continued use of military specifications in lieu of functional specifications (in many cases) is a classic example of a cultural mindset. In spite of the statutory preference (since 1987) for NDI and the use of functional specifications, many respondents felt that the DoD had considerable room for improvement. At least two reasons help to explain this phenomenon. First, the sheer size of the acquisition workforce (130,000 positions) creates unparalleled challenges. Several respondents noted that awareness of new

initiatives is an associated challenge because of DoD's size. Training, education, and professional development are yet other associated problems identified by respondents to consider with a workforce the size of DoD's. Similarly, the diversity and geographic separation of the workforce adds potential challenges. Second, concepts such as "group think" or "paradigm paralysis" may help explain the reluctance of the workforce to shift their way of thinking. Paradigm paralysis can be thought of as a "hardening of the categories," so to speak [Ref 5:p. 155]. It is normal human nature to resist change. As Joel Barker writes in *Future Edge*, "you manage within a paradigm; you lead between paradigms [Ref 5:p. 164]."

Although the preference for NDI acquisitions has been around since 1987, the previous paradigm, i.e., the preference for development programs, continues to be embraced by the acquisition workforce. As a matter of fact, the hierarchy of materiel alternatives lists the use of development programs (3) through (5), behind the use or modification of existing military systems and the use or modification of existing commercial or Allied systems that foster an NDI strategy [Ref 31:p. 1-3]. Times have changed, paradigms have changed but the attitudes of much of the workforce have not. Many of the respondents identified that DoD can no longer conduct business as usual, i.e., preferring developmental programs over nondevelopmental programs. Sharing lessons learned is another avenue which could prove fruitful in shifting the paradigm.

For example, the Marine Corps' acquisition of the Light Armored Vehicle-25 presented logistical support challenges and lessons learned worthy of dissemination [Ref 20:p. 1]. Other examples include innovative contracting techniques for C^4I NDI acquisitions implemented by the Air Force, open systems architecture advantages in computer acquisitions, and standardization issues and NDI [Ref 45:p. IV-2, IV-3]. It is incumbent upon the DoD acquisition leaders to create and foster a supporting climate in order to shift the way the workforce looks at the acquisition cycle. Many potential benefits are in the waiting. It is current DoD policy that acquisition strategies and program plans shall be tailored to accomplish established program objectives and to control risk [Ref 31:p. 1-4]. Further, it is also DoD policy that the acquisition strategy should be tailored to the extent feasible to employ commercial practices when procuring commercial products or other NDIs [Ref 33:p. 6-L-4]..

E. SUMMARY

Legislative issues continue to preclude the DoD from taking full advantage of opportunities available in the commercial marketplace. Substantive efforts have taken place and continue to evolve in this area. NDI acquisitions could be well-served by enactment of legislation that would reduce barriers, effectively enhancing the Government-industry business relationship, while also ensuring public interests

are satisfied. Measurement processes are reactive and subjective. Several alternatives exist that could help/assist the process to be more proactive, responsive, and objective. It is not clear what utility is intended for NDI measurement data. There are several concerns that the initial measurement data may not represent meaningful data and therefore taint future evaluation and trend analysis of NDI measurement data. In a world revolutionized by change, the acquisition process is changing. To a slower degree, so is the acquisition workforce. There are many symptoms and causes which must be addressed and alleviated, not the least of which is training, education, and professional development. Chapter V presents the conclusions, recommendations, answers to research questions, and opportunities for further research.

V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter summarizes the conclusions and recommendations resulting from this research. Chapter V consists of four parts: conclusions, recommendations, answers to research questions, and areas for further research. First, the conclusions address regulatory, statutory, training, and general issues involving NDI acquisitions. Second, recommendations are provided which specifically address shortcomings identified during the research. Third, research questions are answered. Lastly, potential areas for further research are presented.

B. CONCLUSIONS

1. NDI is not a new topic.

The researcher has concluded, based on a preponderance of opinions of respondents and the literature review, that NDI is not a new topic. Respondents unequivocally stated that NDI was not a new concept. Although the term NDI was not coined until the mid to late 1980s, commercial product acquisition was the forefather of what we now classify as NDI. As a result of the literature review, Tables 1 through 3 were developed to show the considerable amount of attention which has been directed at studying commercial product and NDI

acquisitions. These tables document thirty-four NDI-related commissions, reports, studies, etc. from 1972 to the present.

2. Impediments to NDI acquisitions continue to exist despite significant efforts over the past two decades.

The researcher has concluded, based on a preponderance of evidence gathered from interview responses and the literature review, that impediments to NDI acquisitions continue to exist despite significant efforts over the past two decades. Tables 1 through 3 document many of the significant efforts which have taken place in the identification and study of barriers to commercial product and NDI acquisitions within the DoD. Based on interview responses however, it was noted that significant progress has been thwarted by DoD's inability to implement many of the recommendations made over the years. Moreover, many barriers continue to exist despite DoD's efforts, because of statutory mandates. The current Administration's "full court press" on acquisition reform, to include legislative change, is a significant indicator of potentially unparalleled future progress.

3. There are distinct/subtle differences among the DoD Services; however, these differences play a minor role in Service implementation of NDI acquisition initiatives.

