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NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**A STUDY OF THE ALPHA CONTRACTING PROCESS
AND ITS EFFECTS ON INTEGRATED PRODUCT AND
PROCESS DEVELOPMENT (IPPD) WITHIN SELECTED
ARMY ACQUISITION PROGRAMS**

by

Andrew F. Clements

March 2002

Thesis Advisor:

E. Cory Yoder

Thesis Co-Advisor:

Lee Edwards

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INTEGRATED PRODUCT AND PROCESS DEVELOPMENT (IPPD) WITHIN
SELECTED ARMY ACQUISITION PROGRAMS**

Andrew F. Clements
Captain, United States Army
B.S., United States Military Academy, 1991

Submitted in partial fulfillment of the
requirements for the degree of

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from the

**NAVAL POSTGRADUATE SCHOOL
March 2002**

Author: Andrew F. Clements

Approved by: E. Cory Yoder, Thesis Advisor

Lee Edwards, Thesis Co-Advisor

Kenneth J. Euske, Dean
Graduate School of Business and
Public Policy

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ABSTRACT

This thesis evaluates the sole-source method of Alpha Contracting in the Army's HMMWV, Bradley A3, and AFATDS acquisition programs and examines the advantages and disadvantages associated with its implementation. Specifically, the research focuses on the effects of Alpha Contracting on the Integrated Product and Process Development (IPPD) concept and its associated use of Integrated Product Teams (IPTs). The objective is to determine if Alpha Contracting, in concert with the IPPD process, supports DoD's ultimate acquisition goal of providing warfighters with effective systems on schedule at an affordable cost. Ultimately, this analysis will lead to the development of a set of recommendations for its implementation in future acquisition endeavors. The research conducted for this thesis includes an analysis of the Alpha Contracting process, an in-depth review of the IPPD management process, a detailed examination of current Army acquisition programs utilizing the Alpha Contracting process to determine the extent of its advantages and disadvantages, and an analysis of the cause and effect of any failed expectations of the process.

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LIST OF ABBREVIATIONS

ACAT	Acquisition Category
AFATDS	Advanced Field Artillery Tactical Data System
BMOA	Business Memorandum of Agreement
BOE	Basis of Estimates
BOM	Bill of Materials
CAIV	Cost as an Independent Variable
CDRL	Contract Data Requirements List
COR	Contracting Officer's Representative
CPAF	Cost-Plus-Award-Fee contract
DCAA	Defense Contract Audit Agency
DCMA	Defense Contract Management Agency
DoD	Department of Defense
EBC	Embedded Battle Command
EMD	Engineering and Manufacturing Development
FASA	Federal Acquisition Streamlining Act
FBCB2	Force Twenty-One Battle Command Brigade and Below
FIST DMD	Fire Support Digital Message Device
FPRA	Forward Pricing Rate Agreement
FY	Fiscal Year
HMMWV	High Mobility, Multi-Purpose Wheeled Vehicle
IC3	Integrated Command and Control
ID/IQ	Indefinite Delivery/Indefinite Quantity
IFB	Invitation for Bid
IPPD	Integrated Product and Process Development
IPT	Integrated Product Team
IRV	Improved Recovery Vehicle
J&A	Justification and Approval
JMENS	Joint Mission Element Needs Statement
LRIP	Low Rate Initial Production
MENS	Mission Element Needs Statement
O&M	Operations and Maintenance
OSD	Office of the Secretary of Defense
P3I	Pre-Planned Product Improvement
PA	Procurement Analyst
PCO	Procuring Contracting Officer
PDSS	Post Deployment Software Support
PM	Program Manager
PR	Purchase Request
PROCAS	Process Oriented Contract Administration Services
RDD	Required Delivery Dates
RFP	Request for Proposal
RSC	Raytheon Systems Corporation
SEAD	Suppression of Enemy Air Defenses

SOW	Statement of Work
SPC	Statistical Process Control
TACOM	U.S. Army Tank-Automotive and Armaments Command
TSM	Training and Doctrine Command (TRADOC) Systems Manager
UDLP	United Defense Limited Partnership
VTC	Video Tele-Conferencing

I. INTRODUCTION

A. PURPOSE

The purpose of this thesis is to evaluate the sole-source method of Alpha Contracting in selected Army acquisition programs and to examine possible advantages and disadvantages associated with its implementation. Specifically, the research will focus on the effects of Alpha Contracting on the Integrated Product and Process Development (IPPD) concept and its associated use of Integrated Product Teams (IPTs). The intent is to determine if Alpha Contracting, in concert with the IPPD process, supports DoD's ultimate acquisition goal of providing warfighters with effective systems on schedule at an affordable cost. Additionally, this analysis will lead to the development of recommendations for its implementation in future acquisition endeavors.

B. SCOPE

This thesis will evaluate the Alpha Contracting process as it has been applied in the following Army acquisition programs by analyzing its overall effect on the IPPD process: High Mobility, Multi-Purpose Wheeled Vehicle (HMMWV), Bradley A3, and Advanced Field Artillery Tactical Data System (AFATDS). The research will focus on each program's integration of the ten basic tenets of the IPPD process as outlined by Secretary of Defense William J. Perry in his memorandum dated 10 May 1995 (Ref. 13). It will also include an analysis of the innovative successes, as well as barriers to IPPD implementation within each program to which an Alpha Contracting arrangement may have contributed. It is the intent of this thesis to capitalize on both the enablers and the inhibitors to the successes of an Alpha Contracting relationship. As a result of this analysis, a set of recommendations and considerations for employment in future acquisition endeavors will be developed.

C. METHODOLOGY

The information utilized in the development of this thesis was obtained through an examination of current literature and periodicals, as well as through the conduct of

telephonic and personal interviews. Because site visits were not considered advantageous in assessing the formulation of IPPD and Alpha Contracting structures, all information specific to the three acquisition programs was collected through electronic mail and telephone interviews.

The three programs chosen for inclusion in this study were selected because of their satisfaction of three criteria. First, only Army acquisition programs were considered, which narrowed the field of study to service-specific requirements and mission intent. Secondly, each program analyzed in this thesis has engaged in an Alpha Contracting method of sole-source procurement. Finally, each program in the study has awarded at least one contract, initial or follow-on, utilizing an Alpha Contracting relationship between Government and contractor. Additionally, the intent was to address both ACAT I and non-ACAT I programs to identify possible variations in implementation due to level of procurement.

The information regarding each of these programs was obtained through correspondence with those Government personnel who had intimate knowledge and daily contact with their respective contractors. Their responses to surveyed questions and electronic mail inquiries regarding the program-specific structure of the IPPD process were instrumental in the development of this thesis. In each case, the source of data was the Procurement Contracting Officer (PCO), the Procurement Analyst (PA) or the Contracting Officer Representative (COR) for each program. Each of these individuals had significant influence over the development of their respective contracts, as well as the working relationship that developed between buyer and seller.

D. RESEARCH QUESTIONS

The primary research question is: How has the Alpha Contracting process been applied to Army acquisition programs to enhance the IPPD process? The subsidiary research questions are as follows:

1. What is the IPPD process? What are its objectives and how has it been implemented in Army acquisition programs?

2. What is Alpha Contracting? How does it differ from traditional sole-source contracting?
3. How has the utilization of Alpha Contracting effected the IPPD process within the following Army programs: HMMWV, Bradley A3, and AFATDS?
4. What enablers of Alpha Contracting have led to the successful implementation of the IPPD process in the afore-mentioned programs?
5. What are the potential inhibitors of Alpha Contracting in the implementation of the IPPD process in each of these Army programs?
6. How can the potential inhibitors to implementing the IPPD process within an Alpha Contracting relationship be addressed or overcome?

E. ORGANIZATION OF STUDY

Chapter I provides a basis for the study by outlining the scope and methodology for conducting the analysis to answer the primary and subsidiary research questions.

Chapter II provides a detailed literature review of the Alpha Contracting process, including its advantages and disadvantages, as well as its variation from the traditional sole-source method of contracting. This chapter will also provide an in-depth review of the IPPD management process, its objectives, and the utilization of the basic IPPD tenets in its implementation.

Chapter III presents the information obtained from extensive research conducted on the three selected Army acquisition programs. An extensive analysis of each program's IPPD structure was conducted by examining their application of the basic IPPD tenets. The data was analyzed to determine how the implementation of Alpha Contracting has effected each program's integration of these tenets into the IPPD process. The analysis indicates how each program has implemented the IPPD process and highlights the unique applications each program has integrated into the process.

Chapter IV identifies the enablers and inhibitors to the successful implementation of the IPPD process within an Alpha Contracting relationship, based on the data gathered from each of the Army programs presented in Chapter III.

Chapter V presents conclusions and offers recommendations and considerations for the implementation of Alpha Contracting into future Army acquisition endeavors. This chapter also presents areas for further research.

F. RESEARCH APPLICATION

The intended primary beneficiaries of this thesis are Army acquisition programs engaged in a sole-source contracting environment. The lessons learned from the implementation of Alpha Contracting in these programs may be applied to future programs to capitalize on its benefits and to address early in the acquisition cycle any potential inhibitors to success.

II. BACKGROUND

A. INTRODUCTION

In May of 1995, Secretary of Defense William J. Perry directed the implementation of a fundamental change in the way the Department of Defense acquires goods and services (Ref. 13). This was a result of numerous studies initiated to address recognized inefficiencies in the acquisition process to reduce program costs, decrease the acquisition cycle time, and enhance the performance of the acquired systems. Two of the acquisition reform initiatives that resulted from this mandate were Alpha Contracting and the Integrated Product and Process Development (IPPD) concept.

This chapter presents a detailed background discussion of each of these initiatives and describes the relationship that exists between them when utilized together in acquisition efforts. The discussion of the IPPD process will focus around its conception, the use of Integrated Product Teams (IPTs), and the implementation of the ten basic tenets of IPPD. The review of the Alpha Contracting process will include its variation from the traditional sole-source contracting arrangement, as well as the method by which it is implemented within the acquisition process.

B. INTEGRATED PRODUCT AND PROCESS DEVELOPMENT (IPPD)

1. Background and Definition

IPPD was adopted as an acquisition concept from a Government realization of the necessity to streamline the way it conducts the business of acquiring goods and services. It's initial objective was to initiate a shift within DoD from an environment of regulation and enforcement to one of incentivized performance (Ref. 7). IPPD is defined by DoD as:

A management process that integrates all activities from product concept through production/field support, using a multifunctional team, to simultaneously optimize the product and its manufacturing and sustainment processes to meet cost and performance objectives (Ref. 8).

IPPD has its roots in the production practices that were utilized by U.S. industry in the early 1980s when the concept of integrated design was initially implemented to improve global competitiveness. The use of this type of management technique revolutionized the design process by incorporating not only the technical aspect of the desired system, but all the functional disciplines involved in the design, development, manufacture, distribution, support, and management of products and services (Ref. 7).

Several Government actions led to DoD formally adopting the IPPD concept and principles based on the industry standard mentioned above. The Federal Acquisition Streamlining Act (FASA) of 1994 simplified the acquisition of commercial items and allowed DoD to explore innovative acquisition procedures under statutory pilot program authority. The Secretary of Defense also initiated a reengineering process to highlight the required changes in the oversight and review process that facilitates DoD's supervisory role of maintaining the principles necessary in meeting the warfighter's needs. Additionally, a Defense Manufacturing Council Review produced a report that proposed the following changes:

Paradigm changes are required in OSD/Service oversight by shifting from regulation and enforcement to incentives; from functional isolation to integrated team action; from performance focus to looking at cost as an independent variable; from classic acquisition to a tailored, innovative approach; and from end-item focus to emphasis on the total system to include life-cycle products and processes (Ref. 7).

This paradigm shift relies on the total commitment of senior management, as well as a substantial change in the way both the Government viewed its acquisition strategies.

Finally, the Defense Science Board produced a report on Engineering in the Manufacturing Process in March of 1993 that recommended a shift from product focus to process focus. The most significant result published by this board, however, was the emphasis on the understanding of the entire manufacturing process from the earliest point in the developmental stage. This could only be accomplished by involving decision makers from all the functional disciplines early in the process to ensure all viewpoints were considered.

2. Concept

The concept of the IPPD process is an integrated team effort within DoD and contractor organizations that controls the evolution of an optimally balanced system to satisfy customer needs and to provide data and products required to support acquisition management decisions (Ref. 8). It is based on a systems engineering process that integrates the functions of all representative elements of a program into the decision making process. IPPD focuses on the customer by understanding the various levels of the user's needs and establishing realistic requirements early in the acquisition life cycle.

It further facilitates the concurrent development of the process and the product that results from it by bringing to bear all available resources and functional expertise on system design and supportability. A generic model of the IPPD process is illustrated below in Figure 1.

