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THESIS

FINDING BEST VALUE
IN
TWO-STEP SEALED BIDDING

by

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December, 1992

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Finding Best Value
In
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by

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ABSTRACT

Two-step sealed bidding is a viable procurement method for expanding the role of best value and nondevelopmental item (NDI) acquisitions. The objective of this research was to determine the feasibility of using two-step for obtaining best value in NDI acquisitions. The research was conducted by a review of regulations, policy guidance, and previously published materials. An important aspect of the research was the interview process conducted with procurement officials in the Defense Department and industry. The research provides a comprehensive look at NDI acquisitions, two-step sealed bidding, and best-value contracting. This study analyzed the following major issues: defining best value, increasing the effectiveness of NDI acquisitions, and finding best value in a two-step method. The research developed a two-step model for getting best value in NDI acquisitions. Major conclusions are: the concept of best value can be applied to a two-step method, much ambiguity exists in regards to the true meaning of "nondevelopmental," and regulatory impediments keep two-step from implementing a conventional best-value approach. Major recommendations are: a two-step model should be used for obtaining best value in NDI acquisitions, and two potential modifications should be made to strengthen this model by allowing supplier prequalification and fixed-price-award-fee contract type.

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I. INTRODUCTION

A. AREA OF RESEARCH

Commerciality and commercial style competition are having a lasting impact and influence on our Defense acquisition environment [Ref. 13: p. 3]. Commerciality represents the use of commercial products and commercial buying practices. Rapid technological change has expanded the potential for high-quality, high-performance, low-cost commercial equipment to satisfy many military requirements [Ref. 13: p. 4]. The Department of Defense (DOD) has recognized the need for innovative and cost-effective commercial alternatives to offset the high costs of developing unique military systems. A nondevelopmental item (NDI) acquisition represents a new pathway and philosophical shift in the requirements process and material development [Ref. 15: p. 1-1]. It challenges the traditional practice and cultural mindset of acquiring only unique developmental items. The objective of an NDI acquisition is to minimize life-cycle costs and avoid unnecessary developmental costs in acquiring suitable commercial alternatives [Ref. 15: p. 2-11].

Our contracting philosophy has also shifted from awarding contracts on the basis of lowest price to one of best value. The catalyst for this shift was the 1986 Packard Commission, which recommended that DOD increase its use of commercial style competition by emphasizing quality and established performance as well as price [Ref. 45: p. 62]. The Commission fostered the realization that awarding a contract solely on

the basis of lowest price creates a false economy, if there is subsequent default or unsatisfactory performance [Ref. 20: 9.103(c)]. The key is to model industry's competitive procurement techniques. In the past, the general rule has been to purchase the Government's minimum needs and avoid "goldplating" [Ref. 11: p. vii]. Best-value contracting gives the Government flexibility within reasonable bounds to select the contractor who can best fulfill the needed requirements. Best-value contracting is a departure from the traditional source selection process in that selection is not made based upon minimum standards of acceptability, but rather on the basis of the offer that demonstrates the highest probability of successful performance [Ref. 12: p. 6]. A best-value strategy strikes a balance between achievable quality and cost realism [Ref. 35: p. 29].

Best value is not clearly defined in the Federal Acquisition Regulation (FAR) [Ref. 24: p. 3]. The goal is to find an equilibrium between the perceived value offered and the price asked by either increasing the former or by reducing the latter. The concept of best value has assumed several forms over the years [Ref. 39: p. 33]. The current practice has manifested from the FAR Subpart 15.6 that describes the Government's official policy on source selection in competitively negotiated procurements [Ref. 24: p. 3]. Two-step sealed bidding is not being fully utilized because of the proliferation and success of best-value contracting. It is, however, a viable tool for acquiring nondevelopmental items in a cost beneficial manner. Two-step has more flexibility than one perceives. It also has many advantages to offer in comparison to a traditional source selection process. Two-step is a very disciplined process that protects the Government

against poor quality while delivering acceptable products on-time and at the lowest possible cost. It is important to realize that price-only awards are still valid for some types of acquisitions. Budget realities have changed our acquisition focus towards minimizing life-cycle costs [Ref. 23: p. 5]. Best value is still evolving and will likely continue to do so, as our acquisition process continues to change [Ref. 43: p. 23].

A best-value decision is based on the overall or long-term worth to the Government [Ref. 6: p. 17]. Two-step utilizes life-cycle costing. Two-step can balance price and value in a manner that does not complicate the process by using life-cycle costing. Life-cycle cost is a decision criterion that determines the total cost of ownership for acquiring an end item. As a result, the criterion for contract award is no longer just price; it is price plus a factor for operating and maintenance cost over the useful life of the product [Ref. 40: p. 239]. Life-cycle cost is a measure of value or long-term worth [Ref. 5: p. 6]. It is a way to end "the practice of awarding business on the basis of price tag only" [Ref. 23: p. 53]. In the past, the Services tended to concentrate on the acquisition price rather than the significance of ownership costs [Ref. 34: p. 118]. The Council of Defense and Space Industries Association (CODSIA) indicated that lowest total cost or life-cycle cost should be related to best value [Ref. 5: p. 6]. The logical conclusion to deduce is that life-cycle cost is a form of best value.

The significance of this argument is to suggest that best value is not only suited for competitively negotiated procurements but also two-step sealed bidding. The analytic approach of this research is framed as a deductive argument to demonstrate that the concept of best value can be applied to a two-step procurement method (Appendix G).

The objective of the research was to determine the feasibility of using two-step sealed bidding for getting best value in NDI acquisitions. The value anticipated from this research is to show DOD that best-value and two-step procurements are not mutually exclusive, and that two-step is a viable procurement method for expanding the role of best value and NDI acquisitions.

B. OBJECTIVE

The objective of this research was to examine the feasibility of using two-step sealed bidding for getting best value in NDI procurements. The underlying goal was to form a union between two-step and best-value procurements. The focus was not to create a perfect match, but rather to fashion a two-step method that could embrace the concept of best value. As a result, a two-step process can be considered a de facto best value source selection.

C. RESEARCH QUESTION

1. Primary Research Question

To what extent can the Department of Defense use two-step sealed bidding for getting best value in nondevelopmental items?

2. Subsidiary Research Questions

- What are the essential characteristics of best-value contracting?
- What is a nondevelopmental item acquisition?
- What features of the two-step process are inherently best-value characteristics?

- What are the key impediments in two-step sealed bidding that preclude the use of best value?
- How can a two-step method be improved in order to facilitate its joint use with best value and NDI procurements?

D. SCOPE OF THESIS

This research explored the feasibility of using two-step sealed bidding for getting best value in NDI acquisitions. The initial research presented a comprehensive look at nondevelopmental item acquisition, two-step sealed bidding, and best-value contracting. The research then demonstrated how the concept of best value can be applied to a two-step method. Finally, this study described an alternative best-value approach that integrated the best-value concept into two-step sealed bidding.

E. RESEARCH METHODOLOGY

The overall research strategy was an archival-based method. For this research, primary sources included DOD official documents and personal interviews, while secondary sources were publications or materials gathered by other investigators. The following sources were used in the literature review search:

- Defense Technical Information Center (DTIC)
- Defense Logistics Studies Information Exchange (DLSIE)
- Federal Legal Information Through Electronics (FLITE)
- Air University Periodical Index
- DOD Component Procurement and Policy Divisions

A Venn Diagram conceptually outlined the research design (Appendix G). This model framed the analytic approach and provided the basis for the archival research methodology. In addition, the researcher interviewed a small but representative sampling of top-down procurement officials in both DOD and industry. The interview results and the data collected helped to support the cumulative results of the study.

F. ORGANIZATION OF STUDY

The remainder of the thesis is organized into the following chapters:

Chapter II, "Theoretical Framework," highlights the general background of nondevelopmental item acquisition, two-step sealed bidding, and best-value contracting.

Chapter III, "A Compendium of Interview Responses," presents a compilation of data collected and compendium of interview responses.

Chapter IV, "An Analysis of Critical Issues," analyzes the major problems or issues that have resulted from the interviews and materials previously researched. It also describes how the concept of best value can be applied to a two-step procurement method.

Chapter V, "An Alternative Best-Value Approach," describes a two-step approach for getting best value in NDI acquisitions.

Chapter VI, "Conclusions and Recommendations," summarizes the overall conclusions and recommendations of this study.

II. THEORETICAL FRAMEWORK

A. INTRODUCTION

Chapter II provides the general background for this study. This chapter explores three important areas: (1) nondevelopmental item acquisition, (2) two-step sealed bidding, and (3) best-value contracting. NDI acquisitions are forging a new path in the traditional requirements and material development processes. Nondevelopmental items can be innovative and cost-effective "alternatives" to reduce both time and costs while improving product quality [Ref. 16: p. 10-C-1]. A nondevelopmental item acquisition tries to minimize life-cycle costs and avoid unnecessary developmental costs [Ref. 15: p. 5-4].

Two-step sealed bidding is a combination of competitive procedures designed to obtain the benefits of sealed bidding when adequate specifications are not available [Ref. 20: 14.501]. It is a modified type of sealed bidding. A two-step process can be a viable and dynamic approach to acquire NDI products when using life-cycle costing, bid samples, and quality-related evaluation factors. In the past, the general rule has been to purchase the Government's minimum needs and avoid "goldplating" [Ref. 11: p. vii]. Today, our contracting philosophy has shifted from "lowest price" to a contractor's performance in producing quality products. Best-value contracting enables the Government to receive "increased value" by placing greater emphasis on contractor performance in both quality and on-time delivery [Ref. 7: p. 5]. Best value capitalizes

on commercial style competition. As defense procurement dollars continue to shrink, best-value NDI procurements can better serve the Department of Defense's goals.

B. NONDEVELOPMENTAL ITEM ACQUISITION

1. General

What is NDI? Nondevelopmental item is a broad, generic term that covers material available from a wide variety of sources with little or no development effort required by the Government [Ref. 15: p. 1-3]. Typically, nondevelopmental items are those already developed and capable of fulfilling operational requirements either "as is" or with "minor modification." The purpose of acquiring NDIs is to minimize or eliminate the need for costly, time-consuming, Government-sponsored research and development programs [Ref. 15: p. 1-1]. Title 10 (Section 2325) of the United States Code codifies the meaning of nondevelopmental item (Appendix A). The statute includes any item available in the commercial marketplace. The NDI definition also includes any item already developed and in use by the Services or other Governmental Agencies, and foreign governments with which the United States (U.S.) has a cooperative agreement.

The NDI Statute further mandates the "preferential" use of nondevelopmental items to satisfy requirements to the maximum extent practicable (Appendix A). As mentioned, an NDI covers a spectrum of material alternatives (Appendix B). NDI represents an entire umbrella of commercially available products at little or no developmental cost to the Government [Ref. 30: p. 14]. A nondevelopmental item acquisition is influenced by commercialization. That is, rapidly changing commercial

technologies have expanded the potential for high quality and low cost commercial items to satisfy many military requirements [Ref. 13: p. 4]. Although NDI is clearly defined by law, there is still much ambiguity regarding the meaning of NDI within the Department of Defense. The interpretation of what is meant by commercial off-the-shelf (COTS) is an example. COTS and NDI are not synonymous. COTS is only one category (subset) of what DOD considers NDI [Ref. 15: p. 1-3]. Overall, NDI means products that can be purchased off-the-shelf or slightly modified, and that are built to commercial or military standards to best meet the military's requirements [Ref. 14: p. 34].

2. Origin and Background

In 1972, the Commission on Government Procurement first emphasized the need for a shift in fundamental philosophy toward commercial product acquisition [Ref. 15: p. 1-1]. In 1976, the Office of Federal Procurement Policy (OFPP) directed that "Agencies shall purchase commercial products ... whenever such products ... adequately satisfy the Government's needs" [Ref. 6: p. 7]. In June of 1986, the President's Blue Ribbon Commission on Defense Management (Packard Commission) recommended that the Government make greater use of commercial components, systems, and services available "off-the-shelf." Specifically, the Packard Commission recommended:

> Rather that 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 been established that those readily available are clearly inadequate to meet military requirements [Ref. 5: p. 60].

The 1987 Preference Act required DOD to state material requirements in terms of functions to be performed, performance required, and essential physical characteristics [Ref. 15: p. 1-2]. This Act established the preference for non-developmental items to the maximum extent practicable. The Preference Act was designed to change the "cultural mindset" of DOD. Availability of commercial alternatives is not the problem; the problem is increasing the demand for such products.

On 16 May 1989, the Committee on Government Affairs stressed the need for DOD to expand the use of commercially available items and minimize research and development costs. The Committee's concern was:

> Too often, the Department of Defense continues to subject commercially available parts to complex military specifications and, as such, requires contractors to reinvent a unique military specification wheel when a commercially available wheel can perform the task just as well [Ref. 9: p. 1].

Finally, the 1991 Defense Authorization Act required DOD to conduct market research prior to developing new specifications to determine if nondevelopmental items are available to meet the identified need [Ref. 14: p. 4]. The legislative history indicates the various measures implemented to stimulate the use of an NDI as a viable alternative instead of developing a unique military product.

3. Utility

NDI can serve a critical role in today's world of Government procurement. A nondevelopmental item acquisition challenges the traditional approach of relying upon uniquely developmental efforts. NDI capitalizes on the use of commercial "state-of-the-art" technologies while providing DOD with effective and economical solutions to its

essential operational requirements. As the pressures for change continue, this nontraditional (NDI) approach will likewise improve.

Nondevelopmental items can apply to a whole spectrum of items ranging from simple consumable products to complex-integrated weapon systems. NDI acquisitions involve both large and small procurements. There are endless opportunities to reduce cost and improve quality through increased use of NDI [Ref. 15: p. 2-1]. The incremental benefits of an NDI acquisition diminish as the item moves away from pure "off-the-shelf" to full development (Appendix B). To provide further clarification, a pure "off-the-shelf" product is used in the same environment for which it is designed. A ruggedized or militarized item normally operates in a different environment than its original design. Typically, some developmental effort is required. Finally, developmental items with NDI components or subsystems often require substantial research and development efforts to accomplish systems integration [Ref. 29: p. 4].

What are some examples of NDI acquisitions? The Army's acquisition of the Beretta 9mm pistol is an example of an "off-the-shelf" item. The Air Force's purchase of the KC-10 aircraft is a "ruggedization" item. An example of subsystem and component integration is the Army's Mobile Subscriber Equipment (MSE). A major defense acquisition that is nondevelopmental is the Army's Palletized Loading System (PLS). The predominant use of NDI is related to the insertion of NDI at subsystem, component, and piece part levels in major developmental efforts [Ref. 15: p. 2-3]. There are many commercial market areas that are well suited for nondevelopmental item

acquisitions: computers, power generation, test measurement equipment, transportation and communications equipment, and navigational equipment [Ref. 13: p. 15].

What are the main benefits and risks associated with an NDI acquisition? One major benefit is that it offers quick response to operational needs. In general, NDI acquisitions have shorter acquisition cycles. The NDI acquisition cycle takes 2 to 5 years versus the classical research and development cycle of 8 to 16 years [Ref. 6: p. 7]. There may also be reduced testing requirements because the commercial manufacturer's test and performance data can be used to prove military suitability. NDI acquisitions tend to cost less. Furthermore, experience with nondevelopmental items has shown that quality tends to be as good if not better than specially developed items when they are properly purchased to meet a military need [Ref. 14: p. 5].

There are potential risks and drawbacks with an NDI acquisition. A major problem is configuration control and obsolescence (inherent with rapidly changing technologies) which results in sustainability problems [Ref. 29: p. 5]. A further problem is technology insertion. The difficulty is managing and controlling the process of capturing NDI product configuration information, which often lags behind and falls victim to obsolescence. Faulty or inadequate market research may result in failure of the product to meet essential performance or logistics support requirements. The market survey establishes only that the material alternative is "good enough", not necessarily the best product [Ref. 8: p. 10]. Finally, as more and larger modifications are required, the intended benefits may rapidly disappear and the cost savings are lost [Ref. 14: p. 4].

4. Important Features and Procedures

Flexibility and innovation are critical aspects of the requirements determination process [Ref. 15: p. 1-5]. NDI acquisitions require individualized and tailored requirements to best meet the acquisition needs. The Government's requirements should be stated in functional or performance terms instead of "how to" design specifications [Ref. 16: p. 6-L-2]. An accurate and detailed "market analysis" is essential to analyze properly the full spectrum of commercial products available [Ref 14: p. 5]. A careful "trade-off analysis" is needed to determine if a commercial alternative can meet essential operational and support requirements. Carefully developed acquisition and support strategies are imperative in the acquisition planning and decision making process [Ref. 29: p. 2]. In determining the viability of specific alternatives, the nondevelopmental item should not be assessed solely on the basis of performance but in the context of "total system effectiveness parameters" [Ref. 15: p. 2-5].

The NDI acquisition process is not a separate process, but a tailoring of processes and events within the traditional material acquisition process. NDI acquisitions allow for flexibility in the acquisition management and control of program milestones. For example, a nondevelopmental item might meet all the operational requirements with no modification that may allow for a single milestone decision review (I/III) to verify suitability and initiate production [Ref. 15: p. 2-2]. Another important feature is test and evaluation. Test and evaluation should be kept to a minimum. Any modifications should include additional test plans to ensure performance and operational success of the modification effort [Ref. 16: p. 6-L-3]. Logistics support is another significant aspect.

Supportability is a major factor in the decision to buy a nondevelopmental item [Ref. 16: p. 6-L-3]. Support planning and execution is not as time responsive as equipment procurement [Ref. 15: p. 2-10]. The entire process of planning for and acquiring logistics support must be tailored to the constraints inherent in the nondevelopmental item being supported [Ref. 29: p. 14]. Consideration should be given to maximize the use of existing commercial logistics support and data [Ref. 16: p. 6-L-3].

Commercial practices should be encouraged when purchasing nondevelopmental items. NDI acquisition efforts are inherently geared to selecting products based on many factors including price. The concept of "best value" should be incorporated into the source selection process [Ref. 15: p. 2-1]. The intent is to get the greatest overall value for the Government in terms of performance and other factors. Life-cycle cost is as important in NDI decisions as it is in all other acquisitions. As an example, some nondevelopmental items could be selected that have the lowest projected life-cycle costs and meet essential requirements [Ref. 15: p. 2-5]. In other cases, other price-related factors may predominate.

5. Underlying Theoretical Importance

A successful NDI acquisition demands a philosophical shift in requirements planning and material development [Ref. 15: p. 1-1]. It challenges the traditional practice and cultural mindset of buying and developing only unique military items. The intent is to provide time and cost savings. NDI acquisitions allow for greater flexibility in the requirements process. In the past, the rigid use of military standards and specifications restricted the acquisition process and fostered a Defense bias in favor of

only unique developmental efforts [Ref. 45: p. 60]. The Department of Defense can no longer afford the high costs associated with rigid design specifications. The rapidly changing technologies in the commercial marketplace enable high quality commercial products to satisfy many user requirements in DOD.

NDI is a category of materiel acquisition strategies that has mandated preference. A nondevelopmental item acquisition is not meant to be a separate process but only a flexible variation to enhance the Government's ability to purchase commercially available products. Considering the hierarchy of material alternatives, an NDI acquisition is a viable approach [Ref. 14: p. 4]. As a concept, it correlates to the movement of "commerciality" that is affecting the status quo in the acquisition environment. NDI has opened the door to a wide range of commercial alternatives to best meet the Government's needs.

C. TWO-STEP SEALED BIDDING

1. General

Two-step sealed bidding is a combination of competitive procedures designed to obtain the benefits of sealed bidding when adequate specifications are not available [Ref. 20: 14.501]. It is a modified type of sealed bidding. The objective of the two-step method is to permit the development of a sufficiently descriptive specification that is not an unduly restrictive statement of the Government's requirements. A specification means a description of the technical requirements for an item that includes the criteria for determining whether these requirements are met. Specifications shall state only the

Government's actual minimum needs and be designed to promote full and open competition [Ref. 20: 10.001].

As implied by its name, two-step sealed bidding has two distinct steps. Step one focuses on determining the acceptability of the product or item and is accomplished through the request for, submission, evaluation, and (if necessary) discussion of a technical proposal. Essentially, the first step consists of the solicitation and evaluation of technical offers (unpriced). The word, technical, is broadly defined to include, among other things, the engineering approach, special manufacturing processes, and special testing techniques [Ref. 20: 14.501(a)]. In this step, the technical evaluation is based on conformity to the requirements. It is not a responsibility determination.

The first step is an evaluation process whereby the sources are prequalified for participation in the second step. Step one is a qualifying and not a competitive phase. It identifies and determines engineering and technical competence "acceptable" for producing the item [Ref. 19: p. 252]. Step two involves the submission of priced bids by those who submitted "acceptable" technical proposals in step one. Bids submitted in step two are evaluated, and the award is made in accordance with the procedures prescribed for conventional sealed bidding [Ref. 20: 14.501(b)]. An award is made to the responsive, responsible bidder whose bid is most advantageous to the Government considering only price and the price-related factors included in the invitation [Ref. 20: 14.103.2(a)]. Identification of offerors whose technical proposals are determined to be acceptable is a critical element of the methodology. This helps to ensure that the

Government has qualified contractors capable of providing the product desired [Ref. 41: p. II-9].

