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PROGRAM MANAGEMENT COURSE
INDIVIDUAL STUDY PROGRAM

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AN APPROVED LOA

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(10) BYRON EDWARD GRIZIO
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HAPPINESS FOR A PROSPECTIVE PM:

AN APPROVED LOA

Study Project Report

Individual Study Program

Defense Systems Management School

Program Management Course

Class 76-1

by

Myron Edward Grizio
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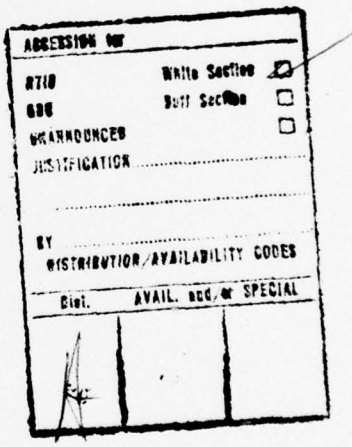
May 1976

Study Project Advisor
Mr. Larry Birk, DAC



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STUDY TITLE: Happiness for the Prospective PM: An Approved LOA

STUDY PROJECT GOALS:

To determine the inputs and procedures which the Army utilizes to process an LOA. To analyze and determine the current processes involved in LOA preparation. To determine the effectiveness of the procedures and develop an appropriate LOA model.

STUDY REPORT ABSTRACT:

The U. S. Army has implemented the use of the LOA (Letter of Agreement) as a unique and innovative method of defining system requirements in broad terms while development proceeds in the early advanced development phases (6.3B). As the system development proceeds to full-scale development, a ROC (Required Operational Capability) is prepared to finalize need/requirements.

This report traces the historical evolution of the LOA, defines the requirements of the LOA, traces the processing procedures and reports on its acceptance by the combat and materiel developer.

Key Words: Letter of Agreement; Materiel Acquisition; Required Operational Capability; Materiel Need Concept; Documentation.

MATERIEL DESIGN AND DEVELOPMENT CONCEPT FORMULATION COMBAT DEVELOPMENTS PROGRAM MANAGEMENT

ROC

NAME, RANK, SERVICE
MYRON E. GRIZIO, MAJ, USA

CLASS
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EXECUTIVE SUMMARY

The Letter of Agreement (LOA) is a jointly prepared and authenticated document initiated by an Army combat developer (user) and material developer (developer). The LOA is used as the supporting document for the advanced phase of research and development (6.3B). The utilization of the LOA in this manner is a unique and innovative method of defining system needs/requirements which is peculiar to the Army. The LOA provides the Army with a control document which authorizes entry into the Conceptual/Validation (Advanced Development) phase without committing to specifics early in the acquisition process. It allows the Army considerable latitude prior to final commitment to a particular system which is accomplished later through the initiation of a Required Operational Capability (ROC) document. The ROC is prepared after DSARC II decision to enable entry into Full Scale Development.

This paper provides a short, historical summary on some of the criticism leveled against the Army's acquisition procedures which resulted in the adoption of the use of the LOA. It covers the specific requirements of the LOA, provides a procedural and processing model for LOA development, and finally format instructions. These sections should provide valuable information for an inexperienced action officer tasked with the preparation of an LOA.

To evaluate the current procedures, the report covers some comments received from personnel who have worked the system. A synopsis of

their comments indicates enthusiastic acceptance and response for the procedures. Although some conflict areas were identified, they were not considered to be serious or unresolvable.

The report concludes that the LOA seems to be a step in the right direction to improve Army acquisition procedures. It should silence some of the Army's critics of the needs/requirements generation process. Although this report indicates favorable response to the new Army acquisition procedures, it is recommended that a follow-on study be conducted to determine what the specific benefits have been in terms of savings in time, money and performance improvement.

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SECTION I

INTRODUCTION

The acquisition of quality equipment for the U. S. Army soldier has in recent years become a highly visible, extremely controversial, and much maligned process. It is in the area of systems acquisition where the "big" budget dollars within the Department of Defense (DOD) utilized for research and development of major systems finds many of its critics. This is an area also where the Department of Defense has been concentrating efforts in order to improve its track record; fully recognizing that the process of developing new systems is a horrendously difficult, demanding and painstaking task for those charged with its responsibility.

Purpose.

The systems acquisition guidelines used in the development process contain several document requirements which are used to start the acquisition process. It is the purpose of this paper to look at one of these documents -- the Letter of Agreement (LOA). The Army has published several regulations which reference the use of the LOA, and has produced guidelines for formating and processing it, which will be discussed later. Since the approval of the LOA is one of the first documents required to initiate the acquisition process, it is the intent

of this paper to discuss in some detail its evolution and the process, procedures and problems associated with the development and the generation of an approved LOA.

