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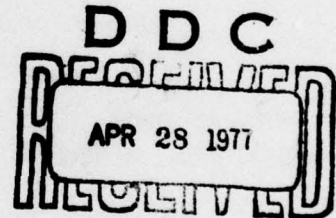
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PROCUREMENT ADMINISTRATIVE LEAD TIME (PALT)
MANAGEMENT AND PERFORMANCE CRITERIA

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ARMY PROCUREMENT RESEARCH OFFICE
U.S. ARMY LOGISTICS MANAGEMENT CENTER
FORT LEE, VIRGINIA 23801

PROCUREMENT ADMINISTRATIVE LEAD TIME (PALT)
MANAGEMENT AND PERFORMANCE CRITERIA

by
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At the time of publication of this report, the recommendations had not been approved for implementation by the US Army Materiel Development and Readiness Command.

US Army Procurement Research Office
US Army Logistics Management Center
Fort Lee, Virginia 23801

EXECUTIVE SUMMARY

A. BACKGROUND. In recent times procurement managers have complained that Procurement Administrative Lead Time (PALT) policies have taken too much management prerogative out of their hands. Existing PALT management practices must be re-evaluated in terms of the value and usefulness. Procurement Managers need a more appropriate set of PALT management criteria against which to measure the effectiveness of the mission for which they are responsible. Thus, by measuring accomplishments against PALT management criteria, procurement managers will be better able to plan, direct, manage and control the pre-award procurement cycle. This study looks at the traditional PALT practices in order to develop more appropriate PALT management and performance criteria.

B. OBJECTIVES. The objectives of this project were:

1. Analyze DARCOM's and the MSC's current system for managing PALT.
2. Determine meaningful PALT objectives as a means of managing PALT.
3. Establish PALT management and performance criteria for use by

procurement managers.

C. STUDY APPROACH AND RESEARCH METHODS EMPLOYED. The study and research methods employed consisted of reviewing publications and on-going research in the area, obtaining comments from key management officials at HQ DARCOM and the MSCs and utilizing statistical and operations research methods.

D. CONCLUSIONS. The conclusions were: a. PALT standards are a useful management tool to encourage award of PWDs in a more timely manner; b. The most frequent reasons for PALT delay are of equal if not greater importance than the PALT standards themselves in that they identify bottlenecks which if corrected would minimize PALT; c. The current definition of PALT in DARCOMR 5-4 needs to be expanded to include PASS, a part of ALPHA; d. PALT is significantly different at each MSC and between formal advertising and negotiation; and e. PALT is not significantly different between fixed price and cost reimbursement type contracts and not between various dollar stratifications above \$10,000.

E. RECOMMENDATIONS. The recommendations are: a. The use of PALT standards should be continued, and that they should be updated every year to insure validity; b. PALT performance should be displayed so as to show trends both within the fiscal year and among fiscal years. When PALT performance is felt to be at a level consistent with good business practices, the emphasis on PALT should be reduced; c. A detailed analysis of the PALT delay codes should be conducted quarterly by HQ DARCOM; d. DARCOMR 5-4 should be updated to provide an expanded PALT definition more in keeping with capabilities of the PASS section of ALPHA; e. Frequency distribution, tests of hypothesis, and analysis of variance should be used to develop PALT standards and evaluate performance against the standards; f. Separate PALT standards for formally advertised and negotiated contracts should be established for each MSC; g. Procurement managers should concentrate their attention on those segments of the pre-award procurement cycle which account for the largest portion of PALT; and h. Procurement managers should concentrate their attention on those PWDs where the bulk of the manpower and dollars are devoted, above \$10,000.

* v. P 5

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CHAPTER I
INTRODUCTION

A. BACKGROUND

One of the continuing problems of procurement has been that of Procurement Administrative Lead Time (PALT). PALT has generally been believed to be a primary cause of late delivery to the field (8). Consequently research on PALT has been concerned with how to reduce it.

In recent times procurement managers have complained that the constant emphasis on reducing PALT has constrained their options considerably and that a new, more modern management approach is required for PALT.

This study will re-examine traditional ideas about PALT as well as the current reality in order to develop more appropriate PALT management and performance criteria.

B. PROBLEM

Existing PALT management practices must be re-evaluated in terms of their value, usefulness and cost. Procurement managers need a more appropriate set of PALT management criteria against which to measure the effectiveness of the mission for which they are responsible. Thus, by measuring accomplishments against PALT management criteria, procurement managers will be better able to plan, direct, manage and control the pre-award procurement cycle.

C. OBJECTIVES

The objectives of this project were:

1. Analyze DARCOM's and the MSC's current system for managing PALT and develop appropriate PALT management and performance criteria.

2. Determine meaningful PALT objectives as a means of managing PALT. These objectives must be suitable for control (qualitative or quantitative measurement in order to determine and control progress toward achievement of the objective), significant rather than routine actions, oriented towards the accomplishment of specific results, and challenging and realistic to achieve.

3. Establish PALT management and performance criteria for use by procurement managers.

4. Utilize the results of this study in developing the PALT objective for the DARCOM Procurement Management System (PROMS).

D. DEFINITION AND CONVENTION OF TERMS

One major issue picked up from the review of previous PALT studies is that of defining just what PALT means (3, 4, & 7). Before defining PALT, one first needs to define the segments that make up the pre-award procurement cycle.

For example, to the supply personnel at the Inventory Control Points (ICPs) who are interested in holding down costs of ordering and holding inventory at the ICPs and stock points while minimizing the average number of days forecast for delay in the availability of material, lead time is the time interval between placing an order and its addition to inventory as illustrated in Figure 1. Obviously, lead time is an important factor in computing requirement objectives and in establishing the quality level (reorder point (ROP)) at which replenishment actions for items will be initiated.

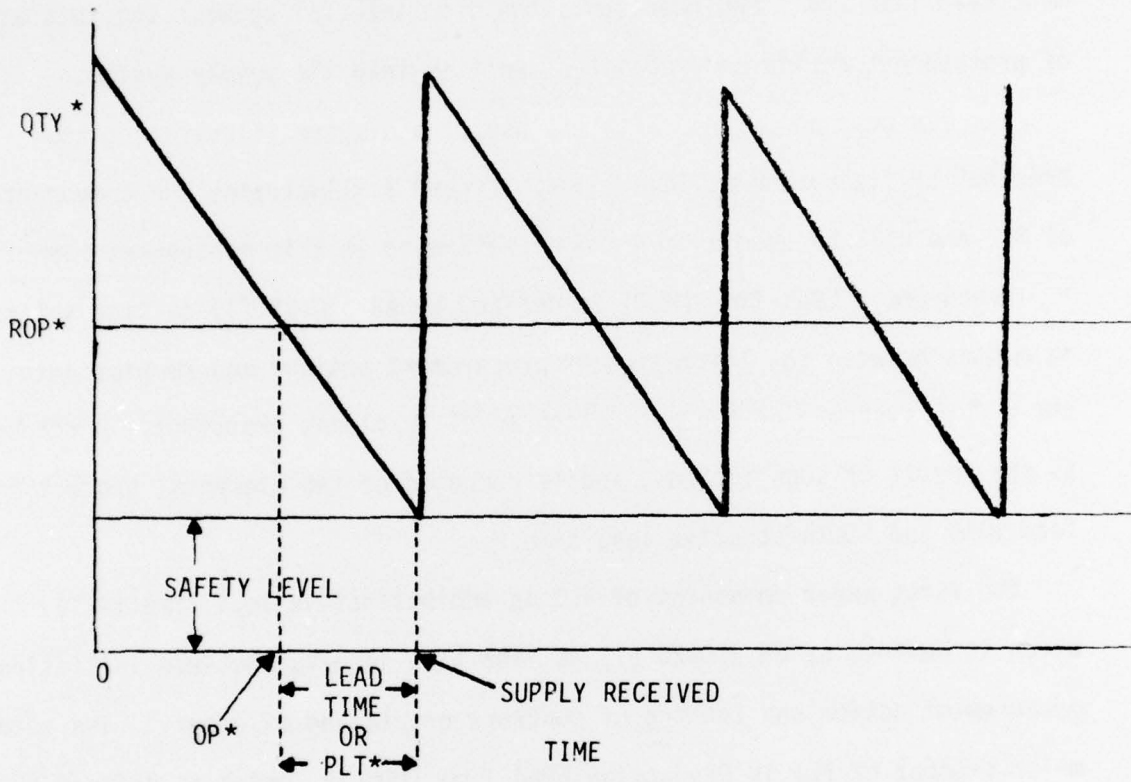


FIGURE 1. EXAMPLE LOT SIZE INVENTORY SYSTEM SHOWING PLT/LEAD TIME

*LEGEND: PLT = Procurement Lead Time
 ROP = Reorder Point
 OP = Order Point
 QTY = Quantity

But to procurement personnel, this same lead time is known as Procurement Lead Time (PLT) and represents the time interval between the initiation of procurement action and receipt of an item into the supply system.

