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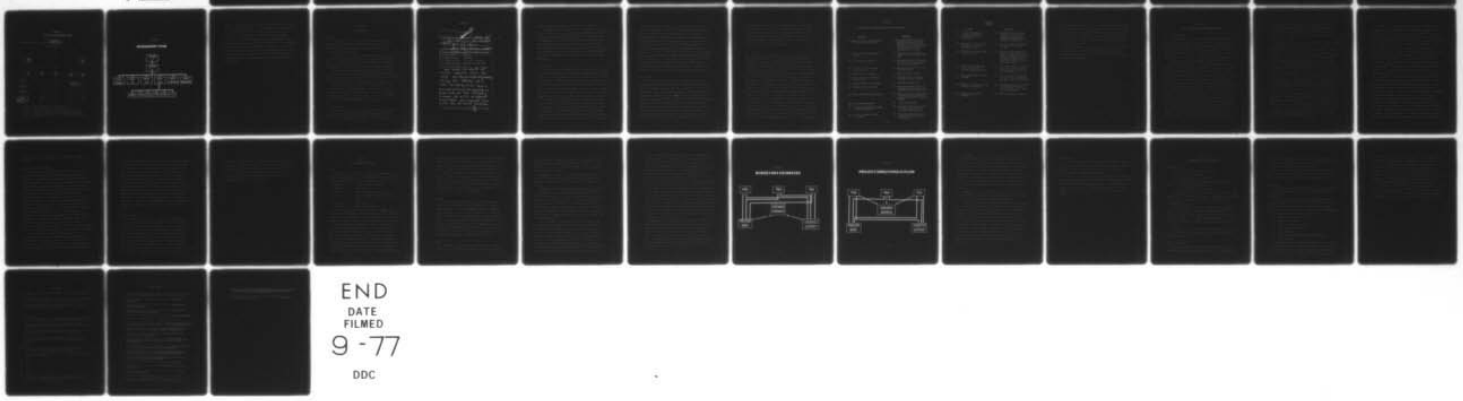

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

PROGRAM MANAGEMENT COURSE
INDIVIDUAL STUDY PROGRAM

ESTABLISHMENT
of the
PROGRAM MANAGER FOR AVIONICS
Study Report
PMC 77-1

Mervyn W. Leavitt
GS-12 NAVAIR

FORT BELVOIR, VIRGINIA 22060

ESTABLISHMENT OF THE PROGRAM MANAGER FOR AVIONICS

Study Project Report

Individual Study Program

Prepared as a Formal Report

Defense Systems Management College

Program Management Course

Class 77-1

by

Mervyn W. Leavitt
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May 1977

Study Project Advisor
Mr. William Cullin

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) ESTABLISHMENT OF THE PROGRAM MANAGER FOR AVIONICS	5. TYPE OF REPORT & PERIOD COVERED STUDENT PROJECT REPORT 77-1 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) MERVYN W. LEAVITT	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS DEFENSE SYSTEMS MANAGEMENT COLLEGE FT. BELVOIR, VA 22060	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEFENSE SYSTEMS MANAGEMENT COLLEGE FT. BELVOIR, VA 22060	12. REPORT DATE 77-1 13. NUMBER OF PAGES 40
14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office)	15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

UNLIMITED

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

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ACCESSION for
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE:

Establishment of the Program Manager for Avionics

STUDY PROJECT GOALS:

The purpose of this report is to document and contribute to, the implementation of the concept of Integrated Acquisition Management for common GFE avionics. The specific goal of the study is to develop more fully the groundwork from which NAVAIR can implement the charter for the Program Manager for Avionics.

STUDY REPORT ABSTRACT:

Increasing requirements are being imposed to ensure greater cost, schedule and performance controls over, and increased management attention to, certain less than major common weapon systems, subsystems, and equipments, particularly those common to two or more major weapon systems. This situation necessitates the identification of appropriate executive agents (Program Managers) within the Naval Air Systems Command accountable for acquisition management on a command-wide basis.

This report establishes the background from which the concept of Program Management for common avionics emerged. The Carrier Aircraft Inertial Navigation System (CAINS) Program is used as a case study that ultimately developed the idea of the Program Manager for Avionics as a "better way of doing things." The report also deals with what Program Management of common avionics is all about. The report delineates the mission, scope, operating relationships, organization and resources, authority, accountability and responsibility of the Program Manager for Avionics.

Finally, the study reports on the actions that have taken place implementing the Program Manager for Avionics, and identifies actions that still need to be done with the author's recommendations for areas of further improvement.

DLSIE DESCRIPTORS:
PROGRAM MANAGEMENT
AVIONICS

NAME, RANK, SERVICE	CLASS	DATE
Marvin D. Leavitt, GS-13, DN	PMC 77-1	2 May 1977

EXECUTIVE SUMMARY

Increasing requirements are being imposed to insure greater cost, schedule, and performance controls over, and increased management attention to, certain less-than-major common weapon systems, subsystems and equipments, particularly those common to two or more major weapon systems. This situation necessitates the identification of appropriate executive agents within the Naval Air Systems Command accountable for integrated acquisition management of such material on a command-wide basis. The purpose of this report is to document and contribute to the implementation of the concept of integrated acquisition management for common GFE avionics. The specific goal of the study is to develop more fully the groundwork from which NAVAIR can implement the charter for the Program Manager for Avionics.

The report first establishes the background from which the concept of program management for common avionics emerged. The Carrier Aircraft Inertial Navigation System (CAINS) Program is used as a case study that ultimately developed the idea of the Program Manager for Avionics as a "better way of doing things."

The next section of the report deals with what program management of common avionics is all about. This section delineates the mission, scope, operating relationships, organization and resources, authority, accountability, and responsibility of the Program Manager for Avionics. Finally, the study reports on the actions that have taken place implementing Program

Management for Avionics, and identifies actions that still need to be done with the author's recommendations for areas of further improvement.

ACKNOWLEDGEMENTS

The author is indebted to many individuals for their help in providing the information needed to complete the framework of this study and a great deal of advice and assistance in the review effort.

Special thanks go to the following for their help in my study project:

Mr. Frederick Ascani, Defense Systems Management School

Mr. William Cullin, Defense Systems Management School

Mr. Ellsworth Hall, Naval Air Systems Command

Mr. John McHale, Naval Air Systems Command

Mr. Richard Meyers, Naval Air Systems Command

LCDR Bruce Ryan, USN, Naval Air Systems Command

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CHAPTER I

PURPOSE, DEFINITIONS, ORGANIZATION OF THE REPORT

Purpose

The "Program Manager for Avionics", is this title a misnomer? Is it a further erosion of the Designated Project Managers Authority? This report will attempt to answer these questions and more. It will address the why, the what, and the how, in the establishment of the Program Manager for Avionics.