2. Origin and Background

Prior to World War II, sealed bidding (formal advertising) was the primary method of procurement. After World War II, the President requested that Congress study the procurement situation and develop a procurement method that would assure maximum efficiency for the Federal Government both in terms of price and timely delivery [Ref. 41: p. I-2]. The congressional bill enacted was the Armed Services Procurement Act of 1947 (ASPA). This Act was codified in Title 10 of the United States Code [Ref. 41: p. I-3]. This Procurement Act authorized two procurement methods: formal advertising (sealed bidding) and negotiations. Furthermore, this Act stipulated that formal advertising was the preferred method of use [Ref. 41: p. I-3].

After the enactment of the ASPA (1947), Government acquisition personnel found that a class of procurement actions met most of the requirements for sealed bidding, but lacked sufficient detail, in specifications, to be awarded without negotiations concerning the technical requirements of the contract [Ref. 41: p. I-4]. In 1957, a special investigation subcommittee report to the House Armed Services Committee (HASC) made recommendations that led to the establishment of a hybrid acquisition method called two-step formal advertising [Ref. 25: p. 5]. The two-step method was actually developed by the U.S. Air Force [Ref. 41: p. I-4].

Two-step sealed bidding is a method of procurement, which is designed to expand the use and obtain the benefits of sealed bidding where it is otherwise impractical

to do so because of inadequate specifications or design [Ref. 59: p. 34]. From 1960 to 1984, two-step sealed bidding had limited success in relation to conventional sealed bidding [Ref. 41: p. I-4]. In 1984, the Competition in Contracting Act (CICA) or Public Law 98-369 was passed by Congress. This Statute eliminated the requirement to use sealed bidding as the preferred method of acquisition. CICA gave Agencies the flexibility to determine which competitive procurement method best fit the circumstances of the acquisition [Ref. 41: p. I-5]. CICA placed sealed bidding and competitive proposals (negotiations) on equal terms.

3. Function

Two-step sealed bidding is not suited for all military procurements. Two-step may be used instead of negotiations when available specifications are not definite or may be too restrictive. There are other conditions for use to consider [Ref. 20: 14: 502(a)]. A two-step method is especially useful in acquisitions requiring technical proposals for relatively complex items [Ref. 20: 14.501]. It is also a common procurement method for acquiring nondevelopmental items [Ref. 15: p. 5-4]. It is uniquely suited for high-dollar production contracts in which the item is not too technically sophisticated [Ref. 41: p. B-4]. This method is best suited for those nondevelopmental items that are "off-the-shelf" and those requiring "minor modification" [Ref. 15: p. 5-4]. The Army's 120mm Mortar System was procured as a nondevelopmental item using two-step. In the past, the Army and Air Force have been the primary users of this method [Ref. 28: p. 4]. The largest commodity areas are electronics and communication equipment and non-combat vehicles. Two-step has been around for more than 20 years. Even though two-

step has received a very small percentage of use. it is a procurement method that has more promise than realized [Ref. 41: p. IV-2].

4. Advantages and Disadvantages

What are some of the benefits of using a two-step methodology? There is a broader base upon which industry can compete. In other words, two-step sealed bidding encourages competition because contractors are not bound to the rigidity of design specifications [Ref. 41: p. III-2]. Importantly, the contractor has greater flexibility to submit alternative approaches to satisfy the technical requirements. Also, the Government, in step one, has the capability to take advantage of an industry's experience without costly use of research and development contracts [Ref. 41: p. III-2]. Finally, the use of performance specifications enables the Government to maximize its effectiveness in purchasing nondevelopmental items.

Next, let's consider some of the major disadvantages. Two-step sealed bidding is generally considered costly and time consuming [Ref. 41: p. IV-2]. Also, a two-step process may result in the procurement of an item, which is not the best in terms of quality. This can occur because the contract award is based on the lowest priced offeror that satisfies the minimum requirements. Another aspect to consider is bid protests that frequently occur due to the latitude afforded to contracting offices in determining "technical acceptability" [Ref. 41: p. III-2]. Step one is based on technical acceptability not technical superiority. Finally, a two-step method is limited to price competition and not technical competition. The low-bid (price) basis makes it almost

impossible to reward or take advantage of proposals with design features exceeding the minimum specified requirements.

5. Key Characteristics

What are the critical aspects of two-step sealed bidding? The first element is the technical evaluation process. The technical evaluation of the proposals is based upon the criteria outlined in the request for technical proposals (RTP). There is a degree of flexibility afforded in determining whether or not a technical proposal is acceptable. The decision is a matter requiring judgment and expertise by technically qualified personnel [Ref. 59: p. 20]. It is not a consideration of responsibility. Proposals are placed within one of three categories: acceptable, reasonably susceptible of being made acceptable, and unacceptable [Ref. 20: 14.503-1(e)]. The Government is not required to initiate efforts to clarify a proposal that is materially deficient.

"Technical acceptability" is based on conformity to the technical requirements contained in the solicitation. The determination of acceptability is predicated on precisely tailored and relevant evaluation factors (excluding price). The evaluation factors must relate to the broad meaning of the word "technical" as well as to conformity. The word "technical" connotates such things as engineering approach, special manufacturing processes, and special testing techniques. Conformity, on the other hand, relates to quality. Quality can be defined as "conformance to correctly defined requirements and satisfying customer needs" [Ref. 34: p. 24]. In this context, acceptability relates to both technical and quality considerations. Quality also means the composite of material attributes including performance features and other product characteristics to satisfy a

given need [Ref. 10: 246.101]. Typical factors that should be considered are: reliability, safety, interchangeability, and maintainability [Ref. 10: 246.103]. The key is to be creative and innovative in conducting the evaluation process.

Another important aspect of two-step sealed bidding is "price-related" factors. The exclusion of pricing data eliminates the possibility of price being considered as an evaluation factor in the first step. Price exclusion allows for conventional sealed bidding to occur in step two. The key, however, is to focus on "price-related factors." The basis for award considers only price and price-related factors [Ref. 20: 14.103.2]. Price-related factors are often not maximized. The Federal Acquisition Regulation (FAR) suggests that factors such as inspection and transportation costs may be considered in evaluating bids for award; however, these factors are not "inclusive" [Ref. 20: 14.201-8]. Section M of the solicitation document enables the Government to specify price-related factors other than the bid price that will be considered in evaluating bids for contract award. Two examples are extended warranties and life-cycle cost (LCC).

Let's consider life-cycle costing. If contained in the solicitation, the Government can use life-cycle cost as the decision criterion for determining the lowest priced offeror. In other words, a bidder is required to specify a computed total life-cycle cost, rather than price for the award determination [Ref. 40: p. 254]. This technique is suitable for many different products from nonrepairable end items like batteries to complex items like the current Army and Air Force's Precision Lightweight Global Positioning System Receiver (PLGR) procurement. Life-cycle cost can be defined as determining the total

cost to the Government including operations and maintenance over the expected life of the product offered [Ref. 7: p. 17].

The concept underlying this approach is to encourage more cost effective products to be offered. The technique asks for a guarantee that total cost of ownership will be at the expected level [Ref. 40: p. 255]. The appeal of this model is that:

> A superior product that takes advantage of the latest technology may be acquired without the need for the Government to develop its own specifications to define the latest, best and most cost-effective end product [Ref. 40: p. 255].

When using LCC as a price-related factor, the Government seeks to award the procurement on the basis of the total cost of ownership for the acquired end item. The criterion for contract award is no longer just price. Instead, it is price plus a factor for operating and maintenance cost over the useful life of the product [Ref. 40: p. 239].

Let's consider the following example to better understand this. Not all products are quantifiable. A good example is the procurement of a commercial test measurement device, such as a multimeter or oscilloscope. Given the nature of the commercial product, the following cost elements could be considered to compute the projected LCC:

1. Hardware cost (maximum quantities).
2. Cost of initial contractor training.
3. Cost of technical data requirements.
4. Cost of spare parts (type and quantities).
5. Cost of maintenance and calibration fixtures and accessories.
6. Cost of interim contractor maintenance and calibration support.

7. Life-cycle cost of Government maintenance and calibration [Ref. 36: p. 22].

Mean-Time-To-Repair (MTTR) and Mean-Time-Between-Failure (MTBF) can also be used. The difficult part of this model is to find features that are quantifiable and measurable. Interestingly, an offeror can benefit from having additional features in the product under life-cycle costing. It is possible that additional features could improve MTBF statistics, which may then benefit the offeror by lowering the overall bid price in the life-cycle cost evaluation [Ref. 36: p. 12]. In such cases, the contractor has an incentive not to remove additional features that exceed the minimum needs.

Finally, the last important feature is bid sample testing. Two-step sealed bidding can use bid sample testing. A bid sample is furnished by a bidder to show the characteristics of the product offered in a bid [Ref. 20: 14.202-4]. Bid samples are appropriate when characteristics of the product cannot be adequately described in the specification. Many product characteristics are difficult to describe, including balance, facility of use, general feel, or pattern. Bid samples can be used in step one. Bid samples are then evaluated for conformance to the performance requirements specified in the solicitation. The evaluation will be on a "pass/fail" basis. Bid samples will be used only to determine the "responsiveness of the bid" and not used to determine a bidder's ability to produce the required item. Bids will be rejected as nonresponsive if the sample fails to conform to each of the characteristics listed in the invitation. Bid samples strengthen a two-step method because they offer a physical demonstration of the product and explicitly reduce overall risk.

6. Relational Importance

Two-step sealed bidding is a viable alternative for acquiring nondevelopmental items. Two-step can be a dynamic process when it uses life-cycle costing, quality factors, and bid samples. Life-cycle costing goes beyond the acquisition sticker price. It is a price-related factor that includes all the operation and maintenance expenses up through and including its disposal. The Services have tended to concentrate on the acquisition price instead of the significance of ownership costs [Ref. 34: p. 118]. Life-cycle cost is a measure of long-term worth [Ref. 5: p. 6]. A best-value decision is based on long-term worth [Ref. 7: p. 17]. Quality is an inherent aspect of a two-step process. Two-step has the flexibility to incorporate quality factors, such as reliability, into the evaluation process. As mentioned, bid samples also strengthen a two-step process because they offer a physical demonstration of the product. Together, a two-step method can result in a product that is most beneficial to the Government in terms of achieving greater long-term worth.

D. BEST-VALUE CONTRACTING

1. General

What is best-value contracting? Best-value contracting is a source selection process that gives the Government flexibility within reasonable bounds to select the contractor who can best fulfill the needed requirements. Best value has no explicit statutory or regulatory definition [Ref. 32: p. 45]. In general, it refers to a source selection where the award decision is based upon a tradeoff between the price offered and

other factors of the proposal such as quality or technical. This tradeoff assessment resembles a cost/benefit analysis. A value judgment must be made to determine whether the price differences between competing proposals are justified by their other aspects [Ref. 32: p. 45]. Best-value contracting is the cornerstone and focus of competitively negotiated procurements.

Let's consider the following definitions to best capture the essence of best-value contracting. The following definitions outline the fundamental elements of best-value contracting:

- A source selection decision based on a comparative assessment of price and other evaluation factors. These factors may include, but are not limited to, a contractor's quality history and timeliness of delivery [Ref. 11: p. I-4].
- When the basis for award states that factors other than cost/price (such as technical merit, past performance, and management capabilities) will be considered in order to determine which proposal has the best promise of meeting the Government's needs [Ref. 21: p. i].

The objective of best value is to select the proposal that is most advantageous to the Government considering price and non-price factors [Ref. 57: p. 29]. Best value is a source selection evaluation process where all relevant factors, not just price, are taken into account prior to making a procurement decision. There are numerous interpretations of what is meant by best-value contracting (Appendix C). Best value does not necessarily mean lowest price. A best-value procurement allows the Government the discretion to determine that a proposal which may not be the lowest price among competing proposals may still be the "best value" because advantageous aspects of the proposal are considered to be worth the extra money [Ref. 21: p.1].

Best-value contracting contrasts directly with sealed bidding in which contract award is based on lowest priced. acceptable offeror. Under sealed bidding, price is the sole determinant. which excludes price and performance tradeoff considerations. There is little incentive for a contractor to be innovative or exceed the minimum standards. The best (greatest) value concept is cited in the Federal Acquisition Regulation (FAR) that states:

> While the lowest price or lowest total cost to the Government is properly the deciding factor in many source selections, in certain acquisitions, the Government may select the source whose proposal offers the greatest value to the Government in terms of performance and other factors [Ref. 20: 15.605(c)].

Best value is a source selection process in which the award basis considers factors other than price.

2. Origin and Background

Best value is a spin-off of the classical commercial buying objective: "to buy products of the right quality, in the right quantity, at the right price, from the right sources and at the right time" [Ref. 35: p. 25]. No one likes to feel that they have been "ripped off" when they make a purchase. Regardless of whether the purchaser is an individual, a company, or the Federal Government, all buyers seek to obtain value for their purchase dollar. The decision on how to purchase is a combination of the steps taken to make the purchase decision, and perception that determines whether or not the buyer has obtained value for the dollar [Ref. 49: p. 1]. Furthermore, best value comes from the realization that the award of a contract based solely on the lowest price can create a false economy if there is subsequent default, late deliveries, or unsatisfactory

performance that results in greater overall costs to the Government [Ref. 20: 9.103(c)]. Best value selects the source whose proposal offers the greatest likelihood for successful performance.

The Packard Commission served as the catalyst for this fundamental shift in contracting philosophy. The Commission recommended that DOD increase its use of commercial style competition by emphasizing quality and established performance as well as price [Ref. 45: p. 62]. The key is to focus on achieving a more "effective competition" by modeling industry's competitive procurement techniques. The Commission also found that contractors have the flexibility needed to choose the best overall (most qualified) vendor to perform the contract. Furthermore, the Packard Commission clarified the intent of the 1984 Competition in Contracting Act (CICA). A belief persisted that CICA required the Government to buy from the lowest bidder, and that it precluded the use of qualification or evaluation criteria [Ref. 43: p. 20]. Actually, CICA made it easier to use competitive proposal because it was put on an equal basis with sealed bidding. DOD could also use whatever relevant factors it wanted to determine the winning proposal under competing (negotiated) contracts [Ref. 45: p. 66].

As W. Edwards Deming states, "price has no meaning without a measure of the quality being purchased" [Ref. 34: p. 17]. This is the underlying motivation behind the concept of best value. Under best-value contracting, the contractor recognizes that something more than price will go into the source selection. There is an incentive provided for delivering a better product even at a higher price [Ref. 37: p. 55]. Best value is in effect a "total buying decision" concept and the best decision for the

Government. The Packard Commission saw no real difference from what the average consumer considers in making purchasing decisions. American consumers make value judgments (tradeoffs) among a wide range of similarly capable products. However, there are variations in prices as well as selected features and differences in perceived quality. Ultimately, whether or not the additional features are worth the extra cost depends upon the needs and circumstances of the consumer [Ref. 11: p. vii]. Best value is an "affordable excellence" strategy. It is a value-based approach that seeks to achieve a balance between achievable quality and cost realism [Ref. 35: p. 29]. Best value is a "total quality buying decision."

3. Salient Features

Best value represents the most advantageous procurement decision available to the Government. Best value is a source selection process. A best-value procurement includes the following elements:

- Comprehensive requirements definition
- Clear, relevant evaluation factors
- Disciplined evaluation process
- Decision based on the most advantageous acquisition cost [Ref. 49: p. 1].

These features provide a framework for best-value contracting. The first element centers on the requirements process. All significant requirements must be spelled out and specified in the solicitation so that each contractor (player) understands the rules and participates on an equal playing field. The technical and operational requirements should

be expressed in functional terms. This promotes a wider range of possible solutions. The Government should send out a draft request for proposal (RFP). Draft RFPs are invaluable tools to ensure comprehensive and well defined requirements. Since best-value contracting is highly subjective, it is critical to get early industry involvement for the process to be successful [Ref. 43: p. 22].

The second aspect is clear and relevant evaluation criteria. The evaluation criteria are the backbone of the source selection process. Evaluation factors are evaluated quantitatively or qualitatively to arrive at an integrated assessment as to which proposal can best meet the Government's needs [Ref. 16: p. 10-B-4]. The relative importance of the factors must be indicated in the solicitation. Excessive subdivision of factors should be avoided to preclude an unnecessarily detailed assessment that obscures significant differences among proposals [Ref. 16: p. 10-B-4]. Adherence and consistency are critical to protect the integrity of the process. There is no prescribed methodology for rating or scoring. Past practices include color coding, numerical, and adjectival rating. The key is to specify the scoring system up-front in the solicitation and consistently apply it. Evaluation criteria are uniquely tailored to each procurement. Typical criteria may include price, quality, reliability, maintainability, past performance, technical superiority, and any other relevant factor. Properly identifying the evaluation criteria increases the probability of evaluating and selecting the most advantageous contractor [Ref. 4: p. 53].

The third area is a disciplined evaluation process. The integrity of the evaluation process is paramount. Inconsistent practices make this highly discretionary

process vulnerable to litigation. Improper identification and inconsistent use of evaluation factors are common problems. A study found that inappropriate factors resulted in a greater probability of error and provided an open invitation to protests by contractors [Ref. 4: p. 54]. No two procurements are the same. Each specific solicitation undoubtedly weights the specific evaluation factors differently. The critical aspect of this process is to ensure that the weighted factors are consistently applied throughout the proposal evaluation or source selection. Each proposal must be evaluated and assessed with a coherent and auditable record established [Ref. 49: p. 6]. Best-value contracting must have a "thought process consistent with guidance."

The last component is to have a decision based on the most advantageous acquisition cost [Ref. 49: p. 7]. A best-value procurement attempts to capture greater value while considering other factors and price. The selection decision is based on lowest overall cost instead of contract price [Ref. 49: p. 7]. The decision should include performance considerations beyond the immediate hardware end item such as reliability and compatibility. The value or worth to the Government must be based on consideration of the resource investment needed to fulfill the requirement. The Government must strike a balance between performance parameters and cost realism [Ref. 35: p. 29]. In effect, the Government must ensure a realistic cost/benefit analysis is done. For example, a high price is offset by an increase in overall value to the Government. The "worth" is the judgment exercised by the Government [Ref. 51: p. 5]. The Government is accepting the fact that it may have to pay more if it can be assured

that the risk factor is at its lowest. Best value selects the source that best meets the criterion of providing optimum satisfaction of mission needs.

4. Relationship To Source Selection

Let's consider how best-value contracting relates to source selection. Best value is a departure from the traditional source selection process in that selection is not made based upon minimum standards of acceptability, but rather on the basis of the offer which demonstrates the highest probability of successful performance at a reasonable, realistic price [Ref. 12: p. 6]. Best value gives the Government greater flexibility to consider price and performance tradeoffs to determine the best overall value or source. Best value like source selection seeks to select the proposal, which offers the greatest promise of meeting identified needs. It is a relative assessment of risk [Ref. 48: p. 4-4].

Best value can be considered a modified or streamlined version of formal source selection [Ref. 4: p. 14]. The Services have implemented many different best-value programs. In many of these programs, the major evaluation factor is past performance. The importance of past performance is to assess the probability of successful accomplishment of the proposed effort [Ref. 16: p. 10-B-6]. In other words, the purpose of measuring a contractor's past performance is to determine whether or not a contractor will do the job successfully, rather than can the contractor do the job. The latter is a responsibility determination. Responsibility determinations are limited to determining whether or not an offeror has the capability to perform (go/no-go decision) and can meet the minimum standards of acceptability. The ability to assess risk is

greatly reduced. This difference is critical because best value is a relative assessment of risk [Ref. 4: p. 30].

Let's first look at those programs that focus on measuring a contractor's past performance. These best-value programs are called "source pre-qualification" programs such as Blue Ribbon, Quality Vendor, and Red-Yellow-Green. The attempt is to get better quality and performance by qualifying (validating) vendors for special consideration [Ref. 7: p. 5]. This method allows for the payment of a higher price to contractors who have a history of superior performance. A firm's past performance is measured by quality and on-time delivery. Such programs allow for price flexibility (ceiling percentage) above the lowest price. In return, the Government obtains a greater expectation of higher quality and on-time performance. Price and past performance are the two primary evaluation factors. These programs are best suited when the Government finds persistent quality problems on past contracts, or when a strict delivery schedule is more important. Furthermore, this variation does not replace a determination of responsibility, but adds a form of risk assessment to the evaluation process [Ref. 55: p. 2]. Finally, this model or variation helps the Government to end the practice of awarding business on the basis of price tag only by considering the total cost of a procurement when the cost of poor quality is added to the source selection formula [Ref. 23: p. 53].