Goals.

Through the discussion it will be possible to determine the inputs required, and the procedures for processing the LOA through the user and developer commands.

Significant Definitions.

The LOA is a jointly prepared and authenticated document in which the combat developer and the materiel developer outline the basic agreements for further investigations of a potential materiel system. The materiel and combat developer both agree that a materiel concept has sufficient interest, importance, operational and technical potential to warrant the commitment of advanced development resources to obtain more definitive information. The LOA will describe the further investigation and testing needed to develop and validate the system concept, and will establish the investigations needed to define the operational, technical, and logistic elements of the materiel concept. The LOA is the document of record to support effort in the system advanced development category of the RDTE program. (8, C-2)[1]

[1]This notation will be used throughout the report for sources of quotations and major references quoted directly. The first number is the source listed in the bibliography. The second number is the page in the reference.

The Required Operational Capability (ROC) is a HQ, DA document which states concisely the minimum essential operational, technical, logistical, and cost information necessary to initiate full scale development or procurement of a materiel system. (5, A-3)

The combat developer is the command or agency responsible for the formulation of doctrine, concepts, materiel requirements and objectives, and organizations for the employment of Army forces in a theater of operations and in control of civil disturbances. (6, A-1) The principle combat developer, trainer and user representative for the Army is the U. S. Army Training and Doctrine Command (TRADOC).

The materiel developer is the command or agency responsible for research, development and production validation of a system (to include the system for its logistic support) which responds to HQ, DA objectives and requirements. Materiel developers will be designated from the following, with specific responsibilities assigned as appropriate: Chief of Engineers; The Surgeon General; Commanding General, Development and Readiness Command (previously AMC); Commanding General, U. S. Army Computer Systems Command; Commanding General, Army Security Agency; Deputy Chief of Staff, Research, Development & Acquisition; Commanding General, U. S. Army Communications Command; and, Commanding Officer, U. S. Army Institute for Behaviorial & Social Sciences. (6, A-3) For the purpose of this paper, HQ, DARCOM is considered the principal materiel developer.

Scope.

A discussion of some of the historical basis, the evolution of the LOA in the present system acquisition process, and the actual procedures presently utilized will be addressed.

Limitations.

The report addresses itself strictly to the requirements documents of the U. S. Army. Although several references are made to total service (DOD) problems to illustrate various points, the scope of the requirement documents utilized is limited to the present use of the LOA as the Army's requirement/need document.

The report is also limited in scale to a very small sample size from which actual experience using the system and procedures has been taken. To lend greater creditability to the findings, it would be necessary to sample several individual action officers from each school, headquarters, commodity commands, etc., through which LOA's are generated and processed.

Since each LOA generated involves very few of the same personnel in each case, it is highly probable that individual cases could be found which may refute some of the opinions and statements made in this report.

Generally speaking, however, it is believed that personnel interviewed stated views which would be representative of those which could be found in most organizations processing LOA's.

Organization.

The report is organized under the topic area sections of an introduction, historical summary, LOA requirements, LOA preparation, evaluation of current LOA procedures and a summary.

The sections have, in some cases, several subsections dealing with topics which tend to expand or clarify various points to be made.

SECTION II

HISTORICAL SUMMARY

The primary documents which were utilized in the past to define user requirements which the developer worked to try and meet were the Materiel Need Document (MN) and the Required Operation Capability (ROC). Many major Army projects are yet today working against Materiel Needs (MN's), i.e., AAH, HELLFIRE. The MN was generated by the user and formalized by the Combat Development Command which, under an Army reorganization, has been deactivated with TRADOC now responsible for CDC's previous activities. There was minimum developer participation and staffing prior to issuance of an MN as the user's need requirement.

Since it was not a user/developer coordinated document, the MN often contained specifications and requirements which were beyond the state-of-the-art of technology or beyond the time range and cost scope the Army could afford or was willing to pay. As a result, to field the system it was necessary to usually waive many of the requirements which could not be met. Prior to waiver, however, there was always a very large expenditure of manpower, money and time involved in first trying to meet the requirement and then documenting the case in order to get waivers approved. The system using the MN was made to work but was burdened with problems related to requirements generation and need definition.