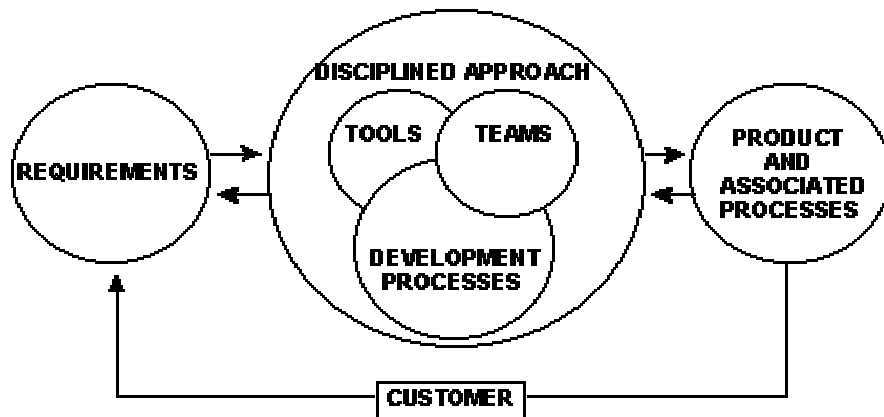


Figure 1. Generic IPPD Process (From Ref. 7)

3. IPPD Tenets

Although the implementation of IPPD within a particular program is product and process specific, there are ten basic tenets outlined in DoD's IPPD Guide that are inherently crucial to effectively integrating the process into any acquisition effort (Ref. 7). It is the application of these basic tenets that will serve as the primary tool by which to examine the IPPD process as it has been implemented in the three Army acquisition programs analyzed in this thesis. Each of the 10 tenets will be discussed in turn.

1. Customer Focus
2. Concurrent Development of Products and Processes
3. Early and Continuous Life Cycle Planning
4. Maximize Flexibility for Optimization and Use of Contractor Approaches
5. Encourage Robust Design and Improved Process Capability
6. Event-Driven Scheduling
7. Multi-Disciplinary Teamwork
8. Empowerment
9. Seamless Management Tools
10. Proactive Identification and Management of Risk

a. Customer Focus

The primary objective of IPPD is to meet customer's needs by providing the customer with a quality system at an affordable cost and on schedule. The warfighter is the one who determines what the product should be and what requirements must be met.

b. Concurrent Development of Products and Processes

Processes implemented to develop specific products should mature and continually develop along with the products they support. It is critical that the processes used to manage, develop, manufacture, verify, test, deploy, operate, support, train people, and eventually retire the product be considered during product design and development. Product and process design and performance are kept in balance to achieve life-cycle cost and effectiveness objectives. Early integration of design elements can result in lower costs by requiring fewer costly changes late in the development process (Ref. 7).

c. Early and Continuous Life Cycle Planning

Planning for a product and its processes begins early in the science and technology phase (especially advanced development) and extend throughout every product's life cycle. Early life cycle planning, which includes customers, functions, and suppliers, lays a solid foundation for the various phases of a product and its processes. Key program activities and events should be defined so that progress toward achievement of cost-effective targets can be tracked, resources can be applied, and the impact of

problems, resource constraints and requirements changes can be better understood and managed (Ref. 7).

d. Maximize Flexibility for Optimization and Use of Contractor Approaches

Requests for Proposals (RFPs) and contracts should provide maximum flexibility for employment of IPPD principles and use of contractor processes and commercial specifications, standards and practices. They should also accommodate changes in requirements and incentivize contractors to challenge requirements and offer alternative solutions that provide cost-effective solutions (Ref. 7). This tenet especially lends itself to the application the Alpha Contracting process within an IPPD framework.

e. Encourage Robust Design and Improved Process Capability

This notion includes the use of advanced design and manufacturing techniques that promote: (1) achieving quality through design, products with little sensitivity to variations in the manufacturing process (robust design), (2) a focus on process capability, and (3) continuous process improvement are encouraged. Variability reduction tools such as Statistical Process Control (SPC) and Lean Thinking/Manufacturing concepts are encouraged (Ref. 7).

f. Event-Driven Scheduling

A scheduling framework will be established which relates program events to their associated accomplishments and accomplishment criteria. An event is considered complete only when the accomplishments associated with that event have reached completion as measured by the accomplishment criteria. This event-driven scheduling reduces risk by ensuring that product and process maturity are incrementally demonstrated prior to beginning follow-on activities (Ref. 7).

g. Multi-Disciplinary Teamwork

Multidisciplinary teamwork is essential to the integrated and concurrent development of a product and its processes. The “right people at the right place at the right time” are required to make timely decisions. Team decisions, as a result of risk assessments, are to be based on the combined input of the entire team (technical, cost, manufacturing and support functions and organizations) including customers and

suppliers. Each team member needs to understand his/her role and support the roles of the other members, as well as understand the constraints under which team members operate (Ref. 7).

h. Empowerment

Decision-making should be at the lowest possible level commensurate with risk. Resources should be allocated to levels consistent with risk assessment authority, responsibility and the ability of people. The IPPD team should be given the authority, responsibility, and resources to manage its product and its risk commensurate with the team's capabilities. The authority of team members needs to be defined early on and understood by the individual team members. It is necessary that the team accepts responsibility and is held accountable for the results of its efforts. Management practices within the teams and their organizations must be team-oriented rather than structural-, functional-, or individual-oriented (Ref. 7). In other words, teaming relationships must be established that work in harmony with traditional organizational reporting structures while simultaneously superseding any personal ambitions that could affect the accomplishment of team-oriented goals.

i. Seamless Management Tools

An operational framework should be established that relates products and processes at all levels to demonstrate their interrelational dependencies upon one another. This operational framework defines the procedures that teams within the IPPD process must follow in order to realize the desired outcome of a product that passes the scrutiny of all the individual team members. A management process system must be established that relates requirements, planning, resource allocation, execution and program tracking over the product's life cycle. This integrated or dedicated approach helps ensure teams have the available information to enhance team decision making at all levels. Capabilities need to be provided to share technical, industrial, and business information throughout the product development and deployment life cycle through the use of acquisition and support shared information systems and software tools (including models) for accessing, exchanging, validating, and viewing information (Ref. 7).

j. Proactive Identification and Management of Risk

Critical cost, schedule and technical parameters related to system characteristics must be identified from risk analyses and user requirements. Technical and business performance measurement plans, with appropriate metrics, should be developed and compared to best-in-class government and industry benchmarks to provide continuing verification of the effectiveness and degree of anticipated and actual achievement of technical and business parameters (Ref. 7).

The utilization of these key tenets within the IPPD process is crucial to establishing a truly integrated team effort within DoD and contractor organizations, as well as with each other. This process is implemented through the use of cross-functional teams made up of representatives from all the functional areas in the program. These teams work towards the development of a specific product by adhering to the key tenets described above.

4. IPTs as an IPPD Enabler

One of the most critical of these tenets specifically addresses the use of multi-disciplinary teamwork to integrate and concurrently develop the product and its associated processes. This is accomplished through the use of Integrated Product Teams (IPTs), which are composed of representatives from all of the functional disciplines involved in the design and development of the system. The purpose of the IPT is to make team decisions based on timely input from the entire team (e.g. program management, engineering, manufacturing, test, logistics, financial management, contracting personnel, contract administration), including the customer and the supplier. This is accomplished by the team working together with a team leader to achieve successful and balanced programs, identify and resolve issues, and make sound and timely decisions (Ref. 8).

In January of 1995, the Under Secretary of Defense for Acquisition and Technology, Paul G. Kaminski, made the following remarks regarding the need for IPTs to streamline the current acquisition process:

We must move away from a pattern of hierarchical decision-making to a process where decisions are made across organizational structures by integrated product teams. It means we are breaking down institutional barriers. It also means that our senior acquisition staffs are in

a receive mode – not just a transmit mode. The objective is to be receptive to ideas from the field to obtain buy-in and lasting change (Ref. 26).

Critical to the successful formation of these IPTs are: (1) all functional disciplines influencing the product throughout its lifetime should be represented on every team; (2) a clear understanding of the team's goals, responsibilities, and authority should be established among the program manager, each IPT leader, and every team member; and (3) identification of resource requirements such as staffing, funding, and facilities (Ref. 8). Having all of the program's functions represented on every decision-making team allows the IPT to concurrently consider possible alternative solutions to given problems and to evaluate any proposed courses of action. Once on a team, the role of an IPT member changes from that of a member of a particular functional organization, who focuses on a given discipline, to that of a team member, who focuses on a product and its associated processes (Ref. 7). As each individual member contributes his expertise to the team, the IPT as a whole will become more knowledgeable and understanding of the team's objective, as well as the program's overall goals.

To maintain the necessary level of oversight and review, several levels of IPTs exist for every program to assist Program Managers in building balanced and successful programs that comply with DoD requirements. Because of their level of funding and/or visibility to Congress, an Overarching IPT is created for Acquisition Category (ACAT) 1D programs to assist in strategy formulation and cost/schedule management. At the program level, however, Working Level IPTs are formed to provide for program-specific execution and development. These IPTs, formed by the Program Manager, are to be functionally based and tasked to identify and resolve functional area-specific issues (e.g. supportability, engineering, testing). Additionally, an Integrating IPT may be formed at the program level to provide oversight and guidance to the Working Level IPTs. The team leader from each Working Level IPT serves as that functional area's expert and becomes a team member in the Integrating IPT. A generic program IPT structure is illustrated below in Figure 2.

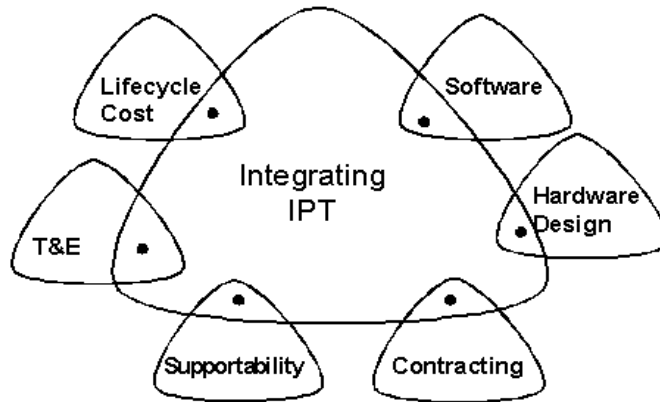


Figure 2. Generic IPT Structure (From Ref. 8)

The research collected for this thesis will concentrate on the Working Level IPTs formed within the IPPD structure for each of the three Army acquisition programs: HMMWV, Bradley A3, and AFATDS.

C. ALPHA CONTRACTING

1. Background and Definition

Alpha Contracting is an acquisition reform initiative that strives to streamline the sole-source contracting process. Although full and open competition is preferred because of its ability to seek out the fairest price and best value to the Government, sole-source contracts still represent a large part of our acquisition process today. With the disappearance of the Defense Industrial Complex and the consolidation of major defense contractors, the likelihood of utilizing a sole-source for development is increasing. The Alpha Contracting approach encourages early interaction and cooperation between the contractor and the Government during traditional pre-solicitation, solicitation, negotiation and award phases to implement a quicker, more cost efficient process into the contract.

Alpha Contracting capitalizes on the teaming of the Government and the contractor during the early stages of the acquisition process. One of the functions of this early teaming is to identify duplicative, burdensome and costly oversight requirements that do not provide an added value to the Government (Ref. 19). By making the contractor part of the planning process from the outset, the Government facilitates a much

better understanding of the actual requirements of the contract and, as a consequence, allows the contractor to propose more cost effective and innovative solutions in designing and producing the required product or supplies.

Alpha Contracting exploits the principles of concurrent and integrated, rather than serial development in the process to reduce the overall acquisition cycle time (Ref. 30). This is accomplished through the creation of an IPT whose membership consists of both Government and contractor personnel. This teaming of representatives from both organizations from the very beginning of the process allows for the concurrent development of the scope of work, the price and cost of the work to the Government, and the preparation of the finalized contract to execute the work.

2. Traditional Sole-Source Contracting Process

Although full and open competition continues to be the preferred method of contracting for products and services within the Government, sole-source procurement still represents a substantial portion of the Federal acquisition process today. As early as 1990, statistical studies conducted by the Federal Procurement Data Center showed that 32.8 percent of DoD procurement dollars were awarded on a non-competitive, or sole-source basis (Ref. 29). An illustration of the traditional sole-source contracting method is depicted in Figure 3 below.

