MANAGEMENT OF OPERATIONAL TEST AND EVALUATION (OT&E) IN 
STRATEGIC AIR COMMAND (U) AIR COMMAND AND STAFF COLM 
MAXWELL AFB, AL 
A. Falcone 
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AIR COMMAND
AND
STAFF COLLEGE

STUDENT REPORT
MANAGEMENT OF OPERATIONAL TEST
AND EVALUATION (OT&E)
II. STRATEGIC AIR COMMAND
MAJOR ALBERT A. FALCIONE #85-790
"insights into tomorrow"
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REPORT NUMBER #85-790

TITLE MANAGEMENT OF OPERATIONAL TEST AND EVALUATION (OT&E) IN STRATEGIC AIR COMMAND (SAC)

AUTHOR(S) MAJOR ALBERT A. FALCIONE, USAF

FACULTY ADVISOR MAJOR JAMES C. CLAY, ACSC/ADG

SPONSOR LT COL CHARLES P. OFFUTTEN, HQ SAC/DGOA

Submitted to the faculty in partial fulfillment of requirements for graduation.

AIR COMMAND AND STAFF COLLEGE
AIR UNIVERSITY
MAXWELL AFB, AL 36112
The fragmentation in Strategic Air Command remains the fragmented structure first identified in 1970. The numerous organizations controlling OT&E and the lack of a decision-making agency to coordinate the entire program makes the OT&E process inefficient. The lack of an organization in objective, responsibility, accountability, and reporting, efficiency and effectiveness have all been lost in the expense of retaining power, control, and reliability.
This paper provides an historical summary and analysis of the Operational Test and Evaluation (OT&E) organization in Strategic Air Command (SAC). Chapter One presents a general introduction to the research study. In Chapter Two, a detailed analysis of how SAC has conducted OT&E through the years is provided. Chapter Three looks at current Test and Evaluation (OT&E) regulations and how SAC adheres to the intent of the documents. Chapter Four provides a current organizational synopsis of the two main agencies actively involved in conducting OT&E: the Deputy Chief of Staff, Plans (XP), and the Deputy Chief of Staff, Operations (DO). Chapter Five provides an interim summary. Chapter Six presents findings and conclusions. Finally, Chapter Seven provides recommendations based on data analysis. The information provided is an attempt to clarify why SAC is so fragmented in providing a credible OT&E program. This paper is not all-encompassing and is only the beginning step in providing possible ways of eliminating the redundancy and inefficiency that exists in the present structure. The author gratefully acknowledges the help given by so many in putting this work together. Special thanks go to Lt Col Fred Offholter, Chief of the Aircraft and Weapons Test Branch at SAC, for all his invaluable assistance.
ABOUT THE AUTHOR

Major Albert H. Falcione prepared this study while a student at the Air Command and Staff College (ACSC), Maxwell AFB, Alabama. He holds a Bachelor of Science degree in Speech/English from Miami University, Oxford, Ohio, and received an MBA from Golden Gate University in 1981. Prior to attending ACSC Maj. Falcione spent two years at HQ SAC Offutt AFB, Nebraska as the Aircraft and Weapons Test and Evaluation Officer for the Short Range Attack Missile (SRAM), E-43, E-53, B-1, B-83 nuclear bomb weapon systems, and the FB-111 Avionics Modernization Program (AMP). His flying experience includes 98 combat missions in six aircraft as a F-15E Weapon Systems Officer, 200 hours as an F-111 Forward Air Controller (TIGER FAC), and 850 hours in the F-111. Following ACSC Maj Falcione will be assigned to the 4201 Test and Evaluation Squadron (TESTS), Barksdale AFB, LA, to participate in the B-1E Follow-on Operational Test and Evaluation (FOT&E) program. He and his wife Marilin have two daughters, Amy and Mary.
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EXECUTIVE SUMMARY

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REPORT NUMBER 85-790
AUTHOR(S) MAJOR ALBERT A. FALCIONE, USAF
TITLE MANAGEMENT OF OPERATIONAL TEST AND EVALUATION (OT&E) IN STRATEGIC AIR COMMAND

I. Purpose: To determine if the present decentralized OT&E organization is efficient and conducive to the impartiality necessary for objective weapon system assessment and reporting.