For many years, common avionics has been handled in the functional groups with 533, 534, 411, 412, 413, 414, and 417 (see definitions) each "doing their thing" with relatively little or at best, loose coordination.

The 533 cognizant engineer was looked to informally as the leader, and indeed, management invariably came to him with requests for information and resolution of problems.

Unfortunately, he lacked the formal authority to coordinate and direct any of the efforts of the other functional groups and consequently was not able to solve many problems.

In reality, no one was in charge. No one could be held accountable.

However, just as 533 was informally acknowledged as the leader, 533 also took the blame for the overall state of avionics performance and logistic support in the fleet.

After being made aware of this system of managing common avionics, Vice Admiral Lee, the Commander of NAVAIR, commented "there just has to be a better way of doing things."[1]

My purpose in this report is to document, and contribute to, the implementation of the concept of integrated acquisition management for common GFE avionics. The specific goal of the study is to develop more fully the groundwork from which NAVAIR can implement the charter for the Program Manager for Avionics.

Definitions

Increasing requirements are being imposed to ensure greater cost, schedule, and performance controls over, and increased management attention to, certain less-than-major common weapon systems, subsystems, and equipments, particularly those common to two or more major weapon systems. This situation necessitates the identification of appropriate executive agents within the Naval Air Systems Command accountable for acquisition management of such material on a command-wide basis.

SECNAVINST 5000.1 specifically reserves the term Project Management for designated major defense systems.* Acquisition management (other than major systems) is a generic term used to describe themanagement of development, production and initial logistic support of Government Furnished Equipment (GFE) supplied as subsystems or components to major acquisition programs or items under laboratory development. Program Management, as used in the context of this report, applies to the Acquisition Management of GFE supplied to two or more weapon systems or having multi-platform

*The term Project Management is synonymous with the term Program Management as used in DODINST 5000.1.

application. This report deals only with the establishment of the Program Manager for Avionics at the Naval Air Systems Command.

In order to understand the interrelationships discussed in the latter portions of this report a simplified organizational chart is provided (Figure 1). The Avionics Division Director (AIR-533) is directly responsible to AIR-05, the Assistant Commander for Material Acquisition. The Avionics Division Director is also the executive agent designated as the Program Manager for Avionics. The Program Management Team (Figure 2) is made up of representatives from:

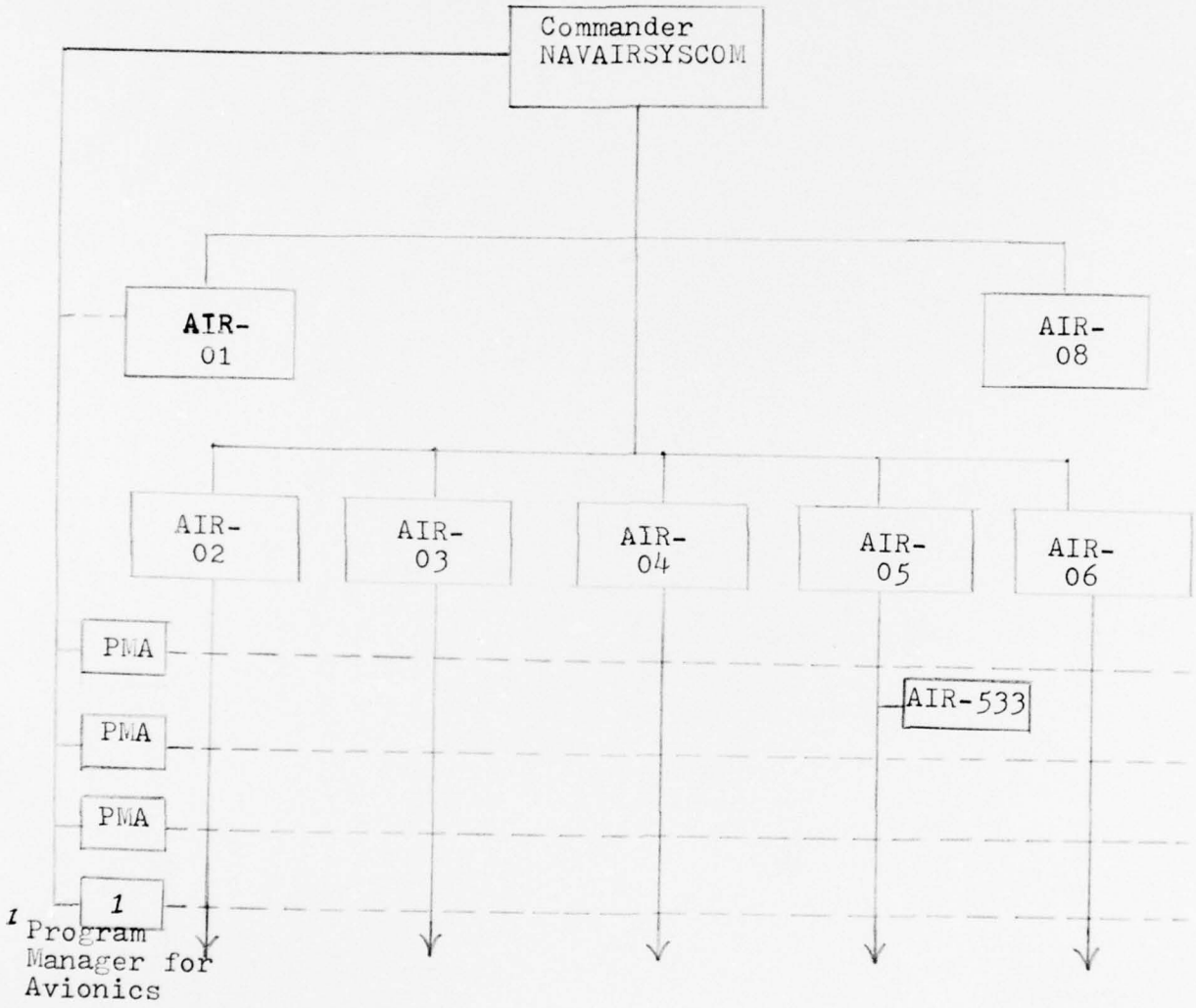
AIR-533	Avionics Division
AIR-620	T&E Project Division
AIR-534	Ground Support Equipment Division
AIR-411	Maintenance Policy and Engineering Division
AIR-215	Aircraft Components Purchase Division
ESA-207	Naval Weapons Engineering Support Activity
AIR-04A4	Technical Documentation Manager
AIR-410	Logistics Management Division
AIR-412	Material Management Division
AIR-413	Weapons Training Division
AIR-414	Depot Management Division
AIR-417	Ground Support Equipment Logistics Division

Organization of the Report

The report first establishes the background from which the concept of Program Management for common avionics emerged. The Carrier Aircraft Inertial Navigation System (CAINS) Program is