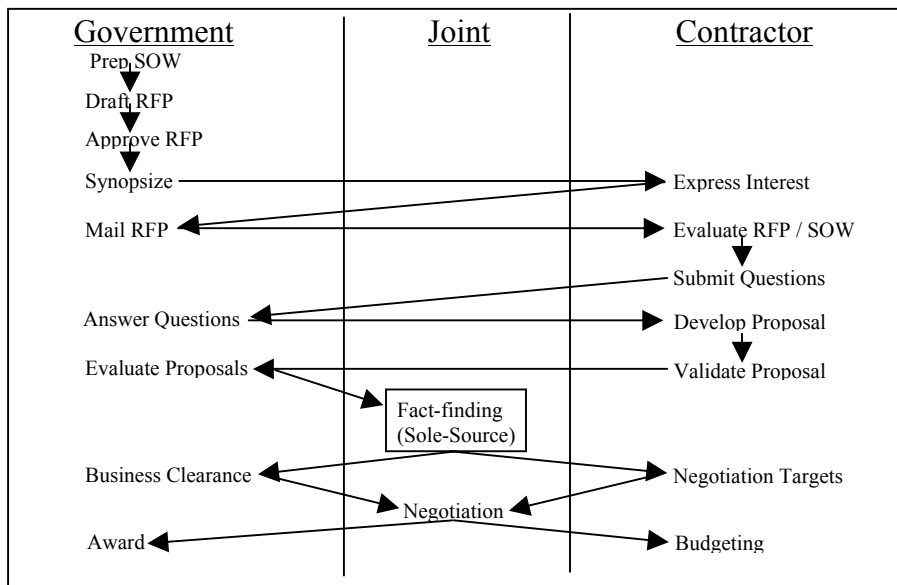


Figure 3. Traditional Sole-Source Contracting Process (From Ref. 22)

Once sole-source procurement is justified and approved through one of the seven exceptions to full and open competition, the traditional process functions much like any other negotiated contract except that the process involves only a single offeror (Ref. 30). The user, or customer who requires the end product, prepares a Statement of Work (SOW) and Purchase Request (PR) with the assistance of the associated Program Office and forwards it to the Procurement Office. Once it is received there, the responsible contracting officer reviews the requirements that have been outlined in the SOW. The PR is delegated to contract specialists and purchasing agents who translate the requirements into a draft Request for Proposal (RFP). After integrating the different portions of the RFP from the various specialists within the office, the contracting officer reviews the complete RFP, approves it, and forwards it on to the contractor.

Once the contractor receives the RFP, the proposal preparation process begins. The proposal is divided among the contractor's functional areas for evaluation. After a thorough assessment, the contractor consolidates questions on the RFP and submits them back to the Government. After staffing the questions asked, answers from the program and contracting offices are sent back to the contractor. Finally, a proposal is developed by the contractor and forwarded to the Government.

The proposal, once in the Government's possession, is disseminated among the staff for technical, cost and price evaluation. Government representatives choose between sending the contract to the Defense Contract Audit Agency (DCAA) for cost and pricing evaluation, if necessary, and evaluating the proposal within the contracting office. After initial evaluation, a fact-finding meeting takes place between the Government and contractor for discussions and clarifications on the contract. In most cases, this is the first face-to-face meeting conducted in the process. After the fact-finding meeting, the contractor representatives regroup to produce target figures and prepare negotiation tactics (Ref. 30). The Government contracting officer develops objectives, positions, strategy and tactics while preparing his team for negotiations. This leads to the scheduling of future negotiation meetings.

Tweaking of the formal documents (e.g., SOW, RFP) and additional memorandum questions further lengthen this process. The formal documents may go

through numerous iterations of pen changes before both sides agree with their contents. This process within a process exacerbates the effects of this “over the fence” mentality of contracting. “Over the fence” refers to the strict adherence to the rigidly formal lines of authority that exist on both the Government and contractor sides of the traditional contracting process. Because of the infrequent interaction of representatives from each organization, agents from the Government and contractor are not familiar with one another and have not invested the time to develop a sense of trust with each other. Their working relationship up to this point consists of the exchange of a set of formal documents and possibly the recognition of each other’s voice on the telephone. Having not yet met face-to-face (in most cases), the process is less than familiar, and by its very nature, may even have become adversarial enough to foster the possibility of a “win-lose” outcome rather than a “win-win”.

At the negotiation meetings, the Government contracting officer’s team arrives with minimum and maximum allowable levels prepared in the Pre-Negotiations Business Clearance Memorandum. The contractor’s representatives typically receive similar approval from their corporate executives. This is a team against a team process with both teams working towards their targets. Information is only shared between teams if it is part of the negotiation process (Ref. 30). To share information may lead to the opposing team moving the final objective of the handshake towards their target goal.

If negotiation objectives have been met and the parties reach agreement on cost and pricing elements, the Government awards the contract. Once the award has been made, the representatives return to their parent organizations and initiate the necessary funding and production planning to execute the contract. This ushers in another period of elusive interaction characteristic of the “over the fence” methodology, where a contract administration structure takes over and new personnel are assigned to work with the contractor. This again facilitates a lack of familiarity between the Government and contractor organizations. This continued process of sending information back and forth “over the fence” can be arduous and lengthy. The majority of the work performed by both parties is completed independently and many times, by different individuals. The longer this process takes, the higher the risk of proposal changes, such as shifts in market

price of direct materials or direct labor needed for the contract. This lengthy process can lead to strains on both the Government and contractor relationships.

3. Alpha Contracting Process

Exhaustive searches of both the Defense Acquisition Deskbook and a vast library of DoD archives has revealed that very little background literature exists regarding the Alpha Contracting process. Primarily, the literature that has been produced on this subject has been provided through “Lessons Learned” articles in Army and Navy research and development periodicals. DoD’s efforts to publish guidance regarding this streamlining initiative are limited to a ‘Tools and Techniques Guidebook’ and the ‘Best Practices Handbooks’ that have been released by a few of the Army’s major commands. This limited amount of available research material can be attributed to the fact that implementing the Alpha Contracting process into DoD acquisition programs is a relatively new practice. Born out of the necessity for acquisition reform, it has slowly become more prevalent in the sole-sourcing environment in the last six or seven years.

The majority of the information regarding the mechanics of the Alpha Contracting process explained in the paragraphs below was obtained from a previous master’s thesis on the early implementations of Alpha Contracting in DoD. Additionally, the information provided below is a collection of the research derived from the three Army acquisition programs and their interpretation of how the Alpha Contracting process functions.

Unique to the Alpha Contracting process is the formation of an IPT in the earliest stages of development that brings together representatives from both the Government and contractor to jointly perform the entire contracting process. Typically, on large procurements, representatives from DCAA, Defense Contract Management Agency (DCMA), the Government program office, and the contracting officer combine with the contractor representatives to form the Alpha Contracting team (Ref. 30). Figure 4 on the following page outlines the streamlined Alpha Contracting process.

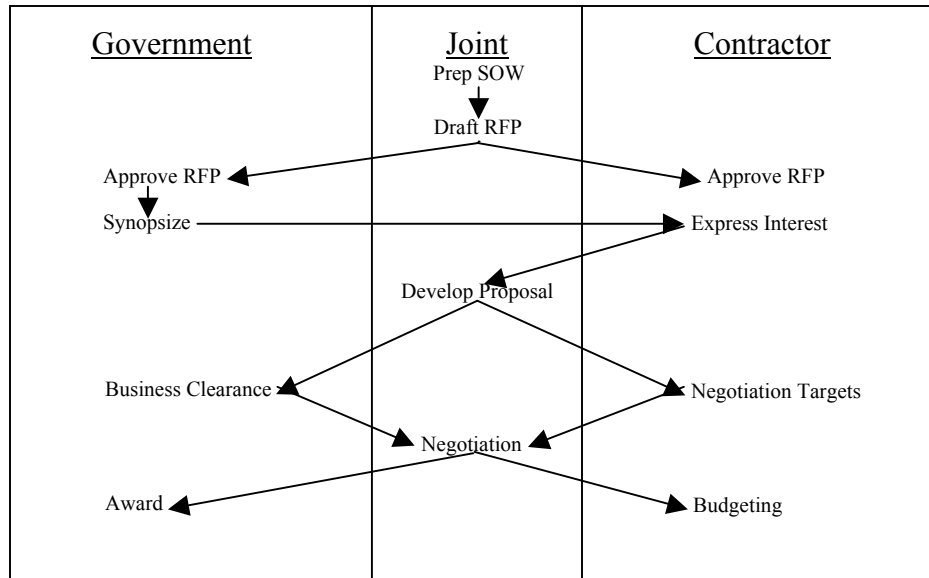


Figure 4. Alpha Contracting Process (From Ref. 22)

The Alpha Contracting process begins with an initial meeting scheduled with all IPT members to jointly prepare the SOW, specifications, Contract Data Requirements List (CDRL) and draft RFP. Already this process distinguishes itself from the traditional method because of an early supplier involvement. This interaction immediately begins to strip away the rigid structure that exists in the traditional method and works to optimize the amount of communication and interaction between the two organizations. Once the draft SOW and RFP are produced, the program office approves or seeks approval of the RFP via appropriate DoD channels. Concurrently, the contractor executives review and provide feedback to the contractor team members (Ref. 30).

At the next set of meetings, the IPT jointly develops the proposal. The interactive nature of the Alpha Contracting process continues to facilitate a better understanding of requirements and capabilities that results from a face-to-face meeting of those involved. An increased sense of trust and familiarization between the representatives allows for the development of a more accurate and complete proposal to be forwarded to the Government and contractor offices. The Government personnel in the IPT are then granted a pre-negotiation business clearance memorandum while the contractor personnel in the IPT are given feedback for negotiation targets from senior executives (Ref. 30).

The goal here is for both parties to be thoroughly familiar with all contract requirements, noting the build-up of costs, and to have the ability to voice any concerns early in the process (Ref. 39). If these early concerns are handled with full trust and honesty, the alpha contracting process should significantly streamline the proposal and award processes. The IPT environment eliminates costly and time consuming delays associated with the traditional “over the fence” approach.

The third set of meetings constitutes the actual contract negotiation process. The same IPT that has developed the RFP and proposal now negotiates any remaining differences into the final contract. By this point in the process, the rigid and formal structure that normally characterizes the traditional method has been transformed into one of familiarization and understanding of each organization’s goals and procedures. The outcome of negotiations is contract award. This process is highly streamlined with the key vehicle being a joint effort to produce the contract. Knowledgeable individuals work together on problem solving and answers instead of transferring memos and formal documents from one office to another.

As Figure 4 illustrates, the majority of the work performed in the Alpha Contracting process takes place within the joint column. By developing and completing the formal documents that constitute the contracting process, as well as implementing an informal communication chain between team members, Government and contractor personnel enhance the working relationship necessary for project completion. Continuing to each successive phase of the process is contingent upon the complete agreement of all IPT members, which calls for the commitment of everyone involved to the end goal of contract award and product development.

According to authors Dobler and Burt, “probably 90 percent or more of the time involved in a successful negotiation is invested in preparing for the actual face-to-face discussions” (Ref. 6). With Alpha Contracting, the anticipation and anxiety of preparing for the initial face-to-face meeting of negotiations is eliminated because of the familiarization that exists from the previous joint IPT sessions held between Government and contractor personnel. Consequently, the conduct and outcome of these meetings tend to reflect a degree of trust that has been established between the two parties because of

the increased communication and interaction that has taken place up to this point in the process. Conceptually, the enormous amount of time spent separately preparing for this traditional first meeting has been invested in side-by-side development of the contract documents that, in the Alpha Contracting process, already represent the vested interests of both organizations (Ref. 5).

D. MARRIAGE OF IPPD AND ALPHA CONTRACTING CONCEPTS

The ultimate goal of the DoD acquisition process is to provide the warfighter with world-class equipment and systems at an affordable cost and on a schedule that is responsive to his need. Both Alpha Contracting and the IPPD process are concepts that, even when implemented independently of one another, contribute to the successful development of a program. Alpha Contracting facilitates the IPPD process by effectively utilizing Government/Contractor integrated, multi-disciplinary teams to streamline the traditional contracting process and reduce overall acquisition cycle time.

The Alpha Contracting process capitalizes on the use of the traditional concept of IPTs by integrating the contractor into these teams from the very beginning of the process. DoD crafts the basic acquisition strategy, usually with industry assistance. Contractors play a significant role in the development, design, and manufacturing of the system, with DoD serving in the management role. Both organizations participate in each other's major activities through joint IPT team membership, and the implementation and use of available tools and current technology (Ref. 39).

E. SUMMARY

Implementation of the IPPD management philosophy within DoD acquisition programs allows for the early integration of business, contracting, manufacturing, test, training, and support considerations in the design process. Conceptually, by involving key stakeholders early and throughout in all program-related decisions, the bulk of changes and revisions happen earlier in development when the cost of these changes are lower, which results in lower overall program costs (Ref. 1). Alpha Contracting, when integrated into the IPPD process, allows for the joint development and understanding of contract requirements by including Contractor representatives in the IPT structure early

and throughout this process. This early interaction facilitates the breakdown of the rigid structure of formal communications that exists in the traditional contracting method and allows for the joint development of contract requirements. By working together, Government and Contractor representatives preclude the necessity to route draft documents and products sequentially through the respective approval authority chains. It also provides the Government with a more thorough understanding of the contractor's technical and financial capabilities to elicit the best approach to meeting the requirements of the customer.

Theoretically, this facilitates the realization of a significant savings in time, which allows for the critical element of schedule to be maintained. Additionally, the joint development of contract requirements and the contractor's best approach to design and production increases the likelihood of improvement in the areas of cost and performance. The next chapter presents data gathered from three Army acquisition programs regarding their integration of the IPPD and Alpha Contracting concepts discussed in this chapter.