The researcher has concluded, based on a preponderance of opinions of respondents and the literature review, that there are subtle differences among the DoD Services; however,

these differences play an insignificant role in the Service's implementation of the NDI acquisition initiatives. Additionally, conventional wisdom holds that the Services are quite unique in the missions and roles that they fulfill. However, when looking beyond the surface, many overlapping functions and oftentimes missions appear. As many interviewees stated, it boils down to the hardware that is procured. The Services oftentimes procure Service-unique hardware, e.g., tactical fighter aircraft, ships, and submarines. Conversely, the Services procure many similar types of products, e.g., communications-electronics equipment, computers, jet engines, power-generating equipment, and medical supplies. Respondents went on to say that subtleties often exist due to Service-unique environmental factors, e.g., salty sea mist by the U.S. Navy. In the end, respondents clearly indicated that although subtle differences apply among the Services, these differences played an insignificant role in their ability to implement the NDI initiatives of 10 USC §2325.

4. "Pockets of success" exist, whereby commodities with established commercial markets and DoD requirements meld to form a good fit.

The researcher has concluded, based on the preponderance of opinions of the respondents and conventional wisdom, that "pockets of success" exist where products conform to both commercial and DoD applications. Most respondents

identified several commodities of DoD-required products well-suited to the commercial marketplace. Given the requirement to fulfill a specific mission with a commercial counterpart like-mission, numerous examples of these so-called "pockets of success" were given, including:

- Safety and survivability equipment
- Transport aircraft
- Jet engines
- Power-generating equipment
- Communications-electronics equipment
- Computer equipment

5. Statutory-based impediments still exist and must be "dealt with" by the U.S. Congress in order to more fully comply with the NDI acquisition initiatives.

The researcher has concluded, based on the opinion overwhelmingly shared by all respondents and the literature review, that statutory-based impediments still exist and must be "dealt with" by the Congress in order to more fully comply with the NDI acquisition initiatives. All interview respondents identified a direct link between DoD's failure to comply with the mandated NDI acquisition initiatives and the statutes themselves. Similarly, the literature review identified numerous examples of barriers to the acquisition of NDIs steeped in legislation. However, the amount and level of focus and attention given to legislative reform in the NDI

arena was clearly seen by all respondents as a step in the right direction. Although Administration, Congressional, DoD, and industry participation in these efforts are on-going, most respondents felt apprehensive in regard to the potential for "real future progress" based primarily on the past performance of former efforts in this regard. The focal point of many respondents was clearly fixed on the Senate's proposed Federal Acquisition Streamlining Act of 1993.

6. Lessons learned exist and can be more fully applied across DoD Service boundaries.

The researcher has concluded, based on a preponderance of opinions of respondents and the literature review, that many lessons have been learned in the NDI arena. The preponderance of respondents indicated that it is incumbent upon the Office of the Secretary of Defense to exploit the lessons learned associated with NDI acquisitions by Defense Department Military Services in order to maximize the efficiency and effectiveness of the Department in this area. These lessons learned were primarily in the areas of the need for true legislative reform, increased management/leadership attention, increased use of functional and performance specifications and commercial item descriptions, and the need for increased training in order to shift the acquisition process paradigm to enhance NDI usage.

7. The definition of minor modification needs to be more specific.

The researcher has concluded, based on a preponderance of opinions of respondents and the literature review, that the definition of minor modification needs to be more specific and more readily referenced in literature on the subject, e.g., the FAR, DoD Instruction 5000.2, DoD Manual 5000.37-M, etc. Many of the respondents indicated that the meaning of the term minor modification was subject to wide interpretation and judgment. The literature review indicated that the term "minor modification" appears within the Title 10 definition of NDI; however, its meaning is not defined. Furthermore, DFARS 211.7001(d) defines minor modification of a commercial item only. It fails to recognize the entire range of NDIs (already developed items).

8. NDI training is inadequate to meet the needs of the acquisition workforce.

The researcher has concluded, based on the opinion overwhelmingly shared by all respondents that NDI training is inadequate to meet the needs of the acquisition workforce. Acquisition workforce positions under the DAWIA umbrella number 130,000 [Ref 38:p. 167]. DoD Service acquisition personnel formally trained by the DoD-sponsored NDI training course number 1641 as of the end of FY 1993. This represents only 1.26% of the acquisition workforce that has been formally trained by the two-day NDI Workshop. Many acquisition professionals may have the requisite knowledge and skill in this area but a huge void still exists. All interview

respondents noted that additional efforts in this area cry out for attention.

9. NDI acquisitions represent a viable means of acquiring goods and services.

The researcher has concluded, based on the preponderance of opinions of respondents and the literature review, that NDI acquisitions represent a viable means of acquiring goods and services. NDI acquisitions generally represent a means to acquire goods and services in less time and at less cost than development programs. Furthermore, many respondents stated that when requirements are defined/specified in terms of function and performance such that a commercial product or already developed product can be procured, NDIs foster a value-based approach. As the literature review indicates, market research plays an important role in the upfront effort required to identify NDI alternatives. Similarly, life cycle cost comparisons require careful upfront analysis. Respondents from both industry and DoD agreed that the commercial marketplace represents a wealth of opportunity for Defense Department procurements to take advantage of a wide range of both high and low technology developments.

10. The current collection process to measure NDI usage has inherent weaknesses.

The researcher has concluded, based on the preponderance of opinions of respondents that the current

collection process to measure NDI usage has inherent weaknesses. The collection process used for the initial data call is both reactive and subjective in nature based on the comments of respondents in regard to this subject. Many respondents stated that they experienced problems with gathering the initial data required. Specifically, they identified the subjective nature of assigning a program as NDI or not NDI and the degree to which a program used NDIs as a source of unclear interpretation and subjectivity. Additionally, only one Service had been collecting any type of NDI data. Given this fact, most respondents were caught in a catch-up mode and were reacting to DoD's tasking for NDI data. By reacting, many respondents felt that their responses to DoD would not be as accurate as if a more proactive methodology was used. Time was a critical factor in the opinions of the respondents.