II. Problem: Although the weapon acquisition process has made significant improvements recently, serious deficiencies in the Testing and Evaluation (T&E) of the weapons the Air Force acquires still exist. As presently structured, the conduct of OT&E in SAC is fragmented with no fewer than 17 organizations participating in some area of the testing process. This study analyzes whether SAC methodology in performing OT&E is a solution to the problem, or whether it merely is exacerbating an already inefficient system.

III. Data: Since 1970, there has been a concerted effort within the Air Force to organize OT&E so it can provide cost-effective and reliable weapon systems. Management of complex OT&E programs were fragmented among the operational commands which resulted in no one having the authority to speak on and develop overall OT&E policy for the Air Force. In an attempt to favorably resolve the issue, MACOMs were tasked to reorganize. SAC in-house investigations revealed an OT&E program that was inadequate to meet the expanding requirements of OT&E. A centralized concept was proposed but a controversy developed over who should control the new agency. A directorate in charge of testing (AOCT) was
established in 1972. This new organization, however, was basically powerless as it had a voice only in OT&E matters that pertained to the Deputy Chief of Staff/Operations.

A power struggle among the XP, DO, and BM was the primary reason SAC did not centrally organize. The consensus was that such an organization would be best; however, all three looked at the ordeal as a zero-sum game, and as a result, the logical course of action to centrally organize never materialized. SAC did not want to change the present way of conducting OT&E; nevertheless, it was faced with the dilemma of not complying with current Air Force directives (AFR 80-14, AFM 55-43) if they chose to maintain the status quo. Shortly after the establishment of the Air Force Operational Test and Evaluation Center (AFOTEC), SAC took action which undermined the four previous years of attempts at reorganization. DOV was disbanded as a directorate. Still under pressure to establish a SAC focal point for all SAC OT&E, DOC was officially listed as the SAC point of contact. This new division met the requirement of the regulation, but had no defined responsibilities and authority. In essence, SAC OT&E organization in 1976 differed little from the inefficient system first identified in 1970. There is no appreciable difference from the way SAC conducts OT&E today than the way it was accomplished in 1976.

V. Conclusions: As presently structured, the conduct of OT&E in Strategic Air Command remains the fragmented organization first identified in 1970. The numerous organizations participating in OT&E and the lack of a decision-making agency for the entire program makes the OT&E process inefficient. The existing system is uncoordinated in objective, responsibility, planning, testing, and reporting. Efficiency and effectiveness were sacrificed at the expense of retaining power, control, and organizational integrity.

VI. Recommendations: OT&E is only one part of a dynamic system evaluation process. It requires constant review and the attention of OT&E managers at all levels to ensure that it is optimally performed. Change from the present way of doing OT&E at SAC must be pursued because it is in the best interest of the Air Force. To begin with, the Aircraft and Weapons Test Division should be reconstituted as a directorate. This change will give more credibility and prestige to an organization that is supposed to be the single focal point for OT&E. A second option is for the
CONTINUED

DCS operations to consolidate all its testing activities of major systems under the new directorate. A third alternative includes incorporating DCS/Plans ICBM testing with DF ICBM testing under the proposed new directorate. In this case the directorate would be under the supervision of Science and Research (NR). Finally, the last option would be the establishment of a centrally organized ICBM arena under the authority of the SAC Chief of Staff.
Chapter One

INTRODUCTION

BACKGROUND OF PROBLEM

There have been great strides toward improvement in the Test and Evaluation (T&E) of the weapon system acquisition process in recent years; however, significant problems still remain. The General Accounting Office (GAO) reported in 1983, "...the U.S. is pouring billions of dollars worth of weapons without knowing whether they can do the job because they have not been adequately tested" (2:1). The problem was more dramatically stated by Dr. John S. Foster, Jr., Director of Defense Research and Engineering, in August 1982, "Our past and present methods of acquiring weapons have lost us the confidence of the public and are threatening our country's future security. Unless we change our practices drastically, our future ability to deter war and fight can be seriously jeopardized" (30:1).