As mentioned earlier, best value can be considered a formal source selection method. The process is more extensive and focuses on evaluating all relevant non-price factors in addition to price to determine which contractor will best perform the contract

[Ref. 12: p. 6]. The determination of which factors to use is the cornerstone of a best value source selection. There is an enhanced model used by the Air Force and Army. The product is a "performance risk assessment." The Performance Risk Analysis Group (PRAG) conducts this assessment. Performance risk is a confidence measure that assesses an offeror's past contract work records to determine the offeror's ability to perform the solicitation requirements [Ref. 18: p. 5]. Performance risk is different from proposal risk. Proposal risk is the risk associated with an offeror's proposed approach in meeting the Government's requirements. This assessment is generally performed by the Source Selection Evaluation Board (SSEB) and integrated with the rating of each evaluation factor [Ref. 18: p. 4]. On the other hand, the PRAG may report to the Source Selection Advisory Council (SSAC) or operate as a separate group within the SSEB. The Army's Comanche Light Helicopter program is using this approach [Ref. 43: p. 22].

This enhancement was originally developed by the Air Force. The Air Force created a Contractor Performance Assessment Reporting System (CPARS). The intent of CPARS is to evaluate a contractor's past performance and assess the risk involved in doing business for the contract under consideration. In addition, the PRAG considers data from the CPARS along with other contractor past performance data to determine contractor risk [Ref. 23: p. 31]. The Army developed a similar technique because it was determined that guidance was needed on how to best structure a solicitation and source selection to provide for a more thorough evaluation of past performance [Ref. 18: p. 2]. Past performance is an element of risk analysis. To perform this assessment, the

Government may use data provided by the offeror and data obtained from other sources (extrinsic).

The performance risk assessment process is used in competitively negotiated procurements in which the source selection is based on a comparative assessment that determines which proposal offers the best overall value to the Government in terms of price, performance, and other factors [Ref. 18: p. 3]. These procedures do not apply to negotiated procurements whereby the evaluation of proposals is only in terms of price and past performance. This technique is quite useful in procurements for services, research and development, and major/non major weapon systems [Ref. 4: p. 9]. The assessment of performance risk is not intended to be a simple arithmetic function. Performance risk is categorized in one of three ways: high risk, moderate risk, and low risk. Low risk is defined as a situation where little doubt exists as to the contractor's performance. The Army applies this process to contracts valued at greater than $10 million while the Air Force's threshold is $5 million. Evaluating past performance is an important and integral part of best value. In today's acquisition environment, the Government cannot afford the consequences of a contractor who is a chronically poor performer.

5. Application and Vulnerability

In general, best value can be used in any acquisition that has a recognized value to the Government for improvements in terms of quality or suitability. Best-value contracting is most beneficial in acquisitions that have a history of performance or quality difficulties, and where the consequences of poor performance are substantial [Ref. 11:

p. I-3]. Best-value contracting is not limited to multi-billion dollar, high visibility procurements; it applies also to both large and small acquisitions. Best value is an important tool in selecting major defense program sources because it places a premium on choosing the most likely successful offeror. Many major weapon systems have benefitted from this approach including the Army's Armored System Modernization Program (ASM), Comanche Light Helicopter (RAH66), Mobile Subscriber Equipment (MSE) and the Air Force's Joint Primary Aircraft Training System (JPATS) and the Advanced Tactical Fighter (ATF) [Ref. 43: p. 22]. Best value-contracting is improving contractor performance and reducing schedule delinquencies. It enables the Government to receive greater value in terms of technical advantage and innovative design.

In today's environment of rapidly changing commercial technologies, best-value contracting is a viable concept; however, it is not one that is absolutely trouble-free. A major trouble area is that of "gaming," which can be caused by both the Government and industry. Contractor gaming occurs when the contractor proposes innovations and has little or no intention of fulfilling such proposals. The purpose is to gain the upper hand in competition for a contract [Ref. 4: p. 70]. Government gaming is favoritism or putting too much emphasis on one factor. The effect is to limit full and open competition [Ref. 43: p. 23]. In either case, the pitfall is an "unfair playing field for all participants." Therefore, the key is to protect the integrity of the process.

6. Conceptual Importance

Best-value contracting is a viable concept. Best value has relational value to NDI acquisitions and two-step sealed bidding. Our acquisition environment is changing

because of commercialization and commercial buying practices. As defense procurement dollars continue to shrink, best-value NDI procurements can better serve the Department of Defense's goals. Procurement decisions do not always represent the best value to the Government. Best-value decisions are based on the "overall or long term worth" to the Government. The cost then becomes a compilation of various factors reduced to price in either dollars or long term capability [Ref. 7: p. 17].

The focus then centers on "ownership cost." Ownership cost and dependable quality are dominant variables in commercial buying decisions [Ref. 37: p. ix]. As suggested by CODSIA, lowest bid and best value are not necessarily the same. However, lowest total cost should be related to best value which is tied to realistic life-cycle system specifications including follow-on operation and support and contractor performance [Ref. 5: p. 6]. Furthermore, the Packard Commission offered an example of a way to overcome the problem of determining best value:

> The way to overcome it is not by generally exhorting decision makers to focus on value over price, but rather by providing specific guidance as to how to establish value. In the ADP area, the Government has already begun to move in this direction, by setting forth specific criteria for the determination of such relevant factors as life-cycle costing and present value [Ref. 44: p. 92].

The conclusion deduced is that life-cycle costing is a form of best value. As Deming remarked, "end the practice of awarding business on the basis of price tag only. Instead, minimize total cost" [Ref. 23: p. 53]. It appears the most successful examples of two-step sealed bidding are those that use life-cycle costing. The corollary conclusion is not to say the methods are the same, but rather the literature review suggests that life-cycle costing is a form of best value. The present manifestation of best-value contracting

is quite different; however, it seems the best-value concept is not mutually exclusive. Under two-step sealed bidding, a flexible life-cycle cost structure can result in a value-based procurement decision that is most beneficial to the Government in terms of achieving greater long-term worth. There are many factors that can be structured together and have a lasting impact like a best-value decision.

E. SUMMARY

This chapter provided a critical and in-depth look at nondevelopmental item acquisitions, two-step sealed bidding, and best-value contracting. The objective was to provide a framework for determining the feasibility of using a two-step method for getting best value in NDI acquisitions. More importantly, this chapter provides a "conduit metaphor" for channeling the research of this thesis. A nondevelopmental item acquisition represents a philosophical shift in material development. Best value also is a fundamental shift in our contracting philosophy. Two-step sits in the middle of change. It is a concept that has fallen into disuse; however, it appears to be a dynamic tool that has not reached its optimum utility. Chapter III will highlight data collected and aggregated responses from personal interviews.

III. A COMPENDIUM OF INTERVIEW RESPONSES

A. INTRODUCTION

This chapter is a compilation of data collected and compendium of responses from interviews conducted using a questionnaire developed for this study. Chapter III is divided into two parts. The first section presents informational data pertaining to DOD's use of two-step sealed bidding, nondevelopmental item acquisition, and best-value contracting. The second part contains a discussion and representative sample of responses for each interview question. Interview questions were based upon an analysis of the literature review and open-ended in nature. The goal was to elicit responses that would correlate into meaningful issues for further discussion. The questionnaire is presented in Appendix D. Initial questions focused on general or conceptual matters with a steady progression to provocative inquiries. This format was used by the researcher in consolidating responses in a consistent manner. Prior to the commencement of an interview, the respondent or interviewee was advised that responses received would be kept on a non-attribution basis. A list of the participants is contained in Appendix E. Finally, the respondents represented a cross-section of top-down procurement officials both in the DOD and Industry. Table 1 highlights the different offices and/or organizations from which interviewees were drawn.

Table 1 A SUMMARY OF RESPONDENTS INTERVIEWED	
Activity	**Respondents (Number)**
U.S. Army Communications and Electronics Command	6
U.S. Army Project Manager Office, Mobile Subscriber Equipment	1
Defense Systems Management College	1
U.S. Army Project Manager Office, Night Vision Electro Optical Devices	2
Aerospace Industries Association	1
U.S. Army Materiel Command	7
Deputy Director for Defense Systems Procurement Strategies	1
Office of the Director for Defense Procurement	2
Naval Air Systems Command	1
Martin Marietta Corporation	1
Defense Acquisition Regulatory Council	1
U.S. Army Product Manager Office for Mortar Systems	2
U.S. Army Project Manager Office for Test, Measurement, and Diagnostic Equipment	1
TOTAL	27

SOURCE: Developed by Researcher

The researcher also collected informational data pertaining to DOD's use of two-step sealed bidding, nondevelopmental items, and best-value contracting. The researcher accessed the information from three data collection systems: Federal Procurement Data System (FPDS), Department of Defense (DD350) Data Base, and the Army's

Acquisition Management Milestone System (AMMS). As identified by the General Accounting Office, DOD does not have a formal information system to gather and assess the effectiveness of its NDI acquisitions [Ref. 57: p. 17]. Using the AMMS system, the researcher collected data to measure and report on the nature and trends of NDI acquisitions. The researcher conducted a telephone survey involving 27 different Army NDI acquisitions. The results are presented in Appendix F. In general, the data presented were not statistically significant. However, it provides relevant information for later discussion.

B. INFORMATIONAL DATA

Table 2
PROCUREMENT SOLICITATION PROCEDURES (FULL AND OPEN COMPETITION) FOR THE DEPARTMENT OF DEFENSE IN FISCAL YEAR 1991

Procurement Method	Actions		Dollars	
	Thousands	%	($000)	%
Sealed Bidding	31,247	28	8,236,556	17
Competitive Proposal	80,370	71	39,270,510	82
Two-Step Sealed Bidding	817	01	381,679	01
TOTAL	112,434	100	47,888,745	100

SOURCE: Federal Procurement Data System

Table 2 compares the utilization rates for each method of procurement used. The source for Table 2 is the Federal Procurement Data System (FPDS), which consolidates

the Department of Defense's actions reported individually on the Standard Form 279 [Ref 58: p. 83]. Two-step sealed bidding has been around for more than 20 years. During this period it has enjoyed only limited success [Ref. 41: p. III-4]. In 1965, DOD used the two-step method in 74 acquisitions whose total dollar value was $189,199,000 [Ref 28: p. 4]. This total sum was approximately 2 percent of all procurements. Today, two-step sealed bidding is almost or less than 1 percent of DOD's procurements, but the total dollar value has doubled (Table 2). Furthermore, the preferred method of procurement is competitive proposal.

Tables 3 and 4 show the Army's trend in using two-step sealed bidding. The tables depict the number of procurement actions (contracts) and the value of dollars expended for two-step sealed bidding. The activities listed below are major subordinate commands within the U.S. Army Materiel Command (AMC). Fiscal Year 92 data reflect current actions as of 6 August 1992. The source for these data is the Acquisition Business Trends and Analysis Division, Headquarters, AMC.

Table 3
TOTAL NUMBER OF TWO-STEP SEALED BIDDING ACTIONS

Major Subordinate Command	FY88	FY89	FY90	FY91	FY92
U.S. Army Armament, Munition and Chemical Command (AMCCOM)	9	4	11	9	4
U.S. Army Communications and Electronics Command (CECOM)	16	12	15	19	9
U.S. Army Test and Evaluation Command (TECOM)	1	--	--	--	1
U.S. Army Tank Automotive Command (TACOM)	1	3	3	--	1

U.S. Army Missile Command (MICOM)	5	2	2	3	6
U.S. Army Aviation Systems Command (AVSCOM)	7	--	3	1	--
U.S. Army Troop Support Command (TROSCOM)	3	1	4	6	1
U.S. Army Laboratory Command (LABCOM)	1	--	--	--	--
TOTAL	43	22	38	39	23

SOURCE: Acquisition Business Trends and Analysis Division, Headquarters AMC

Table 4
TOTAL DOLLAR VALUE OF TWO-STEP SEALED BIDDING (IN THOUSANDS)

Major Subordinate Command	FY88	FY89	FY90	FY91	FY92
AMCCOM	508	43,661	9,822	6,662	726
CECOM	24,723	34,741	30,278	20,539	6,142
TECOM	81	--	--	--	675
TACOM	3,072	23	10,036	--	31
MICOM	1,050	82	99	1,333	760
AVSCOM	4,141	--	221	29	--
TROSCOM	3,046	1,999	15,719	15,234	2,362
LABCOM	1,020	--	--	--	--
TOTALS	36,625	80,506	66,175	43,797	10,696

SOURCE: Acquisition Business Trends and Analysis Division, Headquarters AMC

Since 1989, the total value of two-step procurements has been steadily declining. In 1987, for instance, the Army awarded $550.4 million in two-step procurements [Ref. 41: p. III-4]. By comparison, the 1991 dollar figure represented 8 percent of the 1987 total value (Table 4). Moreover, in earlier years, the Army accounted for the largest use of two-step sealed bidding. For instance, in 1965, the Army accounted for

45 percent of the total dollar value [Ref. 28: p. 4]. In 1991, the Army only accounted for 11 percent of the total value expended on two-step sealed bidding (Tables 4 and 1). This trend could be a result of the impetus and preference for using best-value contracting. It could also represent a procurement shift from acquiring stand-alone systems to spares and components.

As mentioned in the introduction, there is no DOD-wide information system that monitors the uses and trends of NDI procurements. The Army, however, does have an automated system that tracks nondevelopmental items, but the AMMS is limited. It does not provide any meaningful data or data that contribute to measuring the effectiveness of NDI acquisitions. For instance, the listing does not specify the method of procurement used or clarify the type or degree of nondevelopmental effort [Ref. 54: p. 1]. Recall, NDI covers an entire umbrella or spectrum of commercially available alternatives [Ref. 15: p. 2-3]. As shown in Appendix B, the intended benefits of an NDI acquisition diminish as the item moves away from pure "off-the-shelf" to full developmental items. This is important when assessing the overall effectiveness of an NDI acquisition.

A summary of the results of this survey is highlighted in Appendix F. Let's examine the results more closely and identify any possible developing trends. The majority of acquisitions were competed (85 percent). In looking at the different methods of procurement, competitive proposal outpaced the other methods by almost 50 percent. Interestingly, 15 percent of the NDI acquisitions surveyed used two-step sealed bidding. There was a notable change in the commercial product areas that are typically suited for

NDI acquisitions. A commercial area showing a new emergence is weapon systems. For instance, the Army purchased the following nondevelopmental items: a light howitzer (M119A1), two mortar systems (120/81mm), and a vehicle mounted stinger (FAADS Avenger). In the past, the Defense Science Board (DSB) found "destructive weapons" as an area not susceptible to commercial product acquisitions [Ref. 13: p. 17]. However, the DSB did not exclude the possible uses of NDI subsystems or components.

The survey also showed interesting results when considering the different classifications of nondevelopmental effort being acquired. The survey's classification criteria are derived from the provisions of the statutory definition (Appendices A and F). When considering the different classifications, the largest category was products or items "not yet available" in the commercial marketplace (44 percent). In addition, these items also required a great deal of systems integration. The next largest NDI product area was "minor modification" with a rating of 33 percent. The third largest grouping was "foreign already developed" items at 11 percent.

These results show that the Army (and perhaps all Services) is (are) concentrating procurement efforts on items requiring greater research and development effort. This could mean that the intended benefits and cost savings associated to NDI acquisitions are diminishing. The predominant use of an NDI is at the subsystem or component level for major developmental programs [Ref. 15: p. 2-3]. Finally, with 71 percent of the competitive proposals using best-value contracting as currently practiced, best value is definitely becoming the mainstream approach.

C. INTERVIEW RESULTS

1. Question #1

How would you define "best-value" contracting as a procurement concept?

a. Discussion

Many of the respondents believed the term "best value" was not clearly defined. Almost 50 percent of the interviewees defined the practice as a competitive basis for award in which other factors in addition to price can be considered in some relative order of importance to determine the winning proposal [Ref. 51: p. 1]. In other words, it meant assessing the competitive offer that would be most advantageous to the Government when considering both price and non-price factors. Four respondents believed that FAR Subpart 15.6 adequately addressed the "best value" concept. These individuals claimed that "best value" was the proposal which offered the greatest value to the Government in terms of performance and other factors [Ref. 20: 15.605(c)]. Many individuals stressed that the key was to properly identify and tailor the evaluation criteria to the distinct qualities of the item. In other words, the factors that determined best value under a particular contracting methodology differ from one application to another. The relative weights and order of importance must be specified in the solicitation [Ref. 16: p. 10-B-4]. The goal was to strike a balance between cost and performance factors.

The majority of respondents agreed that the process was highly discretionary, and that best value was perceived as the antithesis to the concept of lowest

price. Three interviewees characterized the process as an "integrative assessment" using cost and non-cost factors. Interestingly, seven participants said that "best value" was not a new concept. The present adaptation was an attempt to transfer an existing methodology from major systems acquisition to non-major systems acquisition. The origin for this movement was the 1986 Packard Commission.

The goal was to better formalize the process. In comparison, some respondents believed that the only real difference from the past was today's focus on contractor past performance. Two respondents described that best value, as a methodology, was an attempt to incorporate the consumer's "prudent person" buying concept into Government procurement. In other words, it was a common-sense approach to contracting. One respondent described best value as an attempt to get people to think "holistically," and that a procurement may be based on factors other than just price. It was also getting the most reliability for the least amount of dollars spread over a product's lifetime. Finally, an interviewee thought that best value could be interpreted in various contexts or circumstances. The respondent believed that best value existed in more than one procurement situation. That is, the outcome could be represented as the highest quality, least costly, most cost-effective, or highest affordable performance.

b. Responses

The following comments are reflective of responses received during the interviews:

> "Best value" means any basis for award which states that factors in addition to price will be considered in some relative order of importance to determine the winning proposal.

"Best value," as a process, attempts to strike a balance between cost and performance factors. It is a conscious departure from the concept of lowest priced offeror.

It is an integrated assessment that considers price and non-price factors.

In practice, the term, best value, considers evaluation factors in addition to price to assess which competitive offer is the most advantageous to the Government.

"Best value" is a common-sense approach that applies the similar thought processes of a consumer to Government procurement.

"Best value" is not a new concept; it has been around for many years in major systems acquisition.

A best-value acquisition may be based upon long-term worth or life-cycle costs. It is getting the most reliability for the least amount of dollars spread over a product's lifetime.

2. Question #2

How would you define the concept of nondevelopmental item acquisition?

a. Discussion

The definition or concept of an NDI acquisition caused much controversy among the respondents. Six interviewees concurred with the existing statutory definition (Appendix A). However, seven individuals felt that it should only represent items that were either "commercial off-the-shelf" or "products already in use." A nondevelopmental item acquisition could then require "minor modification." Many respondents associated "minor" to mean slightly or less seriously needed changes. For others, it was a process to acquire an item which the Government did not have to develop. The theory behind the process was getting a product out more quickly at less cost, and with improved quality. One interviewee thought the fundamental objective of

an NDI procurement was to first identify existing technologies and commercially available products. Then, the Government would choose from among the different alternatives the one which came closest to meeting its needs. If needed, the Government would contract for any developmental effort. The idea, according to the interviewee, was to optimize the present situation and avoid a costly full development effort.

The interviewees described many concerns about NDI acquisitions. One concern was the apparent focus on "military or environmental" adaptation. Some respondents believed the "proven out" or so called first article tests were really environmental qualification tests. Such tests can require up to 42 months of effort and cost as much as the first year of production deliveries. Another area of concern was the vagueness and lack of clarity of what constituted "minor modification." One interviewee believed that an NDI strategy should exploit developmental work already performed by others either through direct adaptation or by modification of existing products. Many respondents suggested that there had been numerous programs that were supposed to be "nondevelopmental," but some developmental effort had been required after entering the production phase. Minor modification meant insignificant changes to an already producible product. Insignificant changes were changes which required little to no design or development effort by a contractor. Respondents also noted that as the Government increased the need for modifications, it found itself unfairly requiring industry to finance the cost of developing military unique capabilities. Respondents repeated that contractors should not have to pay for such work. They expressed concern over managing the cost

driver--rapidly changing technologies. They believed that the Government's inability to manage technology insertion was trapping us into a world of technology obsolescence.

b. Responses

NDI is a commercially available item that is either off-the-shelf or available very soon. It is used "as is" or "slightly modified." The Government did not have to develop the product.

NDI is the acquisition of off-the-shelf hardware and software, or in a sophisticated system, it is the marriage of existing technologies.

The concern is abusing what is meant by "minor modification" and inadvertently forcing the contractor to pay for needed developmental effort. Minor modification should constitute insignificant changes that would require little design or development effort by a contractor to incorporate into his already existing product.

It is a methodology designed to identify existing technologies or commercially available items in the commercial marketplace, and then choose among the alternatives, the one which comes closest to meeting our needs. Then, the Government contracts for the needed developmental effort.

