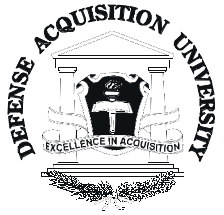
DRAFT

ACQUISITION STRATEGY GUIDE

Fifth Edition



June 2003

PUBLISHED BY THE
DEFENSE ACQUISITION UNIVERSITY PRESS
FORT BELVOIR, VIRGINIA 22060-5565

DRAFT

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328

PREFACE

The Department of Defense policy requires that military Program Managers (PMs) develop a tailored acquisition strategy that a PM follows in program execution. A strategy that is carefully developed and consistently executed is one of the keys to a successful program. It is a difficult and challenging task to blend the multitude of requirements for a system acquisition into an acquisition strategy that also represents a consensus among the organizations and/or stakeholders that influence or are influenced by the program.

The purpose of this Guide is to provide, in a single source, information that PMs should find critical to structuring, developing, and executing an acquisition strategy. A process for developing and executing an acquisition strategy is provided together with criteria for evaluating a proposed strategy. However, this Guide alone does not provide PMs with a definitive acquisition strategy for specific programs. Well informed, educated, and innovative applications and judgments concerning the particular mission need are necessary to structure a successful acquisition strategy. PMs should continue to seek guidance, data, and assistance from available sources as they prepare and revise their acquisition strategy.

Thanks are due to Mr. Bill Bahnmaier, a former Defense Acquisition University (DAU) instructor, and to Ms. Frances Battle and Ms. Debbie Gonzalez of the DAU Press, for extensive support in preparing this fifth edition to the Guide. Thanks are also due to those members of the DAU faculty who reviewed that update during its development and provided constructive suggestions for improvement.

The DAU is the controlling agency for this Guide. Comments and recommendations relating to the text are solicited. You are encouraged to mail such comments to us on the pre-addressed tear sheet located at the back of this Guide.

Charles B. Cochrane
Director
DAU Center for Program Management

DRAFT
CONTENTS

LIST OF TABLES

DRAFT

1

INTRODUCTION

1.1 DEFINITION

An acquisition strategy[1] is a high-level business and technical management approach designed to achieve program objectives within specified resource constraints. It is the framework for planning, organizing, staffing, controlling, and leading a program. It provides a master schedule for research, development, test, production, fielding and other activities essential for program success, and for formulating functional strategies and plans.

The Program Manager (PM) is responsible for developing and documenting the acquisition strategy, which conveys the program objectives, direction, and means of control, based on the integration of strategic, technical, and resource concerns. A primary goal in developing an acquisition strategy is the minimization of the time and cost of satisfying an identified, validated need—consistent with common sense, sound business practices, and the basic policies established by:

- Department of Defense Directive (DoDD) 5000.1, "The Defense Acquisition System," May 12, 2003;
- Department of Defense Instruction (DoDI) 5000.2, "Operation of the Defense Acquisition System," May 12, 2003;
- Department of Defense (DoD) *Interim Defense Acquisition Guidebook (IDAG)*, subject: Non-mandatory best practices, lessons learned, and expectations.

Collectively, these 3 documents are colloquially referred to as the "5000 Series."

A full-up acquisition strategy is initially structured during the Technology Development (TD) phase of the program to provide an organized and consistent approach to meeting program objectives within known constraints. The strategy may either be evolutionary—the preferred way—or single-step-to-full-capability. The acquisition strategy may be a stand-alone document or otherwise included in a key program summary document as specified by the Milestone Decision Authority (MDA), starting at Milestone B. The Air Force's program summary document which contains the strategy is called a Single Acquisition Management Plan (SAMP); the Army's document is called a Modified Integrated Program Summary (MIPS), and the Navy and Marine Corps use a Navy Master Acquisition Program Plan (MAPP). Once developed, the acquisition strategy is modified as necessary throughout the acquisition cycle.

Prior to development of a program acquisition strategy in TD, a Technology Development Strategy (TDS) will be formulated during the Concept Refinement Phase, and approved by the MDA at Milestone A. The TDS contains the research and development strategy to be implemented—particularly in the TD Phase—and the rationale for either an evolutionary or single-step acquisition strategy.

The program acquisition strategy flows directly from the TDS for programs using an evolutionary acquisition strategy. The TDS includes a preliminary description of how the program will be divided into technology spirals and development increments, an appropriate limitation on the number of prototype units that may be produced and deployed during TD, how these units will be supported, and specific performance goals and exit criteria that must be met before exceeding the number of prototypes that may be produced under the research and development program. Simply put, the TDS is a truncated program acquisition strategy, so when it is fleshed out with all the necessary acquisition strategy elements, it becomes a program acquisition strategy.

A good acquisition strategy is realistically tailored to program objectives and constraints, and is flexible enough to allow innovation and modification as the program evolves. The strategy balances cost and effectiveness through development of technology options, exploration of design concepts, and planning and conduct of acquisition activities. These elements are directed toward either a planned Initial Operational Capability (IOC) or retention for possible future use, while adhering to a program budget.

The strategy should be structured to achieve program stability by minimizing technical, schedule, and cost risks. Thus the criteria of realism, stability, balance, flexibility, and managed risk should be used to guide the development and execution of an acquisition strategy and to evaluate its effectiveness. The acquisition strategy must reflect the interrelationships and schedule of acquisition phases and events based on a logical sequence of demonstrated accomplishments, not on fiscal or calendar expediency.

1.2 BACKGROUND

Office of Management and Budget (OMB) Circular No. A-11 (superseding OMB Circular A-109) applies to all federal executive agencies. It states that an acquisition strategy should be developed and tailored as soon as the agency decides to solicit alternative system design concepts that could lead to the acquisition of a new major system. Further, it states that steps should be taken to "refine the strategy as the program proceeds through the acquisition process." In general terms, the Circular describes a variety of considerations that such a strategy might include.

The DoD regulatory guidelines for an acquisition strategy are contained in Chapter 2 of the *Interim Defense Acquisition Guidebook (IDAG)*–the 3rd part of the 5000 Series. Although most of the guidelines stated in the *IDAG* were initially formulated for Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS) Programs, they apply to other acquisition category (ACAT) programs as well. A thorough review of the key elements of an acquisition strategy in Chapter 2 of the *IDAG* is recommended prior to initiating or updating an acquisition strategy. This A*cquisition Strategy Guide* (see Chapter 2 herein) is intended to supplement and clarify those guidelines.

Development, approval, and execution of the acquisition strategy constitute an essential part of the program milestone review process. The initial program acquisition strategy is part of the Milestone Review documentation approved by the MDA at Milestone B prior to program initiation. Such approval is critical to the program, for it is a prerequisite to issuance of the Acquisition Decision Memorandum and/or release of the formal solicitation for the next program phase. On

an exception basis, the MDA may require a formal review meeting on the acquisition strategy prior to approval.

1.3 ACQUISITION IMPROVEMENT INITIATIVES

Past and present Administrations and Congresses have taken many initiatives to improve the acquisition of defense systems. Several such actions occurred during the 1980s and 1990s: the Acquisition Improvement Program in DoD, the Federal Acquisition Regulations (FARs) from the Office of Federal Procurement Policy, the Packard Commission Report, and the Defense Management Review directed by the President. Some of the important initiatives related to the above, as well as later, reviews and developments include the following:

- Deputy Secretary of Defense Frank C. Carlucci's 32 Initiatives (1981) to improve the acquisition process.

- Department of Defense Authorization Act, 1986, Public Law (P.L.) 99-145 (defines the terms "procurement command" as they apply to each service).

- Military Retirement Reform Act of 1986, P.L. 99-348 (creates the position of Under Secretary of Defense for Acquisition with specific responsibilities stated in later amendments).

- National Defense Authorization Act for Fiscal Year 1987, P.L. 99-661 (states preference for Non-Developmental Items (NDIs) and establishment of baseline descriptions).

- National Defense Authorization Act for Fiscal Years 1990 and 1991, P.L. 101-189 (quantification of articles procured as "Low Rate Initial Production" (LRIP)).

- National Defense Authorization Act (NDAA) for Fiscal Year 1991, P.L. 101-510, contains Defense Acquisition Workforce Improvement Act (DAWIA) identifies education and training needs of persons serving in acquisition positions in the DoD; and updates functions of Component Acquisition Executives).

- Federal Acquisition Streamlining Act (FASA) of 1994, P.L. 103-355 (provides numerous procurement reform measures).

- Information Technology Management Reform Act of 1996 (Clinger-Cohen Act) P.L. 104-106 (requires federal agencies to improve the way they select and manage information technology resources).

Flowing directly or indirectly from these and earlier reviews and laws, a number of strategies and control methods either came into being or were strengthened to make the acquisition process more efficient. Examples of strategies include Evolutionary Acquisition (EA), NDI Acquisition, Preplanned Product Improvement (P3I), and acquisition of commercial items on commercial terms. Examples of control methods include the Planning, Programming, and Budgeting System (PPBS); Selected Acquisition Reports (DARs); Defense Acquisition Board (DAB) deliberations; and the Defense Resources Board (DRB) deliberations.

Acquisition reform was a series of recent initiatives to improve the acquisition of DoD systems. The FASA legislation is one of the tangible results of acquisition reform thus far. This Act focused on simplifying the procurement process and removing impediments to efficient and effective program management. Further, it promotes and provides for increased use of commercial practices and commercial products in DoD systems acquisition. To a large extent, acquisition reform has been

superseded by "acquisition excellence initiatives," which has a similar purpose, i.e., improving the acquisition process. However, acquisition excellence initiatives are more concerned with actually implementing many of the acquisition reform initiatives. Some recent acquisition excellence initiatives include price-based acquisition, alternative disputes resolution (ADR), performance-based logistics, and the Acquisition, Technology, and Logistics (AT&L) Knowledge Sharing System (AKSS).

Of particular importance in developing a program acquisition strategy are Integrated Product and Process Development (IPPD) concepts. Integrated Product Teams (IPTs) are key to the IPPD concepts, and their use is directed for program management and oversight functions, including efforts to develop an acquisition strategy. Equally important is the need to apply the methods established for reengineering the acquisition process.

The acquisition strategy must emphasize the use of open systems and standard interfaces, for these features greatly facilitate system updates to incorporate future technological advances. Further, the strategy must provide an overview of environmental considerations in the development, testing, and operational phases of the entire system under acquisition.

1.4 BENEFITS

Below, paragraphs 1.4.1 through 1.4.4 present five primary benefits that accrue from the development and maintenance of a comprehensive acquisition strategy.

1.4.1 Organized and Consistent Approach

The acquisition strategy serves as a master checklist ensuring that all important issues and alternatives are considered. At any point in the acquisition process, the strategy must address the entire remaining portion of the program, with primary emphasis on the next program phase. Documenting the acquisition strategy is a means of performing adequate strategic planning in the beginning and throughout the program, thereby reducing potential diversions from program objectives that could have adverse cost, schedule, and technical consequences.

1.4.2 Decision Aid

An up-to-date acquisition strategy, reflecting current conditions, acts as a decision aid in several ways. The strategy assists in: prioritizing and integrating many diverse functional requirements, evaluating and selecting important issue alternatives, identifying the opportunities and times for critical decisions, and providing a coordinated approach to the economical and effective achievement of program objectives. When the acquisition strategy is reviewed and approved, a credible, realistic approach to the conduct of the program can be established and advocated by the PM up through the Military Department, the Office of the Secretary of Defense (OSD), and on to the White House and the Congress. The acquisition strategy aids in forming a consensus through recognition that the developed approach is optimal for acquiring and deploying the system (or equipment), or alternatively for developing a Technical Data Package (TDP) for possible later use.

1.4.3 Means of Achieving Agreement

The acquisition strategy serves as the basis for preparing the plans and activities to accomplish the program. It becomes a contract between the PM and the MDA for achieving program objectives and goals. The acquisition strategy should document the tailoring of acquisition alternatives that are

expected to be executed. Thus, it is the base from which all functional planning proceeds. Key elements of the acquisition strategy—such as timing and milestones—are reiterated in the Acquisition Program Baseline (APB).

1.4.4 Guide and Baseline on Rules/ Assumptions

The acquisition strategy documents the ground rules and assumptions that preceded and then lead to program initiation. It acts as a guide and also documents program progress through periodic updates, and therefore provides a documented audit trail for succeeding PMs. It also serves as a standard by which superiors in the chain of command can measure program progress in terms of their program responsibilities.

1.5 TRENDS AND EMPHASES IN THE NEW MILLENNIUM

This section builds on the initiatives in 1.3 above, and the on-going reform momentum as DoD moves into the 21st century. In the late 1990s, the Secretary of Defense brought Acquisition Reform, Financial Management Reform, and other DoD initiatives under the Defense Reform Initiative (DRI). This action was intended to set goals designed to modernize defense business practices to match sweeping changes in America's military affairs. In addition, DRI was to be thought of as an umbrella—a process that ties together DoD reform initiatives. The latest progress report on the DRI and other acquisition strategy related matters is normally available on the DoD Website DefenseLINK, and the various other DoD Acquisition Initiatives Websites.

Equally applicable to acquisition strategy development, the Under Secretary of Defense for Acquisition and Technology in March 1999 announced the publication of *Into the 21st Century: A Strategy for Affordability*. This document is the DoD's blueprint for adapting to the Department's needs the best world-class business and technical practices in rationalizing infrastructure, restructuring support systems, and reducing cycles times and ownership costs while improving readiness. *Into the 21st Century: A Strategy for Affordability* was produced by the Defense Systems Affordability Council (DSAC). It lists these goals:

- Field high-quality defense products quickly and support them responsively.
- Reduce the cycle time of DoD processes for acquisition and support, thus producing cost reduction across-the-board while improving readiness and responsiveness.
- Lower the total ownership cost of defense products.
- Reduce the investment cost of new systems, thereby increasing the purchasing power of modernization funding; and reduce operating and support costs of fielded systems, thereby making more resources available for modernization.
- Reduce the overhead cost of the acquisition and logistics infrastructure.
- The cost efficiencies achieved can be reallocated for modernization or essentialsupport.

For each goal, the Strategy articulates the DSAC's enterprise-level objectives and metrics, and the major initiatives that will contribute to achieving those objectives. The Strategy also challenges the Department to achieve some targets by 2005 such as cutting logistics response time to five days and lowering logistics support cost by 20 percent.

Another current and far-reaching initiative in the DoD is "Transformation." This initiative—underway as this Guide is being written—involves a "re-write" of DoD organizational business practices using private-sector-inspired ideas and methods to transform DoD into a more efficient organization in the 21st century. This initiative is guided by the DoD Business Initiatives Council, a group of senior defense officials led by the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)).

1.5.1 Actions Within the Acquisition Strategy

These strategy goals and the contents of the DRI need to be part of a 21st century acquisition strategy. Specific acquisition reform actions and excerpts from the DoD 5000 Series that support these goals are:

- The need to shorten the development cycle time.
  - — Streamlining: The PM shall streamline all acquisitions so that they contain only those requirements that are essential and cost-effective.
  - — Tailoring: Tailored acquisition strategies may vary the way in which core activities are to be conducted, the formality of reviews and documentation, and the need for other supporting activities. ACAT II and III PMs shall work with their decision authorities to tailor any documentation and decision points to the needs of the individual program.
  - — Integrated Product and Process Development (IPPD): The PM shall employ the concept of IPPD throughout the program design process to the maximum extent practicable. The use of IPTs is a key tenet of IPPD.
- The need to control (and where possible reduce) the life-cycle cost of existing systems and new system acquisitions.
  - — Competition: PMs and contracting officers shall provide for full and open competition, unless one of the limited statutory exceptions apply. PMs and contracting officers shall use competitive procedures best suited to the circumstances of the acquisition program. The acquisition strategy for all acquisition programs shall describe plans to attain program goals via competition in all increments and life-cycle phases.
  - — Cost As an Independent Variable (CAIV): CAIV is a process that helps arrive at cost objectives (including life-cycle costs) and helps the requirements community (based cost-schedule-performance trade-offs during each phase of the acquisition process) set performance objectives. The CAIV process shall be used to develop an acquisition strategy for acquiring and operating affordable DoD systems by setting aggressive, achievable cost objectives and managing achievement of these objectives.
  - — Integrated Digital Environment (IDE): The PM shall be responsible for establishing a data management system and appropriate IDE that meets the data requirements of the program throughout its total life-cycle.
- Open system architecture (to permit system update in step with technological advances and changing threat).

— Commercial systems and commercial items: In developing and updating the acquisition strategy, the PM shall consider all prospective sources of supplies and / or services that can meet the need, both domestic and foreign. Commercial and NDIs shall be considered as the primary source of supply. Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and NDIs prior to and during the development effort, and prior to the preparation of any product description.

— Standard / commercial interface requirements specifications: PMs shall establish open systems objectives, document their approach specifying the level(s) of openness of system, and devise an open systems strategy to achieve these objectives. The strategy focuses on fielding superior warfighting capability more quickly and more affordably by using multiple suppliers and commercially supported practices. Open system-based commercial items are defined as items that use open standards as their primary interface standards.

- Interoperability with the North Atlantic Treaty Organization (NATO) and other allies: Compatibility, interoperability, and integration are key goals that must be satisfactorily addressed for all acquisition programs. Where appropriate, include discussion of interoperability and commonality of components / systems that are similar in function to other DoD Component programs or Allied programs. This is particularly true of Command, Control, Communications, Computers, and Intelligence (C4I) systems and documentation linked to the Analysis of Alternatives (AoA), system engineering, and software engineering.

ENDNOTE

1. A closely aligned program document is the Acquisition Plan (AP) required by the Federal Acquisition Regulation / Department of Defense Federal Acquisition Regulation Supplement (FAR / DFARS). It focuses on procurement / contracting processes to implement the acquisition strategy. The performance of acquisition planning as documented in the AP is the responsibility of the PM. The plan is prepared, coordinated, and updated by the contracting officer under procedures established by the head of the contracting activity, with approval of the AP as determined by the Component's Senior Procurement Executive. Reference DFARS. The similarity of names is a potential source of confusion between the two documents.

DRAFT

2

ACQUISITION STRATEGY CHARACTERISTICS

2.1 CHARACTERISTICS/CRITERIA

An acquisition strategy must provide the basis for meeting program objectives, thereby acting as an aid in gaining program acceptance and support. Accordingly, five characteristics are required for a credible acquisition strategy: *realism, stability, resource balance, flexibility*, and *managed risk*. This section provides a working definition of each criterion, explains why it is important and what pressures work against it, and outlines the steps necessary to achieve it.

2.1.1 Realism

An acquisition strategy is realistic if the program objectives are attainable and the strategic approach to satisfying them can be successfully implemented with reasonable assurance. Realism cannot be easily quantified, but there are some measurable properties. For example, a two-fold increase in present performance may be more realistic (attainable) than a three-fold increase. Ranking methodologies, as well as probability and statistical analyses, are practical measurement techniques.

Only a realistic approach will elicit support for the program at all levels. A strategy that is unrealistic can result in continuous turmoil and crises, and may lead to ultimate failure. With mounting evidence that certain milestones are not attainable, the first reaction is to try "Band-Aid®" approaches, such as shifting funds from another area or deferring the work. Even if such temporary measures work, the activities that were "taxed" may be placed in an under-funded position. Deferred activities can cause interface and scheduling problems, leading to more temporary patches. On the other hand, a leisurely schedule approach can result in lost program momentum as priorities and requirements change. The best way to avoid such situations is to set requirements related to technical, cost, and schedule factors reasonably within capabilities. Simply stated, the acquisition strategy should represent a conceptual plan that is neither too optimistic nor too conservative—another way of defining realism.

The Program Manager (PM) must recognize that there are pressures in his role that work against realism. Some of the more common forms of pressure are cited below:

- **Competing Alternative Approaches.** An immediate goal of a PM is to gain program acceptance and to see that it is approved, funded, and started. This requirement often induces unrealistic conditions such as matching or exceeding the claimed capability or milestones of a competing approach, or accepting beyond state-of-the-art performance requirements based on an insupportable analysis of a future threat.

- **Acceptance of an Inflexible Set of Requirements.** This stance does not permit trade-offs, and forces the PM to force-fit

an acquisition strategy, introducing unrealistic conditions.

- **Strategy Directed by Higher Authority.** Pressures on the PM from the upper echelons may lead to an acquisition strategy with limited alternatives and insufficient planning, or introduce over-optimism with regard to schedule and resource requirements.

- **Low Program Priority within the Service.** A low priority program may tempt the PM to recite doctrinally correct program concerns and avoid documentation of relevant interests and concerns.

- **PM Reaction to Micro-Management.** The PM may adopt a "close to the vest" syndrome, so that minimal details of the conceptual approach are presented, which in turn reduces the guidance available to functional managers in their efforts to support the program.

- **Strong Competition.** Competing systems or strong high-level opposition to the program may induce the PM to counter by introducing unrealistic goals or management approaches in the acquisition strategy.

There is no simple formula for achieving realism. It entails detailed study of the threat, assessment of the state-of-the-art in all technology areas, review of past performance on similar acquisitions or systems, a survey of industry capability, followed by the attainment of a consensus once the analysis is complete. Studies take time and resources, but since realism is such an important criterion for a successful strategy, every effort should be made to support this undertaking in critical areas.

2.1.2 Stability

Acquisition stability is the characteristic that inhibits negative external or internal influences from seriously disrupting program progress. Negative influences frequently cause changes in cost, schedule, or performance requirements that can threaten the achievement of milestones. It would be naive to assume that any significant program will not encounter situations that can change the course of the program to some extent. Some of these situations may be well beyond any strategic program control—e.g., a greatly increased threat capability of a potential enemy that seriously negates the operational value of the system under development.

Any change in critical system or acquisition parameters can ripple throughout the program, cause serious disruptions, reduce confidence in program estimates and assumptions, increase government and contractor risk, and reduce morale and motivation. Frequently, when a major change is made, as in funding, a "downstream" parameter such as operational readiness or logistics support bears the brunt of the change, and system operational capability can be significantly affected. However, there are many potential causes of instability that can be countered to some extent by a carefully designed acquisition strategy.

Five key factors work against stability:

- **The Funding Process.** A number of exogenous factors may produce changes to the yearly funding levels. The changes may require program stretch-outs, a reduction in operational capability, or reduced production quantities.

- **Requirements Changes.** The perceived threat level may change or the user may

desire more or less capability, any one of which may result in disruption of technical progress.

- **Changing Acquisition Policy or Philosophy.** Changing administrations, executives, or political climates can result in revised policy, which may exert pressures to change the strategy to conform to the new thinking.

- **Industry Risks.** Contractors may be faced with an untenable risk or profit position through buy-in, loss of a major contract, or failure to modernize. The consequences may require additional program money and time, and may possibly result in new contractor sources.

- **Organizational and Personnel Changes.** These changes may result in lack of continuity, lack of accountability, loss of audit trail, and/or changes in directions, processes, and procedures.

Four elements related to acquisition strategy can enhance program stability:

- **Direction.** A strategy must impart a sense of knowing where the program is headed, and when and how each goal will be achieved, achieved by delineating overall program objectives, approaches, and control procedures.

- **Advocacy.** Programs that lack high-level support are initial targets for program changes. The PM must know who the initial supporters are, keep them informed, and if feasible, cultivate new supporters.

- **Commitment.** The PM should strive for agreements that cannot easily be canceled. If the government establishes an agreement with an external party, then a measure of stability is achieved. Two significant examples are a Memorandum of Agreement (MOA) with a foreign government for joint development or future delivery, and a Multi-Year Procurement contract.

- **The Use of IPTs.** When properly oriented and challenged, the multifunctional members of the IPT become committed to program success, thereby reducing parochial or functional imbalances that could otherwise lead to future instability.

2.1.3 Resource Balance

Resource balance is a condition of equilibrium between and within major program objectives that are competing for resources. The achievement of cost, schedule, and performance requirements uses resources of time, people, facilities, and money—all of which are limited. Implementing Cost As an Independent Variable (CAIV), an Acquisition Reform initiative, facilitates the achievement of this resource balance. The degree of balance is difficult to measure directly, but it can be measured in terms of risk in meeting objectives. In this sense, a balanced program is one for which all the risks are approximately equal, where the risk measure includes establishment of priorities and assessment of damages in case of failure.

The PM must respond to high-level direction, which often presents conflicting demands. For example, consider the following set of program objectives: the acquisition cycle time must be reduced, operational testing under realistic conditions must be held to a realistic minimum, and high performance and readiness must be achieved. Overemphasis on one objective could jeopardize the chances of meeting other objectives. By understanding the priorities, relationships, risks, and required resources for

each objective, the PM can develop a strategy that provides the necessary balance and the justification to say "No," or "Yes, but...," with conviction when changes by the user, headquarters, contractors, or others, are requested.

Parochialism is probably the major pressure working against balance. Just as the PM must do everything legitimately possible to ensure program success, functional managers operate from the same premise relative to their functional area. The PM must recognize that the user wants the best-performing system and wants it quickly; financial offices in Headquarters want to lower program cost; and the contractor wants to lower risk. Again, the use of Integrated Product Teams (IPTs) should help to achieve balance. In addition, external situations may have a severe impact on balance. Examples include the emerging importance of environmental impacts, energy concerns induced by fuel shortages, and reduced funding because of the economic climate.

Understanding the mission requirements and priorities of objectives is a key factor in achieving balance. Resources must be allocated to achieve a required level of capability with acceptable risk. A third factor is the amount of resources—rarely enough to accomplish everything with ease.

2.1.4 Flexibility

Flexibility is a characteristic of the acquisition strategy related to the ease with which changes and failures can be accommodated without significant changes in resource requirements. A strategy that allows for no change in approach is one that is destined to be challenged by events. As with the other characteristics discussed, there rarely is a single measure that can be used to quantify flexibility. One useful analysis approach can be called "what if?"—a form of contingency planning involving cost, schedule, and performance "risk events." Examples are:

- What if a drop-out occurs with one development contractor?
- What if the technical development of the XYZ component fails?
- What if a new technology becomes available?
- What if Congress cuts the program budget by 15 percent?
- What if the only capable contractor does not modernize its plant or equipment?
- What if a certain activity is completed six months later than planned?

Through such analyses, the PM can identify areas where flexibility is needed as well as measures necessary to provide "back-up," or alternative approaches to meeting objectives.

One of the most predictable occurrences in an acquisition program is change. Flexibility enables the PM to deal with change—to bend but not break. Without flexibility, changes can throw a program out of balance, leading to instability, unrealistic approaches, insufficient resource allocations, and intolerable management problems.

As indicated in the discussion of stability, those who review a program should be given a strong feeling that the acquisition strategy is directed toward successful accomplishment, with all major areas addressed. However, that does not mean that all approaches should be so firmly fixed that changes or failures cannot be accommodated. Identifying the areas where change or failure is possible, and employing approaches to deal with

them are signs of good strategic planning. Unfortunately, some reviewers may insist on a strategy that excludes such possibilities, and frequently there are pressures against maintaining "reserve resources." If the nominal schedule estimates indicate a five-year development, the user may insist upon that target, even if the associated schedule allows no "slack" for dealing with any significant problems.

The first step in developing a strategy with sufficient flexibility, of course, is to identify areas in which there is a significant probability that changes or failures could occur. Not everything can be covered; otherwise the strategy becomes so flexible that it offers no firm basis for proceeding. One might adopt the approach that any significant potential change or failure with a subjective probability of occurrence of 20 percent or more should be addressed through a flexible strategy. This type of approach provides a direct lead-in to risk analysis which is addressed in paragraph 2.1.5 below.

Seven examples of ways to achieve program flexibility are presented below.

- **Requirements Flexibility.** Work closely with the user/user representative and comply with Department of Defense (DoD) *Interim Defense Acquisition Guidebook (IDAG)* (part of 5000 Series) provisions for evolutionary requirements generation. This will allow for flexibility within the Capabilities Development Document (CDD) and enhance the potential for tradeoffs.

- **Contract flexibility.** Contracts can be written to provide needed flexibility in areas of uncertainty, reducing potential risk for both the government and the contractor resulting from changes. One common example is the use of price-escalation indices to adjust for economic changes. Another example is a variable pricing provision related to varying quantities.

- **Functional Flexibility.** Ideally, the acquisition strategy and supporting plans should be flexible enough to accommodate inevitable personnel turnovers, and allow for varying preferences in tactical implementing procedures on the part of new managers.

- **Funds Management.** As a general rule, the PM should not firmly allocate all resources at the start of a funding period. The maintenance of some unallocated funds (management reserve) provides a degree of funding flexibility.

- **Preplanned Product Improvement (P3I).** In technology areas of high risk and uncertainty, it may be prudent to plan for block changes of known emerging technology through the P3I approach.

- **Design Flexibility.** Since approximately 60 percent of the life-cycle cost (LCC) of a system is due to logistics support considerations, and approximately 30 percent is due to production considerations, each design should reflect an optimum balance among performance, producibility, and logistic supportability.

- **Evolutionary Acquisition.**[1] Evolutionary acquisition is DoD's preferred strategy for rapid acquisition of mature technology for the user. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. The success of the strategy depends on the consistent and continuous definition of requirements and the maturation of technologies that lead to disciplined development and production of systems

that provide increasing capability towards a materiel concept. The approaches to achieve evolutionary acquisition require collaboration between the user, tester, and developer. They include the following:

- Spiral Development. In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Those requirements are refined through demonstration and risk management; there is continuous user feedback; and each increment provides the user the best possible capability. The requirements for future increments depend on feedback from users and technology maturation.

- Incremental Development. In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met over time by development of several increments, each dependent on available mature technology.

While Evolutionary Acquisition (EA) is the preferred strategy for system development, and Spiral Development is the preferred process within EA, PMs should understand that there are other acquisition strategy approaches—such as Single Step to Full Capability, and Preplanned Product Improvement (P3I). A comparison matrix of acquisition strategy approaches is shown in Table 2-1. While these latter approaches may not be as inherently flexible as EA, they should be streamlined for flexibility to the extent possible.

Criteria \ Acquisition Strategy	Single Step to Full Capability	Pre-planned Product Improvement (P^3I)	Evolutionary Acquisition *	
			Incremental Development	Spiral Development **
Full requirements defined at outset	Yes	Yes	Yes	No
Useful intermediate capabilities	No	Yes	Yes	Yes
Multiple iterations	No	No	Yes	Yes
All capabilities required in initial increment	Yes	No	No	No
User feedback from earlier iterations used to define final requirement	No	No	Yes	Yes
Other characteristics	Traditional acquisition strategy	Achieves increased capability from predictable maturing technology	Often used in hardware development	Preferred process

* Preferred strategy ** Preferred process

Table 2-1. Acquisition Strategy Comparison Table

2.1.5 Managed Risk[2]

Risk management is concerned with the identification of uncertainties that threaten cost, schedule, and performance objectives, and the development and implementation of actions to best deal with those uncertainties within established limits. Every program is subject to uncertainties that may result in failure to achieve cost, schedule, or performance objectives. Exposure to these adverse consequences and their probabilities of occurring constitutes acquisition risk.

Sources of acquisition risk may appear endless to the PM. They are generally related to people, processes, and can be grouped into external and internal categories.

External risks originate from factors usually outside the control of the PM, and they are often associated with those requirements and constraints that define the program limits. They include:

- **Threat and Requirements.** Changes in the threat or a poorly-defined requirement can result in redefinition of program performance objectives.

- **Funding.** The acquisition strategy is developed based on an assumption of a certain level of funding. Significant changes in funding levels can force stretch-outs, performance reductions, or worse case, cancellation.

- **Contractor.** Programs are subject to adverse impact when events such as labor strikes or financial difficulties affect a contractor's ability to function.

- **Politics.** PMs may receive direction from external sources (service headquarters, the Office of the Secretary of Defense (OSD), Congress, etc.) that impose certain cost and/or schedule constraints, which in turn will significantly increase the risk of meeting program objectives. The PM must understand how, where, and to what extent such directions impact program risks.

- **Acts of Nature.** Violent weather during key events in the acquisition cycle, earthquakes, fire, etc., all are certainly outside the control of the PM.

Internal Risks are those over which the PM has more direct control. They result from decisions made within the Program Management Office (PMO) that affect cost, schedule, performance, and technical approaches to be used when the acquisition strategy is developed or modified. They include:

- **Requirements.** Ill-defined or changing requirements create program risk, and this risk is particularly acute in the area of software development. Prototyping and other internal actions by the PM can mitigate the risk or the impact of the risk.

- **Technology.** Technology risks result from the use of immature technologies to strive for previously unattained performance levels. The more the program incorporates immature technology, the greater the uncertainty of cost, schedule or performance projections.

- **Design and Engineering.** This category encompasses risks associated with the ability to translate technological capabilities into reliable hardware and software configurations.

- **Manufacturing.** Manufacturing risks are associated with the ability of the

government,[3] and / or the contractor, to build the designed system to required performance and quality standards.

- **Support.** Support risks are associated with achieving reliability, availability, and maintainability objectives.

- **Cost and Schedule.** These risks entail the accuracy of the cost and schedule estimating process, along with their supporting assumptions. Risks are also infused into the schedule because of a critical path, a singularly constraining event, or a high level of concurrency.

- **Modeling and Simulation (M&S).** These risks are associated with the inability of a model or simulation to fully capture and emulate the performance characteristics of the system or component under development.

Since program risk is directly related to uncertainty in the program's ability to meet cost, schedule, and performance objectives, it can only be measured relative to these objectives, and within the context of the program's acquisition strategy. Changes to the strategy will generally result in a change to the level of risk. Thus the acquisition strategy should be developed and continually updated with these program risks in mind, and it should form the basis for an effective risk management program.

2.2 IDENTIFICATION/DESCRIPTION OF CRITICAL ELEMENTS/ OPTIONS OF AN ACQUISITION STRATEGY

A major function of the acquisition strategy is to document the ground rules and assumptions under which the program was started, and by which future decisions will be gauged. The acquisition strategy, as stated in the 5000 Series (specifically in the *IDAG*), should become increasingly more definitive over time in describing the relationship of essential elements of a program. In this context, elements of an acquisition strategy that need to be considered include: requirements (time-phased, single-step, CAIV, etc.); program structure (top-level graphical master schedule of events); acquisition approach (evolutionary or single-step); risk (cost, schedule, and technical / performance); program management (staffing, integrated digital environment, simulation-based acquisition, etc.); design considerations (open system, interoperability, information assurance, program protection, etc.); support strategy (contractor logistics support, environmental, safety and health, disposal etc.); and business strategy (competition, international cooperation, contracting approach, etc.).

This list is not all-inclusive, and the acquisition strategy should address all major initiatives that are critical to the success of a given program. Table 3-3 of Chapter 3 to this Guide provides an acquisition strategy format which addresses the essential elements described above, and their sub-elements. The following 11 paragraphs offer comment on several of the previously noted essential elements plus comments on other areas for consideration. An effort should also be made to minimize inevitable redundancy with other program documentation.

2.2.1 Requirements

The acquisition strategy must provide a summary description of the requirement that the acquisition is intended to satisfy. This summary should address family-of-systems or mission area requirements for interoperability and reflect dependency on planned capability being achieved by other programs. For time-phased requirements, the initial block

should be defined, as well as subsequent blocks if the latter requirements are known.

Approved requirements documents—including the status of in-process source documents—need to be identified. These documents include the Initial Capabilities Document (ICD) and the Capability Development Document (CDD), and the Capability Production Document (CPD).

- **Initial Capabilities Document (ICD).** Initial broad, time-phased, operational goals, and requisite capabilities are described in an ICD; this document—along with the Analysis of Alternatives (AoA)—should guide the Concept Refinement (CR) Phase of the Acquisition Framework. Figure 2-1 depicts the requirements and acquisition processes interfaces. The ICD is derived from integrated system architectures and functional area analyses developed by the user community. The user or user's representative also plays a crucial role in preparing the ICD for approval prior to the CR Phase (at the Concept Decision Milestone) and for refining the concept during the conduct of the Phase itself.

- **Capability Development Document (CDD).** During the succeeding Phase—Technology Development (TD), the user prepares a CDD both to support program initiation at Milestone B, and to refine the integrated system architecture. The task here is to build a CDD that builds on the ICD and provides the

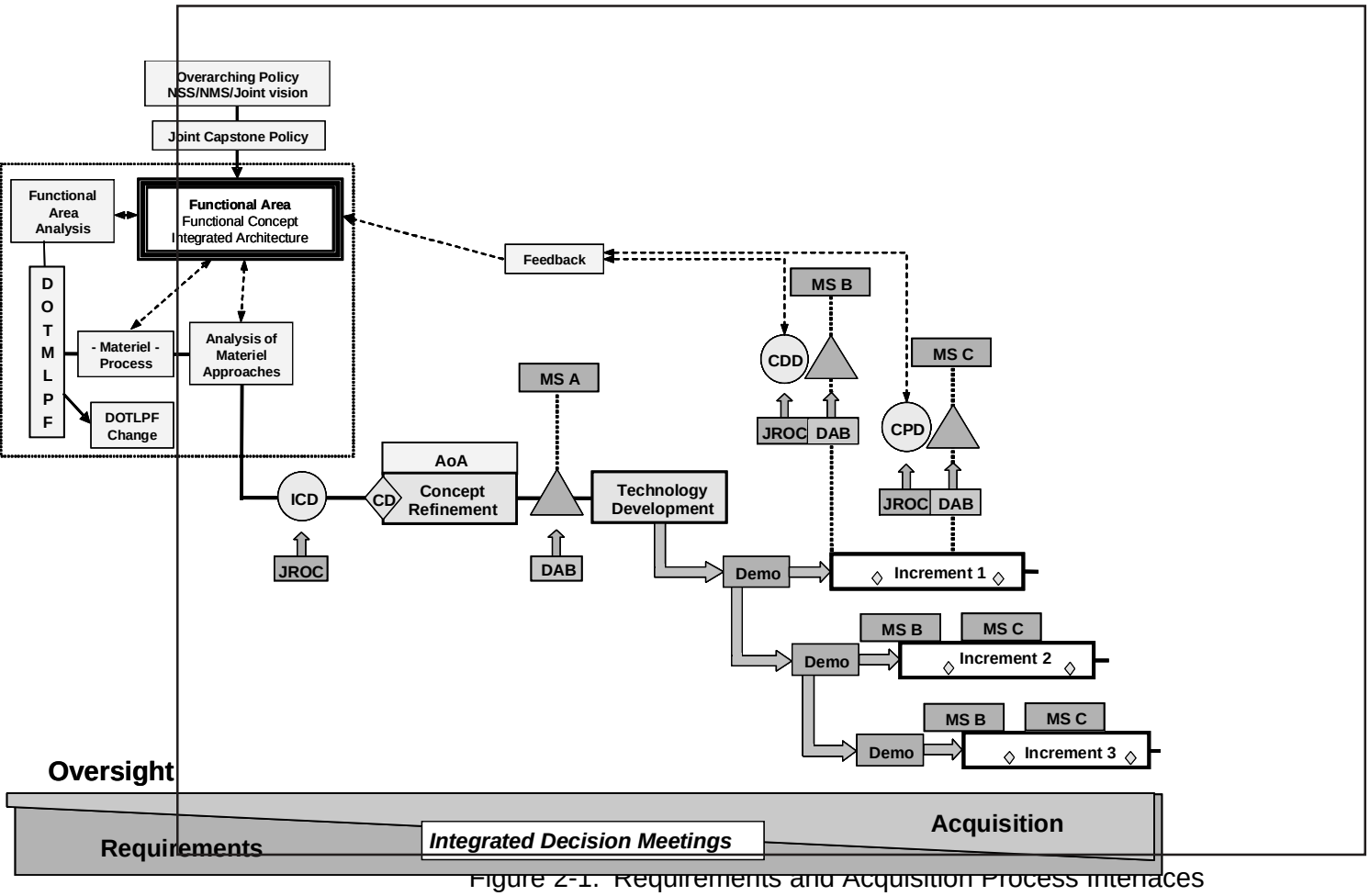


Figure 2-1. Requirements and Acquisition Process Interfaces

detailed operational performance parameters necessary to design the proposed system. These parameters are stated as Objectives and Thresholds and are displayed in several program documents, including the Acquisition Program Baseline (APB); they serve as a basis for cost-schedule-performance tradeoffs. A well-defined acquisition strategy serves as a guiding compass in the trade-off analyses. The CDD is updated or appended before each decision to begin a subsequent increment of a program.

- **Capability Production Document (CPD).** During the System Development and Demonstration (SDD) Phase, after Critical Design Review (CDR), but prior to Milestone C, a CPD will be developed as a follow-on to the CDD. The CPD addresses the production attributes and quantities specific to a single increment of an acquisition program.

2.2.2 Structure and Schedule

The structure and schedule portion of the acquisition strategy must define the relationship among acquisition phases, decision milestones, solicitations, contract awards, systems engineering design reviews, contract deliveries, test and evaluation (T&E), production releases, and operational deployment objectives. The structure has its basis in the Defense Acquisition Management Framework—shown in Figure 2-2. It should describe the phase transitions and the degree of concurrency entailed. It is a visual overview and graphical presentation of the acquisition strategy. In accordance with the 5000 Series, the program structure and schedule must be depicted on an event-driven time line diagram similar to the example shown in Figure 2-3. A non-tailored nominal structure is depicted here.