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III. ALPHA CONTRACTING IN ARMY ACQUISITION PROGRAMS

A. INTRODUCTION

This chapter presents data obtained from the following Army acquisition programs regarding the implementation of the Alpha Contracting process and its effect on the IPPD process within each of those programs: HMMWV, Bradley A3, and AFATDS. The three programs selected for this research were chosen because of their satisfaction of three criteria. First, only Army acquisition programs were considered, which narrowed the field of study to service-specific requirements and mission intent. Secondly, each program analyzed in this thesis has engaged in an Alpha Contracting method of sole-source procurement. Finally, each program in the study has awarded at least one contract, initial or follow-on, utilizing an Alpha Contracting relationship between Government and contractor.

Each program will be analyzed according to the effects Alpha Contracting has had on the integration of the key tenets of the IPPD process outlined in Chapter II. Because adherence to these basic tenets is crucial to the effective implementation of the IPPD process, personnel surveyed from each program were asked to provide data specific to the tenets regarding the effect Alpha Contracting had on each of them.

B. HMMWV PROGRAM

1. Program Background and History

The HMMWV program was initiated on 8 July 1980, with the approval of a Joint Mission Element Needs Statement (JMENS) by the Deputy Secretary of Defense. Designated a non-major system, equivalent to today's designation as a non-ACAT I program, the concept was to develop a highly mobile, four-wheel drive vehicle on a 1 ¼ ton chassis that could employ various kit applications for joint service use. The first solicitation, which was competitively bid, was awarded to American Motors (AM) General Corporation on 22 March 1983, and resulted in the production of over 70,000 vehicles throughout the six-year life of this multi-year contract (Ref. 10).

After a formal market survey indicated the interest of several major truck manufacturers in the follow-on HMMWV purchase, an Invitation for Bid (IFB) was released in February of 1989, to over 30 potential bidders. When only AM General responded with a bid, the IFB was converted to a Request for Proposal (RFP), which initiated the Alpha Contracting relationship that exists today between the two parties. Upon completion of this multi-year contract, a second follow-on contract was awarded to AM General in December of 1995. Because of the increasing number of variants and optional equipment items required by the user, however, the Government specified the contract type as Indefinite Delivery/Indefinite Quantity (ID/IQ), which resulted in a total of 82 separate deliveries ordered against it throughout the five years of the contract.

The current arrangement that binds the Government and AM General is a requirements contract (ID/IQ) that was awarded in November of 2000, which calls for the production of nine vehicle variants and over 90 optional equipment items (Ref. 10). This third follow-on production contract, which represents the second Alpha Contracting effort undertaken between these two parties, is the focus of this thesis.

2. IPPD Tenets

a. Multi-Disciplinary Teamwork

Because the current contract is the second Alpha Contracting effort for HMMWV and is characteristic of a mature follow-on production contract, the Government/AM General team was able to streamline its management structure and retain only those IPTs that past experience had proven necessary. According to the program's lead buyer, Pam Grozdon, the teaming structure that existed during the development of the 3rd follow-on contract consisted of the following IPTs: the Statement of Work IPT, the Corrosion IPT (which dealt with the warranty package), the Pricing IPT, and the Contract Terms and Conditions IPT (Ref. 11).

Though characteristic of any program that experiences periodic disagreements between Government and contractor representatives, the HMMWV program has distinguished itself by successfully implementing its second successive Alpha Contracting effort. Unique to this program, however, is the fact that it was instituted by essentially the same core group of professionals from both organizations that

implemented the first effort. Composed of very few military personnel, the HMMWV Program Office experienced a negligible turnover ratio, which resulted in a partnering relationship with all but two of the original team members from the original Alpha Contracting effort. This created an environment where nearly everyone involved had been witness to the successful delivery of a product through concurrent development and a common understanding of each other's goals.

Instrumental in the fostering of this relationship was the development of a formal partnering agreement that existed from the Alpha Contracting effort utilized in the previous follow-on contract. Though not as detailed as a formal charter between organizations that have no previous working relationship, this agreement embodied the goals and objectives set forth by the senior management of both sides and provided the basis for the IPTs that were created to support it. To emphasize the importance of adhering to the guidelines of the agreement, all IPT members from both organizations received formal partnering training, both initial and refresher, to nurture feelings of trust and confidence between buyer and seller. The basic concepts of this agreement were included in the partnering clause that became a part of the finalized contract (Ref. 31).

b. Customer Focus

The primary objective of the IPPD process is to identify and satisfy the customer's needs better, faster and cheaper (Ref. 8). Being responsive to the military user's requirement facilitated a mutual understanding of how the customer's requirements determined the nature of the HMMWV program and its associated processes. As the initial requirements contract neared the end of its production run, the constant demand for HMMWVs from all branches of service accelerated the need to award a third follow-on contract to allow continued production. As the deadline drew nearer, the existing Alpha Contracting relationship facilitated the necessity for Government and contractor representatives to work closely with one another towards a common goal of contract formulation.

Because the customer represented multiple service requirements, the increased number of product variations and optional equipment validated the need for another ID/IQ contract. This type of contract, characteristic of varied delivery dates and

locations, would require a significant amount of production supervision and management because of the multiple structural modifications necessary to satisfy the varied needs of each of the users. According to Cheryl Rehs, a Procurement Analyst with the program, it was the absolute commitment to the customer that drove the need for the requirements type contract, because both parties would certainly have preferred the reduced variability that accompanies a single, standard product (Ref. 32).

Because the modifications were unique to each Service's requirements, the modifications were characteristic of each separate delivery order and could not be made unilaterally. This required the prime contractor to sub-contract to multiple sources, which increased the possibility of insufficient parts being on-hand for production. A frequent request from AM General was for the conditional acceptance of unfinished vehicles due to missing parts or incomplete work. Pam Grozdon explains the devastating impact this had on overall cycle time:

The contractor had to take the time to investigate the reason for the conditional acceptance request and write a request letter. This was followed by a Government review of the request, the making of a decision, the determination of the requirement for consideration, staffing for approval, and sending the letter to the contractor. The Government then had to do a modification to the contract for condition to either accept the vehicle or contract out the work (Ref. 10).

c. Concurrent Development of Products and Processes

The establishment of the SOW and Pricing IPTs from the previous Alpha Contracting effort facilitated the concurrent development of the language that went into the SOW and the discussions held concerning price and cost analysis. While the scope from the previous partnering agreement was incorporated into the current contract, the pricing of the new product variations and optional equipment items had to be decided. The application of Alpha Contracting at this decisive juncture in contract formulation was critical to the program's ability to meet the impending timeline and prevent a costly break in production. The traditional solicitation and negotiation processes were replaced with a joint development and agreement upon the terms and conditions of these variations, which was crucial to realization of a significant time savings in the process. This type of cooperation was evident in the IPT sessions that were required to develop a special clause

for the Marine Corps HMMWV quantity break. This clause, which required the addition of specific terms and conditions to the SOW, allowed for a per unit price reduction if unanticipated requirements arose from any additional funding the Marine Corps might receive at the end of the fiscal year. A “splinter” IPT accomplished the incorporation of this clause while Pricing IPT members concurrently finalized contract prices (Ref. 31).

d. Early and Continuous Life Cycle Planning

One of the additions to the SOW that is particular to the current Alpha Contracting effort is the clause regarding corrosion protection. Having advertised this to the customer as a significant upgrade to the previous models, the Program Manager insisted that an improved 15-year warranty against corrosion be incorporated into the SOW during contract development (Ref. 10). This would require significant effort on the contractor’s part because it involved an unproven concept that AM General had not designed into any of their other vehicles. Aware of the potential conflicts that lie ahead, the PM formed a specific IPT early in the process to address the issue of corrosion protection. Because many of the early issues could not be solved in a timely manner, a “splinter” IPT was formed to finalize contractor responsibilities for the warranty. The result was specific language that was written into the SOW, as well as a commitment to maintain the Corrosion IPT throughout the program’s life for inclusion into future planning efforts (Ref. 10).

e. Maximize Flexibility for Optimization / Use of Contractor Approaches

The ability to recognize and adopt those practices the contractor uses that might improve the overall acquisition process is crucial to the Government’s obtaining the best value for its warfighters. During contract development, AM General proposed the use of commercial pricing for the production of the upcoming HMMWV variations and optional equipment. This request was reviewed by Government costs analysts and ultimately approved as the pricing methodology for the current arrangement. As one of the specific streamlining initiatives highlighted in the DoD 5000 series, it is representative of our efforts to adopt the use of industrial best practices and reduce the overall cost and time of systems acquisition (Ref. 2). The utilization of an Alpha Contracting relationship facilitated this streamlining initiative by eliminating many of the

sequential steps in the approval process that would have been required in the traditional sole-source contracting methodology.

f. Empowerment

Crucial to the effectiveness of the IPT is the ability of its members to retain the decision-making authority of the senior management. Government representatives found out early in their IPT interactions with AM General that the contractor representatives were indeed empowered to make decisions regarding contract development and revision. However, the limits of their authority were constrained by the micromanagement leadership style of the firm's Vice President for Operations who intervened when the IPT's decisions did not mirror his own. This resulted in IPT members' lack of confidence in their decision-making authority to affect the outcome of the process.

This type of limited empowerment was exemplified during contract development with the decision to set a standard daily production rate. When AM General's Vice President learned that the SOW IPT had made a decision regarding production rates that was contrary to his own, he circumvented the IPT concept by contacting the Program Manager and discussing it with her directly. The IPT's decision was overruled, which completely undermined their empowerment authority and limited their future determination. Pam Grozdon, the lead buyer for the third follow-on production contract, commented on this usurpation of power:

When upper management took that decision making out of the hands of whom they had originally empowered, it made for bad feelings. The workers in their own chain felt that it didn't matter what they did, since upper management would make the decision anyway. Government workers left feeling that if the contractor didn't like what they decided, the VP would call the PM and get what he wanted anyway (Ref. 10).

This undermining of the process also increased the workload of the technicians that had to respond to senior management's inquiry by formulating briefings, preparing position papers and gathering data to either support or dispute the claim. This

resulted in an unnecessary increase in overall cycle time to an already aggressive schedule.

A further undesirable effect of this circumvention of authority is the failure to keep workers informed once this type of decision is made. Because it was made outside of the IPT, the information took much longer to make its way back to the team members. Additionally, the information that did find its way back to the IPT may have been distorted, since it did not follow the recognized communications chain.

C. BRADLEY A3 PROGRAM

1. Program Background and History

The initial Bradley A3 Engineering and Manufacturing Development (EMD) contract for \$277.8 million was awarded to United Defense Limited Partnership (UDLP) in May of 1994 for eight prototype vehicles. The team assembled in 1992 by the Program Manager, COL Dennis Deming, had received Milestone II decision approval in February of 1994, which cleared the way for their entry into the EMD phase. Although the scope of work definition and proposal submission had been conducted in the traditional competitive environment, the manner in which the two teams conducted negotiations and the identification of cost elements led to the first use of Alpha Contracting within the program. Representatives from both organizations worked together to dissect cost elements and make the program more affordable, which led to the awarding of the EMD contract in May of 1994 (Ref. 38)

Low Rate Initial Production (LRIP) began in 1997 with the award of a contract to UDLP on a sole source basis for the production of 53 vehicles. This effort, estimated at \$146 million, was also conducted on an Alpha Contracting basis; however, it began during the contract formulation phase at the start of the process, not as a result of the need for cost element identification after proposal submission. This led to the awarding of two more LRIP contracts, both of which were awarded on a sole-source basis that utilized an Alpha Contracting approach with UDLP. The first of these, awarded in 1999, called for the production of 73 vehicles at a cost of \$114 million. The last LRIP contract, awarded in 2000 for \$114 million, required the production of 80 vehicles, as well as the

implementation of some innovative approaches, which will be discussed later in this chapter.

Negotiations conducted for the production contract concluded on April 25th, 2001, and resulted in the award of a multi-year contract to UDLP for the production of 389 Bradley A3 vehicles over the course of three years for a total price of \$667.6 million (Ref. 38).

2. IPPD Tenets

a. Multi-Disciplinary Teamwork

The use of the Alpha Contracting process within the Bradley A3 program relied heavily upon the willingness of the Government and contractor to work together in a teaming environment throughout the contract formation process (Ref. 1). This team approach, which included not only the Program Office and contractor personnel, also enlisted the participation of the customer and other applicable Government agencies, such as the Defense Contract Management Agency (DCMA), the Defense Contract Audit Agency (DCAA), and the Procurement Contracting Officer (PCO).