FIGURE 1

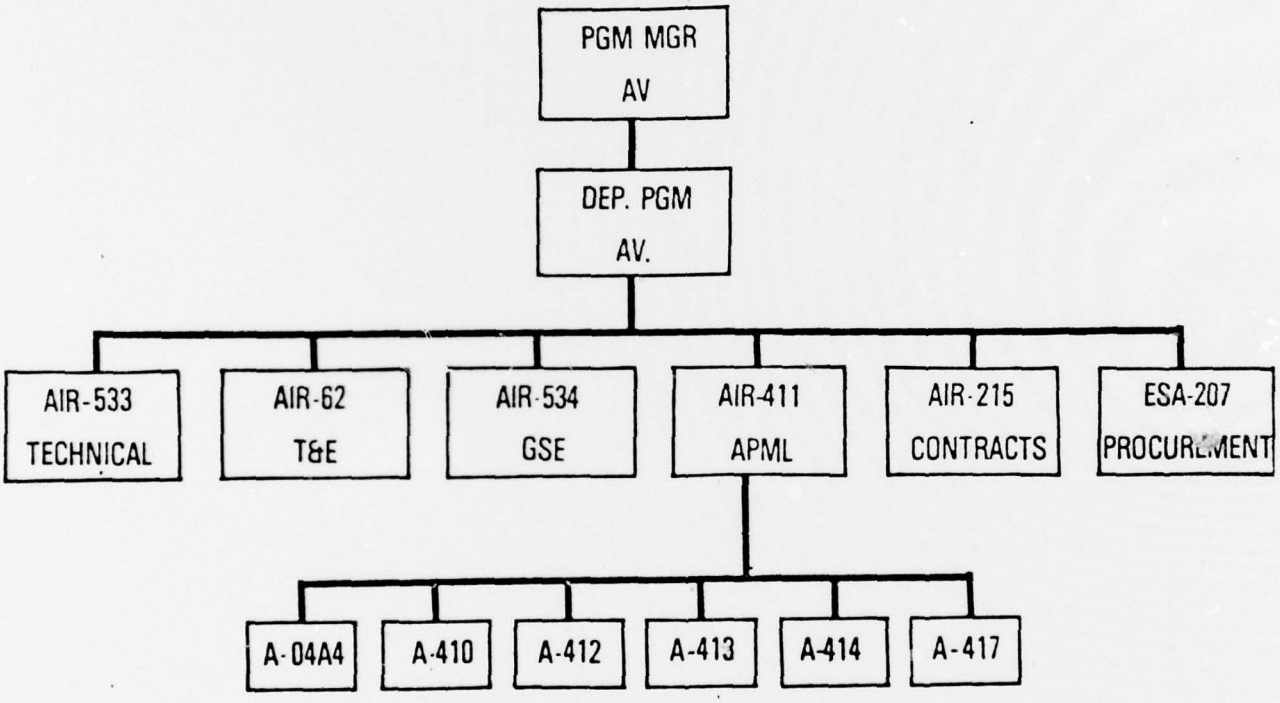
NAVAIR ORGANIZATIONAL CHART



AIR-01: Deputy Commander for Plans and Programs
AIR-02: Assistant Commander for Contracts
AIR-03: Assistant Commander for Research and Development
AIR-04: Assistant Commander for Logistics/Fleet Support
AIR-05: Assistant Commander for Material Acquisition
AIR-06: Assistant Commander for Test, Evaluation and Ranges
AIR-08: Comptroller

FIGURE 2

MANAGEMENT TEAM



used as a case study that ultimately developed the idea of the Program Manager for Avionics as the "better way of doing things".

The next section of the report deals with what Program Management of common avionics is all about. This section delineates the mission, scope, operating relationships, organization and resources, authority, accountability, and responsibility of the Program Manager for Avionics. Finally, the study reports on the actions that have taken place implementing Program Management for Avionics, and identifies actions that still need to be done with the author's recommendations for areas of further improvement.

CHAPTER II

BACKGROUND

Genesis

The concept of a program manager for electronics as a commodity was touched upon in 1973 by the DOD-sponsored Electronics X Study which reviewed procurement management of electronics in the services.

One of its higher priority recommendations was that multi-program project officers (basket Systems Project Officer (SPO)) under a "perpetual program manager" be established for common electronic items and those independent of designated projects.

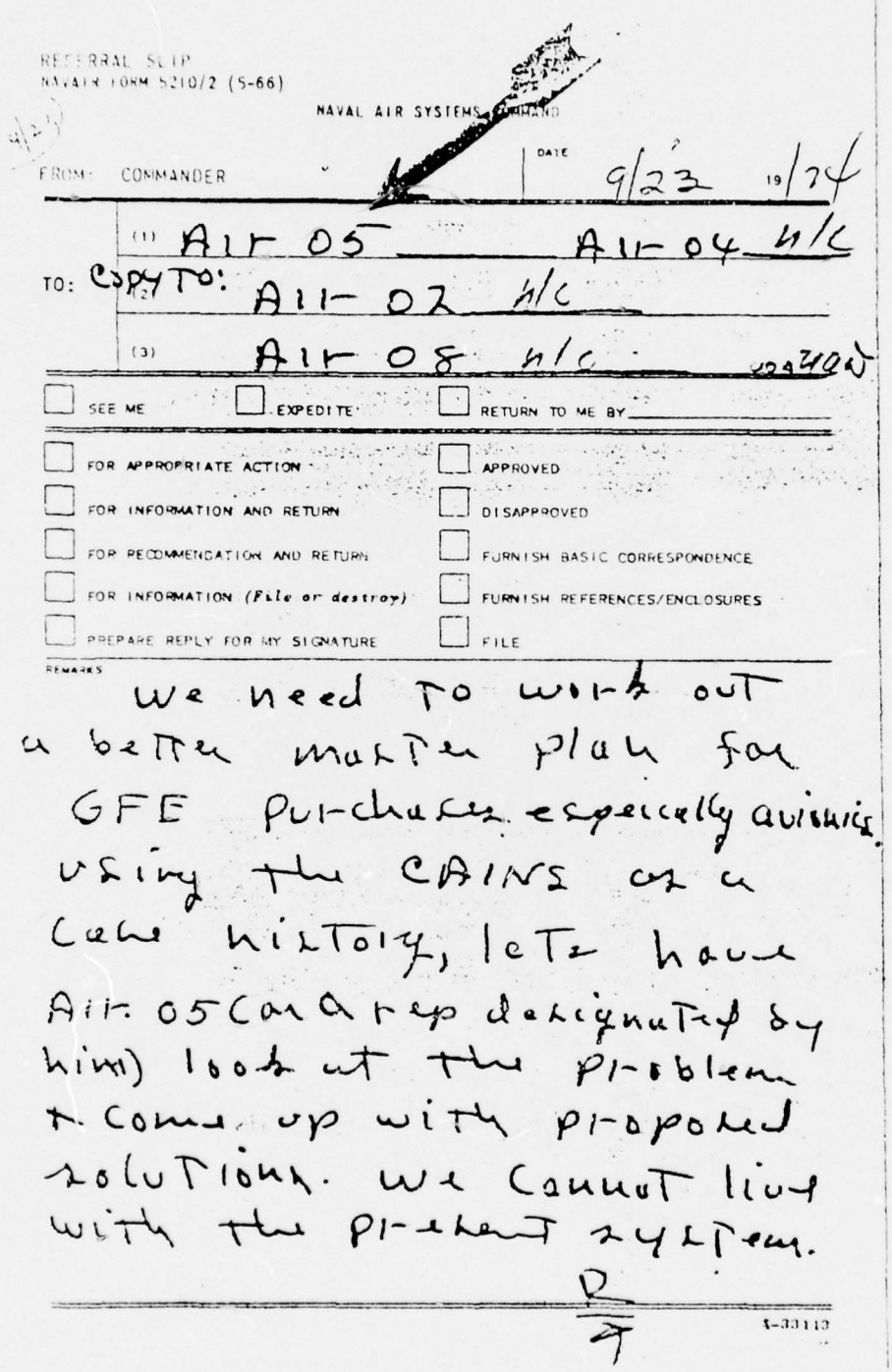
The Common Avionics Equipment Readiness Improvement Study Report, more commonly known as the "Whelchel Study"[2] recommended, among other things, that NAVAIR should explore fully the potential benefits of establishing a program manager for avionics.