The MN was the forerunner of what is now known as the ROC (required operational capability) which definitizes the user's requirements prior to the initiation of full scale development. The ROC became the requirement document and was utilized during the period June 1972-November 1974, until the revised AR 1000-1 was published. In the 5 November 1974, AR 1000-1, the ROC was modified to become the document utilized to take a system into full scale development. (More will be said about the ROC later in the paper.)

The LOA is now being utilized as the initiating document which begins the process of definitizing the ROC, and allows the developer and user to set down the broad requirements of the system in an organized and coordinated position to proceed into the conceptual and validation phases of the acquisition cycle.

In the early 70's, several commissions were established by Congress to look specifically at the DOD weapons acquisition system then in being. As a result of one such committee's efforts, several findings and recommendations were reported which were directly related to all three services in their generation of needs and requirements for systems. The following discussion will relate to those findings.

Report of the Commission on Government Procurement. (1,0)

Of particular interest in this report were the discussions and recommendations having to do with establishing needs and goals, and

the problems caused by the vested interests and motivations of the principles involved in the acquisition process.

The report was critical of the needs and requirement goals established for major weapon systems and traces the procedures used in the acquisition process through the 1960's to the present starting with the Programming, Planning and Budgeting System incorporated during the McNamara era. During this period, and up to the present, the DoD acquisition policy has been to delegate the first decisions on needs and the responsibility for defining systems to each military service. The first statement of a need originates within any of the organizations in a military service or in conjunction with industry through unsolicited proposals. The Army used as its principle document the Materiel Need (MN) and, with the new Department of Defense directive concerning material acquisition, went to the Required Operational Capability Documents (ROC's) in the early 1970's. The ROC could originate anywhere in the Army - at one of the schools or centers in one of the operational commands, in the Army Materiel Command (AMC), Combat Development Command (CDC), Army Staff, Secretariat, or the idea might originate with industry. (1, 39)

Criticism of this system of need generation involved:

> 1. The statement of need did not clearly separate[2] the problem from the solution. Early acquisition plans concentrated on a needed new system and a preferred

[2]This notation and format will be used throughout the report for services of long quotations omitting the quotation marks.

> system approach with inadequate attention to why any new capability was needed or what that capability was worth. One of the reasons new systems have become more complex and costly has been the tendency to say, "what it is we need" from the outset in accommodating a host of stipulations on system characteristics and performance. (1, 40)
>
> 2. Needs were defined by each service without letter or formal agencywide coordination. Needs were subject to individual priorities which led to duplication in system capabilities. (1, 40)
>
> 3. The initial statements of needs to start acquisition programs did not separate operational needs from system solutions, and did not present program goals independently of a particular system. The titles of the statement of needs (the ROC's of the Army) implied that they were statements of the operational problem to be solved, which they were in part, but they also move directly with a preferred system product in considerable detail. (1, 41)

In other words, we were defining a need, then tying it to a proposed system to meet the need by specifying all the things it would be required to have in it or be able to do. We were, in effect, solving the problem by defining in detail the preferred system. Stipulations in the need statement caused the focus to be on a product rather than its purpose.

Needs that are set in terms of the system to be built tend to deny, delay and overextend the application of new technical approaches. However, programs formulated and pursued with attention focused on particular systems can lock-in on technical approaches which may be too advanced and unattainable.

As a result of these criticisms, the committee recommended the following:

> Start new system acquisition programs with agency head statements of needs and goals that have been reconciled with overall agency capabilities and resources.
>
> a. State program needs and goals independently of any system product. Use long term projections of mission capabilities and deficiencies prepared and coordinated by agency components to set program goals that specify:
>
> (1) Total mission costs within which new systems should be bought and used.
>
> (2) The level of mission capability to be achieved above that of projected inventories and existing systems.
>
> (3) The time period in which the new capability is to be achieved.
>
> b. Assign responsibility for responding to statement of needs and goals to agency components in such a way that either:
>
> (1) A single agency component is responsible for developing system alternatives when the mission need is clearly the responsibility of one component; or
>
> (2) Competition between agency components is formally recognized with each offering alternative system solutions when the mission responsibilities overlap. (1, 11)

AMARC Committee Report.

It was during the time that the subcommittee report discussed above was being compiled that the Army issued AR 1000-1 which was dated 30 June 1972. Shortly thereafter it also published a "Letter of Instructions"

implementing AR 1000-1, dated 23 August 1972. Neither of these documents yet mentioned the use of the LOA. During this period of time, the requirements document for the Army was the ROC which replaced the MN.