3. Question #3

To what extent can the concept of best value be used in two-step sealed bidding?

a. Discussion

Eight respondents found an inherent conflict between two-step sealed bidding and best-value contracting. They believed these methods were different because the process of how to select the winner was different. Their position was that since the criterion for award in step two was the lowest priced, technically acceptable offeror, there was no tradeoff allowed between a bidder that was "technically acceptable" and one that was the "best technically." Other respondents viewed the question from a holistic

standpoint. It was a philosophical shift in Government contracting. The new focus was to get the maximum benefit for minimal cost. Six interviewees suggested that the technical evaluation in step one was a means of applying best value. The process of evaluating the merits of an offeror's technical approach enabled each contractor to propose how he intended to meet the technical requirements of the contract. It was in this step that each bidder distinguished himself from the others. However, two-step did not go far enough. The Government did not have the opportunity to select between differences in price and technical proposals.

Some respondents believed it was possible to obtain best value by establishing a pre-determined weighting between price and technical that would enable the Government to exercise tradeoff considerations. Another interviewee expanded on this idea. The first action was to establish a weighted evaluation in step one, and then subsequently score the weighted ratings in step two. Next, the scores would be expressed in terms of dollars to determine the most advantageous procurement. The key was to have an objective scheme for weighting factors. Also, three interviewees suggested that using life-cycle cost could produce a best-value procurement. That is, long-term worth or cost of ownership went beyond the initial contract price with the basis for contract award considering the total impact of ownership costs. The goal being to minimize the life-cycle cost over the product's life span.

b. Responses

The key difference lies in the concept of how to pick the winning proposal. Under two-step sealed bidding, the basis for award is the lowest priced, technically

acceptable offeror. However, unlike best value, there is no ability to consider tradeoffs between price and technical proposals.

The concept of best value applies to two-step sealed bidding in the sense that step one acts like a pre-screening process, and step two can evaluate the long-term worth by life-cycle costing.

The process of evaluating the merits of an offeror's technical approach could be considered a means of applying the best-value concept to a procurement.

4. Question #4

To what extent do we use two-step sealed bidding in nondevelopmental items? Are there any threads or traces of best value?

a. Discussion

In general, the respondents felt that two-step sealed bidding was not being widely used. Most interviewees believed that a negotiated procurement was the preferred method because it was not bound to a rigid contract award basis like two-step. Six interviewees thought that two-step sealed bidding was best suited for acquiring nondevelopmental items where there was little or no modification to an existing item. They felt that the evaluation criteria in step one and price-related factors in step two offered traces of the concept of best value because the evaluation criteria contained quality factors such as reliability or maintainability. Three respondents also thought that certain "price-related" factors resembled best value. They noted that the key factor was to use life-cycle costing which considered more than just the initial contract price. However, in their opinion, what limited the best-value concept was the go/no-go process for evaluating technical proposals in step one. In addition, performance risk could not

be adequately assessed. Best value could measure an offeror's recent and relevant past performance to indicate the likelihood of successful performance [Ref. 18: p. 2]. On the other hand, two-step could only evaluate past performance as a function of responsibility determination [Ref. 44: p. 88].

b. Responses

Two-step sealed bidding is a responsible approach when the Government is looking for a nondevelopmental item to meet a requirement. Best value is inherently part of the two-step method. Both the technical criteria in step one and price-related factors in step two may address the concept of best value.

Two-step sealed bidding is best suited for NDI procurements where there is little or no modification effort to an existing item.

Structuring the level of acceptability high enough could lead to a best-value procurement.

A person could argue that the technically acceptable, lowest priced offeror is really best value, since we are accepting a proposal that has "technical merit" and then awarding the contract to the lowest priced offeror.

A problem with two-step is that a contractor has no incentive to exceed the minimum standards of acceptability because the methodology does not give extra credit for additional features.

5. Question #5

To what degree do you think that best-value contracting and two-step sealed bidding are directly in conflict?

a. Discussion

The majority of interviewees felt that two-step sealed bidding and best-value contracting conflicted in two main areas. First, two-step sealed bidding was

limited to making the contract awa.d to the lowest priced offeror. Second, unlike best-value contracting, there was no flexibility to determine which proposal was more acceptable than another. In other words, they believed that a technically superior proposal in step one carried no additional weight in step two. But they also noted, best-value contracting had the flexibility to determine if advantageous aspects (additional features) of a proposal were worth the extra cost [Ref. 20: p. 1].

Others did not necessarily consider these methods in conflict. They felt the problem occurred when the operational definition of "best value" was inconsistent with the procedures of two-step sealed bidding. That is, the only real perceived difference was that two-step sealed bidding could not make an award of a contract to a higher priced offeror. They felt that two-step sealed bidding was a "filtering out process" that tried to eliminate unqualified offerors in the first step. When pursuing the costs of ownership, best value was then applied. Price became only one part of the equation. There were many different ways to gauge best value. The key was to specify the value wanted. For the Government, it was in terms of essential requirements.

b. Responses

They are in conflict only when the operational definition of "best value" is inconsistent with two-step sealed bidding.

There is a direct conflict between two-step sealed bidding and best-value contracting. Two-step sealed bidding requires awarding a contract to the lowest responsive and responsible bidder. Under best-value contracting, the Government may award to an offeror who does not have the lowest price.

They are not in conflict necessarily, but rather it is a historical interpretation that has become embedded. The only real difference is that two-step sealed bidding cannot award a contract to a higher priced offeror.

6. Question #6

In using two-step sealed bidding, does the requirement of "minimum acceptability" restrict the Government's ability to choose the best "technically qualified" offeror in purchasing nondevelopmental items?

a. Discussion

For many respondents, minimum or essential requirements were by nature restrictive. In other words, a minimum or technically acceptable product was not the same as the best or most technically qualified item. Without some method to measure quality in proposals, the Government was not always able to obtain the best qualified product. The criteria for measuring quality were costs such as routine maintenance, reliability, cost of major repairs, and life-cycle cost. In addition, the minimum standards of acceptability acted like a floor that restricted the Government's ability to choose a better valued proposal. As one interviewee claimed, this requirement prevented extra credit or additional consideration for quality differentiation among proposals. It was noted that two-step sealed bidding should not be used when it was important to consider varying degrees of quality among competing alternatives. One respondent believed the central problem was the Government's inability to provide an adequate description of requirements. Finally, there would not be a perceived "best value" problem if the Government provided an adequate description of the level of quality needed and sound quantitative criteria for evaluating offers.

b. Responses

By its very nature, "minimum acceptability" is not the best or most technically qualified. Under two-step sealed bidding, there is no added credit or weight given for quality differences among proposals.

It is important to realize that two-step sealed bidding cannot be used when it is important to consider varying degrees of quality among competing alternatives.

Minimum or acceptable quality will likely result in the Government acquiring only acceptable products.

Without an adequate description of the needed level of quality and sound quantitative criteria for evaluating offers, there would not be a perceived "best value" problem.

7. Question #7

To what extent can two-step sealed bidding result in the procurement of nondevelopmental, items which are not the best, in terms of quality, because award of the contract is based on the lowest priced offeror that meets the Government's minimum requirements?

a. Discussion

Nine respondents believed that when the Government used two-step sealed bidding, the items acquired were "acceptable" but probably not the "best." Two-step sealed bidding did not allow for additional considerations when a proposal exceeded the minimum standards of acceptability. Further, the basis for award (lowest priced offeror) could not consider any degree of variation in quality, not even a $1.00 of difference in price. Many interviewees felt that this issue would never happen because the assumption in using two-step sealed bidding was that differences in performance or

quality of available products were not important to the acquisition decision. Some respondents indicated that procurements not representing best value are caused by the Government's inability to adequately define requirements. The key to acquiring successful products under a two-step method would be for the Government to develop fully its quality requirements, and insist that all bidders demonstrate the same in their proposals. If the standards that were acceptable could not result in the delivery of a quality product, then the first step of two-step sealed bidding would not work.

b. Responses

If it is important to consider additional features in our acquisition decision, then two-step sealed bidding is not the correct procurement procedure to employ.

Two-step sealed bidding is infinitely vulnerable to acquiring nondevelopmental items which are not the best because two-step cannot consider any degree of variation in quality, not even $1.00 of difference in price.

The acquisition of items offered at the lowest price but which meet the Government's minimum requirements should not be viewed as a problem. The real problem is the Government's failure to adequately define the requirements.

Step one is the key to acquiring quality products under two-step sealed bidding. The Government has to develop fully its quality requirements, and insist that all bidders demonstrate the same in their proposals. If the standards which are acceptable will not result in the delivery of a quality product, then two-step sealed bidding will not work.

8. Question #8

Are there any advantages to purchasing a more desirable (technically superior) nondevelopmental item at a very slightly higher bid price?

a. Discussion

The majority of interviewees agreed that there could be advantages to buying a technically superior product. Some advantages mentioned were higher reliability, expanded performance, longer life span, ease of maintenance, and expanded warranties. As suggested, what was more important was the "cost of ownership" and not the initial contract price. It was also noted as being important to include risk and quality factors into a consideration that measured long-term worth. Respondents said life-cycle cost provided this measure. In their opinion, a "reality check" was still needed because the cost of maintaining a technically superior product could have exceeded the acquisition cost of a suitable and quality product that met the Government's requirements.

b. Responses

The real issue is that we are not sufficiently aware of all the products available in the marketplace. What we really need is the ability to acquire what we need now, and the ability to modify it through technology insertion. We must learn to manage change.

What is more important is the cost of ownership when you consider a product's lifespan instead of the initial price.

How does "technically superior" relate to quality? The cost of maintenance for a technically superior product could exceed the acquisition cost of a high quality item that meets our minimum needs.

The advantages of procuring a technically superior and higher priced item must be determined on a case-by-case basis. The Government must be able to demonstrate that the "added value" is worth the extra cost.

9. Question #9

Could the acquisition of nondevelopmental items be improved, if there is a procurement method that encompasses the principles of best value and two-step sealed bidding?

a. Discussion

For the most part, the respondents could not see a need to develop a new procurement method for acquiring nondevelopmental items. Further, the interviewees believed that contracting by negotiation (competitive proposal) was the most effective method of procurement for buying nondevelopmental items. A competitive proposal was a method of procurement that was already defined and where the contract award was based on price and other factors. However, seven interviewees believed that if two-step sealed bidding could in some way employ the principles of "best value," then two-step sealed bidding would be improved greatly. One respondent felt the real answer was to use award-fee contracts.

Many interviewees believed there was still a place for using two-step sealed bidding as well as improving it. Four interviewees suggested that the technical evaluation in step one could be improved. One responded suggested developing a "weighted scale" for scoring and ranking technical proposals. Another respondent suggested the possibility of developing a "best value" matrix that could be used to inform bidders of possible tradeoffs that the Government intended to make. In either case, the appropriate weighting could be pre-determined. Two-step sealed bidding offered the

benefit of highlighting each contractor's technical plan to accomplish the required effort, but it could not go far enough to either quantify or allow for the selection of the best overall value. Finally, many respondents felt that the process that governed "best value" should be formalized.

b. Responses

> If two-step sealed bidding could in some ways employ the principles of "best value," then two-step sealed bidding would be improved greatly.
>
> There is still a place for two-step sealed bidding. Perhaps some form of a "best value" matrix could be developed and used to inform bidders of the possible tradeoffs, which the Government intends to make.
>
> There is no real benefit that can be derived from either a new or hybrid method. Competitive proposal is a method of procurement that is already defined and the best for acquiring nondevelopmental items.

10. Question #10

Could it be beneficial to award a contract without negotiations while considering price and quality-related factors?

a. Discussion

Eleven interviewees believed it could be beneficial; however, the majority of respondents did not see any benefit because the Government could already award a contract without discussions. Four interviewees felt that quality could be addressed in two-step sealed bidding. Others suggested the following methodology as a way to consider price and quality under a two-step process. In step one, each proposal would receive a numerical score based on an assessment of major technical subfactors. Next, the proposals would be ranked in order from best to acceptable. Scores would then be

converted in terms of dollars. The Government could then make tradeoffs between overall price and technical proposals. With an adequate description of the essential requirements, procurement officials would then apply sound evaluation criteria to determine which of the products was most advantageous for the Government.

b. Responses

Contract award without discussions is an option currently available to the Government.

The following methodology is a way to consider price and quality factors. In step one, each proposal receives a numerical score based on an assessment of major technical subfactors. The proposals are then ranked in order from best to acceptable. Next, the scores are considered in terms of dollars. The Government could then make tradeoffs between overall price and technical proposals.

11. Question #11

Could it be better to use a "band of performance" concept which identifies a minimum level of performance required, and a maximum or limit on how far the Government wants the offeror to exceed the specified minimum? In doing so, would the "band" concept best serve the Government in obtaining the "best price" or "best buy?"

a. Discussion

On the surface, the "band of performance" approach appeared to make sense. However, many respondents felt that any attempt to set limits could cause problems. This concept was used by the Government for some time. The major concern expressed was that as the "band" gets wider, then the Government would be encouraging the submission of potentially high risk and high cost solutions to achieve greater performance. Greater performance usually cost more money. The respondents believe

that both the Government and industry stood to lose. Fair and open competition were important; however, the Government needed to specify carefully its essential requirements. There was no need to acquire a product that exceeded our needs just because the product was available. An interviewee claimed that the emphasis must be placed on defining our requirements in a manner that precluded the acquisition of products that were of such poor quality that they could not meet our essential requirements. In the acquisition of nondevelopmental items, this feature could restrict the availability of alternatives. In other words, there was nothing the offeror could do in the proposal to change the performance characteristics of the product.

b. Responses

> We don't want a limit or "band of performance" when dealing with advanced commercial technologies.
>
> On the surface, the "band of performance" concept appears to make sense, but both the contractor and Government stand to lose because of the difficulty in defining the upper limit.
>
> The band of performance concept has been used by the Government for some time now. When the "band" get wider, then the Government is encouraging the submission of high risk and high cost solutions to achieve greater performance.

D. SUMMARY

Chapter III reviewed the findings of the interview process and presented summaries, in abstract, of the interviewees' responses. Emerging from this effort were broad perspectives and converging ideas that collaborated the theoretical framework of this study and supported the research focus. In particular, the concept of best value was considered by respondents to be broader than currently identified, and its application was

not limited to only negotiated procurements. Many respondents expressed concerns about the effectiveness of NDI acquisitions focusing primarily on items that were not truly "nondevelopmental." When incorporating the notion of "best value" into a two-step method, most respondents believed that two-step could not go far enough to capture the real essence of best value. Chapter IV will identify and analyze the major issues or concerns that have unfolded from the interview results and the materials previously researched.

IV. AN ANALYSIS OF CRITICAL ISSUES

A. INTRODUCTION

The goal of this chapter is to examine the validity of the research, which pertains to best-value contracting, nondevelopmental item acquisition, and two-step sealed bidding. It will identify and analyze the major problems or issues that have resulted from the interviews and materials previously researched. Three significant issues have been identified. The first issue focuses on the concept of best value. As discussed earlier, best value is not clearly defined. It is likely that best value has a broader context or definition rather than its current prescription. The second major issue is the increasing concern over the effectiveness of NDI acquisitions. The underlying concerns are acquiring items that are not truly "nondevelopmental," defining minor modification, and managing technology insertion. The final issue is establishing a union between the concept of best value and two-step sealed bidding. As identified earlier, two-step has inherent aspects of best value, but it may not go far enough to capture the full impact of best value. It is the researcher's contention that a two-step process can promote a value-based procurement decision that is related to a best-value approach.

B. THE PROBLEM OF UNCLEAR REGULATORY GUIDANCE

1. Defining Best Value

The first major problem is the lack of clear regulatory guidance concerning best value. Many respondents believed the term "best value" was not clearly defined. The literature also indicates that no standard or operational definition exists in the FAR or DFARS [Ref. 24: p. 1]. The current practice of best value has manifested from Subpart 15.6 that describes the Government's official policy on source selection in competitively negotiated procurements. The FAR does not provide explicit regulatory guidance on how to measure best value; it simply encourages the use of best-value contracting [Ref. 24: p. 3]. For many interviewees, best value meant assessing the competitive offer that would be most advantageous to the Government when considering other factors than just price. For the most part, the interviewees defined best value within the scope of the prescribed definition. In other words, the Government may select the source whose proposal offers the greatest value to the Government in terms of performance and other factors [Ref. 20: 15.605(c)]. The current regulatory guidance relies upon the skill and judgment of contracting officers to effectively implement this concept [Ref. 24: p. 3].

There are many practical and legal issues that are not adequately addressed. Government and contractor "gaming" causes an unfair playing field for all participants [Ref. 4: p. 70]. There is increasing concern over the credibility of evaluating a contractor's past performance as well as inconsistent decisions by the Source Selection

Authority (SSA). Improper identification and inconsistent use of evaluation factors increase the probability of error and invite protests [Ref. 4: p. 54]. In essence, best value is too subjective to remain unchecked while still protecting the integrity of the process. In today's world of rapidly changing commercial technologies, best-value contracting is certainly a viable concept; however, it is not one that is trouble-free [Ref. 43: p. 23]. Even with the recent success and proliferation of best-value contracting, it is still an anomaly. It is important that the Government consider adopting a standard definition to facilitate and promote uniformity and understanding of best value. However, the goal should not be to emplace a regulatory constriction on the process, but rather ensure the Government uses the process wisely. The following table highlights the evolutionary stages of best value.

Table 5
THE EVOLUTIONARY STAGES OF BEST VALUE

Traditional Systems Acquisition → Approach	**Life-Cycle Costing → Variation**	**Robust Best Value Practice**
• Formal Source Selection • Mathematical Formula • Quantifiable Scoring • Objective-Based Determination • Most for the Dollar	• Life-Cycle Cost (LCC) Substituted For Price • Compilation of Quantifiable LCC Factors • Assessment of Long-Term Worth	• Flexible Source Selection Process • Quantitative and Qualitative Factors • Color and Adjectival Rating • Subjective Determination • Marginal Analysis • Value Judgment

SOURCE: Developed By Researcher

The concept of "best value" is not new. Many respondents said that "best value" was not a new concept. It was an attempt to transfer an existing methodology from major systems acquisition to non-major systems acquisition. The literature sources also describe that best value has assumed several forms over the years [Ref. 39: p. 33]. It appears then that the current form has evolved from major systems acquisition (Table 5). In the past, systems acquisition typically involved a complex ranking and evaluation of objective and subjective factors. A decade ago, agencies commonly used explicit mathematical formulas to balance cost and quality [Ref. 39: p. 33]. Major systems acquisition fostered the philosophy of getting "the most for the dollar." In doing so, the Services concentrated too much on acquisition price and not enough on the cost of ownership for a system over its life span [Ref. 34: p. 118]. Life-cycle costing was a stepping stone in the right direction for measuring best value [Ref. 44: p. 92].

The complexities and challenges of today's acquisition environment fostered the growing need for best-value contracting. Best-value contracting is a spin-off of the classical commercial buying objective: "to buy products of the right quality, in the right quantity, at the right price, from the right sources and at the right time" [Ref. 35: p. 25]. Like a consumer that has been "ripped off," the Defense Department can no longer tolerate contractor buy-in approaches that in the past paralyzed major systems acquisitions [Ref. 43: p. 20]. In addition, our Defense procurements concentrated too heavily on price competition [Ref. 45: p. 62]. Like all buyers, the Government also wants "value" for their purchase dollar. Best value shifted from a mathematical or formulaic process into a more flexible, yet structured, approach that resembled the

thought process of an average consumer [Ref. 35: p. 25]. Best-value contracting emphasizes a "value-based approach." The Federal Government uses best value in a net-value metric rather than a return-on-investment (ROI) metric [Ref. 39: p. 34]. For example, a Mercedes Benz car might appear to have a higher net-value than a Ford Taurus; however, the total cost of owning a Mercedes could far exceed the value added by the additional and more expensive features.

The 1986 Packard Commission fostered the realization that awarding a contract solely on the basis of lowest price can create a false economy if there is subsequent default due to unsatisfactory performance [Ref. 20: 9.103(c)]. The Commission further recommended that DOD increase its use of commercial style competition by emphasizing quality and established performance as well as price [Ref. 45: p. 62]. Best-value contracting is a subjective determination of the value for a particular product. The key to using best value successfully is: (1) consideration of life-cycle costs, and (2) marginal analysis, the use of quantitative as well as qualitative techniques to measure price and performance tradeoffs between competing proposals [Ref. 24: p. 2]. The value or worth to the Government must be based on consideration of the resource investment needed to fulfill the requirement. The "worth" is the judgment exercised by the Government [Ref. 49: p. 7]. As W. Edwards Deming describes, the inherent difficulty in this process is to define the needed level of quality or value:

> The difficulty in defining quality is to translate future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay...[Ref. 34: p. 16].