2.2.3 Acquisition Approach

The acquisition strategy should identify the approach the program will use to achieve full capability: an evolutionary approach or a single-step approach. Consistent with the DoD 5000 Series, the acquisition strategy should provide the rationale for choosing the approach. If an evolutionary approach is being used, the acquisition strategy program structure should describe Block 1 (the initial deployment capability), and how it will be funded,

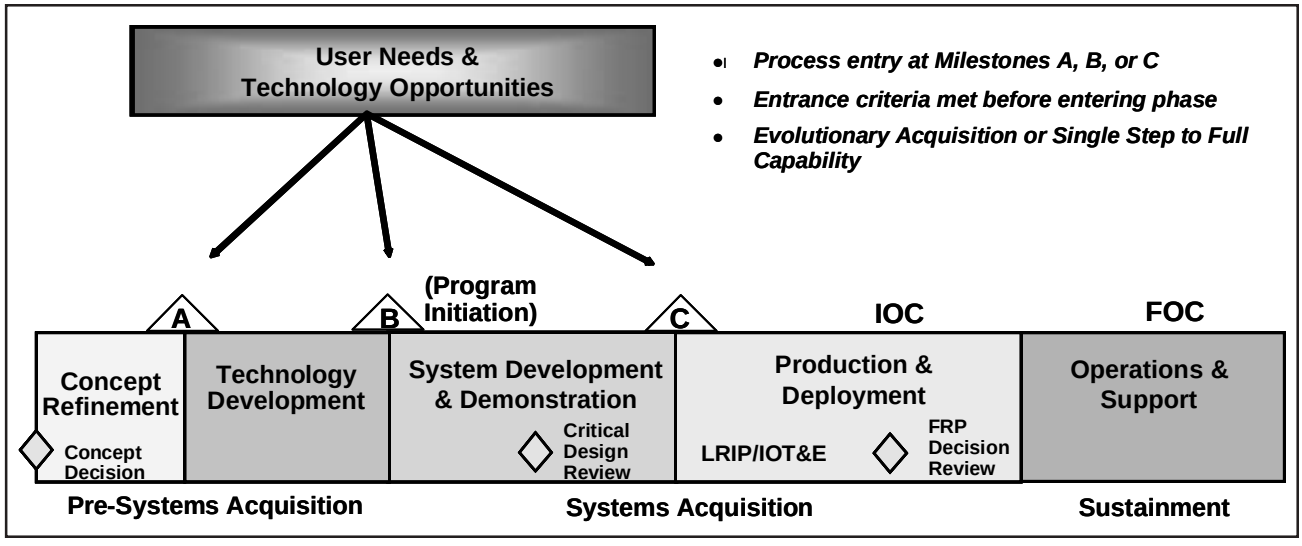


Figure 2-2. Defense Acquisition Management Framework

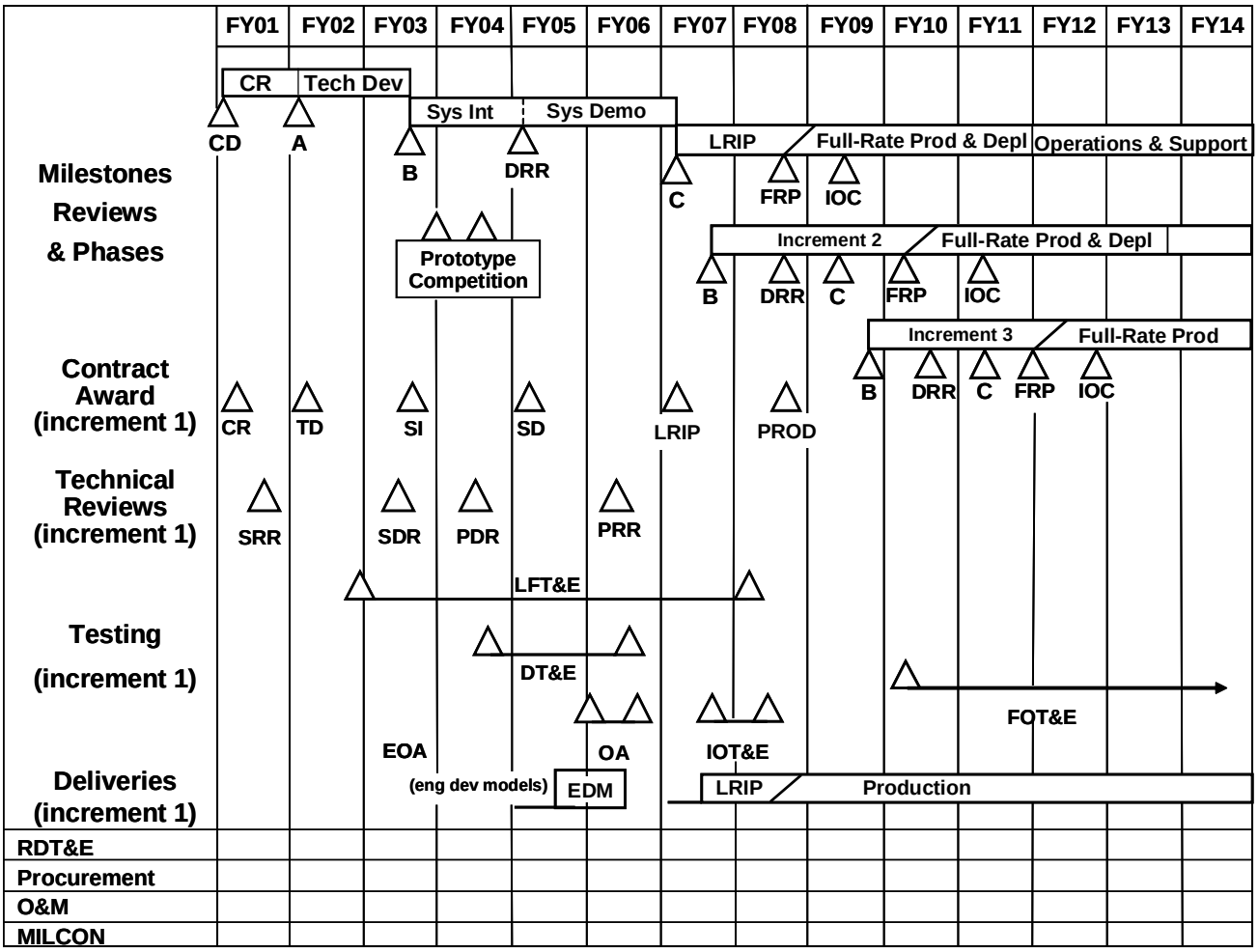


Figure 2-3. Program Structure (Example – Not Tailored)

developed, tested, produced, and supported, and the approach to treatment of subsequent blocks. (See 2.1.4 above.) A graphic comparison of the incremental and spiral evolutionary processeses—within the evolutionary approach—is shown in Figure 2-4.

- **Incremental Development Process**. If the CDD includes a firm definition of requirements to be satisfied by each block, the acquisition strategy should define each block of capability and how it will be funded, developed, tested, produced, and operationally supported. This evolutionary process is called incremental development.

- **Spiral Development Process.** If the CDD does not allocate to specific subsequent blocks the remaining requirements that must be met to achieve full capability, the acquisition strategy should define the full capability (Block I) the acquisition is intended to satisfy, and the funding and schedule planned to achieve that capability. The strategy should also describe the management approach to be used to define the requirements for each subsequent block and the acquisition processes applicable to each block, including whether end items delivered under earlier blocks will be retrofitted with later block improvements. This evolutionary process is called spiral development. More details on spiral development are depicted in Figure 2-5. Note that the CDD is supplanted by a CPD for a specific

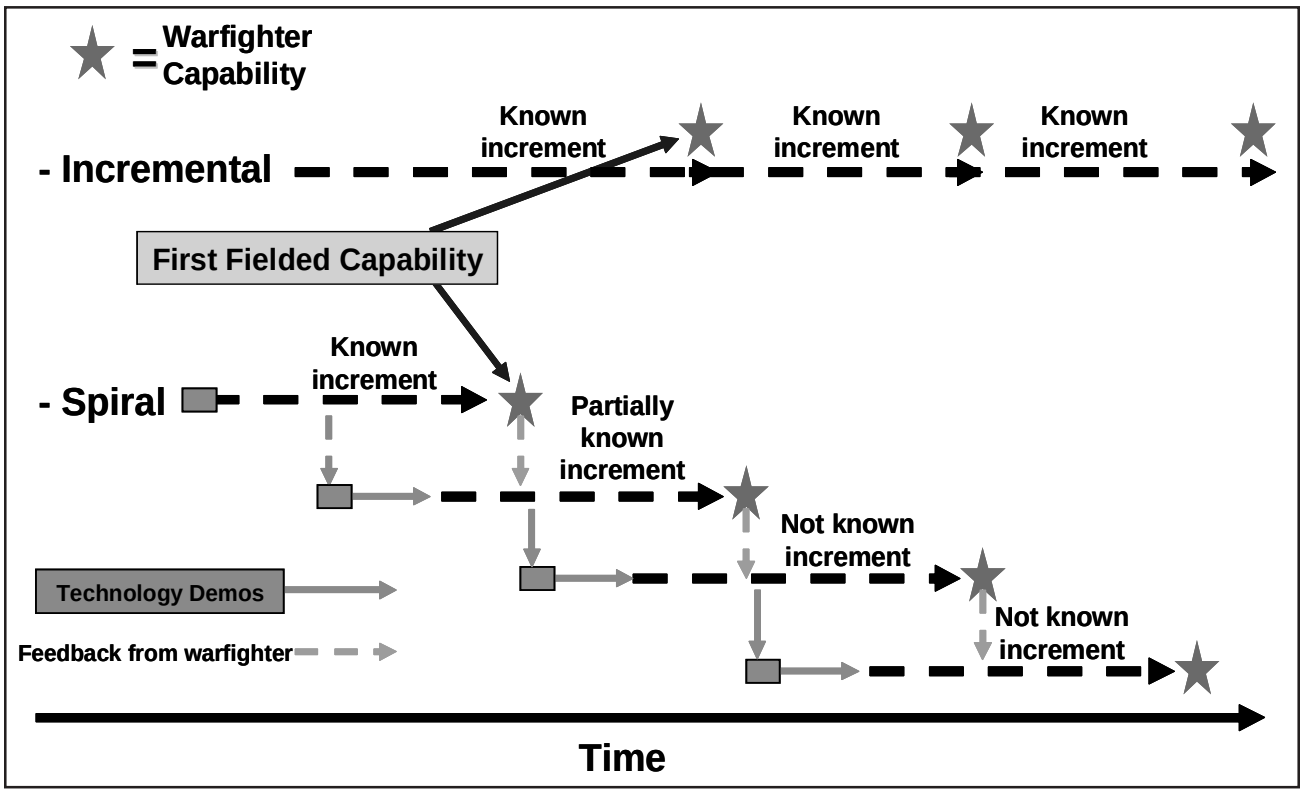


Figure 2-4. Evolutionary Acquisition – Incremental and Spiral Development Processes

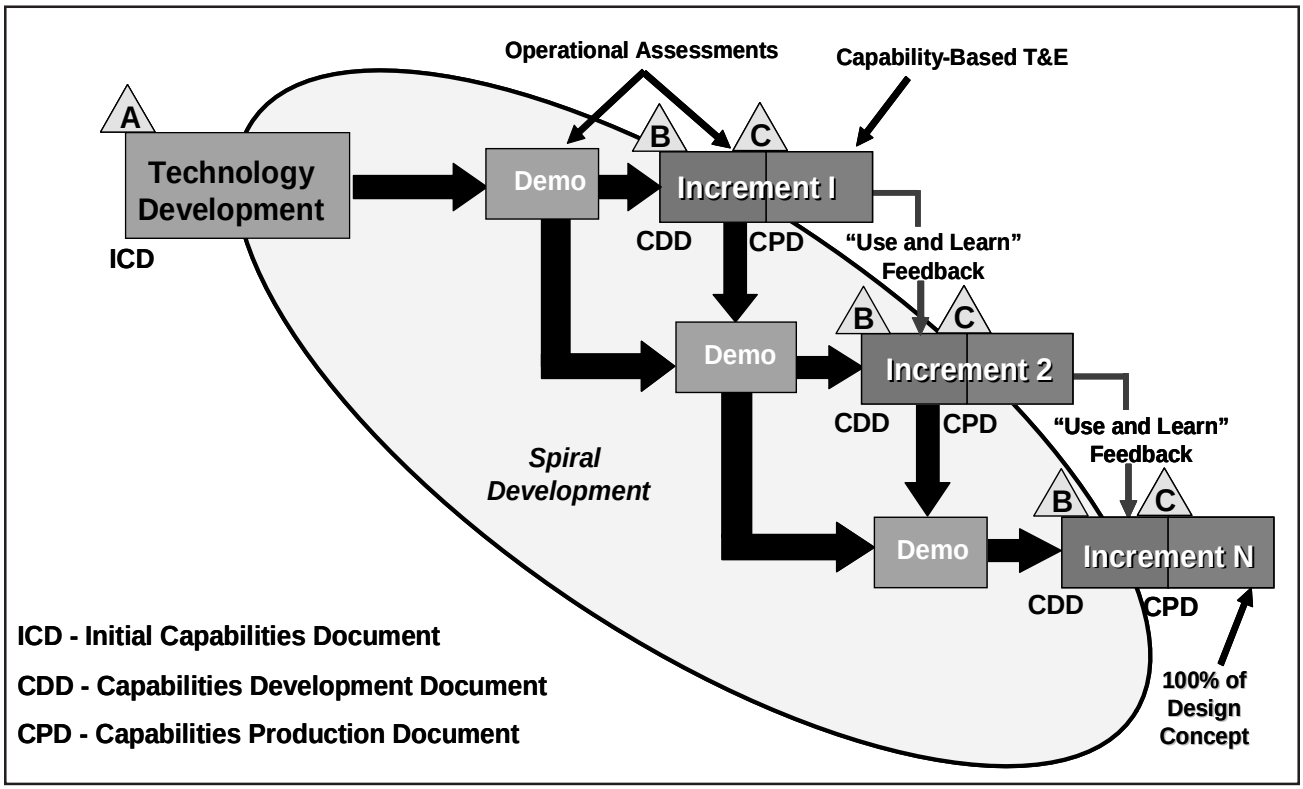


Figure 2-5. Evolutionary Acquisition and Spiral Development

increment as Milestone C approaches. The CPD is part of the continued refinement process of requirements documentation.

2.2.4 Risk Management

As noted in Section 2.1.5, program risk is a measure of the probability and consequence of not achieving a defined program goal. Risk assessment is the underlying approach for acquisition strategy development and provides the basis for determining conformance of the four previously noted criteria—realism, stability, resource balance, and flexibility. In fact, it can be argued that the four criteria are elements necessary to minimize program risk through the acquisition strategy.

- **OMB Guidance.** Office of Management and Budget (OMB) Circular A-11 (superceding OMB A-109) and the DoD 5000 series specifically direct that program risk be addressed. However, risk is not always easy to assess, since the probability of failure and the consequence of failure are often not exact, measurable parameters and must be estimated by statistical or other qualitative procedures. While formal risk analysis procedures deal with the "known knowns" and "known unknowns," there is also the issue of the "unknown unknowns." Here, only qualitative assessments are usually possible. Yet, accepting this limitation, a well-reasoned risk assessment dealing with the "known unknowns" provides a structure for selecting strategy alternatives and should be a major element in the decision-making process.

Five references on risk assessment procedures that provide more specific detail are:

- *Risk Management Guide for DoD Acquisition*, June 2002, Defense Acquisition University, Ft. Belvoir, Va.

- *Systems Engineering Fundamentals*, January 2001, Defense Acquisition University, Ft. Belvoir, Va.

- Air Force Materiel Command (AFMC) Pamphlet 63-101 of 9 July 1997, subject: Risk Management.

- Office of the Assistant Secretary of the Navy (RD&A) publication NAVSO P-3686, subject: Top Eleven Ways to Manage Technical Risk of October 1998.

- Johnson, Norman E., "Risk in the Acquisition Process—A Better Concept," *Program Manager*, Vol. XXIII, No. 5, pp. 39-41, Defense Systems Management College, Ft. Belvoir, Va.

2.2.5 Program Management

Philosophy/Approach. Discuss the application of acquisition streamlining initiatives, such as Intrgrated Product and Process Development (IPPD), CAIV, and Horizontal Technology Integration (HTI).

Program Resources. The acquisition strategy should describe the planned funding approach including transition funding and funding under an evolutionary acquisition strategy. It should include details of advance procurement and program staffing and contain information on principal source of funds for development, production and fielding. Other potential topics include applicable joint funding agreements, highlights of the affordability studies, and known funding or affordability constraints. The description should include the planned annual funding totals, by appropriation, for the prior year, current year, Future Years Defense Program (FYDP) and cost to complete. The affordability analyses will run to the end of production.

- **Cost as an Independent Variable (CAIV).** The concept of CAIV must be used in establishing the acquisition strategy. The acquisition strategy should address methodologies to acquire and operate affordable DoD systems by setting aggressive, achievable cost objectives and managing achievement of these objectives. Cost objectives should be set to balance mission needs with projected out-year resources, taking into account anticipated process improvements in both DoD and defense industries.

- **Total Ownership Cost (TOC).** A strategy that considers the total cost to the government over the entire cradle-to-grave life cycle of the system is necessary to provide balance and perspective to the program in consideration of the performance and schedule requirements to avoid sub-optimization. In this regard, PMs are responsible for reducing DoD TOC for their systems. However, their primary focus should be on Defense System TOC; this is defined as Life Cycle Cost (LCC) per DoD 5000.4M.[4]

Information Sharing and DoD Oversight. DoD oversight activities (i.e., contract management offices, contracting offices, technical activities, and PMOs) should consider all relevant and credible information that might mitigate risk and reduce the need for DoD oversight before defining and applying direct DoD oversight of contractor operations. The Director, Defense Contract Management Agency (DCMA), will make information relating to audits, reviews, or ratings of contractor operations, systems, or performance accessible to DoD buying and technical activities.

Integrated Digital Environment (IDE). PMs should establish a data management system —described in the strategy—and an appropriate digital environment to allow every activity involved with the program to cost-effectively create, store, access, manipulate, and / or exchange data digitally. The IDE should, at a minimum, meet the data management needs of the support strategy, system engineering process, M&S activities, T&E strategy, and periodic reporting requirements. The design should allow ready access to anyone with a need-to-know (as determined by the PM), a technologically "current" personal computer, and Internet access through a Commercial Off-the-Shelf (COTS) browser.

Defense Contract Management Agency (DCMA) Support. Programs should make maximum use of DCMA personnel at contractor facilities. That use should be covered in the acquisition stategy. PMs and DCMA Contract Management Offices should jointly develop and approve program support plans for all acquisition category (ACAT) I program contracts to ensure agreement on contract oversight needs and perspectives. The PM should only assign technical representatives to a contractor's facility, as necessary, and as agreed to by the Director, DCMA. A Memorandum of Agreement (MOA) should specify the duties of the technical representative and establish coordination and communication activities.

Government Property in the Possession of Contractors (GPPC). The strategy will address GPPC. All PMs who own or use GPPC should have a process to ensure continued management emphasis on reducing GPPC and prevention of any unnecessary additions to the GPPC.

Streamlining/Innovative Acquisition. The strategy shows how the program has been tailored and best practices applied so that program execution is effective and efficient.

Simulation-Based Acquisition (SBA). SBA is the robust and interactive use of Modeling and Simulation (M&S) throughout the product life cycle; it should be addressed in the acquisition strategy. The PM should use SBA and M&S during system design, system T&E, and system modification and upgrade. In collaboration with industry and operational users, PMs should integrate SBA / M&S into program planning activities; should plan for life-cycle application, support, documentation, and reuse of models and simulations; and should integrate SBA / M&S across the functional disciplines.

Software-Intensive Programs. The acquisition strategy should address key aspects, including risks, of the proposed software development approach. It should state how the chosen software development approach supports the system-level acquisition strategy. The acquisition strategy should also describe the planned use of independent expert reviews for all ACAT I through ACAT III software-intensive programs.

2.2.6 Design Considerations

Technology Transition. The technology portion of the strategy should address the transition of critical technologies that must be applied to the developing systems, as well as the strategies to reduce technological risk, with sufficient detail to provide a strategic outline for those who develop the systems engineering plan. Examples are: technology demonstration programs (TDPs), P3Is, and / or the utilization of commercial and non-developmental items (NDIs) to reduce technological risk. This portion of the strategy should also address the key aspects of the software development approach, identify the mission critical computer resources, and identify related planning and support issues.

Open Systems. PMs should apply the open systems approach as an integrated business and technical strategy upon defining user needs. PMs should assess the feasibility of using widely supported commercial interface standards in developing systems. The open systems approach should be an integral part of the overall acquisition strategy to enable rapid acquisition with demonstrated technology, evolutionary and conventional development, interoperability, life-cycle supportability, and incremental system upgradability without major redesign during initial procurement and re-procurement of systems, subsystems, components, spares, and services, and during post-production support.

Interoperability. All acquired systems should be interoperable with other U.S. and allied defense systems, as defined in the requirements and interoperability documents. The strategy should describe the treatment of interoperability requirements. If the acquisition strategy involves successive blocks satisfying time-phased requirements, this description should address each block, as well as the transitions from block to block. This description should identify enabling system engineering efforts such as network analysis, interface control efforts, open systems, data management, and standardization. It should also identify related requirements or constraints (e.g., treaties or international standardization agreements) that impact interoperability requirements (e.g., standards required by the DoD Joint Technical Architecture (JTA) or the systems, forces, units, etc., for which interoperability could be at issue), and any waivers or deviations that have been obtained or are anticipated being sought.

Information Technology Supportability. The acquisition strategy should summarize the information technology (IT), including national security systems (NSS), infrastructure and support considerations identified in

the ICD and CDD and described in the Command, Control, Communications, Computers, and Intelligence Support Plan (C4ISP). If IT infrastructure enhancements are required to support program execution, the acquisition strategy should identify technical, schedule, and funding critical path issues for both the acquisition program and the IT, including NSS, infrastructure that could impact the PM's ability to execute the acquisition strategy.

Program Protection. The PM should ensure the acquisition strategy provides for compliance with the procedures regarding critical program information and anti-tamper measures. The PM should identify in the acquisition strategy, the technical, schedule, cost, and funding issues associated with executing requirements for protection of critical program information and technologies, and plans to resolve the issues.

Information Assurance. As part of the acquisition strategy, the PM should ensure the acquisition strategy provides for compliance with the procedures regarding information assurance. The PM should identify in the acquisition strategy, the technical, schedule, cost, and funding issues associated with executing requirements for information assurance, and maintain a plan to resolve any issues that arise. This effort should ensure that information assurance policies and considerations are addressed and documented as an integral part of the program's overall acquisition strategy.

2.2.7 Support Strategy

Product Support. As part of the acquisition strategy, the PM should develop and document a support strategy for life-cycle sustainment and continuous improvement of product affordability, reliability, and supportability, while sustaining readiness. The specific requirements associated with integrating the support strategy into the system engineering process should be accomplished through IPPD.

- **Performance-Based Logistics (PBL).** Product support is a package of logistics support functions necessary to maintain the readiness and operational capability of a system or subsystems. PBL is the preferred approach for product support implementation. PBL utilizes a performance-based acquisition strategy, versus the traditional transaction-based approach. PBL allows PMs to optimize performance and cost objectives through the strategic implementation of varying degrees of government-industry partnerships.

- **Logistics Performance Criteria.** Support performance will be measured based on high-level metrics, such as availability of mission-capable systems, instead of on distinct elements such as parts, maintenance, and data.

- **Product Support Integrator**. Within the PBL concept, the PM should select a product support integrator from the DoD or private sector; the latter in a form of Contractor Logistics Support (CLS). Activities coordinated by support integrators can include, as appropriate, functions provided by organic organizations, private sector providers, or a partnership between organic and private sector providers.

Affordability Improvements. Demonstration of assured supportability and life-cycle affordability are entrance criteria for the Production and Deployment Phase. The overall product support strategy, documented in the acquisition strategy, should address actions to continually improve

product affordability for programs in initial procurement, re-procurement, and post-production support.

Source of Support. The PM will use the most effective source of support that optimizes performance and LCC, consistent with military requirements. The source of support may be organic or commercial, but its primary focus is to optimize customer support and achieve maximum weapon system availability at the lowest TOC. Source of support decisions shall foster competition throughout the life of the system.

- **Depot Maintenance.** DoD policy requires organic government core maintenance capabilities. There are statutory requirements for a core logistics analysis and source of repair analysis as part of the acquisition strategy. Core government capabilities provide effective and timely response to surge demands, ensure competitive capabilities, and sustain institutional expertise. While meeting these statutory requirements, support concepts for new and modified systems should maximize the use of contractor-provided, long-term, total life-cycle logistics support, i.e., CLS that combines depot-level maintenance for non-core-related workload along with wholesale and selected retail materiel management functions.

- **CLS In-Theater.** When support strategies employ contractors, whether for supply or maintenance support, PMs should describe in their strategies how they will coordinate with in-theater users to identify standards and procedures for integrating CLS into the theater of operations.

Human Systems Integration (HSI). The PM should pursue HSI initiatives within the strategy to optimize total system performance and minimize TOC. The PM should integrate manpower, personnel, training, safety and occupational health, habitability, human factors, and personnel survivability considerations into the acquisition process.

- **Training.** The PM should summarize major elements of the training system in the support strategy, and identify training initiatives that enhance the user's capabilities, improve readiness, or reduce individual and collective training costs. Planned training should maximize the use of new learning techniques, simulation technology, embedded training, and instrumentation systems to provide "anytime—anyplace" training that reduces the demand on the training establishment and reduces TOC.

Environmental, Safety, and Occupational Health (ESOH) Hazards. As part of risk reduction, the PM should prevent ESOH hazards, where possible, and should manage ESOH hazards where they cannot be avoided. The support strategy should contain a summary of the Programmatic ESOH Evaluation (PESHE) document, including ESOH risks, a strategy for integrating ESOH considerations into the systems engineering process, identification of ESOH responsibilities, a method for tracking progress, and a compliance schedule for National Environmental Policy Act (NEPA) and Executive Order (E.O.) 12114.

Demilitarization and Disposal. Within the acquisition strategy, the PM should consider materiel demilitarization and disposal. The PM should minimize the DoD's liability due to information and technology security, ESOH issues. The PM should coordinate with Service logistics activities and the Defense Logistics Agency (DLA), as appropriate, to identify and apply applicable demilitarization requirements necessary to eliminate the functional or military capabilities of assets.

Life-Cycle Oversight Responsibility. The PM, in coordination with military Service logistics commands, is the Total Life-Cycle System Manager. This includes full life-cycle product support execution, resource planning responsibilities, and oversight of the fielded system's readiness, performance, and ownership costs. The overall product support strategy, documented in the acquisition strategy, should include life-cycle support planning and address actions to assure sustainment.

Post-Deployment Evaluation. The PM should describe how the program will use post-deployment evaluations (T&E) of the system, beginning at IOC, to verify whether the fielded system continues to meet or exceed thresholds and objectives for cost, performance, and support parameters approved at full-rate production.

Other Factors. The strategy should address miscellaneous support factors, e.g., long-term access to product configuration technical data, that may not have been addressed in the support topics above, but that are important to a specific program.

2.2.8 Business Strategy

Competition. As part of the acquisition strategy, the PM should develop and document a business strategy that describes plans to attain program goals via competition, throughout all phases of the program's life cycle, or that explains why competition is neither practicable nor in the best interests of the government.

PMs and contracting officers should provide for full and open competition, unless a statutory exception applies and they should use competitive procedures best suited to the circumstances of the acquisition program. To comply with these policies, PMs should plan for competition from the inception of program activity.

- **Fostering and Maintaining a Competitive Environment.** Industry consolidation has created a new industrial environment that the DoD must consider when making acquisition and technology program decisions and developing the business strategy. For some critical and complex Defense products, the number of competitive suppliers is now, or will be, limited. While it is fundamental DoD policy to rely on the marketplace to meet Department requirements, there may be exceptional circumstances in which the Department needs to act to maintain future competition. Accordingly, the DoD Components should consider the effects of their acquisition and budget plans on future competition.

- **Building Competition into the Acquisition Strategy.** Competition planning should precede preparation of an acquisition strategy when, for example, a technology project or an effort involving advanced development or demonstration activities has potential to transition into an acquisition program.

  — **Competition and the Acquisition Phases.** Competition planning must include the immediate effort being undertaken and any foreseeable future procurement in later acquisition phases as part of an acquisition program. Competitive prototyping, competitive alternative sources, and competition with other systems that may be able to accomplish the mission should be used where practicable.

  — **Competition and Evolutionary Acquisition.** An evolutionary acquisition strategy must be based on time-phased

requirements, consisting of an initial block of capability, and some number of subsequent blocks necessary to provide the full capability required. Plans for competition must be tailored to the nature of each block, and the relationship of the successive blocks to each other.

- **Competition for Blocks.** For example, if each block adds a discrete capability in a separate package to a pre-established modular open system architecture, it may be possible and desirable to obtain full and open competition for each block. If each successive block enhances capability by building on its predecessor, such that it is necessary that the supplier of the first block also create the next block, then competition for the initial block may establish the sole source for subsequent blocks.

  There is no presumption that successive blocks must be developed or produced by the same contractor. The acquisition strategy should describe the plan for competition for the initial block and state how the solicitation will treat the initial block, and why. For example, the first block may be:

  - A stand-alone requirement, independent of any future procurements of subsequent blocks;
  - The first in a series of time-phased requirements, all of which are expected to be satisfied by the same prime contractor.
- **Transition of Blocks.** When competition is practicable for blocks, the strategy should explain plans for the transition from one block to the next if there is a different prime contractor for each, and the manner in which integration issues will be addressed.

— **Industry Involvement.** DoD policy encourages early industry involvement in the acquisition effort, consistent with the Federal Advisory Committee Act (FACA). The acquisition strategy should describe past and planned industry involvement. The PM should apply knowledge gained from industry when developing the acquisition strategy; however, with the exception of the PM's support contractors, industry should not directly participate in acquisition strategy development.

- **Potential obstacles to competition.** The acquisition strategy should consider the competitive impact of exclusive teaming arrangements. Two or more companies create an exclusive teaming arrangement when they agree to team to pursue a DoD acquisition program, and agree not to team with other competitors for that program. These teaming arrangements occasionally result in inadequate competition for DoD contracts. While DoD's preference is to allow the private sector to team and subcontract without DoD involvement, the Department will intervene, if necessary, to assure adequate competition. The Milestone Decision Authority (MDA) should approve any action to break up a team.

— **Sub-Contractor Competition.** The acquisition strategy should identify the potential industry sources to supply

program needs. The acquisition strategy should highlight areas of potential vertical integration (i.e., where potential prime contractors are also potential suppliers). Vertical integration may be detrimental to DoD interests if a firm employs internal capabilities without consideration of, or despite the superiority of, the capabilities of outside sources. The acquisition strategy should describe the approaches the PM will use (e.g., requiring an open systems architecture, investing in alternate technology or product solutions, breaking out a subsystem or component, etc.) to establish or maintain access to competitive suppliers for critical areas at the system, subsystem, and component levels.

During early exchanges of information with industry (e.g., the draft request for proposal process), PMs should identify the critical product and technology areas that the primes plan to provide internally or through exclusive teaming. The PM should assess the possible competitive effects of these choices. The strategy will describe and the PM should take action to mitigate areas of risk. If the action requires a change to the approved acquisition strategy, the PM should recommend the needed change to the MDA.

As the designs evolve, the PM should continue to analyze how the prime contractor is addressing the program's critical product and technology areas. This analysis may identify areas where the design unnecessarily restricts subsystem or component choices. Contractors should be challenged during requirements and design reviews to support why planned materiel solutions for subsystem and component requirements critical to the program are appropriate when other choices are available. This monitoring should continue through the system life cycle (e.g., re-procurements, logistics support).

- **Potential Sources.** The PM should consider both international (consistent with possible information security and technology transfer restrictions) and domestic sources that can meet the need, and consider both commercial and NDIs as the primary source of supply. The PM should consider national policies on contracting and subcontracting with small business, small and disadvantaged business, women-owned small business, and labor surplus areas, and address considerations to secure participation of these entities at both prime and sub-tier levels. While sources beyond the government need to be examined, the PM also needs to determine the feasibility of intra-government work agreements, i.e., formal agreements, project orders or work requests, in which one government activity agrees to perform work for another, creating a supplier/customer relationship.

  — **Market Research.** The PM should use market research as a primary means to determine the availability and suitability of commercial and NDIs, and the extent to which the interfaces for these items have broad market acceptance, standards-organization support, and stability. Market research should support the acquisition planning and decision process, supplying technical and business information about commercial technology and industrial capabilities. Market research, tailored to program needs should continue throughout the acquisition process and during post-production support. The FAR specifies that the acquisition strategy needs to

include the results of completed market research and plans for future market research.

— **Commercial and NDIs.** PM should use sources of supply that provide for the most cost-effective system throughout its life cycle. The PM should work with the user to define and modify, as necessary, requirements to facilitate the use of commercial and NDIs. This includes requirements for hardware, software, interoperability, data interchange, packaging, transport, delivery, and automatic test systems. Within the constraints of these requirements, the PM should require contractors and sub-contractors to use commercial and NDIs to the maximum extent possible.

While some commercial items may not meet system-level requirements for ACAT I and IA programs, numerous commercial components, processes, practices, and technologies have application to DoD systems. This policy should extend to subsystems, components, and spares levels based on the use of performance specifications and form, fit, function and interface specifications. Preference should be first to commercial items, then to NDIs.

The commercial marketplace widely accepts and supports open interface standards, set by recognized standards organizations. These standards support interoperability, portability, scalability, and technology insertion. When selecting commercial or NDIs, the PM should prefer open interface standards and commercial item descriptions. If acquiring products with closed interfaces, the PM should conduct a business case analysis to justify acceptance of the associated economic impacts on TOC and risks to technology insertion and maturation over the service life of the system.

— **Dual-use Technologies.** Dual-use technologies are technologies that meet a military need, yet have sufficient commercial application to support a viable production base. Market research and analysis should identify and evaluate possible dual-use technology and component development opportunities. Solicitation document(s) should encourage offerors to use, and the PM should give consideration to, dual-use technologies and components. System design should facilitate the later insertion of leading edge, dual-use technologies and components throughout the system life cycle.

— **Industrial Base Capability.** The acquisition strategy should summarize an analysis of the industrial base capability to design, develop, produce, support, and, if appropriate, restart the program for the next program phase. This analysis should identify DoD investments needed to create or enhance certain industrial capabilities, and the risk of industry being unable to provide program design or manufacturing capabilities at planned cost and schedule. If the analysis indicates an issue beyond the scope of the program, the PM needs to notify the MDA through the program executive officer (PEO).

When there is an indication that industrial capabilities needed by the DoD are in danger of being lost, the DoD Components should perform an analysis to determine whether government action is required to preserve an industrial capability vital to national

security. Prior to completing or terminating production, the DoD Components should ensure an adequate industrial capability and capacity to meet post-production operational needs. Actions should address product technology obsolescence, replacement of limited-life items, regeneration options for unique manufacturing processes, and conversion to performance requirements at the subsystems, component, and spares levels.

— **Production.** The production portion of the strategy is concerned with ensuring the contractor's design is producible and that timely industrial capability will exist to provide the hardware (and associated software) within stated goals. This planning should also provide a strategic outline for those who develop the manufacturing / production plans. Possible issues for inclusion in the strategy are: establishing feasibility, assessing risks, identifying capable manufacturers and manufacturing technology needs, capabilities of the industrial base, availability of critical materials, and the transition from development to production. Further issues are: the production processes, quality assurance procedures, personnel, and facilities. Strategy alternatives may include phased procurement, low rate initial production, productivity enhancement, and production concurrency with testing.

— **Industry Investment.** In many cases, commercial demand now sustains the national and international technology and industrial base. The PM should structure the acquisition strategy to promote sufficient program stability to encourage industry to invest, plan, and bear risks. However, the PM should not use a strategy that causes the contractor to use independent research and development (R&D) funds or profit dollars to subsidize defense R&D contracts except in unusual situations where there is a reasonable expectation of a potential commercial application. Programs should minimize the need for new defense-unique industrial capabilities.

— **Small Business Innovative Research (SBIR).** The PM should develop an acquisition strategy that plans for the use of technologies developed under the SBIR program, and gives favorable consideration for funding of successful SBIR technologies. At milestone and appropriate program reviews for ACAT I programs, the PM should address the program's plans for funding the further development and insertion into the program of SBIR-developed technologies. A searchable database of SBIR-funded technologies exists at http://www.acq.osd.mil/sadbu/sbir/sitemap.html#awards.

International Cooperation

The globalization of today's economy requires a high degree of coordination and international cooperation. Consistent with possible information security and technology transfer limitations, the acquisition strategy should discuss the potential for increasing, enhancing, and improving the conventional forces of the NATO and the United States, including reciprocal defense trade and cooperation, and international cooperative research, development, production, and logistic support.

The acquisition strategy should also consider the possible sale of military equipment and

identify similar projects under development or in production by a U.S. ally. It should assess whether the similar project could satisfy U.S. requirements, and if so, recommend designating the program an International Cooperative Program. The MDA will review and approve the acquisition strategy in regard to International Cooperation for all programs at each acquisition program decision point.

All international considerations should remain consistent with the maintenance of a strong national technology and industrial base and mobilization capability. Restricted foreign competition for the program, due to industrial base considerations, should require prior Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)) approval.

- **International Interoperability.** The growing requirement for effective international coalitions requires a heightened degree of international interoperability. Reciprocal trade and international cooperative programs with allies and friendly nations serves this end. Programs should strive to achieve deployment and sustainability of interoperable systems with our potential coalition partners.

  To promote increased consideration of international cooperation and interoperability issues early in the development process, the PM should, at each acquisition program milestone, discuss cooperative opportunities in the acquisition strategy including:

  — Provide a statement indicating whether or not a project similar to the one under consideration is in development or production by one or more major allies or NATO organizations.

  — If there is such a project, provide an assessment as to whether that project could satisfy, or be modified in scope to satisfy, U.S. military requirements.

  — Provide an assessment of the advantages and disadvantages, with regard to program timing, LCCs, technology sharing, standardization, and interoperability, of a cooperative program with one or more major allies or NATO organizations.

— **Testing for International Programs.** The testing strategy for international programs needs to be addressed. For example, an ACAT I or II system that has not successfully completed initial operational test and evaluation (IOT&E) will require USD(AT&L) approval prior to any foreign military sale, commitment to sell, or DoD agreement to license for export. On the other hand, results of T&E of systems using approved International Test Operating procedures may be accepted without repeating the testing.

Contract Approach. For each major contract planned to execute the acquisition strategy, the acquisition strategy should describe what the basic contract buys; how major deliverable items are defined; options, if any, and prerequisites for exercising them; and the events established in the contract to support appropriate exit criteria for the phase or intermediate development activity. The PM should use modular contracting, as described in the FAR to the extent practicable. In addition, the acquisition strategy should address the PM's consideration of multiyear contracting for full rate production, and address the PM's assessment of whether the production program is suited to the use of multiyear contracting based on FAR requirements.

- **Contract Type.** For each major contract, the acquisition strategy should identify the type of contract planned (e.g., firm fixed-price (FFP); fixed-price incentive (FPI), firm target; cost plus incentive fee (CPIF); or cost plus award fee (CPAF)) and the reasons it is suitable, including considerations of risk assessment and reasonable risk-sharing by the government and the contractor(s). The acquisition strategy should not include cost ceilings that in essence convert cost-type R&D contracts into fixed-price contracts, or unreasonable capping of annual funding increments on R&D contracts. Fixed-price development contracts of $25 million or more or fixed-price-type contracts for lead ships should require the prior approval of the USD(AT&L), regardless of a program's ACAT.

- **Contract Incentives.** The acquisition strategy should explain the planned contract incentive structure, and how it incentivizes the contractor(s) to provide the contracted product or services at or below the established cost objectives. If more than one incentive is planned for a contract, the acquisition strategy should explain how the incentives complement each other and ensure the incentives will not interfere with one another.

- **Contract Performance Management.** The PM should obtain integrated cost and schedule performance data to monitor program execution. This data is an output of the Earned Value Management System (EVMS).

  — **Internal Management Control.** The PM should require contractors to use internalmanagement control systems that accomplish the following:

    o Produce data that indicate work progress;

    o Properly relate cost, schedule, and technical accomplishment;

    o Are valid, timely and able to be audited; and

    o Provide DoD PMs with information at a practical level of summarization.

    Unless waived by the MDA, the PM should require that contractors' management information systems used in planning and controlling contract performance meet the EVMS guidelines set forth in American National Standards Institute (ANSI)/EIA 748-98. This standard is available through the ANSI Electronic Standards Store located at http://www.ansi.org/public/std_info.html.

    The PM should not require a contractor to change its system provided it meets these guidelines, nor should the PM impose a single system or specific method of management control. These guidelines should not be used as a basis for reimbursing costs or making progress payments.

  — **Application of EVMS.** The PM should apply EVMS guidelines on applicable contracts within acquisition, upgrade, modification, or materiel maintenance programs, including highly sensitive classified programs, major construction programs, and other transaction agreements. EVMS guidelines should apply to contracts executed with foreign governments, project work performed in government facilities, and contracts by specialized organiza-

tions such as the Defense Advanced Research Projects Agency. EVMS guidelines, including a Cost Performance Reporting requirement, should apply to research, development, test, and evaluation contracts, subcontracts, other transaction agreements, and intra-Government work agreements with a value of $73 million or more (in fiscal year (FY) 2000 constant dollars), or procurement or operations and maintenance contracts, sub-contracts, other transaction agreements, and intra-government work agreements with a value of $315 million or more (in FY 2000 constant dollars).

- o **Cost/Schedule Status Report (C/SSR).** The C/SSR should apply to contracts, subcontracts, other transaction agreements, or intra-government work agreements below these thresholds, unless the PM requires EVMS compliance.

- o Applicability to FFP Contracts. The PM should not require compliance with EVMS guidelines or C/SSR requirements on FFP contracts (including FFP contracts with economic price adjustment provisions), time and materials contracts, and contracts that consist mostly of level-of-effort work. For exceptions to this rule, the PM may obtain a waiver for individual contracts from the MDA.

- **Integrated Baseline Reviews.** PMs and their technical staffs or IPTs shall evaluate contract performance risks inherent in the contractor's planning baseline. This evaluation shall be initiated within six months after contract award or intra-government agreement is reached for all contracts requiring EVMS or C/SSR compliance. The program structure of the strategy should reflect this event.

- **Special Contract Terms and Conditions.** The acquisition strategy should identify any unusual contract terms and conditions and all existing or contemplated deviations to the FAR or DFARS.

- **Warranties.** The PM should examine the value of warranties on major systems and pursue them when appropriate and cost-effective. If appropriate, the PM should incorporate warranty requirements into major systems contracts in accordance with the FAR.

- **Component Breakout.** The PM should consider component breakout on every program and break out components when there are significant cost savings (inclusive of government administrative costs), the technical or schedule risk of furnishing government items to the prime contractor is manageable, and there are no other overriding government interests (e.g., industrial capability considerations or dependence on CLS). The acquisition strategy should address component breakout and briefly justify the component breakout strategy. It should list all components considered for breakout, and provide a brief rationale (based on supporting analyses from a detailed component breakout review (which should not be provided to the MDA unless specifically requested)) for those not selected. The PM needs to provide the rationale for a decision not to break out any components.

- **Leasing.** The PM should consider the use of leasing in the acquisition of commercial vehicles and equipment whenever the PM determines that leasing of such vehicles is practicable and efficient. The

PM should not enter into any lease with a term of 18 months or more, or extend or renew any lease for a term of 18 months or more, for any vessel, aircraft, or vehicle, unless the PM has considered all costs of such a lease (including estimated termination liability) and has determined, in writing, that the lease is in the best interest of the government.

2.2.9 Test and Evaluation (T&E)

T&E Approach. The strategy should address key aspects of the T&E approach that will require special management focus by the PM in order to reduce program risk. The T&E portion of the strategy is concerned with the type, amount, and timing of testing, with sufficient detail to provide a strategic outline for those who develop the Test and Evaluation Master Plan (TEMP). A few example topics are: critical technical parameters, critical operational issues, critical facility requirements, special test resources, live fire testing, and/or test range scheduling issues.

2.3 RELATIONSHIP TO OTHER DOCUMENTS

Documents which strongly influence the development and update of the acquisition strategy include the DoD 5000 Series, OSD policy statements, federal law, the DoD Strategic Plan, the ICD, CDD and CPD, the Defense Planning Guidance, the Program Objectives Memorandum, and the System Threat Assessment Report. The acquisition strategy in turn influences a major portion of the program documentation including the documents listed in Chapter 4 of this Guide. Figure 2-6 shows some of these planning documents and their interrelationships. This figure also reflects the interactions of the three major decision-making support systems leading to program initiation. Over time, these plans become a means for coherently executing the acquisition strategy.