C. RECOMMENDATIONS

1. DoD should concentrate its efforts in training in order to shift the acquisition process paradigm and afford the acquisition workforce the tools to identify and process NDI acquisitions.

Based on the researcher's conclusion that NDI training is inadequate to meet the needs of the DoD acquisition workforce, the following recommendation is presented to enhance DoD's ability to make more effective use of NDI

acquisitions. Based on the percentage of NDI training completed by the Defense Department acquisition workforce, i.e., 1.26% (or 1641 out of a total of 130,000) further efforts are indicated to indoctrinate, educate, and train the workforce. A more proactive approach, using a variety of wider-reaching media would enhance the current two-day NDI acquisition workshop. Based on the foregoing, specific recommendations include:

- Develop a one-hour NDI introductory awareness videocassette for distribution to all DoD buying organizations
- Conduct train-the-trainer workshops (shift the target audience) to empower buying office supervisors to train their personnel in a more flexible and tailored manner, as well as enhancing DoD's ability to "reach the masses"
- Tailor already existing instruction at DAU-consortium institutions to require NDI tailoring instruction during the acquisition cycle portion of courses
- Expand the number of DoD-sponsored two-day NDI workshops available at locations around the country
- Require NDI acquisition training as a mandatory DAWIA competency

These efforts will require DAU's help in order to foster a culture which embraces the preference for NDI acquisitions. Additional key players include the NDI Advocates, their Associate Advocates, Contracting Officers, and acquisition leaders in general. DoD can no longer afford to conduct business as usual considering the evolving global marketplace and market forces which drive industry practices.

2. DoD should encourage their acquisition professionals to manage risk vice being risk-averse.

Based on the researcher's conclusions that impediments to NDI acquisitions continue to exist despite significant past efforts and lessons learned exist that can be exploited, the following recommendation is presented. This recommendation is not new and is shared by many of the interview respondents and literature authors. However, the researcher has injected several potential means to the end--prudent management of risk. Cost, performance, and schedule risks are present to varying degrees in every acquisition. These risks are here to stay. The duty of acquisition managers is to identify risk factors, attempt to alleviate or reduce the degree of risk, and finally, to conduct a cost-benefit analysis and make trade-offs to arrive at a decision. Currently, incentives favor risk-averse behavior because of fear that taking risks may lead to program failure, media attention, or worse yet-relief from duty for cause. Based on the foregoing, incentives to help break the status quo and encourage risk management include rewarding PEOs, PMs, etc. for accurate program reporting and not "advocacy reporting," a renewed appreciation and fair treatment for acquisition professionals who exercise prudent business decisions (and which may happen to fail), and the use of real-life risk management scenarios as a positive learning/training tool for other acquisition professionals. Clearly, conventional wisdom holds that

cultural issues must be addressed to provide incentives to encourage prudent risk-takers.

3. DoD should revise its NDI measurement process to allow for a more proactive collection of measurement data via use of the DD Form 350, Individual Contracting Action Report, on an as-occurring basis.

Based on the researcher's conclusion that the current collection process to measure NDI has inherent weaknesses, the following recommendation is presented. The current collection process requires an annual report of NDI usage, whereby DoD requests data collection results by December 1 of each year [Ref 35:p. 1-5]. Respondents noted that there is no mechanism in place to collect NDI data on an as-occurring basis. This process is reactive in nature and tends to dilute the validity of the data due to the time lag, in many cases, between actively working the procurement package and the reporting time. Based on the foregoing, DoD should propose an amendment to DFARS 253.204-70, DD Form 350, Individual Contracting Action Report (Appendix E). In particular, consideration of using Block D4D, Other Preference Program and D4E, Premium Percent or Blocks E4 through E8 for the as-occurring collection of NDI data would allow for a proactive and arguably more accurate approach to collecting the data. Coding of commercial and other NDI categories should also consider the possibility of also falling under one of the preference programs contained in D4A, Type of Small Business

Set-Aside and D4B, Type of Small Disadvantaged Business Set-Aside Preference.

4. DoD should consider institutionalizing the coding of parts in order to provide for a more objective measurement of NDI data.

Based on the researcher's conclusion that the current collection process to measure NDI data has inherent weaknesses, the following additional recommendation is presented. As previously noted, one method of increasing the objectivity of the NDI acquisition measurement results would be to systematically code parts and part numbers as commercial, other NDI, and developmental or other. By coding parts in such a manner, a more automated or mechanized approach to measurement could be realized. This system is not without its drawbacks. The obvious time, personnel effort, and cost of such a venture should be one decision point. On the other hand, the long-term benefits of such an approach must be weighed. Based on the foregoing, using an incremental implementation approach to this previously studied option may help solve any previously identified impediments, to include major upfront expenses. First, new parts would be coded in the manner noted above. Second, a statistical sampling of parts would be conducted to identify a second area of commodity parts to be coded. Third, this process would continue indefinitely until a significant (to be determined) amount of parts are coded. This would be in addition to the

continued emphasis for the use of CIDs and functional and performance specifications.