The Army operated its acquisition system under these guides for approximately one year. It was, however, still very much concerned with its acquisition system even after implementing all the changes outlined in the 1971 DODD 5000.1, and its new AR 1000-1 and implementing LOI. In December 1973, DA formed the Army Materiel Acquisition Review Committee (AMARC) to further review the Army's total materiel acquisition process.

As one might expect, the AMARC Committee reported as had the Congressional subcommittee that one of the Army's problems continued to be its needs or requirements generation process which locked in too early in the cycle the system description and requirements.

The following question was presented by the AMARC.

> How should the Army embark in the development of a material system?

The AMARC discussion included the following:

> (1) The Army initiates programs leading to development of a system through approval of a Required Operational Capability (ROC). Due to the frequent changes (Apr 71 and Aug 72) in the documentation supporting the Army's acquisition process, there are a variety of documents currently serving as approved requirements documents in addition to the

> ROC, e.g., Qualitative Materiel Requirement (QMR) and Materiel Need (Engineering Development) (MN[ED]). No matter what name or format has been used, the document serves as the "user" statement of his need for a system.
>
> (2) The theory is that the user can specify what his needs are and the developing agency can respond to this document by developing the required equipment in a straightforward and expeditious fashion in accordance with approved procedures...we believe that this concept is workable for acquisition of already developed equipment or improvement actions to standard equipment where the technology is well in hand, the user thoroughly understands what the improved equipment will do, and the developer has adequate data on cost and schedule. The concept is unworkable when a new class or type of equipment is to be developed and required... (3, I-7)

AMARC also looked at the question of how should requirements be established? In answering this question, it recommended

> ...that the concept of a user document be accepted to guide system advanced development (6.3B)...and that the ROC be prepared after successful completion of advanced development. (3, I-B)

As a result of the AMARC recommendations, the Army issued a revised AR 1000-1, dated 5 November 1974, effective 1 January 1975, which incorporates the concept of a joint user/developer document, the LOA as the guide to system advanced development and the utilization of the ROC for entry into full scale development.

SECTION III

LOA REQUIREMENTS

> Research and development efforts for systems acquisition should be initiated with modest programs, avoid unsupported promises as to system expectations, and recognize fully the technical risks and uncertainties. A formal requirement, with its implicit commitment to an essential production decision, will not be established until a thorough advanced development program has been conducted to include testing of components and/or prototypes, to adequately demonstrate both the technical and operational feasibility. The development, improvement and/or procurement of materiel systems must result from an active dialogue between the combat developer and the materiel developer. When a requirement cannot be satisfied by existing equipment, the materiel and combat developer shall jointly determine if an improved or new system could be satisfactory ...
>
> The system concept will be developed and validated jointly by the materiel developer and combat developer prior to formal commitment by the Army to the need for the system. ... The objective of the Conceptual and Validation Phases is to provide a basis for timely low-risk full-scale development of new systems or improvement of existing systems and to insure that the information necessary for the Army to determine the best course of action is developed and reviewed. ... (7, 1 & 2)

The excerpt above is the lead-in discussion to the section in AR 1000-1 which provides the general guideline requirements for the generation of an LOA. Both AR 1000-1 and AR 71-9 provide information which is extremely useful for preparation of an LOA. DARCOM and TRADOC Headquarters have recently published a Materiel Acquisition Handbook, dated 1 November 1975, which provides explanations for the joint development of each

materiel acquisition document and describes the combat and materiel developer interface.

The Materiel Acquisition Handbook provides the following guidance:

The jointly prepared and authenticated LOA is required under most conditions, before new starts involving 6.3B funds can be obligated. The primary purpose of the LOA is to insure TRADOC and DARCOM are in agreement on the nature and characteristics of a proposed system. The LOA also insures that the two commands are aware of the investigations needed to develop and validate the concepts for the system, the definition of the associated operational, technical and logistics support concepts, and finally the interactions to promote harmonious development of the system between the developer and the user.

The LOA is a document of record which supports the effort in the System Advanced Development (Concept & Validation) 6.3B category of research and development.

Preparation of the LOA is usually accomplished at a proponent TRADOC school such as the Field Artillery School, at Fort Sill, Oklahoma and at the DARCOM commodity command/laboratory level such as the Missile Command, at Redstone Arsenal, Alabama. If the LOA research and development costs for Advanced Development are less than $10 million, approval can be made at the DARCOM/TRADOC Command level. If research and development costs exceed $10 million, the LOA is forwarded by the user to Headquarters,

Department of the Army, Deputy Chief of Staff for Operations (HQDA [DCSOPS]) for approval. Systems which were initially projected to be less than $10 million and subsequently exceed that threshold require the user to update the LOA and forward it to HQDA (DCSOPS) for approval. All other LOA will be sent to HQDA (DCSOPS) for information and appropriate distribution to the DA Staff. The LOA is the basis for research and development and force development effort prior to full-scale development.