The acquisition strategy is fully documented in whatever Milestone Review documentation package is agreed upon by the PM and Milestone Decision Authority (MDA). One or more portions of the acquisition strategy are often reflected in other program-supporting documentation.[5]

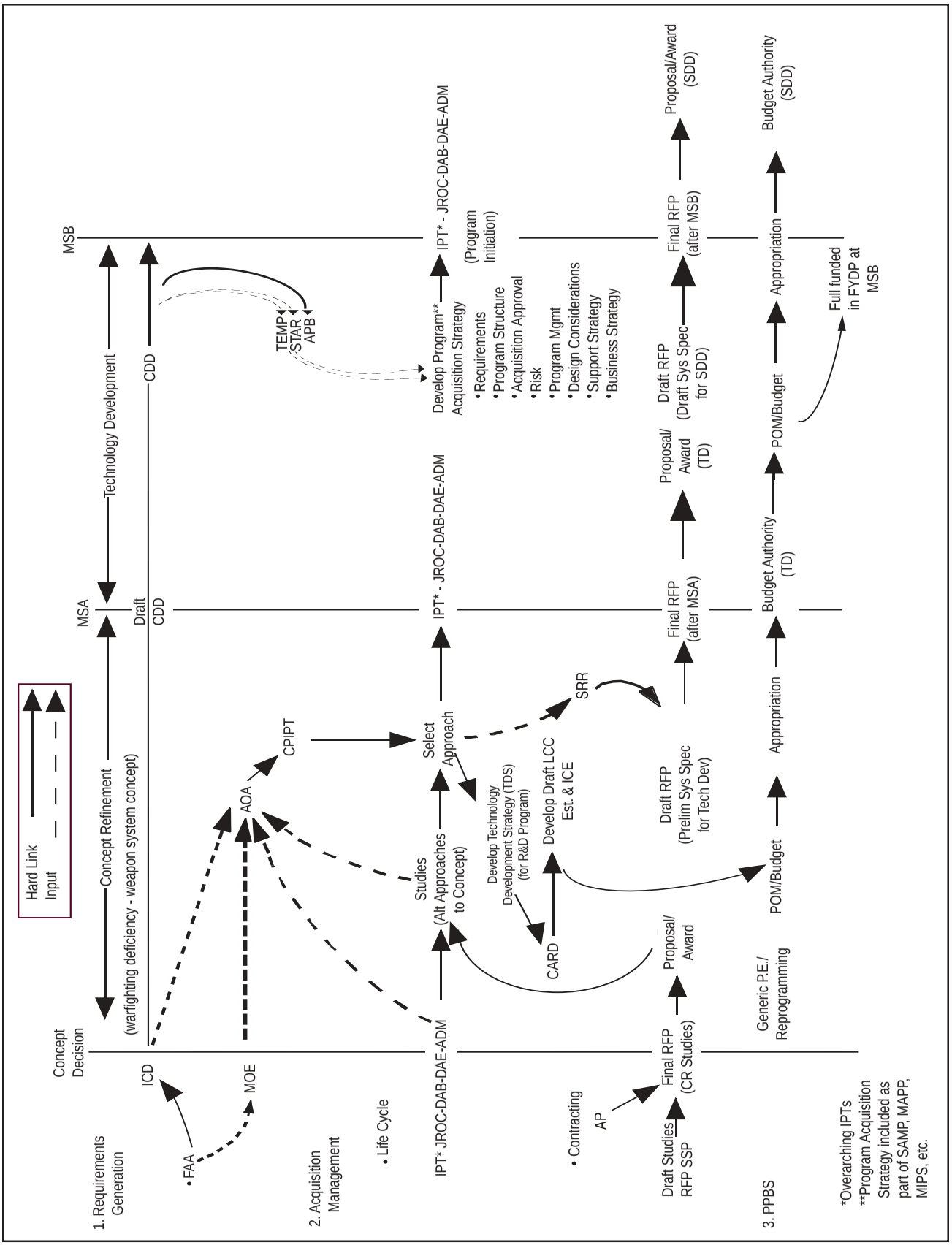


Figure 2-6. Three Major Decision-Making Support Systems in Concept Refinement and Technology Development Phases

ENDNOTES

1. *The Joint Logistics Commanders Evolutionary Acquisition Guide*—a document that previously described Evolutionary Acquisition—has been superseded and the information in that Guide included in this publication.

2. The information in this section generally follows the procedures and philosophy stated in the *DoD/DAU Risk Management Guide* and the *AFMC Acquisition Risk Management Guide*.

3. The government may be directly involved in production via a government facility or indirectly through the establishment of performance standards in a solicitation.

4. Under Secretary of Defense (Acquisition and Technology) Memorandum of 13 November 1998, Subj: Definition of Total Ownership Cost (TOC), Life Cycle Cost (LCC), and the Responsibilities of Program Managers.

5. Under acquisition reform the program documentation requirements were significantly reduced, varying from program to program and among the three major DoD Components.

DRAFT

3

ACQUISITION STRATEGY DEVELOPMENT AND DOCUMENTATION

3.1 INTRODUCTION

Acquisition strategy development is a logical, systematic way of transforming an operational mission need into a comprehensive, top-level plan to guide the acquisition program team in satisfactorily fulfilling the mission need. The development process involves a series of steps with many iterations that consist of identifying, analyzing, and resolving issues related to the essential elements (identified in Chapter 2) of an acquisition strategy.

The program acquisition strategy originates as a Technology Development Strategy (TDS) during the Concept Refinement (CR) Phase of the acquisition cycle—prior to Milestone A and the Technology Development (TD) Phase. The TDS documents a strategy which includes cost, schedule, and performance goals for the total research and development (R&D) part of the overall program acquisition strategy. The principles applicable to Integrated Product and Process Development (IPPD), Integrated Product Teams (IPTs) and the reengineered acquisition oversight and review process will be utilized where it makes sense in TDS development. The strategy development effort may take place prior to the formal establishment of a program office and assignment of a Program Manager (PM). Thus, the task may fall on either a special task force / group appointed during CR, or the initial program office cadre assigned by the Service in advance of program initiation.

The initial program acquisition strategy developed from the TDS during the TD Phase covers the entire acquisition cycle, providing substantial detail on the events of the program phase following the next milestone review, with somewhat less detail on the subsequent program phases. After the initial program acquisition strategy is approved, it is updated and refined, as necessary, throughout the system acquisition cycle. The acquisition strategy is part of the program documentation required at each milestone review—both at and after Milestone B. As noted in the Acquisition, Technology, and Logistics (AT&L) Knowledge Support System (AKSS), "The PM may choose to develop the acquisition strategy as a stand-alone document, or he may choose to incorporate the acquisition strategy into a multi-purpose document (e.g., an Army Modified Integrated Program Summary (MIPS), a Navy Master Acquisition Program Plan (MAPP), or an Air Force Single Acquisition Management Plan (SAMP)). In the event the PM chooses to incorporate the acquisition strategy into such a multi-purpose document, there should be a specific section of that document dedicated to describing the program acquisition strategy and titled "Acquisition Strategy." The Defense Acquisition Executive (DAE) does not approve "MIPSs," "MAPPS," or "SAMPs." They are approved at the Service level. Accordingly, such a multi-purpose document must readily identify the Acquisition Strategy that the PM desires the DAE to approve."[1]

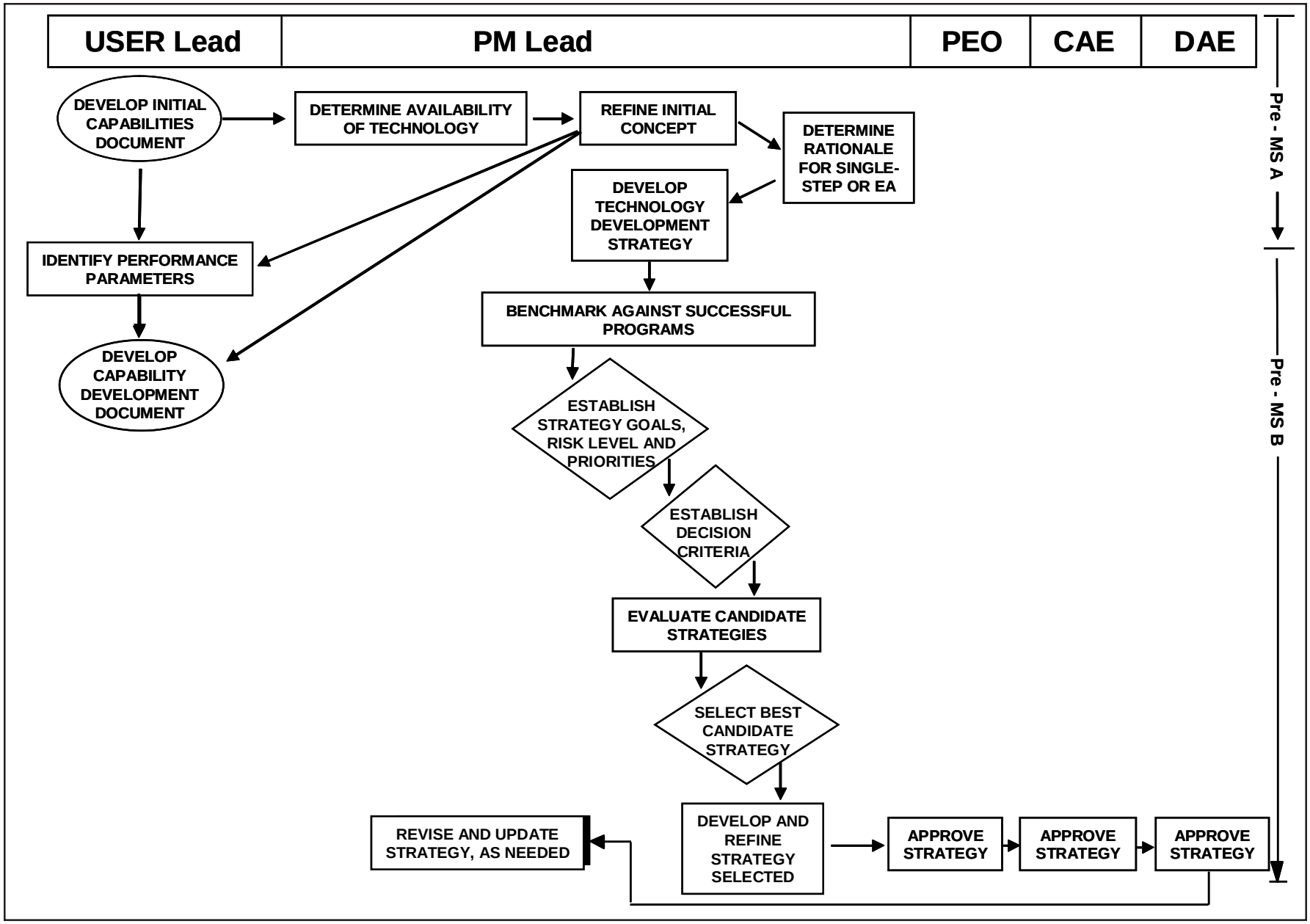


Figure 3-1. Acquisition Strategy Development Process

The remainder of this chapter includes sections on the acquisition strategy development process; the product (the acquisition strategy), its documentation, approval, and flow down to other program plans; and analysis tools that can be used in acquisition strategy development.

3.2 ACQUISITION STRATEGY DEVELOPMENT PROCESS

Sections 3.2.1 and 3.2.2 below describe the general process and the detailed process for developing an acquisition strategy.

3.2.1 General Process

This section presents a process that can be used to develop an acquisition strategy. The process consists of logically and systematically completing a number of steps beginning with identifying and clarifying the mission need and ending with gaining approval of the selected acquisition strategy. Completing each step involves identifying, analyzing, and resolving numerous issues related to the elements of an acquisition strategy by using problem-solving and decision-making tools and techniques.

One way to structure the acquisition strategy development process is to follow the sequence of steps shown in deployment flow chart format, Figure 3-1. Note that the figure displays the acquisition strategy development and approval activities, together with the office responsible and approximate position for each activity in the acquisition strategy development process. Not shown are the iterative loops performed during the process due to specific issues addressed, and trade-off decisions made. The chart also shows the individuals who are the final decision authorities for each step in the case of an Acquisition Category (ACAT) I program. Of course, other valid methods of developing a program acquisition strategy can be used as long as they provide for comprehensive treatment from a system perspective of how the mission need will be satisfied.

Software is available to aid in the preparation of an acquisition strategy. In the AKSS, the legacy *Defense Acquisition Deskbook*, Information Structure section, part 2.5 Acquisition Planning and Risk Management, addresses the acquisition strategy. A generic outline of an acquisition strategy is provided, acquisition strategy related software is referenced, and numerous acquisition strategy topics are discussed. It is important to realize that the elements of an acquisition strategy have evolved from those shown in the legacy *Deskbook*. Chapter 2 of this *Strategy Guide* contains the current acquisition strategy elements.

3.2.2 Detailed Process

The following detailed process of developing an acquisition strategy is based on the steps shown in the deployment flow chart, Figure 3-1. By using this logical, systematic process, the criteria of realism, stability, resource balance, flexibility, and managed risk can be integrated into the acquisition strategy. The acquisition strategy development process includes the following steps:

- Identify the mission need.
- Assess the situational realities.
- Select system concept(s) for development.
- Assemble strategy development resources.
- Establish strategy goals, risk levels, and priorities.
- Establish decision criteria.

- Identify specific candidate strategies.
- Evaluate candidate strategies and select best one.
- Further develop and refine selected strategy.

These steps are discussed in turn in the following subsections.

3.2.2.1 Identify the Mission Need

- What is the requirement?
- What is the urgency?
- How is the system to be used?

The primary goal in the development of an acquisition strategy should be to minimize the time and cost of satisfying an identified, validated *need* consistent with common sense, sound business practices, and the basic policies established by Department of Defense (DoD) Directive (DoDD) 5000.1 The mission need is the consequence of a performance deficiency in current or projected capabilities, or of a technological opportunity to establish new or improved capabilities. It must be certified by validation and approval authorities. The Initial Capabilities Document (ICD) is expressed in broad operational terms as determined by the user and shall identify and describe the mission contained in the DoD Strategic Plan. The strategy developer must clearly understand the mission need and ensure that it is well articulated to all participants in the acquisition process. Reference should be made to the current version of the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01.

The PM or the leader of the pre-Milestone B task organization (henceforth also referred to as the PM) should also review and analyze other documents related to the MNS, such as the threat analysis studies, and provide feedback to the user or user's representative. The PM should also attempt to establish the approximate priority of the need, and later the program, within its own Service and DoD. This information establishes a decision framework that will enhance strategic tradeoff.

3.2.2.2 Assess the Situational Realities

- What is the threat reality?
- What is the economic environment?
- What are the political realities?
- What is the program's relationship to other programs?
- What are the technological opportunities?
- What are the Cost As an Independent Variable (CAIV) driven cost and performance objectives along with resulting schedule realities?
- What are the review and documentation realities?

The situational realities faced by the program include the system-related performance, cost, and schedule requirements; the general review requirements and procedures associated with the DoD acquisition process; the impact of other programs' acquisition strategies; completed or pending studies of topics related to the acquisition strategy; and the resources (time, money, and experienced people) available to complete the strategy development.

Each program's strategy development must proceed in its own particular acquisition en-

vironment. The PM must know where the program stands in that environment at any particular time. Some programs may have strong documented support from the beginning, with relatively few disturbing influences to hinder them. However, most programs have critics with their own audits and reports. There may be segments of Congress that oppose the program from a need, financial, or political viewpoint. A program may also have opponents within the Office of the Secretary of Defense (OSD), the other Services, or even its own Service, who have, or believe they have, valid reasons for their positions. Within DoD, General Accounting Office (GAO), Congressional Budget Office (CBO), etc., audit reports and estimates may exist that take issue with a strategy element within the program. For example, existing contract relationships may be viewed in a negative context by an OSD office as opposed to the view by the sponsoring Service; or there may be a disagreement on Service compliance with a policy or rule by the Inspector General (IG) or a single member of Congress. The PM, with a full understanding of how the program fits into the national objectives and DoD priorities, should work with the operational users, OSD and Service Staffs to do all that is legitimately proper to ensure the program's success. The development of an effective acquisition strategy, that considers situational realities, is a key way to counter opposition and enhance the likelihood of achieving program goals.

3.2.2.3 Select System Concept(s)

- What concepts are possible?
- What concepts are feasible?
- Which concept(s) will most likely result in satisfying the mission requirements?
- What modeling and simulation can be used to aid system concept identification and selection?

Following mission need approval, appropriate consideration must be given to selection of a system concept using the conclusions flowing from an Analysis of Alternatives (AoA). These results must be subjected, in turn, to an affordability analysis. The end result provides top-level program requirements and the basis for the development of an event-driven acquisition strategy.

3.2.2.4 Assemble Strategy Development Resources

- What human resources are required?
- What funding resources are required?
- What information resources are required?
- What time commitment is required?

Strategy development will require resources —people, time, money, and information. Table 3-1 is a check list of resources that normally are required for effective strategy development prior to Milestone I. Strategy must be developed in a concurrent, interactive, and integrated manner, rather than as a collection of separate inputs that can lead to functional discord. While all the participants in the strategy development are important, a seasoned technical manager and a knowledgeable and experienced business manager are key players, since the technical and business strategies often control critical accomplishments.

The user will have the knowledge, experience, and capability to ensure adequate consideration and compliance with operational concepts. User personnel are the PM's key link to the operational community, and there-

Table 3-1. Resources for Acquisition Strategy Development

- Acquisition Strategy Development Funding and Time
- Facilities and Management Information Systems
- Mission Analysis Studies
- Concept Study Results
- Cost, Schedule, Technology Studies, Audit Reports (pro and con)
- Strategy Development Team
  - PM
  - Technology Manager
  - Business Manager
  - Logistician
  - User
  - Special Consultants
  - Contracting Officer
  - Others, as appropriate

fore they must have a thorough working understanding of the mission needs, operator biases, and the acquisition process.

3.2.2.5 Establish Strategy Goals, Risk Levels, and Priorities

- How will this program be streamlined?
- How many sources will be used in each acquisition phase?
- What type of contracts will be used?
- How long will it take to award contracts?
- What are our cost goals?
- What type of testing and how much will be done and how long will it take?
- What logistics support approach will be used?
- What software development approach will be taken?
- Based on the system concept selected, what are the initial technical, cost, schedule, and support risks?
- What are the options for mitigating identified risk areas?

When the mission need is thoroughly understood, an assessment of the situational realities has been performed, and the resources for strategy development are available, the strategy development can actually begin. Program-specific strategy goals or objectives should be listed and prioritized (e.g., foster the use of performance specifications or seeking out solutions involving Non-Developmental Items (NDIs)). The difficulty of achieving each goal should be broadly assessed, as should the consequences of not achieving the goals. This assessment, together with the prioritization, provides a basis for assigning initial risk levels pending the program's development of a full risk management effort. At this stage, risk levels may be mostly qualitative (e.g., high, medium, and low) without full quantitative analysis of consequences and probabilities. However, to the extent feasible, the risk levels should be determined quantitatively. The initial risk levels then provide direction for developing strategy alternatives that can concentrate resources effectively.

3.2.2.6 Establish Decision Criteria

- What factors will be used?
- What weights, if any, will be assigned to each factor?
- What other considerations such as commercial items, open systems, etc., will be used in selecting the best candidate strategy?

Given that the program requirements have been established, priorities and initial risk levels assigned, decision criteria should be established for application to candidate strategies as they are being developed. The strategy development process can then be considered to be a classical decision problem—that is, one of resource allocation with multiple objectives.

Such problems are not easily solved, especially when so many potential future impacts are unknown or not fully understood. It is here that the strategy criteria discussed in paragraph 2.1 become important for guiding the decision-making process, i.e., realism, stability, resource balance, flexibility, and managed risk. Based on these criteria, an assessment is made of how well the stated objectives / requirements can be met.

3.2.2.7 Identify Specific Candidate Strategies

- What are some specific candidate strategies?
- Do these specific candidate strategies satisfy the requirement?
- What are the schedule and documentation impacts of combining milestones or phases?
- What are reasonable time estimates for conducting developmental and operational testing?
- Are the candidate strategies affordable using CAIV?
- Do the candidate strategies adequately consider life cycle cost (LCC) (Defense Systems Total Ownership Cost (TOC))?

The strategy developer must identify candidate approaches for ensuring that each program objective and requirement is met. The selection of strategy alternatives should be driven by the mission need with consideration of the situational factors, goals, priorities and risk. Major DoD issues and alternatives applicable to an acquisition strategy are discussed in the DoD 5000 Series directives. A list of acquisition-related terms and topics is provided in Appendix A. The list includes strategy-related items such as concept sources, design-to-cost, guarantees, incentives, leader-follower, phased acquisition, etc., one or more of which may be appropriate topics for inclusion in the acquisition strategy, depending on the specific nature of the acquisition program.

3.2.2.8 Evaluate Candidate Strategies

- Does each strategy satisfy the mission requirement and decision criteria?
- What are the advantages and disadvantages of each candidate strategy?

The decision criteria and decision model are applied to the identified candidate strategies. Such an evaluation cannot be performed in a mechanical fashion—the problems are complex, the uncertainties are substantial, and the criticality is high. While there are a number of mathematical, statistical, and economic tools available for such evaluation, judgment and experience must still play major roles. Equally important are information and data. These evaluations suggest *facts* necessary for complete assessment of alternative strategies

are available. Sometimes relevant information is unobtainable. If information *crucial* to evaluating alternative strategies cannot be documented, then it must be *replaced by a valid assumption* and labeled as such. If an outcome will be unaffected regardless of whether or not and assumption turns out to be factually accurate then that assumption *is not* considered "valid." A limited discussion of analysis tools is addressed later in this chapter.

3.2.2.9 Select Best Candidate Strategy

- Which candidate strategy best satisfies the requirement and decision criteria?

- Which strategy is chosen?

The best candidate strategy will have many facets, each representing an aspect of the program that has been determined to be important in light of the operational requirement and the development, testing, production, and support requirements. A multi-attribute utility decision test, using a matrix such as the one shown in Table 3-2, can serve as a useful tool in the process of selecting the best candidate.

3.2.2.10 Refine Selected Candidate Strategy

When the evaluation is completed, and the preferred candidate strategy is selected, it is further developed and refined. The refinement activity includes a review and reassessment of all elements as they apply to the requirement as well as the aforementioned criteria of realism, stability, balance, flexibility, and managed risk. Other factors are considered, as appropriate, and the selected strategy is further tailored in accordance with DoDD 5000.1 and the *Interim Defense Acquisition Guidebook* (*IDAG*) (formerly DoD 5000.2-R).

3.2.3 Services' Acquisition Strategy Development Approach

The military Services follow the overall DoD policy guidance on developing a system acquisition strategy. However, there is some variation in the way each Service executes the details of the acquisition strategy development process. The following sections describe some of those variations.

Table 3-2. Strategy Decision Matrix

Criteria	Rating		Strategies					
			A		B		C	
	Initial (1)	Normalized (2)	Probability (3)	Weighted Score (2) x (3)	Probability (4)	Weighted Score (2) x (4)	Probability (5)	Weighted Score (2) x (5)
I	8	40	0.60	24	0.95	38	0.50	20
II	5	25	0.90	22.5	.50	12.5	0.95	23.75
III	5	25	0.80	20	0.90	22.5	0.60	15
IV	2	10	0.50	5	0.90	9	0.60	6
Total	20	100		71.5		82.0		64.75

3.2.3.1 Army

The Army PM decides who will assist him or her in developing the program acquisition strategy. As the acquisition strategy is being developed, the cognizant materiel developer (MATDEV), the same as the PM for purposes of this Guide, coordinates the strategy thoroughly with agencies that support the MATDEV and agencies that will use and support the system when it is fielded. The MATDEV also coordinates the acquisition strategy with the combat developer (CBTDEV), training developer, independent testers and evaluators, logisticians, human system integrators, and matrix support organizations. Other system-specific considerations may make further coordination advisable. These include, but are not limited to: training aids, devices, simulations, and simulators; night-vision and electro-optics devices; smart sensors or weapons-system signatures; standard auxiliary power units; batteries; environmental control units; and shelters.[2]

3.2.3.2 Navy/Marine Corps

PMs for all Department of Navy (DON) programs shall develop an acquisition strategy implementing the requirements of the *IDAG*, paragraph 3.3. For ACAT IC, IAC, and II programs, the PM shall develop the acquisition strategy in coordination with the acquisition coordination team (ACT). For ACAT III and IV programs, the PM shall develop the acquisition strategy in coordination with the ACT, if one is established. An ACT is established by the PM, or other authority, in coordination with a cognizant Deputy Under Secretary of the Navy. The ACT, which is a DON-developed concept, in many respects performs the same roles that the overarching integrated product team (OIPT) and the working-level integrated product team (WIPT) perform for ACAT ID programs. The ACT does not replace the need for a functional IPTs, which is intended to address specific functional issues and which may be the only type of team associated with an ACAT III or IV program. The ACT is a team of stakeholders from the acquisition, requirements generation, and planning, programming, and budgeting communities who represent the Milestone Decision Authority's (MDA) principal advisors for a given program. The ACT will participate early and continuously with the PM to develop and implement the acquisition strategy and resolve issues at the earliest time and lowest level.[3]

3.2.3.3 Air Force

Within the Air Force, the acquisition strategy is developed and documented in the Single Acquisition Management Plan (SAMP) or Acquisition Plan (AP). The top-down process incorporates the guidance of an Acquisition Strategy Panel (ASP), consisting of a standing cadre of executive and senior advisors from functional disciplines. There are three levels of standing ASPs: Service Acquisition Executive (SAE) ASP; Senior ASP; and Air Force Materiel Command (AFMC) Center ASPs. The SAE ASP and Senior ASP members are appointed by the Assistant Secretary of the Air Force (Acquisition) (SAF/AQ). AFMC Center ASP members are appointed by the Center Commander (CC). In addition, each PM invites other individuals to participate based on their programmatic or functional expertise or on their vested interest as program stakeholders. The ASP process begins before acquisition strategies are submitted for approval but after a Program Management Directive (PMD) has been issued or if a program has experienced a major change or redirection. A normal sequence of events is as follows: the Program Executive Officer (PEO)/ Designated Acquisition Commander (DAC) and the program manager begin work

on the SAMP or AP; an ASP meeting is called; a lessons-learned package is requested from the ASP secretariat; a time for an ASP meeting is coordinated with the ASP secretariat; the acquisition strategy is developed; the ASP meeting takes place; and the acquisition strategy is finalized and documented in SAMP or AP format.[4] Support to program teams developing performance based acquisition strategies and other program functions has been further enhanced by SAF/AQ. In recent years, a new set of Lightning Bolts were announced including 99-1. This Lightning Bolt expands upon the services provided by the existing request for proposals (RFP) Support Offices (RFPSOs) and enhance their role and performance throughout *all* pre-award activities. These activities are to include support to program teams in developing performance-based acquisition strategies, conducting program risk assessments, assisting in building streamlined RFPs, and consulting, training, and participating in source selections (Lightning Bolt 99-2). These organizations, redesignated Acquisition Support Teams (ASTs), will be accountable to the PEOs, DACs, and SAE for institutionalizing a performance-based business environment throughout ***all*** efforts that procure goods and services for the Air Force.[5]

3.3 PRODUCT

The documented acquisition strategy is the major *product* of the acquisition strategy development process. It consists of the program structure, acquisition approach, and major tradeoffs. The *product* must be more than a report of actions already taken and decisions already made in the program. It should not dwell on a detailed description of the system under development except as the description pertains to the acquisition strategy. It should summarize and/or discuss prior tradeoffs among cost, schedule, and performance that were made to bring the program to its current state, including a description of strategy changes that have taken place since initial approval. It should describe the risk reduction tools used in the past, and those preferred or planned for future use. Of equal or greater importance, it must provide the broad program strategy for future tradeoffs and program plans and actions, with special emphasis on the phase following the next major milestone review.

Likewise, the *product* must be more than a description or plan of contract types and contract actions past, present, and future. It must communicate the strategy to be followed in the technical development of the system, in the test and evaluation of the system, in development of the integrated logistics support system, in the program management function. Appendix B provides two sample acquisition strategies. Both are based on evolutionary acquisition principles. They are the High Mobility Artillery Rocket Sytem (HIMARS) (see B-3) and the Warfightier Information on Network-Tactical (WIN-T) (see B-27).

Following approval, the acquisition strategy should be widely disseminated, so that it may act as a key coordination tool, assisting the PM in the program control function. To best achieve this end, the PM should strive to develop the acquisition strategy as an unclassified document, if at all possible.

3.3.1 Documentation and Approval

An outline format for documenting an acquisition strategy is found in the *DoD Deskbook* at http://www.deskbook.osd.mil/. PMs are encouraged to tailor their acquisition strategy documentation as noted in Table 3-3 at the end of this chapter. A documented acquisition strategy, when properly tailored and streamlined to reflect the key elements of a specific program, will prove useful in conveying a broad master plan for

the successful accomplishment of an acquisition program. (See the examples in Appendix B.)

The acquisition strategy is approved by the MDA. The *IDAG* requires such approval *prior to issuance of the formal RFPs* for the next program phase.

3.3.2 Flow Down

The level of detail included in the initial acquisition strategy should be sufficient to serve as a roadmap for the entire program throughout the acquisition cycle and to serve as a basis for development of functional plans such as the acquisition plan and the Test and Evaluation Master Plan (TEMP). This concept is discussed in more detail in Chapter 4.

3.4 ANALYSIS TOOLS APPLICABLE TO ACQUISITION STRATEGY DEVELOPMENT

This section addresses some of the analytical processes and tools and techniques that are useful for program management personnel in structuring acquisition strategies to support and feed into informed trade-off decisions, given affordability constraints and the user's validated needs. Trade-off decisions are, of course, made in the context of cost, schedule and performance.

In support of the following analysis tools, and as directed by the Deputy Secretary of Defense (DEPSECDEF), the acquisition strategy shall describe its Integrated Digital Environment (IDE).[6] Although still in its formative stages IDE is a cross-functional digital information infrastructure that supports a DoD acquisition program. It should be readily accessible by anyone who needs it, used at various organizational levels within government and industry, and support a range of acquisition management purposes. The IDE will be composed of various tools and processes that allow for the physical exchange of data, electronic delivery of data, shared databases, and offer support to both local and integrated work flow.

3.4.1 Risk Analysis

Risk analysis, as a continuing function, is required by the current 5000 Series directives. The risks associated with a program as it approaches a milestone, and the adequacy of risk management planning, must be explicitly managed. A risk management program must be developed and executed by the PM. The references listed in paragraph 2.2.8 contain a number of tools applicable to risk analysis.

3.4.2 Cost Analysis

Cost analysis is performed to assess the resource implications associated with the various program alternatives. Such resource implications are used and further developed in performing the AoA.

In order to perform a proper analysis of cost of an acquisition program, it is necessary to understand the various types of costs and the relationships existing among those different costs. In this regard, the concept of LCC is extremely important. LCC includes all work breakdown structure (WBS) elements; all affected appropriations; and encompasses the cost, both contractor and in-house effort, as well as existing assets to be used, for all categories. It is the total cost to the government for a program over its full life, and includes the cost of R&D, investment in mission and support equipment (hardware and software), initial inventories, training, data, facilities, etc., and the operating, support, and, where applicable, demilitarization, detoxification, or long-term waste

storage.[7] LCC and TOC is discussed in paragraph 2.2.12.

There are a number of cost analysis and estimation procedures. A key element applicable to all procedures is the availability of comprehensive, relevant, and accurate data. Such data should include detailed descriptions of the system or process under evaluation; associated economic, situational, and environmental factors; and costs and associated information on similar systems.

There are four generic types of cost analysis/estimation procedures, all of which are addressed in a variety of government, commercial, and professional association publications.

- **Bottom-Up.** Estimates are made at the lowest possible level of the system or process, and the engineering expertise of applicable organizations are used. These lower-level estimates are then aggregated and adjusted to account for such factors as integration, overhead, and administrative expenses. This technique requires fairly complete information at lower levels.

- **Analogy.** Current cost information on similar systems or processes is collected and modified as appropriate to account for variations from the system or process under evaluation.

- **Extrapolation.** Estimates are made by extrapolating from actual costs.

- **Parametric Analysis.** A broad base of applicable cost data is analyzed to develop relationships between cost elements and system or process characteristics. These are often called Cost Estimating Relationships (CERs).

All four methods can be used feasibly within a single program. When it can be applied, the bottom-up approach is usually the most accurate but also the most time-consuming and labor-intensive. The comparison methods (analogy and extrapolation) are often used to establish an initial baseline and to calibrate the other methods. The accuracy of parametric analysis depends on the data quality, the degree to which the CERs represent the instant case, and the strength of the derived relationships. This method is usually applied early in the program. Tools and techniques useful for cost analysis/estimation are available in the DoD cost analysis community. In the area of software and software cost estimating, a wide range of useful websites are available at http://www.hill.af.mil and various tenant organizations. In addition, each of the Services maintains several cost-estimating websites easily found using most search capabilities.

http://www.dtic.mil/pae/
OSD Cost Analysis Improvement Group

http://www.ncca.navy.mil/index.html
Naval Center for Cost Analysis

http://www.ceac.army.mil/
Army Cost and Economic Analysis Center

http://www.saffm.hq.af.mil/
Assistant Secretary of the Air Force (Financial Management and Comptroller) SAF/FM

3.4.3 Schedule Analysis

In many respects the analysis of schedules has many of the characteristics of cost analysis. Data completeness, accuracy, relevancy, and quantity are important elements. Bottom-up, comparison, and parametric techniques are also applicable. For schedule analysis, there are a number of unique tools and techniques, including the following:

- Gantt and milestone charts.
- Line-of-balance (LOB) technique.
- Network scheduling.
- Time management techniques.
- Project management software applications.

Further information on scheduling tools and techniques can be found in the Defense Acquisition University's *Scheduling Guide for Program Managers.*

3.4.4 Decision Analysis

Decision analysis is the process by which choices are made. Much theoretical work has been performed in developing methods to provide quantifiable measures for evaluating choices. With regard to acquisition strategy, the more sophisticated methods are usually limited because of the complex interactions (which make quantification difficult) and the data limitations that usually prevail. Nevertheless, the concepts of decision theory should be used in acquisition strategy development and execution to the maximum extent possible. A detailed description of the various decision analysis tools is beyond the scope of this Guide. The following is a listing of widely employed methods of analysis, that have proven to be useful in a broad range of DoD situations, and are generally understood by many in the defense acquisition community (see Hillier and Lieberman, below):

- **Statistical Analysis.** The most frequently used technique in this category is regression analysis which is employed for forecasting the expected value of a dependent variable, given the values of the independent variables. This method is used extensively in the area of cost and performance forecasting. Other statistical methods are probability theory, exponential smoothing, statistical sampling, and tests of hypotheses.

- **Modeling and Simulation (M&S).** This method is likely to involve the construction of a model that is largely mathematical in nature with individual elements whose behavior can be predicted, in terms of probability distributions, for each of the various possible states of the system and its inputs. The model is then activated by using random numbers to generate simulated events over time according to the appropriate probability distribution. The result is simulation of actual operations such as those involving a specific aircraft; and in the end, are nothing more or less than a relatively affordable technique of performing *sampling experiments* on a model of the system rather than on a yet to be built or fielded system. M&S shall be applied, in collaboration with industry, and as appropriate, in acquisition strategy preparation and throughout the system lifecycle.[8]

- **Mathematical Programming.** Linear Programming (not to be confused with computer programming) is the most widely used method within this group. A common application involves the general problem of allocating limited resources among competing activities in the best possible or optimal way. All the mathematical functions in the model are linear. The most important area of application is production management (product mix, allocation of resources, plant and machine scheduling, and work scheduling) followed by capital budgeting. Mathematical programming also includes a number of other methods, the most widely used of which are nonlinear

programming and dynamic programming. Other examples include network analysis, game theory, and integer programming.

Other lesser used methods that tend to have specialized applications in areas indirectly supporting the PM can generally be grouped under the category of Probabilistic Models. These methods would include the stochastic processes, queuing theory, inventory theory, and the Markovian decision process.

Two excellent references on decision analysis, trade-off analysis and related topics are *Introduction to Operations Research,* Fourth Ed., Hillier and Lieberman, Holden-Day, Inc., 1986; and, *Design to Reduce Technical Risk,* AT&T, McGraw-Hill, Inc., 1993.

Table 3-3. Recommended Outline for a Program Acquisition Strategy

(Consider the following outline as a guide or model only, to be streamlined and tailored as appropriate for a particular program. Chapter 2 contains detailed guidance on each element of the acquisition strategy)

1. Requirements.

1.1 Summary description of the requirement the acquisition is intended to satisfy; includes interoperability with other systems, dependency with other programs, and whether requirement are structured in time-phased increments or in a single step.

1.2 Description of approved or in-process source documents, e.g., IRD, CDD, CPD, etc.

2. Program Structure.

2.1 See Figure 2-3 of Chapter 2 for Example. The structure is a top level schedule that provides a one-page picture of the program strategy. It includes relationship among acquisition phases, decision milestones, solicitations, contract awards, system engineering design reviews, contract deliveries, T&E, production releases, and operational capability objectives. It depicts degree of concurrency, phase transitions, and block increments. A funding profile, along with planned procurement quantities, is normally shown by fiscal year and phase.

2.2 Program Description. Present background material on how the program got started, what has transpired to date, and current program status.

3. Acquisition Approach.

3.1 Identify either a single-step or evolutionary approach with rationale for either.

3.1.1 If evolutionary, the strategy should describe Block 1 (the initial deployment capability) and the approach to treatment of subsequent blocks—either incremental or spiral development.

- **If incremental evolutionary development, define each block of capability and how it will be funded, developed, tested, produced and supported.**
- **If spiral evolutionary development, describe the funding and schedule planned to achieve the full capability (to the extent it can be defined).**

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

4. Risk Management.

4.1 Provide a well-reasoned risk assessment of acquisition approach alternatives and program cost, schedule and technical risk of selected concept and any variation of that concept.

5. Program Management.

5.1 Philosophy/Approach. Include discussion of streamlining initiatives that have been incorporated in the acquisition program.

5.2 Program Resources. Provide description of planned funding including full funding of procurement end items, advance procurement, program staffing, and affordability analyses/studies. Include discussion of Cost as an Independent Variable (CAIV) trades for affordability, and how defense system Total Ownership Cost (TOC) will be reduced and controlled. Include detailed funding profile for clarity.

5.3 Information Sharing and DoD Oversight. Address how information sharing of programmatic and technical information will be shared with program stakeholders in a secure encrypted environment.

5.4 Integrated Digital Environment (IDE). Discuss how the data management needs of the PM (i.e., a PMO C4I system) will be electronically achieved throughout the system life-cycle.

5.5 Defense Contract Management Agency (DCMA). Include details on involvement of DCMA and technical representatives in supporting the program.

5.6 Government Property in Possession of Contractors (GPPC). The identification of GPPC and a discussion on how it will be reduced to minimum amount.

5.7 Simulation-based Acquisition. Discuss how Modeling and Simulation (M&S) will be used by the program management functional areas throughout the product life cycle.

5.8 Streamlining/Innovative Acquisition. Describe Program Tailoring and how best practices are applied.

5.9 Software Intensive Programs. Describe how the software development approach supports the system-level acquisition strategy, and the use of independent expert reviews.

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

6. Design Considerations.

6.1 Technology Transition. Address (especially in the Technology Development Strategy (TDS)) how critical technologies will be applied to the developing systems, including a Technology Readiness Level (TRL) risk assessment; and how use of commercial and non-developmental items (NDI) will reduce or increase technology risk.

6.2 Open Systems. Explain how application of the open systems approach will allow incremental system upgradability without major redesign during the systems life-cycle.

6.3 Interoperability. All efforts to make the system interoperable with both U.S. and Allied defense systems should be discussed.

6.4 Information Technology (IT) Supportability. A summary of the infrastructure and support considerations identified in the ICD and CDD and described in the C4I Support Plan (C4ISP).

6.5 Program Protection. Provide information regarding technical, schedule, and cost issues of compliance with critical program information and anti-tamper measures.

7. Support Strategy.

7.1 Product Support. Address how program implements a performance-based acquisition strategy, i.e., Performance-Based Logistics (PBL), versus the traditional transaction-based approach. Include description of performance-based metrics, such as availability of mission-capable systems, instead of on distinct elements such as parts, maintenance, and data.

7.1.1 Product Support Integrator. Identify a product support integrator from the Department of Defense or private sector to coordinate functions provided by organic organizations, private sector providers, or a partnership between organic and private sector providers.

7.2 Affordability Improvements. Describe actions to continually improve product affordability for programs in initial procurement, re-procurement, and post-production support.

7.3 Source of Support. Address maintenance, supply and contractor logistics support (CLS) measures.

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

7.3.1 Depot Maintenance. Describe use of contractor-provided, long-term, total life-cycle logistics support, i.e., CLS, that combines depot-level maintenance for non-core-related workload along with wholesale and selected retail materiel management functions.

7.3.2 CLS In-Theater. Address how program will coordinate with in-theater users to identify standards and procedures for integrating CLS into the theater of operations.

7.4 Human Systems Integration (HSI). Identify HSI initiatives within the strategy to integrate manpower, personnel, training, safety and occupational health, habitability, human factors engineering (HFE), and personnel survivability.

7.4.1 Training. Summarize major elements of the training system and identify training initiatives that enhance the user's capabilities, improve readiness, or reduce individual and collective training costs.

7.5 Environmental, Safety, and Occupational Health (ESOH) Hazards. Include a summary of the Programmatic ESOH Evaluation (PESHE) document, including ESOH risks and a strategy for integrating ESOH considerations into the systems engineering process.

7.6 Demilitarization and Disposal. Describe Service logistics and DLA activities, as appropriate, necessary to eliminate the functional or military capabilities of defense assets.

7.7 Life-Cycle Oversight. Address how PM and other responsible organizations will maintain appropriate oversight of the fielded system's support, readiness, performance, and ownership costs.

7.8 Post Deployment Evaluation. Test and Evaluation activities conducted to verify that the system and modifications/enhancements continue to meet cost, performance, and support parameters approved at Full-Rate Production decision review.

7.9 Other factors. Address miscellaneous support factors, e.g., long-term access to product configuration technical data, personnel survivability and habitability, etc.

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

8. Business Strategy.

8.1 Competition. Describes plans to attain program goals via competition, throughout all phases of the program's life cycle, or explain why competition is neither practicable nor in the best interests of the Government.

8.1.1 Fostering and Maintaining a Competitive Environment. Address any exceptional circumstances in which the Department needs to act to maintain future competition.

8.1.2 Building Competition. Discuss activities such as competitive prototyping, competitive alternative sources, and competition with other systems that may be able to accomplish the mission should be discussed.

8.1.2.1 Competition and the Acquisition Phases. How will competition be applied throughout the life of the program?

8.1.2.2 Competition and Evolutionary Acquisition. Cover how competition will be tailored to the nature of each block, from the initial block of capability through successive time-phased blocks.

8.1.2.3 Industry Involvement. Describe past and planned industry involvement in the program, including knowledge gained from industry when developing the acquisition strategy.

8.1.3 Potential obstacles to competition. Discuss the impact of exclusive teaming arrangements, vertical integration and proprietary designs on competition, and alternative approaches taken to mitigate these contractor strategies.

8.1.3.1 Subcontractor Competition. When competition is not planned at the prime contract level, the strategy should identify plans for bringing competitive pressure to bear on the program through competition at major subcontractor or lower tiers or through other means.

8.1.4 Potential Sources. Discuss following as possible sources of defense systems and supply: international, domestic, dual-use, Small Business Innovation Research (SBIR) technologies, commercial and non-developmental items, small businesses, and intra-Government work agreements. Include results of completed market research and plans for future market research.

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

8.2 International Cooperation. Discuss the potential for increasing, enhancing, and improving the conventional forces of the North Atlantic Treaty Organization (NATO) and the United States, through reciprocal defense trade and international cooperative research, development, production, and logistic support.

8.2.1 International Interoperability. Discuss how the program/system will achieve deployment and sustainability of interoperable systems with our potential coalition partners.

8.2.2 Testing for International Programs. Describe test process for international systems – both for cooperative programs and foreign military sales.

8.3. Contract Approach. Describe what the basic contract buys; how major deliverable items are defined; options, if any, and prerequisites for exercising them; and the events established in the contract to support appropriate exit criteria for the phase or intermediate development activity; also assess whether the production program is suited to the use of multiyear contracting based on FAR requirements.

8.3.1 Contract Types. Identify the type of contract planned (e.g., firm fixed-price (FFP); fixed-price incentive, firm target; cost plus incentive fee; or cost plus award fee) and the reasons it is suitable, including considerations of risk assessment and reasonable risk-sharing by the Government and the contractor(s). Include discussion of contract options, long-lead items (LLI), and any other unique contracting issue.

8.3.2 Contract Incentives. Explain the planned contract incentive structure, and how it incentivizes the contractor(s) to provide the contracted product or services at or below the established cost objectives.

8.3.3 Contract Performance Management. Describe how integrated cost and schedule performance data from the Earned Value Management System (EVMS) will be used to monitor program execution.

8.3.4 Integrated Baseline Reviews (IBR). Summarize how IBRs will be used to evaluate contract performance risks inherent in the contractor's planning baseline.

8.3.5 Special Contract Terms and Conditions. Identify any unusual contract terms and conditions and all existing or contemplated deviations to the FAR or DFARS.

Table 3-3. Recommended Outline for a Program Acquisition Strategy (continued)

8.3.6 Warranties. Examine the value of warranties on major systems when appropriate and cost-effective.

8.3.7 Component Breakout. Briefly justify a component breakout strategy if one is selected.

8.3.8 Leasing. Consider the use of leasing in the acquisition of commercial vehicles and equipment whenever the PM determines that leasing of such vehicles is practicable and efficient.