Vice Admiral Lee, became increasingly concerned with the perpetual problem of GFE acquisition. When CAINS problems came to light, Vice Admiral Lee charged the Director of the Avionics Division with solving the CAINS problems and using the solution as a model for other common avionics. (Figure 3)

CAINS Case Study

NAVAIR, like any other material acquisition organization, has been, and is, troubled with a proliferation of different equipment performing the same functions. Proliferation of

FIGURE 3



REFERRAL SLIP
NAVAIR FORM 5210/2 (5-66)

NAVAL AIR SYSTEMS COMMAND

FROM: COMMANDER

DATE 9/23 19/74

TO: (1) AIR 05 AIR 04 H/C
COPY TO: (2) AIR 02 H/C
(3) AIR 08 H/C

☐ SEE ME ☐ EXPEDITE ☐ RETURN TO ME BY

☐ FOR APPROPRIATE ACTION	☐ APPROVED
☐ FOR INFORMATION AND RETURN	☐ DISAPPROVED
☐ FOR RECOMMENDATION AND RETURN	☐ FURNISH BASIC CORRESPONDENCE
☐ FOR INFORMATION (File or destroy)	☐ FURNISH REFERENCES/ENCLOSURES
☐ PREPARE REPLY FOR MY SIGNATURE	☐ FILE

REMARKS

We need to work out a better master plan for GFE purchases, especially avionics using the CAINS as a case history, let's have AIR 05 (or a rep designated by him) look at the problem & come up with proposed solutions. We cannot live with the present system.

R
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inertial navigation systems is typical of the problem.

The CAINS project was initiated as a development program in the mid 1960's in order to develop a common inertial navigation system for use on aircraft entering the Navy inventory during the early 1970's. The system was to include significant improvements in aircraft inertial system performance, reliability, maintainability, and operability. The program not only involved the development of new aircraft hardware, but, also redesign of the source and distribution of the aircraft carrier reference information.

1965 - 1972

In the late 1960's NAVAIR initiated development of the F-14A, S-3A and E-2C aircraft all of which required inertial navigation systems. Prior to this time, all naval aircraft inertial systems were supplied as Contractor Furnished Equipment (CFE), and it was expected by the respective aircraft project managers, that these three new inertial system requirements would be supplied as CFE. The Commander of NAVAIR saw significant advantage to the use of a common GFE inertial system in these three new weapon systems.[3] With the decision to develop and procure a common GFE inertial system for the F-14A, S-3A and E-2C the Avionics Division (AIR-533) undertook the management of this equipment program within the framework of established operating procedures for NAVAIR functional organizations supporting weapon system project managers (PMAs). However, in recognition of the importance of CAINS to

the weapon systems, the Avionics Division designated CDR D. D. DeWitt as CAINS project officer.[4] A project charter was issued naming all the individuals within NAVAIR, field activities, and contractors' organizations who supported the CAINS project. The CAINS project officer had no authority to direct the activities of other personnel outside the Avionics Division, or to obtain the manning levels necessary to adequately support the project. CDR DeWitt led the CAINS project for thirty three months. When he was transferred in mid-1971, the Division lost his billet. At that time LCDR R. Geer was shifted from his job in AIR-5335 as full time TACAN project engineer to full time CAINS project officer until he was transferred in late 1972. With LCDR Geer's transfer, the Avionics Division lost his military billet also.

1972 - 1974

From late 1972 to late 1974, the management of the CAINS project was assumed by the GS-13 CAINS project engineer, who also had other assigned projects, with the assistance of a GS-14 section head. Due to personnel shortages in the logistic support organization, there was no functioning CAINS Assistant Program Manager for Logistics (APML) from 1970 through 1974, which severely limited CAINS logistic planning during a crucial period of the CAINS program. The support equipment organization was able to supplement its limited staff with field activity personnel. However, in the absence of sound logistic planning, their efforts were not wholly effective. During this '72 to '74 period, the

three aircraft weapon systems transitioned into Fleet service and the CAINS project started experiencing equipment shortages, support equipment inadequacies, maintenance publications and training deficiencies, installation problems and many support associated problems. (See Figure 4). CAINS personnel made numerous efforts to obtain assistance.