SECTION IV

LOA PREPARATION (9, 3-2-3-7)

The user (TRADOC) upon receipt of a requirement, assigns one of its schools as the proponent agency. The school prepares a draft of the LOA including as much detail as is possible based upon the information available at that time. The school then forwards the document simultaneously to:

a. DARCOM commodity command/development center.

b. The Logistics Command Materiel Directorate for review and comment on reliability, availability and maintainability aspects, if applicable, and Integrated Logistics Support content and requirements.

c. TRADOC proponent and integrating centers and schools for comment and information.

A joint working group may then be formed with the TRADOC proponent school providing the chairman and the DARCOM developing commodity command providing the vice-chairman. This is done through a formal request made directly to the DARCOM subordinate element by the TRADOC proponent. Information copies go to TRADOC (Deputy Chief of Staff Combat Development) and to DARCOM HQ.

(1) A transmitted letter establishes a tentative meeting date for the joint working group and requests comments from addressees no later than 30 days from the date of the letter.

(2) No responses from addressees are assumed to be concurrences (other than DARCOM).

The joint working groups or proponent TRADOC school will:

a. Refine the draft from comments received.

b. Prepare the document in proper format.

c. Coordinate the draft LOA with elements of TRADOC and DARCOM for comment/concurrence. Requests for comments will be made within 30 days or concurrence is assumed.

(1) Within TRADOC:

(a) Other interested TRADOC schools.

(b) The proponent integrating center.

(c) Logistics Center for reliability, availability, and maintainability information, if applicable, and for any logistical support concept investigations.

(d) Other integrating centers that may be appropriate.

(2) Within DARCOM:

(a) Test and Evaluation Command (TECOM). TECOM will provide their comments on the draft LOA to the Research and Development Directorate, DARCOM.

(b) Army Materiel Systems Analysis Agency (AMSAA). AMSAA provides its comments on the draft LOA to the Plans and Analysis Directorate, DARCOM.

(c) Equipment Authorization Review Activity (EARA). EARA provides its comments on the draft LOA to the requirements and Procurement Directorate, DARCOM.

d. Provide a rationale, coordination and preliminary appraisal index.

e. Insure the following items are addressed either in the main document or in an inclosure/annex:

(1) Nuclear survivability

(2) COMSEC (communications security) requirements.

f. Prepare a letter of transmittal, signed jointly by the joint working group chairman and vice-chairman and submit the LOA to HQ DARCOM through appropriate channels. Any differences which may still be unresolved will be attached to the letter of transmittal.

The integrating TRADOC proponent center will:

a. Insure the need is valid.

b. Resolve those differences identified during the LOA preparation reported by the joint working group.

c. Insure the other centers and major subordinate commands of DARCOM receive proper coordination whenever required.

d. Insure the integrating centers receive the LOA and review and provide comments pertaining to their respective areas of responsibility.

e. Forward the schools (or joint working groups) letter of transmittal by indorsement and provide appropriate recommendations.

The proponent DARCOM element, Major Subordinate Command (MSC), will review the proposed draft LOA received from the school or joint working group. The local Foreign Intelligence Office will review the threat statements. The differences identified during preparation of the draft LOA which could not be resolved at the joint working group level, will be resolved between DARCOM, MSC and the TRADOC Integrating Center. Cost information contained in the document which is provided by DARCOM elements must be validated by the MSC Comptroller or Cost Estimating Control Data Center prior to forwarding the document.

The action officer at HQ, TRADOC, Office of the Deputy Chief of Staff for Combat Development (ODCSCD) will upon receipt of the draft LOA:

a. Insure coordination of the draft LOA with appropriate staff sections of ODCSCD and HQ TRADOC within 15 days of receipt. Comments received will be resolved prior to further staffing.

b. Forward without annexes, to HQ DARCOM requesting comments concurrences within 45 days. Copies will be forwarded to other major commands, services, and American, British, Canadian and Australian (ABCA) countries (if releasable) requesting their comments in 45 days or concurrences will be assumed. An information copy is also to be furnished HQDA (DAMO-RQR).