PLT can best be defined with the use of a diagram illustrating the breakout of its component lead times. Figure 2 illustrates the components of PLT and will be used as a frame of reference in this management report.

Procurement Lead Time (PLT) is defined by AR 310-25 (1) as "the interval in months between the initiation of procurement action* and receipt into the supply system** of the production model (excludes prototypes) purchased as the result of such actions, and is composed of two elements, production lead time and administrative lead time."

The first major component of PLT is administrative lead time (ALT), which is defined by AR 310-25 (1) as "the time interval between initiation of procurement action and letting of contract or placing of order." The second major segment of PLT is Production Lead Time (PDNLT), which is defined by AR 310-25 (1) as "the time interval between the placement of a contract and receipt into the supply system of material purchased."

*Initiation of procurement action is "that point in time when the approved document requesting procurement and citing funds is forwarded to the procuring activity (1)."

**Receipt into the supply system is "that point in time when the first item or first quantity of the item of the contract has been received at or is en route to point of first delivery after inspection and acceptance (1)."

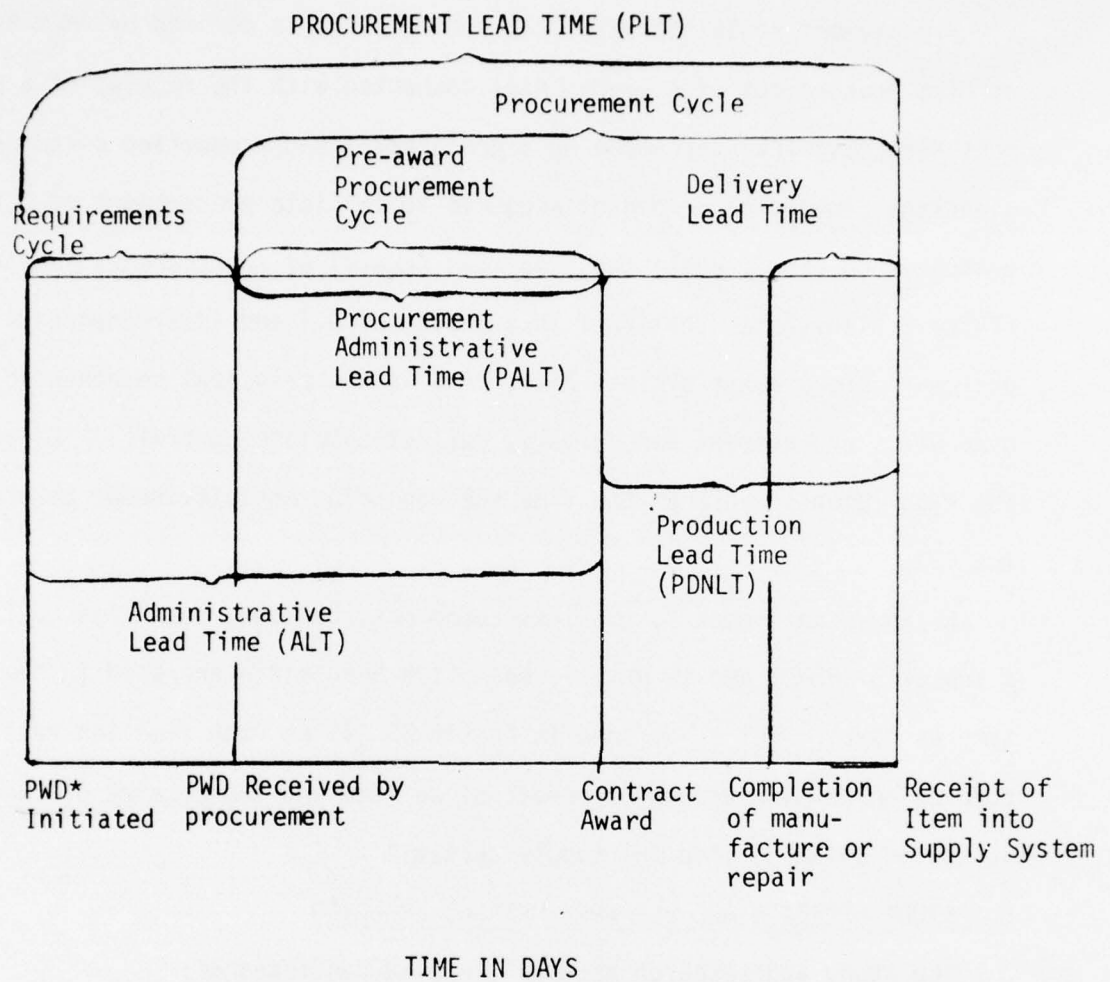


FIGURE 2. BREAKOUT OF THE COMPONENT LEAD TIMES WHICH MAKE UP PROCUREMENT LEAD TIME

* Legend: Procurement Work Directive (PWD) is the document which authorizes funds and/or authority for specific goods or services to be procured.

Procurement Administrative Lead Time (PALT), is defined by AMCR 5-4 (9) as "the measurement of calendar days connected with the receipt of a procurement directive (PWD) accepted by a procurement and production directorate as a package (funded or unfunded) adequate to initiate procurement of a requirement, and continues until the execution (award) of a procurement instrument." Figure 2 illustrates that PALT is a subset of ALT and is synonymous with the pre-award procurement cycle. Also, PALT is the principal component of PLT over which procurement has primary, but not complete control. PALT excludes the requirements cycle or the time the requiring activity needs to prepare the PWD.

As shown on Figure 2, the last component, Delivery Lead Time (DLT) is a subset of PDNLT and is not, as has often been misinterpreted in the past, the same as PDNLT. DLT is defined in AR 310-25 (9) as "the time interval between completion of manufacture or repair of an item and the receipt of the first scheduled shipment into the supply system."

E. STUDY APPROACH AND RESEARCH METHODS EMPLOYED

The study and research methods employed consisted of:

1. Collecting and reviewing all publications and on-going research in the area of PALT.

2. Collecting the FY 75 PALT data from the RCS DRCPP-127 Central Procurement Workloading Report. This data was used as follows:

- a. To compare the consistency of DARCOM's current PALT management standards to DARCOM field experience as reported in the RCS DRCPP-127 report

through the use of a one tail t-test of hypothesis.* The hypothesis tested was that the MSC PALT performance was satisfactory. The actual hypothesis tested was expressed as follows:

$$H_0 : \bar{X}_1 \leq \bar{X}_2$$

$$H_A : \bar{X}_1 > \bar{X}_2$$

where:

\bar{X}_1 = the computed PALT for a particular class of PWDs from the RCS DRCPP-127 report, and

\bar{X}_2 = the DARCOM PALT standard for the same particular set of PWDs as the \bar{X}_1 above.

If the null hypothesis (H_0) is rejected then one would conclude that the MSC exceeded the DARCOM PALT standard. If null hypothesis is accepted one would conclude that the DARCOM PALT standard was met or there is sufficient data to reject the null hypothesis at this time.

b. To perform a one-way analysis of variance (ANOVA) to see if the PALT is significantly different for the various procurement breakouts between the MSCs. This determined whether or not PALT differed between MSCs, dollar size and method of procurement; e.g.,

$$H_0 : U_{11} = U_{21} = \dots = U_{61}$$

$$H_A : U_{11} \neq U_{21} \neq \dots \neq U_{61}$$

where:

U_{11} = PALT at ARMCOM for contracts \leq \$10,000. (See Chapter II for details). Then, if one were to accept the null hypothesis* using the F-test, one

*Level of significance (α) = .05.

would conclude that the PALT times under \$10,000 did not differ from each other and therefore are basically the same between MSCs and do not justify a separate PALT standard for each MSC.

c. To establish a frequency distribution of the predominant reasons for why PALT has exceeded the calendar day standards designated for the different methods of procurement.

3. Augmenting the findings of the data analysis by obtaining comments from key management officials at HQ DARCOM and the MSCs who are responsible for PALT control. These interviews also insured that objectives, performance indicators and qualitative conclusions are valid.

4. Collecting historical data for the PALT objective on the Logistics Performance Measurement and Evaluation System (LPMES). This PALT data was used to perform a Pareto analysis of the six phases of the pre-award procurement cycle as delineated by the PALT objective under LPMES to see which component parts of the pre-award procurement cycle make up the greatest percentage of the cycle. Management then could use this information to determine where they should be concentrating most of their attention.