1974 - 1976

The plight of the CAINS project finally received top management attention when, in late 1974, the F-14A Project Manager informed the Commander of NAVAIR that due to late contracting and its impact on deliveries, his aircraft would be delivered without CAINS equipment installed.[5] Several weeks later, a Vice President of Lockheed informed the Commander that the S-3A would also be delivered without CAINS installed. In order to solve this problem, the Commander established PMA-267, and appointed the Director of the Avionics Division as the Project Manager and a LCDR, the then Patrol Aircraft Avionics System Project Officer, was designated as full time CAINS Deputy Project Manager.[6] The PMA-267 Project Manager was directly responsible to AIR-00 and as a Project Manager, had authority to direct the activities of all functional areas of the command. This intensive management attention given the CAINS project resulted in the reassignment of an additional three and one-half man years of effort to the CAINS project in NAVAIR, and the procurement of an additional three man years of field activity/contractor support. The reassignment of

FIGURE 4

CAINS Problems Identified by PMA-267 and Solutions

PROBLEMS	SOLUTIONS
1. Late Contracting - No equipment for aircraft installation	1. Increased production capacity, accelerated production and deliveries, allocated assets one-for-one. Award of contract containing priced options spanning several years.
2. Depot repair backlog large and growing	2. Increased emphasis on depot repair at prime contractor and ASO
3. Spare WRAs not available	3. Institute "box-for-box" tracking to identify all assets until spares commenced delivery
4. Spare bit and piece support not available	4. Accelerated production of spare bits and pieces.
5. Maintenance Plan outdated	5. Revised maintenance plan.
6. Program Planning Document not in existence	6. Published Program Planning Document and first revision
7. Training Plan not in existence	7. Generated Training Plan
8. Training courses incomplete	8. Instituted complete review of available organizational level training, will publish results
9. Squadron publications inadequate	9. Conducted complete organizational level pubs review, published results with specific recommendations.
10. Provisioning out-dated	10. Reprovisioned ASN-92
11. Inertial Measurement Unit (IMU) PGSE unsatisfactory	11. Redirected IMU PGSE procurement to state-of-the-art, fully automatic test equipment
12. VAST Test Program Sets not available	12. Accelerated development, test and production of VAST test program sets

FIGURE 4
(cont)

PROBLEMS	SOLUTIONS
13. Insufficient supply of catapult-launch-capable IMUs to support CV deployments	13. Obtained funds ($.75M) and instituted forced retrofit program. Diverted new production equipment direct to fleet to outfit CVs.
14. Integrated Logistic Support Management Team (ILSMT) Meetings not held	14. Held Fleet-wide ILSMT meeting, and two subsequent ILSMT meetings
15. Budgeting for ASN-92 support grossly inadequate	15. $4M budgeted for $12M requirement to support ASN-92 in FY-76. Obtained $7M in FY-76. Established budgeting process to insure all requirements identified and budgeted for, FY-76 thru FY-81.
16. Inter-industrial bickering rampant (ASN-92 and aircraft prime contractors)	16. Placed USN in direct control of inter-industrial relations. Addressed basic problems and eased relations.
17. Equipment Interface anomalies abounded	17. Conducted numerous engineering investigations, identified problems, implemented solutions to many
18. High level erroneous equipment removals at squadrons	18. Revised procedures, promulgated performance information, conducted pubs review. Have made some progress.
19. Shipping containers not available	19. Obtained shipping containers.

headquarters personnel was done at the expense of other projects, and the additional field activity/contractor support cost $169K. These actions brought the total CAINS Project manpower levels to seven man years of headquarters personnel, and nine and eight-tenths man years of field activity/contractor support personnel costing $497K per year.[7]

With the authority and staffing levels provided the CAINS project manager, problems were identified and solutions implemented. The project began fully supporting it's customers and functioning smoothly.

CHAPTER III

POLICY, AUTHORITY, AND RESPONSIBILITY

Policy Formulation

NAVAIRNOTE 5400 of 6 November 1974 officially established Project Management for the Carrier Aircraft Inertial Navigation System (CAINS) at NAVAIR.[8] The establishment of the CAINS Project gave the Director of the Avionics Division the authority to direct the activities of the functional organizations. Fiscal control assured full cooperation and backed up the authority.

The CAINS PMA charter NAVAIRINST 5400.77 established the Project Manager as the single central executive responsible for the successful management of the project.[9] He was to have broad directive authority within the scope of the project over the planning, direction, control and utilization of resources required for satisfactory execution of the project. This included directive authority over the project efforts of in-house and contractor organizations, including the assignment of responsibility, as appropriate, to the various NAVAIR functional organizational elements. As the responsible executive, he was expected to act on his own initiative in matters affecting the project. In those cases where action was required beyond the authority granted in the charter, he was to refer the action to higher authority with his recommendations, including alternatives available.[10] The Project Manager reported directly to the Commander Naval Air Systems Command, for all matters relating to the project. Also,

his responsibilities included keeping the Assistant Commander for Material Acquisition (AIR-05) and the Deputy Commander for Plans and Programs (AIR-01) informed of status, progress and problems related to his project for proper coordination and administrative support.

When approval was requested from the Chief of Naval Material for the CAINS PMA charter, it was refused on the grounds that a PMA type charter was not appropriate, because CAINS did not have the scope of a major system. The CNM letter suggested that CAINS be managed as a less than major system under the acquisition management provisions of SECNAVINST 5000.1. The SECNAV instruction states, "Acquisition Management is concerned with those acquisitions which are, in most instances, for GFE to be supplied as subsystems or components to major acquisition programs or items under laboratory development. Such acquisitions fall below the threshold requiring OSD level monitorship, and do not require the degree of visibility and status accorded Project Management. Approval and monitorship for these acquisitions will be accomplished as an integral part of the overall Navy Department system acquisition process. Acquisition managers are responsible for development, production and initial support of hardware items. Accordingly, appropriate command support and apportioned resources shall be provided to the acquisition management function."

AIR-533 followed up this recommendation by preparing a draft instruction for acquisition management in NAVAIR and a draft charter for the CAINS acquisition manager.

Although these specific documents were never approved, the concepts and major provisions were ultimately incorporated in NAVAIRNOTE 5400 of 21 April 1976, which established Program Managers for Armament, Avionics, and Propulsion in the Material Acquisition Group in Naval Air Systems Command Headquarters."[11]

NAVAIRINST 5400.89 of 12 February 1977[12] superceded NAVAIRNOTE 5400 of 21 April 1976 and became the final and most significant link in the chain of policy documents leading to the establishment of the Program Manager for Avionics. NAVAIRINST 5400.89 not only formalized the establishment of the Program Manager for Avionics to provide integrated acquisition management of common GFE avionics but also redefined, and in some areas expanded, the responsibility and authority of the Director of the Avionics Division. The NAVAIRINST addressed the designation of Deputy Program Managers for critical high priority avionics requiring intensified management supplied as GFE to more than one weapon system and other individuals to function as Acquisition Managers for less critical avionics systems supplied as GFE to more than one weapon system. In addition, the instruction required preparation of charters for those avionics projects managed by a designated Deputy Program Manager and general guidelines for individuals functioning as Acquisition Managers. It preserved in instruction form, the requirements and concepts of program management set forth in the NAVAIRNOTE[13]. It provided a charter that delineated in some detail, the mission, scope, operating relationships, organization and resources, authority,

accountability and responsibility of the Program Manager for Avionics.