c. Insure appropriate comments are incorporated into the document. Any comments not accepted will be explained in the HQ TRADOC

coordination annex. (HQ's TRADOC will withdraw the subordinate commands coordination annexes and will keep on file).

d. Review the draft LOA to insure that the preliminary appraisal is in agreement with the latest technical and cost information provided by DARCOM.

e. Brief the TRADOC Requirements Review Committee (RRC). The RRC will insure the validity of the need and the proposed investigations to develop the operational, technical and logistical support concepts. The preliminary appraisal will provide the basis to determine that the prospective effectiveness will warrant the research and development effort and that nuclear survivability is or is not included. The RRC will recommend the LOA be forwarded to DCSCD for approval/signature and to DARCOM for joint signature or that it be returned to the originator with specific recommendations (i.e., revise, terminate, etc.).

Disposition of the proposed LOA after approval/signature by the DCSCD is to DARCOM for joint signature. Upon return to ODCSDC, the approved/authenticated LOA is forwarded to HQDA (DAMO-RQR) for information or approval as appropriate. TRADOC reproduces and distributes the approved LOA to all interested commands and activities.

DCSOPS lists the approved LOA in the next revised Catalog of Approved Requirement Documents (CARDS).

Format for the LOA (9, 3-B-1 to 3-B-3)

A proposed format and sample LOA may be found in AR 1000-1, AR 71-9

and the Materiel Acquisition Handbook. Information required should be provided consistent with the knowledge available. To describe the system, the following LOA format is required:

a. Need for the system.

(1) A brief statement of why the system is required. A discussion of the capability goal, threat, or operational deficiency to be achieved or overcome should be presented.

(2) CARDS reference number: (blank until approved by HQ TRADOC).

b. System Concept. A description of the system, its early objectives or characteristics stated in broad bands of performance.

c. Prospective relative effectiveness. A realistic quantitative estimate of the increase in effectiveness believed to be achievable through the potential introduction of a new or improved materiel system. This estimate should be explained in the context of the "knowns and unknowns" concerning the proposed new system.

d. Prospective upper limit on unit cost, if available. An estimate of the maximum unit cost acceptable to achieve the desired or anticipated performance.

e. Investigations needed to develop:

(1) Operational employment concept. A narrative description of the activities planned by the combat developer to develop an operational concept, (i.e., field tests, experiments, studies and analysis).

(2) Technical concepts. A narrative description of the activities planned by the materiel developer to develop a technical concept (i.e., an engineering analysis, investigations and developmental tests).

(3) Logistical support concept. A narrative description of the activities needed to identify potential logistical requirements, preliminary qualitative and quantitative personnel requirements and alternate support concepts. (i.e., analysis of equipment and maintenance data on fielded systems might be a source).

f. Unknowns to be resolved. A listing and brief summary discussion of potential known unknowns or uncertainty that may require resolution through the activities listed in paragraph e.

g. Technical risk. A listing and assessment of the technical risks involved to include state-of-the-art technology that has, as yet, not been successfully demonstrated.

h. Schedules and milestones. A listing of the schedules and milestones for accomplishment of the actions described in the LOA. The primary emphasis should be on event completion and not time orientation. Milestones, however, should be phased to provide synchronous interaction by all participants to eliminate time gaps prior to entry into full-scale development.

i. Critical issues for tests. A listing and brief discussion of critical issues and tests required to resolve the issue.

j. Advanced development funds. A cost assessment section usually inserted as an appendix to the LOA contains an estimate of the Advanced Development (6.3) costs. If practicable, Engineering Development (6.4) costs are also supplied. A standard format may be found in Appendix A, page 10-A-1 of the Materiel Acquisition Handbook. The estimate includes a range estimate for Advanced Development funds in inflated base year dollars along with a fiscal year display. The sum of the funds by fiscal year should total a number that falls within the upper and lower bounds of the range and will be considered the expected cost. A display by fiscal year showing constant year dollars should be shown below the inflated year dollars in the display.

A broad base Engineering Development estimate is also required. This estimate is also displayed by fiscal year and its sum of all year dollars must also fall within the estimated dollar range.

The AD & ED sections should list the quantity of prototypes to be fabricated in the research and development phase.

The final section of the LOA cost assessment should contain a broad based estimate of the unit flyaway cost expressed in constant year dollars which can be used to formulate a prospective upper limit unit cost, if available.