5. Using the principles of experimental design to establish a valid data collection plan for PALT data. The purpose of setting up this experimental design prior to collecting PALT data was to be able to obtain valid and pertinent PALT data, establish the facts, draw valid conclusions and provide correct answers. The aim of this technique was to estimate the effects of certain variables on PALT by testing hypotheses about the PALT

data in a nested design. In order to establish proper methodology for developing PALT standards based on actual past performance, it was decided that a nested experimental design stratified by method of procurement (Formal Advertising or Negotiation), contract dollar value (\$10,000 to \$99,999, \$100,000 to \$999,999, and greater than or equal to \$1,000,000), and by type of contract (fixed price or cost reimbursement) should be used. Based on previous research done on PALT and expert opinion, this is felt to be the most appropriate breakout for PALT. While routine processing of purchase requests under \$10,000 should be monitored, since they do not account for most of our dollars awarded, current DARCOM standards for small purchases will remain unchanged for the present. Also, PALT standards were not developed for the following breakouts: letter contracts, two-step formal advertising, and delivery orders.

6. Utilizing statistical methods (parametric and non-parametric) and operations research methods to analyze the PALT data collected and to develop methods of controlling PALT performance.

7. Analysis of the findings of 1 through 6 above so as to develop PALT management criteria to aid procurement managers in managing their procurement program.

CHAPTER II
ANALYSIS OF PALT DATA

A. PALT MANAGEMENT

It was observed that all the DARCOM MSCs were concerned with PALT management. Most believed PALT to be an appropriate management objective. It was found that at least two MSCs believed that ALT would be a more appropriate management objective for DARCOM HQ. If one goes back to Figure 1, it can be seen that PALT is a subset of ALT and that two different directorates would be involved if ALT is to be minimized. Thus, if ALT is to be minimized, a team effort is required and it is appropriate for procurement to concentrate on that portion of ALT over which it has major control - PALT.

It was also found that most of the MSCs had done detailed studies in one form or another on their PALT management practices in recent years. For example, one command is currently testing an advance Procurement Request Order Number (PRON) in-house processing program, which indirectly resulted from a recent PALT study. The goal of this system is to cut PALT prior to issuing the solicitation.

Also, it was observed that although few of the MSCs have written policy on PALT, most of the MSCs are concerned about PALT and are, in their own way, attempting to improve their management of PALT.

Most of the MSCs believe PALT to be an appropriate management objective. However, the MSCs feel that a more appropriate set of PALT management standards is needed together with emphasis on PALT from DARCOM HQ. They believe that their procurement personnel will work more efficiently with

PALT standards as opposed to none. This confirms the Logistics Management Institute findings (7) that PALT standards are required

. . .for three reasons: (1) Individuals are not all motivated at the same gear - I may think that 30 days is excessive to issue a sole source purchase order, while you may think that 30 days to perform the same action is reasonable; (2) competition is a motivator - and there will always be those who will compete to beat the established 'standards,' and (3) managers need a standard, gauge or goal, if you wish, against which to measure the effectiveness of the mission they are responsible for. Measuring accomplishments against PALT standards or averages, managers are able to plan, manage, direct and maintain control of the procurement process - the process by which they are able to accomplish their mission - because contracting is the vehicle through which the government conducts its business.

The review of literature revealed three major PALT studies (3, 4, & 7) which indicated that the length of PALT is rooted in existing laws and DOD regulations and that much of PALT is beyond the control of individual procurement offices. However, all three studies firmly demonstrated that PALT can be reduced.

It is imperative to remember that PALT cannot be reduced beyond a certain point without sacrificing good business purchasing practices. A certain period of time is definitely required to effect a quality procurement action.

As a result of the field interviews with procurement managers, it was concluded that certain segments of PALT are more readily manageable, controllable, and account for a larger portion of time than others. The literature search revealed that, in the past, PALT was one of the areas

being reviewed under the Logistics Performance Measurement and Evaluation System (LPMES), DOD Instruction 5010.25. PALT data from the LPMES system has been summarized to show which specific processing steps of the pre-award procurement cycle take the most time. This information indicated to management where emphasis, in order of priority, should be placed in order to manage PALT (5).

Table 1 summarizes the Army's PALT data broken out by method of procurement for fiscal years 1971, 1972 and 1973.

Tables 2 and 3 summarize the ranked percentages of each phase of the pre-award procurement cycle for formal advertising and negotiation. Table 2 illustrates that the pre-solicitation phase ranks first for formal advertising and accounts for 25.4 percent of PALT. Ranking second is the solicitation phase, which accounts for 22.3 percent of the PALT. Thus, the pre-solicitation and solicitation phases of the PALT cycle account, on the average, for approximately 50 percent of the total PALT for formally advertised contracts. Procurement's prerogatives regarding solicitation time are influenced by general ASPR rules for bidding time for formal advertisement. Thus, it might be concluded that the primary area on which managers should concentrate their attention in formal advertising is the pre-solicitation phase.

Table 3 for negotiated contracts shows that solicitation time ranks first and accounts for 26 percent of the PALT. Thus, it should receive management attention because in general, procurement has more discretion as to the time allowed for proposal preparation. The second highest ranking phase for PALT in negotiated contracts is the time required to perform the

TABLE 1
 PALT (ARMY)*
 (IN CALENDAR DAYS)

Phase of the Pre-award Procurement Cycle	METHOD OF PROCUREMENT							
	FA				NEG			
	71	72	73	TOTAL	71	72	73	TOTAL
Procurement Request Review	50	27	1	78	8	14	8	30
Pre-Solicitation	44	29	42	115	16	48	17	81
Solicitation	35	35	31	101	50	36	45	131
Evaluation/ Analysis	30	14	27	71	41	37	48	126
Negotiation	--	--	--	--	15	20	22	57
Award Processing	35	39	13	87	16	29	33	78
Overall PALT	194	144	114	452	146	184	173	503

*SOURCE: LPMES, Army PALT data for FY's 71, 72, 73

TABLE 2

COMPONENT PARTS OF THE PRE-AWARD PROCUREMENT CYCLE WHICH ACCOUNT FOR LARGEST PERCENTAGE OF THE TIME IN THE PRE-AWARD PROCUREMENT CYCLE FOR FORMALLY ADVERTISED CONTRACTS

RANK	PHASE OF THE PRE-AWARD PROCUREMENT CYCLE	FORMALLY ADVERTISED CONTRACTS	
		%	CUM %
1	Pre-Solicitation	25.4	25.4
2	Solicitation	22.3	47.7
3	Award Processing	19.3	67.0
4	Procurement Request Review	17.3	84.3
5	Evaluation/Analysis	15.7	100.0

TABLE 3

COMPONENT PARTS OF THE PRE-AWARD PROCUREMENT CYCLE WHICH ACCOUNT FOR THE LARGEST PERCENTAGE OF THE TIME IN THE PRE-AWARD PROCUREMENT CYCLE FOR NEGOTIATED CONTRACTS.

RANK	PHASE OF THE PRE-AWARD PROCUREMENT CYCLE	NEGOTIATED CONTRACTS	
		%	CUM %
1	Solicitation	26.0	26.0
2	Evaluation/Analysis	25.1	51.1
3	Pre-Solicitation	16.1	67.2
4	Procurement Request Review	15.5	82.7
5	Negotiation	11.1	94.0
6	Award Processing	6.0	100.00

evaluation/analysis, which accounts for 25.1 percent of the PALT. Thus, it can be seen that the solicitation and evaluation/analysis phases account for slightly more than 50 percent of the PALT for negotiated contracts.

A relationship interesting to note from Table 1 is that the three-year average overall PALT for both formally advertised contracts and negotiated contracts is about the same, but the component parts of pre-award procurement cycle do not rank the same insofar as which phase of the pre-award procurement cycle takes the most PALT.

The next major finding was that PALT is currently being reported differently on the RCS DRCPP-127 report by the individual MSCs. This is being caused by varying interpretations of what the actual definition of PALT means, when to start measuring PALT, and what time periods to include or exclude from PALT since there are certain provisions in AMC Logistics Program Hardcore Automated (ALPHA) for non-accrual of PALT. ALPHA is now becoming the data base for the RCS DRCPP-127 report.

In summary, it seems that the MSCs that have achieved the shortest PALT times have performed a detailed in-house analysis of the procurement process in order to establish time standards, a system of control and related reports to monitor PWD processing. It appears that when detailed processing standards are set at the MSC level and the contract specialist knows what is expected of him and how he will be rated, he will be more productive and try to meet the PALT standard. Lack of management controls could lead to excessive PALT.

B. REASONS FOR PALT DELAY

The data collected from the RCS DRCPP-127 report relative to reasons for PALT delay was summarized, analyzed to determine if significant patterns between MSCs existed, and discussed with field personnel (2). This portion of the study was undertaken to uncover any significant patterns as to where and why PALT delays are occurring. The results highlight bottleneck areas (specific processing steps) which require management emphasis.