5. DoD should continue to support the Section 800 Panel recommendations and work with the Congress and industry on the enactment of the Federal Acquisition Streamlining Act of 1993.

Based on the researcher's conclusion that statutory-based impediments still exist and must be "dealt with" by the Congress in order for DoD to more fully comply with the NDI acquisition initiatives, the following recommendation is presented. Realizing that legislative barriers to the acquisition of NDIs continue to exist and limit the ability of the DoD to "compete" in the global marketplace, respondents noted that legislative change is imperative. Based on the foregoing, careful analysis and consideration of industry comments to both the Section 800 Panel's Report and more recently the Senate's proposed Federal Acquisition Streamlining Act of 1993 (S 1587) is in line with the Administration's policy of Government and industry working together for a better America.

6. DoD should improve their efforts to address NDI upfront to take advantage of already-developed product opportunities.

Based on the researcher's conclusion that impediments to NDI acquisitions continue to exist despite significant efforts over the past two decades, the following recommendation is presented. The main thrust of this

recommendation involves the use of market research to identify NDIs which is mandated in 10 USC §2325. Market research by both technical and contracting personnel would improve the chances of identifying NDIs and would therefore realize significant cost and time savings when procuring products for DoD. A related issue is the awareness and training of individuals in market research techniques, as well as in NDI, in general. In addition to DoD directives, the two-day NDI acquisition workshop includes instruction in both of these disciplines. Based on the foregoing, DoD should identify a measurement plan, to include required data elements, for market research activities. This measurement would help gauge the degree of DoD's compliance with the statutory initiative and help identify the need for any adjustments. Moreover, NDI strategies should be addressed in the acquisition strategy, when it is anticipated that NDIs may be available to fulfill the requirement.

7. DoD should establish a mechanism, e.g., DoD Quarterly NDI Newsletter, to disseminate NDI policies, issues, lessons learned, etc.

Based on the researcher's conclusions that NDI is not a new topic and that impediments continue to exist despite significant past efforts, the following recommendation is presented. Many lessons are learned within the DoD acquisition workforce yet very few mechanisms are in place to capitalize on them. The quarterly *DoD Standardization*

Newsletter is an example of one of these mechanisms already in place. By establishing a separate quarterly *NDI Acquisition Newsletter* many of the lessons learned in the field could be shared with the massive DoD acquisition workforce. Additionally, emerging or little known policies and procedures could be disseminated; NDI issues of a general nature could be shared; and DoD Components could be made aware of upcoming NDI classes, conferences, seminars, reporting requirements, etc. At a minimum, perhaps the *DoD Standardization Newsletter* could expand to allow NDI its own section. By setting NDI information apart it would allow for easy access and identification for practitioners to relate to. In other words, it would make it reader-friendly.

9. DoD should clarify the definition and meaning of minor modification.

Based on the researcher's conclusion that the definition of minor modification needs to be more specific, the following recommendation is presented. Although referred to in 10 USC §2325, the definition of minor modification is not addressed within the code. Additionally, DFARS 211.70 defines minor modification of a commercial item only. It fails to recognize those products already-developed and in use by other Federal, State, and Local agencies. Based on the foregoing and because of the subjective nature of the definition expressed by the respondents, DoD should more

clearly define what they mean by minor modification. An example of such a definition is:

> Minor refers to slightly or less seriously needed changes. A minor modification, like a requirement, should be cost-effective, essentially needed, and within scope. The purpose of "in scope" is to ensure that the change is needed and does not exceed the Government's requirements. Therefore, the objective is to enhance the inherent performance capabilities or characteristics of an already existing commercial product to meet all of the essential requirements [Ref 54:p. 113].

D. ANSWERS TO RESEARCH QUESTIONS

1. Primary Research Question: To what extent has the DoD implemented the NDI acquisition initiatives set forth by Congress in 10 USC §2325?

NDI acquisition is a viable procurement methodology. It takes advantage of the potential cost and time savings of already developed and commercially available products. However, acquisition of NDIs is not being fully exploited. The preference for NDI has not achieved greater use because of a myriad of barriers. These barriers include legislative issues, cultural issues, and many others associated with the Government-industry business relationship. A qualitative assessment of DoD's implementation of the NDI acquisition initiatives shows that while DoD has attempted to implement the initiatives, several impediments stand in the way of anything approaching full implementation. The **first initiative**--that the requirements of DoD with respect to a procurement of supplies are stated in terms of functions to be

performed, performance required, or essential physical characteristics, has received considerable attention but continues to provide room for improvement. The efforts to convert military specifications and standards to CIDs is an on-going and magnanimous endeavor. Likewise, the efforts to train the acquisition workforce in this regard are monumental. Cultural issues present an underlying challenge to overcome in regard to this issue, as well. The **second initiative**--that such requirements are defined so that NDIs may be procured to fulfill such requirements, exhibits an area which according to respondents offered further room for improvement, as well. Specifically, the requirements generation process and in particular the requirements definition phase was identified as an area which required further training emphasis. The **third initiative**--that such requirements are fulfilled through the procurement of NDIs, may be best answered using the data contained in Table 5. The following results show the total NDI acquisition usage within the DoD Services for FY 1992:

ACAT I	**ACAT II**	**ACAT III**
11.3%	**23.3%**	**30.7%**

Because these data only represent the baseline for NDI usage they serve little use for identifying the extent of compliance to the statutory initiatives. What the data do not tell are the amount of missed opportunities due to improper requirements definition or specification, inadequate market research, etc. Finally, the **fourth initiative**--that prior to

developing new specifications, the DoD conducts market research to determine whether NDIs are available or could be modified to meet agency needs, represents another area considered to require additional attention and effort. As previously discussed, training in market research techniques, the time available to conduct market research, and management emphasis of market research illustrate shortcomings identified by research interview respondents. Additionally, since no measurement system is available to track market research efforts, this portion of the initiatives cannot be objectively addressed.