If one looks further back into the history of the acquisition process he sees that time and time again the Air Force is brought to task for its organization and ability to efficiently conduct test and evaluation. As early as 1934 Secretary of War Baker recommended the Air Corps establish a separate branch for research and flight testing" (31:2).

The importance of testing and evaluation in the weapon acquisition process is not in question. The criticism borne by the Air Force for fifty years is not one of do we need it or not, but a question of, can we do it better? The Air Force has made dramatic moves to improve the system by establishing an independent test agency, now called the Air Force Operational Test and Evaluation Center (AFOTEC). However, with the advent of technologically sophisticated multi-million dollar weapon systems the T&E business is more complex than ever. No one agency, such as AFOTEC, can be expected to carry the burden to ensure the successful transition of a weapon system from acquisition to stockpile to target.

The using command has been given greater autonomy in Development Test and Evaluation (DT&E), and Operational Test and Evaluation (OT&E) of weapon systems which they have been assigned. The determination of operational capability is the right and responsibility of the using command since it is the
using command which is ultimately turned into an order for action with those new people. The utility of having a command line in the plan is to highlight the step as a little neglected to the situation, and to focus on the quality of a weapon system.

Moreover, user command OTE of the operational necessary, but generally criticized for inter-command by operating commanders, experience, while the lack of user command to implement the operational, and lack of objective in the past war, the top-level decision is necessary for effective and efficient testing. But in these programs are excellent examples of their OTE management on. It resulted in aircraft modifications. And it resulted in $1 billion dollars. Even today, the U.S. military consider it to be user command. Critical point as was intended. It definitely needs more understanding and little attention during the early phases of testing.

EVALUATION CRITERIA

462: "The purpose of organizational structures must be planned to ensure maximum productivity and the best possible use of resources. It goes on to say that as missions and responsibilities change, structures geared to previous activities are often outdated and do not adequately provide former efficiency and effectiveness. An organization must be structured to allow for rapid and effective decision-making. Excessive layering of subordinate organizational elements must be eliminated because it complicates the decision process, and often encounters in accomplishing. Organizational fragmentation along lateral lines should be avoided because it adds to the coordination process. The efficiency and effectiveness of OTE's 12:8. A complete understanding of the evaluation criteria and the regulation's guidance (21:3).

As previously structured, the product of OTE is on subject: operational command must be fragmented with 12 organizations participating in some form of OTE (12:3). This paper is of operational command. The decentralized organization will result in increased maneuverability, but there is a requirement for this to maintain the system management and planning. The analysis and to date, the initial technical report of OTO actions stated that 90% of which 58% would be on the all out Force command to the remaining units and conduct of OTO. OTO can be used to determine what command is instrumental in determining if the unit with their intent. The study will continue with a review of OTO equations on the prompt selection of weapons, and how these effects the degree of command and control. It is but the situation, in the study on which must make budget decisions that can be compared to provide a manipulated evaluation. Any shift in the budget is expected to result in a reduced level of performance.
CURRENT VISIT PROGRAMS

The primary objective of the VISIT program is to determine the potential for the U.S. Air Force to employ the VISIT 800 system to conduct tactical operations and production maintenance activities for fighter aircraft in a combat environment. The VISIT 800 system is a complete, integrated, and automated system for maintenance, repair, and overhaul of fighter aircraft. The system includes a computerized maintenance management system, a maintenance information system, a parts inventory and control system, and a parts distribution system. The system is designed to provide real-time data for maintenance personnel and to reduce maintenance costs and time. The VISIT 800 system is currently undergoing testing and evaluation at various locations around the world. The system is expected to be fully operational by the end of the year.
Chapter Four

Chapter 28. Base Organization

Chapter Structure

1. The primary organizations conducting an analysis of functional area is necessary to be of responsibilities. SACR 22.6 describes approved bases of both and the within HOG:

2. The office of the Chairman, Requirements (XPO) directs all and systems acquisition from requirement through Initial Operational Capability (IOC). It prepares and Qualification Operational Test and Evaluation (IOT&E) programs. (XPM) monitors DM and represents SAC.