Tables 4 and 5 summarize the predominant reasons why DARCOM PALT standards were not met. The PALT delay codes have been ranked in order of frequency of occurrence. Examination of the delay code data on the RCS DRCPP-127 report indicated that some MSCs do not report delay codes. Additionally, it was observed that there seems to be no current management use being made of the delay code data. Table 4, the summary of the PREDOMINANT reasons why PALT standards under \$10,000 were not met, shows that four delay codes were apparently erroneously reported on some 18 occasions. These codes are: 22, Solicitation review board required; 23, Awaiting secretarial determination and finding; 34, Pre-award survey required on prospective contractor; and 37, Audit of contractor cost/price data delayed.

While these situations could perhaps occasionally occur for PWDs under \$10,000, it is doubtful that they would occur with such frequency as to become predominant reasons for PALT delay. This, together with the fact that some MSC's reported the same delay codes month after month, leads to the question, are these data realistic? Table 4 for DARCOM PWDs under \$10,000 shows that delay code 52, "excessive workload," was the primary cause for

TABLE 4

FY 75 Summary of Predominant Reasons Why PALT Standard was not Met in DARCOM
(PWDs less than \$10,000, Section I of RCS DRCP-127 Report)

Delay Code *	F	Rank
55	36	1
2	32	2
37	13	3
52	12	4
26	11	5
12	8	6
40	7	7
11	3	8
21	3	8
34	3	8
3	1	9
16	1	9
22	1	9
23	1	9
25	1	9
41	1	9

*Legend: PALT Delay Codes (Appendix C of DARCOMR 5-4)

- 2 - additional funds required
- 3 - additional program authority required
- 11 - specifications and drawings not adequate
- 12 - item part number or stock number in error and requires correction
- 16 - justification for sole source procurement not adequate
- 21 - solicitation cancelled
- 22 - solicitation review board required
- 23 - awaiting secretarial determination and finding
- 25 - proposed procurement action appealed by SBA prior to award of contract
- 26 - no response to solicitation
- 34 - pre-award survey required on prospective contractor
- 37 - audit of contractor cost/price data delayed
- 40 - extended period of time for negotiation required
- 41 - change in requirements prior to award
- 52 - unrealistic target date established
- 55 - excessive workload

TABLE 5

FY 75 Summary of Predominant Reasons Why PALT Standard was not Met in DARCOM
(PWDs over \$10,000, Section I of RCS DRCPP-127 Report)

Delay Code *	F	Rank
2	41	1
55	33	2
40	23	3
26	13	4
52	12	5
34	7	6
41	7	6
30	6	7
37	6	7
11	3	8
20	2	9
25	2	9
10	1	10
22	1	10

*Legend: PALT Delay Codes (Appendix C of DARCOMR 5-4)

- 2 - additional funds required
- 10 - specifications and drawings not available
- 11 - specifications and drawing not adequate
- 20 - solicitation closing date extended due to changes
- 22 - solicitation review board required
- 25 - proposed procurement action appealed by SBA prior to award of contract
- 26 - no response to solicitation
- 30 - low offeror determined non-responsible, and another pre-award survey required
- 34 - pre-award survey required on prospective contractor
- 37 - audit contractor cost/price data delayed
- 40 - extended period of time for negotiation required
- 41 - change in requirements prior to award
- 52 - unrealistic target date established
- 55 - excessive workload

PALT delay in DARCOM, with code 2, "additional funds required; award delayed pending receipt of additional funds," ranking second.

Table 5 for DARCOM PWDs over \$10,000 shows that delay code 2, "additional funds," ranks first, delay code 55, "excessive workload," ranks second; and delay code 40, "extended period of time for negotiation required," ranks third as the predominant reasons for delay in PWDs over \$10,000 in DARCOM in FY 75.

The reasons for procurement delay were further analyzed to see if there were significant causes for delay occurring only in PWDs under \$10,000 (i.e., were delays related to dollar size of PWD?). Analysis showed that the only item of significance appearing solely in PWDs under \$10,000 was code 12, "Item Part Number or Stock Number in error and requires clarification." This is an understandable reason due to the large number of PWDs under \$10,000.

For PWD's over \$10,000 only one delay code occurred with significant frequency to mention; i.e., code 30, "Low offeror determined non-responsible and another pre-award survey required."

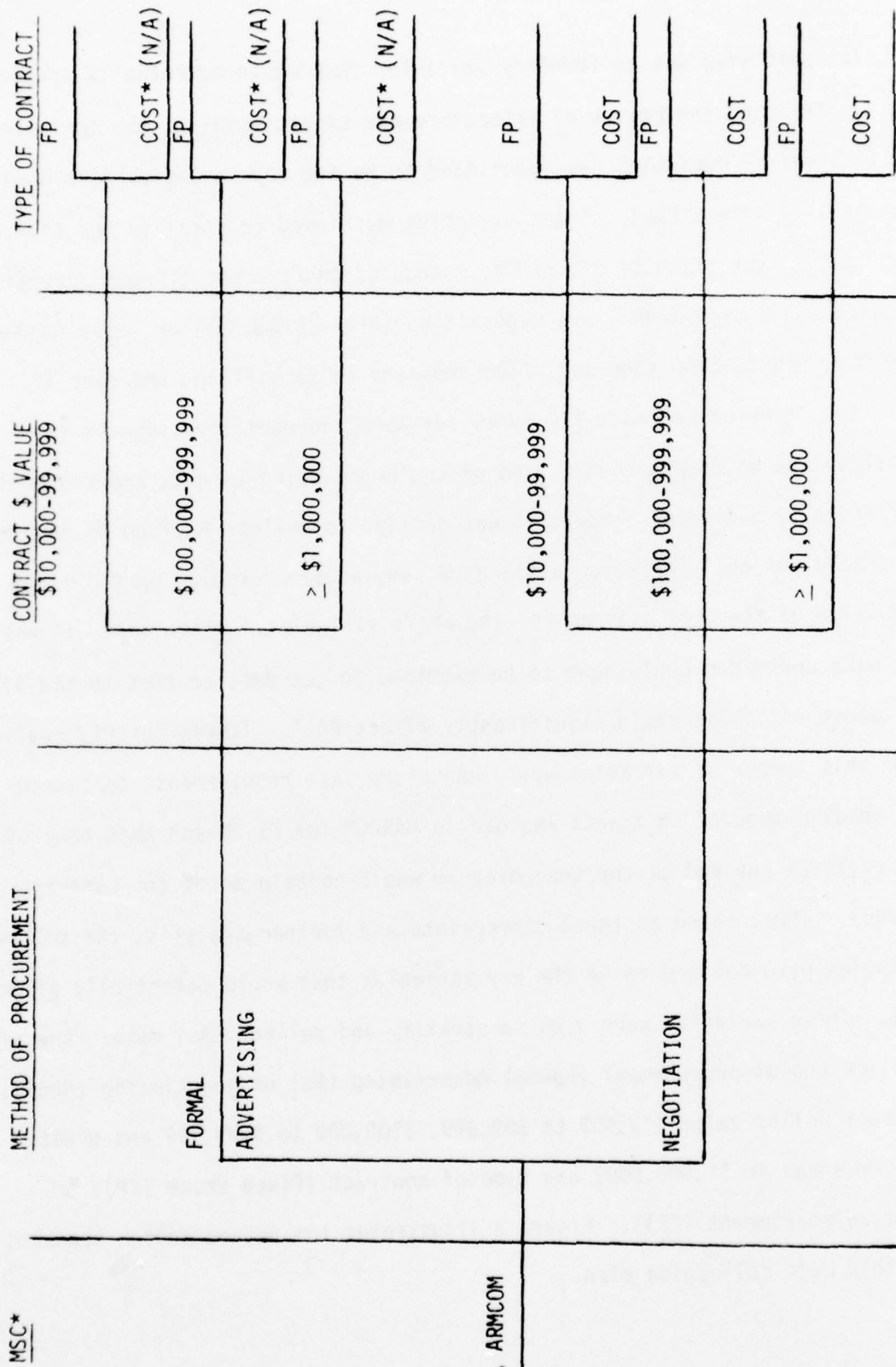
C. IDENTIFICATION OF VARIABLES THAT AFFECT PALT

1. This section describes the design of the PALT data collection plan which was used as a basis for analyzing PALT.

The tree diagram was chosen as a basis for displaying the PALT data collection plan, since it would enumerate all of the logical possibilities of variables affecting PALT where each combination of these variables could occur in a finite number of ways.