The first use of this teaming approach was evident in the program's preparation for its Milestone II decision in 1993 and 1994. When the initial proposal from UDLP was submitted, it was \$100 million over the Government budget. Instead of engaging in the traditional negotiations process, the two teams came together to dissect the proposal and examine cost element by cost element to streamline the overall cost and make it affordable to the Government. Known as the Greenfield Exercise, this "shoulder to shoulder" effort unwittingly became the first Alpha Contracting effort in which the two organizations had engaged, and resulted in the awarding of an EMD contract within budget in May of 1994 (Ref. 38). This mutual defining of the scope of the contract, as well as an agreement on the pricing of individual cost elements set the stage for the implementation of future Alpha Contracting efforts in the upcoming LRIP contracts.

b. Concurrent Development of Products and Processes

One of the most critical components of being able to concurrently develop the products required of the program while simultaneously refining the processes that produce them was the early baselining of the requirements in their totality. Baselining is

a term referring to the identification and finalization of the total requirements that translate into the capabilities the end user requires of the system. Recognizing that some measure of future changes to the baseline are inevitable, a serious and concerted effort early in the process will allow all the involved parties to plan the overall execution of the program, and then base the pricing on that plan.

The Bradley A3 program was centered around a highly technical and software-oriented system whose leadership was constantly working to insert horizontal technology to maintain a level of commonality with other programs and possibly share in the emerging changes they would experience (Ref. 39). This resulted in a program that was constantly changing, which presented a challenge to the participants of an Alpha Contracting process that relied on an early definition of requirements to be effective. During the FY99 Alpha negotiations, the Bradley A3 program was pursuing the development of the Embedded Battle Command (EBC) software as a command and control asset for the system. The development was falling behind schedule, however, and threatened to delay the planned testing window for the software, which had the possibility of postponing the decision to enter into full rate production. This forced the decision to stop EBC development in November of that year to instead begin the installation of Integrated Command and Control (IC3) software, which was further along in development and was part of the Force XXI Battle Command Brigade and Below (FBCB2) software being integrated into other combat systems. The integration of this software came at a time when the Price and Costing IPT was finalizing several pricing elements with the contractor that were based upon the development and installation of the EBC software (Ref. 39). The end result was sweeping changes to the existing cost elements with a software design that had not yet been fully developed.

The testing window eventually slipped on the schedule, providing the IPTs with the necessary time to adjust the pricing elements based on the changes to the software package. Although the IPTs within the joint Alpha Contracting environment of the Bradley A3 program were constructed well enough to accommodate design changes of this magnitude, this situation still demonstrated that the early definition of requirements and integration of design elements better facilitates the overall product development process.

c. Early and Continuous Life Cycle Planning

Crucial to the success of the partnering relationship between the Government and UDLP was the establishment of a common strategy during the earliest stages of the Alpha Contracting effort. The use of a PROCAS (Process Oriented Contract Administration Services) agreement between the two organizations set the stage for a successful teaming arrangement that initiated the production phase of the multi-year contract. A PROCAS agreement is a teaming arrangement entered into by the Program Office, contractor, customer and applicable Government agencies that indicates how the parties will work together in a concerted Alpha Contracting effort to make an award of a contract by the objective date (Ref. 23).

The PROCAS agreement between the Government and UDLP, which was signed on November 14th, 2000, identified all the team members, specified the Alpha Contracting process, identified sub-team members, established methods of communicating information and data, and set goals and milestones. By assigning duties and responsibilities to each of its members, the PROCAS agreement demanded that these representatives were fully empowered to bind their respective organizations to the agreements achieved through the Alpha Contracting process. Conversely, it also required that these team members were keenly aware of their individual roles and responsibilities as participants in the process. The key IPTs created by the PROCAS agreement were: the Overall Negotiations IPT, the Requirements/Scope of Work IPT, the Terms, Conditions and Proposal Submission IPT, the Price/Cost IPT, the Bill of Material IPT, the Other Direct Costs IPT, and the Sub-Contracts IPT (Ref. 23).

Through the PROCAS agreement, the team members developed the scope of work and other required contract documents to form a baseline from which the team jointly developed the technical and cost details that are the basis of the contract agreement (Ref. 37). This required that they agree upon a contract approach, formulate a work breakdown structure, and develop a rough-cut target cost and schedule. With this baseline, the contract specialists within the team then developed a model contract, completed the scope, schedule and terms and conditions of the contract, and created the contract line item structure.

A final requirement of the PROCAS agreement was the assembly of the team members after the contracting process had ended to discuss any lessons learned, ensuring their incorporation into the next agreement in preparation for any follow-on Alpha Contracting efforts. The PROCAS agreement created for the production contract in November of 2000, incorporated, among others, one key lesson learned from the previous LRIP contract. That PROCAS agreement had failed to outline the appropriate procedures to follow for the elevation of controversial issues on which team members could not come to agreement (Ref. 39). Because of an issue regarding contractor responsibility for shipping and deprocessing of vehicles, an impasse had been reached during the LRIP contract that caused delays and prolonged its completion. This lesson learned was incorporated into Item #4 in the production contract PROCAS agreement, which specifically addressed this issue and appointed responsible individuals for conflict resolution (Ref. 23).

d. Maximize Flexibility for Optimization / Use of Contractor Approaches

The recently awarded LRIP production contract was referred to as the “corporate contract” within the Bradley A3 Program Office because it contained all of the Program Manager’s requirements for the system under one UDLP Ground Systems Division contract, which had not been the case in past contracts (Ref. 36). The award of this contract represented a new philosophy and way of doing business for the Army’s Tank-Automotive and Armaments Command (TACOM) because it initiated a series of innovations aimed at increasing the contractor’s overall responsibility for manufacture of the vehicles while simultaneously increasing his flexibility in the production process.

The primary change in this contract was the use of performance-based specifications instead of requiring the contractor to build the system within the constraints of a Government-provided technical data package. This provided the contractor with increased flexibility in the overall vehicle system design with less Government oversight for configuration changes that do not directly affect testability, interchangeability, and manpower and personnel integration domains. The end result was less Government oversight in the overall configuration management process, which left the contractor with the flexibility to independently make cost-saving changes (Ref. 36).

With this utilization of the contractor's innovative approaches came the reduction of risk for the Government and the Program Office, which increased the overall responsibility of the contractor. One of the most unique innovative approaches utilized under this contract was the requirement for the contractor to inspect and receive each manufactured vehicle at the fielding handoff point rather than at the factory. While initially meeting with resistance from both parties, the utilization of this approach led to the identification of several areas in which a potential reduction in man-hours could be achieved by eliminating duplicative processes (Ref. 36). The result was the inclusion of the deprocessing and handoff phase as an extension of the production line, which promises to reduce the total time for inspection and handoff of completed vehicles by 69%.

This type of innovation was the result of the adaptation of the contractor's best approaches and had proven to make good business sense. It fully complemented the performance-based philosophy by assigning responsibility for overall management of the vehicle to the contractor from the start of production until vehicle handoff (Ref. 39). The strong relationships and clear flow of communications established through the joint Alpha Contracting IPTs enabled the participants to stifle the initial resistance and reach an agreeable settlement that allowed the implementation of a pilot program to test and verify this streamlining approach to saving time and money.

D. AFATDS PROGRAM

1. Program Background and History

The Advanced Field Artillery Tactical Data System (AFATDS) is the Army's replacement system for the aging tactical fire direction systems that manage field artillery fires and battlefield geometry. It provides fully automated support for planning, coordinating and controlling mortars, field artillery cannons, rockets, guided missiles, close air support, attack helicopter and naval gunfire, for close support, counter fire, interdiction, Suppression of Enemy Air Defenses (SEAD) and deep operations (Ref. 25). Its Mission Element Needs Statement (MENS) was developed in 1981, which was followed three years thereafter with a contract award through full and open competition

to Magnavox, who had also produced the software for the Army's Fire Support Digital Message Device (FIST DMD). Although the performance of this contract resulted in enormous cost growth that exceeded the Government cap placed upon it by almost 100%, the program eventually passed its Milestone II decision in 1989, and awarded a follow-on contract to produce the subsequent software versions. Hughes Air Defense bought out Magnavox in 1996, which was eventually bought out by Raytheon Systems Corporations (RSC).

With the completion of the initial contract, AFATDS entered into an Alpha Contracting process with RSC for the development of three Post Deployment Software Support (PDSS) versions in 1999. Though the AFATDS program had been engaged in a sole-source relationship since the Justification and Approval (J&A) was approved prior to the award of the follow on contract in 1989, my research indicates that the decision to enter into an Alpha Contracting process was not motivated by any particular actions or level of performance of the previous contracts. According to the Contracting Officer Representative (COR) in the AFATDS Business Management Office, there was never any analysis involved in converting from the traditional sole-source process to the current Alpha Contracting process (Ref. 17). The impetus appears to have originated from the desire to implement this newly publicized and innovative method of contracting within a proven, sole-source environment such as AFATDS.

2. IPPD Tenets

a. Multi-Disciplinary Teamwork

A crucial concept incorporated into the agreement between Government and RSC personnel in the AFATDS program was the maintenance of a strong buyer-seller relationship through mutual cooperation. Cooperation not only enhances the working relationship, but it also is critical to the overall reduction in acquisition processing time. Another of the common themes present from the start of the contracting process, cooperation is the culmination of effective communications between IPT members and the commitment to achieve their jointly-determined goals and objectives. The development of the Business Memorandum of Agreement (BMOA) from the outset of the program helped establish the IPT structure that would be utilized throughout the process. Though other teams were formed during subsequent development to address

specific issues, the key IPTs that initially implemented the approach outlined in the BMOA for a successful teaming arrangement were the Statement of Work IPT, the Terms and Conditions IPT, and the Price and Costing IPT (Ref. 4).

This significant savings in time can also be construed as a team-based approach to implementing an effective risk management technique. A reduction in the amount of time spent from SOW development to proposal approval represents less change in material and labor costs, which evolves into less variance in pricing and less cost risk to the contractor. Additionally, a streamlined negotiation phase equates to less change in technology, which have proven to be some of the greatest risks over time in today's projects (Ref. 30). The overall reduction in process time reduces the risk of changes being made to any of the contracting documents, which would only prove to lengthen the process and strain the relationship between Government and contractor.

The willingness of both parties to provide and support all information in a timely manner necessary for the contracting process is characteristic of the teaming relationship entered into by the AFATDS and RSC personnel. Having worked with the same contractor representatives in the previous AFATDS contracts (though under the different corporate names of the Carlisle Group and Hughes Air Defense), Government representatives that had been with the program for several years found it second nature to be teaming with these individuals again. This was part of the impetus that led to the current Alpha Contracting arrangement (Ref. 17). The promotion of teamwork from the beginning of the process would turn out to be one of the strengths of the program.

An even higher level of commitment was emphasized with the development and acceptance by both parties of basic organizational responsibilities that helped build a feeling of mutual trust and confidence. The Government recognized from the beginning that, because of the combined nature of IPTs in the Alpha Contracting process, there would be joint discussions of several key parameters of the contract, including preliminary cost and pricing data. An agreement was reached early in the process recognizing that all pricing information provided to the Government prior to the signature of the SF 1411 did not constitute certified cost and pricing data (Ref. 17). This ensured that any frank and candid discussions within the IPT that was intended to bring

about the best value to the Government would not violate any stipulations set forth in the Truth in Negotiations Act. Additionally, they agreed that the results of any assistance provided to the program, via field pricing reports used by DCMA to evaluate RSC's proposals, would be provided to RSC prior to the initiation of negotiations.

One of the most critical concepts in the implementation of an IPT truly committed to the successful development of a contract is the establishment of a forthright, professional and ethical relationship that is built upon mutual trust and confidence. A constant theme that is prevalent in all of the documentation gathered during my research is the reliance upon the openness and honesty of the representatives participating in the IPT process. From the outset of the contracting process, attempts were made to document and instill a sense of truthfulness and straightforwardness within the team by setting forth principles in the initial Memorandum of Agreement designed to elicit each member's good faith effort in implementing these concepts (Ref. 4).

b. Customer Focus

Through joint involvement early in the process, both the Government and RSC representatives were able to focus on the common goal of providing a quality system to the user, thus keeping the customer's best interests in the forefront of the decision-making process. The employment of a basic philosophy of trust and teamwork, which was developed and agreed upon early in the process, was key to the reduction of cycle time and the development of a successful buyer-seller relationship to facilitate the meeting of customer requirements. This philosophy was instituted through the program's BMOA and was founded on the integration of and adherence to three basic concepts: Commitment, Communication, and Cooperation (Ref. 4). An outline of the key objectives embodied within these concepts is provided below:

1. Commitment

(a) Implement IPT concept and empower its members.

(b) Maintain management support.

(c) Build trust and confidence.

(d) Clearly define and communicate requirements.

(e) Make decisions at lowest possible level.

2. Communication

(a) Involve the key stakeholders at the earliest opportunity.

(b) Share evaluation and proposal data.

(c) Work together for efficient and effective results.

(d) Identify and resolve problems early.

(e) Eliminate unnecessary documentation.

3. Cooperation

(a) Promote teamwork throughout the process.

(b) Maintain professional relationships.

(c) Ensure Government and RSC involvement throughout contract development.

(d) Strive to achieve full agreement with all products submitted for approval.

(e) Jointly determine and mitigate potential risk areas.