3. The Performance Division (XPM) monitors DM and represents SAC.

4. The Test and Evaluation Squadron (TES), Edwards AFB, has operational control of DCS/Flows. It provides operational and maintenance representation on programs involving SAC strategic weapon (21:11).

Chapter Structure

1. The office of the Chair, Operations (ODM) is the central point for SAC operations. It directs the

2. The Office of the Director, Operations (ODM) manages,

3. The office of the Assistant Deputy, Operations (ODM) develops and
performing OT&E on a major scale has increased when compared to the many-year study addressed in the previous chapter. SACR 55-57 is designed to simplify the testing process and give guidance to the organizations performing OT&E. However, it also reaffirms that there is no one agency responsible for OT&E. A quick glance at the above data shows that both the XP and DO communities perform IOT&E, GOT&E, and FOT&E on various weapon systems and subsystems.
The Office of Primary Responsibility (OPR) is the Aircraft and Missile Test Division (DOD). The major thrust of this office is to clarify what organization is responsible for performing a particular type of UT&E. Below is a synopsis of six directorates conducting UT&E as depicted in SACR 55-5:

1. DCC conducts UT&E of communication systems, subsystems, and equipment including command communication systems.
2. DE conducts UT&E of base facilities, including all lighting equipment, and off-base ICBM Real Property.
3. DDC conducts/supports IOT&E, and conducts FOT&E of launch control systems, sub-systems, and equipment to include launch command post.
4. DMM conducts UT&E of aircraft and airborne missile launch, nuclear and conventional gravity weapons, related electronics, control release systems, and Electronic Countermeasures (ECM) equipment for aircraft in the operational configuration.
5. DMM conducts FOT&E/Qualification Test and Evaluation
development and verification testing of ICBM weapon systems, sub-systems, and equipment.
6. DGT conducts UT&E of radar bomb scoring systems and support equipment.

7. DUT conducts/supports IOT&E and FOT&E of aircraft sub-systems.

8. DUT conducts UT&E of AGE when separate from major weapon system or sub-system UT&E.
9. DUT conducts UT&E of munitions AGE when separate from major weapon system or sub-system UT&E.
10. DUT serves as the single point of contact within the LG UT&E testing and reporting upon request.
11. DUT provides operational analysis support to SAC Test Systems supported by NR for UT&E include aircraft, electronics, airborne missiles, command control and missile gravity weapons and ICBMs.
12. DUT conducts UT&E of security systems, sub-systems, and equipment.

13. DUTS conducts UT&E of Space Surveillance and Missile Warning equipment.

14. DUTS conducts IOT&E on reconnaissance systems. Serves as the single point of contact for FOT&E as required by ARP 80-38.

15. DUTS conducts UT&E of aircraft, except command control centers of airborne command posts, and airborne missile systems excluding UT&E of nuclear and conventional gravity weapons, related electronics, control monitor/control and release and ECM equipment for aircraft in the operational configuration.

16. DUTS conducts UT&E and FOT&E of life support systems.

17. DUTS conducts UT&E and FOT&E of ICBM weapon systems, and equipment (12:3)

Analysis of the above data suggests that the bulk of the operational SAC test effort is performed by DCS/Plans and

18. However, the number of directorates actually
AFR 80-14 states that there are two kinds of I&E in the system acquisition process: Development Test and Evaluation (DT&E), and Operational Test and Evaluation (OT&E). Either one can be performed during any phase of the life cycle of the weapon system or subsystem. DT&E is conducted to confirm that engineering design and development is complete and the weapon will perform as it was designed. The system designed is tested and evaluated against engineering and performance criteria that the operating command specifies (Z212). The purpose of a study of the degree of association with this type of training and the potential for improved performance is shown. Data in the study 90 personnel are involved in this study.