Best-value contracting is a departure from the traditional source selection process in that selection is not made based upon minimum standards of acceptability, but rather on the basis of the offer that demonstrates the highest probability of successful performance [Ref. 12: p. 6]. While many interviewees conveyed similar points, the current practice gives the Government greater flexibility to consider price and performance tradeoffs in order to determine the best overall value. Also, the current approach incorporates the evaluation of past performance to assess the probability of successful accomplishment of the proposed effort [Ref. 18: p. 10-B-6]. In other words, the purpose of measuring a contractor's past performance is to determine whether a contractor is going to perform the contract successfully, rather than is the contractor capable of performing the contract. The former is a performance risk assessment that examines an offeror's recent and relevant past performance to indicate the likelihood of successful performance [Ref. 18: p.2]. The latter is a responsibility determination. Responsibility determinations are limited to determining whether or not an offeror has the satisfactory capability to perform the contract and can meet the minimum standards of acceptability. The determination is based on a go/no-go decision [Ref. 11: p. I-3]. Consequently, the ability to assess risk is greatly reduced. This difference is important because best-value contracting is a relative assessment of risk [Ref. 4: p.30].

2. Challenging the Preconceptions of Best Value

The concept of best value has steadily changed over the years [Ref. 39: p. 33]. It is possible that best value does not have to be limited to negotiated procurements. However, many interviewees felt that best value only applied to competitively negotiated

procurements. The objective of best-value contracting is to select the proposal that is "most advantageous" to the Government considering price and non-price factors [Ref. 57: p. 29]. The evaluation factors that determine the best-value award are uniquely tailored to each procurement. Under sealed bidding, a contract is awarded to a responsible bidder whose bid, conforming to the invitation, will be "most advantageous" to the Government, considering only price and price-related factors [Ref. 20: 14.407-1(c)(3)]. Likewise, under negotiated procurements, the award decision is based on the most advantageous procurement. The similarity of language implies that both procurement methods have of a value-based decision. Possibly, our legislative lawmakers envisioned a greater use for best value. This claim is confirmed by interviewees who work closely on the Defense Acquisition Regulatory Council.

Cost of ownership is related to best value because life-cycle cost is a measure of value [Ref. 5: p. 6]. Many respondents held this contention to be true. In general, a best-value methodology focuses on minimizing discounted life-cycle costs, not the acquisition price as the relevant cost measure [Ref. 35: p. 31]. Ownership cost and dependable quality are critical aspects of any commercial buying decision [Ref. 37: p. ix]. Likewise, they are important to the Government's practice of best-value contracting. The Packard Commission concluded that the Government is moving in the right direction to establish guidance on how to measure best value by using life-cycle costing [Ref. 44: p. 92]. It is then logical to deduce that life-cycle costing is a method of achieving best value.

Best value is applied to circumstances when evaluation factors, in addition to price, are considered to assess which competitive offeror will be most advantageous to the Government [Ref. 51: p. 1]. A best-value decision is not restricted to either the highest priced offeror or necessarily the lowest priced offeror. Consequently, each procurement has the option to focus on either the acquisition price or total cost of ownership. Two-step sealed bidding can result in a value-based procurement decision whereby the product outcome is most suitable or beneficial to the Government in terms of achieving greater long-term worth. Some respondents deduced that two-step uses a form of best value--life-cycle costing. In this manner, two-step allows a pre-stated, non-price but price-related factor to influence source selection [Ref. 40: p. 230]. Life-cycle cost is substituted for price as the decision criterion. As a result, the criterion for contract award is no longer price. Instead, it is a total cost of ownership that covers the useful life of a product [Ref. 40: p. 239].

There is no truly over-arching approach to best-value contracting. Best value can apply to any acquisition that has recognized value to the Government in terms of quality or suitability. By its nature, it appears that the best-value concept can be applied to procurements using two-step sealed bidding. Best value attempts to quantify the value of individual areas of a contractor's proposal. The Government tries to obtain the most beneficial tradeoff between competing factors of contractor proposals. The value determined by the Government must be balanced against the resource investment to fulfill the requirement. Best value applies to both large and small acquisitions. Best value is still evolving in DOD [Ref. 43: p. 23]. It can better serve DOD if it is defined in a

manner that stresses the functionality and importance of the existing interrelationship between price and value.

C. UNDERLYING ISSUES OF NONDEVELOPMENTAL ITEM ACQUISITIONS

1. Understanding the Meaning of "Nondevelopmental"

The second problematic area is maximizing the effectiveness of NDI acquisitions. The interview results indicate three major underlying concerns: acquiring items that are not truly "nondevelopmental," defining the minor modification, and managing technology insertion. A nondevelopmental item acquisition represents a philosophical shift in requirements planning and material development [Ref. 15: p. 1-1]. The NDI concept covers a spectrum of commercially available alternatives, ranging from those items purely "off-the-shelf" to developmental items with NDI subsystems and/or components (Appendix B). Typically, nondevelopmental items are products already developed and capable of fulfilling operational requirements either "as is" or with "minor modification." The underlying purpose of an NDI acquisition is to minimize or eliminate the need for costly, time-consuming, Government-sponsored research and development programs [Ref. 15: p. 1-1]. The 1986 Packard Commission recognized the need for developing new custom-made items only when it had been established that those items readily available were inadequate to meet military requirements [Ref. 45: p. 60]. There is no DOD-wide information system that provides any meaningful data to measure the effectiveness of NDI procurements [Ref. 57: p. 17]. As a result, many interviewees were concerned over what is meant by "nondevelopmental."

This concern is further evident by the data collected (Appendix F). The data indicate a possible trend by the Army to concentrate procurement efforts on items "not yet available" in the commercial marketplace. For the most part, these products required greater levels of systems integration (Appendix F). Research and development costs are likely to increase and the intended cost savings decrease [Ref. 15: p. 2-3]. Many respondents felt that we should be acquiring nondevelopment items that were "off-the-shelf" or "already in use."

NDI acquisitions are supported by both Government and industry. While conceptually sound, current practices have flawed its implementation [Ref. 22: p. 1]. In some cases, the Defense Department has characterized procurements as "nondevelopmental" when there is no commercially available product to meet the Government's needs [Ref. 60: p. 1]. In 1991, the Under Secretary of Defense for Acquisition clarified the legislative intent for the preference of nondevelopmental items:

> When no commercially available products are available to meet properly drafted specification requirements, it is not appropriate to encourage contractors to make substantial investments in development, testing, tooling, or facilitization as part of the proposal process to "prove" the feasibility of an NDI acquisition [Ref. 60: p. 1].

To better clarify the intent of the NDI requirements process, the following summary highlights the "true" intent of the legislative Act:

> When conducted correctly, an NDI should result in the Government's selection of an existing item which, by either evaluation or testing, demonstrates the potential to meet the user's optimum requirement with a minimum of subsequent development, cost, schedule, or technical risk [Ref. 22: p. 1].

"Nondevelopmental" is not intended to be an oxymoron. It simply means "not requiring development" [Ref. 60: p. 1]. However, it does not preclude the possible requirement of Government-funded development. The goal of an NDI acquisition is to choose an existing commercial product that best meets our needs, even though it may not meet all the Government's requirements, but could if there is subsequent investment of minimal development needed. Further guidelines that are consistent with the legislative intent of Congress are highlighted below.

Table 6
NDI GUIDELINES CONSISTENT WITH THE LEGISLATIVE INTENT OF CONGRESS

1. An NDI procurement should be expressly defined as one in which the government is soliciting proposals for:
   - An existing item
   - That proposal evaluation and source selection will be based upon the degree to which the selected item (as it now exists) best meets the government's needs;
   - The government's needs should be articulated as the item which, in its present configuration and without further development, offers the greatest potential to achieve through subsequent government funding of development, if any, the stated requirements with a minimum of technical, cost, schedule, or performance risk.
2. Contractor funding of pre-contract development effort to optimize the performance of the subject item should not be encouraged or required in the solicitation.

3. The government's performance requirements should be stated as a baseline against which the offeror's proposal will be evaluated and/or the hardware offered tested, but should not be a requirement going to contractor responsiveness.

4. Modifications made to the proffered hardware to the prospective contractor's initiative before submission of proposals or contract award will not be evaluated if they address essential performance characteristics.

5. Minor modifications or corrections may be made to hardware under test at the contractor's expense if required to permit continuance and or completion of the test. Offerors should not be encouraged or required to redesign essential performance characteristics of the hardware under test to enhance performance to meet the government's optimum requirements.

SOURCE: [Ref. 21: pp. 2-3]

2. Defining Minor Modification

The second issue is defining minor modification. As more and larger modifications are demanded, the intended benefits of an NDI acquisition rapidly disappear and the eventual cost savings are lost [Ref. 14: p. 4]. Many respondents believed there was no clear regulatory definition of what constituted "minor modification." In DFARS Subpart 211.7, minor modification is defined for commercial items as: "a modification that does not alter the performance or physical characteristics of the item" [Ref. 10: 211.7001]. Commercial items are only a part of the NDI spectrum as illustrated by the archetypal model (Appendix B). The nature or scope of a modification effort is the real problem. Many interviewees believed that "minor" meant slightly or less seriously needed changes. Many interviewees believed that a minor modification should be cost-effective, essentially needed, and within scope. The

purpose of "in scope" is to ensure that the modification is needed and does not exceed the Government's requirements. Therefore, the objective is to enhance the inherent performance capabilities of an already existing commercial product to meet all of the user's valid and essential requirements. Some respondents believed that an NDI strategy should exploit developmental work already performed by others either through direct adoption or by modification of existing products or technologies. Furthermore, if a modification changes the inherent characteristics of an existing item, then the modification is not minor. The intent is not to prohibit modifications, but ensure that such changes are sensible and cost-effective. The scope of the modification should not exceed the Government's requirements. A nondevelopmental item acquisition should meet its requirements at the lowest estimated life-cycle cost [Ref. 15: p. 2-4].

3. Managing Technology Insertion Effectively

There is increasing concern over effectively managing the significant cost driver--rapidly changing technologies. It was noted by interviewees that our inability to manage technology insertion was trapping us into a world of technology obsolescence. The key is to continuously monitor the "investments opportunities" in all phases of the acquisition life-cycle. The highest short-term payoff results from inserting technology in a mature system's components and spares [Ref. 2: p. 5]. The primary function of technology insertion (TI) is to reduce operating and support costs at the component or subassembly level. The goal of TI is to reduce serviceability costs by utilizing state-of-the-art technology, to replace older, less reliable, and more costly technology [Ref. 2: p. 5]. The technological investment must yield a higher net return. The growing

concern is that we are not controlling the "investment decisions" effectively [Ref. 3: p. 3]. The Government is becoming trapped in a technology push relationship whereby rapidly changing technologies are being inserted without any clear understanding of the return value [Ref. 45: p. 45]. Many interviewees believed that up-front acquisition planning and detailed market research are needed to effectively manage technology insertion. It is important to further reduce life-cycle costs while maintaining base levels of needed items. Value engineering, testing, and technology insertion are critical cost reduction measures to sustain nondevelopmental items [Ref. 2: p. 5].

D. THE LIMITATIONS OF USING TWO-STEP SEALED BIDDING

1. Reviewing the Best-Value Concept

The third major issue is challenging the perception that best value and two-step sealed bidding are mutually exclusive. This was the position of the majority of interviewees. Also, this contention is the focal point of this research. The following features characterize the best value acquisition process.

- past performance history
- life-cycle costing
- contractor's ability to successfully manage risk
- supportability
- reliability and maintainability of the product
- certification of contractors as preferred suppliers
- inclusion of a price differential factor in source selections for high quality products [Ref. 24: p. 12].

Overall, the best-value decision is based on assessing long-term worth instead of the short-term acquisition price [Ref. 24: p. 12]. Best value is an integrated process and not a one-time event. The requirements definition is an integral, but sometimes overlooked, step in the best value process [Ref. 24: p. 13]. The evaluation factors are the backbone of the source selection process. The evaluation criteria must be properly identified and appropriately weighted [Ref. 24: p. 13]. Evaluation criteria are uniquely tailored to each procurement. Typical criteria include quality-related factors such as reliability and maintainability. Lastly, the award decision is based upon a tradeoff assessment when considering price and performance differentials between competing offerors. The resulting value judgment must be rational and the thought process consistent to withstand any protest [Ref. 51: p. 13].

Today's best-value approach is a synthesis of past forms. In looking at the major features of best-value contracting, two-step has inherent aspects of best value but not all of them because of regulatory impediments. Two-step can substitute life-cycle cost for price as the decision criterion [Ref. 40: p. 230]. Though expressed in terms of dollars, this long-term measure goes beyond the acquisition "sticker" price. Another important feature is the use of bid samples to demonstrate the characteristics of the product offered in a bid [Ref. 20: 14.202-4]. Bid samples are used to determine the responsiveness of the bid. As a product-like qualification measure, the physical demonstration of the product can, in part, show the likelihood of successful performance. The net effect is to reduce risk. Finally, the evaluation criteria use many quality-related

factors such as reliability, maintainability, and safety [Ref. 15: p. 3-6]. Although somewhat limited, the concept of best value can apply to two-step sealed bidding.

2. Exploring the Shortfalls of Two-Step

As mentioned before, many respondents felt that best value and two-step sealed bidding are mutually exclusive. Further, most interviewees believed these methods were mutually exclusive because they fundamentally differ in how to choose the winning proposal. Specifically, two-step can only award a contract to the lowest priced offeror [Ref. 20: 14.407-1]. On the other hand, the award basis for negotiated procurements selects the proposal that offers the greatest value to the Government considering price and non-price factors [Ref. 20: 15.605(b)(c)]. In addition, two-step cannot award a contract to a higher priced offeror or consider differences in prices based on quality differentiation. Unlike best-value contracting, many interviewees believed that two-step had no flexibility to determine which proposal was more acceptable than another. In other words, a technically superior proposal in step one carries no additional weight in step two. Two-step cannot evaluate requirements that exceed the minimum standards of acceptability [Ref. 20: 14.503-1(c)(2)]. On the other hand, best-value contracting has the inherent flexibility to determine if additional features of a proposal are worth the extra cost [Ref. 21: p. 1]. In addition, best-value contracting can consider a gamut of factors and ultimately make a judgmental comparison.

The evaluation and use of past performance is another shortfall. Under two-step sealed bidding, the evaluation of past performance is confined to a responsibility determination, while best-value contracting uses past performance as a separate non-price

factor for determining contract award [Ref. 44: p. 88]. In FAR 9.104-1, the regulatory language conflicts with the concept of giving a preference to suppliers based on superior performance. The concept of "responsibility" does not support a form of supplier "prequalification" at all, let alone one based on excellent, rather than merely satisfactory, past performance [Ref. 44: p. 88].

It is important to realize that price-only awards are still valid for some types of acquisitions. However, the budget realities of our acquisition process are steadily changing the focus towards minimizing life-cycle costs [Ref. 23: p. 51]. As the Government continues to advance towards a more integrated acquisition process, best value will also continue to shape all facets of Government contracting. Therefore, the benefits of best-value contracting are most effectively achieved using life-cycle costing [Ref. 24: p. 14]. Current governmental regulations do not provide the required integration of best-value contracting policies and procedures [Ref. 24: p. 14]. Ultimately, the objectives of meeting user's requirements and receiving best value are the same [Ref. 15: p. 2-1].

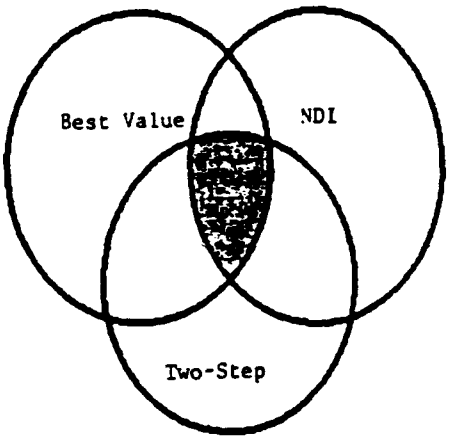
E. THE UNION OF BEST VALUE AND TWO-STEP SEALED BIDDING

The perception that "best value" and two-step sealed bidding are mutually exclusive has been the focus of this research. It appears that a valid argument can be made that two-step can promote a value-based approach. The goal is not to create a perfect match with that of best-value contracting, but rather to foster the viewpoint that the best-value concept is not inclusive to competitively negotiated procurements. A two-step method

can embrace the concept of best value. By doing so, a two-step process becomes a de facto best value source selection. The following Venn Diagram conceptually outlines the research model.

Table 7
FORMING A NEW INTERRELATIONSHIP

Shaded Area Represents
Overlapping Ideas
Between Methods



SOURCE: Developed By Researcher

The shaded area depicts the overlapping ideas between each method. Based on the research so far, it is not unreasonable to deduce that best value and two-step procurements are interrelated. More importantly, two-step could be a viable alternative for expanding the role of best value and NDI procurements. Two-step has been a common method of procurement for nondevelopmental items. Two-step is best suited for those nondevelopmental items that are "off-the-shelf" and those requiring "minor modification" [Ref. 15: p. 5-4]. Life-cycle cost is as important in NDI decisions as it

is in all acquisition strategies. In considering alternatives, an NDI product should be selected that has the lowest estimated life-cycle costs and meets essential requirements [Ref. 5: p. 2-5]. Two-step sealed bidding can use life-cycle costing. As budget realities steadily shift our focus towards minimizing life-cycle costs, two-step will become a viable alternative for acquiring nondevelopmental items in the future.

NDI acquisition efforts are inherently geared to selecting products based on many factors including price [Ref. 15: p. 2-1]. There is no truly single approach to best-value contracting. Best value is an "affordable excellence" strategy. It can apply to any acquisition that has recognized value to the Government in terms of quality or suitability. The goal of best value is to find an equilibrium between the perceived value offered and the price asked by either increasing the former or by reducing the latter. A best-value decision is based on the assessment of long-term worth to the Government [Ref. 6: p. 17]. A best-value decision is not restricted to either the highest priced offeror or necessarily the lowest priced offeror [Ref. 51: p. 1]. Consequently, each procurement has the option to focus on either the acquisition price or total cost of ownership. By its nature, best value can be applied to procurements using two-step sealed bidding.

Cost of ownership is related to best value because life-cycle cost is a measure of value [Ref. 5: p. 6]. A best-value methodology focuses on minimizing discounted life-cycle costs, not the acquisition price as the relevant cost measure [Ref. 35: p. 31]. Ownership costs and dependable quality are important aspects to the Government's practice of best-value contracting. As the Packard Commission suggested, the Government was moving in the right direction to establish guidance on how to measure

best value by using life-cycle costing [Ref. 44: p. 92]. It is logical to deduce that life-cycle costing is a form of best value. Life-cycle costing is crucial for the successful use of best value [Ref. 24: p. 2]. Then, two-step has an inherent form of best value--life-cycle cost. In this manner, two-step allows a pre-stated, non-price factor to influence source selection. Life-cycle cost is substituted for price as the decision criterion [Ref. 40: p. 230]. As a result, the criterion for contract award is no longer just price [Ref. 40: p. 239]. In essence, a two-step procurement arrives at a decision that is "most beneficial" to the Government in terms of offering the lowest estimated total cost of ownership. Initially, it might not be the cheapest, but it is the least expensive over the product's life-cycle. Two-step can use other price-related factors to expand the award decision criteria beyond the initial contract price. Commercial warranty costs and life-cycle costs are two important examples. In this case, life-cycle cost ends "the practice of awarding business on the basis of price tag only" [Ref. 23: p. 53].

Under negotiated and two-step procurements, the award decision is based on the "most advantageous" procurement to the Government. The objective of best value is to select the proposal that is "most advantageous" to the Government [Ref. 57: p. 29]. The similarity of language implies that both procurement methods have a value-based decision. As suggested, the commonality of regulatory language indicates that lawmakers envisioned a greater utility for best value. As Deming remarked, "price has no meaning without a measure of quality being purchased" [Ref. 34: p. 17]. Product reliability and maintainability are important evaluation factors in a best-value determination [Ref. 24: p. 12]. These factors are quality-related measures [Ref. 10: 246.103]. Likewise, these

quality factors are crucial to the technical evaluation process of two-step [Ref. 16: p. 6-P-1]. Technical acceptability is based on conformity to the technical requirements contained in the solicitation. Conformity relates to quality which can be defined as "conformance to correctly defined requirements and satisfying customer needs" [Ref. 34: p. 24]. In this context, acceptability is related to both technical and quality factors. In other words, quality is inherent to a two-step method. Two-step has flexibility to incorporate quality and other factors into the evaluation process.

Another feature of best-value contracting is the contractor's ability to successfully manage risk [Ref. 24: p. 12]. Under two-step, the use of bid samples helps to reduce concerns about contractor performance. Bid samples are used to demonstrate the characteristics of the product being offered in a bid [Ref. 20: 14.202-4]. Bid samples are used to determine the responsiveness of the bid. As a product-like qualification measure, the physical demonstration of the product can, in part, show the likelihood of successful performance. Best-value contracting also encourages giving a preference to suppliers based on superior performance [Ref. 24: p. 12]. Under two-step, the notion of "prequalification" is not the same as in best-value contracting. That is, the first step is a "filtering out process" which eliminates unqualified offerors. Consequently, only qualified offerors can participate in the second step. As Deming stated, the inherent difficulty in a best-value process is to define the needed level of quality or value [Ref. 34: p. 16]. Two-step must have the requirements defined in a manner that precludes the acquisition of products that are of such poor quality that they could not meet the essential requirements. As mentioned, best value is a compilation of value-based techniques to

determine the most advantageous procurement. Two-step can also produce a value-based procurement decision whereby the product outcome is most beneficial in terms of achieving greater long-term worth. It is true that two-step cannot award a contract to a higher priced offeror or consider differences in prices based on quality differentiation. In essence, best value can be applied to a two-step procurement method.

