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DEFENSE SYSTEMS MANAGEMENT COLLEGE



PROGRAM MANAGEMENT COURSE INDIVIDUAL STUDY PROGRAM

RISK AVERSION
VS.
TECHNOLOGY IMPLEMENTATION

STUDY PROJECT REPORT
PMC 77-2

Michael S. Hersh
General Dynamics/Convair Division

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: RISK AVERSION VS. TECHNOLOGY IMPLEMENTATION

STUDY PROJECT GOALS:

- (1) To examine the interaction between a program manager's aversion to risk and the introduction of new technology into weapon systems.
- (2) To consider some potential causes of program manager risk aversion.

STUDY REPORT ABSTRACT:

This report examines the key factors that inhibit the introduction of new technology into ongoing weapon systems. The effect of program manager (PM) risk aversion on this inhibition is evaluated. Factors causing PM risk aversion, including Department of Defense and Navy policies and procedures are considered.

Results indicate major contributors to PM risk aversion include: risks taken that backfired, schedule pressure, program maturity, PM's relative loyalty to Self, Program, and Service, inadequate methods of measuring risk and inability to hedge or insure risk.

Forces that keep new technology out of ongoing programs include cost constraints, risk averse PMs, and on rare occasion, higher level authority.

SUBJECT DESCRIPTORS:

Program/Project Management, Major Policies (10.02.01) Changes.

Program/Project Management, Types of Systems, Additions (10.02.03.05)

Organizational Behavior, Perception, Values (10.03.02.02).

Organizational Behavior, Management Strategies and Techniques (10.03.05) Risk Assessment.

NAME, RANK, SERVICE	CLASS	DATE
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RISK AVERSION
VS.
TECHNOLOGY IMPLEMENTATION

Individual Study Project
Study Project Report
Prepared as a Formal Report

Defense Systems Management College
Program Management Course
Class 77-2

by

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General Dynamics/Convair Division

November 1977

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This study project report represents the views, conclusions and recommendations of the author and does not necessarily reflect the official opinion of the Defense Systems Management College or the Department of Defense.

EXECUTIVE SUMMARY

Risk Aversion vs. Technology Implementation

The purposes of this study were: (1) to examine the interaction between a program manager's aversion to risk and the introduction of new technology into weapon systems; and (2) to consider some potential causes of program manager (PM) risk aversion.

The study focused on Navy program managers. In addition to a review of Department of Defense and Navy documents and a literature search, four PMs and ten members of program office staffs were interviewed.

It was found that when proven new technology (NT) is not introduced it is generally because of cost constraints, but sometimes because of PM or higher authority risk aversion. Unproven NT is, on rare occasion, forced into a program by "higher authority" against the PM's will.

External forces that increase a PM's risk aversion include: schedule pressure, program maturity and pressure from "higher authority." Internal forces that increase a PM's risk aversion include: bad results of personal risks taken, inability to hedge risk and relative strength of loyalty to Self, Program and Service (in order of decreasing risk aversion). It is interesting that schedule pressure makes PMs more risk averse, but cost pressure inhibits the introduction of new technology.

Department of Defense and Navy formal documents read as if they put pressure on PMs to be risk averse, but PMs resist this pressure.

PMs function in a political environment that makes possible - if

not probable - the trading of favors, the unjustified technical trades, the inhibition of proven technology or the introduction of unproven technology into the weapon systems acquisition process. A PMs personal priorities (self, program, service) also affect his actions in this political arena.

This report should be of interest to those who are responsible for selecting, training, directing and evaluating program managers; to program managers and their staffs; to students of program management and to those interested in the phenomenon of risk aversion.

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SECTION I

Introduction

1.1 Purpose. The purposes of this study were: (1) to examine the interaction between a program manager's aversion to risk and the introduction of new technology into weapon systems; and (2) to consider some potential causes of program manager risk aversion.

1.2 Goal. My personal goal was a better understanding of the risk aversion phenomenon and its implications for weapon systems acquisition. This report was prepared to share this newly gained understanding with those interested in this subject.