Based on the gut feelings of all of the respondents, considerable room for improvement exists--both in terms of procuring NDI and collecting NDI statistics. Fostering NDI acquisitions provides potential benefits to both industry (in the form of increased sales) and DoD (in the form of cost and time savings over development programs).

2. Subsidiary Question 1: What is an NDI acquisition?

The current statutory definition of NDI is contained in subparagraph (d) of Appendix B. NDI covers a spectrum of products ranging from commercially-available products to already-developed products in use by other Federal, State, or Local agencies. Additionally, products developed by foreign countries with which the United States has a mutual defense cooperation agreement are included. NDI encompasses the integration of piece parts, components, and subsystems into

end-products. Additionally, minor modifications to the products just described also are considered NDI. The underlying purpose of an NDI acquisition is to take advantage of already-developed products therefore reducing or eliminating the time and costs associated with research and development programs.

3. Subsidiary Question 2: What are the 10 USC §2325 NDI acquisition initiatives?

The current statutory NDI acquisition initiatives may be found in paragraph (a) of Appendix B. The four categorical issues of these initiatives involve the 1) specification of requirements such that NDIs may be procured, 2) definition of requirements such that NDIs may be procured, 3) fulfillment of requirements through the use of NDIs, and 4) use of market research to determine if NDIs are available before developing new specifications. Initiatives 1 through 3 were mandated in the initial legislation (1987) while the initiative to conduct market research (initiative 4) was mandated in the 1991 DoD Authorization Act.

4. Subsidiary Question 3: What are the key impediments in implementing the 10 USC §2325 NDI acquisition initiatives?

A number of studies have been conducted over the years to identify impediments in regard to the implementation of the NDI initiatives. Because of economic cycles, the degree to which these impediments have affected DoD and industry has fluctuated. In the current downsizing of DoD, which has

precipitated a resultant loss of budgetary assets, the threat of losing core capabilities in the defense industrial base has reshaped the way DoD looks at industry and the way that business must be conducted with them. Most recently, the Section 800 Panel found that Government-unique business methods and systems in four areas create the greatest barriers:

- Accounting systems
- Specifications and standards
- Rights in technical data
- Government-specific statutes [Ref 39:p. 8-7].

Respondents generally concurred with the above barriers and added cultural issues and the requirements generation process to the list of NDI acquisition impediments.

5. Subsidiary Question 4: How can DoD Services overcome these impediments in order to comply with the Congressional intent of 10 USC §2325?

A variety of approaches are available to overcome impediments associated with NDI acquisitions. No one approach may be right or wrong for any given Service. Services should tailor their approach based on assessments of their own strengths and weaknesses. However, an aggressive, proactive training program seems to be the common thread to all approaches based on interview responses. Besides the legislative issue, several approaches may be used. The

following condensed version of a response by one Service representative to this question best captures the scope of the effort required to overcome impediments to NDI:

1) Pursue hard cultural changes;

2) Establish a network of Associate NDI Advocates;

3) Hold acquisition improvement seminars ("Road Shows");

4) Review RFPs ("RFP scrubs");

5) Team review of acquisition strategies;

6) Develop performance specification guidebook;

7) Increase (two-way) communication with industry;

8) Develop an appreciation for deterrents to doing business with DoD; and

9) Emphasize communication with foreign governments.

6. Subsidiary Question 5: How can DoD Services use (capitalize on) lessons learned by other DoD Services in order to implement these NDI acquisition initiatives?

DoD does itself a disfavor by not capitalizing on the use of lessons learned. Lessons learned in a vacuum may help those organizations involved; however, DoD does not operate in a vacuum. The Services have documented lessons learned and in many cases have shared them with each other and DoD as a whole. Several examples of lessons learned have been previously identified. A mechanism that could be used to disseminate lessons learned is a DoD NDI newsletter or similar media that would be distributed to all buying offices. It

would additionally solicit comments and articles from the DoD acquisition workforce.

7. Subsidiary Question 6: Are there specific differences between Services that have prevented the timely implementation of the 10 USC §2325 NDI acquisition initiatives? What are they? (How) can they be overcome?

There are specific differences between the Services; however, they have not prevented the timely implementation of the NDI acquisition initiatives. A host of other reasons are responsible for the Services' dismal implementation status. Respondents identified subtle differences between the Services which affected their acquisitions but they were deemed insignificant. Two issues were raised. First, the environment in which a particular Service operated affected its acquisition decisions. The primary example given by respondents was the salty sea mist and rolling seas environment which caused the U.S. Navy to require additional protection of products due to the environmental hazards, e.g., corrosion, of this environment. The second issue concerned support strategies. The issue centered around where a product would be supported, e.g., forward-based versus "in the rear" and by whom it would be supported, i.e., organic support versus contractor support. In the end, respondents felt that Service differences play an insignificant role in the implementation of the NDI initiatives.

E. AREAS FOR FURTHER RESEARCH

1. Investigate the progress of legislation in regard to the Section 800 Panel recommendations for acquisition of commercial products.