Authority and Responsibility

The Program Manager for Avionics is the single central executive (decision-maker) responsible for the successful management of all common GFE avionics systems/subsystems/components/equipment.[14] The scope of his responsibilities includes the definition, engineering development, test and evaluation, acquisition, full scale production and initial logistic support of this equipment for Navy and Marine Corps aircraft or supporting systems. The importance of designating the Program Manager for Avionics as the central decision maker should not be overlooked. It is not feasible to resolve the many small conflicts and disputes that arise in the normal course of managing common avionics by escalating them to the Commander. When conflicts between equipment acquisition and functional policies and objectives develop that cannot be resolved, the matter will be referred to the Directors of the affected Divisions for resolution. Actions directed by the Program Manager for Avionics, however, will be continued during the period pending resolutions.[15]

The Director of the Avionics Division has two sets of relationships, with respect to authority, responsibility and accountability. As Avionics Division Director he is directly responsible to the Assistant Commander for Material Acquisition. His relationships, authority, and accountability are defined in

the NAVAIR Organizational Manual and existing NAVAIR Instructions. As the Program Manager for Avionics, he is directly responsible to the Commander for matters involving program management. He has authority to cut across command lines and conduct direct liaison with other functional groups. For common avionics, he is the Acquisition Manager. By coordinating and directing the functional groups, he provides complete program support to the PMA/APC, usually working through their agents within the Material Acquisition Group. For weapon system peculiar equipment, the PMA/APC, is the acquisition manager, and the Avionics Division functions as the PMA/APC's exclusive agency for development and acquisition. The Designated Acquisition Managers (Deputy Program Managers) are directly responsible to the Program Manager for Avionics.

Project Staffing

Key manpower resources will be assigned to staff Project Teams required to manage the acquisition of common GFE avionics systems.[16] These teams will be composed of, but not limited to, a Deputy Program Manager, appropriate technical personnel from AIR-533, and representatives from Maintenance Policy and Engineering Division (AIR-411), T & E Project Division (AIR-620), Ground Support Equipment Division (AIR-215), and Naval Weapons Engineering Support Activity (ESA-207). The Deputy Program Manager will be the Project Team Leader, and the Maintenance Policy and Engineering Division representative will function as the

Assistant Program Manager for Logistics (APML). Representatives from the Technical Documentation Manager (AIR-04A4), Logistics Management Division (AIR-410), Material Management Division (AIR-412), Weapons Training Division (AIR-413), Depot Management Division (AIR-414) and Ground Support Equipment Logistics Division (AIR-417) will assist the APML.

CHAPTER IV

IMPLEMENTING ACTIONS

Status

Since NAVAIRINST 5400.89 was signed on 12 February 1977, six Deputy Program Managers have been designated for critical, high priority common avionics. Designated high priority programs are:

AN/AYK-14	Standard Airborne Computer
AN/ARC-182	Radio System
CV-TSC	Carrier Tactical Support Center
AN/ASN-92	Carrier Aircraft Inertial Navigation System
AN/APX-100	Transponder, IFF
AN/ASB-19	Angle Rate Bombing Set

These six programs have values in excess of $300M (total procurement). When considered in the context of their importance to other major weapon systems, their proper management is worth billions of dollars to the Navy and ultimately the U.S. taxpayer.

Good management is expensive, it requires the commitment of significant organizational resources. The success of Program Management in NAVAIR will depend on full and extensive support from the functional organizations. Presently the functional organizations are inadequately manned. Additional headquarters personnel are required to adequately staff the functional groups. As detailed earlier in the CAINS case study, the CAINS project manpower levels grew to seven man years of headquarters personnel.

and nine and eight tenths man years of field activity/contractor personnel costing $497K annually. The costs of services in support of the CAINS Project, January 1968 through June 1976 totaled $2,355K. The application of the CAINS solution to other equipment requires change in the modus operandi of NAVAIR by; first putting someone in charge, and second by acquiring additional personnel as either headquarters staff or contractor support personnel. The former has been accomplished through the establishment of the Program Manager for Avionics. The latter has not, but must be accomplished.

Training

In implementing the concept of integrated acquisition management, a requirement for systems management training became apparent. A cadre of technical personnel, primarily project engineers, needed training in order to effectively execute their new role with Program Management responsibilities. In view of their high technical skill and educational level, management determined that the area of technical management was not considered appropriate in the curriculum. The area which was considered weakest and required greatest empahsis was the administrative disciplines within program management.

Manual

A rough draft "Manual for Program Management of Common GFE Avionics" was developed by this author. This manual focuses on

the administrative disciplines within program management and in general addresses specific responsibilities contained in the charter of the Program Manager for Avionics.[17] The manual is divided into five sections:

Section I - Overview of Systems Acquisition Management. Reviews the major policies and instructions that provide the framework within which the Program Manager for Avionics must operate.

Section II - Budgeting and Funding Considerations. Provides an understanding of the Planning, Programming, and Budgeting System and how the Program Manager for Avionics interfaces with the entire Navy funding structure. The unique position of the Program Manager for Avionics with regard to program funding necessitates a thorough understanding of funds flow in NAVAIR. The extreme importance of this subject warrants some digression at this point to explain the position of the Program Manager in the funding structure.

Funds available to the Program Manager for Avionics for obligation in the execution of his tasks are allocated by the Comptroller or are included in weapon system platform funds or MOD/OSIP (Modification/Operational Safety Improvement Program) funds programmed to weapon system Project Managers/Coordinators or to the MOD/OSIP coordinator. All funding requirements for production and initial logistics support of systems/subsystems/components/equipments specifically associated with major weapon systems generally are included in the budget program of the

Project Manager/Coordinator in accordance with established budgetary practices. Functional organizations other than that of the Program Manager often provide direct support to the Project Manager/Coordinator in associated planning, programming, and program execution phases. To assure overall successful acquisition management, however, the Program Manager will maintain an overview on, and monitor, production and logistics support of his assigned systems/subsystems/components/equipments, and not manage the funds related thereto. Requirements of the Program Manager will be given maximum support in development of total Command requirements. Concurrence of the Program Manager will be obtained by production and logistics support organizations prior to budgetary submissions. The Program Manager for Avionics will be provided a copy of all submittals and any ensuing project directives. The Program Manager for Avionics shall be notified prior to the initiation of any procurement or support action that deviates from the previously submitted planning and budgetary information. (See Figures 5 and 6).

Section III - Program Planning and Control. Presents the current methods and tools used in program planning and control. Emphasis is placed on developing a program work breakdown structure, and work scheduling networks. Cost estimating methods are addressed along with Design-to-Cost and Life Cycle Cost. Much emphasis is placed on Management Information Systems (MIS), especially in the implementation of DOD Cost/Schedule Control Systems Criteria for Program Management.