1.3 Scope. Due to the constraints of time and schedule, the study was limited to weapon systems acquisition in the Navy. In addition to a literature review, interviews were conducted with a small sample of current program managers and their staffs, recent program managers, and those who had worked in Navy program offices. Their perceptions were sought, but no attempt was made to verify the data gathered from interviews.

1.4 Limitations. Because of the limited scope of this study, the reader is cautioned to use great care in extrapolating the results or conclusions presented in this report. Readers, I hope, will find the data valuable either as a springboard for future studies or as another viewpoint to consider when making decisions regarding new technology introduction into ongoing programs.

1.5 Definitions. The traditional or common-usage definitions apply throughout this report, except for "risk" and risk-related phrases.

For the purposes of this report, the following definitions are used:

- Risk: The probability that an unpredictable future event - caused by the current decision - will result in undesirable consequences to the decision maker and/or the program.
- Risk Aversion: A personal trait manifested by a reluctance to make a change unless the preponderance of (a sufficient quantity of) data indicates a low risk relative to the value of the desired consequence of the change.
- Excessive Risk Aversion: A personal trait manifested by either arbitrarily underestimating the value of the desired consequence of a change or arbitrarily overestimating its risk.

1.6 Hypotheses. The following hypotheses were constructed only to facilitate conducting and reporting the results of this study. They will not be rigorously tested.

- Hypothesis I - The introduction of effective new technology into fielded weapon systems is inhibited.
- Hypothesis II - Program managers are excessively risk averse.
- Hypothesis III - Department of Defense and Navy system acquisition policies and procedures encourage excessive program manager risk aversion.

1.7 Organization of the Report. The report is organized like a data-processing assembly line. It begins with the raw material, Data Collection, describing the sources of data and methods of obtaining that data. Next, the raw material is converted into usable components, Results, in which the data from the literature search and interviews

are presented within the framework of the three hypotheses. Assembly of the components, Analysis of Results, follows. The results are analyzed with respect to the hypotheses, and the study's findings are presented. Finally, the assembly is finished, packaged and delivered to the user (reader) as Conclusions and Recommendations.

1.8 A Challenge to the Reader. The subject of risk aversion is an emotional issue to many readers. Most of us can remember disasters associated with program changes. We frequently labelled the cause, "insufficient program manager risk aversion," without really analyzing the facts. My challenge to the reader is to control your biases and strive for objectivity as you read this report.

SECTION II

Data Collection

2.1 DoD Documents. The current issues of DoD Directives 5000.1 (2)*; 5000.2 (3), and 5000.23 (4) were analyzed for implementing directions in response to the Office of Management and Budget's Circular A109:

A program manager shall be designated for each of the agencies major acquisition programs . . . upon designation, the program manager shall be given budget guidance and a written charter of his authority, responsibility, and accountability for accomplishing approved program objectives (1:6).

2.2 Navy Documents. The current issue of SNI 5000.1 (5), which has not, as yet, been revised in accordance with the latest revision of DoDD 5000.1, was analyzed for implementing instructions as were a number of Navy Project Manager charters (bibliography items 6 thru 10).

2.3 Reports, Articles and Papers. Data was collected on program manager personality, motivation and response to stress; his responsibility and authority; and how he responds to changes in ongoing programs. After reading this report it is hoped that the reader will not be as pessimistic as Viall, who claimed:

One reason that decisions made down the line are not the obviously correct or rational ones is that the decision maker is not concerned so much with the correctness of the decision but with its acceptability to his boss, peers, subordinates or external environment (21:9).

2.4 Interview Format. The program managers and their staffs were interviewed in the program offices; the past program managers were interviewed in their offices, and the DSMC students who had PMO

*References are keyed to the Bibliography. The single number refers to the document listed under that number. Specific page numbers are indicated by the second number in parens, as required.

experience were interviewed at school in their study rooms. The interview formats were essentially identical, consisting of three discussion questions and four ratings (Likert-type 7-point scales anchored at the end-points).