F. SUMMARY

Best value is neither clearly defined nor is it explicitly limited to negotiated procurements. An operational definition seems to be needed in the FAR. The effectiveness of NDI procurements need to be more closely monitored because many Service procurement efforts are likely to concentrate on more difficult and "not yet available" items. The legislative intent for the preference of NDI products should be readdressed. The scope and meaning of "minor modification" needs clarification. Two-step sealed bidding is somewhat restricted by regulatory guidelines; however, there are many aspects of best value inherent to a two-step method. The implementation of best value has not yet achieved its full potential in the Government contracting arena [Ref. 24: p. 15]. Best value will likely affect all procurement methodologies in the future. Finally, two-step has not reached its optimal utility. Chapter V highlights a two-step model for getting best value in NDI procurements.

V. AN ALTERNATIVE BEST-VALUE APPROACH

A. INTRODUCTION

This chapter describes a two-step model for getting best value in NDI procurements. Two-step sealed bidding is a viable alternative for expanding the best-value concept and NDI acquisitions. NDI acquisitions are inherently geared to best value source selections [Ref. 15: p. 2-1]. In the past, two-step was a common procurement method for acquiring nondevelopmental items. Lately, two-step has fallen into disuse because of the popularity of best-value contracting. Two-step has more flexibility than one would perceive. Two-step sealed bidding and best-value contracting are not mutually exclusive. Though functionally different, two-step can implement an alternative best-value approach while not displacing its "price-only" award basis.

B. A DESCRIPTION OF THE ALTERNATIVE APPROACH

This two-step model is a compilation of value-based techniques to determine the most advantageous procurement. Two-step can foster a value-based approach. The following aspects highlight this alternative best-value acquisition process:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples

These features function within a conventional two-step process. Each aspect adds value to the award decision process. The heart of this alternative model is life-cycle costing. LCC is a measure of value and an integral part of best-value contracting [Ref. 5: p. 6]. A best-value methodology focuses on minimizing life-cycle costs [Ref. 35: p. 31]. Two-step has an inherent form of best value--life-cycle cost. Two-step substitutes LCC for price as the decision criterion [Ref. 40: p. 230]. The criterion for contract award is no longer price. Instead, it measures the total cost of ownership of a product over its useful life. As Deming described, it ends "the practice of awarding business on the basis of price tag only" [Ref. 23: p. 53].

This alternative model also uses quality-based evaluation factors in a two-step process. Best-value contracting emphasizes reliability and maintainability [Ref. 24: p. 12]. Likewise, these factors are crucial in the technical evaluation process of two-step. These evaluation factors are quality-related considerations [Ref. 10: 246.103]. Furthermore, technical acceptability is based on "conformity" to the requirements. Conformity is, in part, a function of quality which adds value to the overall two-step process.

Finally, this alternative approach maximizes the use of bid samples. Best-value contracting measures the likelihood of successful performance or risk [Ref. 24: p. 12]. Under a two-step method, bid samples help to better gauge the likelihood of successful performance. A bid sample is similar to a product-like qualification measure. The physical demonstration of the sample can, in part, indicate the likelihood of successful performance. In other words, the physical demonstration reduces risk concerns about

a contractor's ability to produce the item even though its primary function is to determine responsiveness. In essence, these aspects highlight the thrust of this alternative best-value approach. An overview of this model is contained in the latter part of this chapter. There are potential modifications that could greatly improve this alternative approach to better resemble a best-value process which are discussed in a subsequent section.

C. THE COMMONALITY OF BEST VALUE

Although best-value contracting and two-step sealed bidding are not the same, the concept of best value is common to both procurement methods. Best-value contracting is a synthesis of past forms [Ref. 39: p. 33]. The concept of best value can be applied to any acquisition that has recognized value to the Government in terms of quality or suitability. A best-value decision is based on the assessment of long-term worth to the Government [Ref. 6: p. 17]. A best-value procurement can focus on either the acquisition price or total cost of ownership. Importantly, cost of ownership is related to best value.

As the Packard Commission suggested, LCC was an important stepping stone in establishing guidance on how to measure best value [Ref. 44: p. 92]. CODSIA also indicated that life-cycle costing should be related to best value [Ref. 5: p. 6]. As described, LCC is the heart of this alternative best-value approach. It is logical to deduce that LCC is a form of best value. Similarly, two-step can use an inherent form of best value--life-cycle cost.

Under negotiated and two-step procurements, the award decision is based on the "most advantageous" procurement to the Government. The objective of best value is to select the proposal that is most advantageous to the Government [Ref. 57: p. 29]. The similarity of language implies that both procurement methods have a value-based decision. As suggested, the commonality of language indicates that lawmakers envisioned a greater utility for best value, and this rationale is why the concept of best value can be applied to a two-step process. Ultimately, two-step can achieve a value-based award decision that is most beneficial to the Government in terms of achieving long-term worth.

D. IMPEDIMENTS

As mentioned earlier, two-step cannot truly replace a conventional RFP best-value approach. Essentially, three significant shortfalls exist in a two-step method:

- evaluation and use of past performance
- certification of contractors as preferred suppliers
- inclusion of a price differential factor in source selections for high quality products.

The evaluation of past performance, under a two-step method, is confined to a responsibility determination, while best-value contracting uses past performance as a separate non-price factor for determining contract award [Ref. 44: p. 88]. In FAR 9.104-1, the regulatory language conflicts with the concept of giving a preference to suppliers based on superior performance. The concept of "responsibility" does not

support a form of "supplier" prequalification at all, let alone one based on excellent, rather than merely satisfactory, past performance [Ref. 44: p. 88]. Also, two-step must award a contract to the lowest priced, technically acceptable offeror [Ref. 20: 14.407-1]. The award decision is restricted to considering only "price and price-related" factors [Ref. 20: 14.103-2(d)]. More importantly, two-step cannot award a contract to a higher priced offeror or consider differences in prices based on quality differentiation. Unlike best-value contracting, a technically superior proposal in step one carries no additional weight in step two. In addition, two-step cannot evaluate requirements that exceed the minimum standards of acceptability [Ref. 20: 14.503-1(c)(2)]. Best-value contracting has the flexibility to determine if additional features of a proposal are worth the extra cost [Ref. 21: p. 1].

E. CONCEPTUAL PERSPECTIVE

Two-step is a viable method for expanding the role of best value and NDI acquisitions. Two-step can foster a value-based approach. As shown, the concept of best value can be applied to a two-step process. Although two-step lacks the "judgmental" flexibility of best-value contracting, it does have a value-based procurement decision. In comparison, best-value contracting enhances the discretionary "choice" of the Government, but it also weakens the auditability and verifiability of the source selection process [Ref. 39: p. 34]. On the other hand, two-step has less discretionary choice, but it can strengthen the verifiability of the source selection process. Two-step strives to reduce the intangibles or judgmental areas by quantifying them to the maximum

extent possible. As described, two-step can use a life-cycle cost structure which is quantifiable and a measure of long-term worth.

In using this alternative two-step model, it does not appear feasible or practical to create a mathematical formula that could enable the Government to tradeoff price and technical differences. For example, if Mean-Time-Between-Failure (MTBF) is the central cost factor, then the task is to ascertain the value of one hour of MTBF to exercise a tradeoff analysis. It is too difficult to derive this pre-determined common measure of value. Many respondents also suggested assigning a pre-determined weighting scheme between price and technical considerations so that the Government could make tradeoff decisions. Likewise, this suggestion creates a process that appears to be too subjective and difficult to determine.

A decade ago, governmental agencies commonly used explicit mathematical formulas to balance cost and technical quality--formulas that translate bid costs into points for a proposal [Ref. 39: p. 33]. The consequence was:

> Many agencies felt stymied by a system that effectively paid dollars for technical points without consideration of the underlying significance of the technical points [Ref. 39: p. 33].

In other words, an explicit mathematical formula did not work effectively because of the inherent subjectivity and difficulty in applying it consistently [Ref. 39: p. 33].

A two-step process can balance price and value in a manner that does not complicate the process. The key is to use life-cycle costing. LCC can enable the Government to take advantage of a proposal with design features exceeding the essential requirements because the bidder's total cost of ownership might be further reduced as a

consequence of having these additional features [Ref. 36: p. 12]. In such cases, the contractor is incentivized not to remove any additional features because the criterion for contract award is no longer just price. Furthermore, LCC eliminates the need for a price differential factor because the Government can achieve greater cost savings in terms of long-term worth.

In looking at a two-step process, there are many unrealized advantages that two-step can offer. It is more verifiable and auditable than a competitively negotiated best-value procurement because two-step can use a more quantifiable and objective approach--life-cycle costing. A properly planned two-step takes no more time than a typical best-value acquisition. By using compliant bid samples, no first article test is required. Two-step ensures an NDI product conforms to the technical requirements. A two-step process forces the use of a meaningful "market analysis." Finally, it is a disciplined process that protects the Government against poor quality and reduces the likelihood of "gold-plating," cost increases, and schedule slips.

F. POTENTIAL MODIFICATIONS

The two-step model is a viable alternative for expanding the domain of best value. As described earlier, this alternative approach lacks three key characteristics of best-value contracting: (1) past performance, (2) certified preferred suppliers, and (3) price differential factor. Potential modifications exist that could greatly improve this alternative model to better resemble a best-value process. Four modifications to improve this two-step model are presented below.

First, two-step uses bid samples to determine "responsiveness." The physical demonstration of the product can, in part, indicate the likelihood of successful performance. The net effect reduces risk concerns about the contractor; however, the Government cannot use bid samples to evaluate a bidder's ability to produce the required item [Ref. 20: 14.202-4(b)(2)]. It is difficult to evaluate only "responsiveness" when the Government has a sample that could also function as a physical demonstration of the bidder's ability to produce the item. These requirements are hard to separate. It is in the Government's interest to have the flexibility to make a reasonable determination on both matters, especially in NDI production contracts. It seems beneficial to establish a waiver process so that the Government could consider both requirements in a determination of responsiveness. The objective is not to undermine the concept of responsiveness or responsibility, but to facilitate the assessment of risk and better indicate the likelihood of successful performance.

A second modification is to implement a "Qualified Bidders List." Unlike best-value contracting, a two-step method is not authorized to use a supplier prequalification process [Ref. 44: p. 89]. The Packard Commission recommended the following solution:

> One possible approach would be to enact a statutory provision--perhaps in the same statute establishing a "preference" for commercial procurement--making it clear that DOD is authorized to implement prequalification requirements as part of the comprehensive commercial procurement system mandated by the statute, "notwithstanding any other provision of law" [Ref. 44: p. 90].

In other words, DOD should request that Congress enact a statutory provision in the NDI Preference Act to authorize the use of supplier prequalification in both sealed bidding and negotiated procurements for solely acquiring NDI items [Ref. 44: p. 90]. This supplier

prequalification process would not restrict full and open competition. It simply precludes poor quality contractors from bidding unless qualification or acceptability of meeting essential requirements could be determined beforehand. In this manner, the statutory provision enhances the acquisition of nondevelopmental items and two-step without changing the legislative scope of CICA.

A third modification which could greatly improve this alternative best-value approach is to allow the two-step process to result in a fixed-price-award-fee (FPAF) contract. It is a value-based contracting technique that offers unique opportunities for the Government not only to get the type of contractor wanted but also the type of performance really desired [Ref. 42: p. 16]. In Subpart 14.5, two-step may use either a firm-fixed-price contract or a fixed-price contract with economic price adjustment [Ref. 20: 14.502(a)(5)]. A FAR deviation could be granted because Subpart 14.5 does not explicitly exclude it. The FAR allows for deviations of contract types under Subpart 1.4 [Ref. 2: p. 2-9]. As noted, a request for a FAR deviation is a useful way to develop and test new techniques or methods [Ref. 20: 1.402]. The Air Force has developed and tested an FPAF contract type [Ref. 42: p. 16]. A FPAF contract appears suitable for two-step NDI procurements because it requires a contractor to perform on a fixed-price basis with "award" of a variable "fee" to be determined at the sole direction of an award determination board in response to the quality of work performed [Ref. 2: p. 2-7]. A FPAF contract could be extremely beneficial to a two-step procurement because the Government has greater flexibility to determine which evaluation factors to use, and how to sufficiently motivate contractor performance.

The fourth and last modification is to develop a return-on-investment (ROI) factor to be used as a "price-related" factor in a two-step method. The purpose of this factor is to enable the Government to give an evaluation preference (e.g. 10%) to a bidder for having a particular "technology enhancement" that could provide significant long-term cost savings to the Government. It is an investment opportunity decision or differential to help better manage technology insertion for NDI acquisitions. In this manner, long-term cost savings could be encouraged, even at the expense of paying a higher overall acquisition price. Further research is necessary to determine if this idea is practical or feasible.

G. AN OVERVIEW OF THE ALTERNATIVE BEST-VALUE MODEL

As mentioned, the alternative model integrates the concept of best value into a two-step process. The overall approach is a compilation of value-based techniques to determine the most advantageous procurement. This overview also includes two previously discussed potential modifications to better illustrate the dynamics and viability of this alternative approach. The overall structure of this model contains the following characteristics:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples
- qualified bidders list
- fixed-price-award-fee contract

The procurement model functions within a conventional two-step method. As mentioned, there are two modifications added which strengthen the integration of a best-value concept: (1) prequalification and (2) fixed-price-award-fee contract. Similar to a best-value determination, the first step focuses on product reliability and maintainability [Ref. 16: p. 6-P-1]. These evaluation factors are quality-related considerations [Ref. 10: 246.103]. Quality is defined as "conformance to correctly defined requirements and satisfying customer needs" [Ref. 34: p. 24]. In this context, quality is an essential part of the technical evaluation process.

The notion of "prequalification" is different in two-step than in best-value contracting which can certify contractors as "preferred" suppliers. Under a two-step method, the first step is a "filtering out process," which eliminates unqualified offerors in step one. In other words, unqualified offerors cannot participate in step two. As noted, this model would establish a supplier prequalification requirement or a "Qualified Bidders List." As discussed, this is based on the enactment of a statutory provision in the 1987 NDI Preference Act that authorizes only DOD to implement such a requirement in sealed bid and competitive proposal procurements [Ref. 44: p. 90]. This statutory provision is solely for acquiring nondevelopmental items. In this regard, the enactment enhances the acquisition of nondevelopmental items and two-step without changing the legislative scope of CICA and competition.

Another facet of this de facto best-value process is to use compliant bid samples. Bid samples are used as a requirement in step one for determining "responsiveness" [Ref. 20: 14.202-4(b)(2)]. Best value tries to select the proposal that offers the greatest

promise or likelihood of successfully meeting identified needs [Ref. 48: p. 4-4]. The utility of bid samples is that they require contractors to physically demonstrate the product up-front in the acquisition process. A bid sample functions as a product-like qualification measure. Bid samples can reduce risk concerns about a contractor's ability to produce the product, and in the proposed alternative method, bid samples would be used to evaluate a bidder's ability to produce the required item. It is important to realize that bid samples add value to the overall process because the product has to be physically demonstrated up-front.

The key feature of this alternative approach is life-cycle costing. Often times, a two-step method does not exploit the potential advantages of using "price-related" factors to expand the basis for contract award. LCC is the heart of this two-step process which is also an integral aspect of best-value contracting. As described, it is a measure of long-term worth that is also an inherent form of best value. LCC allows the Government in step two to consider potential cost savings from selecting the offeror who has the lowest total cost of ownership. This quantifiable technique is suitable for a wide range of products including nondevelopmental items.

Life-cycle cost is substituted for price as the decision criterion [Ref. 40: p. 230]. As a result, the criterion for contract award is no longer just price. In this manner, two-step allows a pre-stated, non-price factor to influence the source selection [Ref. 40: p. 230]. Initially, a LCC award might not be the cheapest, but it is the least expensive over the life-span of a product. In essence, life-cycle costing results in a procurement award decision that is "most beneficial" to the Government in terms of offering the lowest

estimated life-cycle cost. LCC is advantageous to use because the Government can consider additional features which might or could further reduce a contractor's overall life-cycle cost. Such features include improvements to MTBF statistics. Consequently, a contractor has an incentive to retain additional features exceeding the minimum requirements [Ref. 36: p. 12].

As developed, this model would also use a fixed-price-award-fee (FPAF) contract which would require a FAR amendment or deviation. An FPAF arrangement is a value-based contracting technique which appears suitable for NDI production-related contracts. However, the dollar-value of the acquisition must be high enough to offset the administrative costs associated with administering an award-fee contract.

A FPAF contract could significantly improve this overall value-based approach. It gives the Government greater flexibility in a two-step process by allowing the Government more latitude to influence the quality of effort being performed. The key is for the Government to choose the criteria and ensure such factors are sufficient enough to motivate contractor performance. An award-fee structure tends to favor higher quality contractors [Ref. 2: p. 2-8]. In essence, this model is comprised of value-based techniques. Together, these features add value to a two-step procurement award decision. Although these characteristics are not the same as those in best-value contracting, they do realistically implement an alternative best-value approach.

H. SUMMARY

Best-value contracting and two-step sealed bidding are not the same. In light of the evidence presented in this research, the concept of best value can be applied to two-step. Even though two-step lacks the "judgmental" flexibility of best-value contracting, it does have a value-based procurement decision in which the outcome is most beneficial to the Government in terms of achieving greater long-term worth. A dichotomy can exist within the concept of best value. Though functionally different, two-step has an inherent form of best value. The following features summarize this functionally different but form of best value:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples
- qualified bidders list
- fixed-price-award-fee contract

As the researcher has attempted to demonstrate, the concept of best value can cover a broader scope than perceived. As described, a best-value decision is based on long-term worth. A best-value procurement can focus on either the acquisition price or total cost of ownership. By its nature, the concept of best value appears adaptable to other procurement methods, such as two-step. Two-step is a viable procurement method for acquiring nondevelopmental items. Even though it has not been fully utilized, two-step is a marketable tool for DOD to acquire nondevelopmental items in a cost beneficial

manner. More flexibility exists in two-step than one perceives. A two-step approach can be characterized as a net-value approach that can use a best-value concept. The next chapter summarizes the conclusions and recommendations of this research.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter summarizes the conclusions and recommendations of this research. Chapter VI contains four major parts: conclusions, recommendations, answers to research questions, and areas for further research. First, the conclusions address regulatory, practical, and legal issues involving best-value contracting, nondevelopmental item acquisition, and two-step sealed bidding. Next, important recommendations are presented which address the fundamental problems or issues disclosed by the research. Thirdly, the researcher provides answers to the proposed research questions of this study. Finally, the researcher suggests potential areas for further research.

B. CONCLUSIONS

1. The Government lacks clear regulatory guidance on how to measure best value.

No standard or operational definition of best value exists in the FAR or DFARS. The current practice of best value has manifested from Subpart 15.6 in the FAR. This subpart describes the Government's official policy on source selection in competitively negotiated procurements. The FAR does not provide explicit regulatory guidance on how to measure best value; it simply encourages the use of best-value contracting. The FAR states that "the Government may select the source whose proposal

offers the greatest value to the Government in terms of performance and other factors" [Ref. 20: 15.605(c)]. The current regulatory guidance relies upon the skill and judgment of contracting officers to effectively implement this concept.

2. The best-value process should be formalized.

Many respondents agreed that the process was too subjective to remain unchecked by the Government. Many practical and legal issues are not adequately addressed. For example, Government and contractor "gaming" create an unfair playing field for all participants. The credibility of evaluating contractor past performance as well as inconsistent decisions by the Source Selection Authority are raising further concerns. Also, improper identification and inconsistent use of evaluation factors increase the probability of error and invite protests. The real issue is not to emplace a regulatory constriction on the process, but rather ensure the Government uses the process wisely.

3. "Best value" is not a new concept.

Many interviewees said that the concept of best value was not new. Its robust form evolved over time from major systems acquisition. In the past, systems acquisition typically involved a complex ranking and evaluation of objective and subjective factors. Today, best-value contracting is a spin-off of the classical commercial buying objective. Like any buyer, the Government also wants "value" for its purchase dollar. Best-value contracting is a value-based approach. Best value shifted from a formulaic process into

a more flexible, yet structured, approach that resembled the thought process of an average consumer.

4. Best value is not limited to competitively negotiated procurements.

Although best-value contracting and two-step sealed bidding are not the same, the concept of best value is common to both procurement methods. Best-value contracting is a synthesis of past forms. The concept of best value can be applied to any acquisition that has recognized value to the Government in terms of quality or suitability. A best-value decision is based on the assessment of long-term worth to the Government. Further, the award decision is not restricted to either the highest priced offeror or necessarily the lowest priced offeror. A best-value procurement can focus on either the acquisition price or total cost of ownership. Therefore, cost of ownership is related to best value.