2. Develop a consolidated set of short "case studies" involving both successful and unsuccessful NDI acquisitions to be used by DoD as part of a lessons learned library.

3. Conduct a similar study to this for NDI acquisitions in the Defense Logistics Agency.

4. Conduct a similar study to this from the perspective of potential non-proponents, e.g., Systems Commands, buying offices, etc., for a bottoms-up look at NDI.

5. Investigate the efforts and progress associated with the conversion of Military Specifications and Standards to Commercial Item Descriptions.

6. Conduct statistical analysis of measurement results in the coming years to identify trends.

7. Review NDI training to include market research training.

APPENDIX A

GLOSSARY

AAMS	Acquisition Milestone Management System
ACAT	Acquisition Category
ACE	Armored Combat Earthmover
ADCoP	Acquisition & Distribution of Commercial Products
ADPA	American Defense Preparedness Association
CCAP	Commercial Commodity Acquisition Program
CICA	Competition in Contracting Act
CID	Commercial Item Description
CISP	Commercial Item Support Program
COGP	Commission on Government Procurement
COTS	Commercial Off-the-Shelf
DAC	Defense Acquisition Circular
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DFARS	Defense Federal Acquisition Regulation Supplement
DMR	Defense Management Report
DoN	Department of the Navy
DoD	Department of Defense
DSB	Defense Science Board
DSMC	Defense Systems Management College
DUSD	Deputy Under Secretary of Defense
FAC	Federal Acquisition Circular
FAR	Federal Acquisition Regulation
FY	Fiscal Year

GAO	General Accounting Office
GSA	General Services Administration
ILS	Integrated Logistics Support
IOC	Initial Operational Capability
MDP	Milestone Decision Point
MM	Manufacturing Modernization
NDI	Nondevelopmental Item
OASD	Office of the Assistant Secretary of Defense
OFPP	Office of Federal Procurement Policy
PAT	Process Action Team
PEO	Program Executive Officer
PM	Program Manager
RFP	Request for Proposal
R&D	Research and Development
SAE	Service Acquisition Executive
SASC	Senate Armed Services Committee
TINA	Truth In Negotiations Act
USA	United States Army
USAF	United States Air Force
USC	United States Code
USD (A&T)	Under Secretary of Defense for Acquisition & Technology
USMC	United States Marine Corps
VA	Veterans Administration

APPENDIX B

10 USC §2325

§ 2325. Preference for nondevelopmental items

(a) PREFERENCE.-The Secretary of Defense shall ensure that, to the maximum extent practicable-

(1) requirements of the Department of Defense with respect to a procurement of supplies are stated in terms of-
  (A) functions to be performed;
  (B) performance required; or
  (C) essential physical characteristics;
(2) such requirements are defined so that nondevelopmental items may be procured to fulfill such requirements;
(3) such requirements are fulfilled through the procurement of nondevelopmental items; and
(4) prior to developing new specifications, the Department conducts market research to determine whether nondevelopmental items are available or could be modified to meet agency needs.

(b) IMPLEMENTATION.-The Secretary of Defense shall carry out this section through the Under Secretary of Defense for Acquisition, who shall have responsibility for its effective implementation.

(c) REGULATIONS.-The Secretary of Defense shall prescribe regulations to carry out this section.

(d) DEFINITION.-In this section, the term "nondevelopmental item" means-

(1) any item of supply that is available in the commercial marketplace;
(2) any previously developed item of supply that is in use by a department or agency of the United States, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;
(3) any item of supply described in paragraph (1) or (2) that requires only minor modification in order to meet the requirements of the procuring agency; or
(4) any item of supply that is currently being produced that does not meet the requirements of paragraph (1), (2), or (3) solely because the item-
  (A) is not yet in use; or
  (B) is not yet available in the commercial marketplace.

APPENDIX C

DEFINITION OF NDI FOR MEASUREMENT PURPOSES

[Ref 35:p. 1-2]

NDI (DoD). For the purpose of measurement, NDI more specifically includes:

1. Commercial items defined as items sold or licensed to the general public for other than Government purposes.

2. Commercial items with DoD required modifications that are options or customizing normally provided to commercial customers or that relate to item finishing, packaging, marking, testing, i.e., modifications that allow DoD items to be supplied from the commercial production line.

3. Upgrades of previously sold commercial items which are in production but not yet available to the general public (prototype and experimental models do not qualify).

4. Items developed by other military Services, by other Defense activities, or by other Government agencies.

5. Items developed by foreign governments, which can be procured in accordance with mutual defense cooperation agreements and Federal and Department of Defense acquisition regulations.

6. Items previously developed and produced with DoD required modifications that enable DoD to satisfy an acquisition requirement without the need for extensive R&D or testing; the modified item should be largely representative of the item in production (i.e., minor modifications).

7. A system created by integrating NDI subsystems or components, which requires research and development for systems engineering and testing- as a minimum- to ensure the total system meets user requirements and is producible.

APPENDIX D

LIST OF INTERVIEWEES

1. Brown, Allan, Commercial Products Advocate, Office of Federal Procurement Policy, Washington, D.C., telephone interview of 17 November 1993.

2. Buck, Dave, Major, Project Officer, Riverine Assault Craft, Marine Corps Systems Command, Quantico, Virginia, telephone interview of 9 November 1993.