The interview sequence was:

a. Are program managers (are you) reasonably or excessively risk averse?" (Discussion normally started with, "What do you mean by risk averse?" to which the response was the definitions of paragraph 1.5).

b. Rate the average program manager (yourself) relative to risk aversion, from 1 (gambler) to 7 (no change!).

c. Do DoD/Navy policies and procedures encourage risk aversion, perhaps even excessive risk aversion?

d. Rate DoD policies and procedures, and rate Navy policies and procedures, from 1 (leave it completely up to the program manager) to 7 (severe pressure for risk aversion).

e. What are your views on the effect of risk aversion on inhibiting the introduction of new technology into ongoing programs. (This normally led to a wide ranging discussion, as was hoped it would).

f. Rate the effect of actual risk aversion on inhibiting the introduction of new technology, from 1 (none) to 7 (severe).

2.5 Interview Subjects. All interviews were conducted on a non-attribution basis, therefore, no names appear in this report. There were ten members of program offices, who will be referred to as PO staff (present or recent), interviewed. The ten PO staff represented most of the disciplines found in major program offices including systems management, systems integration, production, engineering, business

management, planning and control, and procurement. Half of those interviewed, five out of ten of the PO staff and two of the four PMs were associated with the Defense Systems Management College. Table 1 indicates the experience of the interviewees.

TABLE 1: Interviewee Experience

	<u>PO Staff</u>		<u>Program Managers</u>	
	<u>Range</u>	<u>Average</u>	<u>Range</u>	<u>Average</u>
Years in Systems Acquisition	3 to 30	11	5 to 25	13
Years in Program Offices	1 to 22	7	2 to 15	7
Number of Program Offices	1 to 6	3	2 to 8	4
Number of Program Managers	1 to 8	3.5	Managed 1 or 2 Programs	

SECTION III

Results

3.1 Program Manager (PM) Authority and Responsibility. The Department of Defense attempts to maximize both a PM's authority and responsibility. DoD holds the PM accountable for performance within his assigned responsibility (4:VIB), requires minimizing layers of authority (2:5), stipulates authority in a formal charter (2:5), gives full responsibility for determining and recommending continuation or termination of a program (3:8), and removes all authority from staff personnel (2:6). It also attempts to reduce interference from above by documenting direction:

When a line official above the program manager exercises decision authority on program matters, the decision shall be documented as official program direction to the program manager. The line official shall be held accountable for the decision (2:5,6).

The Navy, however, limits the PM's range of responsibility through the PM charters. This limitation is most severe in the areas of contracting and final authority. Appendix A contains excerpts from various PM charters (6 thru 10) illustrating the reduction in scope of responsibility. The PM does, however, "enjoy" authority and accountability within the prescribed area of responsibility. The scope of this authority is in general vague (14:ii).

A recent LMI study reported that, "Program Managers are satisfied with their ability to control proposed engineering and design changes" (16:iv), and that this is due to, "their control of funds" (16:31).

3.2 PM: Careers and Characteristics. DoD established program

management as a career for the most competent, outstanding officers:

Career opportunities shall be established to attract, develop, retain and reward outstanding military officers and civilian employees required as program managers (4:IIIC).

Performance measurements shall be developed and emphasized in order to insure that only the most competent individuals are retained and rewarded in the systems acquisition management career field (4:VIA).

The military officers that select careers in program management do so "primarily because of the challenge of the job and the opportunities for advancement. . . (they) appear to be highly motivated toward excellence in job performance. . . (which) indicates strong growth needs"(18:ii). So it is no wonder that Brahney found motivation to be the most desirable PM attribute. He found there were five key attributes. Honesty was second with sensitivity, self confidence and self discipline completing the list (12).

3.3 PM Risk Aversion. DoD establishes the fundamental tendency toward risk aversion by putting program managers on notice that they are visible and will be judged on performance:

A performance monitoring system. . . will be maintained. Selection. . . for key positions. . . from among those so tracked, and heavy reliance will be placed upon performance records. . . (4:VIE).