The materiel developer will prepare broad base estimates of unit flyaway costs to be used to formulate the prospective upper limit on unit cost. (9, 10-1)

SECTION V

EVALUATION OF CURRENT LOA PROCEDURES

An attempt to gain some insight into the effectiveness of current procedures concerning the generation and processing of LOA's was conducted. Interviews with Action Officers from four different headquarters were conducted to gain a feel for their perceptions of the current system and the difficulties encountered as an LOA takes form. (12) An attempt was made to gain some balance in the views expressed by talking to both combat developers and materiel developers.

Potential Conflict

Although several areas of potential conflict surfaced as a cause for disagreement between the user and developer in generating the LOA, it was possible to confine them to basically differences in the philosophies behind their approach to the problem. Philosophical differences in perceiving the need for early on specificity of requirements, the approaches to reporting the potential development and unit costs and the requirements for early hands-on testing of equipment are the principle complaints.

It should be noted at this point, however, that these areas of concern were not considered unresolvable by either the user or developer. As a matter of fact, both were extremely pleased with the established system of generating the LOA and expressed these areas as being only areas of potential conflict when pressed to give specifics. (More will be said about the total process toward the end of this section.)

In the area of perceiving the need for specificity of requirements, it is the user's view that this is necessary for a couple of reasons. First, they are aware of the specific needs the system will be required to fulfill in much better terms than the developer. Second, they perceive the need to meet specific requirements as a better method of tieing down cost factors early in the game as long as technology to meet the need is available. They are prepared to back off in this area when the state-of-the-art has not been adequately demonstrated.

The developer, on the other hand, perceives specificity at the LOA stage as being a restriction of his flexibility to be creative and innovative to meet the need requirement. They would much rather have the requirements stated in broad and general terms. The belief is that restricting the needs to tie down costs at this stage of development is much too soon based upon the risk and uncertainties of developmental requirements. They perceive the keeping of costs at low levels to be an attempt by the user at making the system as desirable as possible from a cost standpoint in order to get eventual approval for the system to proceed into development. Admittedly, this is of interest to the developer also.

The approaches to reporting development and unit cost is a result of and a continuation of the previous topic. There is a basic dichotomy involved in both the side of the user and developer on the issue of cost. Each knows that affordability of a system is a major issue in whether it can proceed to development and eventual fielding. To be approved,

therefore, costs must be reasonable and preferably on the "low" side. Both agree. To avoid charges of being unrealistic and eventual breaching of the LOA thresholds due to areas of high risk or uncertainty, there is great reluctance on the part of the developer to be anything but conservative in the cost estimate. Since the developer prepares the cost estimate, he is better aware of technological risk and uncertainty, and realizes the consequences of breaching cost thresholds due to overruns and the eventual impending criticism of the user, service staff, OSD, and Congress; he is in a real dilemma. The user and developer must necessarily then give the cost estimate of development and potential unit cost their best shot and be prepared to back it up under all scrutiny. There must be a rapport established early on, of mutual trust and agreement that both user and developer are sincere and dedicated to attain the development of a system that will serve the soldier and, at the same time, protect the interests of the taxpayer.

The requirement for early hands-on testing of equipment tends to bother the developer to some extent. The view is that early developmental items are not suitable for user tests and are primarily only to test feasibility. The equipment is not hardened, is still very much ill-defined as to being operationally suitable and tends to be of a configuration which will change drastically before full-scale production. It is felt that hands-on testing at this point will be detrimental to user acceptance of a later improved version.

The user on the other hand argues this is not the case. They know and realize the limitations of prototypes and models at this stage of development. However, they are extremely interested in breadboard and brassboard models in order to evaluate the equipment specifically for imperfections which are not well-documented and known, and which may not be designated for change in later development. To this is added the opportunity also to evaluate some of the operational, doctrinal, and training concepts which have been hypothesized.

Once these areas of potential conflict are resolved at the working levels, be it the TRADOC schools and DARCOM commodity commands or the joint working group, the next major hurdles are staffing through the major headquarters and commands. One of the major problems in completing the staffing evolves due to erroneous or overly optimistic representations which are made at various levels within the headquarters and commands. As an LOA is being generated, interest in potential systems and approaches to solving the need requirement are also being generated. Within a very short period of time various contractors begin briefing their solutions up the tape and soon various configurations, approaches, and cost estimates and figures that have been thrown out begin sticking in the minds of personnel attending the briefings.

When inappropriately applied, this type of information can cause the processing of the LOA to be delayed until various studies, and informational briefings prepared by both the user and developer can put to

bed the issues which have been generated by overly eager and optimistic contractor personnel who have been trying to sell interest in their products. Often these activities have resulted in the user and developer being directed back to ground zero until issues could be resolved.