9. Test and Evaluation. Describe key aspects of the T&E approach that will require special management focus by the PM in order to reduce program risk; provide a strategic outline for those who develop the Test and Evaluation Master Plan (TEMP). A few -example topics are: critical technical parameters, critical operational issues, critical facility requirements, special test resources, live fire testing, and/or test range scheduling issues.

ENDNOTES

1. Acquisition, Technology, and Logistics (AT&L) Knowledge Sharing System (AKSS): ”legacy” *Defense Acquisition Deskbook* Acquisition Strategy Discussions.

2. Army Regulation 70-1, *Army Acquisition Policy*, dated: 15 December 1997, effective: 15 January 1998.

3. SECNAVINST 5000.2, *Implementation of Mandatory Procedures for Major and Non-Major Defense Acquisition Programs and Major and Non-Major Information Technology Acquisition Programs.*

4. *AFMC Financial Management Handbook.* Available at: http://www.afmc-mil.wpafb.af.mil/HQ-AFMC/FM/FMRS/frames/fmrsttoc.htm.

5. HQ AFMC/AQ memo of 17 March 1999, subj: AF Acquisition and Sustainment Reform ’99 Lightning Bolts.

6. *Interim Defense Acquisition Guidebook* (*IDAG*), paragraph C.2.6.3; and DFARs 207.105.

7. DoD 5000.4M, *Cost Analysis Guidance and Procedures*, December 1992.

8. *Interim Defense Acquisition Guidebook* (*IDAG*).

DRAFT

4

EXECUTION OF THE ACQUISITION STRATEGY

4.1 GENERAL

This chapter focuses on the elements to be considered in acquisition strategy execution, the flowdown from the strategy to the "functional strategies" to the functional plans, revisions to the strategy, and deviations from the strategy. Figure 4-1 is an event sequence chart of the execution process. It represents the iterative process associated with implementing and modifying a continuously evolving acquisition strategy, which is the subject of Section 4.2. Conversely, the actions associated with deviation from an approved acquisition strategy are addressed in Section 4.3.

4.2 THE EXECUTION PROCESS AND FLOW DOWN

The acquisition strategy is managed through execution and control of the functional *plans*. The three functions of control—direction, detection, and correction—describe the activities that are included in strategy management. *Direction* is the process of using resources (e.g., people, dollars, time) to implement plans. *Detection* is accomplished through the use of tools (briefly addressed in Chapter 3) to compare actual with planned results. *Correction* follows detection in those instances where action is required, and plans are changed as appropriate. Detection, the link between direction and correction, should include among its tools a management information system (MIS) to provide systematic verification of internal (government) and external (contractor or other government agency) performance in implementing functional plans. Areas to be considered include cost control, schedule control, technical management, managed risk, and contract management. Program Managers (PMs) should ensure that their MISs and Integrated Digital Environment (IDE) are implemented early, and that they satisfy program office needs, the needs of other Department of Defense (DoD) offices with acquisition responsibilities, the needs of their contractors, and comply with statutory/Federal Acquisition Regulation (FAR) imposed reporting requirements.

Of the three general types of program documentation—requirements, decision, and functional—the acquisition strategy serves as requirements and decision documentation. It states what the PM believes must be accomplished to meet the stated objectives of the program, and it provides overall program direction. The acquisition strategy also serves as the source of objectives for functional-implementation plans. It should not contain planning details but rather, should provide a clear understanding of the issues to be addressed throughout the life of the program. Thus, it can be characterized as a roadmap or "plan for planning."

Just as there is a flowdown from the system threat assessment, mission need statement and operational requirements document to the acquisition strategy, there is a very real flow down from the acquisition strategy to functional strategies and documented functional

plans. Figure 4-2 shows "functional strategies" linking the acquisition strategy and the functional plans. Further reference to DoD 5000.2-R, will provide an overview of most of the required program documents including some of the functional plans. These required documents are divided into two categories, Milestone Documents and Periodic Reports. Included among the latter category is the acquisition plan. The acquisition plan is required by the FAR. Acquisition planning as documented in the acquisition plan is the

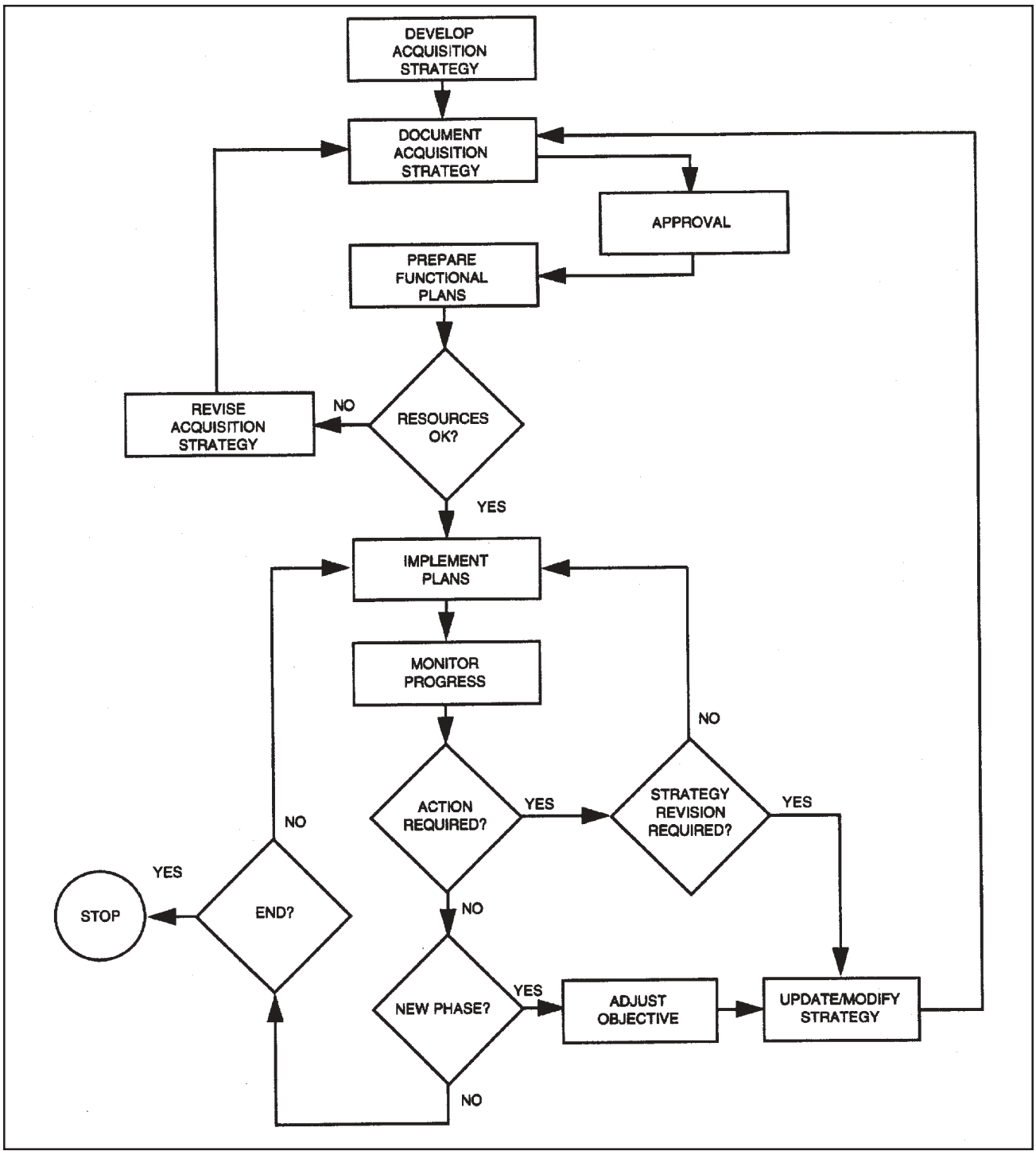


Figure 4-1. The Acquisition Strategy Development and Execution Process

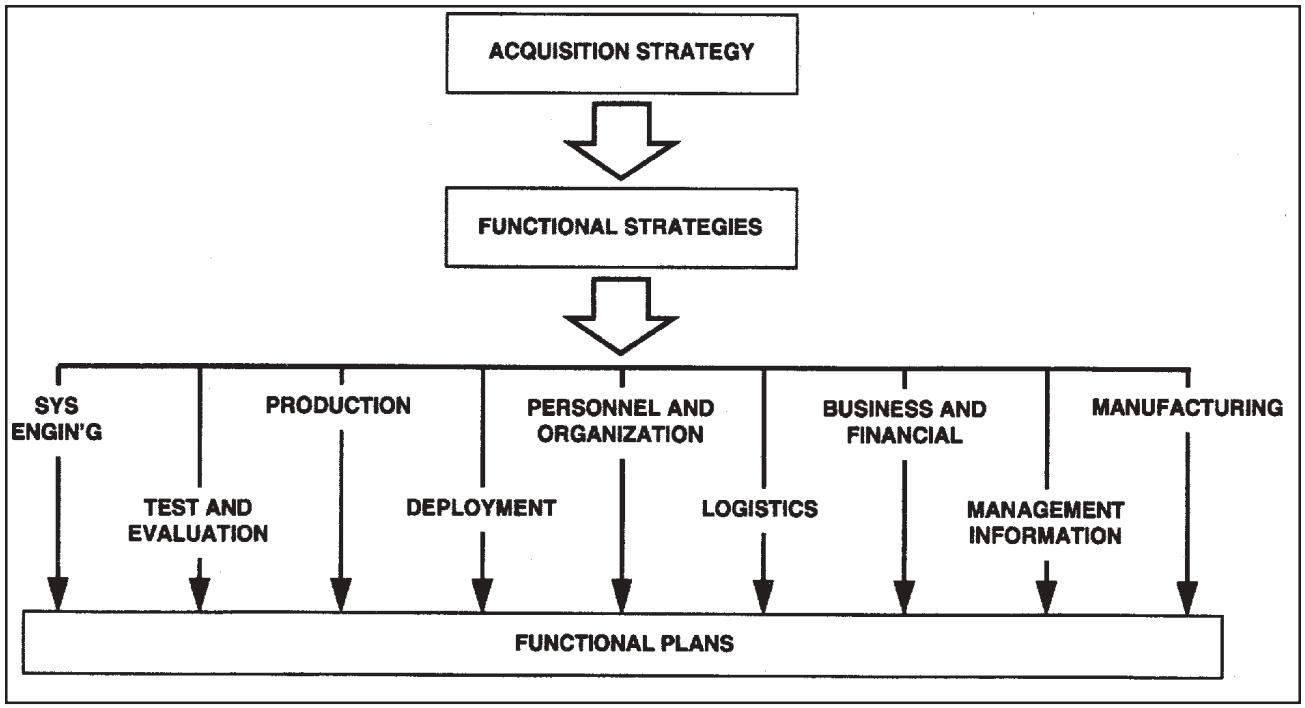


Figure 4-2. Flowdown of Acquisition Strategy to Functional Strategies and Plans

responsibility of the PM with preparation of the plan usually being performed by the Contracting Officer. The acquisition plan must be approved before significant contractual actions are initiated. Although the acquisition plan is similar, in some respects, to the acquisition strategy, there is a fundamental difference; the strategy is broad and considers the main areas of the system life cycle, while the acquisition plan primarily addresses the contracting aspects of the program. The experienced PM will recognize that one of the advantages of an up-to-date acquisition strategy is that its information readily serves as the framework for the acquisition plan and the other functional plans. Please see footnote Number One in Chapter 1 of this Guide. There is no DoD-level rule that precludes the PM from preparing a single document to satisfy both the acquisition strategy and the acquisition plan requirements; in fact, FAR 34.004 requires that acquisition strategies prepared in accordance with FAR Subpart 7.1 "qualify" as the acquisition plan for a major systems acquisition.

4.3 DEVIATIONS FROM THE ACQUISITION STRATEGY

Even a good acquisition strategy, one which meets the criteria of realism, stability, resource balance, flexibility, and managed risk, is subject to changing circumstances beyond the scope of the plans laid out in the strategy. One of the consequences of preparing a comprehensive, useful acquisition strategy is the near certainty that future events will require a modification to the strategy. When the need is urgent, and program risks can be better managed through deviations from the strategy, such deviations are appropriate. Deviations invariably introduce new risk into the program, and thus the program risk analysis should be updated in light of the new circumstances.

4.3.1 Examples

A few of the more significant events which may require deviations from the acquisition strategy are:

- Significant change in procurement quantities.

- Significant change in top-level political support.

4.3.2 Action When Deviation Becomes Necessary

Deviations should be treated as interim actions dictated by pressing circumstances, and must be accompanied by actions to attain approval for an updated acquisition strategy from the Milestone Decision Authority (MDA) without delay. The series of program-actions which are necessary to execute a deviation can be summarized as follows:

- Conduct a risk analysis to justify deviation.

- Obtain approval for the deviation from the Program Executive Officer / MDA.

- Execute the approved deviation in order to manage risk.

- Communicate the deviation to appropriate government and contractor team members.

- Prepare proposed change to the acquisition strategy, and other appropriate program plans.

- Submit proposed change for approval.

- Upon approval, promulgate the updated acquisition strategy, and other plans to appropriate government and contractor team members.

- Advise all functional principals to update any remaining functional plans in accordance with the new acquisition strategy. These plans may include the following:

  - Acquisition Plan (AP).
  - Test and Evaluation Master Plan (TEMP).
  - Risk Management Plans.
  - Operational Support Plans.
  - Command, Control, Communications, Computers, and Intelligence (C4I) Support Plan (C4ISP).
  - Component Breakout Plans.
  - IDE Plan.
  - Other Plans, as appropriate.

Timely execution of this action sequence will ensure that all program team members and members of appropriate Integrated Product Teams (IPTs) are aware of the need to redirect their efforts to conform with the new acquisition strategy.

DRAFT

APPENDIX A
ACQUISITION RELATED TERMS

This appendix lists acronyms in Part I, and definitions of acquisition-strategy related words and phrases in Part II. A DSMC/DAU *Glossary of Defense Acquisition Acronyms & Terms* is available on-line from DAU at: **http://www.dau.mil/pubs/glossary/preface.asp** or may be purchased in various media from sources noted on the DAU website.

PART I – ACRONYMS

ACAT Acquisition Category
ACT Acquisition Coordination Team
ACTD Advanced Concept Technology Demonstration
ADM Acquisition Decision Memorandum
ADR Alternative Dispute Resolution
AFMC Air Force Materiel Command
AKSS Acquisition, Technology, and Logistics Knowledge Sharing System
ANSI American National Standards Institute
AoA Analysis of Alternatives
AP Acquisition Plan
APB Acquisition Program Baseline
AS Acquisition Strategy
ASP Acquisition Strategy Panel
AST Acquisition Support Team
AT&L Acquisition, Technology, and Logistics
C4I Command, Control, Communications, Computers, and Intelligence
C4ISP Command, Control, Communications, Computers, and Intelligence Support Plan
CAIV Cost As an Independent Variable
CBO Congressional Budget Office
CBTDEV Combat Developer
CC Center Commander
CDD Capability Development Document
CE Concept Exploration
CER Cost Estimating Relationship
CLS Contractor Logistic Support

COTS	Commercial Off The Shelf
CPD	Capability Production Document
CR	Concept Refinement
C/SSR	Cost/Schedule Status Report
DAB	Defense Acquisition Board
DAC	Designated Acquisition Commander
DAE	Defense Acquisition Executive
DARPA	Defense Advanced Research Projects Agency
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DCMA	Defense Contract Management Agency
DEPSECDEF	Deputy Secretary of Defense
DFARS	Defense Federal Acquisition Regulation Supplement
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DON	Department of the Navy
DPG	Defense Planning Guidance
DRB	Defense Resources Board
DRI	Defense Reform Initiative
DSAC	Defense Systems Affordability Council
EA	Evolutionary Acquisition
EO	Executive Order
ESOH	Environmental, Safety, and Occupational Health
EVMS	Earned Value Management System
FACA	Federal Advisory Committee Act
FAR	Federal Acquisition Regulation
FAStA/FASA	Federal Acquisition Streamlining Act
FFP	Firm Fixed Price
FY	Fiscal Year
FYDP	Future Years Defense Program
GAO	Government Accounting Office
GPO	Government Printing Office
GPPC	Government Property in the Possession of Contractors
HIMARS	High Mobility Artillery Rocket System

HSI Human Systems Integration
HTI Horizontal Technology Integration
ICD Interim Capabilities Document
IDAG Interim Defense Acquisition Guidebook
IDE Integrated Digital Environment
IG Inspector General
IOC Initial Operational Capability
IOT&E Initial Operational Test and Evaluation
IPPD Integrated Product and Process Development
IPT Integrated Product Team
ITMRA Information Technology Management Reform Act
JTA Joint Technical Architecture
LCC Life Cycle Cost
LOB Line of Balance
LRIP Low Rate Initial Production
LS Logistics Support
M&S Modeling and Simulation
MAIS Major Automated Information System
MAPP Navy Master Acquisition Program Plan
MATDEV Materiel Developer
MDA Milestone Decision Authority
MDAP Major Defense Acquisition Program
MIPS Army Modified Integrated Program Summary
MIS Management Information System
MNS Mission Need Statement
MOA Memorandum of Agreement
NDI Non-Developmental Item
NEPA National Environmental Policy Act
NSS National Security System
OIPT Overarching Integrated Product Team
OMB Office of Management and Budget
ORD Operational Requirements Document
OSD Office of the Secretary of Defense
P3I Preplanned Product Improvement
PDRR Program Definition and Risk Reduction
PEO Program Executive Officer

PESHE Programmatic Environmental, Safety, and Occupational Health Evaluation

PL Public Law

PM Program Manager

PMD Program Management Directive

PMO Program Management Office

PPBS Planning, Programming Budgeting System

R&D Research and Development

RAM Reliability and Maintainability

RFP Request for Proposal

RFPSO Request for Proposal Support Offices

SAE Senior Acquisition Executive

SAF/AQ Secretary of the Air Force for Acquisition

SAMP Single Acquisition Management Plan

SAR Selected Acquisition Report

SDD System Development and Demonstration

SBIR Small Business Innovation Research

T&E Test and Evaluation

TD Technology Development

TDP Technical Data Package

TDS Technology Development Strategy

TEMP Test and Evaluation Master Plan

TOC Total Ownership Cost

TRL Technology Readiness Level

USD(AT&L) Under Secretary of Defense for Acquisition, Technology, and Logistics

WIN-T Warfighter Information Network-Tactical

WBS Work Breakdown Structure

WIPT Working-Level Integrated Product Team

PART II – DEFINITIONS

Acquisition Category (ACAT). See Enclosure 2, DoDI 5000.2.

Acquisition Phase. All the tasks and activities needed to bring the program to the next major milestone occur during an acquisition phase. Phases provide a logical means of progressively translating broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable and survivable systems.

Acquisition Plan (AP). See Endnote 1, Chapter 1 of this Guide.

Acquisition Program Baseline (APB). See Chapter 1, C1.4, *Interim Defense Acquisition Guidebook.*

Acquisition Strategy. See page 1, Chapter 1 of this Guide.

Affordability. A determination that the life cycle cost of an acquisition program is in consonance with the long-range investment and force structure plans of the DoD or individual DoD Components.

Analysis of Alternatives (AoA). See Section 3.5, DoDI 5000.2.

Automated Information System (AIS). A combination of computer hardware and software, data, or telecommunications, that performs functions such as collecting, processing, transmitting, and displaying information. Excluded are computer resources, both hardware and software, that are physically part of, dedicated to, or essential in real time to the mission performance of weapon systems (*Interim Defense Acquisition Guidebook*).

Competition. See Chapter 2, Section C2.9.1, *Interim Defense Acquisition Guidebook.*

Component Acquisition Executive (CAE). See Section 3.13, DoDD 5000.1.

Component Breakout. Execution of an acquisition strategy to convert some parts or system components from contractor furnished to government furnished. Rather than have the prime contractor provide from its sources, the government procures items directly, and provides them to the prime.

Concept Exploration (CE). In previous defense acquisition framework known as Phase 0, it typically consisted of competitive, parallel short-term concept studies. The focus of these efforts was to define and evaluate the feasibility of alternative concepts and to provide a basis for assessing the relative merits of these concepts at the next milestone decision point. See definition of Acquisition Phase above.

Concept Refinement (CR). In the updated DoDI 5000.2, Concept Refinement is the first phase of the defense acquisition framework. The purpose is to refine the initial concept and develop a Technology Development Strategy (TDS).

Cost As an Independent Variable (CAIV). See Section 3.24, DoDD 5000.1 and Chapter 1, C.1.3, *Interim Defense Acquisition Guidebook.*

Defense Acquisition Executive (DAE). Another title for Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)); see Title 10, U.S.C.

Integrated Digital Environment (IDE). See Chapter C2.6.3, *Interim Defense Acquisition Guidebook.*

Integrated Product and Process Development (IPPD). A management technique that simultaneously integrates all essential acquisition activities through the use of multidisciplinary teams to optimize the design, manufacturing and supportability processes. IPPD facilitates meeting cost and performance objectives from product concept through production, including field support. One of the key tenets is multidisciplinary teamwork through Integrated Product Teams (IPTs). See Section 3.6 of DoDD 5000.1).

Integrated Product Team (IPT). The Secretary of Defense has directed that the Department perform as many acquisition functions as possible, including oversight and review, using IPTs. IPTs operate under the following broad principles:

1. Open discussions with no secrets,

2. Qualified, empowered team members,

3. Consistent, success-oriented, proactive participation,

4. Continuous "up-the-line" communications,

5. Reasoned disagreement, and

6. Issues raised and resolved early. (*IDAG*). See for information concerning the inclusion of representatives from organizations other than the federal government.

Leader-Follower Concept. A government contractual relationship for the delivery of an end item through a prime or subcontract relationship or to provide assistance to another company.

1. Prime contract is awarded to an established source (leader) that is obligated to subcontract to and assist another source (follower).

2. A contract is awarded requiring the leader to assist the follower who has the prime contract for production.

3. Prime contract awarded to the follower for production; follower is obligated to subcontract with a designated leader for assistance. (The leader may be producing under another contract.)

Major Automated Information System (MAIS) Acquisition Program. See Enclosure 2, *Interim Defense Acquisition Guidebook.*

Major Defense Acquisition Program (MDAP). An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is:

1. Designated by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)) as a special interest MDAP, or

2. Estimated by the USD(AT&L) to require an eventual total expenditure for research, development, test and evaluation of more than 365 million in fiscal year (FY) 2000 constant dollars or, for procurement, of more that 2.190 billion in FY 2000 constant dollars, or

Milestone Decision Authority (MDA). The individual designated in accordance with criteria established by the USD(AT&L), or the ASD(C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase.

Non-Developmental Item (NDI). See Chapter 2, C2.9.1.4.2 of *Interim Defense Acquisition Guidebook.*

Open System. A design concept that implements specifications maintained by an open, public-consensus process for interfaces, services, and support formats. The purpose of an open system is to enable properly engineered components to be utilized across a wide range of systems with minimal change, to inter-operate with other components on local and remote systems, and to interact with users in a manner that facilitates portability.

Parametric Cost Analysis. A cost estimating methodology using statistical relationships between historical costs and other program variables such as system physical or performance characteristics, contractor output measures, manpower-loading, etc. Also referred to as top-down approach.

Readiness. The state of preparedness of forces or weapon system, or systems, to meet a mission or to engage in combat. Readiness is based on adequate and trained personnel, material condition, supplies / reserves of the support system and ammunition, numbers of operational units available, etc.

Streamlining.

1. Astrategy communicating what is required in functional terms at the onset of the System Development and Demonstration (SDD) Phase. It allows flexibility for application of contractor's expertise, judgment, and creativity in meeting requirements. Ensures only cost-effective requirements are included in solicitation and contracts.

2. Broadly used to denote efforts to shorten the acquisition process.

Supportability. The degree of ease to which system design characteristics and planned logistics resources, including the logistic support elements, allows for the meeting of system availability and wartime utilization requirements.

Sustainability. The staying power of forces, units, weapons systems, and equipment usually measured in number of day's capability to sustain combat.

Tailoring. The manner in which certain core issues (program definition, program structure, program design, program assessments, and periodic reporting) are addressed in a particular program. The Milestone Decision Authority (MDA) seeks to minimize the time it takes to satisfy an identified need, consistent with common sense, sound business management practice, applicable laws and regulations, and the time-sensitive nature of the requirement itself.

Teaming.

1. An agreement by two or more firms to form a partnership or joint venture to act as a potential prime contractor.

2. An agreement by a potential prime contractor to act as a subcontractor under a specified acquisition program.

3. An agreement for a joint proposal resulting from a normal prime contractor-subcontractor, licensee-licenser, or leader-follower company relationship.

APPENDIX B

15 March 2002

ACQUISITION STRATEGY
FOR
HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)

MILESTONE C DECISION REVIEW
&
FULL RATE PRODUCTION DECISION REVIEW (FRPDR)

Prepared by:
Precision Fires Rocket and Missile Systems (PFRMS)
Project Management Office (PMO)

DRAFT

Table of Contents

1.0 Requirement

The Army has a need for a rapidly deployable fire support delivery system capable of delivering the Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) in support of light, airborne, air assault divisions and forced / early entry contingency operations. The system must be transportable by C-130 aircraft which is the only near to mid-term aircraft available in sufficient quantities to transport weapons and capable of landing on short or unimproved runways. The requirement to rapidly deploy heavy firepower to support the light and early entry forces may preclude the use of any other means than short or unimproved runways. The MLRS M270 / M270A1 launchers are not C-130 transportable. The High Mobility Artillery Rocket System (HIMARS) is a C-130 transportable, wheeled version of the MLRS launcher. Mounted and fully integrated on a 5-ton Family of Medium Tactical Vehicles (FMTV) truck chassis, it will carry one launch pod containing six MLRS rockets or one Army Tactical Missile System (Army TACMS) missile and be capable of firing all current and future MFOM rockets and missiles. It operates with the same MLRS command, control, and communications (C3) as well as the same size crew. The HIMARS Fire Control System (FCS) will be common with the M270A1 FCS and fully interoperable with all Allied and North Atlantic Treaty Organization (NATO) MLRS users. The HIMARS units will functionally and operationally mirror current MLRS units and they will be assigned to corps artillery brigades in support of light, airborne, and air assault divisions and forced / early entry contingency force operations. The HIMARS will provide tactical and operational fires during both offensive and defensive operations. The HIMARS supports Joint Vision 2020 Operational Concepts Dominant Maneuver and Precision Engagement. HIMARS allows tactical forces to engage targets with decisive speed and precisely strike them with massed fires. Precision fires will fix and suppress the enemy and allow maneuver forces to gain positional advantage with decisive speed.

The HIMARS launcher produced during Low-Rate Initial Production (LRIP) will meet the Key Performance Parameters (KPP) defined in the Operational Requirements Document (single step acquisition); however, several improvements are planned in response to evolving requirements (time-phase increments). These are described in section VIII a. 2. (b).

1.1 Operational Requirements Document (ORD) Status

The HIMARS ORD was approved 19 October 1999.

1.2 Acquisition Program Baseline (APB) Status

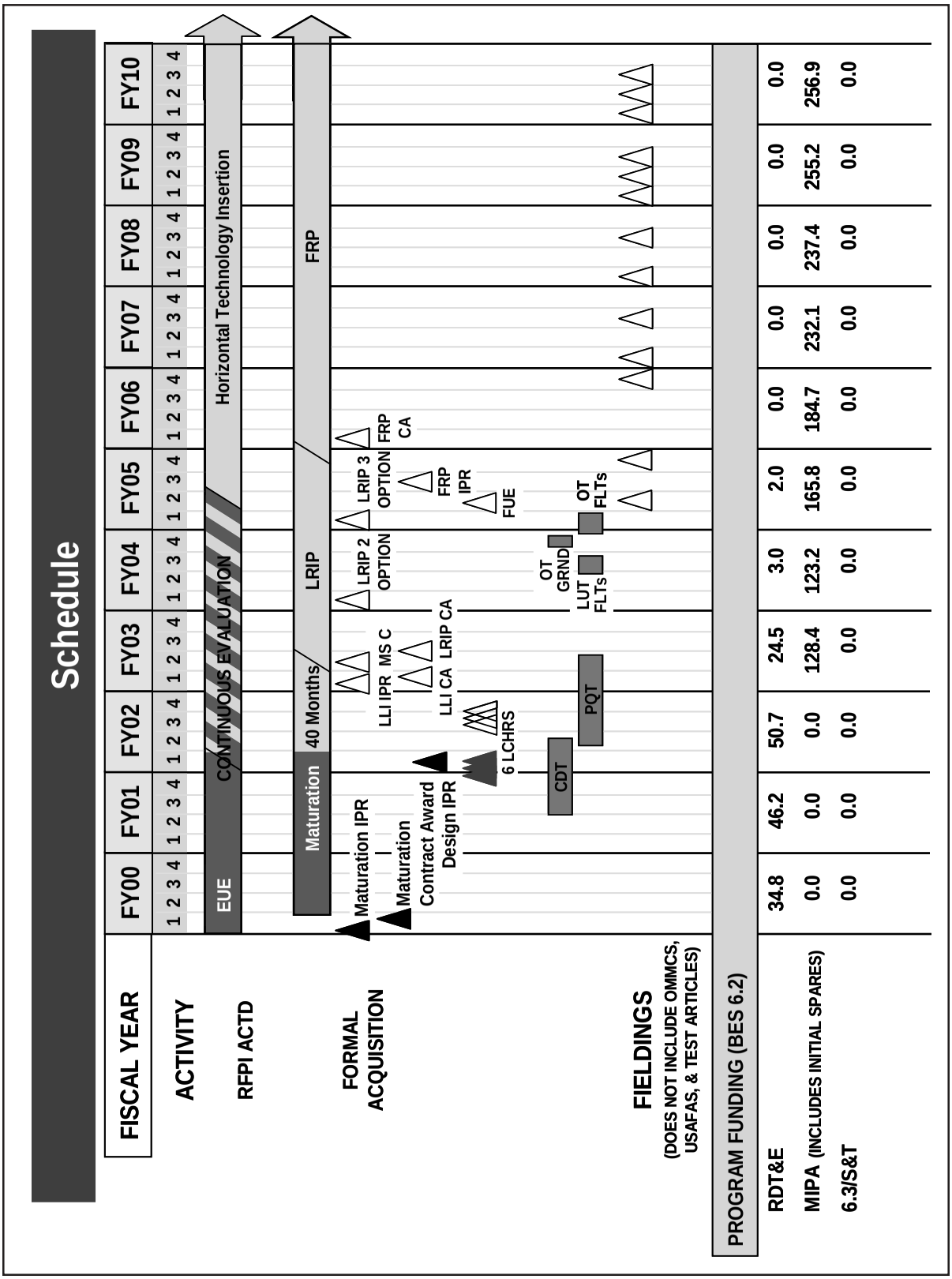
The APB was approved on 3 September 1999.

1.3 System Threat Assessment Report (STAR) Status

The STAR was approved in September 2000.

2.0 Program Structure

2.1 Program Structure/Schedule



2.2 Program Description

The HIMARS is an integral part of the Army's Transformation process, as described in the *2002 Army Modernization Plan*. The Fiscal Year (FY) 03 President's Budget acknowledges the importance of the HIMARS in Army Transformation through increased funding. Previously, HIMARS was an Acquisition Category (ACAT) II program, and by virtue of delegation of authority from the Army Acquisition Executive (AAE), the Program Executive Officer, Tactical Missiles (PEO-TM) served as the Milestone Decision Authority (MDA). The FY03 President's Budget profile shows an increase in total production quantities to 705 through FY16 with commensurate funding increases. Due to the increase in total production quantities and funding, the HIMARS has been reclassified as an ACAT 1D program. The HIMARS is also an Office of the Secretary of Defense (OSD) Pilot Program established in response to Section 912C of the FY 98 Department of Defense (DoD) Appropriations Bill, to address product support and total ownership cost reduction (TOCR).

Acting to meet the immediate operational requirements to rapidly deploy a highly lethal force capable of full spectrum operations, the HIMARS program has been accelerated to achieve fielding of two battalions in FY05 versus one in FY06. Army and Congressional interest in HIMARS resulted in FY99/00 budget increases that accelerate the first unit equipped (FUE) date to the XVIII Airborne Corps (Fort Bragg). HIMARS will be fielded to two active component battalions and 14 Army National Guard (ARNG) battalions supporting early entry, Interim, and Objective Forces. The HIMARS Preplanned Product Improvement (P3I), which is a planned upgrade to the basic HIMARS, will support the Objective Force. The HIMARS (launcher) consists of a FCS, a carrier (automotive portion) and a launcher-loader module (LLM) that performs all operations necessary to complete a fire mission. The HIMARS will be deployable worldwide and operates in a wide range of climatic conditions. The HIMARS is capable of system upgrades and improvements for future MFOM and subsystems to include FCSs and other line replaceable units (LRUs) common to the M270A1.

The HIMARS will consist of a launcher, two re-supply vehicles (RSV) with material handling equipment (MHE) and two re-supply trailers (RST). The launcher consists of a chassis with man-rated cab, LLM and existing FCS. The chassis with man-rated cab is developed from a modified M1096A1 FMTV 5-ton truck to accommodate the LLM and a modified cab to meet man-rated requirements. The LLM includes the cage assembly, 14 subsystems, 5 MLRS M270A1 developed LRUs and software. The HIMARS will maximize commonality with the MLRS M270A1 and the Tank Automotive Command (TACOM) FMTV.

In the early 1980s, the MLRS system contract was competitively awarded to LTV Aerospace, now Lockheed Martin Missiles and Fire Control - Dallas (LMMFC-D). Design studies for a wheeled, single rocket pod launcher started in the 1980s. The first HIMARS mockup was fabricated at White Sands Missile Range (WSMR), NM, in FY91. The mockup consisted of a rigid launcher mounted on a modified M386, 5-ton Honest John Launch Vehicle. Three MLRS and one Army TACMS missions were fired using this mockup. As

interest grew, LMMFC-D using Independent Research and Development (IR&D) funding fabricated a second HIMARS mockup using a 6-wheeled, 5-ton, FMTV truck chassis from which several MLRS rocket missions were successfully launched. The mockup was also demonstrated to be C-130 transportable. The Rapid Force Projection Initiative (RFPI) was tasked to integrate sensor and shooter systems, which are CONUS-based, air-deployable, and which can be used by first-to-fight forces anywhere in the world. The RFPI and its Advanced Concept Technology Demonstration (ACTD), recognizing the need for a light-weight MLRS system, funded the MLRS Project Office (PO), subsequently the Precision Fires Rocket and Missile Systems Project Office (PFRMS), to develop and demonstrate HIMARS prototypes. This demonstration included integrating a HIMARS prototype with other systems in the ACTD's Field Experiment (FE) and then provided a tactical unit with four prototypes and related support for a two-year user evaluation period. HIMARS participated in the RFPI ACTD in 1998. On 30 September 2000, three prototypes completed a two-year extended user evaluation (EUE) in the XVIII Airborne Corps Artillery. On 26 September 2000, Headquarters, Department of the Army (HQDA) approved XVIII Airborne Corps Artillery retention of the three prototypes as an operational capability until HIMARS fielding in FY05.

Currently the HIMARS program is in the System Development and Demonstration (SDD) Phase of the current Acquisition Management Framework. Extended Systems Integration Tests (ESIT) is scheduled for fourth quarter FY02. Long lead item (LLI) contract award is scheduled for first quarter FY03. Milestone C (LRIP decision) and LRIP 1 contract award are scheduled for second quarter FY03, and Operational Test (OT) is scheduled for fourth quarter FY04 through first quarter FY05. FUE is scheduled for March FY05, and the Full-Rate Production (FRP) Decision will be in June FY05 with contract award in first quarter FY06. A P3I Engineering, Manufacturing, and Development (EMD) and Production phase are also projected in the Extended Program Plan (EPP). The EMD Phase begins in FY08 with a 2-year risk reduction period and concludes in FY13. The production phase of the P3I effort begins in FY14 and is expected to continue past the EPP until the Army Acquisition Objective is fulfilled. APB thresholds are being met.

To ensure that the HIMARS program can meet the rapidly developing requirements being defined and refined by Future Army initiatives, project manager (PM), PFRMS continues to use an evolutionary acquisition strategy. Evolutionary acquisition strategies have already been used to define, develop, and test capabilities based on the proven technology of MLRS. As new requirements are identified, technology and P3I efforts will be time-phased to take advantage of any efficiencies that can be introduced. The scope, performance capabilities, and timing of subsequent incremental improvements shall be based on continuous communications among the requirements, user, acquisition, intelligence, and budget communities.

In planning the HIMARS evolutionary acquisition strategy, the PM, PFRMS will, and has, struck a balance between the urgency of new operational requirements, the maturity of critical technologies, and the interoperability, supportability, and affordability of alternative acquisition solutions.

To facilitate evolutionary acquisition, HIMARS has used performance specifications to ensure the ability to insert the latest technologies and products, and facilitate affordable and supportable modernization of fielded assets. Based upon this approach, our sustainment strategies will be refined throughout the HIMARS life cycle, particularly during development of subsequent block P3I improvement initiatives.

3.0 Acquisition Approach

HIMARS Acquisition Approach (Army Launcher Procurement)

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	To Complete	Total
QTY	34	24	36	40	55	55	62	62	337	705

3.1 Acquisition Phases

a. Acquisition Approach

The objective of this acquisition strategy is to cover the acquisition of LLI, three options for LRIP, FRP (with appropriate options), Facilitization, Initial Spares, Product Support, and additional research and development (R&D) efforts (Path thru OT) for the HIMARS launcher. Other major end items such as RSVs and RSTs will be acquired through the data interchange process. HIMARS utilizes a hybrid acquisition approach. It will meet the ORD KPPs in a single step, yet there are evolutionary changes planned to address survivability, interoperability, and obsolescence issues.

The HIMARS launcher acquisition strategy is expected to result in multiple contracts funded with Missile Procurement, Army (MIPA), Operation and Maintenance (O&M), Army (O&MA) for product support, and Research Development Test and Evaluation (RDT&E). The acquisition of LLIs will enable the Government to meet the required FUE and Initial Operational Test (IOT) dates. To achieve maximum savings, HIMARS LRUs, common with M270A1 LRUs, will be procured concurrent with the M270A1 contract. The objective of LRIP is to provide production-configured articles for operational test, to establish an initial production base for the system, and to permit an orderly increase in production rate for the system, sufficient to lead to FRP upon the successful completion of operational testing. It is anticipated that the LRIP contracts will be firm-fixed price (FFP), funded with MIPA. The FRP decision supports all procurements in FY06 and beyond, which will also result in FFP contracts. Supportability Studies are being conducted to determine the most efficient and cost effective approach for support of the system. A trade study has been conducted that identifies a product support strategy on a cost effective approach for life cycle support of the HIMARS program. This strategy is based on the analysis of five separate alternatives ranging from total organic to a tailored mix of organic and contractor-managed logistics at organizational through depot levels of support. The selected strategy implements Contractor Managed Supply Operations, Contractor Managed Depot Operations, and the availability of a Field Service Representative (FSR) at HIMARS battalion level.

b. Maturation Phase

A 36-month Maturation contract was awarded to LMMFC-D in December 1999 to design, develop, integrate, test, qualify, and prepare for production and document a HIMARS launcher design with associated software and system interface, which satisfies the Launcher Performance Specification MIS-PRF-35481. In November 2000, the HIMARS program required a schedule restructure to 40 months to address FY01 and FY02 RDT&E funding shortfalls. Eight launchers (6 Army, 2 USMC) will be delivered under this contract. The HIMARS Developmental Test & Evaluation (DT&E) program will be accomplished in two parts: (1) a Contractor Development Test (CDT) program in which the contractor shall conduct technical tests to evaluate components, subsystems and system performance and confirm the design; and (2) a Production Qualification Test (PQT) program in which the Government will conduct system-level testing to obtain confirmation that the design will meet the performance and User requirements and to assess the performance envelope. Certain events within the PQT program are prime candidates for Combined Developmental Testing / Operational Testing (DT / OT), whereby both developmental and operational data can be obtained from a single test. The ESIT, C-130 Transportability Demonstration, and Cold Region Test Center (CRTC) Ground Test have been identified as opportunities for Combined DT / OT. The HIMARS CDT program will be conducted by the contractor to evaluate the system performance and adjust / confirm the design. This event will demonstrate that the design has a high potential for complying with the program objectives and requirements documents. The PQT phase will consist of system-level tests conducted to ensure design integrity over the specified operational and environmental range, and demonstrate that the HIMARS system meets the ORD and system performance requirements. The PQT will be controlled by the PFRMS PMO, with testing conducted by the Government, user representative, soldier crews and the contractor. The PQT results, and applicable EUE and CDT results, will provide the basis to transition into LRIP and certify readiness to enter IOT. A System Evaluation Report (SER) will be developed by Army Test and Evaluation Command (ATEC) to document the results, conclusions and recommendations from PQT events to support the Milestone C (LRIP) decision review.

Maturation Exit Criteria

Criteria	Threshold
Stable Hardware Design	Component qualification complete
Software Flight Qualification Tests (FQT)	90% Maturity
Weight	35,000 lbs.

c. Research, Development, Testing and Evaluation (RDT&E)

HIMARS has a requirement for RDT&E funded test related activities. This contract is referred to as Path thru OT. Among these test related requirements are:

- Upgrade of EMD launchers

- Logistics and Maintenance Demonstrations with associated training
- OT training
- Updates to Interactive Electronic Technical Manuals (IETMs).

d. Long Lead Items (LLIs)

HIMARS LLI are defined as components that require greater than nine months to manufacture, assemble and test. HIMARS LLI will require up to 16 months for manufacturing, assembling, and testing. LLI procurement will prevent delays in OT and FUE. Approximately 75% of the dollars planned for expenditure on LLI is for components common with the existing M270A1 production line and the FMTV fleet, which makes the requested LLI "low risk" to the Army.

e. Low Rate Initial Production (LRIP)

The LRIP decision is scheduled for March 2003. The acquisition strategy is for three scheduled LRIP contracts as options on the LLI contract. The first four LRIP launchers will be used for OT and subsequently fielded to the United States Army Field Artillery School. Because these launchers will be fielded, procurement dollars will be used to purchase the OT launchers (in accordance with Department of Defense Instruction (DoDI) 5000.2 and DoD 7000.14-R). The first LRIP contract will be for 36 launchers (34 Army and 2 USMC). LRIP 2 will be for 24 launchers, all Army. LRIP 3 will be for 45 launchers (36 Army and 9 USMC). Total Army LRIP launchers, if all 3 LRIP contracts are awarded, will be 94. The Army Acquisition Objective (AAO) is 1356, and the quantity funded through the Extended Program Planning Estimate (EPPE) is 705.

Producibility, Engineering and Planning (PEP) activities will be an integral part of the LLI / LRIP program. The contractor will address the requirements necessary to insure timely and economical production of the HIMARS system. Active PEP activities will ensure that the HIMARS system is at a state of production readiness as the system is transitioned from design to production. Production Readiness Risk Assessments (PRRAs) shall be conducted to support the decision to proceed to LRIP and FRP. The purpose of the PRRA process is to provide a formal assessment of the contractor's ability to achieve a state of production readiness. The assessment will verify that production planning / preparation has been accomplished, production capabilities / facilities have been planned, identified engineering problems / risks have been resolved, and that adequate planning has been accomplished for efficient / economical production. Issues identified shall be tracked to resolution.

Assessment of production readiness will be a function of the HIMARS IPTs and will provide an assessment of the contractor's readiness to proceed into production. HIMARS IPTs will also determine if PRRAs are required for subcontractors.