The Navy goes much further by subjecting program managers to strong advice against changes and by adding the requirement that approval for changes must be made by a higher level.

. . . During production, changes are less desirable and should generally be avoided except where clearly necessary and significant net benefit will accrue to the Government. . . Review and approval of proposed changes shall be conducted at a level organizationally distinct. . .(5:IIIJ.1).

The program manager charters (6 thru 10) either refer specifically

to SNI 5000.1 (5) in the delineation of authority and responsibility limits or include admonitions against risk (See Appendix A for excerpts from selected charters). The general Navy policy is to require the user (operational command) in trade-off decisions (15:28). This tends to increase program manager risk aversion because users, traditionally, don't want to change components that "work."

3.4 Risk Aversion and Technology Inhibition. The DoD strikes the first blow for "good enough" in DoDD 5000.2:

Every effort shall be made to prevent the expenditure of resources to achieve unnecessary performance and schedule requirements (3:9).

The Navy, in the PM charters (Appendix A) limits the ease of new technology introduction. The Navy procedures for installing new weapons systems into existing classes of ships takes 39 months to go through the 18 specified steps (17). This is not unique to the Navy, however; the Army identifies 28 steps for a Product Improvement Proposal (20:24).

LMI in its study of program management found that throughout the services "change control is based on two related precepts: Let a good thing alone and what looks like a pussy cat may turn into a tiger" (15:14). The report on this in-depth study of military program management continues:

Change control implies these rules:

- An initial predisposition against changes. If in doubt, don't make a change.
- A detailed analysis of the . . . change . . .
- A continuing predisposition against change after the analysis is complete. The probability is that things will turn out much worse than the analysis has predicted.

These rules have been followed by a number of program managers who said that their change policy was to have no changes at all - and then back down from there only where there was an overwhelming and convincing justification for, and evaluation of, proposed changes (15:15).

3.5 Interview Results. The interviews were constructed around three non-directed discussion questions (paragraph 2.4). Each discussion question was followed by one or two numerical rating questions. The results of these ratings are included in Table 2 (page 11). These results will be analyzed in detail in Section IV. In general it can be seen that non-DSMC related individuals were more conservative in their responses. The extreme difference between DSMC and non-DSMC PM responses to the second and third questions is most probably due to interviewer error. From the interview records it appears that the DSMC PMs indicated that the DoD and Navy policies and procedures had little effect upon their decisions (relative to risk aversion) while the non-DSMC PMs were indicating that the policies and procedures put strong pressure on them - which they successfully resisted. These are not incompatible responses.

During the discussion of risk aversion, six major factors that contribute to increasing a program managers risk aversion were identified. These are listed in Table 3 (page 11). The responses are listed in order of frequency.

In the discussion of DoD and Navy policies and procedures some interesting comments were made by a number of interviewees. These are listed in Table 4 (page 12), in order of frequency. Only comments by three or more responders are listed. This question was used by many interviewees as a springboard to discuss their opinions of how the "system" does work and how it should work. An interesting finding was that no one knew of any instance when a program manager invoked the requirement in DoDD 5000.1 that a superior officer document an

TABLE 2: Results of Interview Ratings

<u>Description of Interviewees</u>	<u>Rate Avg PM Relative to Risk Aversion</u>	<u>DoD P&Ps Put Pressure on PM To Be Risk Averse</u>	<u>Navy P&Ps Put Pressure on PM To Be Risk Averse</u>	<u>Effect of Risk Aversion on Intro of New Technology</u>
Avg of All Staff	4.10	3.75	4.25	4.05
DSMC Related Staff	4.00	3.70	4.10	3.30
Non-DSMC Staff	4.20	3.80	4.40	4.80
Avg of PMs	4.10	3.25	2.90	4.00
DSMC Related PMs	3.75	1.25	1.25	3.75
Non-DSMC PMs	4.50	5.25	4.50	4.25

TABLE 3: Major Factors Contributing to Increased Program Manager Risk Aversion

1. Risks, previously taken, that backfired.
2. Schedule pressure.
3. Program maturity in life cycle.
4. Ratio of personal to program risk.
5. Inadequate methods of measuring risk.
6. Inability to hedge or insure risk.

over-ride decision (the applicable quotation is included in paragraph 3.1).