AFR 80-14 also says that I&E is to be performed in as realistic a situation as possible. It is done to determine a system's operational effectiveness, operational suitability, and combat effectiveness. To test this, or to simulate it, I&E uses personnel with the trained or skills and situations as those that will occur in combat. It is a type of training in which deployed forces are evaluated for their ability to improve their combat effectiveness. It requires that the system in use be tested with all possible forces. However, it is not the case that every mission, every condition, or every mission condition is tested. Instead, a representative sample is tested. For example, in the case of an attack mission, if an EFS is being tested, the target may be a specific EFS weapon. This type of T&E is designed to test the EFS weapon system and not the general T&E system. To test the general T&E system, a broader range of situations must be tested. The T&E system must be tested against all possible conditions.
Chapter Three

OT&E REGULATIONS

DODD DOCUMENTS

With the SAC OT&E historical background complete, it is now possible to look at the present SAC organization and return to the debate as to whether OT&E is being efficiently and effectively conducted. This section will analyze OT&E documents and how they impact the current SAC testing organization.

There are numerous significant Testing and Evaluation (T&E) documents. DODD 5000.1 explains the role of T&E, "Test and evaluation shall commence as early as possible, the most realistic test environment possible and an acceptable representation of future operational system will be used in the testing" (9:3-1). DODD 5000.3 addresses independent OT&E policy, "In each DOD component there will be one major field agency, separate and distinct from the developing and procurement command and from the using command, which will be responsible for OT&E" (9:3-1).

The Navy had such an organization, the Operational Test and Evaluation Force (OPTEVFOR), before the 1970 SECDEF memorandum. The Army complied with the memo in 1973 with the establishment of the Operational Test and Evaluation Agency (OTEA). The Air Force followed suit in 1974 with the establishment of the Air Force Operational Test and Evaluation Center (34:9-10). The Air Force has implemented DODD regulations through organizational alignments, AFM 55-43, and AFR 80-14. SACR 55-57 was written to supplement AFR 80-14 and delineates the tasks and responsibilities in conducting OT&E at the MAJCOM level.

AFM 55-43

Section C of AFM 55-43 states two general responsibilities of the MAJCOM in conducting OT&E, "Establish specific command procedures required to implement AFR 80-14, AFM 55-43, and associated Air Force regulations; and establish a command OT&E focal point" (11:3-4). The manual clarifies these two objectives.

a. The MAJCOM's, as required, may establish specific policies, command procedures, and guidelines necessary to implement AFR 80-14 and AFM 55-43. The command OT&E focal point
is the focal point at SAC for OT&E?”, SAC shrugged its shoulders.

AFR 30-14 was complied with on 18 May 76 when the Aircraft Test Division (DOOV) was made the SAC focal point for OT&E (24:--). However, its responsibilities and authority were not defined. The division did not report directly to the Chief of Staff; did not attempt to conduct OT&E that was not within DOD charter; and was not responsible for the accuracy and acceptability of the planning, conduct, and reporting of OT&E which was not under the purview of DOD (33:--). Except for defining additional responsibilities through the implementation of SACR 55-57, the Aircraft and Test Division was the SAC test focal point on paper only.

In late 1976, the Secretary of Defense asked the Defense Science Board to determine if the Air Force was doing too much testing or testing inefficiently. Dr. Eugene Fubini, the chairman of the task force making the report, stated, "...little or no overtesting is being generated...the so-called test and evaluation gap continues..." (31:5).

The SAC OT&E organization has changed little since 1976, except for an attempt by the DO in 1983 to assume control of the 4200 Test Squadron. However, the volume and complexity of weapon testing has increased dramatically. Although the compromise to establish an OT&E focal point seemed to appease the Air Staff and DOD, much of the OT&E responsibility is scattered throughout the Command. SAC OT&E structure is more fragmented now than it was in 1970. The XP and DO have gone separate ways on what and how OT&E is performed.