3. Delorie, Joseph, A., Senior Program Analyst, NDI Program, Office of the Assistant Secretary of Defense (Economic Security) Production Resources/MM, Washington, D.C., personal interview of 10 September 1993 and telephone interview of 22 November 1993.

4. Dolan, Thomas, J., Acquisition Law Chair, Executive Institute, Defense Systems Management College, Fort Belvoir, Virginia, personal interview of 9 September 1993.

5. Etherton, Jonathan, L., Professional Staff Member, U.S. Senate, Committee on Armed Services, Washington, D.C., personal interview of 9 September 1993 and telephone interviews of 4 and 11 November 1993.

6. Ferris, Dave, Acquisition Policy General Engineer, Marine Corps Systems Command, Program Analysis and Evaluation Directorate, Quantico, Virginia, personal interview of 24 June 1993 and numerous telephone interviews between 2 December 1992 and 15 September 1993.

7. Fitzsimmons, Pat, Major, Project Officer, Single Channel Ground to Air Radio System, Marine Corps Systems Command, Quantico, Virginia, telephone interview of 4 December 1992.

8. Hagan, Gary, J., Professor of Systems Acquisition Management, Defense Systems Management College, Fort Belvoir, Virginia, personal interview of 9 September 1993.

9. Harshbarger, Eugene, B., Rear Admiral, USN, Competition/ NDI Advocate General, U.S. Navy, Washington, D.C., personal interview of 26 August 1993.

10. Haugh, LeRoy, Vice President, Procurement & Finance, Aerospace Industries Association, Panel Member, Department of Defense Acquisition Law Advisory Panel, Washington, D.C., personal interview of 30 August 1993 and telephone interview of 22 November 1993.

11. Kausal, Benedict (Tony), Competition/NDI Advocate General, U.S. Air Force, Washington, D.C., personal interview of 23 June 1993 and telephone interview of 9 November 1993.

12. McAninch, William, NDI Focal Point, U.S. Navy, Office of the Assistant Secretary of the Navy for Research, Development and Acquisition, Acquisition Policy, Integrity & Accountability, Washington, D.C., personal interview of 22 June 1993 and numerous telephone interviews between 20 April 1993 and 22 November 1993.

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APPENDIX E

INDIVIDUAL CONTRACTING ACTION REPORT, DD FORM 350

INDIVIDUAL CONTRACTING ACTION REPORT

REPORT CONTROL SYMBOL

PART A

A1 TYPE OF REPORT — 0 Original 1 Cancelling 2 Correcting
A2 REPORT NO.
A3 CONTRACTING OFFICE CODE
A4 NAME OF CONTRACTING OFFICE

PART B

B1 CONTRACT NUMBER
B2 MOD ORDER OR OTHER ID NUMBER
B3 ACTION DATE (YYMMDD)
B4 COMPLETION DATE (YYMMDD)
B5 CONTRACTOR IDENTIFICATION INFORMATION
B5A. ESTABLISHMENT CODE
B5B. CAGE CODE
B5C. CONTRACTOR NAME AND DIVISION NAME
B5D CONTRACTOR ADDRESS (Street, City, State, Zip Code)
B5E TIN
B5F PARENT TIN
B5G PARENT NAME
B6. PRINCIPAL PLACE OF PERFORMANCE
B6A. CITY OR PLACE CODE
B6B. STATE OR COUNTRY CODE
B6C. CITY OR PLACE / STATE OR COUNTRY NAME
B7 TYPE OBLIGATION — 1 Obligation 2 Deobligation
B8. TOTAL DOLLARS (Enter whole dollars only)
B9 FOREIGN MILITARY SALE — Y Yes N No
B10. MULTIYEAR CONTRACT — Y Yes N No
B11 TOTAL MULTIYEAR VALUE (Enter whole dollars only)
B12 PRINCIPAL PRODUCT OR SERVICE
B12A. FSC OR SVC CODE
B12B. DOD CLAIMANT PROG. CODE
B12C. SYSTEM OR EQUIP CODE
B12D. SIC CODE
B12E. NAME - DESCRIPTION

B13 KIND OF CONTRACTING ACTION

1 Initial Letter Contract
2 Definitive Contract Superseding Letter Contract
3 Definitive Contract
4 Order Under DoD Agreement
5 Order Under DoD Contract
6 Order/Modification Under Federal Supply Schedule
7 Order Under Another Agency's Contract
8 Action With Another Federal Agency
9 Small Purchase Procedure

MODIFICATION

A Additional Work (new agreement)
B Additional Work (other)
C Funding Action
D Change Order
E Termination for Default
F Termination for Convenience
G Cancellation

PART C (Do Not Complete This Part If Item B9 Above is Coded Y or If Item B13 is Coded 8)

C1. SYNOPSIS — Y Yes N No
C2 REASON NOT SYNOPSIZED — A Urgency 9 Other than Urgency
C3. EXTENT COMPETED — A Competed B Not Available for Competition C Follow-on to Competed Action D Not Competed
C4. SEA TRANSPORTATION — Y Yes - Positive Response to DFARS 252.247-7022 N No - Negative Response to DFARS 252.247-7022 U Unknown - No Response or Provision Not Included in Solicitation

C5 TYPE OF CONTRACT

A Fixed Price Redetermination
J Firm Fixed Price
K Fixed Price Economic Price Adjustment
L Fixed Price Incentive
R Cost Plus Award Fee
S Cost Contract
T Cost Sharing
U Cost Plus Fixed Fee
V CPIF
Y Time and Materials
Z Labor Hours