The next step was to identify variables that would potentially affect PALT. Based on the review of literature and expert opinion, the following initial set of variables was identified to be the key variables that would potentially affect PALT. These variables were used to stratify and collect PALT data: the six MSCs of DARCOM, method of procurement (formal advertising (1 step and 2 step IFBs) and negotiation (RFP & RFQ)), dollar value (under \$10,000, \$10 to \$100 thousand, \$100 thousand to \$1 million, and over \$1 million), type of contract (22 types per ASPR), competitive aspects (competition and no competition), kind of equipment being bought, and seasonal variation (4 quarters). Next, it was decided to collect PALT on 36 sample contracts per cell (based on a standard sample size formula) on the right hand side of the tree diagram for the above variables. After this, it was computed how many contracts would have to be examined to get data to test to see if the above variables would significantly affect PALT. It was quickly realized that this number of variables would cause the data requirements to exceed the total number of contracts awarded in DARCOM for FY 75 and that many of the cells at the end of the tree diagram would contain zeros (no contract awards). Thus, based on these constraints and further analysis, the following variables were decided to be the key variables that would potentially affect PALT. These variables were used to stratify and collect PALT data: the six MSCs, method of procurement (Formal Advertising (FA) or Negotiation (Neg)), contract dollar value \$10,000 to \$99,999, \$100,000 to \$999,999 and greater than or equal to \$1,000,000) and type of contract (Fixed Price (FP)) or (Cost Reimbursement (CR)). Figure 3 illustrates the nested design breakout for this data collection plan.

FIGURE 3. TREE DIAGRAM OF THE NESTED DESIGN FOR COLLECTION OF PALT DATA



*NOTE: This tree diagram has 12 cells on the right and there are six MSCs thus giving a total of 72 cells, less 18 for FA at six MSCs since there are no FA cost contracts.

The assumptions behind this breakout were that: (1) each MSC is reflective of the type of equipment it buys, (2) FA vs Neg would be somewhat reflective of the phase of the life cycle, (3) the dollar size of the contract would be somewhat reflective of the complexity of the supplies being purchased, and (4) the type of contract (FP vs CR) associated with the negotiated contracts would be further reflective of the phase of the life cycle (production vs R&D) and, in turn, would be closely related to DARCOM's MSC reorganization into R&D vs Logistics Commands. Thus, once the PALT standards were established based on the FY 75 PALT data from the six MSCs, they would also be applicable to the new configuration of the DARCOM MSCs.

The additional assumptions behind the design of this data collection plan were: (1) although routine processing of purchasing requests under \$10,000 should be monitored, they do not account for most of the procurement dollars and therefore, current DARCOM standards for these will remain the same for the present; (2) PALT standards will not be developed for letter contracts, two-step IFBs, and orders under contract; (3) competition vs no competition is proportional on the FA side and somewhat proportionally disbursed on the negotiated side; (4) large vs small business should not have an effect on PALT; (5) the priority assigned to a procurement should not significantly affect PALT; (6) ASPR rules governing an individual procurement are reflective of the final four variable stratification (discussed earlier) as they affect PALT; (7) manpower for the contract workload is available and workload is fairly evenly distributed throughout the year; and (8) that a random sample of 15 contracts per cell on the proposed data

breakout is large enough to detect significant differences in PALT at each level of the nested design at $\alpha = .05$ and (9) that the sample variances between cells are equal.

This then would allow collection of sufficient PALT data within the other constraints to establish statistically valid PALT standards for PWDs and identify which of the four variables significantly affect PALT.

Based on the foregoing discussion, a distribution of all FY 75 contracts awarded in DARCOM was requested to be pulled from the FY 75 DARCOM DD Form 350s, Individual Procurement Actions, file to be stratified by the six MSC's, Method of Procurement (Formal Advertising or Negotiation), contract dollar value (\$10,000 to \$99,999, \$100,000 to \$999,999 and greater than or equal to \$1 million) and by the type of contract (Fixed Price or Cost Reimbursement) (10). The summary of this data is shown in Figure 4.

One can readily see from Figure 6 that there are 16 cells in which there were less than 15 contracts awarded in FY 75. Secondly, if one were to add a further two-way split of the data, any cell currently under 30 would contain less than 15 contracts, thus there would be 23 cells with less than 15 contracts. The addition of further variables that would stratify PALT would not be meaningful with a universe of data distributed in this manner.

Also, it should be noted from Figure 4 that there are six cells with less than four contracts per cell. These definitely are not large enough samples with which to establish statistically valid standards. Since so few contracts are awarded in these cells, separate PALT standards for PWDs

FIGURE 4. DISTRIBUTION OF DARCOM CONTRACTS FOR FY 75 BY METHOD OF PROCUREMENT, CONTRACT \$ VALUE, TYPE OF CONTRACT AND MSC.

HQ	METHOD OF PROCUREMENT	CONTRACT \$ VALUE	TYPE OF CONTRACT	MSCs* - # Ks					
				ARM	AVS	E	MI	TA	TR
DARCOM #8,713	FORMAL #3,407	\$10,000-99,999 #2,873	FP #2,873 %100	994	403	177	134	1,119	46
		%84	COST #0	0	0	0	0	0	0
		\$100,000-999,999 #484	FP #484 %0	184	64	23	11	182	20
	ADVERTISING #39	%14	COST #0	0	0	0	0	0	0
		> \$1,000,000 #50	FP #50 %0	17	2	1	2	25	3
		%2	COST #0	0	0	0	0	0	0
	NEGOTIATION #5,306	%17	FP #3,590	479	370	832	668	1,144	97
		%79	%86	144	46	156	171	42	40
		\$100,000-999,999 #917	COST #599	157	33	175	95	184	15
		%72	FP #659 %14	50	13	69	100	12	14
%4		COST #258	57	10	36	20	23	11	
	> \$1,000,000 #200	FP #157 %28	11	6	7	13	3	3	
	%4	COST #43	2,093	947	1,476	1,214	2,734	249	
		%22 TOTAL	24	11	17	14	31	3	
		%							

SOURCE: DD 350s for DARCOM FOR FY 1975 (10).

in these areas would not be justified. These facts were ascertained by the examination of the contract distribution prior to collection in order to heuristically determine which variables explain the differences in PALT.

Also, the DARCOM FY 75 contract distribution was analyzed to test whether PALT standards would be required for two-step formally advertised procurements. A reason for potentially eliminating two-step IFBs was that they normally have much longer PALTs than regular formal advertising and thus would tend to distort the data base. Analysis of the number of two-step IFBs awarded in FY 75 yielded two findings. First, a total of five two-step IFBs were awarded in DARCOM in FY 75 and second, only three MSC's (ARMCOM, ECOM and TACOM) used two-step IFBs at all. Obviously, those MSC's not using two-step IFBs would not need a separate PALT standard and since there were so few two-step IFBs awarded in FY 75 for DARCOM, there is no need to establish PALT standards for two-step IFBs at all. However, in view of the recent increase of two-step formally advertised contracts awarded from five in fiscal year 1975 to 58 in fiscal year 1976, it is considered appropriate for the present to keep the current PALT standard for two-step formally advertised contracts.

Letter contracts were eliminated from the data base being used to establish PALT standards since the PALT for these contracts is very small by definition and such a contract is not a favored procurement instrument.

A final premise was that the workload (PWDs) under \$10,000 as represented by the number of PWDs was greater than the workload over \$10,000 but did not consume the majority of manpower (man-days). For FY 75, it was found that

78 percent of the workload (PWDs) was under \$10,000 but they consumed only 33 percent of the manpower at the MSC's.

Next, it was realized that the current PALT definition was not adequate to determine when to start measuring PALT in collecting the PALT data. Questions that arose were: (1) When is a PWD accepted, (2) Must funds be available, and (3) Must adequate specifications and/or the technical data package be available? Based upon the analysis and consultation with PALT coordinators, it was decided that the following PALT definition would be used: The number of calendar days beginning with receipt in the procurement office of an approved document, citing funds and complete with all data necessary to solicit and award a contract and ending on the award date. This definition would approximate the definition of PALT as measured under the ALPHA system (which contains provisions for non-accrual of PALT).

2. Analysis of the PALT Data from the Central Procurement Workloading Report.

The purpose of this section is to statistically analyze the PALT data from Section I of the Central Procurement Workloading Report (RCS DRCPP-127) in order to determine how well the MSCs are managing their PWDs towards meeting the DARCOM PALT standards. First, a frequency distribution for the PALT for PWDs will be described; second, the current FY 76 DARCOM PALT standards will be shown and the PALT data from the RCS DRCPP-127 report compared with the standards utilizing a statistical test of hypothesis to see if each MSC met each current DARCOM PALT standard; and third, an ANOVA (analysis of variance) will be used to see if PALT for specific procurement methods is the same or different between the MSCs.

a. Frequency Distribution of PALT for PWDs for DARCOM for FY 75.

This section will be used to display the frequency distribution of PALT for the PWDs for DARCOM for FY 75. This distribution will show how long it takes to award PWDs once they are received, give an indication of dispersion of the PALT data, and show whether the PALT density function is normal or not. If it looks to be normal, one can then use a t-test to determine if each MSC is meeting the current DARCOM PALT standards.