As the Packard Commission suggested, LCC was an important stepping stone in establishing guidance on how to measure best value. CODSIA also indicated that life-cycle costing should be related to best value. LCC is the key in demonstrating that the concept of best value can be applied to a two-step process. It is logical to deduce that LCC is a form of best value. Similarly, two-step can use an inherent form of best value--life-cycle cost. Under negotiated and two-step procurements, the award decision is based on the "most advantageous" procurement to the Government. The objective of best value is to select the proposal that is most advantageous to the Government. The similarity of language implies that both procurement methods have a value-based

decision. As suggested, the commonality of language indicates that lawmakers envisioned a greater utility for the concept of best value.

5. Although NDI is clearly defined by law, much ambiguity exists in regards to the true meaning of "nondevelopmental."

The underlying objective of an NDI acquisition is to minimize or eliminate the need for costly, time-consuming, Government-sponsored research and development programs. While conceptually sound, current practices in acquiring nondevelopmental items have been flawed. In some cases, the Defense Department has characterized procurements as "nondevelopmental" when no commercially available products actually exist. "Nondevelopmental" is not intended to be an oxymoron. It means "not requiring development," but it does not preclude the possible requirement of Government-funded development. A nondevelopmental item acquisition focuses on solving a sub-optimization problem. The goal is to choose an existing commercial product that best meets our needs, even though it may not meet all of the requirements, but could if the Government funds the minimal development needed.

6. No clear regulatory definition exists or clarifies what constitutes a "minor modification" in NDI acquisitions.

Minor modification is referenced in the 1987 NDI Preference Act, but its regulatory meaning is missing. Minor modification is defined in the DFARS Subpart 211.7 for commercial items but not for the NDI spectrum. Many respondents believed that "minor" meant slightly or less seriously needed changes. Further, they felt that a

minor modification should be cost-effective, essentially needed, and within scope. The purpose of "in scope" is to ensure that a modification is cost-beneficial and does not exceed the Government's essential requirements. In essence, a minor modification enhances the inherent performance capabilities of an already existing commercial product to meet the Government's essential requirements while not significantly altering the physical characteristics of an item.

7. Our inability to manage technology insertion is decreasing DOD's ability to effectively acquire nondevelopmental items.

DOD is not effectively managing the significant cost driver--rapidly changing technologies. The key is to continuously monitor the "investment opportunities" existing in all phases of the acquisition life-cycle. The goal of technology insertion is to reduce serviceability costs by utilizing state-of-the-art technology, to replace older, less reliable, and more costly technology. The highest payoff is to insert new technology in a mature system's components and spares. The growing concern is that we are not controlling the investment decisions effectively. Consequently, the Government traps itself in a technology-push relationship whereby rapidly changing technologies are inserted without any clear understanding of the return value.

8. Best value and two-step sealed bidding are not mutually exclusive. Two-step has inherent aspects of best value.

The concept of best value can be applied to two-step sealed bidding. Even though two-step lacks the "judgmental flexibility" of best-value contracting, it does have

a value-based procurement decision. A dichotomy can exist with the concept of best value. Though functionally different, two-step has an inherent form of best value. The following features summarize this functionally different but inherent form of best value:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples

These features function in a conventional two-step process. Each aspect adds value to the award decision process. The heart of this inherent form of best value is life-cycle costing. A best-value methodology focuses on minimizing life-cycle costs. Cost of ownership is related to best value. LCC is an integral aspect of best-value contracting. It is a measure of long-term worth that is also an inherent form of best value. In essence, two-step has an inherent form of best value--life-cycle cost. Two-step substitutes life-cycle cost for price as the decision criterion. The criterion for contract award is no longer price. In this manner, two-step allows a pre-stated, non-price factor to influence the source selection. LCC results in a procurement award decision that is "most beneficial" to the Government in terms of offering the lowest estimated total cost of ownership.

The second feature is using quality-based evaluation factors in a two-step process. Best-value contracting emphasizes reliability and maintainability. Likewise, these factors are just as important in the technical evaluation of two-step. These evaluation factors are quality-related considerations. Technical acceptability is based on

"conformity" to the requirements. Conformity is, in part, a function of quality which adds value to the overall two-step process. In addition, the notion of "prequalification" is different in two-step than in best-value contracting. The first step acts like a "filtering out process," which eliminates unqualified offerors from the second step.

The final aspect is the value added from using bid samples. Best-value contracting measures the likelihood of successful performance or risk. Under a two-step method, bid samples help to better gauge the likelihood of successful performance. A bid sample is similar to a product-like qualification measure. The physical demonstration of the sample can, in part, indicate the likelihood of successful performance. In other words, the physical demonstration reduces risk concerns about a contractor's ability to produce the item even though its primary function is to determine responsiveness. These aspects highlight the inherent characteristics of best value.

9. Regulatory impediments keep two-step sealed bidding from implementing a truly best-value approach.

As mentioned earlier, two-step cannot truly implement a conventional RFP best-value approach. Essentially, three significant shortfalls exist in a two-step method:

- the evaluation and use of past performance
- certification of contractors as preferred suppliers
- inclusion of a price differential factor in source selections for high quality products.

The evaluation of past performance, under a two-step method, is confined to a responsibility determination, while best-value contracting uses past performance as a

separate evaluation factor in the award process. In FAR Subpart 9.104-1, the regulatory language conflicts with the concept of giving a preference to suppliers based on superior performance. Overall, the concept of responsibility does not support a form of "supplier" prequalification at all, let alone one based on excellent, rather than merely satisfactory, past performance. Also, two-step must award a contract to the lowest priced, technically acceptable offeror. The award decision is restricted to considering only "price and price-related factors." More importantly, two-step cannot award a contract to a higher priced offeror or consider differences in prices based on quality differentiation. Unlike best-value contracting, a technically superior proposal in step one carries no additional weight than one that is marginally acceptable in step two. Two-step cannot evaluate features that exceed the minimum standards of acceptability. On the other hand, best-value contracting has the flexibility to determine if additional features of a proposal are worth the extra cost.

10. In demonstrating an alternative best-value approach that uses a two-step process, it is not feasible to create a formulaic methodology that could enable the Government to tradeoff price and technical differences among competing bidders.

In using a two-step approach, it is not feasible or practical to create a mathematical formula that could enable the Government to tradeoff price and technical differences among competing bidders. Many respondents suggested assigning a pre-determined weighting scheme for price and technical differences so that the Government could exercise a comparative tradeoff analysis. The problem is that this solution creates

a process which is too subjective and difficult to use. In addition, this approach can already be used in an RFP best-value procurement. In the past, Governmental Agencies commonly used explicit mathematical formulas to balance cost and technical quality--formulas that translated bid costs into points for a proposal. Consequently, the formulas did not work effectively because of the inherent subjectivity and difficulty in applying them consistently.

A two-step process can balance price and value in a manner that does not complicate the process. The key is to use life-cycle costing. LCC can enable the Government to take advantage of a proposal with design features exceeding the essential requirements because the bidder's total cost of ownership might be further reduced as a consequence of having these additional features. In such cases, the contractor is incentivized not to remove any additional features because the criterion for contract award is no longer just price. Furthermore, LCC eliminates the need for a price differential factor because the Government can achieve greater cost savings in terms of long-term worth.

11. Two-step sealed bidding is a viable procurement method for expanding the role of best value and NDI procurements.

Two-step is a viable procurement method for expanding the domain of best value and NDI acquisitions. Like best-value contracting, two-step can foster a value-based approach. The concept of best value can be applied to a two-step process. Although two-step lacks the judgmental flexibility of best-value contracting, it does have a value-based procurement decision. Two-step has fallen into disuse; however, it is a

viable tool for acquiring nondevelopmental items in a cost beneficial manner. More flexibility exists in two-step than one may perceive. Two-step can capitalize on life-cycle costing which is a long-term measure and an essential part of best-value contracting. As Deming described, LCC ends "the practice of awarding business on the basis of price tag only" [Ref. 23: p. 53].

Two-step has many unrealized advantages to offer in comparison to a conventional RFP best-value approach. This alternative structure is more verifiable and auditable than a best-value determination and, thus, it can easily withstand the challenges of a bid protest. A properly planned two-step takes no more time than a negotiated best-value procurement and, most likely, less time. By using a compliant bid sample evaluation, no first article tests are required following contract award. A two-step process ensures an NDI product conforms to the technical requirements. A less obvious but significant advantage is that the process forces the use of a meaningful "market analysis." Finally, two-step reduces the likelihood of "gold plating," cost growth, and schedule slips. In essence, it is a very disciplined process that protects the Government against poor quality while delivering acceptable products on-time and at the lowest possible cost.

C. RECOMMENDATIONS

1. **The Government should adopt a standard definition and provide procedural guidelines for measuring best value to facilitate and promote uniformity and understanding of best value.**

There is no single approach to best-value contracting. A major concern is how to measure best value. The FAR encourages its use but relies upon the skill and judgment of contracting officers to effectively implement the concept of best value. Many practical and legal issues remain clouded and unclear for procedural consistency. The goal of a standard definition is not to emplace a regulatory constriction on the process, but rather ensure the Government uses the process wisely. A suitable definition to be further investigated is one suggested by CODSIA:

> A best-value award is based on the Government's most advantageous acquisition decision as determined through a disciplined approach that provides full considerations of all requirements and resources specified in the solicitation [Ref. 49: p. 3].

Further, procedural guidelines addressing problem areas and how to measure best value should be written and clearly delineated in DOD Instruction 5000.2, Part 10, "Selection of Contractual Sources."

2. The Government should use a two-step method for obtaining best value in NDI acquisitions.

The concept of best value can be applied to a two-step process. Two-step can foster a value-based approach. Two-step lacks the judgmental flexibility of best-value contracting, but it does have a value-based procurement decision in which the outcome is most beneficial to the Government in terms of achieving greater long-term worth. A best-value decision is based on long-term worth. A best-value procurement can focus on a total cost of ownership. By its nature, the concept of best value is adaptable to a two-

step process. Two-step has an inherent form of best value. The following features summarize this functionally different but inherent form of best value:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples
- qualified bidders list
- fixed-price-award-fee contract

Two-step can balance price and value in a manner that does not complicate the process. The key is to use life-cycle costing. LCC is a measure of long-term worth and an integral part of best-value contracting. LCC measures the total cost of ownership of a product over its useful life. LCC enables the Government to take advantage of a proposal with design features exceeding the essential requirements because the bidder's total cost of ownership might be further reduced as a consequence of having these additional features. Two-step can use quality-based evaluation factors in the technical evaluation. Quality becomes an essential part of the process. Two-step can also use bid samples to better gauge the likelihood of successful performance. The physical demonstration of the product reduces risk concerns about a contractor's ability to produce the item even though its primary function is to determine responsiveness. In essence, two-step is a viable procurement method for acquiring nondevelopmental items. It can acquire NDI products in a cost beneficial manner. More flexibility exists in two-step

than one perceives. Two-step is a dynamic process for getting best value in NDI acquisitions.

3. DOD should revise Part Six of DOD Instruction 5000.2 to better clarify the true meaning of "nondevelopmental."

"Nondevelopmental" is not intended to be an oxymoron, but current trends and practices have flawed its implementation. Part Six of the DOD Instruction does not adequately address the "true" intent of the NDI Preference Act. The following definition should be added to Part Six:

> When conducted correctly, an NDI should result in the Government's selection of an existing item which, by either evaluation or testing, demonstrates the potential to meet the user's optimum requirement with a minimum of subsequent development, cost, schedule, or technical risk.

NDI is a sub-optimization strategy. The general guidelines highlighted in Chapter IV, likewise, should be incorporated into the revision. These proposed changes are consistent with the legislative intent of the NDI Preference Act.

4. DOD needs to clarify and accurately define the meaning and intent of "minor modification."

There is no clear definition of "minor modification" in the Title 10 (Section 2325) Statute or in the DOD Instruction 5000.2. This lack of clarity is causing protest and litigation problems. As more and larger modifications are demanded, the intended benefits of an NDI acquisition rapidly disappear, and the eventual cost savings are lost. As mentioned, DFARS Part 211.70, "Commercial Item," defines minor modification, but the definition is not broad enough to cover the whole spectrum of an NDI. As many

respondents described, an NDI strategy should exploit developmental work already performed by others, either through direct adoption or by modification of existing technologies. DOD Instruction 5000.2 and the NDI Preference Act should incorporate the following definition:

> 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.

5. DOD Instruction 5000.2, Part Six, should be revised to include a section on managing and controlling technology insertion (TI).

As NDI acquisitions continue to increase, there is increasing concern over effectively managing TI. The significant cost driver is rapidly changing commercial technologies. Detailed market research and up-front acquisition planning are critical to make the technology investment decision wisely. The Government must monitor insertion opportunities continuously. The Government must have a clear understanding of the return value before technology is inserted. The acquisition strategy should address the issue of TI and how to effectively manage the "investment decision."

6. DOD needs to implement an agency-wide pilot test to collect data and measure the effectiveness of NDI procurements.

As mentioned before, DOD has no agency-wide information system that provides any meaningful data to measure the effectiveness of NDI procurements. On a larger scale, each Service component could perform a similar data collection and

assessment effort done by the researcher (Appendix F). The researcher's criteria were effective in providing meaningful assessments on possible Army NDI procurement trends. The Army is concentrating procurement efforts on items "not yet available" in the commercial marketplace. In addition, the need for greater systems integration is increasing (Appendix F). The underlying issue is whether such focuses are escalating developmental costs to the point of diminishing returns.

7. **DOD should propose an amendment to the FAR Subpart 14.202-4 which would permit a bidder's sample to be used in determining a bidder's ability to produce the required item.**

Two-step sealed bidding cannot really assess risk, or the likelihood of successful performance like that of a best-value approach. Two-step uses bid samples to determine "responsiveness." As a product-like qualification measure, the physical demonstration of the product, in part, indicates the likelihood of successful performance. The overall effect reduces risk concerns about the contractor's ability to procure the item; however, the Government cannot use bid samples to evaluate a bidder's ability to produce the required item. It is difficult to evaluate only "responsiveness" when the Government has a sample that could also function as a physical demonstration of the bidder's ability to produce the item. It is in the Government's interest to have the flexibility to make a reasonable determination on both matters when acquiring nondevelopmental items. In effect, a waiver process could be established so that the Government could make such a determination when it is feasible and specified up-front in the solicitation. As suggested, a simple categorical rating could be used.

8. **DOD should request that Congress enact a statutory provision in the NDI Preference Act to authorize only DOD to use "supplier" prequalification in both sealed bid and competitive proposal procurements for the sole purpose of acquiring NDI products.**

Unlike best-value contracting, two-step is not authorized to use a supplier prequalification process. The Packard Commission recommended enactment of a statutory provision in the 1987 NDI Preference Act that would authorize DOD to implement a supplier prequalification requirement as part of the comprehensive commercial procurement system mandated by law. The goal is to implement carefully a "Qualified Bidders List" for sole use in NDI acquisitions. It simply precludes poor quality contractors from bidding unless acceptability could be determined beforehand. In this manner, the statutory provision enhances the acquisition of nondevelopmental items without changing the legislative scope of CICA.

9. **DOD should propose an amendment to the FAR 14.502 (a) (5) which would allow a two-step method to use a fixed-price-award-fee (FPAF) contract.**

The use of an FPAF contract could be extremely beneficial in improving a two-step procurement method. It is a value-based contracting technique that offers unique opportunities for the Government not only to get the type of contractor wanted but also the type of performance really desired. This contract type would require a FAR amendment or deviation. Because an FPAF contract is not explicitly prohibited from use, it is possible that a FAR deviation could be granted. As noted, a request for a FAR

deviation is a useful way to develop and test new techniques or methods. The Air Force has already developed and tested an FPAF contract.

A FPAF contract appears suitable for two-step NDI procurements. An award-fee contract provides for a contractor to perform on a fixed-price basis with "award" of a variable "fee" to be determined at the sole direction of an award determination board in response to the quality of work performed. The award fee is based on a judgmental evaluation by the Government. The key is to ensure that the evaluation factors are critical and sufficient to motivate contractor performance. In essence, an FPAF contract could greatly improve the integration of best value in two-step.

D. ANSWERS TO RESEARCH QUESTIONS

1. Primary Research Question: To what extent can the Department of Defense use two-step sealed bidding for getting best value in nondevelopmental items?

Two-step is a viable procurement method for expanding the role of best value and NDI acquisitions. Like best-value contracting, two-step can foster a value-based approach. Although two-step lacks the judgmental flexibility of best-value contracting, it does have a value-based procurement decision. Furthermore, a two-step method can strengthen the verifiability of the source selection process. Two-step reduces the intangibles or judgmental areas by quantifying them using life-cycle costing. A two-step process can balance price and value in a manner that does not complicate the process. The key is to use life-cycle costing. LCC is a measure of value and an essential aspect

of best-value contracting. As Deming described, LCC ends "the practice of awarding business on the basis of price tag only" [Ref. 23: p. 53].

Life-cycle cost can enable the Government to take advantage of a proposal with design features exceeding the essential requirements because the bidder's total cost of ownership might be further reduced as a result of having these additional features. In addition, LCC eliminates the need for a price differential factor because the Government can achieve greater cost savings in terms of long-term worth. Two-step is not being fully exploited. Two-step can capitalize on life-cycle costing and other value-based techniques to derive a value-based procurement decision in which the outcome is most beneficial to the Government in terms of achieving greater long-term worth. Two-step has fallen into disuse because of the popularity of best-value contracting; however, it is a viable tool for acquiring nondevelopmental items in a cost-beneficial manner. Two-step has many advantages in comparison to a conventional RFP best-value approach. Two-step is best suited for nondevelopmental items that are "off-the-shelf" and those requiring "minor modification." DOD can use two-step as a viable "net-value" alternative for getting best value in NDI acquisitions.

2. Subsidiary Question 1: What are the essential characteristics of best-value contracting?

The following features characterize the best-value acquisition process:

- past performance history
- life-cycle costing

- contractor's ability to successfully manage risk
- supportability
- reliability and maintainability of the product
- certification of contractors as preferred suppliers
- inclusion of a price differential factor in source selections for high quality products.

A best-value decision is based on assessing long-term worth instead of the initial acquisition price. Best-value contracting is an integrated process and not a one-time event. The requirements definition is an integral, but sometimes overlooked, step in the best-value process. The evaluation factors are the backbone of the source selection process. The evaluation criteria must be properly identified and appropriately weighted. Evaluation criteria are uniquely tailored to each procurement. Typical criteria include quality-related factors such as reliability and maintainability. The award decision is based upon a tradeoff assessment when considering price and performance differentials between competing offers. The resulting value judgment must be rational, and the thought process consistent to withstand any protest.

3. Subsidiary Question 2: What is a nondevelopmental item acquisition?

NDI represents a philosophical shift in requirements planning and material development. It covers a spectrum of commercially available alternatives, ranging from those items purely "off-the-shelf" to developmental items with NDI subsystems and/or components (Appendix B). The underlying purpose of an NDI acquisition is to minimize or eliminate the need for costly, time-consuming, Government-sponsored research and

development programs. Most respondents felt that "true" nondevelopmental items were commercial products that were "off-the-shelf" or "already in use." The objective of "nondevelopmental" is to acquire commercial alternatives "not requiring development." This does not preclude the possible requirement of Government-funded development. The following summary best captures the true intent of "nondevelopmental:"

> When conducted correctly, an NDI should result in the Government's selection of an existing item which, by either evaluation or testing, demonstrates the potential to meet the user's optimum requirement with a minimum of subsequent development, cost, schedule, or technical risk.

4. Subsidiary Question 3: What features of the two-step process are inherently best-value characteristics?

Though functionally different, two-step has an inherent form of best value. The following features summarize this functionally different but inherent form of best value:

- life-cycle costing
- quality-based evaluation factors
- compliant bid samples.

These features function in a conventional two-step process. Each aspect adds value to the award decision process. The heart of this inherent form of best value is life-cycle costing. A best-value methodology focuses on minimizing life-cycle costs. Cost of ownership is related to best value. LCC is an integral aspect of best-value contracting. It is a measure of long-term worth that is also an inherent form of best

value. Two-step has an inherent form of best value--life-cycle cost. Two-step substitutes life-cycle cost for price as the decision criterion. The criterion for contract award is no longer price. In this manner, two-step allows a pre-stated, non-price factor to influence the source selection. LCC results in a procurement award decision that is "most beneficial" to the Government in terms of offering the lowest estimated total cost of ownership.

The second feature is using quality-based evaluation factors in a two-step process. Best-value contracting emphasizes reliability and maintainability. Likewise, these factors are just as important in the technical evaluation of two-step. These evaluation factors are quality-related considerations. Technical acceptability is based on "conformity" to the requirements. Conformity is, in part, a function of quality which adds value to the overall two-step process. The notion of "prequalification" is different in two-step than in best-value contracting. The first step acts like a "filtering out process," which eliminates unqualified offerors from the second step.