TABLE 4: Most Frequent Comments Relating to Department of Defense and Navy Policies and Procedures

1. Do not inhibit, have minimal impact on PM.
2. Exert pressure to be resisted by PM.
3. Good PMs force issues and do what is needed. Then defend actions; rest have bad programs and/or get fired.
4. Admiralty acts to encourage risk aversion.
5. Programs run on honesty and expertise.

The final discussion question concerned keeping new technology (NT) out of ongoing programs. The study was concerned with two questions. First, is NT being kept out of ongoing programs and if so, then is PM risk aversion a major force. During the interviews, five major forces which keep NT out or put it into ongoing programs were identified; they are listed in Table 5.

TABLE 5: Forces Keeping New Technology (NT) Out of or Putting NT into Ongoing Programs

1. A risk averse PM can keep NT out, generally.
2. Cost is the strongest force against NT.
3. Critically needed NT gets in, somehow.
4. DoD, or user can put NT in, but rarely do.
5. High level "wants" occasionally overturn a PM decision to keep NT out or to put NT in.

A particularly interesting result of the interviews is that schedule pressure makes PMs more risk averse, but cost pressure inhibits the introduction of new technology.

SECTION IV

Analysis of Results

4.1 General Comments. The environment in which weapon systems are acquired is dynamic. The results accumulated for analysis would be different if the study had been conducted during a war or after all the major powers had signed a far-reaching peace accord. As stated by Captain G.W. Lennox, USN, the F-18 Aircraft Program Manager:

In wartime, a program manager's performance is measured by how well he produces/delivers articles to the field; how many, how often, with what capability, with what quality, at a not-excessive cost.

In peacetime, a program manager's performance is measured by his stewardship of public funds: how well he produces/delivers articles on cost with a reasonable level of capability (22).

It appears, therefore, that in wartime a PM would be relatively risk accepting, but in peacetime he would be more risk averse in order to protect himself, his program and his service. This analysis is applicable to the current peacetime environment which rewards "efficiency of stewardship of public funds."

4.2 Inhibiting New Technology Introduction. The literature and the interviews confirm that at least occasionally and perhaps frequently new technology (NT) introduction is inhibited. The results of the interviews would also indicate that on occasion high-risk or not - fully-developed technology is forced into programs against the will of the program manager.

The Logistics Management Institute recommends that, "military program managers should be free to exercise judgement and flexibility . . . (they) must have the authority to get the job done" (15:3). This

study found that, most of the time, he does. The reasons why a PM chooses not to introduce NT will be examined in paragraph 4.3. A discussion of the external causes which inhibit the introduction of NT follows.

Changes cost money; if not over the program life cycle, surely in the current year. And there is never - well, almost never - money to be found in a current year. As if the realities of funding did not exert sufficient pressure, the Navy further inhibits NT by issuing directives requiring "maximum use of appropriate off-the-shelf equipment" (from three different interviews). P. F. Ross found that adoption of innovation was a function of the product of initiating mechanisms and sustaining mechanisms (19). Therefore, if the initiating mechanism is weak, strong sustaining mechanisms will not save the innovation. The long road of signatures and briefings imposed by the Navy and DoD significantly weaken the initiation mechanism and can inhibit NT introduction.

The PM who wants to introduce NT, or keep out someone's unproven "special" component, must also confront outright blackmail from the Office of the Secretary of Defense (OSD) and Congressional staffers. They try to trade "chops" (signatures) for concessions (stated frequently by interviewees on a non-attribution basis).

One solution, frequently employed to get NT into a system, is to have a "block" change. This introduces a group of "saved-up" new technology components and modifications at one time. One-third of those interviewed claimed that critically needed technology gets into the fleet, somehow. Upon further examination, that statement turns on the definition of "critically needed." Perhaps, in peacetime, very little

is critically needed.