LRIP Exit Criteria

Criteria	Threshold
Mission Cycle Time	100% of ORD Value
Reliability	MTBMA ≥ 58 Hours MTBF ≥ 34 Hours
MFOM Effectiveness	Fire ALL Fielded MFOM No Degradation in Munitions Effectiveness
KPP	Meet All KPP Threshold Requirements
Production Readiness	Resolve All High risk Production Readiness Issues

f. Full Rate Production (FRP)

A FRP decision is expected in June FY05 following completion of a successful OT with full-scale production beginning in first quarter FY06. Fifty four (54) (40 Army, 14 USMC) launchers will be purchased under the first FRP contract.

g. Other Services

In addition to acquisition of the HIMARS, the following support equipment / services will be included:

- Product Support / Life Cycle Contractor Support (LCCS): Phase I - FY04 through FY08: Phase II FY09 and Beyond
- Initial Spares - FY04 with options in FY05 through FY11
- Training - FY03 with options in FY04 through FY11

4.0 Risk Assessment

The purpose of this assessment is to document the risks, identified by our Risk Management Process, associated with the upcoming HIMARS LRIP Phase. The Risks were identified using the procedures identified in our Risk Management Plan (RMP). The RMP provides program management officials with a continuous proactive process for identifying events that might adversely impact program technical performance, schedule obtainment, and cost requirements. Management officials can then take appropriate steps to reduce or eliminate the probability of occurrence. The HIMARS Risk Assessment reflects the current published assessments and mitigation options as of the date of the document. The risk analysis approach in this document utilizes the techniques outlined in DoD Regulation 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs*, DoD 4245.7-M, *Transition from Development to Production* and the Defense Acquisition University's February 2001 *Risk Management Guide*.

4.1 Technical Risks

a. Launcher Weight Risk

The primary technical risk during LRIP is launcher weight management. The required weight for the launcher is 35,000 pounds (fully combat loaded); presently the EMD launcher weighs approximately 34,650 pounds. However, with potential cab/chassis improvements and other Horizontal Technology Integration (HTI) enhancements, launcher weight may become an issue. For example, a potential area of growth is in the manufacturing process for axles. Growth between 58 and 229 pounds can be expected when the new cast axles replace the chassis' stamped axles. The axle change will be implemented during the LRIP phase of the program. The risk level associated with launcher weight is therefore assessed as moderate. This risk could be mitigated by the reduction of weight in other areas of the launcher such as the removal/modification of non-essential chassis components/items and cab redesign. Axle weight and other violations of launcher weight allocation program are reviewed and resolved on a case-by-case basis. Failure to mitigate this risk could result in the inability to meet performance specification requirements, which in turn could result in a redesign of the chassis at a cost of $100,000.00 to $250,000.00.

b. MFOM Integration

In addition to weight, MFOM and joint technical architecture (JTA) integration will remain a low to moderate risk to integrate during LRIP. As changes, modifications, and new programs are entered into the MFOM, the HIMARS program will need to maintain the ability to integrate them. Any significant changes to the M270A1 software or MFOM requirements that affect HIMARS-specific software changes will produce additional risk. Continual monitoring and proactive work in the programmatic and engineering areas are essential to the mitigation of this risk as well as the ability to maintain/improve commonality with the MLRS community. Cost associated with failing to mitigate this risk could reach $50,000.00.

In addition to weight, MFOM and JTA integration will remain a risk during LRIP. As changes, modifications, and new programs are entered into the MFOM, the HIMARS program must maintain the ability to integrate them. Continual monitoring and proactive work in the engineering area is essential to the mitigation of this risk as well as the ability to maintain/improve commonality with the MLRS community.

4.2 Schedule Risks

The overall schedule risk associated with the HIMARS program is considered moderate. The HIMARS program will transition from an ACAT II to an ACAT I program; therefore, the timeline to achieve an LLI decision in first quarter, FY03 and a Milestone C decision in second quarter, FY03 has become a moderate risk. The schedule for the program is very aggressive. The Department of the Army (DA) has directed the program to

accomplish an FUE by FY05, a year earlier than originally scheduled. Any disruption in the planned schedule could impact the scheduled OT and FUE dates. Slip in the schedule could affect the program depending on the duration and type of schedule slip. The risk to schedule can be mitigated in part if the current prime contract award schedule is maintained. This is primarily due to the established relationship with and subsequent control of, subcontractors and their integration activities. Other specific risk to the schedule must be aggressively addressed and handled on case-by-case basis through the four "Risk Handling Techniques" of control, avoidance, assumption and transfer.

4.3 Cost Risks

Overall cost risk is driven by the contracting strategy, coupled with technical and schedule risk factors. For the production contracts, the cost risk is considered low since FFP contracts will be used. The contract strategy for product support will begin with a cost plus incentive and evolve to fixed price. This will mitigate costs risks associated with product support.

4.4 Cost Drivers and Discipline

Primary cost drivers for the HIMARS program have been identified. Cabs, chassis, and various LRUs make up the majority of the cost drivers. The Position Navigation Unit (PNU), the Weapons Interface Unit (WIU), and the Launcher Interface Unit (LIU) are the top three LRU cost drivers. The M270A1 program will be leveraged to the maximum practical extent.

The HIMARS product support program directly impacts operations and support (O&S) cost reductions and life cycle cost (LCC) discipline on the Top 10 cost drivers. The product support program will leverage cost reduction and cost discipline initiatives for LRUs previously identified. These LRUs are common for both the M270A1 and HIMARS programs.

4.5 Quality and Risk Management

Continuous risk assessment is to be pursued throughout the program focusing on efforts to mitigate risks. The contractor's Risk Management System (Risk Radar) will record and process these risks developing potential solutions as appropriate. Integrated Product Teams (IPTs) identifying the risk will assume its ownership. The Government representative on the Risk Review Board will extract the high and potentially high-risk items from the contractor's Risk Radar and input these into the Government Risk Management / Tracking System (RMTS). The Government will also include additional Government-only concerns. This plan requires the IPTs to periodically assess risks and discuss these risks as agenda items at the IPT monthly review meetings. The Government's Risk Management Review Board will direct and monitor these activities. A HIMARS RMP outlines the foundation for managing and tracking risks as the program continues through its life cycle. The HIMARS IPTs will continue to improve the program, as it is a continuous and evolving system.

4.6 Approach to Managing Cost/Schedule/Performance—Cost As an Independent Variable (CAIV)

Trade-off analyses have been conducted as required throughout the program in such areas as cost, schedule, and performance. These analyses have provided the Project Management Office (PMO) with various options during the program that have proven to be of great value. Government and contractor PMO personnel, in conjunction with user representatives, have worked together during all phases of the program. This cooperative effort has produced increased effectiveness and savings in several diverse areas. Performance based acquisition and cost / performance tradeoffs will continue throughout the life cycle of HIMARS. The HIMARS CAIV objectives are addressed in the HIMARS CAIV Management Plan and the APB. Cost objectives are being met. A Cost Analysis Requirements Document (CARD) is being prepared, and an Independent Cost Estimate (ICE) will be conducted prior to Milestone C.

5.0 Program Management

5.1 Philosophy and Approach

The HIMARS management philosophy is the same one that has been employed on all PFRMS / MLRS PMO programs. This philosophy has been proven-out during a 25-year span on both EMD and production programs for the M26 rocket, M270 launcher, M270A1 launcher, and M28A1 practice rocket. Acquisition streamlining initiatives being tailored for HIMARS procurement include HTI, Integrated Product and Process Management, and CAIV.

5.2 Resources

a. Funding

The following funding profiles for the HIMARS development are identified in an amendment to the FY03 President's Budget as MLRS HIMARS (**RDT&E**), program element number 63778, project code 090, and HIMARS Launcher (**Procurement**), program element C03000. Funding requirements are based on an accelerated 40-month maturation program. Army funding requirements are depicted below ($M):

(F) – Funded (U) – Unfunded Requirement

	FY03	FY04	FY05	FY06	FY07	TO COMPLETE	TOTAL
LLI/LRIP FRP/TOOLING		**LRIP**		**FRP**			
QTY	343	24	36	40	55	516	705
Procurement $ (F)	128.402	115.554	162.174	177.057	22.28	2098.959	2906.426
Initial Spares							
QTY		1 lot	1 lot	1 lot	1 lot		
Procurement $ (F)		7.659	3.633	7.672	7.828	168.898	195.690
Product Support							
O&M$ (U*)		5.500	7.600	9.300	12.600	36.700	71.700
RDT&E$ (F)	24.5	3.0	2.0				29.5

*UFRs submitted and currently being worked through the FY04-09 process.

b. Advance Procurement:

Currently no advanced procurement actions are planned.

c. PMO Staffing:

The PFRMS PMO has adequate program office and support contractor personnel available to properly manage the program and execute the strategies stated in this document.

5.3 Information Sharing and DoD Oversight

Information sharing is being facilitated through the use of the web-based HIMARS Management Information System (H-NET) to distribute programmatic and technical information to all HIMARS Team Members in a secured encrypted environment. Available information includes: Action Items, Document Repositories, On-line Calendar, IPT Tools, Discussion Forum, and Alpha Contracting. Currently the HIMARS program has OSD oversight for DT.

5.4 Integrated Digital Environment (IDE)

Interactive Electronic Technical Manuals (IETMs) will be prepared based on the maintenance concept for the HIMARS. Source material for the IETMs will be extracted from

the databases established under Logistics elements. Some tailoring will be necessary in order to accommodate creation of a management level database for publications use. The IETMs may eventually be accessible through an Automatic Identification Technology (AIT) system that is being developed to mark and track parts. This system enables business benefits for maintainers, fleet and PMs, and the original equipment manufacturer or vendors from cradle to grave. This AIT system will facilitate the development of Preventive Maintenance Checks and Services (PMCS) improvements, improve training, provide on-line access to FSRs, allow the Technical Manuals (TM) to be accessible on-line, reduce manual data entry, and assist in developing and monitoring failure trends.

5.5 Technical Representatives at Contractor Facilities

Defense Contract Management Agency (DCMA) will perform oversight of the contractor's processes for the control of Government property to assess and ensure contractor compliance with contract property and technical requirements.

5.6 Government Property in Possession of Contractors (GPPC)

The Government will provide the cab and chassis (FMTV) as Government Furnished Property (GFP) to the contractor for LRIP and beyond. In addition, a detailed list of all GFP will be provided to the contractor as part of contract development.

5.7 Streamlining/Innovative Acquisition

This procurement effort is being developed in full compliance with the latest DoD / DA streamlining initiative guidance. Only necessary and cost effective requirements will be included in the Request for Proposal (RFP). Initiatives such as HTI, Integrated Product and Process Management, and CAIV are being tailored to this procurement effort.

a. Alpha Contracting

The HIMARS Team will utilize Alpha contracting methods to improve communications with the contractor and improve cycle time. The HIMARS team would then meet to resolve any issues with the documentation and provide real time resolutions. As required by Federal Acquisition Regulation (FAR) 15.407-4, 'should cost' will be considered.

b. Request for Relief or Exemption

Contractors are encouraged to use existing procedures and technologies so as to keep program cost to a minimum.

c. Applying Best Practices

Best practices, including the use of IPTs and performance-based specifications were used during the SDD Phase of this program and will continue to be utilized in all

future efforts. Best practices will allow the contractor to adjust their processes, as appropriate, through the life of the contract without the burden of contract modifications. Incentives will also be utilized to further motivate the contractor to furnish the best performance of which they are capable.

5.8 Modeling and Simulation (M&S)

The M&S support to the HIMARS program is focused on the areas of system effectiveness analysis and C3 performance evaluation and test support to reduce risk and cost during development, integration, test and evaluation (T&E). Investments previously made in the MLRS Family of Distributed Simulations are leveraged to minimize new investments. With regard to T&E, the fundamental approach to the application of M&S is to reduce test cost by providing virtual launchers, which create appropriate command and control loads on Command and Control (C2) Systems and permits an assessment of HIMARS effectiveness. Although this approach is primarily intended to increase the confidence in the acceptable performance of the system, it will act to identify any limitations before the system is fielded. The PFRMS PMO plans for accreditation of its simulations for use in the Operational Test and Evaluation (OT&E) process, thus supporting the Army and DoD OT&E communities and their direction to increase the use of M&S.

6.0 Design Considerations

6.1 Open Systems

The electrical LRUs and associated software have been developed utilizing open system practices. These LRUs utilize industry standards that are widely understood and are sufficiently flexible so that new hardware and software components could be inserted into the system. The hardware standards employed are: Versa Modular Europa (VME) backplane standards, IEEE802.3, and Military Standard (MIL-STD)-1553 dual redundant data buses. The software architecture employs object oriented programming utilizing the standard ADA language. The adherence to these standards makes the system upgradeable in both the hardware and software components.

6.2 Interoperability

There have been no issues identified in the areas of technical, schedule, cost, and funding related to interoperability. There are no issues with other programs / systems that will interoperate with HIMARS. The HIMARS has an automated C3 system to provide C2 of subordinate launchers and to facilitate communications on the battlefield. Major components of the C3 system are the FCS (located in the launcher) and the Fire Direction System (FDS) located in the battalion, battery and platoon. The C2 for HIMARS consists of Advanced Field Artillery Tactical Data System (AFATDS) at brigade, division and corps echelons. There is no change in the current MLRS C2 systems for the HIMARS. The HIMARS will continue to receive tactical fire control from the battery or platoon Fire Direction Center (FDC) and provide technical fire control, including mission critical data

(MCD) for advanced munitions, to the payload via the WIU. Communications systems include the Advanced System Improvement Program (ASIP) model of the Single Channel Ground Airborne Radio System (SINCGARS), used at the battalion and battery FDC and at the platoon and launcher levels. SINCGARS ASIP models are of a reduced size and weight that provide further enhancements to the operational capability in the tactical Internet (TI) environment. Mobile Subscriber Equipment is used for communications between battalion and the controlling force artillery.

Any upgrade C2 system components developed by outside agencies will be provided to the HIMARS launcher. These subsystem components must be tested and certified as being equal to or better than the subsystem it replaces as well as meeting the requirements and directives stipulated by DoD, DA or their subordinate agencies prior to fielding on the HIMARS launcher.

Future enhancements identified are the upgrade of the HIMARS launcher to add Force XXI Battle Command Brigade and Below (FBCB2) situational awareness functionality. This upgrade is documented in the MLRS JTA Migration Plan and utilizes JTA compliant protocols and messages. Standard protocols, and hardware and software components are being utilized.

6.3 Information Technology (IT) Supportability

There is no IT supportability issues in the areas of technical, schedule, and funding that will impact the PM's ability to execute this acquisition strategy.

6.4 Protection of Critical Program Information and Anti Tamper Provisions

There are no technical, schedule, cost or funding issues associated with executing requirements for protection of critical program information and technologies.

7.0 Support Strategy

7.1 Product Support

Logistics support planning to date has been based on the M270 and M270A1 programs and is being evaluated in the extended user evaluation portion of the RFPI ACTD. The logistics program will be further defined by the HIMARS Supportability Strategy, which will be developed by the HIMARS Supportability IPT during the program maturation phase. A product of this IPT is the identification of a product support strategy that reduces Operation and Sustainment costs during the life of the HIMARS program. This program implements PM oversight of TOCR mandates of the Pilot Program as defined in Section 912C of the National Defense Appropriations Act for Fiscal Year 1998. This product support strategy provides for organic maintenance support at the Organizational and Direct Support levels, Contractor Managed Supply Operations, Contractor Managed Depot Operations, and the availability of a Field Service Representatives at HIMARS battalion level. Data on system

usage and Operational Tempo (OPTEMPO) will be collected, analyzed, and will ultimately be used to validate an optimum product support program that will be implemented in FY09.

7.2 Affordability Improvements

The HIMARS product support IPT will continue to improve product affordability, system reliability, maintainability, and supportability via continuous, dedicated investment in technology refreshment through adoption of performance specifications, commercial standards, non-developmental items (NDIs), and commercial-off-the-shelf (COTS) items where feasible,

7.3 Source of Support

a. Maintenance

The maintenance support concept for support of HIMARS will consist of three levels of maintenance. The organizational level will remove and replace LRUs and perform preventive maintenance checks and services utilizing Built-In Test (BIT) and common tools. The direct support level will remove and replace LRUs, Shop Replaceable Units (SRU), cables and hydraulic lines. The depot level maintenance will repair SRUs and LRUs and will overhaul or rebuild electrical, mechanical, and hydraulic assemblies utilizing common / special tools, common / special test equipment, commercial equivalent automatic test equipment and the Integrated Family of Test Equipment (IFTE). Enhanced on-board diagnostic capabilities in the low cost FCS will allow intermediate support to fault isolate the LRU without use of special test equipment. Level of Repair Analysis (LORA) will be required to validate, from a cost perspective, the HIMARS maintenance concept.

b. Supply

Retail level supply support will follow existing methods for organic supply support. Contractor Managed Supply Operations will provide wholesale level supply.

c. Contractor Logistics Support (CLS)

The product support strategy provides for organic maintenance support at the Organizational and Direct Support levels, Contractor Managed Supply Operations, Contractor Managed Depot Operations, and the availability of a Field Service Representatives at HIMARS battalion level.

7.4 Human Systems Integration

Manpower and Personnel Integration (MANPRINT) is the Army's comprehensive and technical program used to optimize the performance of HIMARS (soldier, hardware, and software). MANPRINT for HIMARS will be established through continuous integration of several distinct functional domains (manpower, personnel, training, human factors,

engineering, system safety, and health hazard conditions) throughout the materiel acquisition process. An effective MANPRINT program has been conducted for the M270 and M270A1 and is being actively pursued for the HIMARS program.

7.5 Environment, Safety, and Occupational Health (ESOH)

The PFRMS PO has compiled an excellent history of National Environmental Policy Act (NEPA) compliance, with Life Cycle Environmental Assessments (LCEA) for the MLRS system having been completed during the past 11 years, and updated as recently as 1998. The original MLRS LCEA and all subsequent LCEA updates concluded that the MLRS system does not have a significant impact on the environment. The HIMARS system was specifically referenced in the 1998 LCEA as posing no additional environmental impacts due to similarity to the basic MLRS system. There are no ESOH issues.

In accordance with Section 326 of Public Law 102-484, the HIMARS performance requirement prohibits the use of Class I ozone-depleting substances identified in Section 602(a) of the Clean Air Act (42 U.S.Code 7671 a (a)). Additional requirements will specify a Hazardous Material Management Program (HMMP) consisting of a HMMP Plan and annual HMMP Reports, both utilizing National Aerospace Standard) 411 format. No request for waiver from the senior acquisition official is anticipated. Per DoD 5000.2-R, paragraph 5.2.10 "Environmental Safety and Occupational Health (ESOH)," the PFRMS PMO is planning for development of a Programmatic ESOH Evaluation.

7.6 Demilitarization and Disposal

Disposal phase activities will involve shipping replaced hardware to established disposal sites and disposal of material. Disposal equipment and procedures will conform to DoD requirements. Army Regulations 200-1 and 200-2, which will be used to devise equipment and procedures that will conform to the NEPA standards, expand other regulatory requirements in more detail. All items of value are salvageable as scrap or reusable material. Materials that can be successfully recovered and reused will be recovered; otherwise, the materials shall be disposed by environmentally safe and approved methods. Open air burning or detonation shall not be used for mass disposal of system stockpiles when alternative methods with minimal environmental impact are available. All possible means to avoid or minimize environmental impacts from HIMARS have been adopted.

7.7 Life-Cycle Oversight

The PM will maintain appropriate oversight of the HIMARS, once fielded, through unit readiness reports submitted through the Logistics Support Activity (LOGSA), information provided by Logistics Assistance Representatives (LARs), reports from the Field Artillery School, the Combined Arms Support Command, and information provided to the Army Safety Center. The PM will monitor performance, readiness, ownership cost, and support issues. Post deployment evaluation will be conducted to support continued sustainment and the implementation of technology insertion.

The HIMARS was designated an Army Pilot Program for PM Oversight of Life-Cycle Support reporting to OSD. The Implementation Plan for the HIMARS Pilot Program will employ the principles of cradle-to-grave management, Life-Cycle approach, and total system approach supported by simulation as they determine methods to allow PMs greater responsibility for life cycle management of their program. The pilot program affords the opportunity to put into practice various techniques that allow for the focused management of TOCR activities throughout the life of the HIMARS program.

7.8 Post Deployment Evaluation

Future testing of the HIMARS after the FRP decision will be accomplished under a Production Verification Test (PVT) phase. The PVT will consist of those specific test events necessary to fully qualify the modification or enhancement to the system. These test events are driven by the type of modification or enhancement, but would typically include a SIT, Software Development and FQT, and selected Component and System Qualification Tests.

Currently, the foreseeable and definable enhancements / initiatives to be applied to the HIMARS launcher are: to add FBCB2 situational awareness functionality (this upgrade is documented in the MLRS JTA Migration Plan and utilizes JTA compliant protocols and messages) and the replacement of the current FMTV cab with an armored cab. Each of these enhancements will undergo the PVT test series to fully test and evaluate that those modifications to the HIMARS launcher do not affect current capabilities and that the enhancements fulfill their desired objective. Additional modifications may be applied to the HIMARS launcher as future initiatives are developed and affordable enhancements are identified and funded.

7.9 Long-Term Access to Data

The HIMARS PM will provide long-term access to data required for competitive sourcing of systems support, conversion of product configuration technical data to performance specifications when required for enabling technology insertion to enhance product affordability and prevent product obsolescence; and contract service risk assessments over the life of the system.

7.10 Personnel Survivability and Habitability

Survivability issues have been integrated into the Live Fire Test and Evaluation (LFT&E) program. The planned replacement of the current FMTV cab with an armored cab is in response to a survivability issue.

7.11 Human Factors Engineering (HFE)

HIMARS HFE has been continually assessed and evaluated during the engineering design phase. The Engineering Manufacturing Design contract utilizes MIL-STD-1472 as a guideline and calls for Human Factors Evaluation - “The HIMARS System (including

Launcher, RSV w / MHE, and RST) shall be evaluated for its Mission Oriented Protective Posture (MOPP-IV) compatibility during simulated fire missions, reload operations and maintenance operations. The Contractor shall plan, conduct, and report on a human factors evaluation which will be conducted in conjunction with a government conducted nuclear biological and chemical contamination survivability test." A Preliminary Logistics Demonstration, including task performed in MOPP IV, was accomplished from 7-17 January 2002 with HFE personnel, both Government and contractor on site to assist with evaluation. HFE issues, all of which deal with height limitations, are currently being worked within an IPT process. There is a contractor HFE Assessment due in November 2002.

8.0 Business Strategy

8.1 Competition

The acquisition alternative considered and chosen for the LLI, LRIP, Initial Spares, Facilitization, and FRP (with options) phases of the program is sole source procurement from the MLRS system prime contractor, LMMFC-D, as the designer, developer, and producer of the basic system, as well as the product improvements. A Class Justification and Approval (J&A) for other than full and open competition was submitted and approved by Dr. Kenneth Oscar, for Paul J. Hoeper, Assistant Secretary of the Army (Acquisition, Logistics, and Technology) 27 Sep 99. This J&A was approved for sole source acquisition for the life of the system, with the exception of Product Support. See 8.3.b for further discussion regarding Product Support. HIMARS is a performance based, performance specification contract. Subcontract competition will be implemented, where applicable, for the major subsystems. This alternative will allow the integration role to be accomplished by LMMFC-D with maximum subcontract participation while opening the door for future competitive spares and component production.

Consideration was given to competing this effort among various sources through a market research study team. LMMFC-D, as the designer and developer of the MLRS M270A1, improved fire control system (IFCS), and Improved Launcher Mechanical System (ILMS) improvements, and JTA, is the only contractor possessing the required experience, expertise, and knowledge necessary to ensure HIMARS integration and compatibility with MLRS M270A1 within the required schedule and budget constraints. Historically, LMMFC-D has actively sought competition for subcontracted items and this resultant contract will include the appropriate competition in subcontracting clauses, special provisions, and incentives to obtain higher subcontracting goals.

The HIMARS will consist of a launcher, two RSVs with MHE and two RSTs. The launcher consists of a chassis with man-rated cab, LLM and existing FCS. The chassis with man-rated cab is developed from a modified M1096A1 FMTV 5-Ton LLM includes the cage assembly, 14 subsystems, 5 M270A1 developed LRUs and software. The HIMARS will maximize commonality with the M270A1 and the TACOM FMTV. Common components used on M270A1 and HIMARS, will be bought concurrently when feasible.

LMMFC-D has traditionally been in accord with the spirit and intent of the Government's socio-economic programs. The company has a viable and aggressive program for small business. With the growing importance of minority firms in the overall economic makeup of the country, it is not difficult to attach the same importance and to apply the same techniques learned and used in aiding and promoting small business to help minority firms to enter the mainstream of the economy. As a result of our aggressive pursuit to identify and solicit minority suppliers a number of excellent firms who were owned and controlled by members of minority groups were found.

In FY97 LMMFC-D received initial approval to participate in the DoD's comprehensive Subcontracting Plan Test Program. Requirements for participation in the comprehensive program include participation the DoD Mentor Protégé Program.

The Mentor Protégé Program provides incentives to major DoD contractors to furnish technical business assistance to Small Disadvantaged Businesses (SDB) and woman owned small businesses. The assistance enhances the capabilities of these firms to perform as subcontractors and suppliers under DoD , other Federal and commercial contracts. An increased participation of SDBs and DoD prime contractors and subcontractors, as well as, the formation of long term business relationships, which benefit the DoD would be the end result.

The result of a successful Mentor Protégé Program will benefit the Government by receiving a more technically capable supplier base with the advantages that accrue from affective large and small business teaming relationships.

The types of products manufactured by LMMFC-D offer a limited range of subcontracting opportunities for SDBs. Suppliers are normally large businesses that have been team member participants. The only available competition is large business, or are for parts specially designed and developed for LMMFC-D programs utilizing proprietary information by large business. No small businesses have the capability to meet these requirements.

The Mentor-Protégé program allows LMMFC-D the opportunity to develop SDBs to participate in our large solicitations, thus increasing our small business dollars.

a. Fostering a Competitive Environment

(1) Competition Advocates

The Competition Advocate for the U.S. Army Aviation and Missile Command (AMCOM) will review all sole source justifications.

(2) Ensuring Future Competition

A component breakout analysis will be performed prior to the FRP contract award to determine those items that can be broken out to other sources. The government will take active measures to break out hardware and services that are in the best interest of the

government. For logistic support, a trade study has been conducted that identifies a life-cycle product support program involving Contractor Managed Supply Operations, Contractor Managed Depot Operations, and the availability of a Field Service Representative. Plan execution will begin at FUE. Tenets of the HIMARS Product Support program will be executed through a Cost-Plus-Incentive Fee contract. A one-time waiver will be submitted on the fixed price requirement in Army Federal Acquisition Regulation Supplement (AFARS) Subpart 5137. This contract, designated as HIMARS Product Support Contract Phase I, will also involve logistics support to HIMARS during the first three years of system fielding. HIMARS Product Support Contract Phase II will be firm-fixed price incentive fee with an award term provision, and the result will be the validation of product support for the HIMARS program.

This requirement was broadcast in the Advanced Planning Acquisition Information database, which is accessible to contractors through the AMCOM Electronic Bulletin Board System. A synopsis of the requirement will be issued in the FedBizOpps and all business concerns will be invited for subcontracting possibilities. Any additional sources identified through this procedure will receive appropriate consideration as prescribed by law.

b. Building Competition into Strategies

(1) Acquisition Phases

HIMARS is entering the low-rate initial production phase, and for reasons mentioned in paragraph VIII a., plans are to use LMMFC-D for low-rate and full-rate production.

(2) Evolutionary Acquisition

There are evolving requirements that will make the modification of the HIMARS necessary. Future planned work includes an Enhanced Armored Cab, a Hybrid Electric Drive for the carrier vehicle, the introduction of the FBCB2 system for Situational Awareness purposes, the introduction of the Battlefield Combat Identification System (BCIS) and others. These upgrades are being planned in a phased approach where changes are managed for optimal incorporation times.

(3) Industry Involvement

HIMARS will continue to work with industry to identify competitive opportunities.

c. Potential Obstacles

(1) Exclusive Teaming

There are no obstacles as a result of exclusive teaming.

(2) Sub-Tier Competition

Subcontract competition for these efforts, as required by FAR 52.244-5, "Competition in Subcontracting," and Defense Federal Acquisition Regulation Supplement (DFARS) 252.219-7004, "Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (Test Program) (Jun 97)" will be included in the solicitation and contract. Presently, LMMFC-D has a comprehensive small business subcontracting plan in effect approved by DCMA 2 Oct 01. This plan, developed as part of a single process initiative with LMMFC-D and the DCMA, is reviewed periodically. The contractor's purchasing systems are reviewed on a regular basis to assure maximum competition and use of small business and SDB concerns.

Competition for acquisition of spares will be considered throughout the remaining life cycle of the program. If product support is approved, competition will be at the discretion of the contractor; however, the potential for additional performance specifications to be developed which will allow for competition in sustainment (i.e., spare parts) is being considered at this time. If it is determined to be the right approach and affordable, an option for this will be added to the LRIP contract.

d. Potential Sources

(1) Market Research

Acquisition alternatives that have been considered are (1) full and open competition, and (2) sole source to the PFRMS prime contractor. The HIMARS Product Office established a team in October 2001 to conduct market research to consider these and determined that there were no other corporations which had the requisite knowledge required to produce the desired product within the allotted time. The technique used for market research was in accordance with FAR 10.002(b)(2)(i). This team contacted subject-matter experts in Government and industry via the Internet and telecommunications regarding market capabilities to meet the requirements. Based on this survey, contact with federal agencies supporting work of this nature, and engineering judgment of the individuals involved, other qualified sources capable of satisfying the Government's performance schedule and technical requirements do not exist without substantial duplication of time**,** effort**,** and cost. The prime contractor is the only source capable of functioning as integrator without unacceptable impacts to program costs, schedule, and technical risks. There has been an on-going effort since early 1999 to identify any commercial alternatives and NDIs for the HIMARS program. However, any possible items would require substantial modification and it is not considered economically feasible to do so at this time. There is and will continue to be an on-going effort to research this alternative prior to the LRIP / production phases.

The original HIMARS schedule called for FUE in FY06. However, DA requested that the program be accelerated resulting in an FUE planned for FY05. It is estimated that award to a second source with subsequent delivery of the first pre-production launcher and delivery of the first production unit would require 54 months. Award to LMMFC-D and

delivery of the first production unit would require 26 months. Therefore, award to a second source would result in a 28-month delay in delivery and jeopardize the Army's requirement to meet the accelerated fielding schedule. In addition, duplication of cost, not expected to be recovered through competition, is estimated to be between $85M and $140M. This includes nonrecurring costs, such as investment for prototype fabrication, contractor facilities, investment for second source qualification, and capital equipment. Lockheed Martin is the only source that can meet the required schedule. Additionally, the funding appropriated in the FY02 President's Budget does not include funding required to qualify a second source. Future funding for a second source is not anticipated. An award of the LRIP contract to LMMFC-D in FY03 achieves the required FUE date of FY05 and subsequent production and sustainment awards to LMMFC-D will provide the most streamlined and effective method of acquiring the HIMARS system.

The HIMARS is being developed and procured using Performance Specifications. Technical Data Package (TDP) is under the control of LMMFC-D. Lockheed Martin is the only source that can meet the required schedule for providing product support to fielded systems beginning in FY05.

(2) Commercial and NDIs

HIMARS requires the contractor to use commercial and NDIs to the maximum extent possible within the constraints of user requirements. This includes subsystems, components, and spares based on use of performance specifications and form, fit, function and interface specifications. Preference is for commercial items, then to NDIs. There will be no military specifications, standards, or regulations referenced in the contract provisions and scope of work, except where officially approved waivers exist. The waivers will be cited to identify the hardware and software interfaces for the HIMARS launcher and environmental conditions to which these launchers must operate. The contract deliverables are the minimum required, and in the most cost effective contractor format to provide appropriate management and technical oversight and to support the system software and hardware after deployment.

(3) Dual-Use Technologies and Use of Commercial Plants

There have been no technologies identified that have sufficient commercial application to support a viable production base.

(4) Industrial Capability

Sufficient industrial base capability exists to design, develop, produce, and support the program. The HIMARS acquisition strategy is structured to encourage the contractor to invest, plan and bear risks.

e. Small Business Innovation Research (SBIR) Technologies

The HIMARS Program participate in the Army SBIR program and will give favorable consideration for funding of successful SBIR technologies that are applicable to the HIMARS program.

8.2 International Cooperation

Currently there are no ongoing or planned international cooperative activities. There are no plans currently for foreign military sales.

8.3 Contract Approach

a. Major Contracts Planned

The acquisition strategy is for the acquisition of LLI, three options for LRIP, FRP, Facilitization, Initial Spares, Product Support, and additional R&D efforts (Path thru OT) for the HIMARS program. It is expected to result in multiple contracts funded with MIPA, O&MA for production support, and RDT&E. The delivery of LRIP systems will begin in third quarter FY04 and continue through first quarter FY07. Concurrent spares will also be procured beginning in FY04, as determined by the appropriate kit components, and will be delivered concurrent with the launchers. The following reflects the planned acquisition schedule by FY:

FY	PHASE	HIMARS QUANTITIES	OPTIONS
03	LLI / LRIP 1	34	
04	LRIP 2	24	
05	LRIP 3	36	
06	FRP 1	40	40
07-16	FRP 2 - FRP 11	571	300

In addition to acquisition of the HIMARS launchers, the following support equipment / services will be procured:

- Product Support / LCCS Phase I - FY04 through FY08;
  Phase II FY09 and Beyond
- Initial Spares - FY04 with options in FY05 through FY11
- Training - FY03 with options in FY04 through FY11

The Path to OT RDT&E contract will cover the following activities:

- Upgrade of EMD launchers
- Logistics and Maintenance Demonstrations and associated training
- OT training
- Updates to IETMs

b. Contract Type

A cost-plus award fee (CPAF) contract was issued for the maturation contract. The planned LLI / LRIP acquisition will be a FFP contract. Full rate production will be firm fixed-price; and based on AFARS Subpart 5137.1**,** Service Contracts-General, the logistics support contract will be fixed price (FFP, fixed price with award fee, fixed price incentive (FPI), or fixed price with economic price adjustment). A cost type contract will be utilized for the follow-on R&D contract.

A HIMARS Product Support Plan will be developed in FY03. This plan will involve the collection and analysis of data on system usage and OPTEMPO. Data analysis is the basis for validating the HIMARS product support strategy. Plan execution will begin in FY04, and run through FY08, coinciding with FUE. Product support requirements, spanning a four-year period FY04 through FY08, will be executed through a cost plus incentive fee (CPIF) contract. A one-time waiver will be submitted on the fixed price requirement in AFARS Subpart 5137. This contract, designated as HIMARS Product Support Contract Phase I, will also involve logistics support to HIMARS during the first three years of system fielding. The logistics requirements from organizational through depot levels of support, will be based on a HIMARS product support strategy selected from a trade study analysis of five product support alternatives. This program involves a tailored combination of organic support and contractor managed logistics operations. This product support program will be validated during a five-year period. This validation period will be through a CPIF contract designated as HIMARS Product Support Contract Phase I. If the prime is not determined to be cost effective, or if HIMARS Product Support Contract Phase I does not prove to be in the best interest of the Government, we will transition to organic support. The plan is to establish partnering by prime contractor with the U.S. Army organic depots, Red River and Letter Kenny during the LRIP phase, in order to have organic capability available, if required. The HIMARS Product Support Contract Phase II would involve two years starting FY09. This time period involves the fourth and fifth year of system fielding. This contract will be a FPI type with an award term provision. This time period and contract will involve the completion of data analysis on system usage and OPTEMPO. The result will be the validation of a product support program for HIMARS. This contract will also include the contractor providing logistics support to fielded HIMARS systems based on the selected product support strategy. The contractual execution of the HIMARS product support program after the fifth year of system fielding, FY10, will be through term options from HIMARS Product Support Contract Phase II.

c. Contract Incentives

HIMARS Product Support contract will be based on Performance Based Logistics. The product support contract will have defined performance metrics: cost, mean time between failures (MTBF); sustained operational availability, reliability improvement, continuous technology refreshment and velocity management. Requirements will be refined during Alpha contracting.

d. Performance Management

The contractor will be required to provide integrated cost and schedule performance data. The contractor is required to produce data that indicates work progress and properly relates cost, schedule and technical accomplishment. The contractor's management information systems meet the Earned Value Management Systems (EVMS) guidelines.

e. Integrated Baselines Reviews

The HIMARS PM will evaluate contract performance risks inherent in the contractor's planning baseline. The evaluation process will be part of the award fee process.

f. Special Contract Terms and Conditions

Incentive arrangement for performance and cost will be incorporated into the contracts. A deviation to AFARS Subpart 5137 will be submitted for the Product Support Contract. Special contract requirements for the Product Support Contract will be included in the event contractor support personnel are required for contingency operations.

g. Warranties

Warranty coverage for the LRIP and FRP 1 quantities will consist of the performance specifications, quality assurance requirements, and deficiency provisions for material and workmanship defects. It is further anticipated that LRIP hardware will be covered by an individual item warranty and a systemic warranty. However, as a minimum, a systemic warranty will be obtained.

h. Component Breakout

A component breakout analysis will be performed prior to the FRP contract award to determine those items that can be broken out to other sources. The program schedule precludes the qualification of new vendors for the LRIP contract. New components (HIMARS unique) would have to be manufactured, tested by the manufacturer and by the prime contractor to verify compliance with performance specifications and the MLRS Interface Control Document. This is a lengthy process (2 to 2 ½ years). Components that are compatible with the MLRS M270A1 have already been competed by the prime contractor. Beginning with FRP, subsequent spare parts to support the HIMARS program will be procured from alternate sources to the extent practical in accordance with DoD / DA implementation guidance, deleting use of military standards and specifications. Eighty percent of the components are buy parts.

i. Leasing

N / A

j. Make or Buy Analysis

Make or buy plans will be required pursuant to FAR 15.407-2.

DRAFT

ANNEX A

ACRONYMS & ABBREVIATIONS

Acronym and Abbreviation List

AAE	Army Acquisition Executive
AAO	Authorized Acquisition Objective
ACAT	Acquisition Category
ACTD	Advanced Concept Technology Demonstration
AFARS	Army Federal Acquisition Regulation Supplement
AFATDS	Advanced Field Artillery Tactical Data System
AIT	Automatic Identification Technology
AMCOM	Aviation Missile Command (Army)
APB	Acquisition Program Baseline
ARNG	Army National Guard
ASIP	Advanced System Improvement Program
Army-TACMS	Army Tactical Missile System
ATEC	Army Test and Evaluation Committee
BCIS	Battlefield Combat Identification System
BES	
BIT	Built-In Test
C2	Command and Control
C3	Command, Control, and Communications
CA	
CAIV	Cost as an Independent Variable
CARD	Cost Analysis Requirements Document
CDT	Contractor Developmental Tests
CFT	Contractor Field Technician
CLS	Contractor Logistics Support
CONUS	Continental United States
COTS	Commercial-off-the Shelf
CPAF	Cost Plus Award Fee
CPIF	Cost Plus Incentive Fee
CRTC	Cold Region Test Center
DA	Department of the Army
DCMA	Defense Contract Management Agency
DFARS	Defense Federal Acquisition Regulation Supplement
DoD	Department of Defense

DoDI	Department of Defense Instruction
DT / OT	Developmental Testing / Operational Testing
EMD	Engineering and Manufacturing Development
EPP	Extended Program Plan
EPPE	Extended Program Planning Estimate
ESIT	Extended System Integration Test
ESOH	Environmental Safety and Occupational Health
EUE	Extended User Evaluation
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulation
FBCB2	Force XXI Battle Command Brigade and Below
FCS	Fire Control System
FDC	Fire Direction Center
FDS	Fire Direction System
FE	Field Experiment
FFP	Firm-Fixed Price
FLT	
FPI	Fixed Price Incentive
FMTV	Family of Medium Tactical Vehicles
FQT	Flight Qualification Text
FRP	Full-Rate Production
FRPDR	Full-Rate Production Decision Review
FSR	Field Service Representative
FUE	First Unit Equipped
FY	Fiscal Year
GFP	Government-Furnished Property
GPPC	Government Property in the Possession of Contractors
H-NET	HIMARS Management Information System
HFE	Human Factors Engineering
HIMARS	High Mobility Artillery Rocket System
HMMP	Hazardous Material Management Program
HTI	Horizontal Technology Integration
HQDA	Headquarters Department of the Army
ICE	Independent Cost Estimate
IDE	Integrated Digital Environment
IETM	Interactive Electronic Technical Manual
IFCS	Improved Fire Control System
IFTE	Integrated Family of Test and Evaluation
ILMS	Improved Launcher Mechanical System
IOT	Initial Operational Test
IPR	
IPT	Integrated Product Team
IR&D	Initial Research and Development
IT	Information Technology
J&A	Justification and Approval

JTA	Joint Technical Architecture
KPP	Key Performance Parameters
LAR	Logistics Assistance Representative
LCC	Life Cycle Cost
LCCS	Life Cycle Contractor Support
LCEA	Life Cycle Environmental Assessment
LCHRS	
LFT&E	Live Fire Test and Evaluation
LIU	Launcher Interface Unit
LLI	Long Lead Item
LLM	Launcher Loader Module
LMMFC-D	Lockheed Martin Missiles and Fire Control-Dallas
LOGSA	Logistics Support Activity
LORA	Level of Repair Analysis
LRIP	Low Rate Initial Production
LRU	Line Replaceable Unit
M&S	Modeling and Simulation
MAIS	Major Automated Information Systems
MANPRINT	Manpower and Personnel Integration
MCD	Mission Critical Data
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Programs
MFOM	MLRS Family of Munitions
MHE	Material Handling Equipment
MIL-STD	Military Standard
MIPA	Missile Procurement Army
MLRS	Multiple Launch Rocket System
MOPP	Mission Oriented Protective Posture
MTBF	Mean Time Between Failures
NATO	North Atlantic Treaty Organization
NDI	Non-Developmental Items
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
O&MA	Operations and Maintenance Appropriation
O&S	Operations and Support
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
OPTEMPO	Operational TEMPO
OT	Operational Test
OT&E	Operational Test and Evaluation
P3I	Pre-planned Product Improvement
PEO	Program Executive Office
PEO-TM	Program Executive Office – Tactical Missiles
PEP	Producibility Engineering and Planning
PM	Project Manager; Program Manager

PMCS	Preventive Maintenance Checks and Services
PMO	Program Management Office; Project Management Office
PNU	Position Navigation Unit
PO	Project Office; Program Office
PRRA	Production Risk Readiness Assessment
PQT	Production Qualification Test
PFRMS	Precision Fires Rocket and Missile Systems
PVT	Production Verification Test
R&D	Research and Development
RDT&E	Research Development Test and Evaluation
RFP	Request For Proposal
RFPI	Rapid Force Projection Initiative
RMP	Risk Management Plan
RMTS	Risk Management / Tracking System
RST	Re-supply Trailer
RSV	Re-supply Vehicle
SBIR	Small Business Innovation Research
SDB	Small Disadvantaged Business
SDD	System Development and Demonstration
SER	Systems Evaluation Report
SINCGARS	Single Channel Ground Airborne Radio System
SIT	
SRU	Shop Replaceable Unit
STAR	System Threat Assessment Report
T&E	Test and Evaluation
TACOM	Tank Automotive Command
TDP	Technical Data Package
TI	Tactical Internet
TM	Technical Manual
TOCR	Total Ownership Cost Reduction
USAFAS	
USMC	United States Marine Corps
VME	Versa Modular Europa
WIU	Weapon Interface Unit
WSMR	White Sands Missile Range

DRAFT

WIN-Tactical
Acquisition Strategy

Version 1.2 as of 1 May 2003

Prepared by:

Project Manager
Warfighter Information Network-Tactical
ATTN: SFAE-C3T-WIN
Fort Monmouth, NJ

APPROVAL

I have read the WIN-Tactical (WIN-T) Acquisition Strategy described herein and approve its content as representing the strategy for this program.