The final aspect is the value added from using bid samples. Best-value contracting measures the likelihood of successful performance or risk. Under a two-step method, bid samples help to better gauge the likelihood of successful performance. A bid sample is similar to a product-like qualification measure. The physical demonstration of the sample can, in part, indicate the likelihood of successful performance. In other words, the physical demonstration reduces risk concerns about a contractor's ability to produce the item even though its primary function is to determine responsiveness. These aspects highlight the inherent characteristics of best value.

5. **Subsidiary Question 4: What are the key impediments in two-step sealed bidding that preclude the use of best value?**

Three significant shortfalls exist in two-step sealed bidding:

- the evaluation and use of past performance
- certification of contractors as preferred suppliers
- inclusion of a price differential factor in source selections for high quality products.

Two-step can only evaluate past performance as a function of a responsibility determination, while best-value contracting can use past performance as a non-price evaluation factor for determining the award of a contract. In FAR Subpart 9.104-1, the regulatory language conflicts with the concept of giving a preference to suppliers based on superior performance. Two-step cannot award a contract to a higher priced offeror or consider differences in prices based on quality differentiation. Ultimately, the award basis is limited to the lowest priced offeror. The award decision is restricted only to "price and price-related factors". Finally, two-step cannot evaluate requirements that exceed the minimum standards of acceptability.

6. **Subsidiary Question 5: How can a two-step method be improved to facilitate its joint use with best value and NDI procurements?**

Three regulatory changes can enhance a two-step process in better using best value. First, the present use of bid samples is too restrictive. A bid sample determines "responsiveness" and not the bidder's ability to produce the required item. However, the bidder's ability to produce the required item is really inseparable from a

determination of responsiveness. The FAR should be amended to reflect a waiver process that allows a bidder's ability to produce the required item to be considered with the determination of responsiveness. In doing so, the "total" physical demonstration will likely facilitate the assessment of risk and better indicate the likelihood of successful performance while not undermining the concept of responsibility.

Next, two-step does not authorize the use of a "supplier" prequalification program. The Packard Commission encouraged such a program in all procurement methods to facilitate quality performance. The Commission recommended the enactment of a statutory provision in the 1987 NDI Preference Act that would authorize DOD to implement a supplier prequalification requirement as part of the comprehensive commercial procurement system mandated by law. The goal is to implement carefully a "Qualified Bidders List" for sole use in NDI acquisitions. In this way, the statutory provision enhances the acquisition of nondevelopmental items and two-step without changing the legislative scope of CICA.

Finally, two-step does not permit the use of a fixed-price-award-fee (FPAF) contract. A FPAF contract could be extremely beneficial in improving a two-step procurement method. The FAR should be amended or a deviation granted for its use. It is a value-based contracting technique that offers unique opportunities and greater flexibility for the Government. The award fee is based on a judgmental evaluation by the Government. The key is to ensure that the evaluation factors are critical and sufficient to motivate contractor performance. This type of contract is suitable for two-step NDI procurements.

E. AREAS FOR FURTHER RESEARCH

1. Develop a DOD-wide implementation handbook on how to use and measure effectively best value.

2. Validate the alternative form of best value and present a detailed analysis of potential procurement situations in which this alternative form of best value is more advantageous than a conventional best-value process.

3. Develop a suitable methodology for an information system to collect meaningful data for purposes of assessing the effectiveness, uses, and trends of NDI procurements. Validate the researcher's strategy plan with a larger sample of NDI acquisitions.

4. Identify the different "price-related" factors that can effectively expand the role of price-only awards while ending the practice of awarding business on the basis of price tag only.

5. Investigate how to improve the responsibility determination process so that an adequate assessment of risk, or the likelihood of successful performance can be measured in price-only contract awards.

6. Develop a return-on-investment (ROI) factor to be used in a two-step process so that the Government has the flexibility to give an evaluation preference (e.g. 10%) to a bidder for having a particular "technology enhancement" that provides long-term LCC savings to the Government.

APPENDIX A: NONDEVELOPMENTAL ITEM DEFINITION

1. United States Code, Title 10, Section § 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 response 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; and

(3) such requirements are fulfilled through the procurement of nondevelopmental items.

(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;

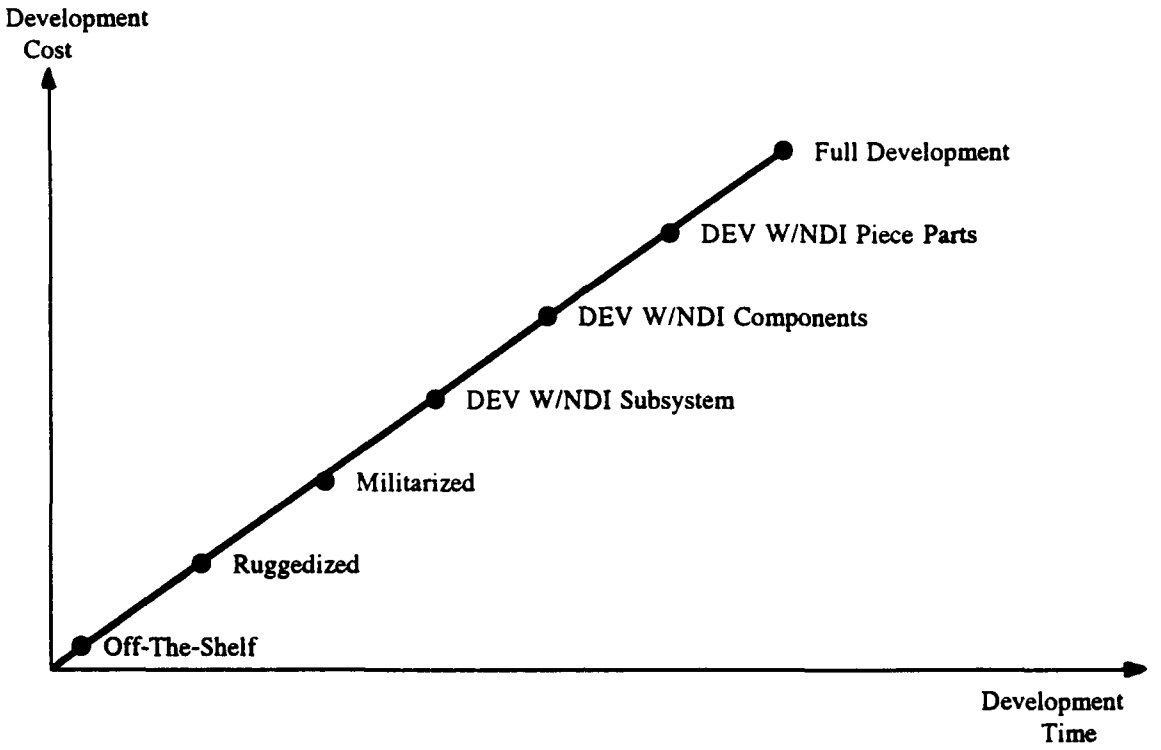
(3) any item of supply described in paragraph (1) or (2) that requires only minor modification in order to meet the requirements of the procuring agency; or

(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 B: NONDEVELOPMENTAL ITEM SPECTRUM



Source: [Ref. 15: p. 2-3].

APPENDIX C: BEST-VALUE CONTRACTING DEFINITIONS

1. Any basis for award that states factors in addition to cost/price will be considered in some relative order of importance to determine the winning proposal [Ref. 51: p. 1].

2. Select the source whose proposal has the highest degree of credibility, and whose performance can be expected to best meet the Government's requirement at an affordable cost. Note that lowest cost is not the overall driving factor for award. The source selection authority is able to balance technical, financial, and economic or business considerations in making an objective and equitable contractor selection. The final result is a qualified contractor who performs well and who provides the best overall value to the Government [Ref. 42: p. 16].

3. That system that gives the government agency the ability to evaluate all aspects of the proposed work--price, quality, time of delivery, and competence of the offeror to perform, and to select the offer that promises the best value to the Government [Ref. 33: p. 1].

4. A source selection in which the Government is not committed to award to the lowest-price acceptable offer, but reserves the right to select the source whose proposal offers the greatest value to the Government in terms of performance and other factors [Ref. 53: p. 2].

5. To provide a quantifiable determination of contractor delivery and quality performance for inclusion into the award process in conjunction with price to achieve best value for the Government [Ref. 50: p. 2].

6. A "best value" is the Government's most advantageous acquisition decision as determined through an integrated assessment of lowest overall cost based on a disciplined and comprehensive evaluation of offers against all requirements specified in the solicitation [Ref. 49: p. 3].

7. The evaluation of a (commercial) product, system of service based on all reasonable factors including but not limited to initial price, life cycle costs, available extended warranties, prior product experience, availability of distribution and service channels, past performance and so forth, for the purpose of producing a product, system, or service that provides optimum satisfaction of the mission needs [Ref. 4: p. 5].

APPENDIX D: INTERVIEW QUESTIONS

A. GENERAL

The following questions attempt to address the issues in determining the feasibility of using two-step sealed bidding for getting "best value" in an NDI procurement.

B. QUESTIONS

1. How would you define best-value contracting as a procurement concept?

2. How would you define the concept of nondevelopment item acquisition?

3. To what extent can the concept of best value be used in two-step sealed bidding?

4. To what extent do we use two-step sealed bidding in nondevelopmental items? Are there any threads or traces of best value?

5. To what degree do you think that best-value contracting and two-step sealed bidding are directly in conflict?

6. In using two-step sealed bidding, does the requirement of "minimum acceptability" restrict the Government's ability to choose the best "technically qualified" offeror in purchasing "nondevelopmental items"?

7. To what extent can two-step sealed bidding result in the procurement of nondevelopmental items which are not the best, in terms of quality, because award of the contract is based on the lowest priced offeror that meets the Government's minimum requirements?

8. Are there any advantages to purchasing a more desirable (technically superior) nondevelopmental item at a very slightly higher bid price?

9. Could the acquisition of nondevelopmental items be improved; if there is a procurement method that encompasses the principles of best value and two-step sealed bidding?

10. Could it be beneficial to award a contract without negotiations while considering price and quality-related factors?

11. Could it be better to use a "band of performance" concept which identifies a minimum level of performance required, and a maximum or limit on how far the Government wants the offeror to exceed the specified minimum? In doing so, would the "band" concept best serve the Government in deriving the "best price" or "best buy"?

APPENDIX E: LIST OF INTERVIEWEES

The following list of names are individuals who participated directly in the interviews conducted.

1. Asch, Larry. Contracting Officer. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 27 August 1992.

2. Carroll, Tom. Legal Counsel. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 16 August 1992.

3. Colangelo, Thomas W. Army Policy Representative to the Defense Acquisition Regulatory Council. Washington, DC. 25 September 1992.

4. Duerinck, Phil. Procurement Branch Chief. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 28 August 1992.

5. Felt, Patricia. U.S. Army Product Manager Office for Mortar Systems. Picatinny Arsenal, NJ. 10 October 1992.

6. Gantt, Silven C. Major (USA). Procurement Officer. U.S. Army Materiel Command (Acquisition Policy Division). Alexandria, VA. 23 September 1992.

7. Gaudio, Lou. Procurement Analyst. Office of the Director for Defense Procurement. Washington, DC. 25 September 1992.

8. Gordon, Harvey J. Director of Government Business Relations. Martin Marietta Corporation. Bethesda, MD. 25 September 1992.

9. Hackett, Robert D. Director. Contract Policies Procurement and Finance. Aerospace Industries Association. Washington, DC. 22 September 1992.

10. John, Bill. Director of Contracting. Department of the Navy. Naval Air Systems Command. Washington, DC. 24 September 1992.

11. Keogh, John. Systems Analyst. U.S. Army Project Manager Office for Mobile Subscriber Equipment. Ft. Monmouth, NJ. 27 August 1992.

12. Korte, Edward. General Counsel. U.S. Army Materiel Command. Alexandria, VA. 25 September 1992.

13. Linke, Silvia. Performance Risk Assessment Group. U.S. Army Materiel Command (Procurement Management Division). Alexandria, VA. 23 September 1992.

14. Love, Kathleen T. Procurement Analyst. U.S. Army Material Command (Procurement Policy Division). Alexandria, VA. 23 September 1992.

15. Maryanski, Dick. Deputy Project Manager. U.S. Army Project Manager Office for TMDE. Redstone Arsenal, AL. 6 September 1992.

16. McKamey, Verne. Procurement Analyst. Office of the Director for Defense Procurement. Washington, DC. 24 September 1992.

17. McKenna, G. Warren. Policy Compliance. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 27 August 1992.

18. Michlik, Martin J. Colonel (USA). Project Manager. U.S. Army Project Manager Office for Night Vision Electro Optical Devices. Ft. Belvoir, VA. 27 September 1992.

19. Onieal, John. Policy Compliance. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 27 August 1992.

20. Piad, Carlos A. Deputy NDI Advocate. U.S. Army Materiel Command. Alexandria, VA. 23 September 1992.

21. Reiley, Mike. U.S. Army Materiel Command (Procurement Management Division). Alexandria, VA. 23 September 1992.

22. Reinhard, Manfred J. Deputy Director for Defense Systems Procurement Strategies. Washington, DC. 24 September 1992.

23. Robertson, Jack. Contracting Officer. U.S. Army Communications and Electronics Command. Ft. Monmouth, NJ. 27 August 1992.

24. Scott, Shelley. U.S. Army Materiel Command (Procurement Management Division). Alexandria, VA. 23 September 1992.

25. Summers, Wilson. Contract Management Department Chairman. Defense Systems Management College. Ft. Belvoir, VA. 22 September 1992.

26. Super, David. Procurement Analyst. U.S. Army Product Manager Office for Mortar Systems. Picatinny Arsenal, NJ. 1 October 1992.

27. Troxel, David. Systems Engineer. U.S. Army Project Manager Office for Night Vision Electro Optical Devices. Ft. Belvoir, VA. 22 September 1992.

APPENDIX F: RESULTS OF AN NDI ACQUISITION SURVEY

A. GENERAL

The information collected represents a small sample (27/195) of nondevelopmental items tracked by the Acquisition Management Milestone System (AMMS). The nondevelopmental items selected for this survey represent a cross-section of products from all the major subordinate commands within the U.S. Army Materiel Command. A telephone survey was conducted. The questions asked and results are tabulated below.

B. SURVEY QUESTIONS

1. What method of procurement is used (competitive or noncompetitive basis?

a. Sealed bidding.

b. Two-step sealed bidding.

c. Competitive proposal.

2. How would you classify the NDI acquisition as it relates to the Title 10 definition?

a. Commercially Available (Off-the Shelf).

b. Already Developed (Foreign or Domestic).

c. Minor Modification.

d. Not Yet Available (Integration).

3. Did the procurement use best-value contracting (yes or no)?

C. RESULTS

	NONDEVELOPMENTAL ITEM	PROCUREMENT METHOD	CLASSIFICATION	BEST VALUE
1.	M119A1 (105mm) HOW LT	Competitive Proposal (Noncompetitive)	Already Developed--Foreign	NO
2.	Machine Gun (40mm) MK19	Two-Step Sealed Bidding	Already Developed by Navy	NO
3.	M24 Sniper Weapon	Competitive Proposal (Competitive)	Minor Modification	NO
4.	120mm Mortar System	Two-Step Sealed Bidding (Competitive)	Already Developed--Foreign	NO
5.	81 mm Mortar System	Competitive Proposal (Noncompetitive)	Not Yet Available--Integration	NO
6.	M9 (9mm) Pistol	Competitive Proposal (Competitive)	Commercially Available Off-the-Shelf	YES
7.	AN/ARN-157 Omega Navigational System	Two-Step Sealed Bidding (Competitive)	Minor Modification	NO
8.	Doppler, Navigation Set	Sealed Bidding (Competitive)	Not Yet Available--Integration	NO
9.	AN/PVS-7 Night Goggle Vision	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
10.	ANVIS/HUD Aviation Night Vision	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
11.	VDR-2 Radiac Set	Sealed Bidding (Noncompetitive)	Minor Modification	NO
12.	Elec. Filmless Camera B	Competitive Proposal (Competitive)	Minor Modification	YES
13.	Fire Support System Dual (FSSD)	Competitive Proposal (Competitive)	Minor Modification	YES
14.	Fire Unit Vehicle Mounted Stinger (FAADS-Avenger)	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
15.	M1 Blade Mine Clearing	Competitive Proposal (Competitive)	Already Developed--Foreign	NO
16.	Roller, Mine Clearing	Sealed Bidding Competitive)	Minor Modification	NO
17.	MOST (Snowmobile)	Competitive Proposal (Competitive)	Minor Modification	YES
18.	Palletized Load System (PLS) Transporter	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
19.	Truck, 6K Forklift	Competitive Proposal (Competitive)	Not Yet Available--Integration	NO

	NONDEVELOPMENTAL ITEM	PROCUREMENT METHOD	CLASSIFICATION	BEST VALUE
20.	M1070 Heavy Equipment Truck Tractor	Competitive Proposal (Competitive)	Not Yet Available--Integration	NO
21.	HMMH Tractor Wheeled w/Forklift/Crane	Competitive Proposal (Noncompetitive)	Not Yet Available--Integration	NO
22.	AN/ULQ-19 Responsive Jammer	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
23.	Mobile Subscriber Equipment (MSE)	Competitive Proposal (Competitive)	Not Yet Available--Integration	YES
24.	R050 (7.5 Ton) Crane Wheel Mounted	Two-Step Sealed Bidding (Competitive)	Not Yet Available--Integration	NO
25.	RTCC, Rough Terrain Crane Wheel	Competitive Proposal (Competitive)	Minor Modification	NO
26.	Landing craft, utility (LCU)	Competitive Proposal (Competitive)	Minor Modification	YES
27.	Logistics Support Vessel (LSV)	Competitive Proposal (Competitive)	Commercially Available Off-the-Shelf	YES

SOURCE: Developed By Researcher

D. DATA SUMMARY

1. Degree of Competition

CATEGORY	NUMBER	PERCENTAGE
Competitive	**23/27**	**.85**
Noncompetitive	**4/27**	**.15**
TOTAL	**27/27**	**100.0**

SOURCE: Developed By Researcher

2. Method of Procurement

PROCEDURES	NUMBER	PERCENTAGE
Sealed Bidding	2/27	.07
Competitive Proposal	17/27	.63
Two-Step Sealed Bidding	4/27	.15
Sole Source	4/27	.15
TOTAL	27/27	100.0

SOURCE: Developed By Researcher

3. NDI Classification (Nature of Use)

CLASSIFICATION	NUMBER	PERCENTAGE
Commercially Available	2/27	.08
Already Developed--Foreign	3/27	.11
Already Developed--Domestic	1/27	.04
Minor Modification	9/27	.33
Not Yet Available	12/27	.44
TOTAL	27/27	100.0

SOURCE: Developed By Researcher

4. Best-Value Contracting (Competitive Proposal)

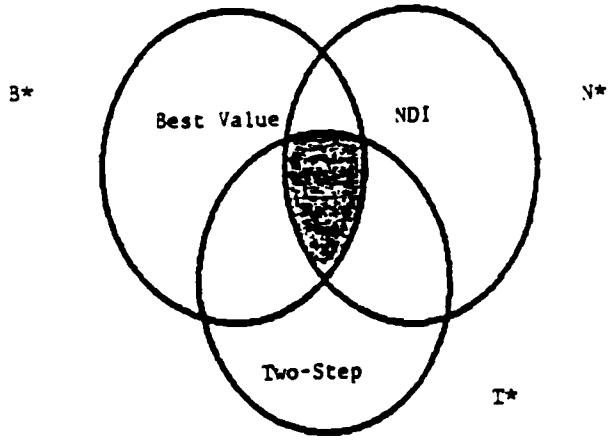
CRITERIA	NUMBER	PERCENTAGE
Yes	12/17	.71
No	5/17	.29
TOTAL	17/17	100.0

SOURCE: Developed By Researcher

APPENDIX G: THE RESEARCH MODEL

A. GENERAL

The objective of this research is to determine the feasibility of using two-step sealed bidding for getting best value in NDI procurements. The following Venn Diagram model provides a framework for examining the researcher's inquiry into this matter.



Shaded Area Represents

Overlapping Ideas of Methods

Source: Developed By Researcher

B. DEDUCTIVE ARGUMENT

The Venn Diagram above is based on the following syllogism or deductive argument in which a conclusion is inferred from two premises.

1. **Description of Proposed Argument:**

Premise: A nondevelopmental item acquisition can use the concept of best value.
Premise: Some NDI acquisitions use two-step sealed bidding.

Conclusion: Therefore, two-step sealed bidding can use the concept of best value.

2. **Schematic Flow of Argument:**

```
*N  -  B*
 N  -  T*
---------
∴ T  -  B
```

Note: ∴ -- Symbol denotes "therefore"

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