FIGURE 5

BUDGETARY ESTIMATES

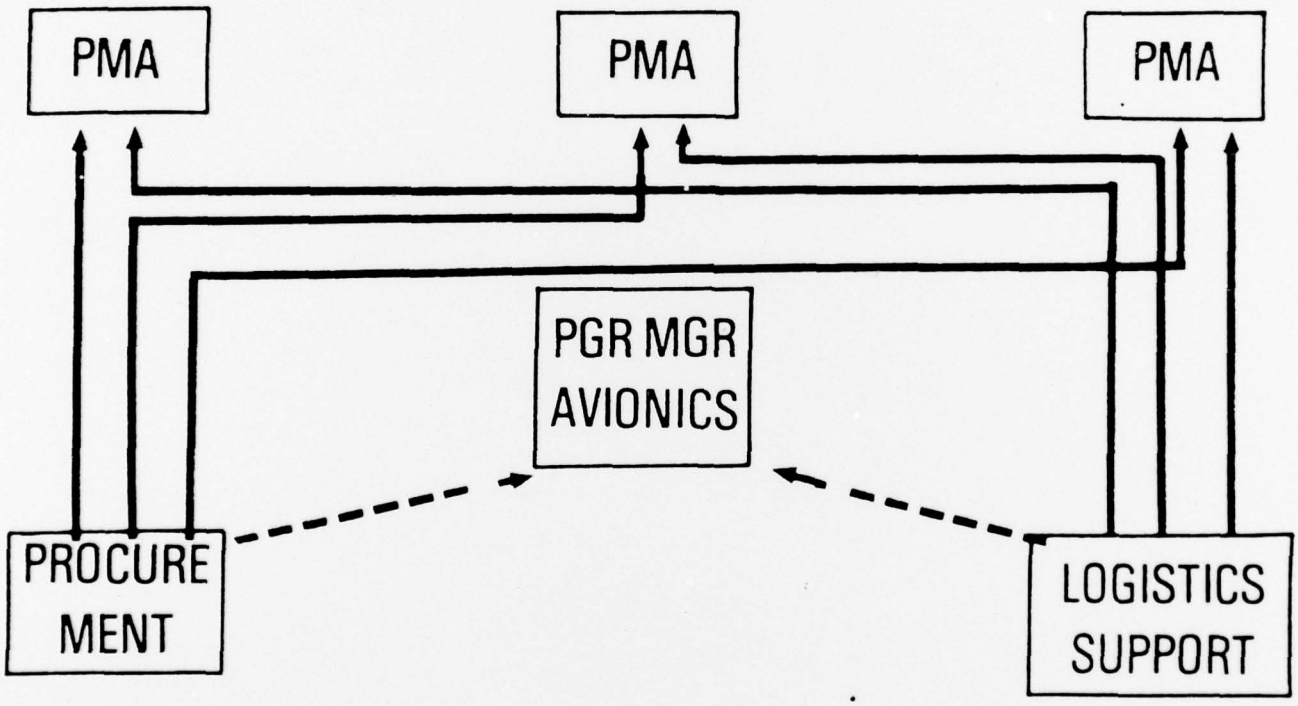
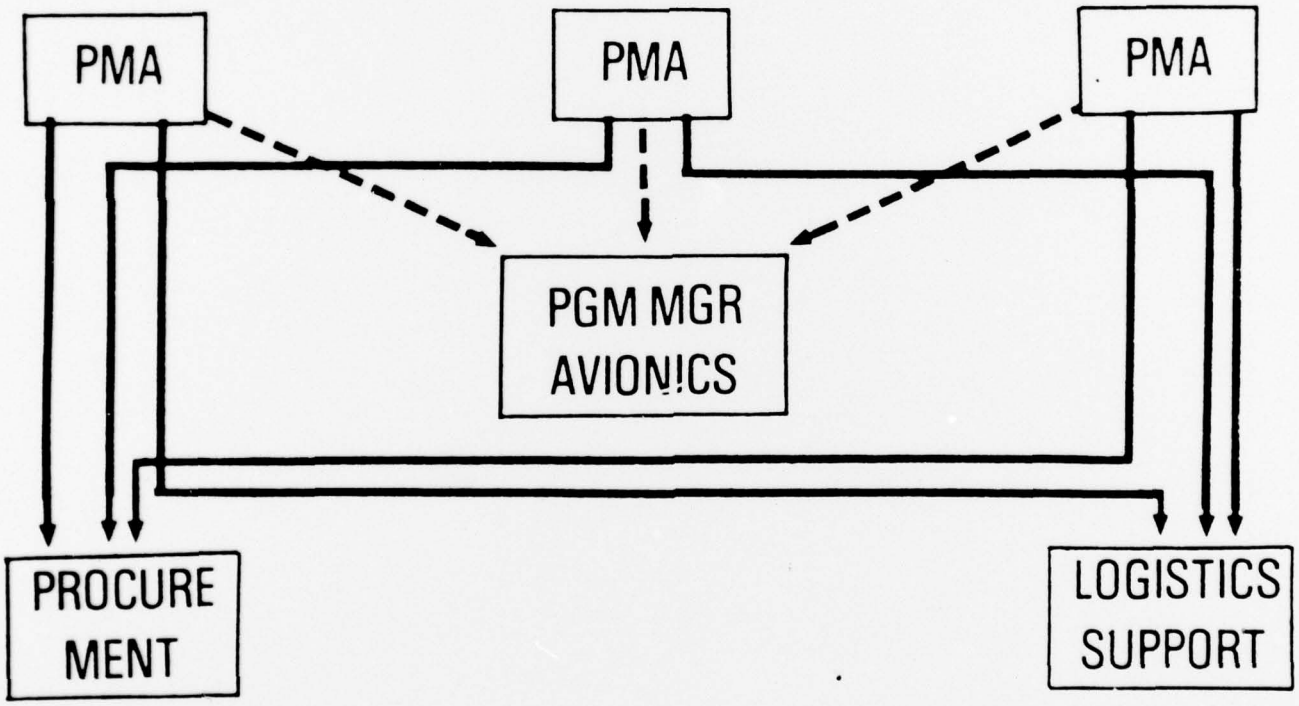


FIGURE 6

PROJECT DIRECTIVES ($) FLOW



Section IV - Logistic Support. Contains the elements of Integrated Logistic Support for which the Program Manager is ultimately responsible. The logistic support elements contained in this section include planning and acquisition of spares, repair parts, peculiar ground support equipment, training, and all supporting documentation for the system, its subsystems and components. The Program Manager must be able to coordinate and utilize cognizant functional organizational element managers in the establishment and maintenance of a sound Logistic Support Program.

Section V - Test and Evaluation. This section addresses the fundamental Test and Evaluation policies as contained in DODINST 5000.3, OPNAVINST 3960.10, and NAVMATINST 3960.68.