The frequency distribution for the PALT data for PWDs from Section I of the RCS DRCPP-127 report for FY 75 has been developed for DARCOM and is shown in Figure 5. One can see from Figure 5 that the PALT for the PWD can be approximated by a continuous random variable which can be denoted by x and a probability density function established for it. Also, one can see from Figure 5 that based on past experience the frequency distribution for PALT is approximately normally distributed.

b. Tests of Hypotheses to see if the MSCs are meeting current DARCOM PALT standards.

This section will be used to first show the FY 76 DARCOM PALT standards. Next a statistical test of hypothesis will be used to see if each MSC met each standard. The FY 75 PALT data from section I of the RCS DRCPP-127 report will be used to represent each MSC's field experience as a basis of assessing whether each MSC in DARCOM achieved the goal that 85% of all PWDs should be processed within the current PALT standard for each method of procurement.

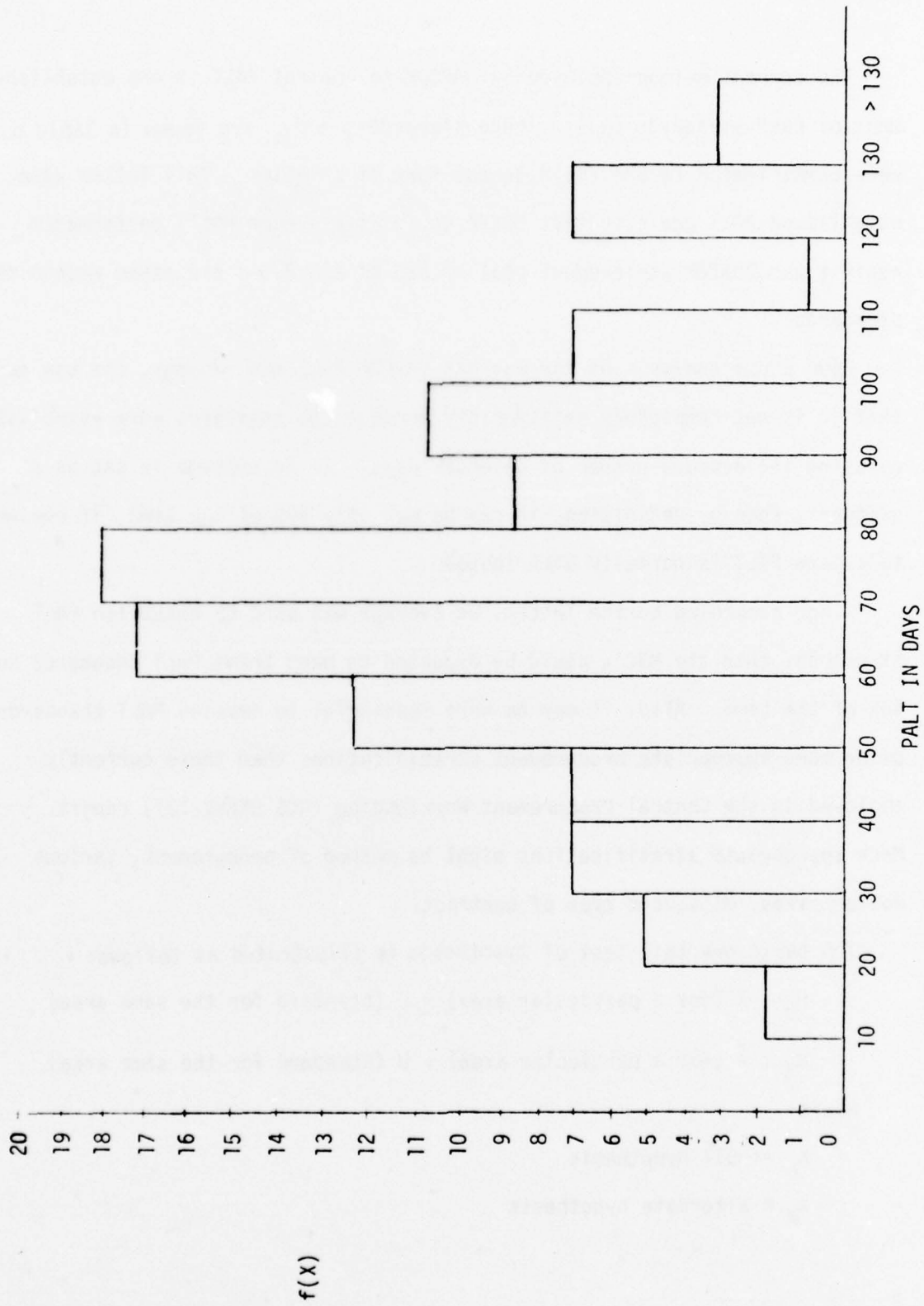


FIGURE 5. PALT (X) IN DAYS FOR THE SIX MSCs IN DARCOM (OVER & UNDER \$10,000) FOR FY 1975.
 SOURCE: RCS DRCPP-127 REPORT - SECTION I - FY 75.

The current method employed by DARCOM to control PALT is the establishment of PALT standards (11). These standards, which are shown in Table 6, were communicated to the field in the form of a letter. This letter also established PALT goals so that DRCPD could assess each MSC's performance against the DARCOM achievement goal of 85% of all PWD's processed within the standards.

Upon close analysis of the current DARCOM PALT methodology, one can see that it is not completely satisfactory because the standards were established by using the average number of calendar days. If an average is set as a standard, then by definition, it can be met only 50% of the time, if one were to assume PALT is normally distributed.

Since according to the letter, an average was used to establish PALT standards, then the MSC's could be expected to meet these PALT standards only 50% of the time. Also, it may be more meaningful to develop PALT standards using more appropriate procurement stratifications than those currently employed in the Central Procurement Workloading (RCS DRCPD-127) report. More appropriate stratifications might be method of procurement, various dollar sizes, MSCs, and type of contract.

The basic one tail test of hypothesis is illustrated as follows:

$$H_0 : X \text{ (for a particular area)} \leq U \text{ (standard for the same area)}$$

$$H_A : X \text{ (for a particular area)} > U \text{ (standard for the same area)}$$

where:

$$H_0 = \text{null hypothesis}$$

$$H_A = \text{alternate hypothesis}$$

TABLE 6. DARCOM PALT STANDARDS (ALL PROCUREMENTS (SECTIONS I & K) (AVERAGE CALENDAR DAYS))

PROCUREMENT METHODS	DOLLAR THRESHOLD	
	Under \$10,000	\$10,000 and Over
1 - Formally Advertised	90	120
2 - Two-Step Formally Advertised	N/A	180
3 - Competitive Negotiation	45	150
4 - Commercial Sole Source (includes Universities and other non-profit institutions)	45	150
5 - Non-Competitive Negotiation from Follow-on Action After Price Competition Design or Technical Competition	45	130
10 - Orders Issued Against Indefinite Delivery Type Contracts	30	30

SOURCE: (Data Source - Central Procurement Workloading Report (RCS DRCPP-127), Section I, J, K) Letter from DRCPP-SO dated 31 July 1975, Subject: PALT Standards FY 76 (11).

The purpose of these tests is to see which MSCs are meeting the DARCOM PALT standards. If one were to find that most of the MSCs have met the standards, one might conclude that the current standards are too easy (too much time allowed) and that new standards need to be established based on the MSCs FY 75 accomplishments.

Illustration of H_0 test:

$$U_{(FA, < \$10,000)} = 90 \text{ days}$$

$$H_0 : X_{(FA, < \$10,000, ARMCOM)} \leq 90 \text{ days}$$

$$H_A : X_{(FA, < \$10,000, ARMCOM)} > 90 \text{ days}$$

Table 7 summarizes the overall average PALTs achieved by MSCs and DARCOM for FY 75. The average PALT for DARCOM PWDs under \$10,000 was 62.9 days and 84.3 days for PWDs over \$10,000.

The actual results of the statistical analysis of the RCS DRCP-127 PALT data for FY 75 is summarized in Table 8 shown by MSCs and broken down by dollar size (under and over \$10,000) for each procurement method. Table 8 shows that in 37 out of 45 hypotheses tested (the MSC's actual achievement for each procurement method compared to the PALT standards in Table 6) that the PALT standard was met statistically.*

Thus, one can see that in 37 out of 45 hypotheses tested, that the MSCs were able to award the PWDs within the PALT standard. Upon further analysis one can see that the PALT standards for the MSCs under \$10,000 may be too

*level of significance (α) = .05.