Most relevant to the IPPD tenet of Customer Focus is the concept of a sense of commitment that exists from the inception of this agreement through delivery of the final product to the customer. Commitment to the accomplishment of the mission began early with development and implementation a joint, focused IPT that involved the important stakeholders, including the customer, early in the process. Aside from the leadership who constituted the IPT, such as the Program Manager, Contractor representative, TRADOC System Manager (TSM) and user representative, technical professionals were incorporated to assist in the drafting, architecting, defining and

refining of all the requirements (Ref. 17). The involvement of these technical representatives early in the program was instrumental in promoting management's understanding of technical facts and system capabilities.

c. Concurrent Development of Products and Processes

An additional benefit that may potentially be realized with the Alpha Contracting process is the elimination of unnecessary paperwork and documentation. By jointly developing the key documents in the contracting process, such as the SOW and RFP, many of the disagreements and discrepancies are eliminated early in the contracting process. The agreements are reached via face-to-face communications within the IPT setting, which effectively neutralizes many of the sequential steps normally associated with the traditional sole-source process, including the formal documentation that accompanies those iterations. The concurrent process utilized with Alpha Contracting ensures efficient human resource utilization by eliminating the need to rework tasks. Such benefits realized in the AFATDS program came in the form of spreadsheet standardization, single technical reviews, coordinated fact-finding and reduced misinterpretation due to early coordination of documentation (Ref. 24).

Additionally, technological developments in recent years, such as the World Wide Web, have expanded the conventional means of communicating and providing information. This ever-increasing database provides a central source for listing and accessing a wide variety of virtually any company's products, services, concepts and current industrial practices (Ref. 30). Advantages for the Government include the ability to conduct extensive market research in the comparison of cost and pricing data of competing companies. Conversely, industry can take advantage of this technology by utilizing it to provide offerors a better understanding of Government requirements, as well as reviewing any current regulations or statutes that might apply to the situation.

d. Early and Continuous Life Cycle Planning

Early in the developmental stages of the relationship, participants from both the AFATDS program and RSC agreed upon the negotiation of process-enabling terms, conditions and mechanisms that would allow them to overcome institutional barriers to substantial progress (Ref. 16). In addition to a savings in overall time, an

investment in this type of relationship can also reduce the possibility of conflict arising between Government and contractor representatives by developing a thorough understanding of not only the shared goals, but also organizational-specific goals and objectives. Fewer surprises exist during the process because there has been a joint development of such crucial documents as the SOW and RFP. Ultimately, both parties have consistent expectations and have an achievable, executable program requiring fewer post-award modifications (Ref. 19).

Examples of conflict that have a history of creating stalemates in the contracting process include impasses regarding SOW content, RFP compliance and lengthy approval chain procedures that increase total time to contract award. Government representatives avoided these types of time-consuming distractions by pledging to cooperate in a strategic planning effort with RSC aimed at nurturing future capability growth and cost savings on P3I (Pre-Planned Product Improvement) packages for updated software versions. Consistent with the intent to plan strategically for further projects, AFATDS and RSC personnel worked concurrently during proposal development and fact-finding to ensure agreement was reached on detailed Basis of Estimates (BOEs) that implement the SOW and form the basis for proposal preparations.

Additionally, both parties agreed upon the implementation of continuous improvements to address changing requirements in the SOW, Required Delivery Dates (RDDs), Terms and Conditions, and other related contract data and documents. Because the RFP becomes the resultant contract, it is imperative that specific contract clauses are clarified early in the process to prevent misinterpretation later. During this process, the IPT must conduct Cost as An Independent Variable (CAIV) and Trade-off Analyses to balance requirements against cost, ensuring the Government's needs are met at a reasonable cost (Ref. 3). Funding and cost information are also exchanged during the Alpha Contracting process so that both parties can make rational and supportable decisions regarding program requirements. Discussions with the AFATDS contracting representative demonstrate that this early defining of requirements and projected program expectations created the foundation for a basis of understanding between the two organizations that facilitated the working relationship they continue to share (Ref. 17).

e. Empowerment

In making the decision to adopt an Alpha Contracting process, it is imperative that leaders from every division of effort within the program commit to providing personnel who are knowledgeable in their areas, and who have been granted the authority to either accept or reject ideas and products. Failure to do so will not only increase the total cycle time necessary for development of the contract, but will also discourage a long-lasting relationship between Government and contractor representatives. It also gives the impression that there is either a serious lack of commitment to the program, or that the level of importance of the contract does not rate the involvement of the company's "heavy hitters".

One of the most important steps in the establishment of a mutual sense of commitment to the program is the agreement upon the empowerment of all IPT members to be able to act with authority and commit to the approval and/or revision of all elements of the contract. During the initial phases of contract development, the Government/RSC team found that progress was slow because several of the members of the IPT had not been empowered to make decisions for their particular area of the contract (Ref. 17). This hindered the concept of being able to concurrently develop and produce the necessary documents in the process, because those non-empowered personnel were lacking in the knowledge, technical expertise, responsibility and authority to provide meaningful input to the IPT.

A breakdown in the process can also occur due to a lack of streamlining of the contractor's internal approval process. If contractor representatives are not empowered to make decisions regarding contract approval, there may be a significant increase in the time required for internal review, approval and certification of bids and final settlements during negotiations. These representatives may lack the authority to make the necessary decisions, or possibly choose not to exercise the authority to do so. Possessing only limited ability to force the contractor to modify internal review procedures, emphasis should be placed on early definition of Government requirements and convincing the contractor to send only legitimate decision makers to sessions such as final reviews, negotiations and approvals.

f. Seamless Management Tools

Another key aspect of committing to the program involves the development and maintenance of management support for the IPT from the earliest stages of the process (Ref. 30). Empowered participants with the support and determination of divisional leadership from all participants, including the contractor and sub-contractor, will be encouraged to put forth their best efforts in the development of the contract. This also gives members the impetus to “think outside the box” when a situation arises that does not conform to a standard decision-making process or readily apply itself to a conventional solution. Possessing the support of management personnel prevents the time-consuming process of submitting every proposed change or deviation through the conventional approval channels, which stalls the process and inhibits accelerated progress. Even though the relationship binding AFATDS and RSC in the buyer-seller relationship is contractually incorporated, it is really based upon an agreement between Government and contractor management representatives to embark upon a streamlined process that eliminates several of the traditional sequential steps in contracting (Ref. 4). One of the most important steps in achieving this mutual commitment is the willingness of the upper management of both industry and Government to support the Alpha Contracting process and to accept its non-traditional way of doing business.

The concept of commitment within the IPT also includes the making and supporting of timely decisions at the lowest possible organizational level. This is one of the fundamental advantages of the Alpha Contracting process; that is, that because development of crucial documents is done concurrently rather than sequentially, a substantial time savings is realized through the elimination of traditional evaluation and approval stages. With the AFATDS program, cost and technical detail were jointly developed, which allowed IPT members to literally bypass the solicitation, proposal, corporate and Government evaluation and approval, and negotiation phases (Ref. 17). The resultant product was a "model contract" that, through subsequent modifications, became the final contract that was utilized in the program. This emphasizes probably the most quantifiable benefit associated with this process, which is the amount of reduced cycle time. The implementation of this process within the AFATDS program resulted in the development and awarding of the current A-90-C-E003 contract in about half the time

of the previous contract, which was implemented under the traditional sole-source method (Ref. 16).

A similar realization of timesavings was demonstrated in the Army's Tank-Automotive and Armaments Command's (TACOM) Improved Recovery Vehicle (IRV) program, which reported a 50% reduction in overall Procurement Administration Lead Time (PALT). The total purchase time for that project went from twenty-two months to four months, while TACOM's Responsive Urgent Services Handling project realized a six-month savings in cycle time (Ref. 20).

g. Proactive Identification and Management of Risk

Another of the crucial concepts incorporated into the relationship between Government and RSC personnel is one of constant, thorough and open communications between IPT members and their respective approval authorities. The Alpha Contracting process lends itself to the establishment of face-to-face communications, which is an effective method of quickly identifying and addressing those areas within the program that represent the highest risk. Being able to communicate any possible barriers to the achievement of program requirements and objectives is critical to success. Though physical separation of personnel due to varied geographic locations may force the issue of communicating through non-personal means, IPT team members should always strive to accommodate face-to-face interactions when discussing the development or evaluation of contract documents. By establishing joint offices in many of the locations in which RSC develops and tests AFATDS-related products, the AFATDS program leadership have committed to the importance of conducting business through direct, face-to-face communications (Ref. 16).

Many times, however, tight budgets and busy schedules dictate the implementation of alternate methods of communicating. One method that facilitates an interactive means of communicating risk and/or management issues within a partnering relationship, other than the standard phone conversation or often-burdensome electronic mail, is Video-Tele-Conferencing (VTC). According to the AFATDS Business Management Office, IPT members often resort to VTC communications as an alternate form of sharing information (Ref. 17). It appears most prevalent when the relative cost of

conducting face-to-face communications is not compatible with the topic of discussion or amount of available time. In other words, the relative importance of the conversation or the length of time of the discussion may suggest a less expensive and less direct method of exchanging information. Recognizing that the Alpha Contracting process works best when face-to-face communications are applied, my analysis of AFATDS early documents indicates that team members from both sides understood this aspect of the relationship and have strived to maintain the openness that this type of communication facilitates.

The Government believed that the decision to enter into an Alpha Contracting agreement with RSC relied heavily enough upon open and honest communication that it incorporated specific criteria into one of the categories for fee award into the current Cost Plus Award Fee (CPAF) contract. This category, entitled “technical management”, contains sub-criteria that are evaluated to determine the amount of award fee that will be provided to the contractor. One of the more heavily weighted criteria is communication, which incentivizes the contractor to participate in the proper fashion during IPT development of contract items. This form of incentive serves as a risk mitigation factor and has proven to encourage top management to provide empowered and technically competent personnel to participate in IPT sessions (Ref. 15).

Other aspects of utilizing effective communication in the Alpha Contracting process to identify and manage risk include coordinating with outside agencies to provide value-added insight into the development and management of the contract. Representatives from the Defense Contract Management Agency (DCMA) were present during the initial meetings of AFATDS and RSC personnel when the BMOA was signed, binding the Government, contractor and DCMC representatives who signed and agreed to its contents (Ref. 4). Major Jim Guyll, Commander, DCMA Indianapolis, committed his organization to the continued support of the AFATDS program in all its dealings with RSC. DCMA personnel assisted in the determination of the minimum acceptable proposal support documentation and format, as well as participated in concurrent proposal development, fact-finding and technical evaluation (Ref. 17). They were also available to provide proposal analysis reports, and to provide any follow-on support required by AFATDS personnel during negotiations.

E. SUMMARY

The utilization of an Alpha Contracting relationship provides a setting that allows for the fullest implementation of the IPPD tenets and a management philosophy to ensure its sustainment. By examining the daily interactions of the Government and contractor personnel involved in the HMMWV, Bradley A3 and AFATDS programs, it is possible to see how this “shoulder to shoulder” working environment allows for sufficient examination of how the IPPD process has been implemented in each situation. Chapter IV provides an analysis of the enablers and inhibitors to IPPD implementation that develop as a result of the use of an Alpha Contracting relationship.

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IV. ENABLERS AND INHIBITORS OF ALPHA CONTRACTING

A. INTRODUCTION

The purpose of this chapter is to identify the enablers and inhibitors to the successful implementation of the IPPD process within an Alpha Contracting relationship, based on the data gathered from each of the Army programs presented in Chapter III. The analysis presented in this chapter provides the groundwork for the derivation of a set of recommendations in Chapter V, intended for consideration by any current or future programs considering the implementation of an Alpha Contracting relationship within their program.

B. ENABLERS TO IPPD IMPLEMENTATION

1. Joint Development of Products and Processes

Unlike the traditional sole-source contracting process, in which the Government sequentially develops requirements and then passes them to the contractor for proposal development, the Alpha Contracting process enlists the private contractor's participation in the solicitation development phase. Through this joint development of the Statement of Work and other required products for contract development, the Government and contractor representatives strive to match program needs with available manufacturing capabilities, current technology, funding limitations and industry best practices (Ref. 7). This gives the Government representatives the opportunity to participate in and learn from the contractor's process of cost and price estimate development, as well as gain insight into how the contractor intends to meet each requirement of the solicitation.

One of the first products to be jointly developed and utilized within the Government/UDLP Alpha Contracting relationship was the PROCAS agreement, which set the stage for a successful teaming arrangement that initiated the production phase of the multi-year Bradley A3 contract. This document, which was the result of a joint effort involving the Government Program Office, contractor, user and supporting agencies, illustrated early in the process how the parties would work together in a concerted effort to make an award of the production and associated spares contract upon approval to enter

into Full Rate Production. This type of cooperative development, strengthened by the utilization of an Alpha Contracting relationship, serves as an enabler to the implementation of the IPPD tenet of Multi-Disciplinary Teamwork, as well as Early and Continuous Life Cycle Planning.