What's Right About the Procedures?

So far the discussions in this section have dealt with potential conflict areas. The overwhelming comments from both user and developer concerning the LOA procedures, however, have not been related to conflict but to the resolution of conflict. The primary statements have been favorable and enthusiastic in their praise of the procedure.

The thread which seemed to run through the comments of both the user and developer pertain to the fact that the LOA is now a user and developer joint requirement. A major step has been getting the two together and in so doing, hammering out an agreement acceptable to both through which each has as its goal the overall interests of the Army as a prime motivator. It has been the catalyst whereby each can appreciate the problems and perceptions of the other as the development of a system begins to take shape. As a result, the user is no longer asking for undeliverables and the developer is no longer promising them.

SECTION VI

SUMMARY

Conclusions

From the preceeding discussion there is evidence that the materiel acquisition process within the Army has been modified to take into account its critics comments. Indications are that the Army's attempt to define the need requirements through the use of the LOA has been quite successful. That is if one looks only at the degree of satisfaction which the personnel who operate the system of defining the requirements are concerned. So far the Army has led the way with this rather unique and innovative method of defining needs prior to entering the conceptual and validation phase with a locked-in requirement. The use of the LOA to enter the conceptual and validation phases and then the ROC, which firms up the needs prior to entering full-scale development appears to be highly successful. It is so logical, in fact, that it has previously been hiding "the forest because of all the trees".

Recommendations.

Although it may be concluded that the use of the LOA has been successfully implemented, the question which might logically be asked is, "what impact has the adoption of the LOA had on speeding up the overall materiel acquisition process, and what has been the improvement in the savings of time, money and effort to meet performance requirements?" Unfortunately,

it is not within the scope of the paper to explore and make an evaluation of that type of question. It may well be yet too early to assess the impact of that question since the process itself is still relatively new.

A study of this type is recommended as a follow-on to this particular study effort as a future project. To find out just how well the Army is doing since it atopted the LOA could have considerable impact on some of the Army's critics, especially if the results of the study were found to be favorable.

Implications.

As can be seen, the process of getting an LOA through to ultimate approval to enter the conceptual and validation phase is just the beginning. Paraphasing that famous American cartoon character Peanuts, "Happiness for a prospective PM, an approved LOA" is just the start of the battle to begin development. The LOA is no firm commitment to begin the process of development. Approval of the LOA signals the beginning of the very real problem of getting the funds released to proceed. It is only then that the PM can "do his thing". However, with joint agreement between user and developer, a concerted effort will normally be rewarded favorably.

The successful implementation of the need requirements generation problem through the use of the LOA should impact favorably on the critics of the Army's acquisition procedures. This, in itself, will be a major step forward and should allow more effort to be applied to the challenge of getting new and improved systems into the hands of the ultimate users.

BIBLIOGRAPHY AND LIST OF REFERENCES

1. Senate Committee on Government Operations, Subcommittee on Federal Spending Practices, Efficiency, and Open Government, Extract from Report of the Commission on Government Procurement, Volume 2, December 1972, PART C - Acquisition of Major Systems, 94th Congress, 1st Session.

2. DODD 5000.1, Acquisition of Major Defense Systems, 13 July 1971.

3. Sell, Wendell B., Report of the Army Materiel Acquisition Review Committee (AMARC), Volume I & II, Office of the Secretary of the Army, Washington, DC, 1 April 1974.

4. U. S. Army Regulation, Army Research, Development and Acquisition, (Research and Development), AR 70-1, 1 May 1975.

5. U. S. Army Regulation, Project Management, (Research and Development) AR 70-17, 16 June 1975.

6. U. S. Army Regulation, Materiel Objectives and Requirements (Force Development), AR 71-9, 7 February 1975.

7. U. S. Army Regulation, Basic Policies for Systems Acquisition by the Department of the Army, AR 1000-1, 5 November 1974.

8. U. S. Army Pamphlet, Life Cycle System Management Model for Army Systems, PAM No. N-25, May 1975.

9. AMC-TRADOC Materiel Acquisition Handbook, 1 November 1975.

10. Letter of Instruction (LOI) for Implementing the New Acquisition Policies, 23 August 1972.

11. HQDA letter, 23 August 1972, subject: Letter of Instructions (LOI) Implementing AR 1000-1.

12. Interviews and Discussions with:

    a. Mr. Ed Sedlack, HQ DARCOM, Alexandria, VA.
    b. Mr. Stephan Matos, HQ DARCOM, Alexandria, VA.
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