The Program Manager for Avionics coordinates the preparation of the Test and Evaluation Master Plan (TEMP) or Test and Evaluation Plan (TEP) for common GFE avionics. TEMPs and TEPs are prepared in accordance with OPNAVINST 3960.10 and NAVMATINST 3960.6A. The Program Manager for Avionics coordinates with AIR-620 who maintains liaison with cognizant personnel at test and evaluation activities during Developmental Test and Evaluation (DT&E). The Program Manager for Avionics informs COMNAVAIR of the readiness of the equipment for OPEVAL and Fleet use and maintains liaison with cognizant personnel in OPNAV, OPTEVFOR and OSD on the Operational Test and Evaluation (OT&E) of his equipment.

Final Actions

The manual is undergoing review within the Avionics Division (AIR-533). Upon completion of the review cycle, a course will be developed structured around the framework of the "Manual for Program Management of Common GFE Avionics."

The Naval Post Graduate School and the University of Southern California have been approached about the possibilities of setting up and administering the course curriculum. Identification of funding and selection of an educational foundation are the final requirements needed to implement the Program Management training program.

CHAPTER V

RECOMMENDATIONS AND CONCLUSION

The Golden Rule

CAINS was a great success story because:

1. Someone was put in charge,

2. Adequate staffing was provided,

3. PMA-267 was given formal authority to direct the activities of the functional groups, and

4. PMA-267 controlled his own funding.

The crises is over. PMA-267 has been disestablished. The manning level of CAINS has been reduced. CAINS no longer controls its own funding. Loss of funds control is by far the most significant change.

One of the root causes of the CAINS problem was untimely and inadequate funding. This same problem is beginning to surface anew with the Project Manager's refusal to allow allocation of funds directly to the Program Manager for Avionics. Unfortunately the cliche' "he who has the gold, rules", continues to prove valid.

In order for the Program Manager for Avionics to be effective, it is recommended that he control, and be made responsible for, his program funding.

Conflict Resolution

An area of ambiguity exists in NAVAIRINST 5400.89 in the resolution of conflict between the Program Manager for Avionics

and the Weapon System Project Manager. It is implied that in the event of conflict the problem will be referred, by the Project Manager, to higher authority for resolution.

It is recommended that this area be expanded and clarified. It is further recommended that during the period pending resolution the actions directed by the Project Manager be pursued.

Conclusion

The "Program Manager for Avionics". Is the title a misnomer? Is it a further erosion of the Designated Project Manager's authority?

Not everything should be managed via program management, however, relating the Low and Ascani list[18] of criteria driving program management organization, to the concept of program management for common avionics, one finds complete applicability. The list contains seven criteria or factors:

1. Substantial resources involved,
2. Dynamic environment,
3. Dealing in complex technology,
4. High Priority and Urgency,
5. High visibility,
6. Complex interorganizational relationships, and
7. Finite project.

Literally billions of dollars are involved in the management of common avionics. The aerospace environment is dynamic, with avionics equipment design constantly pushing the state-of-the-art. Often, as was demonstrated by CAINS, the avionic subsystem

gains high priority and urgency requiring added visibility and management attention. The responsibilities of the Program Manager for Avionics cut across numerous functional lines establishing complex interorganizational relationships. In short, the title, "Program Manager for Avionics" is not a misnomer, and it is not a further erosion of the Project Manager's authority. Program Management for Avionics is needed, it is desired, and most importantly, it has been successful.

A "better way of doing things" has been demonstrated. It is now up to top management to determine through their support, if NAVAIRINST 5400.89 with the Charter for the Program Manager for Avionics will become eyewash or an action plan for success.

FOOTNOTES

1. Interview with Mr. Ellsworth Hall, Naval Air Systems Command, March 1977
2. Common Avionics Equipment Readiness Improvement Study Report, "The Whelchel Study", Naval Air Systems Command, 1975
3. Case Study on the Solution of Carrier Aircraft Inertial Navigation System (CAINS) Management Problems, A Point Paper, by CAPT R. N. Winkel, USN, 5 Apr 1976
4. Ibid
5. Ibid
6. NAVAIRNOTE 5400, AIR-00 Project Manager for Carrier Aircraft Inertial Navigation System (CAINS): establishment of, 6 Nov 74
7. Case Study on the Solution of Carrier Aircraft Inertial Navigation System (CAINS) Management Problems, A Point Paper, by CAPT R. N. Winkel, USN, 5 Apr 76
8. NAVAIRNOTE 5400, AIR-00, Project Manager for Carrier Aircraft Inertial Navigation System (CAINS): establishment of, 6 Nov 1974
9. NAVAIRINST 5400.77, Carrier Aircraft Inertial Navigation System (CAINS) Project (PMA-267); designation of, (never approved)
10. Ibid
11. NAVAIRNOTE 5400, AIR-01B, Program Managers in Material Acquisition Group; establishment of, 21 April 1976
12. NAVAIRINST 5400.89, Establishment of the Program Manager for Avionics, 12 Feb 1977
13. Ibid
14. Ibid
15. Ibid
16. Ibid
17. Ibid
18. Class Notes, Fundamentals of Program Management 6 & 7, by Messrs, Low and Ascani, Professors of Systems Management, Defense Systems Management College

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2. Department of Defense Instruction 5000.1, Major Systems Acquisitions

3. Department of Defense Instruction 5000.2, Major Systems Acquisition Process

4. Department of Defense Instruction 7045.7, The Planning, Programming and Budgeting System

5. Department of Defense Instruction 5000.3, Test and Evaluation

6. Electronics X Study, (1973), Department of Defense

7. NAVAIRINST 5400.77 (Never Approved), Carrier Aircraft Inertial Navigation Systems (CAINS) Project (PMA-267); designation of

8. NAVAIRINST 5000.8 (2 Dec 1971), Project Management/Coordination in the Naval Air Systems Command Headquarters

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11. NAVAIRNOTE 5400, AIR-01B, (21 April 1976), Program Managers In Material Acquisition Group; establishment of

12. NAVMAT Publication, P-4000, Integrated Logistic Support, Implementation Guide for DOD Systems and Equipments

13. NAVMAT Publication, P-5420, Cost/Schedule Control Systems Criteria Joint Implementation Guide

14. OPNAVINST 3960.10 (22 Oct 1975), Test and Evaluation

15. OPNAVINST 5000.42A (3 Mar 1976), Weapon Systems Selection and Planning

16. Office of Management and Budget, Circular A-109, Major Systems Acquisition

17. Point Paper, ASN-92 (CAINS) Brief, LCDR B. Ryan, USN

18. Point Paper, ASN-92 (CAINS) Contract Chronologies, 22 Mar 75, LCDR B. Ryan

19. Point Paper, Case Study on the Solution of Carrier Aircraft Inertial Navigation System (CAINS) Management Problems, 5 April 1976, Capt. R. N. Winkel, USN

20. SECNAVINST 5000.1 (13 March 1972), System Acquisition in the Department of the Navy