2. Reduced Contract Development Time

The traditional approach to sole-source contracting is costly and forces the parties involved to act independently, which usually strains any cooperative spirit between them and frequently alienates other potential participants, such as DCMA, who has the greatest familiarity with both Government and contractor requirements and capabilities. Additionally, the traditional approach requires a considerable amount of time to allow for these independently produced documents to be sent back and forth between the organizations. Time is wasted in both organizations while proposals and counter-proposals are evaluated, and responses and/or questions regarding the documents are prepared and re-submitted.

With the Alpha Contracting approach, however, having the representatives from all involved organizations develop the contract together eliminates the majority of this wasted time. Rather than having the proposal submitted repeatedly and evaluated separately, the team jointly develops a contract and related documents that representatives from all organizations find acceptable and affordable (Ref. 30). Examples of 40 to 50 percent savings in administrative lead-time are common. TACOM, which is the parent command for the development of the Bradley A3, cites many examples from its extensive use of the process, including the Improved Recovery Vehicle (IRV) program that reduced the time to award from 22 months for the initial buy to four months for the subsequent contract (Ref. 20).

A further realization of timesavings can be seen in the extensive use of “splinter” or “break-off” IPTs in the HMMWV program. The intent of a splinter IPT is to prevent irresolvable issues from delaying progress on other issues that the parent IPT must address. These issues that outgrow the scope of the parent IPT or that the team members cannot come to agreement on are then discussed at a later time within a splinter group, which has the sole mission of addressing that specific issue and reporting back to the

parent IPT with a recommended solution. This methodology was particularly useful in the development of the warranty package that was eventually agreed upon in the HMMWV program, which has been previously discussed in Chapter III.

3. Improved Communications and Understanding

In addition to the reduced contract development time and cost savings, the Alpha Contracting process greatly improves each party's understanding of the total requirements, which translates into the operational capabilities of the system. John Kerr, a procurement analyst at TACOM, stated that "the close cooperation between the parties also led to a much better understanding of the work scope, eliminating many of the problems that are often encountered after contract award" (Ref. 1). By jointly developing the work scope and the pricing of the contract, later disagreements on work requirements and cost assumptions are greatly reduced. As a result, program risk is lowered because the Government and the contractor have consistent expectations and an achievable, executable program requiring fewer post-award modifications (Ref. 30). This supports the implementation of the IPPD tenet of Proactive Identification and Management of Risk.

The improved communication and cooperation also produces an additional benefit, which is more open and honest communication throughout contract performance. Open communications further enhance compliance with the provisions of the Truth in Negotiations Act and thus reduce the contractor's liability associated with inadvertent failure to disclose cost and pricing data (Ref. 1). Also, the process fosters a cooperative attitude, as demonstrated by the development of the Business Memorandum of Agreement in the AFATDS program. Two of the three key objectives listed in that document, which outlined the teaming approach agreed upon by the Government and Raytheon Corporation, were the sustainment of communication and cooperation between team members. The partnership that is developed through this type of agreement also serves as a springboard for initiating continued streamlining techniques in other areas of the program.

4. Gaining Industry Insight

One of the tenets of the IPPD process is Maximize Flexibility for Optimization and Use of Contractor Approaches. Since industry has overtaken DoD as the cutting edge of technical development, it is beneficial for Government programs to work as closely as possible with their respective contractors to gain as much insight into the innovative and streamlining processes they are implementing within their own organizations. This process can begin as early as the joint proposal development within an Alpha Contracting relationship, where Government representatives have the opportunity to participate in the contractor's process of raw estimate development. While no competitive contracting firm will disclose all of its trade secrets, the shoulder-to-shoulder development that exists within an Alpha Contracting arrangement still allows DoD acquisition personnel to gain a considerable amount of expertise regarding the contractor's process of preparing proposals and developing negotiating positions. Additionally, this preliminary, high-detailed review of the contractor's systems and procedures allows the Government buyer to reevaluate the specific program requirements as they relate to the expenses that will be incurred. Changes to solicitation requirements can be isolated and included in the first joint revision of the proposal, a situation that is unique to an Alpha Contracting relationship (Ref. 39).

5. Improved Long-Term Relationships

With the diminishing number of major defense industrial firms, it is beneficial for DoD to develop and maintain productive long-term relationships with contractors that have a proven past performance record in acquisition programs. The development of this type of relationship is evident in the Bradley A3 and HMMWV programs, both of which are engaged in recurring arrangements with contractors that have delivered on previous versions of the current system. Both UDLP and AM General have entered into subsequent Alpha Contracting production contracts with the Government that are based on working relationships that were developed from several years of working together. Open and honest communications were developed between representatives from both organizations from their daily interaction and membership on joint IPTs within the program. This type of mutual trust and respect is more difficult to develop in a traditional contracting relationship because of the independent development of the

contract that results from sending documents back and forth “over the fence” between organizations.

C. INHIBITORS TO IPPD IMPLEMENTATION

1. Personality Conflicts

Although the familiar relationships that existed from the previous Alpha Contracting effort in the HMMWV program were beneficial to the program, they also represented potential inhibitors to its most efficient outcome. Lost arguments from earlier IPT sessions, personal dislikes among team members, and feelings of previous mistrust served as examples of daily human interaction that tested the strength and severity of the IPT bond. This can clearly be seen in the situation that occurred in May of 2001, when a recurring welding deficiency prevented several of a sub-contractor’s manufactured items from meeting specifications. The result was a production shutdown that cost the Government time and money. The issue was forwarded to the Quality Assurance IPT and resulted in a Government refusal to accept the substandard products. One of AM General’s contracts analysts that disagreed with the decision has continued to raise the issue in IPT sessions as a point of contention (Ref. 10). His attitude continues to challenge the efficiency of the IPT and appears to strain his relationship with Government team members in future endeavors.

2. Use of Splinter IPTs

Although the use of these break-off or sub-IPTs can be listed as an enabler to IPPD implementation, they also have the potential to inhibit a sustained flow of information between parent and splinter IPT members. Because the membership of the splinter IPT is not the same as that of the parent IPT, many of the details discussed at the splinter IPT level may not find their way to the parent IPT leadership. This prevents the inclusion of all pertinent viewpoints that must be taken into consideration when the parent IPT makes the final decision. The result is an outcome that is not representative of all the stakeholders’ input, that either becomes the subject of debate when it is reviewed by the parent IPT, or simply circumvents the parent IPT.

3. Lack of Trust Between Team Members

Since the concept of sharing and collectively working towards solutions is fundamental in the Alpha Contracting process, absolute candor in daily dealings with members from both sides is a necessity. A significant cultural barrier might exist within either organization because of the comfort level that exists with doing business in the traditional method. This could result in the resistance of IPT members to treat the other organization's representatives as team members rather than as adversaries, which increases the level of mistrust. However, as referenced in Section 5 of DoD Directive 5500.7, a lack of truthfulness and respect for individuals will result in the breakdown of the loyalty and honesty that exists within a professional relationship (Ref. 34). Once dispelled, it is difficult to re-establish the belief that promises can be kept and good faith exists between IPT members and their respective organizations.

Failure to build trust and confidence between IPT members early in the Alpha Contracting process will inhibit further progress and neutralize the ability to thoroughly define and communicate the requirements of the program. If there is a feeling of mistrust or a belief that one has been deceived, it becomes difficult for representatives to make unbiased recommendations regarding the structure and composition of key components of the contracting process.

4. Lack of Empowerment and Senior Management Commitment

Critical to the success of the joint IPT meetings that take place within an Alpha Contracting environment is the ability of the core team members to limit participation to those individuals who have been empowered to review, discuss and ultimately either reject or accept proposals made within the IPT (Ref. 1). A lack of authority to make decisions will undermine the success of the process by significantly increasing the time required to send proposals and counter-proposals through the traditional chains of command in order to receive a decision. Additionally, the time that must be allocated to this lengthy, sequential approval process reduces the focus of the IPT on that particular issue by forcing its members to re-direct their attention to another issue. This type of inhibition to progress was evident in the early stages of cost element identification in the AFATDS program. Several of the IPT members from both organizations had not been

empowered to make decisions regarding cost elements because they lacked the required knowledge and expertise in that area, which hindered the joint and concurrent development normally associated with Alpha Contracting.

Another inhibitor to the success of the program is the lack of senior management commitment to the IPPD process. If decision-making is retained by senior management and not delegated to the IPT level, it completely undermines the intent and purpose of the core team whose responsibility it is to jointly address these issues and resolve them at the appropriate level of expertise. The micro-management leadership style of AM General's Vice President for Operations led to the complete circumvention of the IPT whose responsibility it was to determine the daily production rate for the HMMWV program (Ref. 31). This lack of commitment to the IPPD process severely hindered the IPT members' desire to contribute to the team, since they believed senior management would ultimately make their decisions anyway. This breach of trust only increases the overall time required for contract development and decreases the effectiveness of the IPT.

5. Necessity for Dedicated Personnel

One of the most noticeable disadvantages of Alpha Contracting is that it is labor-intensive early in the process. While the overall labor requirement may be less, the need for dedicated personnel for several weeks or months at a time in the early stages of development may create difficulties for organizations with limited staffs that have other demands to address. In this era of downsizing, the need for dedicated personnel is not a small issue for either the Government or civilian contractors (Ref. 1).

Another inhibitor to the IPPD process within an Alpha Contracting relationship is the turnover of military personnel that are assigned to the program office. The development of open communications and trust becomes more difficult when the faces of the IPT members are constantly changing. Cheryl Rehs of the HMMWV Program Office commented that a great deal of the success of their Alpha Contracting relationship can be attributed to the negligible turnover ratio they experienced throughout contract development (Ref. 32). Composed of few military personnel, their second successful Alpha Contracting arrangement was instituted by essentially the same core group of representatives that completed the first effort. This created an environment where nearly

everyone involved had participated in the successful delivery of a product through the concurrent development and common understanding that is characteristic of an Alpha Contracting relationship.

6. Lack of Planning

When the planning of the contracting effort is rushed and incomplete, it can result in the hastened initiation of an IPPD process that is incomplete and lacks the proper resources for success. An agreement must be reached between Government and contractor representatives prior to the start of work that outlines the teaming arrangement, policies and procedures, goals and objectives, and a timeline for completion. A baseline and integrated master plan must be developed from which the team members can jointly develop the documents that form the basis of the contracting agreement. A failure to properly plan the effort early in the process will result in preventable delays that will increase the time and funds necessary to meet the requirements of the user.

A contributing factor to the poor planning that exists in many programs is an insufficient amount of education and training on the principles of the IPPD process and how it is implemented in all contracting relationships, including Alpha Contracting. It is often assumed that team members have previously been trained and therefore understand the IPPD process, since it is so prevalent in both Government and industry. Because Alpha Contracting is a relatively new concept, the IPT members that implement it must remain flexible and willing to think outside the normal parameters of the traditional contracting process. This may take time to learn and requires patience and dedication, the outcome of which can be enhanced with initial and refresher training on the IPPD concept and its implementation within an Alpha Contracting environment.

D. SUMMARY

The Alpha Contracting process is intended to unite the customer and supplier into a single team focused on the efficient development of the product (Ref. 8). The vehicle that allows for this joint development between buyer and seller is the IPPD process, which has both enablers and inhibitors to implementation that must be considered prior to the initiation of the contracting process. While Alpha Contracting can lead to reduced

contract development time, increase the level of communication and understanding between organizations, and improve long-term relationships, caution must be applied to process implementation to ensure that emotions, lack of empowerment, and a lack of planning do not preclude the potential benefits from its utilization. This chapter has provided an analysis of those enablers and inhibitors that were examined in the three Army acquisition programs discussed in Chapter III. The following chapter provides a set of recommendations to be considered by DoD programs implementing an Alpha Contracting relationship into their program.

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V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

The purpose of this chapter is to provide answers to the research questions listed in Chapter I and to draw an overall conclusion, based on the data provided in Chapters III and IV, on the effect Alpha Contracting has on the implementation and execution of the IPPD process. Additionally, this chapter will provide a set of recommendations intended for consideration by any current or future DoD acquisition programs considering the implementation of an Alpha Contracting relationship within their program.

B. RESEARCH QUESTIONS

1. **How has the Alpha Contracting process been applied to Army acquisition programs to enhance the IPPD process?**

The primary research question focused on the identification of methods by which members of programs utilizing Alpha Contracting have enhanced the IPPD process. This question has been answered through the provision of a set of recommendations for Program Managers to bear in mind when considering the implementation of Alpha Contracting in their program. These recommendations, listed in Paragraph D below, focus on the early development of a structured framework that includes enlisting only empowered participants who are trained on the IPPD process and are whole-heartedly supported by their senior management.

2. **What is the IPPD process? What are its objectives and how has it been implemented in Army acquisition programs?**

The first subsidiary question focused on the definition and objectives of the IPPD process. IPPD is a management process that integrates all activities from product concept through production/field support, using a multifunctional team, to simultaneously optimize the product and its manufacturing and sustainment processes to meet cost and performance goals. The objective of the IPPD process is to utilize a multi-functional team effort to integrate the functions of all the representative elements of the program into the decision making process. Chapter II provides an extensive review of the IPPD process, including a detailed description of the IPPT tenets that were used to analyze the

Army acquisition programs used for this thesis. An examination of how the IPPD process has been implemented in these programs is provided in Chapter III.