4.3 Program Manager Risk Aversion. The interview results indicated that PMs were relatively, reasonably risk averse, *i.e.*, middle of the scale. Perhaps that was perceived in light of all PMs and just increases confidence in the sample. In any case, the interviews underscored that a risk averse PM can generally keep NT off his program if he wants to. It is, therefore, meaningful to examine factors that can increase a PM's risk aversion. In addition to schedule pressure and inadequate methods of measuring risk or of estimating life cycle cost (Table 3), a primary factor is organizational identification. For a PM this is a three-link chain of Self, Program and Service. If personal risk is the most important, then he will be the most risk averse. This is evident when considering risks to reduce life cycle cost by increasing front end costs. O. C. Boileau (President, Boeing Aerospace) found that:

. . .The Government's program manager's DTC (design to cost) performance is measured by reducing acquisition costs, even though we (Nation and Service) are counting on him to increase them so everyone can benefit downstream (11:8).

If the PM puts the program first, before service or self, he will avoid conflicts which could endanger his program. He will advocate his program, and be less likely to admit the need for changes. He will allow schedule pressure to preclude evaluation of potential changes and hence, eliminate the changes.

A PM whose primary loyalty is to the Navy will fight any battle, that is required, in order to introduce needed (as perceived by him) changes. He will, therefore, appear the least risk averse.

Interview results indicated that PM risk aversion ratings were

bimodal. There was also significant disagreement about the effect of PM experience on risk aversion. Some claimed it increased, others that it decreased, and still others that it was unchanged with time as a PM. Some staff interviewees described scenarios of PMs not wanting to do trade studies for NT because almost everything is turned down, "so why try." PMs talk of hedging bets (baselining an off-the-shelf component, and putting an advanced model into development).

The preceding paragraph is consistent with the concept of PM risk aversion being strongly affected by the ranking of his loyalties and priorities. Program management is a position of trust. PMs should be loyal first to the nation and to their service. The program is but one part of the Navy and should be optimized (cancelled, perhaps) within that framework. How to reduce PM over-concern for their personal careers, reduce "projectitis" and increase Navy loyalty is a problem far beyond the scope of this study. However, there is some data that indicates present conditions generate a "me and my project" - first, Navy - second syndrome. These are:

a. Severe cost pressure on PM. When an organization adapts to reduced funding by tightening controls on spending, individual adaption to reduce the transmitted stress, is to decrease organizational identification, i.e., they stop being "company men" (13).

b. Severe promotion pressure on PM. When PMs are selected because of strong leadership drives and high motivation, they strongly seek promotion to Admiral, but commanders of deep draft ships and major air stations get promoted first. This reduces PM loyalty.

4.4 DoD and Navy Policies and Procedures. The results of this study

clearly indicate that the formal policies, procedures, directives and instructions have a minor impact on risk aversion or whether new technology is introduced. This is because "there is nothing explicit or definite about the authority granted the program manager"(14:26). Successful PMs use the "Regs" to their advantage or to build a case during a crisis (data from interviews).

"There is a true dichotomy between the PM's authority and responsibility as established by policy and the level of authority found in the acquisition environment" (14:iii). This informal, or at least non-documented, structure of briefings and "chops" requires the PM to become a politician. It is this political environment that makes possible - if not probable - the trading of favors, the unjustified technical trades, the inhibition of proven technology or the introduction of unproven technology into the weapon systems acquisition process. A PMs personal priorities (Self, Program, Service) will affect his actions in this political arena.

SECTION V

Conclusions

The reader is reminded of the caution included in paragraph 1.4 to use great care in extrapolating these conclusions.

5.1. Proven new technology (NT) is inhibited from introduction into ongoing weapon systems, more than occasionally.

5.2. When proven NT is not introduced it is generally because of cost constraints, but sometimes because of PM or higher authority risk aversion.