THOMAS M. COLE
COL, FA
Project Manager, Warfighter Information Network-Tactical

Date

MICHAEL R. MAZZUCCHI
BG, USA
Program Executive Officer, Command, Control and Communications Tactical (C3T)

Date

CLAUDE M. BOLTON, JR.
Assistant Secretary of the Army (Acquisition, Logistics and Technology)

Date

E. C. ALDRIDGE, JR.

Date

DRAFT

WIN-TACTICAL ACQUISITION STRATEGY
TABLE OF CONTENTS

LIST OF FIGURES

DRAFT
WIN-TACTICAL ACQUISITION STRATEGY

1.0 PROGRAM OVERVIEW

WIN-T is the Objective Force (OF) communications system for reliable, secure, and seamless video, data, imagery, and voice services that enables decisive combat actions. WIN-T will establish an environment in which commanders at all echelons will have the ability to operate with virtual staffs and analytical centers that are located at remote locations throughout the battlespace. WIN-T operates as the principal means to frame the tactical infosphere that encompasses both the Unit of Employment (UE) and Unit of Action (UA) areas of influence. This tactical infosphere will operate on the move via its robust networking, be able to pass relevant information for system of systems combined arms capabilities in all terrain and under all environmental conditions. Major components include switching / routing and subscriber access nodes (network service provider, on a single vehicle, targeted for UE / UA echelons); Personal Communications Device (PCD) (handheld terminal that can provide voice and data connectivity); Information Assurance (IA) (provides an integrated Defense in Depth approach to protect sensitive and classified information); Information Dissemination (information on demand, according to assigned level of precedence); Transmission Systems (provides network connectivity); and Network Management (NM) (provides a means to plan, configure, monitor and manage the network). WIN-T is a mission critical system as the integrating communications network for the OF, optimized for offensive and Joint operations, while providing the Theater Combatant Commander the capability to perform multiple missions simultaneously with campaign quality. It will be a framework, which will set standards and protocols for OF Infospheres, while interfacing with and / or replacing equipment in legacy and interim forces.

WIN-T is the OF high-speed and high capacity backbone communications network. It will be focused on moving information in a manner that supports commanders, staffs, functional units, and capabilities-based formations—all mobile, agile, lethal, sustainable, and deployable. WIN-T must enable them to plan, prepare, and execute multiple missions and tasks simultaneously. WIN-T will provide required reach, reachback, and network operations for the Maneuver UA Infospheres and seamlessly interface with Joint Tactical Radio System (JTRS), which extends to the individual warfighter platform level. At the UE, WIN-T will provide command centers and staff elements with the communications capabilities to link to adjacent UE, subordinate UAs, sustaining base, Joint, Allied and Coalition forces.

WIN-T ensures quality of information to commanders and staffs spanning every echelon [e.g. Theater through UA], using information, dissemination management, and data integrity commensurate to the users' needs. WIN-T will need to establish common standards and protocols for all OF applications and network hosts to provide the most efficient and responsive movement of information. WIN-T will initially interface with certain existing tactical systems, such as the Tactical Message System (TMS) (the tactical portion of the Defense Message System (DMS)), and eventually subsume the capabilities provided by these systems in subsequent WIN-T block upgrades.

1.1 Requirement/Statement of Need

The Army's existing tactical communications network and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) capabilities are not capable of supporting the OF warfighters' needs. The forces' current tactical communications system served well to support yesterday's command, control, and support services that relied heavily on voice and short text messaging. Today's warfighter depends on a much broader spectrum of information services: video, graphics data, imagery, collaborative planning tools, remote interactive Battlefield Operating Systems (BOSs), and distributed databases. Tomorrow's OF warfighter requires an offensively oriented network enabling battle command on the move, Information Dissemination capabilities, extended reach and reachback, and increased throughput. Information Exchange Requirements (IERs) generated by the Army's OF and rapidly changing warfighting doctrine and tactics exceed the capability and potential of the current tactical communications infrastructure. These developments demand an exponential increase in communications capacity as well as great advances in information security, mobility, efficiency, and transparency.

Many information, automation, and communication lessons were learned in the 1990s from experiences such as Desert Storm, Bosnia-Herzegovina, Kosovo, and the Advanced Warfighting Experiments. Operational concepts have changed significantly and warfighter expectations for mobility and offensive orientation have outgrown the scope of existing Mobile Subscriber Equipment (MSE) and Tri-Service Tactical Communications (TRI-TAC) services.

The OF is intended to be a 21st Century land combat force without equal. It is designed to play a decisive role in Joint and combined military operations responding to any crisis in the full spectrum of military conflict. The OF must be interoperable with Army legacy and interim systems, Joint and Interagency systems and adaptable to Allies, Coalitions and Non-Government Organization (NGO) systems. The goal of the OF is to increase strategic responsiveness while ensuring full spectrum dominance across the spectrum of military operations. This approach requires that all capabilities be reconciled into a technologically advanced, decisive, general-purpose force that is complemented by special purpose forces. WIN-T will exploit state-of-the-art communications, terrestrial and airborne assets, space-based resources, computing systems and capabilities to provide the Army with technical advantages to meet the battlefield C4ISR challenges of the 21st Century. WIN-T will provide infosphere connectivity between OF units, leveraging JTRS enabled and embedded Command and Control (C2) communications capabilities. This will allow the Army's OF to concentrate combat power through the employment of smaller units that are more capable, survivable, and lethal vice the traditional massing of forces.

WIN-T supports and enables Future Combat Systems (FCS) to meet the FCS Operational Requirements Document (ORD) and the FCS Statement of Required Capabilities (SORC). WIN-T is supported by the FCS Mission Needs Statement (MNS) and the Horizontal Integration of Battle Command (HIBC), also known as Battlefield Digitization, dated 10 January 1995. The FCS MNS concept is to enable the OF Commander with the "Quality of Firsts" —See First, Understand First, Act First and Finish Decisively.

The WIN-T ORD identifies relationships / dependencies between WIN-T and other programs (e.g. FCS, JTRS, Joint Network Management System (JNMS), and Army Battle Command Systems (ABCS)) as addressed in Figure 1-2. Interrelationships between these programs will be considered as part of the change management process of WIN-T. Interrelationships among these programs have also been considered in assessing risks and developing this acquisition strategy as addressed in paragraphs 2.2.3.2 and 2.2.3.3.

WIN-T is the integrating communications network for the OF. An Interface Control Working Group, co-chaired by WIN-T, Chief Information Officer (CIO) / G6, and PM UA Networks, was formed with the charter to establish interim standards and protocols across the echelons and programs providing the User one seamless network. All OF stakeholders are represented, including PM WIN-T, PM Tactical Radio Communications System (TRCS), PM Ground Combat Command and Control (GCC2), PM UA Networks, PM FCS, Program Executive Officer (PEO) Soldier, etc. The Interface Control Working Group (ICWG) provides a forum to identify interim interoperability standards for information transport common services for the OF and provide recommendations to the CIO / G6 on new standards for incorporation into the Joint Technical Architecture (JTA)-Army (JTA-A) and JTA. Interfaces of concern are those associated with Network-to-Network, Application–to-Network, and Management-to-Management interfaces. The end state will be a system of systems technology view that includes standards / profiles as the framework for the OF.

1.1.1 Approved Source Document

The Army Requirements Oversight Council (AROC) validated the WIN-T ORD on 5 November 2002. On 2 April 2003, the Joint Requirements Oversight Council (JROC) approved the WIN-T ORD and validated the Key Performance Parameters (KPPs), via a Paper JROC.

The requirements in the WIN-T ORD are prioritized, time-phased, and blocked. WIN-T requirements will be satisfied using an evolutionary acquisition approach, vice a single step. The allocation of requirements to WIN-T Blocks is described in paragraph 1.2.1.

1.2 Acquisition Approach

The WIN-T program structure is reflected in the Integrated Program Schedule provided in Figure 1-3.

Following a full and open competition among U.S. prime contractors, on August 9th, 2002, the Government awarded separate parallel competitive Cost Plus Fixed Fee (CPFF) contracts to General Dynamics Government Systems Corporation and Lockheed Martin Mission Systems. Each contract consists of two phases, with Phase 1 being awarded initially for Pre-System Development and Demonstration (SDD) activities, and with an option for Phase 2, SDD. Each contractor is required to accomplish all Phase 1 requirements under the awarded basic contracts. Presuming favorable evaluation of the results of Phase 1, and authorization at Milestone B, the option will be executed for Phase 2 efforts. A restricted competition between the two development contractors at the conclusion of SDD will result

in down-selection to a single award for a Production contract for the initial Low Rate Initial Production (LRIP) quantity, plus options for additional LRIP and Full Rate Production (FRP) quantities.

In Phase 1, the contractors are conducting pre-Milestone B activities. The work effort and deliverables are those necessary to mature the program and develop inputs and documentation to support a Government Milestone B Decision Review. The WIN-T ORD, dated 5 March 2003, is the requirements baseline in Phase 1 and has "blocked" (time phased) requirements. Phase 1 includes system engineering tasks, program management tasks and engineering services necessary to define and document the WIN-T architecture. Specific products include an initial architecture, a Baseline Requirements Document (BRD), other technical documentation, Life Cycle Cost Estimates (LCCEs) with supporting documentation and trade-off studies. Each contractor is assessing the technology maturity related to the specific technical solution that contractor is developing, and has made specific recommendations to minimize risk and optimize efficiency of achieving the capabilities defined in each ORD block. Test strategies are being formulated and documented with inputs from the contractors.

The Phase 1 effort is 12 months in duration. Two formal contractor conducted In Process Reviews (IPRs) are scheduled. IPR 1, held in February 03, corresponds to the point in time where all preliminary technical, cost, and programmatic input and documentation required to support the Milestone B Decision process will be available. IPR 2 is scheduled in June 03. This corresponds to the point in time where final Milestone B documentation will be available. Additionally, the contractors will recommend changes to the Phase 2 efforts, as a result of Phase 1 activities. The Government will assess the contractor's recommendations (cost, schedule or performance related), as well as Government initiated changes, and make any required modifications prior to award of the Phase 2 option. Completion of the Phase 1 occurs at the end of month 12, coincident with the Government Milestone B Review.

It is the Government's intent to award each Phase 2 CPFF option upon successful completion of Phase 1 and a Milestone Decision Authority (MDA) authorization subsequent to a Milestone B review. Phase 2 is the SDD phase. The work efforts and deliverables are those necessary to further mature the system and develop documentation to successfully achieve a Milestone C LRIP Decision. Each contractor's BRD developed during Phase 1 will serve as the contractor's requirements baseline throughout Phase 2. In Phase 2, the contractor will complete design of the Block 1 architecture and prepare documentation that supports this design. The contractor will build and deliver OPNET and AweSim! models for the architecture and system design and will conduct simulations based on operational scenarios provided by the Government. Modeling and Simulation (M&S) will be utilized to validate that the architecture can satisfy the KPP requirements and all Block 1/2/3 requirements. Phase 2 will also include an engineering services provision. These services shall include, but not be limited to: engineering studies to assess the impacts of emerging and evolving requirements on the WIN-T architecture and system, fabrication of equipment prototypes (hardware/software) to assess interface, interoperability, and other technical requirements.

Three formal contractor Design Reviews and a Government conducted IPR are scheduled during Phase 2, which is expected to begin in August 03 and last 24 months. These reviews will address the design of the contractor's Block 1 WIN-T System. A System Design Review (SDR) is scheduled at the end of month four, followed by an Army IPR scheduled in month six. The Government IPR will enable the PM to assess the maturity of the contractor's design and their ability to have a prototype to support the Developmental Test / Operational Test (DT / OT). A Preliminary Design Review (PDR) is scheduled at the end of month 11 and a Critical Design Review (CDR) is scheduled at the end of month 17, prior to DT / OT. The purpose of this CDR is to provide the Government an opportunity to assess the final SDD design maturity and readiness to enter LRIP. Prior to the CDR, the contractors' will have delivered final documentation to include Product Specifications on all systems (Assembly and Standalone), Technology Readiness Assessments (TRAs), Program Test Plans, SDD Test Reports, and Logistics Support Strategies. M&S results will also be available to the Government to support final evaluation of the network architecture.

During Phase 2, the contractor will also fabricate, deliver and support a suite of hardware / software to the Government's test site to support a DT / OT to include technical data collection. Deliveries of equipment shall occur in time to support a DT / OT during month 19 of Phase 2. The DT / OT must demonstrate that all critical technologies, required to meet the KPPs and necessary to implement the Block 1 system, are mature to at least Technology Readiness Level 6 (TRL 6). After completion of the DT / OT and the CDR, the contractor will support a Government Production Readiness Review to ensure that sufficient capability exists to produce required quantities.

The Government plans to issue a Request for Proposal (RFP) for a Fixed Price Incentive Fee (FPIF) production contract soon after completion of the DT / OT. Competition will be restricted to the development contractors, which successfully competed for the Phase 1 and 2 contracts. A single contractor will be selected on a Best Value Basis and a production contract awarded in 1QFY06, after the Milestone C Review in 4QFY05. Source selection criteria will include, but not be limited to, system performance and operational utility, life cycle cost (LCC), and total life cycle support. The proposals will be evaluated against the criteria based on (1) the information provided in the contractors' proposal; (2) the past performance evaluation, conducted by the Performance Risk Advisory Group (PRAG); (3) documented results and data delivered under each SDD contract, updated where appropriate, by the proposal; and (4) other factors identified in the source selection plan to include the offeror's ability to develop and produce the WIN-T functionality through Block 3. Each SDD contractor will be provided DT / OT test results on a daily basis. They will be instructed in the RFP to fully address the resolution of all DT / OT shortcomings in their proposals. Government evaluators will include personnel with direct knowledge and experience with DT / OT performance.

It is anticipated that the production contract will provide a base year and four yearly options. The LRIP Phase will include the base year contract to procure test quantities of systems / equipment for Production Verification Test (PVT), the first option to procure test quantities of systems / equipment to support Initial Operational Test (IOT), and the second

option to procure LRIP quantities of systems/equipment. Prior to exercising the 2nd option in FY08, an Army IPR will be conducted to ensure the systems/equipment procured for PVT meet design specifications. The production contract will also include two one year production options for FRP quantities. The FRP options will not be exercised until after the FRP Decision Review. A follow-on five-year Fixed Price (FP) with Economic Price Adjustment (EPA) contract will be awarded on a Sole Source basis for additional FRP quantities. Additional FP with EPA contracts will be awarded on a sole source basis to procure and field the remaining force. In addition, there will be an Engineering Services line item that will allow for the development of Blocks 2 and 3.

Figure 1-1 identifies the proposed procurement quantities by UA and UE. UA and UE are further defined in paragraph 7.2 LRIP Quantities and Justification. Due to the ongoing competitive nature of the program and the vastly different contractors' architectures in the Pre-Milestone B phase, different quantities of equipment is required to support each architecture. Although we will have initial contractor architectures, BRDs, and initial system design, there will be uncertainty as to the composition of a "WIN-T system" until Phase 2 technical reviews are complete. To avoid confusion in the Acquisition Strategy, the quantities are depicted by units fielded. The cost documentation (e.g. Cost Analysis Requirements Description (CARD)) reflects each contractors' architecture and specific quantity requirements.

	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	TOTAL
UA	1 UA Comp		1 UA Core	1	2	2	2	2	2	2	2	2	2	20
UE 1	1/3	2/3	1 1/4	1	1	1	1	2	2	2	2	1	2 3/4	18
UE 2					0.5	0.5	1	0.5	0.5	0.5	0.5	0	0	4
UE 3								0.25	0.25	0.5	0.5	0.5	0	2
Trng Base					1									1

Figure 1-1. WIN-T Procurement Schedule

The program office believes using a FPIF contract for the initial five year production provides an appropriate distribution of risk between the Government and contractor and provides actual cost data from early FRP, which will assist in determining fair and reasonable prices for follow-on sole source negotiations. In addition, the follow-on RFP release will occur after the completion of all training and fielding of the initial systems. This will permit the RFP and subsequent proposal to be based upon a fielded configuration of equipment that includes any modifications that may need to be made as a result of the IOT. This also will allow the RFP to incorporate Block 2 requirements that are ready to transition into the production baseline.

In support of the FRP review, the program office will develop an independent cost assessment of production costs based upon the first two years' production experience, and assess whether the option prices under contract for the first two FRP years are reasonable.

During the Production Contract, the contractor will be required to obtain the required Interoperability Certification (Joint and Intra-Army) and Security Certification and Accreditation for the WIN-T System, which are necessary for a successful fielding. All logistics, supplies, services and technical documentation required to field and support the WIN-T System will be acquired along with the production hardware. It is anticipated that along with the Production award the Government will also award a separate sustainment contract to the same contractor for spares, repairs, training, fielding, software support and Post Production Software Support of fielded systems.

Upon completion of the IOT, a System Evaluation Report (SER) and Beyond LRIP Report will be provided to support the FRP Decision Review (FRPDP). The purpose of this Decision Review will be to demonstrate that the WIN-T Block 1 is ready for FRP, and to obtain authorization from the MDA to enter into FRP. The FRP authorization will provide for the procurement of the WIN-T for the OF, in accordance with the guidelines for Unit Set Fielding (USF). All production options will include range quantities to provide maximum procurement flexibility. The current fielding schedule spans over a 13-year period and is aligned to the FCS fielding schedule. However, based on user need and economic consideration, the Acquisition Strategy allows for the flexibility of procuring the entire Army over a shorter period of time.

1.2.1 Evolutionary Acquisition Approach

The WIN-T system will be developed, tested, produced, and fielded using an evolutionary acquisition approach. This approach minimizes time, cost, and risk, while providing a capability in phases that is fully integrated with the overall Army's Warfighting capabilities. An evolutionary acquisition strategy provides for the timely insertion of new technologies into Army communication systems. This allows the Army to keep pace with changing commercial technology and maintain required interoperability with other JTA-A and commercial standards-based networks.

The strategy includes the ability to engineer the network and prescribe the standards and protocols for applications using the network to ensure the quality and occurrence of a mutually supportive flow of information, dissemination management, and data integrity commensurate to the user's operational needs. As such, standards and protocols will be mandated for all applications and networks to provide the most efficient and responsive movement of information. An ICWG has been established for this purpose. The ICWG is co-chaired by PM WIN-T, PM UA Networks and Army CIO / G6. All systems / organizations with a stake in OF communications participate in the ICWG. Legacy and interim applications that are non-compliant with these standards / protocols may not be capable of achieving the same level of responsiveness, but WIN-T will still be able to interface with legacy and interim communications systems as identified in the WIN-T ORD.

WIN-T requirements and capabilities will be fielded in a time-phased manner as technology evolves, while not degrading overall levels of required interoperability. The WIN-T ORD requirements are prioritized in "blocks." Prioritization is based on operational need,

technical feasibility, and cost. Requirements are delineated as Block 1, Block 2, Block 3 or Objective. The objective requirements are considered the objective capabilities of Block 3. All requirements in each block are considered threshold for that block. Some requirements are further defined as KPPs. Requirements identified as KPPs are the minimum acceptable operational values below which the utility of the system becomes questionable.

Figure 1-2, KPP Summary, reflects the mandatory and projected capabilities of each block as identified in the ORD.

KPP	Threshold (Block 1)	Threshold (Block 2)	Threshold (Block 3)	Objective
Interoperability	100% of Critical IERs	→	→	All IERs
Network Reliability	.98 (At the Halt) .90 (Mobile)	.93 (Mobile)	.95 (Mobile)	.99 (At the Halt) .97 (Mobile)
Network Management	Manage network from location inside AOR	→	Location outside AOR	Same as Threshold (Block 3)
Information Dissemination	< 5 sec (Cat I) < 8 sec (Cat II)	< 2 sec (Cat I)	→	<.5 sec (Cat I) < 1 sec (Cat II)
Information Assurance	Protect against 95% external & known threats	Protect against 98% external & known threats	→	Protect against 99% external & known threats
Mobile Throughput	256 Kbps/25 mph	512 Kbps/35 mph	1.54 Mbps/40 mph	4 Mbps/45 mph

Figure 1-2. KPP Summary

Block 1 will meet the minimum threshold requirements and ensure the lowest cost, schedule, and performance risk. It is anticipated that each increment of the WIN-T evolutionary approach builds upon the technological advancements of its predecessor, and provides expanded capability. Block 1 represents high priority requirements that have been assessed as technically feasible and affordable with minimum risk during SDD. Risk will be mitigated by ensuring that critical technologies required to implement the Block 1 capability are at a TRL 6 or higher prior to entry into production. This will be accomplished via an independent TRA, prepared by the Communications Electronics Command (CECOM) Research, Development, and Engineering Directorate (RDEC). The RDEC will also ensure that that contractor's architectures satisfy all Block 1 / 2 / 3 requirements and that the architecture and equipment design are flexible / expandable to allow for easy implementation of Blocks 2 and 3.

During the production proposal process, the Contractors' will be encouraged to utilize Cost as an Independent Variable (CAIV) concepts to provide maximum flexibility with

their proposed solution, while keeping the KPPs sacrosanct. The Government will evaluate the contractors' proposed solutions on the basis of cost effectiveness and correlation with the priorities.

For Block 2 upgrades, the MDA will authorize commencement of Block 2 development after a successful Milestone B Decision Review that considers in addition to standard development milestone criteria, the validated Block 2 requirement, and the Block 1 design. Block 2 development will consist of maturing the technologies needed to satisfy Block 2 requirements and the design and development of the Block 2 upgrade to the WIN-T system. The Acquisition Program Baseline (APB) for WIN-T will be updated in conjunction with the Block 2 Milestone B, with the parameters relating to Block 2. Authorization for Block 3 will be done in a similar manner, with appropriate entrance criteria to be determined.

It is anticipated that Block 2 and Block 3 development efforts will occur concurrent with production. The Production contractor will accomplish these development efforts on a cost reimbursable basis. Although Block 2 and Block 3 development activities are portrayed on the Program Schedule, the exact initiation and duration of these efforts will be defined at a later date; i.e. after the Block 1 system is baselined and the TRA for Block 2 and / or Block 3 has been completed. Similarly the point in time when Block 2 and Block 3 requirements will be introduced into the production baseline will be determined at a later date.

Each block will have a DT / OT event. The Block 2 technologies will be demonstrated in the test event associated with Block 2 Development. Criteria and authorization required to incorporate them into the Block 1 production baseline, via Engineering Change Proposal (ECP), will be determined no later than the time at which the PM receives authority to proceed with Block 2 Development. Subsequent decision points and decision criteria will be determined at the Block 1 Milestone C. Retrofit of prior units will be addressed based on user need, and economic considerations. It is anticipated that WIN-T units through Block 3 will be backward compatible, with any advances that preclude backward compatibility weighed against acquisition and operational considerations. Milestone C for Block 2 and 3 will be conducted approximately six months after DT / OT.

1.2.2 Program Structure

The WIN-T program structure is reflected in Figure 1-3. This integrated program schedule is intended to illustrate the inter-relationship of the blocked development and deployment approach. WIN-T and the JTRS are the communications transport and networking capabilities for the OF, including communications support to the FCS. WIN-T will serve as the integrating network supporting the maneuver UA, providing connectivity between UA, between UA and UE and providing connectivity and interoperability with the strategic portion of the Global Information Grid (GIG) and Joint and Allied communities. As such, WIN-T deployment will be essential for FCS deployment. However, due to the WIN-T missions of support to legacy systems and Theater level communications support, FCS deployment does not deter the fielding of WIN-Ts mission capabilities or ultimate deployment prior to FCS or to current force units that have not transformed to an OF structure. As each system

evolves, integration events and tests will be planned to ensure WIN-T and FCS compatibility. Figure 1-4 is a comparison of the program schedules that shows the linkages that support key FCS milestones.

1.2.3 Technology Insertion

The PM plans to manage a robust and disciplined Technology Insertion Program, implemented by the contractor, in an effort to keep new technology employed and avoid obsolescence. This is different than the Block Upgrades, which are Government directed and undertaken to increase system performance and/or satisfy requirements above and beyond those applicable to the fielded capability. Key to the Technology Insertion Program is the performance-based requirements of WIN-T. For example, the Government will specify a Video-Teleconferencing (VTC) capability as part of WIN-T, but not how to achieve that capability or which equipment is required, that is up to the contractor. The contractor is only required to meet the performance requirements identified in the ORD and comply with the JTA-A, standards established by the ICWG and Defense Information Infrastructure Common Operating Environment (DII-COE).

During the SDD, each contractor has complete control of its design and may evaluate new technologies, assess risks, and make trade-off decisions. The Government will be part of the process through periodic technical and programmatic reviews with each contractor. The ORD is the common requirements document for both contractors.

In production, the Government will exercise Configuration Management (CM) of major configuration items (e.g., end item systems) while allowing the contractor the flexibility to change lower level equipments. The contract will require the contractor to ensure, before implementing any technology insertion, that system performance is not degraded, and that the system, as changed, is backward compatible with all previous versions, and still satisfies all system requirements. The commercial marketplace has shown Information Technology (IT) equipments will provide improved performance with lower costs over time.

By specifying the performance constraints only, the production contract will allow the contractor the flexibility to make the best business decision as to when new technology is to be inserted. Resulting cost savings will mean increased profit for the contractor under the fixed-priced type of contract contemplated. This concept has been discussed with industry during one-on-one meetings, resulting in positive feedback. This strategy gives the contractors flexibility in their design approach, helps minimize the obsolescence issue for both the contractor and the Government, and provides the contractor with potential cost savings, which they would retain.

1.3 Program History and Decisions

The WIN-T ORD, previously approved by the JROC in December 2000, had been the basis for the Acquisition Strategy the Army submitted to Office of the Secretary of Defense

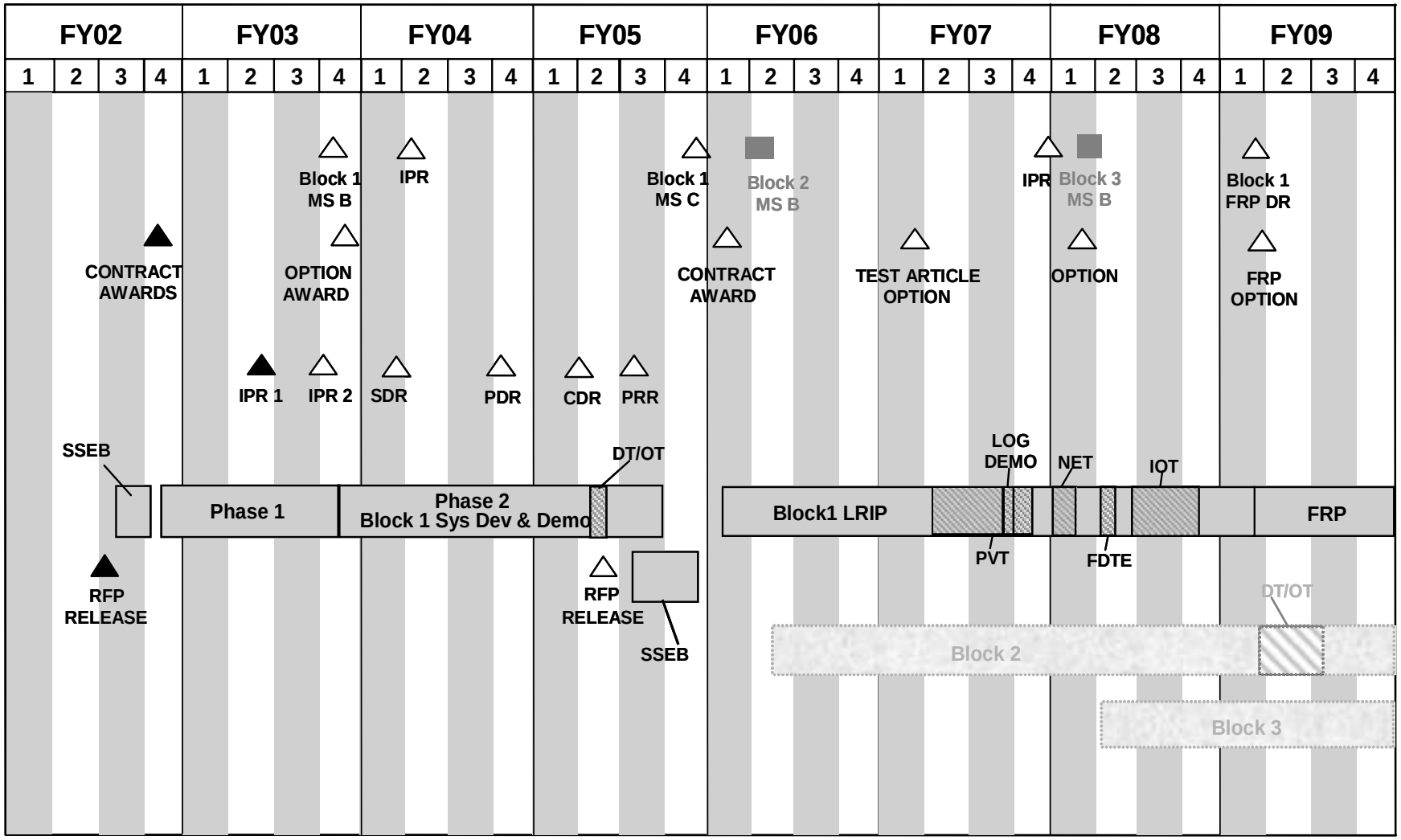


Figure 1-3. WIN-T Program Structure

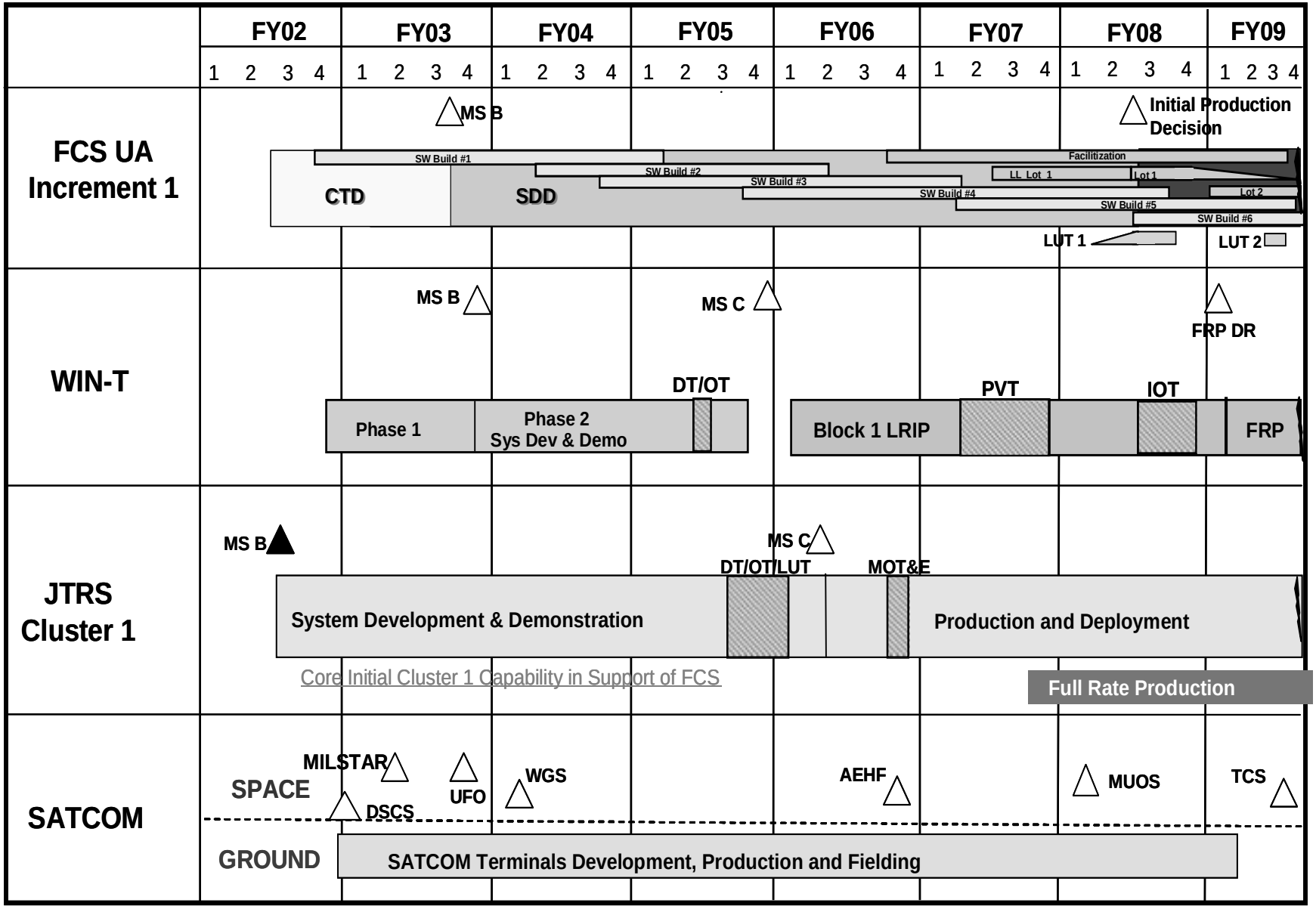


Figure 1-4. Program Schedule Alignment

(OSD) on January 16, 2002, to support a Milestone B decision planned for 3QFY02. In late January 2002, the Army rewrote the ORD to align WIN-T with the requirements of the OF. Substantive changes made to the ORD necessitated a set of pre-Milestone B activities to mature WIN-T requirements and control technical risk. As a result, the Army withdrew the Acquisition Strategy and prepared an Acquisition Concept Document. The revised acquisition approach, via an Acquisition Concept Document, was briefed to the Integrating Integrated Product Team (IIPT) members on March 27, 2002 and staffed to the Overarching Integrated Product Team (OIPT). On April 4, 2002, the PM briefed the OIPT on the WIN-T strategy for conducting pre-Milestone B activities. The OIPT took no issue with the plan. With the consensus of the OIPT principals, the OIPT chair expressed the intention of advising Under Secretary of Defense (USD) Acquisition, Technology, and Logistics (AT&L) of the key points of the briefing and that the Army was allowed, under the revised 5000-Series directives and instructions, to proceed without specific authorization up to the Milestone B point. As a result of the OIPT, PM WIN-T released the RFP on April 9, 2002.

On August 9, 2002, the Government awarded separate competitive CPFF contracts to General Dynamics C4 Systems and Lockheed Martin Mission Systems using Research, Development, Test, and Evaluation (RDT&E) funding. Each contractor will accomplish all Phase 1 efforts under the basic contract. We anticipate execution of a priced option for Phase 2 efforts on both contracts following a Milestone B Decision Review.

The AROC validated the revised WIN-T ORD on November 5, 2002. On April 2, 2003, the JROC approved the WIN-T ORD and validated the KPPs, via a Paper JROC.

WIN-T is a Pre-Major Defense Acquisition Program (Pre-MDAP). No Milestone Decision Reviews (MDRs) have yet been conducted.

1.3.1 Block 1 Milestone B Entrance Criteria

The WIN-T program will enter the acquisition life cycle at Milestone B, SDD. This is based on the PM's assessment of the criteria outlined in the Department of Defense (DoD) Interim Guidance, paragraph 3.6.2 of Attachment 2, Operation of the Defense Acquisition System. Entrance to the SDD phase depends on Technology Maturity, validated requirements, and funding.

a. Technology Maturity. As part of the Phase 1 efforts, the contractors are preparing initial WIN-T Architectures to address all KPPs, Block 1, Block 2, and Block 3 requirements as outlined in the WIN-T ORD. In addition, TRAs and Reports are being developed by the contractors to identify and document the maturity of all technologies involved in the contractor's approach with respect to technical, schedule and cost risk. An independent TRA is being prepared by the CECOM RDEC in support of the Milestone B Decision, followed by a series of these assessments, prior to each subsequent MDR. The TRA will be based on a review of the ORD, with particular emphasis placed on identification of critical technologies required

to meet the KPPs. For each critical technology, the TRA will determine the TRL on a scale of 1 to 9 based on the "form factor" and "test environment" in which the technology has been demonstrated. For technologies that are currently below a TRL of 6 a Technology Maturation Plan will be developed in support of the Milestone B program review to show how TRL 6 can be achieved before Milestone C. This strategy was presented to and concurred on by the Director of Army Science & Technology.

b. Validated Requirements. The AROC validated the revised WIN-T ORD on November 5, 2002. The JROC approved the WIN-T ORD and validated the KPPs, via a Paper JROC, on April 2, 2003.

c. Funding. The PM anticipates a fully funded Block 1 program.

1.3.2 Block 1 SDD Exit Criteria

The WIN-T system will meet the requirements of the SDD exit criteria, as outlined in Attachment 2, Operation of the Defense Acquisition System, paragraph 3.6.5.

a. Architecture is mature and meets the validated requirements. The use of M&S to demonstrate system integration will be critical during SDD to validate that the architecture can satisfy all Block 1 / 2 / 3 requirements and is sufficiently flexible / expandable to allow the system to evolve with the incorporation of Block 2 and 3 capabilities.

b. The System is demonstrated in its intended environment, using engineering development models or integrated commercial items / prototypes. The DT / OT will be used to demonstrate that all critical technologies, required to meet the Block 1 KPPs are mature to at least TRL 6. M&S results, contractor testing and DT / OT will be used to support this. Army Test and Evaluation Command (ATEC) will prepare a SER to support the Milestone C Decision.

c. Industrial capabilities are reasonably available to go into production. The RDEC will prepare an independent TRA in support of the Milestone C. In addition, the Government will conduct a Production Readiness Review to ensure that sufficient capability exists to produce the required quantities.

1.4 Technical Description and Functional Overview

WIN-T employs a combination of airborne, terrestrial, and space-based (military and commercial) network options to provide speedy, comprehensive, and protected Multiple Security Level (MSL) voice, data, and video coverage to warfighters. WIN-T will route information in the most operationally suitable and bandwidth-efficient manner possible. The WIN-T network will also have the capability to establish virtual dedicated paths, when needed, to support users with a need to exchange critical information on a near real-time basis (e.g., air defense, fire support, etc.) in a manner that protects the information from interception,

disruption or manipulation. WIN-T Block 1 system uses the following functional elements to achieve the capabilities outlined in this paragraph:

(1) Network Infrastructure: Provides integrated switching, routing, connectivity, and range extension for the network. Includes switching, routing and transmission equipment.

(2) NM: Provides the NM tools to plan, configure, monitor, and maintain WIN-T's infrastructure, IA systems, and user interface devices. Network managers will have the capability to remotely manage, configure, and monitor the Wide Area Network (WAN), Local Area Networks (LANs), and terminal devices throughout the UE / UA. The WIN-T Network Management System (NMS) will provide an interface to the JNMS and be able to host the JNMS software when supporting an Army Forces (ARFOR), Joint Force Land Component Command (JFLCC), or the Joint Task Force (JTF), Combined Joint Task Force (CJTF).

(3) IA: Provides end-to-end security consistent with the classification of information passed over the WIN-T network, by providing an integrated Defense in Depth approach that starts at the Defense Information Systems Network (DISN) and extends down to individual user devices. Certification and Accreditation (C&A) of the WIN-T system will follow the DoD Information Technology Security Certification and Accreditation Process (DITSCAP) in accordance with DoD Instruction 5200.40. A System Security Authorization Agreement (SSAA) will be prepared during the Definition, Verification, Validation and Post Accreditation phases of the project. IA capabilities will be embedded into system equipments to protect the WIN-T network. The IA capabilities provided by WIN-T will detect network attacks; provide immediate protection, and alert users and IA managers.

(4) Information Dissemination Management (IDM): Provides awareness of relevant, accurate information, automated access to newly discovered or recurring information, and timely, efficient delivery of that information based on the commander's priorities. IDM will work hand-in-hand with NM allowing the commander's dissemination policies to be executed while maintaining priority schemas established within specific Areas of Responsibility (AORs).

(5) User Interfaces: Provides terminal devices that will enable communications over the network infrastructure. Includes secure and non-secure wireline voice devices, and secure wireless voice / data devices.

1.4.1 System Functional Relationships

The functional relationships between the major subsystems of WIN-T are defined as follows:

The switching and routing subsystems work to supply user service and proper delivery of information (voice, data, or video) to the users' terminal devices, NM and IA subsystems.

The transmission subsystem interfaces with the switching / routing subsystems and with user devices to provide the means to transport information generated by each of the named subsystems. The NM subsystem interfaces with the switching / routing subsystem to configure, monitor, and manage the switching / routing subsystem, IA subsystem, and user interface devices. The IDM subsystem works with the NM subsystem to provide relevant information in a timely fashion. The IA subsystem also uses the switching / routing subsystem to report detection of network attacks, provide immediate protection, and alert users and IA managers.

The WIN-T System has the following relationships with these external systems and their interface standards:

Army Legacy Networks: The WIN-T System will support routing and termination / initiation of voice and data exchanges with the Army's legacy MSE and TRI-TAC networks.

DISN: The WIN-T System will support routing and termination / initiation of information exchange with the DISN and Defense Switched Network (DSN) voice, data, and VTC networks at all security levels when the WIN-T System is either remote or collocated with the DISN access point.

Joint Networks: The WIN-T System will be capable of the routing and termination / initiation of information with Air Force, Navy and Marine Corps networks. The WIN-T System will support a local interface (e.g., at the JTF), plus an over-the-air interface when interoperable point-to-point transmission systems are available.

Allied Networks: The WIN-T System will be capable of the routing and termination / initiation of voice and data information exchanges with Allied networks.

Commercial Networks: The WIN-T System will be capable of the routing and termination / initiation of voice and data information exchanges across U.S. Public Switched Telephone Network (PSTN) and other commercial networks. Required certification for use of the WIN-T System with commercial networks will be obtained.

2.0 PROGRAM MANAGEMENT

PM WIN-T has implemented Integrated Product and Process Management (IPPM) methodologies in managing the WIN-T program. The PM is optimizing the use of Integrated Product Teams (IPTs) in the planning and execution of the WIN-T program.

PM WIN-T has established multi-functional Working Integrated Product Teams (WIPTs) to provide structured forums to identify and prioritize program requirements, and to identify, discuss and resolve program issues. All requirements and issues are examined from a cross-functional perspective, to ensure that supportability, cost, schedule, and technical performance considerations are taken into account in program execution and planning.

All WIPTs include active participation by PM WIN-T, Program Executive Officer, Command, Control and Communications-Tactical (PEO C3T), the user community, as well as representatives from Headquarters, Department of the Army (HQDA) and the OSD.

PM WIN-T has established WIPTs for Acquisition, Cost, Test, Command, Control, Communications, Computers and Intelligence Support Plan (C4ISP), and MANPRINT Assessment / Manpower Estimate Report (MER). Additional WIPTs may be established in the future to address new or emerging issues.

The development contracts require each contractor to be responsible for establishing and maintaining an effective internal management and control system to ensure that appropriate contract goals and objectives are met, resources are safeguarded, laws and regulations are followed, and reliable data are obtained, maintained and fairly disclosed through compliance with applicable contract data requirements. The management system utilized by the contractor will provide for the capability to plan and control organization, schedule, cost, and technical performance, and to implement accurate progress reporting procedures and forecast potential results of alternate program actions.

Due to the competitive nature of the development efforts, the PMO has established internal controls for managing the two competing contractors. Competition is maintained within the contractual environment through the formulation of separate PMO teams to work with each contractor. Government direction to the contractors is provided via one Government central focal point, the Contracting Officer. Direct access to the contractor websites, procedures, etc., is limited to only those Government and support contractors working on that particular PMO / contractor team. In addition to signing non-disclosure agreements, all program participants were trained in methods to safeguard competition sensitive material.

Government support contractor personnel employed by WIN-T primes or subcontractors cannot be involved in the Milestone B process. All WIPT members have signed non-disclosure agreements.

2.1 Risk

PM WIN-T has established a formal risk management process to ensure that risks are captured as early as possible, effective mitigation plans are developed, and risks are controlled.

The WIN-T program risk strategy is to drive down uncertainties related to requirements, technologies, system design and approaches via targeted analyses and testing in Phases 1 and 2 of the program. Risk will be further reduced by maintaining competition through Phases 1 and 2, and by competitively awarding the Block 1 production contract. Phase 1 analyses will allow the PM to reduce uncertainties relative to the system architecture, system design and associated force structure and costs sufficiently to make the Milestone B Decision with acceptable risk. Phase 2 analyses, design reviews and DT / OT will allow the PM to further reduce uncertainty relative to contractor approaches, costs, technology risks and performance sufficiently to support a Milestone C LRIP Decision and award of a

production phase contract. The PM plans to reduce risk sufficiently to support a) fielding decision via technical reviews, extensive contractor PVT, Government IPR, Government Field Demonstration Testing and Evaluation (FDT&E), and IOT during the production phase. The PM considers the overall program risk before mitigation to be moderate. Mitigation efforts that are currently in place or planned reduce the overall program risk to low-moderate.