TABLE 7
 OVERALL AVERAGE PALT (IN DAYS) BY
 DOLLAR VALUE AND MSC FOR FY 1975

MSC	DOLLAR THRESHOLD	
	≤ \$10,000	> \$10,000
ARMCOM	62.5	93.0
AVSCOM	71.8	70.0
ECOM	81.0	86.5
MICOM	----*	----*
TACOM	----*	80.2
TROSCOM	36.3	91.8
DARCOM	62.9	84.3

SOURCE: RCS DRCPP-127 Report (9).

*No PALT was reported for these areas for these MSCs.

TABLE 8. SUMMARY RESULTS FOR THE FIVE MSCs OF DARCOM TESTS OF HYPOTHESES AS TO WHETHER THE MSCs HAVE MET THE CURRENT PALT STANDARDS*

Procurement Code	\$			
	< \$10,000		> \$10,000	
	A*	R*	A*	R*
1 Formally Advertised	3	1	5	--
2 Two-Step Formally Advertised	--	--	3	--
3 Competitive Negotiation	2	2	5	--
4 Commercial Sole Source	3	1	5	--
5 Non-Competitive Negotiation (Follow-on action)	1	1	4	--
D Orders Issued Against Indefinite Delivery Type Contracts	3	1	3	2
TOTAL	12	6	25	2

*Legend: A = H_0 accepted that PALT standard was met by the MSC.

R = H_0 rejected and thus the PALT standard was not met by the MSC.

stringent since in one-third of the cases the MSCs failed to meet the current PALT standards. Alternatively, the standards may not be too stringent and the MSCs could have done better. Which fact is true cannot be determined from a statistical test of hypothesis. The test can only tell one if the PALT standard was or was not achieved.

c. Analysis of Variance to see if PALT for specific procurement methods differs between MSCs.

In this section the FY 75 PALT data from section I of the RCS DRCP-127 report was grouped above and below \$10,000 and by procurement method so that the effect of MSC on PALT could be tested to see if the average PALT between MSCs would be statistically equal. The results of this analysis would tell a PALT manager if a separate PALT standard should be set for each MSC.

The hypothesis to be tested would be:

$$H_0 : U_{ij1} = U_{ij2} = \dots = U_{ij5}$$

$$H_A : U_{ij1} \neq U_{ij2} \neq \dots \neq U_{ij5}$$

where:

i = dollar threshold with

i = 1 = \leq \$10,000 and

i = 2 = $>$ \$10,000;

j = Procurement code with

j = 1 = Formal Advertising (FA), j = 2 = two-step Formal Advertising (FA), j = 3 = Competitive Negotiation, j = 4 = Commercial Sole

Source, $j = 5 =$ Non-Competitive Negotiation, and $j = 6 = 10$ or D (Delivery Orders), and

$k =$ MSC (major subordinate command) with

$k = 1 =$ ARMCOM, $k = 2 =$ AVSCOM, $k = 3 =$ ECOM, $k = 4 =$ TACOM

and $k = 5 =$ TROSCOM.

If the null hypothesis is rejected, this indicates that the average PALTs for the MSCs for a given procurement method and dollar size differ significantly. If this occurs, then separate PALT standards should be set for each MSC for the null hypothesis being tested. Table 9 shows the results of the one-way analysis of variance of the RCS DRCP-127 PALT data based on the above null hypothesis. For all procurement methods under \$10,000 the null hypothesis was rejected, and, therefore, separate PALT standards should be set for each MSC. For those over \$10,000, only one PALT standard is necessary for all MSCs for each procurement code one through five and one for all MSCs for procurement code D or 10 (delivery orders).

3. Statistical Analysis of PALT Data Collected at MSCs.

The purpose of this section is to statistically analyze the PALT data collected on the basis of how long it takes the MSCs to award a PWD. This section will show how long it takes on the average to award a PWD and what the sample standard deviation as a measure of dispersion is by MSC. Next the actual sample set of PALT data will be converted to a frequency distribution to see if the PWD PALT data is normally distributed like the PWD PALT data was in Section I of the RCS DRCP-127 report. After this, an

TABLE 9. RESULTS OF THE ONE-WAY ANALYSIS OF VARIANCE OF THE RCS DRCPP-127 PALT DATA (FY 75)*

PROCUREMENT CODE	< \$10,000										> \$10,000				
	MSC (X PALT)					MSC (X PALT)					MSC (X PALT)				
	AR	AV	EC	TA	ANOVA	TR	STD	ANOVA	AR	AV	EC	TA	TR	STD	ANOVA
1 - FA	74	140	107	--	R	130	90	R	110	150	107	118	127	120	A
2 - 2-Step FA	--	--	--	--	--	--	--	--	160	--	208	186	--	180	A
3 - Comp Neg	67	91	81	--	R	40	45	R	96	128	94	98	100	150	A
4 - Sole Source	61	62	81	--	R	35	45	R	81	53	64	75	100	150	A
5 - Non-Comp Neg	50	--	81	--	R	--	45	R	75	--	87	46	40	130	A
D or 10 - Orders	43	87	52	--	R	33	30	R	78	46	60	33	38	130	R

*LEGEND:

Proc Code = Procurement Code
 MSC = Major Subordinate Command
 X PALT = Average Procurement Administrative Lead Time
 AR = ARMCOM
 AV = AVSCOM
 EC = ECOM
 TA = TACOM
 TR = TROSCOM
 STD = AMC PALT Standard
 ANOVA = Analysis of Variance (f-test, =.05)
 A = Null Hypothesis is Accepted
 R = Null Hypothesis is Rejected

ASSUMPTION: PALT data assumed to be normally distributed and the variances within groups are assumed to be equal.

analysis of variance was used on the nested stratified design, described in paragraph c.1 of Chapter II, as a means of determining if PALT differs statistically on the average between MSCs, dollar value, method of procurement, and type of contract. This analysis was done to determine which factors affect PALT. Also, if PALT were found to differ among factors, separate PALT standards for PWDs in these areas would need to be established.

As was noted earlier in paragraph 2.C.1 in which was discussed the design of our PALT data collection plan, Table 10 summarizes the number of PWDs by MSC for which PALT was collected. Also, Table 10 summarizes the average overall PALT achieved by each MSC and the associated sample standard deviation.

The 573 PALT observations on PWDs were taken and are summarized in Figure 6 as a frequency distribution. The most important characteristics of the PWD PALT distribution are that it is skewed to the right and definitely does not follow a normal frequency distribution.

It was noted during the collection of the PALT data at the MSCs that in most cases when the PWD was received that the funds had been certified and that specifications/TDP was with the PWD or became available shortly thereafter (e.g., within seven working days).

The next step was then to take the PALT data collected and run a one-way Analysis of Variance (ANOVA) on the nested design (see Figure 3) at each level to test the effect of contract type (FP vs Cost Reimbursement) on PALT, the effect of dollar stratification on PALT, the effect of the method of procurement (FA vs Neg) on PALT and the effect of MSCs on PALT.

TABLE 10. FY 75 PALT DATA BY MSC

MSC	# OF PWDs	\bar{X} *	S *
ARMCOM	85	144	109.5
AVSCOM	87	193	85.6
ECOM	104	147	85.8
MICOM	97	112	58.8
TACOM	112	114	68.7
TROSCOM	88	111	51.2