5.3. A risk averse PM can keep NT out of his program, most of the time.

5.4. Unproven NT is, on rare occasion, forced into a program by "higher authority" against the PM's will.

5.5. The distribution of PM risk aversion is bimodal.

5.6. External forces that increase a PM's risk aversion include: schedule pressure, program maturity and pressure from "higher authority."

5.7. Internal forces that increase a PM's risk aversion include: bad results of personal risks taken, inability to hedge risk and relative strength of his loyalty to Self, Program and Service (in order of decreasing risk aversion).

5.8. DoD and Navy formal documents read as if they put pressure on PMs to be risk averse, but PMs resist this pressure.

5.9. Competent PMs are motivated, honest and extremely hard working (partially due to manner of selection). They use the "Regs" to their own benefit.

5.10. PMs have inadequate tools to evaluate risk and effects of changes on life cycle costs.

5.11. "A PM is measure by (the efficiency of) his stewardship of public funds," Captain G.W. Lennox, USN (22).

5.12. The risk that no one ever mentioned, is the risk of being unprepared, if (when) hostility breaks out.

SECTION VI

Recommendations

6.1. Major emphasis should be placed on developing tools to evaluate risk, techniques to measure the effect of changes on life cycle cost, methods of defining "necessary" performance levels and procedures for trading-off between cost, schedule and performance.

6.2. The Navy should conduct a study of PM goal displacement due to:

a. incongruence between formal and informal organization structure, controls and directions;

b. incongruence between PM selection criteria and reward/punishment procedures;

c. conflicting PM loyalties to Self, Program and Service;

d. strongly political environment of program management and PM's political role.

6.3. PM risk aversion level should be determined and used as one of the criteria for selection. It appears that the less risk averse PMs should initiate programs, and the more risk averse PMs should complete them.

6.4. The Navy should more actively support PMs in their role as brief-er and negotiator in OSD and Congress.

6.5. Since cost and schedule pressures combine to make PMs relatively risk averse, their direction from the OSD and Navy should be to "carefully weigh changes" rather than to "avoid except where clearly necessary" (5:IIIJ.1).

APPENDIX A

Excerpts from PM Charters

A.1 NMI 5430.37A(PM1)(6:2). The authority of the program manager shall not include:

1. Deviations from established Department of the Navy policy and procedures applicable to "designated projects."

2. Final approval of the Project Master Plan and Technical Development Plans and changes thereto.

3. Final approval of advanced procurement plans.

4. Changes to the schedules established by higher authority for delivery and operational use.

5. Changes degrading mission performance or altering operational characteristics specified by higher authority.

6. Authority to act as Contracting Officer. . .

A.2 NMI 5430.106(PMS302) (7:2). The Sonar Project Manager is not authorized to deviate from established policy. Communication, action, or inaction in any form which contractors may interpret as directional in nature shall be conducted through or with the concurrence of an appropriately assigned contracting officer.

A.3 NAI 5400.74A(PMA265)(8:5,6 and encl. 0). As the responsible executive he is expected to act on his own initiative in matters affecting the Project. . . Limitations of the Project Manager's delegated authority are as specified in paragraphs IA2b and c of enclosure (3) to SECNAV Instruction 5000.1. The Project Manager's evaluation (of the effect of proposed changes or proposals to increase or decrease

the resources authorized) will be considered by the officials having final decision authority during deliberations on Program Change Requests and on the budget.

A.4 NAI 5400.76A(PMA266)(9:encl.1). He (the PM) has the authority to act on his own initiative in matters effecting the Project. The Project Manager is delegated the specific authorities set forth in paragraph IA2 of enclosure (3) to SECNAVINST 5000.1. The Project Manager's evaluation (see paragraph A.3 above) will be considered by officials who have final decision authority during programming, reprogramming and budgeting deliberations.

A.5 NMN 5430(PM3)(10:2). PM3 is directed to proceed in accordance to enclosure (1) and reference (c) (DoDD 5000.1). Also he shall take the lead in coordination with the Headquarters, NAVMAT staff to:

1. Prepare a project charter and agreements for operating with the U.S. Air Force. . .

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