The following paragraphs describe significant risks in the technical, testability, programmatic and cost categories.

2.1.1 Technical Risk

The PM WIN-T acquisition approach is to use Commercial or Government Off-The-Shelf (COTS/GOTS) technologies wherever possible, but the PM recognizes that some relatively immature technologies might be needed to meet key program requirements. Technology risk is mitigated due to the blocked approach of the program and the use of Phases 1 and 2 to conduct detailed TRAs, define contractor approaches, conduct M&S analyses, and evaluate and test pertinent technologies. All of this will occur prior to the Milestone C Decision and production contract award. Overall, and in advance of the initial independent Government TRA, we consider the technology risk to be moderate prior to mitigation.

2.1.1.1 Mobile Throughput

Risk. WIN-T has the requirement in Block 1 to enable the warfighter to conduct decisive operations throughout the battlespace while in a tactical formation moving "cross-country" at 25 mph/256 kbps. This requirement has the most significant technical risk, since this capability has not yet been achieved in an operational system. The technologies related to mobile throughput, include tracking antennas and Mobile Adhoc Networking (MANET). These technologies required to provide high-bandwidth communications among moving units using a network with constantly changing network topology. This risk is considered moderate prior to mitigation.

Mitigation. The PM WIN-T contractors are leveraging Science and Technology (S&T) efforts such as the Mobile On-The-Move Survivable Adaptive Integrated Communications (MOSAIC) and Advanced Antenna Technology programs. Both contractors have on-going Independent Research and Development (IR&D) projects that are being used to mature associated technologies. Both contractors will conduct extensive M&S analyses during Phase 2 to ensure that the mobile network and throughput issues are understood, and that the proposed approaches are practical. Any related technologies that cannot be otherwise demonstrated to be mature will be evaluated during the Phase 2 DT/OT to reduce risk. After mitigation we expect this risk to be low to moderate.

2.1.1.2 Network Reliability

Risk. The WIN-T system has a Block 1 requirement to have network reliability of .98 in a static environment and .90 in a mobile environment. Network reliability will be affected

by, among other things, the degree of redundancy in the system and the environment in which the network is operating. For the latter, the mobile environment will be the most challenging in terms of reliability due to the constantly changing network topology, and the need for an airborne communications node and satellite links within the mobile network. The airborne communications node will require dedicated Unmanned Aerial Vehicles (UAVs) to assure reliable network connectivity. This risk is considered moderate prior to mitigation.

Mitigation. Both contractors have on-going IR&D projects that are being used to mature associated technologies. Both contractors will conduct extensive M&S analyses prior to the production phase to ensure that the mobile network and reliability issues are understood and the proposed approaches are practical. These efforts will include a dedicated network reliability model that will evaluate reliability at both the component and the network levels, and the ability to evaluate large networks at UE1, UE2 and UE3. Additionally, any related technologies that cannot be otherwise demonstrated to be mature prior to DT/OT will be evaluated during the Phase 2 DT/OT to assess maturity and to reduce risk. After mitigation we expect this risk to be low to moderate.

2.1.1.3 System Integration

Risk. The acquisition approach is to maximize the use COTS/GOTS technologies and products whenever possible. However, the integration of many diverse products is technically challenging and time consuming. The contractors must be able to effectively harmonize these products and create a user-friendly interface. If this is not properly accomplished, it will negatively impact the operational suitability of the system. This risk is considered moderate prior to mitigation.

Mitigation. WIN-T will utilize an open systems architecture that will provide industry standard interfaces between the many diverse products and will facilitate the integration of these products. The system as a whole is specified using performance-based criteria, meaning the contractor can update/upgrade subassembly and component-level design in response to market availability as long as the performance requirements for the end item are achieved. Both contractors will be providing documentation in the System Design Document (SDD) during Phase 2 defining which COTS/GOTS products will be used and the structure/flow of contractor-developed software. During SDD both contractors will be using Improved Performance Research Integration Tool (IMPRINT) MANPRINT modeling to provide assessments of the MANPRINT aspects of the system design analyzing crew workload, task performance and task allocation. For non-developed hardware and software, the contractors are providing Human Factors Engineering (HFE) evaluation criteria including operating procedures associated with the item; training time comparison; and compliance with HFE requirements. Also, the contractors will use HFE analysis data to simplify task performance requirements and reduce life cycle MANPRINT costs and will show how this data has influenced their design. After mitigation we expect this risk to be low to moderate.

2.1.2 Testability Risk

2.1.2.1 M&S Reliance

Risk. M&S is both risk mitigation and an area of risk. Done well, M&S allows us to evaluate the proposed architectures, design alternatives and extend test depth and capabilities with significant reductions in cost, schedule and uncertainty. However, if the models and simulations are not representative of the architecture / system, the results may lead to improper conclusions, or not provide confidence to support required decisions. The consequences of these results would be a delay in schedule and the potential to add cost. This risk is considered to be moderate prior to mitigation.

Mitigation. Both the contractors and the Government will conduct extensive verification and validation (V&V) of models and simulations throughout the program. Contractors are required to initially develop formal V&V plans during Phase 1. Core simulations will be based on common and accepted simulation environments (OPNET and AweSim!), using standard modules wherever applicable. Ongoing risk assessment and mitigation planning will be a part of the M&S effort. Development of the models and simulations will be incremental, with code validation and protocol evaluation conducted on each module as it is delivered. As the architectures and system design matures, the Government will validate the models against prototype and similar legacy systems and small hardware networks. Prior to the production contract, the Government will validate models against the actual network used during DT / OT. After mitigation we expect this risk to be low to moderate.

2.1.2.2 Representative Networks for Testing

Risk. Operational WIN-T networks may be very large or small, and will operate in many environments (urban, mountain, forest, etc.), each of which will pose unique challenges. The network will be self-forming and self-healing, and therefore will have an indeterminate number of possible network topologies. Developing a test network that adequately represents these conditions will be challenging. If the test network is not representative, the decisions based on test results may not be appropriate. This risk is considered to be moderate.

Mitigation. Detailed test plans will be developed to ensure that the test program is properly scoped and resourced to support required testing. The Test Working Integrated Product Team (TWIPT) will continue with detailed test planning throughout development. Potential issues relative to testing will be identified through early M&S of mobile networks. The contractor will be required to develop and test a network that is as representative as possible, given cost and schedule constraints. The Government will augment testing with Government conducted testing to evaluate circumstances that are difficult for contractors to duplicate. M&S, based upon an anticipated OF scenario, will be used to augment testing. After mitigation we expect this risk to be low to moderate.

2.1.3 Programmatic Risks

2.1.3.1 Program Dependencies

Risk. The WIN-T system has to interact with, support or leverage the capabilities of several other programs including, but not limited to FCS and JTRS. Changes in some of these programs, or not having those systems available for use as currently scheduled may drive changes within WIN-T, with potential cost and schedule consequences. Overall we rate program dependencies to be a moderate risk prior to mitigation.

Mitigation. WIN-T is working proactively with other program offices to address potential schedule and interface issues. Certain interfaces with related programs are being defined and placed under configuration management via the ICWG that has membership from all OF stakeholders including FCS, JTRS and WIN-T. Other interfaces not addressed by the ICWG are being coordinated closely between WIN-T and the applicable program office. After mitigation we expect program dependencies to remain moderate.

2.1.3.2 FCS

Risk. WIN-T is fully synchronized with FCS and their requirements for the UA, but WIN-T is not dependent on FCS in order to successfully support Army communication requirements. While FCS is dependent on WIN-T to provide certain network components at the UA, WIN-T is not dependent on FCS for any aspects of the UE architecture. WIN-T could be fully fielded to the current force or to UE elements of the OF independent of FCS. This risk is considered low.

Mitigation. The WIN-T system has synchronized with FCS, but can be fielded successfully independent of FCS.

2.1.3.3 JTRS Wideband Network Waveform (WNW)

Risk. WIN-T will use JTRS WNW as an element of the WIN-T architecture. Since the JTRS Cluster 1, including WNW is currently in development, there is some risk that it may not be available in time or mature enough to support the initial WIN-T testing and fielding. This risk, prior to mitigation is considered moderate based upon the JTRS program office risk assessment.

Mitigation. The WIN-T architecture provides for multiple, redundant transmission capabilities including terrestrial, airborne and space layers. The network redundancies inherently mitigate the risk of relying solely on JTRS WNW for functionality. Additionally, both contractors have contingency plans in place to use currently available, albeit less capable radio platforms if the JTRS WNW is not available on time. After mitigation we expect this risk to be low to moderate.

2.1.3.4 Airborne Platforms

Risk. The WIN-T architecture is dependent upon installation of an Airborne Communication Node (ACN) on dedicated airborne platforms to achieve reliability, connectivity, reach and mobile throughput. There are currently no UAVs in the Army inventory that have been earmarked for a dedicated communications capability. If these airborne platforms are not available for WIN-T use the system will have degraded performance. This risk is considered moderate to high prior to mitigation.

Mitigation. PM WIN-T has coordinated with the Army user community to add dedicated communications payload requirements into the Extended Range / Multi-purpose (ER / MP) UAV ORD. These new UAV platforms will be available for use within the WIN-T architecture. Additionally, the contractors are actively identifying the types and quantities of all potential UAV platforms that can provide the airborne layer of the WIN-T architecture. PM WIN-T will coordinate with UAV PMs as specific needs are identified. After mitigation we expect this risk to be moderate.

2.1.3.5 OF Maturity

Risk. OF concepts and force structure are still evolving. The OF structure defines the number of UEs and UAs, as well as their operational concepts. Uncertainties based on the evolution of the OF include the quantity, function and interface characteristics of WIN-T units to be produced / fielded could have significant impacts on LCC and program schedule. This risk is considered to be moderate.

Mitigation. Baseline assumptions have been made to develop the WIN-T system and a WIN-T LCCE. Mitigation steps in place include the contract requirement for contractor coordination with other OF contractors and PM configuration management efforts through the ICWG where agreement is reached on all OF interface requirements. A Lead Systems Integrator (LSI) tiger team has been established to coordinate architectural issues between the FCS program, WIN-T and JTRS. Additionally, the PM will impose an operational requirements freeze at CDR to prevent “requirements creep” from negatively impacting the program. After mitigation we expect this risk to be low to moderate.

2.1.3.6 Schedule Risk

Risk. The program timeline between LRIP award and initiation of testis aggressive. During this time, all aspects of the program must reach final maturity to include associated logistics and training and the full complement of units delivered for testing. The overall schedule risk is considered to be moderate.

Mitigation. The program itself is designed to mitigate top-level risks. Phase 1 reduces uncertainty by allowing time for finalizing requirements blocking, and by maturing the contractor architectures, approaches and supporting analyses. Phase 2 provides time to explore contractor approaches through detailed technical reviews and analysis, to develop

Government and contractor test and M&S plans, and to conduct DT/OT to demonstrate required technology maturity. Prior to procuring LRIP systems/equipment, an Army IPR will be conducted in FY07 to ensure the systems/equipment procured for PVT were successfully tested and demonstrated. Proactive Government program management using monthly Cost/Schedule Status Reports (C/SSR), contractor risk management databases and information provided at the Technical Interface Meetings (TIMs) will help to prevent a breach in the program schedule. While the program structure and management practices will assist in management of this schedule risk, the overall schedule risk will remain moderate.

2.1.3.7 Unknown Policy Changes and Certification Risk

Risk. There is a risk associated with the potential for new test requirements resulting from policy changes and certification requirements affecting C4ISR. As part of the WIN-T test process, the program will undergo various certification testing, such as Joint Interoperability Certification, Intra-Army Certification, Security Accreditation and Network Worthiness. However, broader decisions associated with transformational communications, such as Software Communication Architecture (SCA) related requirements are not clearly understood at this point. These unknown requirements have the potential to increase program scope and certification requirements that may impact program schedule and cost. This risk is considered to be moderate.

Mitigation. The PM will continue to work closely with the contractors and test community to identify and coordinate any new certification guidance received, and to assess and mitigate risks which may impact cost and schedule. While the program structure and PM risk management practices will assist in management of this unknown risk, the overall risk will remain moderate.

2.1.4 Cost Risk

2.1.4.1 Development Contract Cost

Risk. Phase 1 and Phase 2 contracts are CPFF, which places all the cost risk on the Government. We consider this risk low.

Mitigation. Each contractor will be motivated to control costs and stay on schedule due to the upcoming competition for the WIN-T production contract. Performance during Phase 1 and Phase 2 will be considered in the source selection evaluation leading to the selection of the single WIN-T production contractor and award of the Production contract. Both contractors are required to provide the Government LCCEs with CAIV Analysis and monthly C/SSRs. During Phase 1 the contractors are developing CAIV goals and will show how each cost driver will be reduced during Phase 2. We expect this risk to remain low.

2.1.4.2 Production Cost Risk

Risk. Estimates of production costs may not be accurate prior to SDD. We consider this risk to be moderate prior to mitigation.

Mitigation. As the architectures and OF concepts and requirements are matured, the production costs estimates will become more accurate. Cost is considered a design constraint and a management discipline throughout the acquisition and operation life of the WIN-T system. The fact that the contractors are in a competitive state and their performance during phase 1 and phase 2 is a factor in the production source selection is an incentive to control costs. During Phase 2 the contractors will use CAIV targets and tradeoffs to develop LCCEs that the production award will be based upon. The production contract will be FPIF, which balances the cost risk between the Government and the contractor and provides positive incentive for effective cost control and performance. After mitigation, we expect this risk to be low to moderate.

2.2 Milestones for the Acquisition Cycle

The following acquisition milestones support the contract award for Pre-Milestone B and Option award for SDD.

MILESTONE	DATE
Acquisition Plan Approved	January 2002
OIPT concurred on the Acquisition Concept Document	4 April 2002
PM WIN-T released Request for Proposal	9 April 2002
Dual Contracts awarded for Pre-Milestone B efforts	9 August 2002
Acquisition Strategy Approved	*June 2003
Block 1 Milestone B Decision authorizing entry into SDD Phase	*July 2003
Block 1 SDD Option Award	*August 2003

Note: * Represents forecasted dates.

2.3 Resources

The following table reflects the WIN-T Block 1 funding requirements in the Future Year Defense Plan (FYDP). Detailed LCCEs are being developed to support the Milestone B Decision Review and will be documented in the Army Cost Position (ACP). No long lead-time procurement is contemplated, so no Advance Procurement funds are required.

RDT&E (in $M)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Block 1 Required	12.1	48.6	92.1	85.6	19.2	17.2	19.9	2.0
OPA ($in M)	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**
Block 1 Required	0	0	0	0	346.7	142.1	304.4	339.0

2.4 Tailoring and Streamlining Plans

The WIN-T program will incorporate acquisition streamlining as a management practice throughout all phases of the acquisition cycle. The objectives of acquisition streamlining are to reduce time and cost, and to improve the quality of system acquisition.

WIN-T contracts will include Defense Federal Acquisition Regulation Supplement (DFARS) clause 252.211-7000, "Acquisition Streamlining," which require the contractor to submit a streamlining recommendations, in accordance with the contract Statement of Work (SOW) and Contract Data Requirements List (CDRL) for Government approval.

2.4.1 Use of Performance-Based Contract Requirements

PM WIN-T has defined contract requirements for Phases 1 and 2 in performance terms, and plans to do so for production. These performance capabilities are defined in the WIN-T ORD. This approach provides for the acquisition of a system capability rather than a hardware / software solution. During Phase 1 and Phase 2, each contractor has complete control of its design and may evaluate new technologies, assess risks, and make trade-off decisions. The Government will be part of the process through periodic technical and programmatic reviews with each contractor. During Phase 1, the contractor is only required to meet the performance requirements identified in the ORD and comply with the JTA-A, standards established by the ICWG and the DII-COE. The contractors' technical BRD will serve as the contractor baseline for Phase 2.

2.4.2 Government Furnished Equipment (GFE)/Government Furnished Software (GFS)

The Government does not envision the utilization of GFE / GFS during the performance of the WIN-T contract. Any request for GFE / Government Furnished Property (GFP) by the contractors will be evaluated by the Government on a case-by case basis. This will reduce program and schedule risk incurred by the Government, thereby allowing the contractors to choose the appropriate solutions for their design, and ensuring that the contractors maintain responsibility for the program schedule.

2.4.3 Applying Best Practices

The Government will avoid imposing Government-unique standards or restrictions, and encourage WIN-T Contractors and contractors to incorporate performance and process plans into their respective proposals and contracts that reflect best practices. Best Practices will continue to be applied throughout the development, LRIP, and FRP phases.

2.4.4 CAIV

The WIN-T Program will be using CAIV throughout the acquisition process development, production, and sustainment) to achieve a balance between LCC, acceptable performance, and a feasible schedule within acceptable risk. The PM will actively employ the

CAIV process from the outset to control Total Ownership Costs (TOC) and monitor cost performance tradeoffs through the IPT process.

Cost is considered a design constraint during the WIN-T pre-Milestone B activities (Phase 1) and SDD (Phase 2), and a management discipline throughout the acquisition and operational life of the WIN-T System. The Government has provided initial CAIV targets in the form of a yearly funding profile for Phase 1 and Phase 2. However, the Production and Operation and Maintenance (O&M) CAIV targets will be driven by the competitive architectures developed and demonstrated during Phase 1 and Phase 2. Additionally, CAIV production targets will reflect blocking strategies consistent with evolutionary acquisition and spiral development of WIN-T capabilities.

During Phase 1, the contractors will develop a LCCE and derive their CAIV goals for all phases of the equipment life cycle. Each contractor's LCCE will serve as a baseline to analyze the cost impacts of the design / requirements trade-offs selected through the contractor's CAIV strategy. The contractors are required to submit and address the methodologies used to develop the costs. The CAIV strategy demonstrated must include cost goals (i.e. rollaway, weapon system, procurement, program acquisition, operating and support and / or LCCs) and a methodology to accept or demonstrate credit for reductions to the established baselines.

These LCCEs will be updated periodically in Phase 1 and Phase 2. CAIV targets approved at Milestone B will be provided at the Phase 2 option award. During Phase 2, the contractor will provide a traceable lot average Weapon System Unit Cost (WSUC) comparison of their current production estimate to the targets provided.

2.4.4.1 Cost/Schedule/Performance Trade-Offs

The Government encourages cost-effective, innovative solutions that enhance total system performance and supportability for the OF during peacetime and wartime operations. It is recognized that the best time to reduce TOC and program schedule is early in the acquisition process; the ability to make substantive changes decreases as the design matures.

CAIV will be used to identify TOC and risk impacts from design and sustainment trade studies. Beginning in Phase 1 and throughout program execution, continuous cost / schedule / performance trade-off analyses will be used to help the PM accomplish cost and schedule reductions; analyses will be broad enough to ensure that all costs are considered during the early decisions on system design alternatives. Such trades will provide PM WIN-T the opportunity to make changes (e.g., adjust the program schedules, re-block requirements).

PM WIN-T will evaluate cost, schedule, and performance (programmatic and technical) risks throughout the life of the program. CAIV will be used to maximize technical performance of the system while achieving the CAIV Production WSUC Target and minimizing the future Operation and Support (O&S) costs. Production and O&S costs will also be considered during CAIV analysis. During Phase 2, the contractors will provide a traceable lot average WSUC

comparison of their current Production estimate to the CAIV target provided at Phase 2 option award. The contractors will also provide the O&S cost implications of any cost-performance trades. The unit cost represents all contract costs required to procure the WIN-T system. The contractors will identify the top Production and O&S Cost Drivers for their WIN-T system (hardware, software, and force structure), as well as software license costs. Each contractor will provide a narrative description of the contractor's design and maintenance concept and focus on how each cost driver will be reduced during Phase 2 and Production contracts. The contractor will also provide the assumptions, methodologies, performance trades, and supporting rationale for establishing and achieving the proposed WSUC goals.

The PM and the User community will jointly coordinate all trade-off decisions. These will be presented in an IPT forum that will include proper representation from the business management, technical, logistics, and the User working teams. The technical members will do a full analysis of the contractor's proposed solution and determine the feasibility of the approach. After the PM reviews the information provided and decides whether or not the cost / performance trade is appropriate, the PM will inform the contractor and give direction to the contractor on how to proceed.

During Production, the contractor is responsible for notifying the Government when CAIV targets cannot be met and recommending courses of action. If, at any time, the CAIV current estimate exceeds the CAIV target, the contractor will provide alternatives and recommendations for potential tradeoffs, explain how these tradeoffs were derived, and identify the impacts on technical performance, the WSUC and the O&S costs. A well-defined audit trail of key decisions related to the CAIV targets will be maintained.

2.4.5 Early Industry Involvement

The PM has maintained continuous and open dialogue with industry since WIN-T program inception. The PM has proactively solicited input from industry regarding WIN-T requirements and the feasibility of achieving technical and program objectives in the timeframe required. Additionally, the PM has sought to assess industry's ability to develop, integrate and produce WIN-T technologies. Through the use of Industry Forums, and one-on-one meetings with industry, PM WIN-T has utilized early industry involvement to the maximum extent practical.

2.4.6 Integrated Product Teams

In January 2001, the PM established an IIPT to assist in formulating and articulating WIN-T program objectives, priorities and plans. This IIPT, which is comprised of representatives from the User Community, the PMO, PEO, Department of the Army (DA), and OSD, convenes as needed, to gauge the progress of the review effort, and to assist the PM in identifying and resolving issues.

In addition to the IIPT, the PM has also established various WIPTs. These WIPTs, which are comprised of representatives from the User Community, PMO, PEO, DA, OSD, and

other Agencies, analyze cost, acquisition strategy, test, and readiness concerns. They are working both individually and collectively to structure an affordable and executable program. The output of these WIPTs is the MDR documentation.

Representatives from the PM's team chair the WIPTs. The WIPTs convene on an as needed basis to review program status, formulate strategies for achieving program objectives, and resolve issues. All WIPT members are expected to be empowered, to speak and act on behalf of their organization, and are directly responsible for ensuring that their leadership is kept informed of program progress and developments. Any issues, that cannot be resolved in the WIPT forum, are elevated to the IIPT for discussion and the PM's resolution. If the IIPT is unable to resolve the issue, it will be referred to the OIPT, and if the issue has not been resolved, the MDA.

During the Development and Production contracts, regularly scheduled Program / Technical Interchange Meetings (P / TIMs) will be held. Additional meetings will be conducted as required at the call of the Government or the contractor, to include meetings with other Government agencies and Government program offices and their contractors. During Phase 1 and Phase 2, the contractors are required to establish a dialogue between the FCS LSI and other OF contractors. In addition, an ICWG was established, with contractor participation, to develop interim interoperability standards for information transport for OF Systems. This working group is co-chaired by the CIO / G6, PM WIN-T, and PM UA Networks. Membership includes all OF stakeholders and their industry teams. The purpose of this working group is to address information dissemination standards that affect interoperability between programs, to ensure seamless communications for voice, data and multimedia.

2.4.7 Information Sharing and DoD Oversight

Contract administrative offices, contracting offices, and PMOs will perform the oversight functions necessary to assure the accomplishment of the program, implementation of this acquisition strategy, and effective administration of the contracts awarded to acquire WIN-T capability. All information required to perform each agency's function will be shared with due consideration given to security of classified data, the proprietary rights of the contractor and subcontractors and the sensitivity of certain data pursuant to a competitive acquisition / source selection. Information concerning the results of reviews and audits assessing the contractors performance and the contractor's operations and systems will be shared by the PM, CECOM Acquisition Center and Defense Contract Management Agency (DCMA). Each document or contract deliverable is clearly marked "Competition Sensitive." Only those individuals who have signed the Non-Disclosure Agreements are permitted access to this information.

2.4.7.1 Integrated Digital Environment (IDE)

With the exception of classified data and some tractions of signed forms, all information exchanges among contractors, PM WIN-T and Government partners are performed using

electronic data interchange. PM WIN-T utilizes the PEO C3T Knowledge Center as an enterprise wide IDE. Quickplace rooms have been established to facilitate and enable a successful MDR process. Quickplace is a password protected web-enabled IDE that resides behind a firewall and is accessible to all registered users. It is comprised of information databases and applications for accessing, managing and sharing of information, project collaboration and other use defined by the community it serves.

All contract deliverables, including competition sensitive information, will be exchanged via a contractor website specified by the contractor. Classified information will not be transmitted electronically.

2.4.7.2 Technical Representatives at Contractors Facilities

There are no plans at this time for the program office to station its own representatives at either contractor facility. A Memorandum of Agreement (MOA) will be signed between PM WIN-T and the Commander of the DCMA in Phase 2 and Production. This memo will define the roles and responsibilities of DCMA representatives in support of the WIN-T program and the monitoring and control functions required at contractor facilities. These functions include, but are not limited to: quality assurance, property management, Communications Security (COMSEC) bonding, V&V of repairs and inventory, and in-plant acceptance. The scope of these duties is outlined in Federal Acquisition Regulation (FAR) 42.302, entitled *Contract Administration Functions*, but will be tailored for each contract.

2.5 Program Office Staffing and Support Contractors

The PM is adequately staffed with core, matrix and support contractor personnel to support the program as outlined on the program schedule. Examples of personnel supporting the program include management, engineers, program analysts, cost analysts, budget analysts, test engineers, and logistics specialists. All support contractors have been subjected to a rigorous evaluation process to ensure that no actual or potential conflict of interest exists. In addition, all support contractors have signed non-disclosure agreements prior to working this effort.

2.6 Request for Relief or Exemption

There are no requests for relief or exemptions from acquisition process requirements currently planned for this effort.

3.0 OPEN SYSTEMS ARCHITECTURE

3.1 System Design

The WIN-T design will evolve using performance-based specifications and open systems design. Conformance with the JTA-A will be required in the contractors' system architecture. Using open system design, the WIN-T production contractor can update / upgrade subas-

sembly and component level design in response to market availability as long as the performance requirements for the end item are achieved.

3.2 Interoperability

As the tactical deployed communications network for the Army, and potentially Joint Force Commander, WIN-T will interoperate with the entire spectrum of U.S., coalition military and commercial networks and systems. As a KPP, applicable to Block 1 in the WIN-T ORD, the network will interoperate with service-specific, Joint, and U.S. commercial networks (critical IERs as defined in the ORD). The WIN-T system will interoperate with strategic/sustaining base, joint, other Service, U.S. commercial, North Atlantic Treaty Organization (NATO) and Allied systems and networks that operate at the Sensitive But Unclassified (SBU) level. WIN-T will interface with networks directly at the appropriate security level (SBU, UNCLAS Allied, UNCLAS NATO, and Top Secret/Special Compartmental Information (TS/SCI)).

To achieve this interoperability, the ORD requires WIN-T's elements to be modular in design, scaleable to users' requirements, and capable of adapting to the evolution of the fight. The WIN-T requirements are blocked to provide for the timely upgrade of system capabilities. The strategy also includes a technology insertion program. This allows the Army to keep pace with changing commercial technology and maintain required interoperability with other JTA-A and commercial standards-based networks. The objective is to routinely place state-of-the-art technologies and their enabling capabilities into the hands of the warfighters.

3.2.1 IT Interoperability

WIN-T is comprised of network infrastructure (integrated switching, routing, and transmission systems), NM, network services, IA, and user interfaces that provide voice, video, and data services throughout the battlespace. Specific interoperability IERs are identified in the WIN-T ORD. These IERs identify the elements of warfighter information used in support of a particular activity and between any two activities. IERs are used as the primary basis and measure for system interoperability in defining Interoperability KPP threshold and objective requirements. These IERs are limited to only the top-level requirements that identify the informational needs for the system to support the interoperability requirement.

WIN-T replaces all Army legacy TRI-TAC and MSE switch, transmission, Radio Access Unit (RAU), and Mobile Subscriber Radio Telephone (MSRT) equipment, as well as transport of TS/SCI information previously supported by TROJAN SPIRIT, with modernized, state-of-the-art equipment. During the transition the user must be able to exchange information between WIN-T and legacy area common user systems. An interface is required to support the exchange of information between units supported by WIN-T and units still supported by the legacy systems.

3.2.2 Interoperability Certification

Joint Interoperability certification will be obtained from the Joint Interoperability Test Center and Intra-Army Interoperability Certification will be obtained from the Central Test Support Facility prior to fielding of the system.

3.2.3 Other than IT Interoperability

All components of WIN-T will be required to be mutually compatible with other electric or electronic equipment within the system's expected operational electromagnetic environment. All spectrum dependent equipment and all WIN-T emitters must have a frequency supportability assessment conducted and conform to the frequency spectrum certified for Army use worldwide. WIN-T component design must include consideration for mitigation of co-site interference with other Army equipment operating in the same frequency range(s) and close proximity.

The WIN-T system will use National Imagery and Mapping Agency (NIMA), and Digital Topographic Data joint service mapping standards to ensure interoperability with other systems. Geographic mapping and gridding functions will be based on, but not limited to, Universal Transverse Mercator and latitude / longitude coordinates referred to by the World Geodetic System (WGS-84), and be compatible with existing and future Global Positioning Systems (GPS) receivers.

3.2.4 WIN-T and JTRS Strategy

WIN-T will provide the Army's tactical integrated communications network to include a variety of transmission systems, e.g. terrestrial, satellite, and airborne. WIN-T will use the JTRS WNW as a part of its overall communications architecture and integrated NMS.

The WIN-T System will be a performance-based, turnkey solution. The complete solution will include multiple types of transmission systems (both terrestrial and satellite). Multiple systems will be needed to satisfy the bandwidth, mobility, range, and threat requirements for different users. The JTRS WNW will be utilized as a terrestrial networking radio for the WIN-T system. The WIN-T contractor will augment communications at these echelons with other transmission systems that he selects, such as On the Move (OTM) satellite terminals and wireless LAN.

3.2.5 Protection of Critical Program Information (CPI) and Anti-Tamper Provisions

A Program Protection Plan (PPP) is being prepared to support the Milestone B Decision. However, due to the duration of preparation and approval process, the PPP will not be approved until after the Milestone B. The PPP will be maintained and updated for the LRIP Milestone C Decision. The PPP will contain CPI that will describe how the un-authorized disclosure of that CPI would allow a foreign interest to:

(a) Disrupt, degrade, defeat or destroy the WIN-T system on the battlefield; or
(b) copy the WIN-T system; or
(c) cause the U.S. Army to perform major modifications in order to maintain it's strategic or tactical advantage.

Anti-Tamper techniques will be implemented in WIN-T to prevent or delay exploitation of essential or critical technologies, which, if compromised, would degrade, alter, or defeat the mission of the WIN-T system.

3.2.6 Security Considerations

3.2.6.1 DD-254

A DD Form 254, "Department of Defense (DoD) Contract Security Classification Specification" has been prepared for each of the Phase 1 and Phase 2 SDD Contracts. DD Form 254 with its attachments, supplements, appendages, and incorporated references is the only authorized means for providing security classification guidance to the contractor in connection with a classified contract. Top Secret Collateral work will be performed at the contractor's facility or at Government locations. This contract requires access to No Foreign (NF) Sensitive Compartmented Information (SCI). It is anticipated that the WIN-T contractor will require access to SCI-cleared meeting facilities, access to data related to the communications and encryption of SCI materials, and access to the design and operation of tactically deployed SCI enclaves. The contract personnel may need to attend Top Secret meetings and to access Top Secret collateral information during the contract. Therefore contact performance will entail utilizing information classified as Top Secret NF.

3.2.6.2 Security Classification Guide (SCG)

A SCG for the WIN-T was prepared and approved on 31 May 2002, by the Chief, Security Support Team Deputy Chief of Staff of Intelligence. The WIN-T SCG provides instructions and guidance on the security classification of information and material pertaining to the WIN-T System. The WIN-T SCG was prepared in accordance with the Army Regulation (AR) 380-5. The WIN-T SCG constitutes authority and may be cited as the basis for classification, regarding, or declassification of information concerning WIN-T.

3.2.6.3 System Threat Assessment Report (STAR)

A STAR has been prepared and reviewed by members of the Deputy Chief of Staff for Intelligence (DCSINT), the Threat Integrated Support Office (TISO), the Threat Coordinating Group (TCG), and the Defense Intelligence Agency (DIA). The WIN-T STAR was validated on March 5, 2003.

3.2.7 WIN-T C4ISP Approach

PM WIN-T is developing a WIN-T C4ISP for the Milestone B Decision Review. This document incorporates the two competing contractors C4ISPs, based on their unique system designs. This competition sensitive version will be provided to OSD and CIO/G6 for distribution to all applicable organizations for review in accordance with OSD and CIO/G6 review cycle requirements. All current C4ISP interoperability, supportability, and interface requirements are being included in the WIN-T C4ISP Milestone B version. The WIN-T C4ISP is a living document (as are all C4ISPs by definition) and PM WIN-T will update the WIN-T C4ISP as requirements and concepts of operations evolve.

4.0 TEST AND EVALUATION (T&E)

4.1 M&S

Contractors will apply Simulation and Modeling for Acquisition, Requirements and Training (SMART) concepts to all applicable facets and phases of the WIN-T system acquisition. Contractors will utilize M&S technologies to reduce system design, development, and fielding times; to assess logistics support, training, and fielding concepts; to reduce TOC and to perform cost/performance tradeoffs; to assess and mitigate technical risks; and to aid in threat assessment and mission area analysis. M&S is to include, but not be limited to, OPNET models and simulation runs. Contractors will choose other simulation packages and techniques, as required.

M&S will save development costs by allowing the Government and contractors to make engineering decisions based on validated models, versus having to perform manpower-intensive and costly live testing. Once capabilities have been implemented, test data is used to correlate the results derived from the models to ensure that functions were implemented correctly in the system as well as modeled properly. During the SDD efforts, each contractor will develop and deliver an OPNET model for the contractor's WIN-T architecture and system design, along with any supporting contractor-developed code. The model will be used as an integral part of the SDD contract to evaluate potential technical risks associated with the contractor's design, to perform cost/performance tradeoffs, and to refine system design. The contractors will provide the Government rights to the OPNET model as specified in the contract. Contractors will review the status of the OPNET model development at P/TIMs and design reviews as required.

The contractors will verify and validate new models in the laboratory and will deliver empirical data for each model that is verified and validated. The contractors will also use in-plant tests and DT/OT results to validate the OPNET model. The Government will conduct an independent V&V to minimize the risk of erroneous simulation results from inaccurate models. Prior to the use of M&S to support testing, all M&S will be accredited by ATEC. A risk of implementing this modeling approach surfaces when validating the full WIN-T model without actually building and fielding the entire system itself. The lack of experimental data from a complete WIN-T system, together with the amount of data

required to validate such a large and complex system, dictates a modeling strategy that embeds appropriate evaluation procedures as well as risk mitigation planning. By appropriately evaluating the models at different stages, and by early planning to avoid unwanted model behavior, it is possible to create a model of the entire system with a high level of confidence, without actually validating it against the actual fielded system.

4.2 Test and Evaluation Strategy

4.2.1.1 SDD

During SDD, each contractor will be required to design and use an OPNET model to guide in the development of the contractor's architecture. M&S and engineering tests will be used to prove out and assess the design and architecture. The Government will conduct an independent V&V to the models and ATEC will accredit the model. Each contractor will be required to demonstrate that technical risk has been minimized. Upon completion of the contractor's design, the contractor will present prototypes to the Government for a DT / OT. The contractor will provide support to the Government-conducted DT / OT. The DT / OT will demonstrate performance of the prototype system. Data from the DT / OT, M&S, and the Engineering tests, will be used by the ATEC System Team (AST) to prepare a System Assessment for each contractor. The AST System Assessment will be used to support a Milestone C Production Decision Review. The Government's test data will be available to the contractor to allow the opportunity for the contractor to address the DT / OT deficiencies in their proposals.

4.2.1.2 LRIP

After the Milestone C Decision, and production contract award, a comprehensive program based upon Government approved test plans and procedures will be conducted. Contractor testing will be required to verify specification compliance and uncover deficiencies at the system level, to ensure that technical risks have been minimized. PVT, will assess technical compliance to all ORD requirements, and will provide the Government and contractor with feedback on overall system performance. During the PVT, the system will be deployed in a representative network to provide technical data in support of the FRP decision and to mitigate the risk of proceeding to IOT. Operational Test and Evaluation (OT&E) will measure operational effectiveness and suitability of the WIN-T system under realistic (field) conditions. OT&E will determine, as a minimum, whether the KPPs as specified in the ORD have been met. An IOT will be conducted by ATEC to evaluate system performance against the Critical Operational Issues and Criteria (COIC) and evaluate the systems readiness to proceed to FRP. Joint Interoperability testing and Intra Army interoperability certification testing will be performed by the Joint Interoperability Test Command (JITC) and Central Technical Support Facility (CTSF) in concert with the ATEC.

4.2.1.3 FRP

During FRP, acceptance testing and periodic reliability testing of Block 1 equipment will be conducted to verify the continued acceptability and reliability of the WIN-T system.

Block 2 and Block 3 capabilities will be integrated into the FRP baseline as technologies mature. A test program will be implemented to verify that all Block 2 and Block 3 capabilities integrated into the production baseline have been adequately tested prior to fielding. The extent of testing required for incremental software upgrades will be determined in accordance with (IAW) the Developmental Operational Test and Evaluation (DOT&E) Memorandum, Subject: Guidelines for Conducting Follow On Testing and Evaluation (FOT&E) for Software-Intensive System Increments, dated 10 October, 1996. Future upgrades will be supportive and consistent with the Army Software Blocking Policy, dated 18 September 2001. The test program will include additional PVT of changes, and may include a DT / OT event if appropriate. Test program requirements will be coordinated with the TWIPT and approved by the Commanding General, ATEC prior to the implementation of the baseline change. The contractor will conduct both periodic and acceptance testing on all equipment to be delivered. The contractor will conduct additional DT, in the form of PVTs to verify enhancements and technology insertion initiatives. The test strategy for this phase of the program will be continuously reviewed and updated by the TWIPT to address changes beyond the contractor's control (Army architecture changes, new interface requirements, doctrine updates, etc.). The associated test strategy will be continually modified to reflect these changes.

5.0 SUPPORT STRATEGY

The WIN-T Acquisition will provide enhanced capabilities to the warfighter. The acquisition approach provides a system capability from the soldier's perspective rather than a hardware / software solution. However, the WIN-T system capabilities will translate into production hardware and software that must be supportable. The contractors' plans for support of their systems will address the areas identified below.

5.1 Logistics Support Strategy

PM WIN-T is requiring the development contractors to place emphasis on reducing TOC and LCC as part of the system design process. During the SDD Phase, the contractors shall document and deliver the results of the analysis in the Logistics Support Strategy. The Logistics Support Strategy shall include a maintenance concept, concept for repair and / or replacement of failed items, and anticipated turn-around-time for field support. The supply, maintenance and other logistics activities that occur when an end item of equipment fails shall be addressed to include end-of life disposal. The contractors will provide a Logistics Support Strategy that identifies responsibilities, and summarizes the major elements of the Training and Fielding Approach for the Production Phase. The evolving strategy will provide the basis for discussions during the P / TIMs throughout the contract. The contractors will submit the detailed logistics plans with the follow-on production proposal, which will be evaluated as part of the down-select process. The Government will evaluate the proposed plans for compliance with the provisions of the Core Logistics Statute, Title 10, U.S. Code Section 2464. WIN-T must be supported by the DoD-wide logistics infrastructure and the Army automated logistics systems in place at the time of fielding.

The Log Demo will be conducted during the LRIP Phase. The objective of the Log Demo is to demonstrate that appropriate logistics and MANPRINT considerations have been taken into account prior to fielding the WIN-T system.

5.1.1 Hardware Support Concept

The Standard Army Logistics System will support the WIN-T System hardware. Organic personnel will accomplish unit and Direct Support (DS) level support. The capability to replace all critical LRUs will exist at the field-level maintainer in UE and UA. The unit level maintainer for vehicle-mounted equipment is the system operator. The DS maintainer provides on-site maintenance to supplement the unit level. In addition to removing and replacing selected modules and circuit card assemblies, the DS maintainer also replaces circuit breakers, switches, meters, and connectors on electrical panels. The contractors will be encouraged to minimize the roles of field level and sustainment levels of support. Fault diagnostics are accomplished through the use of Army standard tools and common Test Measurement and Diagnostic Equipment (TMDE). Special purpose electronic test equipment, special purpose support equipment and special purpose tools will be avoided to the maximum extent possible. The contractors will be encouraged to use TMDE that satisfies operational and testability requirements at the lowest LCC. WIN-T will use Built-In-Test (BIT) / Built-In-Test-Equipment (BITE) to fault isolate to a single LRU 90% of the time. The contractors will be encouraged to investigate the use of remote diagnostics and prognostics devices.

As part of the Production RFP, the SDD contractors will be required to submit a Maintenance Plan, with supporting analysis, to propose a cost effective maintenance approach to include depot level support, for the expected system life. This plan will address contingency operations that will be considered during the periods of “surge” requirements.

5.1.2 Software Support Concept

During Phase 2, the two development contractors will each develop a support concept, tailored to their architecture, to be implemented during Post Production Software Support (PPSS). As part of the support concept, each contractor will be encouraged to consider all aspects of PPSS to include but not be limited to: Government PPSS management costs, contractor support costs and annual software licensing, software upgrade and patch distribution, depending on the contractor’s support plan and all software meets the current DII COE level.

During the Production Phase the Government will require the contractor to continue to provide a capability meeting applicable system requirements. A complication to the support concept will be the continuous technology insertion and block upgrades. The extent of testing required for incremental software upgrades will be determined IAW the DOT&E Memorandum, Subject: Guidelines for Conducting FOT&E for Software-Intensive System Increments, dated 10 October 1996. Non-hardware related software upgrades will probably be fielded to the entire force at the time of the upgrade. However, hardware upgrades may not be retrofitted to all fielded units. These hardware upgrades will, in some cases, force

software upgrades or additions that will result in multiple hardware and software configurations to be managed. Software distribution will be accomplished through the PPSS process which will be a requirement in the sustainment contract.

5.2 Supply

The Government is interested in minimizing spares and consumable items in the field while maintaining a high level of readiness. The Government will procure spare parts concurrent with the end item for unit and higher levels of maintenance support.

5.3 Training

WIN-T training is reflective of Army transformation initiatives promoting readiness and training of skills for collective (unit and staff), individual, and leader development. WIN-T will use a lifelong learning approach for developing resident and non-resident training that is task based. Training will be designed for career development of soldiers and leaders, providing the skills, knowledge and attributes through lifelong learning from Initial Entry Training to Advanced Non-Commissioned Officer training and from Officer Basic Course to Senior Service College. All training materials (New Equipment Training (NET) and institutional) will be developed using the Automated Systems Approach to Training (ASAT) process and Shareable Courseware Object Reference Model (SCORM) / reusable content. Training Support Packages (TSP) will be designed and developed by the material developer for NET and will be reusable for resident training and Distance Learning. WIN-T will serve as the Army's training transport system providing the operational and systems architecture support for connectivity and delivery of training for the supported forces. It will support Active and Reserve Components training requirements for Military Occupational Specialty (MOS) Qualifications from all schools and centers, to all units and individual soldiers in the field.

The WIN-T Production contractor will be required to develop a course of instruction and conduct training courses for selected Government personnel. Course materials will contain sufficient detailed information to allow the student to acquire the knowledge and skills necessary to operate, maintain and manage the WIN-T system. Computer Based Training (CBT) and Distance Learning will be considered for both NET and for sustainment training. The contractor will furnish all supplies, tools and equipment necessary to conduct the training courses.

Development and conduct of training will be addressed in greater detail during the Production contract. Times and locations will be determined in conjunction with the WIN-T fielding plan / schedule.