3. What is Alpha Contracting? How does it differ from traditional sole-source contracting?

The second subsidiary question focused on the definition of Alpha Contracting and how it differs from the traditional sole-source method of contracting. Alpha Contracting is a method of sole-source contracting that capitalizes on the teaming of the Government and the contractor early and throughout all stages of the acquisition process. It differs from the traditional sole-source contracting method in that it includes the contractor in the planning and development of the contract from the beginning of the process, thereby reducing the overall time to contract award.

4. How has the utilization of Alpha Contracting effected the IPPD process within the following Army programs: HMMWV, Bradley A3, and AFATDS?

The third subsidiary question addressed the effect Alpha Contracting had on the IPPD process in each of the Army programs researched for this thesis. Alpha Contracting provides an environment within which the IPPD process can function. It focuses on the joint development of the contract, combining the expertise and experience of representatives from both the Government and contracting organization. Chapter II provides a thorough analysis of these two methodologies, including the marriage of the concepts into an effective and efficient process, while Chapter III analyzes the effect of Alpha Contracting on the implementation of the IPPD tenets. Within all three programs, the Alpha Contracting process reduced overall contract development time and resulted in the development of a long-term relationship that has produced several follow-on contracting efforts. Additionally, the strong relationships developed between representatives in each of these programs resulted in the implementation of innovative approaches that saved time and money for both the Government and contractor.

5. What enablers of Alpha Contracting have led to the successful implementation of the IPPD process in the afore-mentioned programs?

The fourth subsidiary question focused on the enablers to IPPD implementation that were identified in each of the three programs. Among the top enablers identified

through this research are the joint development of products and processes, gaining industry insight to best practices, and the improved understanding of requirements that results in a reduced contract development time.

6. What are the potential inhibitors of Alpha Contracting in the implementation of the IPPD process in each of these Army programs?

The fifth subsidiary question addressed the potential inhibitors to IPPD implementation that were identified in the Army programs researched for this thesis. The most identifiable inhibitors that resulted from this research include personality conflicts, lack of trust between IPT members, lack of empowered participants, and the necessity for a dedicated, labor-intensive workforce early in the program.

7. How can the potential inhibitors to implementing the IPPD process within an Alpha Contracting relationship be addressed or overcome?

The last subsidiary question addressed the methods by which these potential inhibitors can be addressed or overcome within a program. This question, in addition to the primary research question, has been answered by the provision of a set of recommendations intended for consideration by Program Managers, located in Paragraph D in this chapter.

C. CONCLUSIONS

Alpha Contracting is a method by which a teaming approach is used to convert the traditional “over the fence” contracting process into a concurrent exchange of information, from scope of work and solicitation development through the development of cost elements and finally, contract award. The key element of Alpha Contracting is the utilization of the team approach between the Government, contractor and user to meet the customer or end user’s objectives. Alpha Contracting relies on the willingness of the Government and contractor to work together throughout the entire contract formulation process.

This process presents both enablers and inhibitors to the successful implementation of the IPPD process, which is crucial for the overall success of the program. A dedicated Alpha Contracting teaming approach results in reduced cycle time and maximizes the opportunity to develop a contract that best achieves program

requirements within program funding guidelines (Ref. 30). It is in use in both DoD and non-DoD procurement, and has the enthusiastic support of DCAA and DCMA, as well as having received favorable comments from industry. Alpha Contracting is a proven approach to reducing contract development time and costs, improving the negotiated agreement, and increasing the probability of a program's success (Ref. 1).

D. RECOMMENDATIONS

These recommendations take into account the enablers and inhibitors discovered during an examination of the effects Alpha Contracting had on the IPPD process in three different Army acquisition programs. Although the scope of this thesis was limited to the research conducted on the three Army programs, it is this researcher's opinion that the following recommendations apply to the implementation of Alpha Contracting in any DoD acquisition program.

1. Establish a PROCAS Agreement

Prior to beginning work on an Alpha Contracting effort, a PROCAS agreement should be established to formulate the strategy that will be followed to achieve a fully agreed upon contract. This process should be initiated with a meeting of the Government and contractor representatives involved in contract development to identify team members, agree on the process, identify sub-teams and members, establish methods of communicating information and data, and set goals and milestones (Ref. 37). This agreement will explain the rules and guidelines that apply to everyone involved in the process, as well as list the roles and responsibilities of each member. A senior representative from each organization partaking in the process should then finalize the agreement with a signature binding their party's commitment to the process.

2. Implement an Education and Training Plan

Successfully implementing the IPPD process into an Alpha Contracting environment relies upon the establishment of a formal team training plan for all IPT members. Team training is an important aspect of IPTs that should be implemented early in the program because it will ultimately increase the effectiveness and efficiency of the team, particularly in the utilization of a relatively new, non-traditional contracting

methodology like Alpha Contracting. Joint training sessions will also help to build unity and trust between Government and contractor personnel who may be used to the adversarial methods characteristic of the traditional contracting process. Although training comes with the added cost of each member's time, it can pay significant dividends at a later date when the team accomplishes tasks more quickly and with possibly less angst. Listed below are some specific types of training that should be considered for integration into the early stages of an Alpha Contracting relationship (Ref. 8):

a. IPPD Training

The first training the teams should receive covers the application of DoD's IPPD tenets and provides examples and suggestions on how to implement the approach, particularly within sole-source procurement. It provides a good general background for someone who has not been exposed to IPPD and or Alpha Contracting and acts as an effective refresher for a team member who has been away from IPPD for a while. It should include a lesson in the applicability of the tenets to the success of an Alpha Contracting approach within an acquisition program.

b. Information Technology Training

Because not everyone is knowledgeable or proficient in the use of computers, IPT leaders can assume that team member collective computer skills will range from non-existent to exceptional. Even proficient members may find that the selected software is foreign to them. For these reasons, teams should be given an appropriate level of training to ensure that electronic information transfer is used to the maximum extent possible. This will also aid in ensuring that the data transferred between team members is usable by the logistics representatives of other IPTs.

c. Product-Specific Training

Product-specific training is recommended to develop an in-depth knowledge of the product and how the user will effectively employ it. This technical training will either be provided by the developing contractor or by a member of the Program Office who is specifically trained in the system. It may be a lesson in the capabilities of a new technology, the special handling requirements for a particular

component, or disposal requirements for anticipated byproducts from the use or disposal of the system.

d. Systems Engineering and Analysis Training

Although some team members may be familiar with methods for conducting analyses, tradeoff studies, and assessments, others will be unfamiliar with the methods. This training is conducted to familiarize team members with such areas as risk management, risk assessment, tradeoff studies, and cost/performance analysis, which are crucial to effective IPT decision making. Each member needs to understand the relative importance of all of the variables used in a particular method and how a change in one will affect the outcome of the others.

3. Select Participants Who Are Empowered

Delegation of authority is a key factor in the successful implementation of Alpha Contracting. As stated in the IPPD tenets discussed in Chapter II, team members must be appropriately empowered to bind their individual organization within reasonable limits to the agreements reached in an IPT (Ref. 7). Particular attention should be paid in the selection of team members, ensuring that not only all areas pertaining to contract development are represented, but also that the person chosen to represent each area is appropriate for the position. Each team member must be technically proficient in his associated field, as well as possess the authority to bind his organization in an agreement reached within the IPT. Alpha Contracting facilitates an environment in which requirements can be clearly communicated in an open forum; however, the mutual objectives of the parties cannot be realized if the individual representatives do not come to the table prepared to give and take in order to reach a binding decision.

4. Include Subcontractors and Vendors in the Process

The involvement of subcontractors and vendors is an important consideration for maintaining the time saving nature of the Alpha Contracting process. It is beneficial to include the recognized subcontractors in the development of a cost estimating methodology to establish the anticipated costs of the contract. The use of joint IPT sessions is recommended to obtain and agree upon vendor quotes for subcontract development early in the process. Establishing correct and supportable subcontractor

costs from the outset will prevent delays that could result from incorporating these estimates later in the program (Ref. 37).

5. Identify Single Authority to Settle Disputes

Many times, Alpha Contracting teaming efforts achieve complete agreement in all areas of cost. However, in the event that full agreement cannot be reached, a single decision-making authority should be appointed in the PROCAS agreement whose responsibility it is to resolve disputes. In this type of situation, a formal statement should be submitted by the contractor to this empowered individual, highlighting the areas of disagreement. Subsequent negotiations can then be held that are limited to the specified areas of disagreement. This situation may also arise in the procurement of major systems where certain cost elements may need to be elevated beyond the level that joint IPTs. This is typical for items such as unique contract clauses and language (Ref. 1).

6. Limit the Number of Representatives

The success of the Alpha Contracting process relies heavily upon the joint interaction and discussions of empowered representatives from each organization. However, if several empowered representatives for each area of the contract are present at the IPT meeting, the size of the team may become unmanageable, which may hinder the process more than benefit it. The chance of personality conflicts and power struggles increase as the number of empowered decision-makers increases. It is more practical to provide only one decision maker who is accompanied by several advisors and technical experts to ensure a streamlined and less time-consuming process.

7. Include Supporting Agencies in Contract Development

It is important to include supporting agencies such as DCAA and DCMA in the development of cost and technical information. These organizations should participate in the analyzing of cost and supporting data as it is developed, and should include the contractor in the process of reviewing and analyzing recommendations in the areas where there are disagreements with the contractor's rationale (Ref. 39). The utilization of these agencies, as well as customer representatives and TRADOC Systems Managers, increases the likelihood of the warfighter receiving a quality product on time at an affordable price.

8. Set Aggressive Meeting Schedule

The senior representatives of the Alpha Contracting teaming arrangement should establish an aggressive, effective schedule that culminates in a weekly or bi-monthly meeting of the Program or Integrating IPT to maintain visibility over the progress of the program. Accountability for the submission of products should be assigned to specific personnel who understand their responsibility to meet submission deadlines and provide an update at every meeting on the product's completion, along with any associated issues. The anticipated dates for completion of each segment and the responsible IPT should be agreed to and annotated in the PROCAS agreement at the initiation of the teaming arrangement. Any delays or adjustments to the schedule should be discussed in an open forum where joint agreement must be reached prior to the adjustment of submission dates and/or milestones.

9. Maintain Common Databases

Crucial to the success of Alpha Contracting is the ability of sub-team members to share common databases and to reach agreement on estimating and evaluation methodology before beginning to develop cost estimates. Through review and manipulation of a common set of data, team members can more quickly achieve a thorough understanding of each organization's positions and work to eliminate disagreements. Then, by reaching agreement on estimation and evaluation methodology prior to the development of cost estimates, the team can reduce bid and proposal costs. Additionally, the estimator can accurately predict the cost associated with a specific scope of work (Ref. 1).

10. Tailoring the Alpha Contracting Approach

The Alpha Contracting approach is labor intensive in the early stages of development and requires a significant amount of dedicated personnel to be successful. Therefore, the use of a full Alpha Contracting approach should be limited to those programs for which there is a high payoff. High payoff must be independently defined by Program Managers depending on the priority, funding requirements, ACAT level, urgency and visibility of their program. For acquisitions that fall outside of this category, tailoring the Alpha Contracting approach to only specific tasks or areas can minimize

labor demands. This can be accomplished by using electronic data interchange, sharing databases, or optimizing the use of existing information, such as Forward Pricing Rate Agreements (FPRAs), recent negotiation results, or established Bills of Materials (Ref. 1).

E. RECOMMENDED AREAS FOR FURTHER RESEARCH

1. Alpha Contracting in Post Deployment

One area for continued research regarding this subject area might include an examination of other programs that utilized an Alpha Contracting approach during the Operations and Maintenance (O&M) phase of system deployment. While this thesis concentrated on the use of Alpha Contracting in contract development and award, further research in the later stages of an acquisition effort might provide additional insight into the advantages and disadvantages of using Alpha Contracting.

2. Alpha Contracting in Other DoD programs

Another potential area for further research is the analysis of the effects of Alpha Contracting on the IPPD process in non-Army acquisition programs. This thesis focused solely on Army programs to more narrowly define the focus of research; however, the same analysis might be applied to programs managed by the Air Force, Navy or Marine Corps to determine if the same enablers and inhibitors present themselves in those cases. Additionally, a comparative analysis might be conducted to compare and contrast the Alpha Contracting approaches utilized within the different services.

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ATTN: AMSTA-LC-CHAD, Ms. Pam Grozdon
Warren, MI
7. Mrs. Cheryl Rehs
U.S. Army Tank-Automotive and Armaments Command (TACOM)
ATTN: AMSTA-DSA-LT, Ms. Cheryl Rehs
Warren, MI
8. Mr. John Vellicky
U.S. Army Tank-Automotive and Armaments Command (TACOM)
ATTN: Bradley A3 Program
Warren, MI