*Legend: \bar{X} = average PALT

S = Sample Standard Deviation

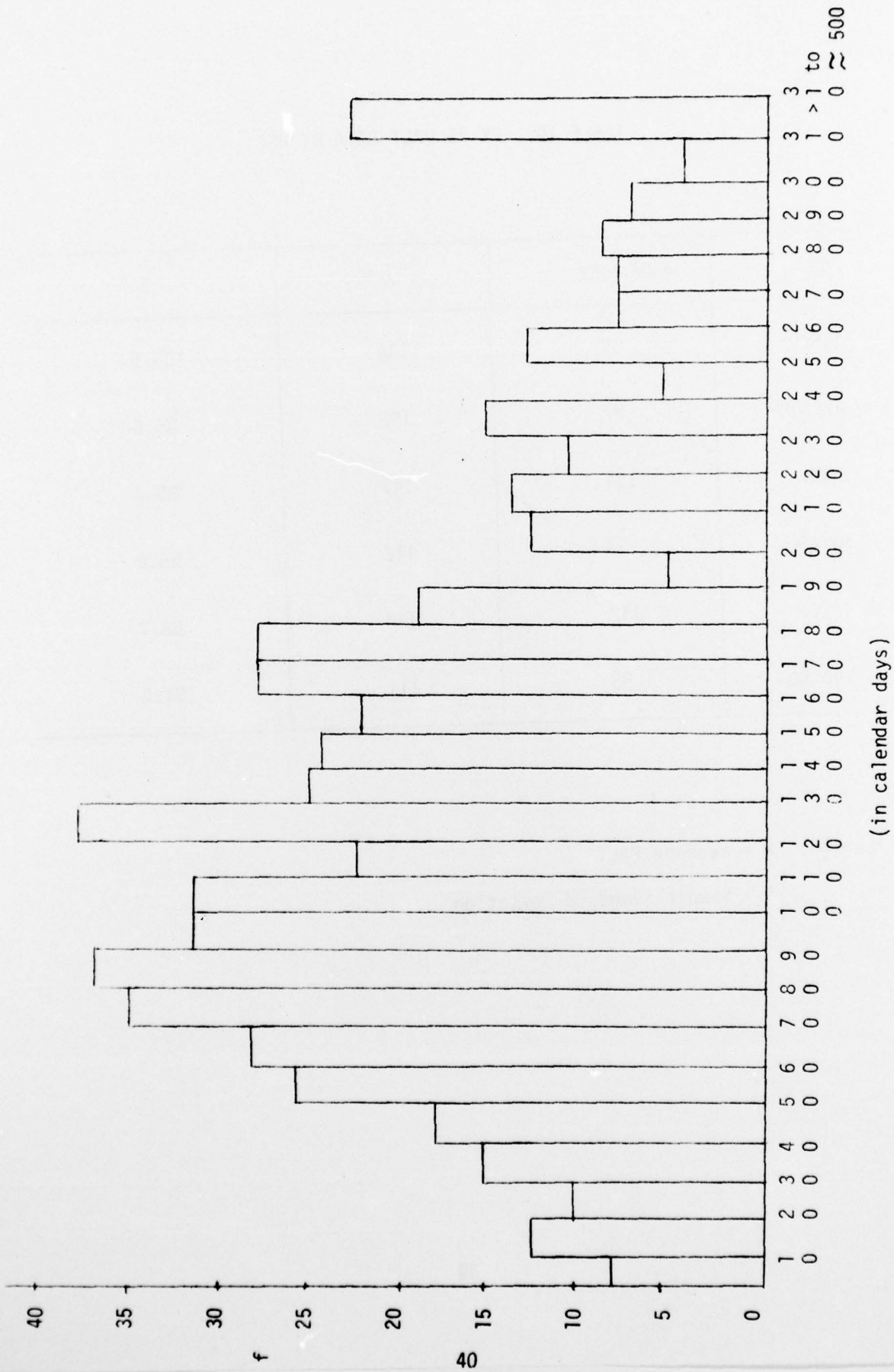


FIGURE 6. PWD DISTRIBUTION OF PALT IN CALENDAR DAYS FOR DARCOM (OVER \$10,000) FOR FY 75

In some cases it was found that the variances between groups of data in the nested design were not equal, which is a requirement for the parametric ANOVA, and thus a non-parametric test was used.

The ANOVA and non-parametric tests showed (see Table 11) that at least two variables, method of procurement (FA vs Neg) and MSC's, have a significant effect on PALT. Thus separate PALT standards should be set for each MSC and that within each MSC there should be two PALT standards for PWDs established (one for formal advertising and one for negotiation).

The other finding of major significance from this analysis was that neither contract type (fixed price or cost reimbursement) nor dollar size seem to have a significant effect on PALT. In other words, the PALT seems to be about the same for fixed price contracts as for cost reimbursement contracts and for the three dollar stratifications (\$10,000 to \$99,999, \$100,000 to \$999,999, and greater than or equal to \$1 million).

TABLE 11. EFFECT OF EACH VARIABLE ON PALT* (RESULTS OF THE ANOVA OF FY 75
PALT DATA COLLECTED AT THE MSCs)

MSC	CONTRACT TYPE (FP VS CR)	\$ (in 000) (10-100, 100-1,000, >1,000)	METHOD OF PROCUREMENT (FA VS NEG)
ARMCOM	A	A	R
AVSCOM	A	A	R
ECOM	A	A	R
MICOM	A	A	R
TACOM	A	A	R
TROSCOM	A	A	R

* $\alpha = .05$ level for F-test, R = reject null hypothesis (H_0) and A = accepted H_0 . R means that variable had an effect on PALT and that means are not = (equal) between groups.

CHAPTER III
CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

1. The establishment of valid PALT standards is a useful and necessary management technique which will encourage award of PWDs in a timely manner provided that performance is evaluated on a regular basis.

2. The PALT delay codes (DARCOMR 5-4) are essential to good PALT management. The most frequent reasons for PALT delay are in fact of equal, if not greater, importance than the PALT standards themselves, in that the delay codes identify bottlenecks which, if corrected, would minimize PALT.

3. The current definition of PALT in DARCOMR 5-4 needs to be expanded to include the Procurement Aging and Staging System (PASS), a part of ALPHA, methods of generating and tracking PWDs.

4. Procurement managers would derive great benefits from employing statistical methodology to develop future PALT standards and to evaluate performance against those standards.

5. PALT was found to be significantly different at each MSC and between methods of procurement (Formal Advertising vs Negotiation). This means that the average PALT varies between commands and that within the MSCs PALT differs between Formal Advertising and Negotiation.

6. PALT is not statistically significantly different for fixed price contracts as opposed to cost reimbursement contracts. Nor is PALT significantly different between the three dollar stratifications tested.

7. In view of the increase in the number of two-step formally advertised contracts from fiscal year 1975 to fiscal year 1976, it is considered appropriate for the present to keep the current PALT standard for two-step formally advertised contracts.

8. Certain segments of PALT account for varying portions of time during the pre-award procurement cycle depending on whether the procurement is formally advertised or negotiated. For formally advertised procurements, the pre-solicitation and solicitation phases account, on the average, for approximately 50 percent of the total PALT. For negotiated procurements, the solicitation and evaluation/analysis phases account for slightly more than 50 percent of the total PALT.

9. The major portion of PALT management should be concentrated on PWD's over \$10,000, although PWD's under \$10,000 accounted for 78 percent of the total PWD's processed in FY 75 with only 33 percent of the manpower devoted to these PWD's. They also accounted for only approximately 2 percent of the total dollars awarded.

B. RECOMMENDATIONS

1. The use of PALT standards should be continued throughout DARCOM.

2. Although PALT performance is reported on a monthly basis, the MSC's PALT achievement towards meeting the PALT standards should be assessed only on a quarterly basis due to the inherently large standard deviation in PALT.

3. PALT standards should be reviewed and updated every year based on actual performance during the previous 12 months. This is feasible with ALPHA.

4. PALT performance should be displayed so as to show trends both within the fiscal year and among fiscal years. When PALT performance is felt to be at a level consistent with good business practices, the emphasis on PALT should be reduced.

5. A detailed analysis of the PALT delay codes should be conducted quarterly. Appropriate action should be taken to reduce or eliminate the most frequent reasons for PALT delay.

6. DARCOMR 5-4 should be updated to provide an expanded PALT definition which should incorporate the use of the Procurement Aging and Staging System (PASS), a part of ALPHA.

7. Procurement managers should consider utilizing the statistical methodology employed in this report as the method for developing future PALT standards and evaluating performance against the standards. The best way of implementing this methodology is to initiate a system change request to ALMSA delineating the additional uses of the data generated by the PASS section of ALPHA. The specific statistical methods which proved most useful were frequency distribution, test of hypothesis, and analysis of variance.

8. Separate PALT standards for Formal Advertised and Negotiated PWDs should be established for each MSC.

9. The current PALT standards for two-step formally advertised contracts should be kept until the upward trend in the use of two-step IFBs from FY 75 to FY 76 can be assessed. If this upward trend does not continue, the need for a separate standard should be reassessed.

10. Procurement managers should concentrate their attention on those segments of the pre-award procurement cycle which account for the largest portion of PALT.

11. Procurement managers should concentrate their attention on those PWDs where the bulk of the manpower and dollars are devoted, above \$10,000. However, the procurement manager must remember his responsibility for the successful completion of the overall program.

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STUDY TEAM COMPOSITION

This study was conducted under the direction of Mr. Robert F. Williams, Chief of the Test and Evaluation Group, US Army Procurement Research Office, US Army Logistics Management Center (ALMC). Members of the study team were:

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13. ABSTRACT Over the years there has been one continuous problem that has received much procurement emphasis; i.e. Procurement Administrative Lead Time (PALT). PALT has generally been viewed as being one of the primary causes of failure to meet the users required delivery date. Consequently, previous research on PALT has concerned itself almost exclusively with how to reduce PALT rather than how to better manage PALT. Also, in recent years, procurement managers have complained that the constant emphasis on reducing PALT has limited their options considerably and that a new, more modern management approach is required for PALT. The traditional ideas about PALT as well as current reality were re-examined in order to develop more sophisticated PALT management and performance criteria. The specific objectives of this project were to: analyze an Army Command's current system for managing PALT; determine meaningful PALT objectives as an aid in managing PALT; and establish PALT management and performance criteria for use by procurement managers. (U)			

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