5.4 Reliability and Maintainability (R&M)

5.4.1 Reliability

WIN-T will provide reliable service to ensure that the network is operationally effective for the communications requirements of the OF. This reliability will be achieved through

reliability of individual components and/or redundant components: The network reliability for WIN-T, at the halt, for Block 1 is 0.98 and 0.99 for the Objective. WIN-T network requirements when mobile are 0.90 (Block 1), 0.93 (Block 2), 0.95 (Block 3) and 0.97 (Objective). This network reliability assures that the information required can travel continuously to support applications that will generate information superiority and information dominance.

WIN-T's mission reliability requirements for the platforms are expressed in Mean Time Between Essential Function Failures (MTBEFF) and shown below:

WIN-T System	MTBEFF
UA Platform	1400 hrs
UE Platform	1000 hrs

Platform reliability represents the minimum required platform standards and is indirectly related to the Network Reliability.

WIN-T will use embedded health monitoring, BIT and BITE to isolate failures to a single LRU 90% of the time (Block 1). Embedded diagnostics/prognostics will enable the operator to isolate 80% of faults not diagnosed automatically (Block 2). The information stored by the health monitoring system will be automatically transferred to a data storage location as routine traffic over the network (Block 3) for use in maintenance planning and life cycle management.

The Mean Time to Repair (MTTR) for the WIN-T of UA integrated and/or embedded communications capability and UE communications capability are shown below:

WIN-T System	MTTR
UA Platform	0.25 hours
UE Platform	1 hour

The overarching maintenance approach will be refined and definitized during the SDD Phase of the program.

5.5 Human Performance/Engineering

HFE, Personnel and Training for the WIN-T Program, are designated as essential MANPRINT requirements. The WIN-T system shall incorporate HFE to ensure that operator and maintainer tasks are simple and efficient so that the human element of the total WIN-T system performs effectively, and to ensure that operator and maintainer tasks are simple and efficient so that life cycle Manpower, Personnel and Training costs are minimized. MANPRINT considerations and constraints describe user characteristics that must be met/overcome by system design to ensure system effectiveness. MANPRINT issues shall be included in the MER and a MANPRINT Assessment.

The WIN-T design will enable ease of installation, operation, maintenance, training and management. Controls, displays, connections, configuration, mandatory procedures and the operating environment will minimize human performance errors, interface problems and workload (physical, cognitive, attention) requirements. Its elements will include graphic and multimedia user interfaces, BITE, automated fault diagnosis and training aids that facilitate plug, point, and play installation. WIN-T workstations and system assemblages will provide efficient and effective human interfaces. The Human-Computer Interface (HCI) will be uncomplicated and intuitive as required by the ORD, and include attention to such areas as screen content and layout, menus, help availability, feedback and safeguards. WIN-T's modular design can be scaled to users' requirements and adapted as necessary by mission evolution, expansion or contraction.

The WIN-T design will minimize training requirements, ensure simple execution of complex service support to the warfighter, limit network maintenance downtime, enable the warfighter to adapt to battle space conditions and permit rapid incorporation of state-of-the-art technologies into WIN-T's infrastructure to gain an operational advantage. All aspects of the components and network-operating enviroxxxxxxxal, cognitive) requirements. The WIN-T system design shall enable ease of installation, operation, maintenance, training, and management. The system design shall conform to applicable HFE design criteria and standards, to the maximum extent possible. The design shall make maximum use of task automation, BITE and automated fault diagnosis to reduce training requirements and workload. WIN-T workstations and system assemblages must provide efficient and effective human interfaces, the software shall be easy, intuitive and efficient to use. The software shall conform to the DoD HCI Styleguide and the Common Operating Environment (COE) User Interface Specifications and shall comply with the following design principles:

All aspects (design and operation) of the components and network-operating environment should conform to applicable human engineering design criteria to support ease of operation. The network shall be designed in accordance with all applicable system safety standards so as to minimize safety risks associated with operating, maintaining, managing, or supporting the system. Any residual hazards or risks associated with installing, operating, or maintaining the system or WIN-T components must be identified, attended to in training and support materials, and made manageable. Particular emphasis will be placed on minimizing risks of shock, radio frequency exposure, or visual strain. A Health Hazard Assessment (HHA) is to be conducted on all new equipment procured for the WIN-T.

5.6 Environmental, Safety, and Occupational Health (ESOH) Considerations

5.6.1 Environmental Compliance

In accordance with the requirements of the National Environmental Policy Act (NEPA), the WIN-T will be evaluated for its potential impact on the quality of the human environment. Environmental concerns will be minimized to the maximum extent practicable, and

appropriate environmental documentation will be completed prior to fielding. The evaluation will be conducted using the Record of Environmental Consideration and CECOM's Environmental Impact Analysis Worksheet. The item will be evaluated for hazardous materials such as reactive or flammable chemicals, toxins, carcinogens and ozone depleting substances. System components are evaluated as to their requirement for special handing or disposal. The potential for the release of hazardous substances into the soil or a body of water will be evaluated as well as the effect of excessive noise levels on humans or wild life.

5.6.2 System Safety and Health

The contractors are required to ensure compliance with safety, health, and environmental laws and regulations and ensure that a safe system is delivered to the Government. The CECOM Safety Office supports a favorable decision for the Block I WIN-T Milestone B Decision Review.

A System Safety Program has been established for managing, identifying, documenting, tracking, categorizing safety / environmental / health hazards, risks and issues associated with the WIN-T. The system safety program established the methodology by which PM WIN-T oversees and evaluates the execution of the system safety efforts. The system safety program is a proactive effort in establishing system safety requirements for the life cycle of the WIN-T program.

During the conduct of the System Safety Program, lessons learned from previous system development efforts will be used to guide the contractor to identify, assess and correct hazards. The provision of this information, as soon as possible after contract award, will inject safety design information into development efforts early enough to avoid the introduction of hazards into the system. System safety will be discussed integrally with design reviews and other technical interchange meetings as well as during System Safety Working Group meetings, which will be convened as necessary to adjudicate hazards.

A Safety Assessment Report (SAR) will be prepared by the contractors during SDD and submitted to the Government, constituting a written record of the results of the System Safety Program. The SAR will evaluate the safety risk being assumed prior to test or operation of the system. It will identify all safety features of the system hardware and software design, specific controls or precautions to be followed in the use of the system; and will provide verification of compliance to safety requirements identified in the system specification. The analysis will identify any non-compliance of safety specification requirements and provide any such justification. A suitable means of recording and tracking hazards to ensure that all hazards are identified, assessed, the proper PMs and personnel notified will be implemented.

All potential hazards initially identified with a system are tracked for proper resolution. These hazards must be classified in a manner that permits them to be prioritized for corrective action, as well as to determine the final risk acceptance authority for any residual

hazard remaining after implementation of the control. Assigning Risk Assessment Codes (RACs), which define the severity of the hazard and its associated probability, accomplishes this. The course of action to remedy a hazard is dependent upon hazard identification and the associated RAC assignment. Depending on the RAC, not all residual hazards are severe enough or occur often enough to warrant the expenditures required to eliminate or control them. Those hazards that cannot be eliminated are considered residual hazards. The risk associated with residual hazards must be formally accepted by the appropriate risk decision authority.

The U. S. Army Center for Health Promotion and Preventive Medicine has prepared a HHA of the WIN-T for the MANPRINT Assessment. The HHA includes an analysis of all potential health hazards such as heat and cold stress, noise, inadequate ventilation, vibration, Nuclear, Biological and Chemical (NBC) protection, toxic substances, and ionizing and non-ionizing radiation. Sufficient detail will be provided to clearly define the specific problem, issues involved and reasoning behind the analysis. The assessment includes an analysis of data, observations, findings, reports and other sources of information.

5.6.3 Hazardous Materials

A detailed review of the system components will be conducted, encompassing all aspects of the life cycle (selection, handling, manufacture, use, maintenance, and disposal), to identify all hazardous and environmentally unacceptable materials. Hazardous materials that can be exposed to personnel or the environment during any operational (to include fabrication, transportation, and setup / teardown) procedure, maintenance procedure, or as a result of damage to the equipment, or require special disposal procedures, shall be kept to a minimum. Non-toxic / environmentally acceptable substitutes will be used whenever possible. Hazardous material exposure to personnel shall be controlled to levels below the Occupational Safety and Healthy Administration (OSHA) Permissible Exposure Limits and the American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values.

Use of radioactive material shall be kept to an absolute minimum. Non-radioactive substitutes shall be used whenever possible. Where substitution is not possible, the least hazardous type and form of radioisotope will be chosen.

The SAR will address hazardous material in its hazardous material section of System Safety Verification Checklist, SEL Form 1183. The SOW for production will require a Material Safety Data Sheet for hazardous materials that are required to be incorporated into the system.

5.6.4 Demilitarization and Disposal

The PM will minimize DoD's liability due to information and technology security and ESOH issues. The PM will coordinate with Service logistics activities and Defense Logistics Agency (DLA), as appropriate, to identify and apply applicable demilitarization

requirements necessary to eliminate the functional or military capabilities of assets prior to disposal of those assets. Cost associated with disposal will be included in the LCCE.

PM WIN-T will require the elimination or reduction (where elimination is not feasible) of hazardous and environmentally unacceptable materials in the manufacturing process IAW the Pollution Prevention Act of 1990. Hazardous and environmentally unacceptable materials are listed under OSHA's Title 29, Code of Federal Regulation (CFR), EPA's Title 40, CFR, and the standards/regulations promulgated by the National Institute of Occupational Safety and Health (NIOSH) and the ACGIH.

The SOW for production will address the contractors need to comply with all regulatory requirements (Federal, State, or local environmental laws), applicable to the Pollution Prevention Act of 1990 during the accomplishment of all contractual activities. Upon determination of any non-compliance of the contractor, subcontractor or suppliers, to any Federal, State, or local environmental laws, the contractor will be required to notify the Government.

6.0 BUSINESS STRATEGY

6.1 Competition

This section will describe the WIN-T program's plan to attain program goals using competition.

6.1.1 Building Competition into the WIN-T Acquisition Strategy

6.1.1.1 Applying Competition to Evolutionary Acquisition

The WIN-T evolutionary acquisition strategy is based on time-phased requirements that allocate threshold requirements into three increments. The PM contemplates achieving objective capability in three blocks. Each successive block is expected to enhance capability by building on its predecessor, making it necessary for the supplier of the first block to also create the next block. As a result, it is anticipated that the Block 1 production contractor will be the only source able to meet Block 2 requirements. The source selection resulting in award of the Block 1 production contract will also consider the contractors' capability to complete Blocks 2 and 3 to include support. At the conclusion of Block 3 development, the Army will consider whether or not to re-compete the remaining production options through the use of a performance specification.

The WIN-T program currently consists of two separate, but linked contracts. Following a full and open competition among U.S. prime companies, two CPFF contracts were awarded on August 9, 2002 to General Dynamics C4 Systems and Lockheed Martin Mission Systems. The need to use Not Releasable to Foreign Nationals (NOFORN) information forced the PM to limit competition to domestic sources at the prime level. The Army signed a Justification and Approval based on FAR 6.302-6, National Security, to support this limitation on competition. The awards were made via best value source selection process.

Competition will be maintained throughout the Phase 2 with two contractors performing parallel SDD contracts. The PM has established two parallel management teams in the PMO to ensure that competition sensitive information is kept separate and safeguarded. Non-disclosure statements are required for all Government and support contractor personnel involved in the program. Measures will be taken throughout Phase 1 and Phase 2, with particular respect to coordination of Government documents and Government presentations, to ensure that competition sensitive information is protected and that competition is maintained.

In response to the Production RFP issued toward the end of the period of performance of the SDD contracts, each contractor will deliver a competitive proposal, based upon the SDD Phase deliverables to perform LRIP and FRP of WIN-T Block 1, in addition to the contractor's ability to develop the WIN-T functionality through Block 3. Based on those proposals and the source selection criteria in the solicitation, the Government will select one of the two development contractors to proceed with the Block 1 Production Contract and the Block 2 Development effort. Block 1 is intended to satisfy the first in a series of time-phased requirements, all of which the PM expects the same prime contractor to satisfy. It is anticipated that the production contact will include a base year contract and two one year options during the LRIP phase and two one year production options during the FRP phase. The FRP options will not be exercised until after the FRPDR. A follow-on five-year contract will be awarded on a sole source basis for additional FRP quantities. Additional contracts will be awarded on a sole source basis to procure and field the remaining force. If it is determined to be in the best interest to the Government, the production options may be re-competed through the use of a performance specification.

As the support strategy is developed, the possibility of competition for system support will be evaluated. Competitive pressure will be brought to bear on the program through competition at subcontractor and lower tiers as described in 6.1.1.5.

6.1.1.2 Industry Involvement

PM WIN-T has conducted various one-on-one meetings with industry and industry forums to ensure industry's understanding of the WIN-T requirements and to encourage identification of any limiting factors. The industry forums were used as an important part of the process of developing and reviewing the SOW and related portions of Section L.

As part of the Phase 1 and 2 efforts, the contractors are required to attend meetings and IPTs between the FCS LSI and other OF contractors. In addition, the development contractors are key players in the ICWG. The ICWG develops interim interoperability standards for information transport for OF systems.

6.1.1.3 Potential Obstacles to Competition

The initial contracts were awarded on a competitive basis. However, the need to use NOFORN information forced the PM to limit competition to domestic sources at the prime level.

6.1.1.4 Exclusive Teaming Arrangement

There was no need for the PM to prohibit exclusive teaming arrangements during the solicitation process for the Phase 1 and Phase 2 efforts, as the requirements were written in performance-based terms. The result of the market research demonstrated that there is a broad base of commercial and non-developmental products as well as COTS and GOTS software that is currently available to meet the Block 1 requirements. These products follow an open system architecture and utilize U.S. and international standards for interfaces that are consistent with the JTA-A.

6.1.1.5 Sub-Tier Competition

In addition, competition was cultivated at the sub-tier level through the use of technology insertion, paragraph 1.2.3. For the Block 1 Production contract the Government anticipates that the use of commercial products and open system standards will preclude vertical integration. The PM has identified products and technologies critical to meeting program needs and has identified potential industry sources that can supply them. For most of the types of hardware anticipated in the system, multiple sources already exist, and therefore the Government is not expected to have to develop second sources to minimize risk or ensure availability.

6.2 Market Research

Technical experts from PM, WIN-T conducted market research in the Spring and Summer of 2001. Draft versions of the WIN-T System acquisition package were initially placed on the Army Single Face to Industry Interactive Business Opportunities Web Page in April 2002, which resulted in industry feedback, leading to changes in the Government's acquisition approach. There have been several industry forums conducted, in which over 200 industry representatives participated, to ensure that the Government has not restricted domestic competition in any way. Additionally, one-on-one sessions with potential sources (both primes and subcontractors) were conducted. These industry forums and one-on-one sessions revealed high interest in the WIN-T effort and numerous domestic companies expressed interest in participating as prime contractors.

The PM has used the input received from industry to identify and assess the risks associated with successful execution of the WIN-T program, and to formulate strategies and alternatives for achieving capability. The result of the market research has demonstrated that there is a broad base of commercial and non-developmental products as well as COTS and GOTS software that is currently available to meet Block 1 requirements. These products follow an open system architecture and utilize U.S. and international standards for interfaces that are consistent with the JTA-A. This will facilitate future technology insertion and long-term supportability of the system.

6.2.1 Potential Sources

A Small Business Set-Aside was not appropriate for this procurement. Feedback from interested small businesses during one-on-one meetings and industry forums revealed that due to the size and scope of this effort, prime contracting was not possible. However, many small businesses are part of each development contractor's teams. All required clauses for Small and Small Disadvantaged Business Subcontracting including FAR 252.219-7005 "Incentive for Subcontracting with Small Business and Small Disadvantaged Business, Historically Black Colleges, Universities and Minority Institutions" were included in the solicitation and contract. Proposals were reviewed for compliance with subcontracting goals of maximum practicable opportunity for small and small disadvantaged business participation. As a part of the Best Value Source Selection, Small Business was a key evaluation factor. Acceptable plans were negotiated and made part of the resulting contract. IAW FAR 19.702, Statutory Requirements, for the Small Business Subcontracting Program, the prime was required to submit a Small Business Subcontracting Plan. The PM considered intra-Government work agreements, i.e., formal agreements, project orders or work requests, in which one Government activity agrees to perform work for another, creating a supplier/customer relationship.

General Dynamics C4 Systems, prime contractor, is teamed with General Dynamics Decision Systems, General Dynamics Land Systems, BAE Systems, BBN Technologies, DynCorp, Laguna Industries, Log.Sec Corporation, Microanalysis and Design, Northrop Grumman Information Technology - Defense Mission Systems, Rockwell Collins, RTI International, Solers, Veridian and Xetron. Lockheed Martin Mission Systems, prime contractor, is teamed with Harris Corporation, Cisco Systems, ACS Defense, Inc., SRI International, CACI, INNOLOG, and Integrated Solutions Inc.

6.2.2 Commercial and Non-Developmental Items

The WIN-T system requirements are performance-based to the maximum extent possible, giving contractors maximum flexibility to use commercial standards and products, including commercial interfaces, buses, software, and protocols. The contractors were encouraged to make maximum use of commercial equipments available in the marketplace. The commercial products will generally have lower acquisition cost and risk when compared to military-unique products. This allows WIN-T to take maximum advantage of the commercial sector's risk mitigation. The open systems architecture and standard interfaces will facilitate technology insertion as the system and commercial marketplace evolve. Though it is recognized that most commercial products are not designed to meet military environmental standards, the PM is encouraging the maximum use of commercial products consistent with satisfying ORD requirements.

As part of the proposal process, the contractors described their approach towards selection and integration of the various COTS and GOTS software/firmware components, newly developed code and hardware components into the design. As part of the Phase 1 and Phase 2 deliverables, the contractors are required to identify all COTS and GOTS associated with

their designs. In addition, the contractors will address life cycle considerations to include ownership, license, upgrades, CM, interoperability, and technology evolution.

6.2.3 Dual Use Technologies and Use of Commercial Plants

It is anticipated that all hardware can be sustained using commercial capabilities. Therefore, system design will facilitate the insertion of leading edge, dual-use technologies and components throughout the system life cycle.

6.2.4 Industrial Capability

The WIN-T acquisition places no unique technical or manufacturing capability burden or risks on the industrial base. There are no unique materials or processes that are vital to our defense industrial base required to manufacture or sustain the WIN-T System. All hardware can be sustained using commercial capabilities. If any new software applications are required, they will be written using common languages and compilers. All new user and software interfaces will also be written using common languages and compilers. As the program matures, there should be enough capability to address future surge needs if required. All safeguards will be implemented to alleviate foreign dependency problems if they should arise. CECOM's Industrial Base Advocate will be solicited for guidance in the event any Industrial Base Advocate will be solicited for guidance in the event any Industrial Base problem is encountered on this program in the future.

Product obsolescence is common in today's commercial marketplace. Replacement parts are often substituted with items of higher capability at a lower cost creating an incentive for technology insertion. The WIN-T acquisition strategy does not specify a particular solution or design, but is performance based, allowing the contractor the flexibility to adapt to an evolving marketplace. Any change due to product availability is the responsibility of the contractor to satisfy the performance requirements of the contract. The PM will monitor the prime component selection process, to include obsolescence issues, that ensures that the components conform to Open System Standards.

6.2.5 Small Business Innovation Research (SBIR) Technologies

The PM has examined the technologies offered by the SBIR program and has determined that some of these technologies could potentially benefit the WIN-T program. Since the WIN-T acquisition is performance based, rather than technology based, the RFP did not direct the utilization of any specific technologies. The contractors were made aware of the SBIR program and were encouraged to consider SBIR technologies in their overall system.

6.2.6 International Cooperation

WIN-T has a KPP requirement to be interoperable with Allied and NATO networks. Interoperability standards for NATO are being developed as part of Tactical Communications Post 2000 (TACOM P2K). These standards will not be defined until 2005, and will

not be ratified / implemented until some time later. TACOM P2K is not synchronized with the WIN-T and FALCON's (the United Kingdom's (UK's) next generation tactical formation level network) program schedules. PM WIN-T is coordinating their activities with the TACOM P2K program office.

The UK and U.S. are holding a series of working group meetings to identify operational requirements and standards that will ensure interoperability. Canada is also participating though primarily in a monitoring role. The working group will continue to define / refine the interface by identifying profiles for the standards (e.g., quality of service and message formats between NMS), estimate bandwidth requirements, identify engineering orderwire requirements, define transit / tunneling requirements, and coordinate system wide aspects of naming and addressing. Furthermore, each nation's TACOM P2K representative will use these standards in an effort to influence the direction of future NATO Standardization Agreements (STANAGs).

7.0 CONTRACT APPROACH

7.1 Major Contract(s) Planned/Contract Type

7.1.1 Phase 1 and Phase 2 Contract Efforts

7.1.1.1 What it Buys

Each Phase 1 Pre-Milestone B contract requires the contractor to:

—Use the ORD as the requirements baseline document for the contract, supplemented by IERs developed by the Government.
—Conduct TRA to assist in ORD Blocking.
—Develop an Initial Architecture.
—Develop a Product Tree for Initial Architecture.
—Produce a technical BRD that will serve as the contractor baseline for Phase 2.
—Develop M&S scripts for use during Phase 2.
—Establish a dialogue between WIN-T contractors, FCS LSI contractors and other OF contractors.
—Perform Trade Studies to determine WIN-T support to Legacy Force.
—Prepare a C4ISP.
—Prepare a Force Structure Report.
—Prepare a Vulnerability Assessment Report.
—Prepare JTRS / SCA Compliance Report.
—Prepare a M&S Plan and provide Test Strategy recommendations.
—Produce Risk Management Plan and PPP.
—Produce Traffic Scripts.
—Produce a LCCE and CAIV Analysis Report of the contractor's architecture.
—Use management procedures for cost reporting and delivers a C / SSR and Function Cost-Hour Report.

—Perform engineering services as required
—Conduct two IPRs and an Integrated Baseline Review (IBR).
—Require completion of all tasks necessary to satisfy the exit criteria and support a Milestone B SDD Decision for Block 1.

Each Phase 2 contract option will require the contractor to:

—Design a WIN-T architecture and system compliant with the BRD that will be documented in a system architecture and design document prepared and delivered by the contractor.
—Prepares and delivers baseline documentation for the contractor's WIN-T system design that includes final performance specifications and technical documentation that will define the performance baseline for production hardware.
—Conduct a SDR for the Block 1 design.
—Conduct a PDR for the Block 1 design .
—Conduct a CDR for the Block 1 design to provide the government an opportunity to assess the final SDD design maturity and readiness to enter LRIP.
—Build and deliver an OPNET model for the contractor's WIN-T architecture and system design.
—Conduct simulations based on operational scenarios specified by the Government/evaluate the architecture using specified operational scenarios and performance parameters and established modeling tools and techniques (i.e., OPNET for system performance and AweSim! for measuring network availability—both are commercially available and supported by industry) .
—Deliver the models and results to the Government for V&V.
—Fabricate, integrate and provide a suite of Block 1 prototype equipment, of selected capabilities identified by the Government, to the Government's test site to support a Government DT/OT of the contractor's WIN-T Block 1 system design. Examples of functionalities that will be demonstrated by the hardware include: network control and management for transmission of voice, data, and video; MSLs; and interoperability.
—In support of the DT/OT, develop training materials, conduct classes to train Government test personnel, and provide the necessary spares and technical support during conduct of the DT/OT.
—Require completion of all tasks necessary to satisfy the exit criteria and support a Milestone C LRIP Decision for Block 1.

7.1.1.2 Structure

This is an incrementally funded R&D contract.

7.1.1.3 Contract Type

The completion form of a CPFF type of contract was applied to this effort. A cost reimbursement contract is suitable for the following reasons:

1. The uncertainties involved in contract performance did not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract. A key contributor to the uncertainty is the fact that WIN-T requirements will be affected by emerging OF concept being developed by the Army, but the specific impacts on WIN-T program will not be known until the SDD Phase is underway.
2. The Phase 1 contracts were awarded to contractors who have accounting systems adequate for determining costs applicable to the contract.
3. Appropriate Government surveillance during performance will provide reasonable assurance that efficient methods and effective cost controls are used.

The fixed fee is considered the most suitable fee mechanism for Phase 1 and Phase 2 because it will provide known, stable, and fair treatment of each contractor while they are performing the parallel development contracts in a competitive environment.

7.1.1.4 Incentives

Each contractor will be motivated to control costs and stay on schedule due to the upcoming competition for the WIN-T production contract. Performance during Phase 1 and Phase 2 will be considered in the source selection evaluation leading to the selection of the single WIN-T production contractor and award of the production contract. The competition will also motivate each contractor to meet or exceed the Government's performance expectations.

7.1.1.5 Special Contract Terms and Conditions

The Government has obtained unlimited rights in all technical data and computer software (except commercial computer software) utilized in the contractor's modeling effort for the development contract. The Government foresees the possibility of having to provide information obtained under this phase to other Government agencies for the purposes of modeling WIN-T performance in relation to other programs and their contractors.

7.1.2 First Production Contract

7.1.2.1 What it Buys

The basic LRIP contract and two LRIP options will require the contractor to:

—Manufacture, integrate, and deliver test quantities of systems / equipment to support PVT, New Equipment Training, Government FDT&E, and IOT.
Integrate and produce the Block 1 capability.
—Produce logistics products to include provisioning, training, and technical manuals.
—Deliver final performance specifications and technical documentation that will define the performance baseline for production hardware.
—Obtain the required Interoperability Certification (Joint and Intra-Army) and Security Certification and Accreditation for the WIN-T system.

—Under Engineering Services, a cost reimbursement line item will allow for the contractor to conduct studies and analysis.

It is contemplated that the deliverables under this contract will be expressed in terms of a capability that satisfies performance requirements rather than a specific hardware/software solution.

The two options for FRP lots will require the contractor to:

—Deliver additional WIN-T units to support initial fielding, in accordance with the USF. Production units will be priced in range quantities to allow the Government greater flexibility in meeting the Army's requirements.
—Implement a Technology Insertion Program that avoids obsolescence and leverages improvements in commercial products and technologies.
—Produce logistics products to include provisioning, training, and technical manuals.
—Under Engineering Services, a cost reimbursement line item will allow for the contractor to conduct studies and analysis.

Simultaneous with the Production award, the Government will award a separate Sustainment contract for spares, repairs, training, fielding, software support, and software maintenance of fielded systems. It is anticipated that the sustainment activities will be accomplished via a combination of FP and cost reimbursement type efforts. Spares and repairs will be priced on a FP basis while the training, fielding and software support/maintenance will be done on a cost reimbursement basis. The sustainment contract will be of the same duration as the initial production contract. A follow-on sustainment contract will also be awarded when the follow-on production contract is awarded on a sole source basis. However, the length of this sustainment contract will be for an additional five years following the acceptance of the last fielded system. This will ensure that all fielded equipment has a contract vehicle in place to provide sustainment when the production effort has been completed.

7.1.2.2 Structure

The production contract will be fully funded with procurement dollars. The basic contract will acquire the first LRIP lot. It will include an option for each of the next two annual LRIP lot buys. It will also include options for two FRP lot buys. The procedures in FAR Subpart 17.2 will be followed before each option is exercised. Options do not have to be exercised. If it is in the Government's interest, the contracting officer may decide not to exercise the options and obtain the equipment utilizing another acquisition approach. This might be considered if, for example, technology has advanced or the market prices have changed so considerably as to render the option's statement of requirements obsolete or the option's pricing unreasonable.

7.1.2.3 Contract Type

A FPIF (firm target) contract with a base year and four options is planned. The base year and the first two options are for LRIP and the final two options for FRP. A FPIF contract is suitable when the nature of the supplies or services being acquired are such that the contractor's assumption of a degree of cost responsibility will provide a positive profit incentive for effective cost control and performance. The production contractor will have produced, under the preceding development contract, a system architecture, a performance specification for WIN-T Block 1, and demonstration of key capabilities, which will provide a firm definition of what must be designed and built under the basic production contract (base LRIP year). Fair and reasonable prices can be established for this effort at the outset because:

1. There will be adequate price competition;
2. Available cost data obtained through the contract deliverables during SDD permits realistic estimates of the probable costs of performance.

7.1.2.4 Incentives

A fixed-price incentive (firm target) contract specifies a target cost, a target profit, a price ceiling, and a profit adjustment formula. These elements are all negotiated at the outset. The price ceiling is the maximum that may be paid to the contractor, except for any adjustment under other contract clauses. When the contractor completes performance, the final price is established by applying a formula based upon the relationship of final negotiated total cost to total target cost. When the final cost is less than the target cost, application of the formula results in a final profit greater than the target profit; conversely, when final cost is more than target cost, application of the formula results in a final profit less than the target profit, or even a net loss. If the final negotiated cost exceeds the price ceiling, the contractor absorbs the difference as a loss. Because the profit varies inversely with the cost, this contract type provides a positive, calculable profit incentive for the contractor to control costs.

7.1.3 Follow-on Production Contract.

7.1.3.1 What it Buys

The basic FRP contract and four FRP options will require the contractor to:

—Deliver additional WIN-T units to support fielding, in accordance with the USF. Production line items will be structured to allow procurement of any quantity in an established range of quantities to provide maximum procurement flexibility.
—Implement a Technology Insertion Program that avoids obsolescence and leverages improvements in commercial products and technologies.
—Produce logistics products to include provisioning, training, and technical manuals.

—Under Engineering Services, a cost reimbursement line item will allow for the contractor to conduct studies and analysis.

7.1.3.2 Structure

The follow-on production contract will be fully funded with procurement dollars. The basic contract and four FRP options will acquire FRP lot buys. The procedures in FAR Subpart 17.2, Options, will be followed before each option is exercised. Options do not have to be exercised. If it is in the Government's interest, the contracting officer may decide not to exercise the options and obtain the equipment utilizing another acquisition approach. This might be considered if, for example, technology has advanced or the market prices have changed so considerably as to render the option's statement of requirements obsolete or the option's pricing unreasonable.

7.1.3.3 Contract Type

A Firm Fixed Price (FFP) / Fixed Price with EPA type of contract is planned to be awarded on a sole source basis for additional FRP quantities. The basic contract and the first two FRP options will be FFP. Options three and four will be FP with EPA. The EPA adjustments will be based on cost indexes of labor or material. These price adjustments are based on increases or decreases in labor or material cost standards or indexes that are specifically identified in the contract.

A FP contract is suitable for acquiring supplies or services on the basis of reasonably defined functional or detailed specifications when the contracting officer can establish fair and reasonable prices at the outset. The production contractor will have produced, under the preceding production contract, three LRIP and two FRP quantities of equipment. Fair and reasonable prices should be established for this effort at the outset because available actual cost and pricing information from the prior production contract permits realistic estimates of the probable costs of performance.

7.2 LRIP Quantities and Justification

The LRIP Phase of the WIN-T acquisition cycle is intended to result in completion of manufacturing development in order to ensure adequate and efficient manufacturing capability. The PM plans to produce the minimum quantity necessary to provide production configured representative articles for PVT, IOT, and establish an initial production base for the system sufficient to lead to FRP, upon successful completion of operational testing. It is anticipated that a 1/3 of a UE-1 and a UA complementary system/equipment will be procured in FY06 to support PVT. The remaining test quantities (the residual 2/3 of a UE-1) will be procured in FY07 to support IOT in FY08. After a successful Army IPR in 4QFY07, the Army intends to exercise the option in FY08 to procure 1 UA Core and 1 1/4 UE-1 LRIP quantities of systems/equipment to establish the production base for the system.

The UAs are defined as units with a fixed organizational structure that accomplish discrete sets of functions at the tactical level in accordance with prescribed mission-essential tasks. The UEs are highly tailorable, higher-level echelons that integrate and synchronize Army forces for full spectrum operations at the higher tactical and operational levels of war/conflict. For the purposes of this Acquisition Strategy the UA is equivalent to a brigade/battalion, the UE 1 is equivalent to a Division, UE-2 is equivalent to a Corps, and the UE-3 is equivalent to a Theater size element.

Due to the vastly different contractors' architectures in the Pre-Milestone B Phase and the different quantities of equipment required to support each architecture, the proposed LRIP procurement quantities are specified by UA and UE. The production base for the system will be very diverse. WIN-T capability will be required for a total of 20 UAs, 18 UE-1s, 4 UE-2s, and 2 UE-3s to fully deploy WIN-T capabilities by FY20. In order to facilitize and ramp up to these FRP quantities, the production lines will need to be phased in correctly. The PM anticipates the procurement of a Block 1 LRIP quantity not to exceed 10% of the total WIN-T systems.

A minimum LRIP quantity of units is required to achieve the most efficient and cost effective production ramp-up over the three year LRIP time period:

Year 1:	1 UA Complementary, 1/3 of a UE-1
Year 2:	2/3 of a UE-1
Year 3:	1 UA Core and 1 1/4 of UE-1

Based upon this analysis it is anticipated that an LRIP authorization for WIN-T capability for 1 UA Complementary, 1 UA Core, and 2 1/4 UE-1 LRIP quantities of systems/equipment will be requested at the Milestone C Decision Review. The production ramp-up analysis will however be further refined during the SDD Phase and a more thorough analysis will be presented at the Milestone C Decision Review. See Figure 1-1 for the proposed procurement quantities by year.

7.3 Integrated Contract Performance Management

Pre-Milestone B Phase 1 and SDD Phase 2: For the CPFF portions of the contract, the contractors are preparing and providing the C/SSR. Cost reporting in the C/SSR will be at the appropriate contract Work Breakdown Structure (WBS) level for prime and key subcontractors according to the risk associated with a particular effort. Most elements are reported at level three of the WBS. The Prime System contractors will ensure subcontractor data is properly integrated into a consolidated report.

The contractors will provide a monthly analysis of the top 5 to 10 (current or potential) most significant variances/risk areas. The Government and the contractor PM select these variances/risk areas and they are periodically reviewed throughout the life of the contract. The narrative section of the C/SSR addresses these critical issues that effect cost, schedule, and technical performance.

The contractors are providing a Cost Data Summary Report (CDSR) and Function Cost Hour Report (FCHR) (DD Form 1921-1) in accordance with the Contractor Cost Data Reporting (CCDR) Plan. The FCHR provides actual costs of the corresponding WBS elements with respect to engineering, tooling, quality control, etc., and direct labor hours and costs as applied with direct labor, material and overhead.

Production Phase: For the FPI portion of the contract, the contractor will prepare and provide a Cost Performance Report (CPR) and a CCDR plan detailing a CDSR and a FCHR.

7.4 Integrated Baseline Reviews (IBRs)

IBRs were conducted at the contractor's plants in October 2002, to baseline the Phase 1 efforts. In addition, IBRs will also be conducted within four months after the award of the SDD option to ensure that a realistic baseline has been established and to obtain a mutual understanding of the risks inherent in the Performance Measurement Baseline and the underlying management processes generating cost, schedule and technical performance information via the C/SSR.

7.5 Warranties

As part of the production proposals, the contractors will provide an overall Logistics Support strategy, which may include the use of a warranty. Prior to the Milestone C Decision Review a cost benefit analysis will be conducted. If a cost benefit analysis indicates a warranty is appropriate and cost effective, and that the benefits are commensurate with the cost of the warranty to the Government, warranty provisions will be included in the Production contract. Any commercial warranty inherent in the system will be passed on to the Government.

7.6 Component Breakout

The PM's intent is to acquire capability versus a hardware/software product. The PM will consider the applicability of component breakout, while maintaining system integrity. The PM will continue to reassess the requirement as consistent with DFARS Appendix D.

7.7 Leasing

The PM has determined that the leasing is not practicable or efficient to this effort.

ANNEX A

ACRONYMS & ABBREVIATIONS

ACRONYM	DEFINITION
AAE	Army Acquisition Executive
ABCS	Army Battle Command Systems
ACGIH	American Conference of Government Industrial Hygienists
ACN	Airborne Communication Node
ACP	Army Cost Position
AEHF	
AMDCCS	Air and Missile Defense Command and Control Systems
AOR	Area of Responsibility
APB	Acquisition Program Baseline
AR	Army Regulation
ARFOR	Army Forces
AROC	Army Requirements Oversight Council
ASAT	Automated Systems Approach to Training
AST	ATEC System Team
ATEC	Army Testing and Evaluation Command
AT&L	Acquisition, Technology, and Logistics
BIT	Built-In Test
BITE	Built-In Test Equipment
BOS	Battlefield Operating Systems
BRD	Baseline Requirements Document
C&A	Certification and Accreditation
C/SSR	Cost/Schedule Status Report
C2	Command and Control
C3T	Command, Control, and Communications - Tactical
C4	Command, Control, Communications, and Computers
C4ISP	Command, Control, Communications, Computers, and Intelligence Support Plan
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAIV	Cost as an Independent Variable
CARD	Cost Analysis Requirements Document
CBT	Computer Based Training
CCDR	Contractor Cost Data Reporting
CDR	Critical Design Review
CDRL	Contract Data Requirements List

CDSR	Cost Data Summary Report
CECOM	Communications Electronics Command
CFR	Code of Federal Regulation
CIO	Chief Information Officer
CJTF	Combined Joint Task Force
CM	Configuration Management
COE	Common Operating Environment
COIC	Critical Operational Issues and Criteria
COMSEC	Communications Security
COTS	Commercial Off-The-Shelf
CPFF	Cost Plus Fixed Fee
CPI	Critical Program Information
CPR	Cost Performance Report
CTD	
CTSF	Central Technical Support Facility
DA	Department of the Army
DCMA	Defense Contract Management Agency
DCSINT	Deputy Chief of Staff for Intelligence
DFARS	Defense Federal Acquisition Regulation Supplement
DIA	Defense Intelligence Agency
DII-COE	Defense Information Infrastructure Common Operating Environment
DISN	Defense Information Systems Network
DITSCAP	DoD Information Technology Security Certification and Accreditation Process
DLA	Defense Logistics Agency
DMS	Defense Message System
DoD	Department of Defense
DOT&E	Developmental Operational Test and Evaluation
DR	
DS	Direct Support
DSCS	
DSN	Defense Switched Network
DT	Developmental Test
DT/OT	Developmental Test/Operational Test
ECP	Engineering Change Proposal
EPA	Economic Price Adjustment/Environmental Protection Agency
ER/MP	Extended Range/Multi-Purpose
ESOH	Environmental, Safety, and Occupational Health
FAR	Federal Acquisition Regulation
FCHR	Function Cost Hour Report
FCS	Future Combat Systems
FDT&E	Force Development Test and Experimentation
FFP	Firm Fixed Price
FOT&E	Follow on Test and Evaluation
FP	Fixed Price

FPIF	Fixed Price Incentive Fee
FRP	Full Rate Production
FRPDR	Full Rate Production Decision Review
FY	Fiscal Year
FYDP	Future Year Defense Plan
GCC2	Ground Combat Command and Control
GFE	Government-Furnished Equipment
GFP	Government-Furnished Property
GFS	Government-Furnished Software
GIG	Global Information Grid
GOTS	Government Off-The-Shelf
GPS	Global Positioning Systems
HCI	Human-Computer Interface
HFE	Human Factors Engineering
HHA	Health Hazard Assessment
HIBC	Horizontal Integration of Battle Command
HQDA	Headquarters, Department of the Army
IA	Information Assurance
IAW	In Accordance With
IBR	Integrated Baseline Review
ICWG	Interface Control Working Group
IDE	Integrated Digital Environment
IDM	Information Dissemination Management
IER	Information Exchange Requirements
IIPT	Integrating Integrated Product Team
IMPRINT	Improved Performance Research Integration Tool
IOT	Initial Operational Test
IPPM	Integrated Product and Process Management
IPR	In Process Review
IPT	Integrated Product Team
IR&D	Independent Research and Development
IT	Information Technology
JFLCC	Joint Force Land Component Command
JITC	Joint Interoperability Test Command
JNMS	Joint Network Management System
JROC	Joint Requirements Oversight Council
JTA	Joint Technical Architecture
JTA-A	Joint Technical Architecture-Army
JTF	Joint Task Force
JTRS	Joint Tactical Radio System
KPP	Key Performance Parameters
LAN	Local Area Network
LCC	Life Cycle Cost
LCCE	Life Cycle Cost Estimate
LOG	

LRIP	Low Rate Initial Production
LRU	Line Replaceable Unit
LSI	Lead Systems Integrator
LUT	
M&S	Modeling and Simulation
MANET	Mobile Adhoc Networking
MANPRINT	Manpower and Personnel Integration
MAR	Monthly Acquisition Report
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MDR	Milestone Decision Review
MER	Manpower Estimate Report
MIL-HDBK	Military Handbook
MILSTAR	
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
MOS	Military Occupational Specialty
MOSAIC	Mobile On-The-Move Survivable Adaptive Integrated Communications
MOT&E	Multiservice Operational Test and Evaluation
MSE	Mobile Subscriber Equipment
MSL	Multiple Security Level
MSRT	Mobile Subscriber Radio Telephone
MTBEFF	Mean Time Between Essential Function Failures
MTTR	Mean Time to Repair
MUOS	
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical
NEPA	National Environmental Policy Act
NET	New Equipment Training
NF	No Foreign
NGO	Non-Government Organization
NIMA	National Imagery and Mapping Agency
NIOSH	National Institute of Occupational Safety and Health
NM	Network Management
NMS	Network Management System
NOFORN	Not Releasable to Foreign Nationals
O&M	Operation and Maintenance
O&S	Operation and Support
OF	Objective Force
OIPT	Overarching Integrated Product Team
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
OT	Operational Test

OT&E	Operational Test and Evaluation
OTM	On-The-Move
P/TIM	Program and Technical Interchange Meeting
PCD	Personal Communications Device
PDR	Preliminary Design Review
PEO C3T	Program Executive Officer, Command, Control and Communications Systems-Tactical
PM	Project Manager; Program Manager
PMO	Project Management Office; Program Management Office
PPP	Program Protection Plan
PPSS	Post Production Software Support
PRAG	Performance Risk Advisory Group
PSTN	Public Switched Telephone Network
PVT	Production Verification Test
R&M	Reliability and Maintainability
RAC	Risk Assessment Code
RAU	Radio Access Unit
RDEC	Research, Development, Engineering Directorate
RDT&E	Research, Development, Test, and Evaluation
RFP	Request for Proposal
S&T	Science and Technology
SAR	Selected Acquisition Report/Safety Assessment Report
SATCOM	
SBIR	Small Business Innovation Research
SBU	Sensitive But Unclassified
SCA	Software Communications Architecture
SCG	Security Classification Guide
SCI	Sensitive Compartmented Information
SCORM	Shareable Courseware Object Reference Model
SDD	System Development and Demonstration; System Design Document
SDR	System Design Review
SER	System Evaluation Report
SMART	Simulation and Modeling for Acquisition, Requirements and Training
SORC	Statement of Required Capabilities
SOW	Statement of Work
SSAA	System Security Authorization Agreement
SSEB	Source Selection Evaluation Board
STANAG	Standardization Agreement
STAR	System Threat Assessment Report
T&E	Test and Evaluation
TACOM P2K	Tactical Communications Post 2000
TCG	Threat Coordinating Group
TCS	
TI	Tactical Internet
TIM	Technical Interface Meeting

TISO	Threat Integrated Support Office
TMDE	Test Measurement and Diagnostic Equipment
TMS	Tactical Message System
TOC	Total Ownership Cost
TRA	Technology Readiness Assessment
TRCS	Tactical Radio Communications Systems
TRI-TAC	Tri-Service Tactical Communications
TRL	Technology Readiness Level
TS/SCI	Top Secret/Special Compartmental Information
TSP	Training Support Packages
TWIPT	Test Working Integrated Product Team
UA	Unit of Action
UAV	Unmanned Aerial Vehicle
UE	Unit of Employment
UFO	
UK	United Kingdom
U.S.	United States
USD	Under Secretary of Defense
USF	Unit Set Fielding
V&V	Verification and Validation
VTC	Video Teleconference
WAN	Wide Area Network
WBS	Work Breakdown Structure
WGS	World Geodetic System; Wideband Gapfiller System
WIN-T	Warfighter Information Network - Tactical
WIPT	Working Integrated Product Team
WNW	Wideband Network Waveform
WSUC	Weapon System Unit Cost