C6. NUMBER OF OFFERORS SOLICITED — 1 One 2 More than one
C7 NUMBER OF OFFERS RECEIVED — 1 One 2 More than one

C8 SOLICITATION PROCEDURES

A Full & Open Competition - Sealed Bid
B Full & Open Competition - Competitive Proposal
C Full & Open Competition - Combination
D Architect - Engineer
E Basic Research
F Multiple Award Schedule
G Alternate Source - Reduced Cost
H Alternate Source - Mobilization
J Alternate Source - Eng/R&D Capability
K Set Aside
M Otherwise Authorized by Statute
N Other than Full & Open Competition

C9 AUTHORITY FOR OTHER THAN FULL & OPEN COMPETITION

1A Unique Source
1B Follow-on Contract
1C Unsolicited Research Prop
1D Patents/Data Rights
1E Utilities
1F Standardization
1G Only One Source - Other
2A Urgency
3A Mobilization
3B Essential R & D Capability
4A International Agreement
5A Authorized by Statute
5B Authorized Resale
6A National Security
7A Public Interest

C10. SUBJECT TO LABOR STANDARDS STATUTES

A Walsh - Healey Act Manufacturer
B Walsh - Healey Act Dealer
C Service Contract Act
D Davis - Bacon Act
Z Not Subject to Above

C11. CERTIFIED COST OR PRICING DATA — Y Yes, Obtained N No, Not Obtained W Not Obtained Waived

C12. CONTRACT FINANCING (Progress Payments (PP) or Advance Payments (AP))

A FAR Clause 52.232-16
B DFARS Clause 252.232-7003
C Percentage of Completion PP
D Unusual PP or AP
Z None of the Above

C13 FOREIGN TRADE DATA
C13A. NUMBER OF OFFERORS
C13B. BUY AMERICAN ACT PERCENT DIFFERENCE
C13C. PLACE OF MANUFACTURE — A U.S. B FOREIGN
C13D COUNTRY OF ORIGIN CODE

PART D (Do Not Complete This Part If Item B9 Above is Coded Y or If Item B13 is Coded 6 or 8)

D1. TYPE OF BUSINESS (Make one selection)

A Small Disadvantaged Business Performing in U.S.
B Other Small Business Performing in U.S.
C Large Business Performing in U.S.
D Workshop for the Blind or Other Severely Handicapped
F Hospital
L Foreign Concern/Entity
M Domestic Firm Performing Outside U.S.
N Historically Black Colleges & Universities or Minority Institutions (HBCU/MI)
P Other Educational
Z Other Nonprofit

D2. REASON NOT AWARDED TO SMALL DISADVANTAGED BUSINESS (SDB)

A No Known SDB Source
B SDB Not Solicited
C SDB Solicited No Offer
D SDB Solicited Offer Not Low
Z Other Reason

D3 REASON NOT AWARDED TO SMALL BUSINESS (SB)

A No Known SB Source
B SB Not Solicited
C SB Solicited No Offer
D SB Solicited Offer Not Low
Z Other Reason

D4 PREFERENCE PROGRAM
D4A. TYPE OF SB SET-ASIDE

A None
B Total SB Set-Aside
C Partial SB Set-Aside
E Total SDB Set-Aside
V Small Emerging Business Set-Aside
Z Small Business-Small Purchase Set-Aside

D4B TYPE OF SDB SET-ASIDE/SDB PREFERENCE

A None
B Section 8(A)
C Total SDB Set-Aside
D SDB Evaluation Preference- Unrestricted
E SDB Preferential Consideration-Partial SB Set-Aside

D4C. HBCU/MI SET-ASIDE

A None
B HBCU or MI - Total Set-Aside
C HBCU or MI - Partial Set-Aside

D4D OTHER PREFERENCE PROGRAM

A None
B Directed to Workshops

D4E PREMIUM PERCENT

D5 ETHNIC GROUP

A Asian-Indian American
B Asian-Pacific American
C Black American
D Hispanic American
E Native American
F Other Certified
Z No Representation

D6. WOMEN-OWNED SMALL BUSINESS — Y Yes N No U Uncertified

D7 SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM

A Not a SBIR Phase I/II
B SBIR Program Phase I Action
C SBIR Program Phase II Action

D8. SUBCONTRACTING PLAN - S.B., SDB, OR HBCU/MI

A Plan Not Included - No Subcontracting Possibilities
B Plan Not Required
C Plan Required, Incentive Not Included
D Plan Required, Incentive Included

D9 DEMONSTRATION TEST PROGRAM — Y Yes N No

D10. SIZE OF SMALL BUSINESS

NUMBER OF EMPLOYEES: A 50 or Less; B 51 - 100; C 101 - 250; D 251 - 500; E 501 - 750; F 751 - 1,000; G Over 1,000

or AVERAGE ANNUAL GROSS REVENUE: M 1,000,000 or Less; N 1,000,001 - 2,000,000; P 2,000,001 - 3,500,000; R 3,500,001 - 5,000,000; S 5,000,001 - 10,000,000; T 10,000,001 - 17,000,000; U Over 17,000,000

D11. EMERGING SMALL BUSINESS — Y Yes N No

PART E

E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8

PART F

F1. NAME OF CONTRACTING OFFICER OR REPRESENTATIVE
F2. SIGNATURE
F3. TELEPHONE NO.
F4. DATE (YYMMDD)

DD Form 350, AUG 92 — Previous editions are obsolete. — 1005.275

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