A recent GAO study concluded that evaluations of weapon system performance were "too fragmented to provide a coherent and meaningful picture of a systems progress" (1:9-10). This same study proposed the establishment of an independent testing office within the Pentagon. The new organization was to have taken charge in November 1983, but only recently has the groundwork been laid for its establishment. The reasoning behind this initiative is the removal of a possible conflict of interest between the Pentagon and the industry officials who produce the systems (1:5-10). Although this agency will have little to do with MAJCOM OT&E, its establishment reemphasizes the importance Congress places on an impartial testing program, and secondly, it puts to rest the notion that conduct of test and evaluation programs are no longer under scrutiny.
EMERGENCE OF AFOTEC

The above information, and the reports provided by other operational commands to the USAF OT&E Committee were said by Air Staff to have been the basis for the Chief of Staff's decision to form the Air Force Operational Test and Evaluation Center (AFOTEC). This organization now gave the Air Force a single agency to manage all major OT&E programs as originally directed by the Secretary of Defense in 1971. Although AFOTEC is the responsible operating agency for OT&E, the majority of the resources to conduct the tests come from the using and supporting commands. Using commands (SAC) retained OT&E responsibilities for non-major OT&E programs and therefore should have pursued SECDEF direction to reorganize (11:2-3).

Three major plans were proposed in late 1974 in a final attempt to resolve the reorganization dilemma. Option one was that all OT&E be placed under the control of a single manager; option two was a distinct separation between Initial Operational Test and Evaluation (IOT&E), and Follow-on Operational Test and Evaluation (FOT&E); option three was the separation of Aircraft and ICBM OT&E. In the last option the DO would conduct all OT&E of aircraft systems and the XP would conduct all OT&E of ICBM systems. All three plans apparently were never seriously considered since no additional studies were made to analyze their potential (36:--).

The emergence of AFOTEC solved the problem of not having an independent testing agency, but did little to ensure the Services would comply with the original plans to centrally organize their own test activities. In early 1975, the SAC/CS advised the DO that no further actions were to be pursued or implemented in the area of OT&E (36:--). This was a puzzle in light of the fact that the Service reorganization requested by the SECDEF in 1971 had still not been complied with.

The SAC/DO responded with surprising and unusual actions of its own. He decided not to put up the front of complying with AFR 80-14 and immediately disbanded DOU. His rationale was that if SAC was not going to organize for OT&E, then he would organize for operations. DOO and DOM Directorates were formed, and DOT was restructured. With the demise of the Directorate of OT&E came the realization that SAC would not comply with the intent of the regulation (36:--).

It was noted at the time “the disbanding of DOU was a giant leap backwards for centralized management of OT&E” (36:--). SAC got involved in December 1975 when he was informed of SAC's non-compliance with AFR 80-14. He immediately told the XP and DO to resolve their differences and bring about a reorganization that would comply with OT&E guidance (23:1). And so, four years after the problem first surfaced, SAC was still pondering over how to solve it. Every time someone asked, "who
As a follow-on to the briefings, the Commands were asked by the Air Staff Board to report the number of man-days involved in OT&E, and to identify the agencies in which they were located. The SAC report revealed that DOV accounted for 8% of the SAC total. Below is the estimated number of man-years devoted to OT&E (19:1):

### AIRCRAFT SYSTEMS: DO 83, XP 92, LG 24, NR 2

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### Science and Research

- 2

### ICBM SYSTEMS: DO 13, XP 26, BM 26, ISTRAD 809

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| BM                   | 26     |                      |     |     |
| ISTRAD               | 80     |                      |     |     |
committed to little more than XP authorization for the D0 to designate them his own branches under single management. Nevertheless, D0 was identified to the Air Staff as the SAC OT&E focal point then.

AFR 60-14 was published on 12 May 1972, giving further guidance to the operating commands on conducting OT&E. It emphasized the requirement for the establishment of a single OT&E organization to be responsible for all OT&E. In SAC D0 to XP letter AFCH 66-014, the importance of the Commander's (UCINC/SAC) direction for the XP to have a manpower team study the feasibility of incorporating Ballistic Missile Evaluation (BM) into the OT&E organization.

In the meantime, a Chief of BII prepared a message to the Air Staff for SAC release, inquiring if the evaluation and reporting of ICBM operational tests were considered OT&E under AFR 60-14 (17:--). Although ICBM testing was the subject of special treatment in the new regulation, with Joint Chiefs of Staff (JCS) directives bearing heavily upon the conduct and reporting, the Air Staff did not exclude missile testing from being part of the test and evaluation activities listed in AFR 60-14 (17:--). In light of this new information, SAC/Cs convened a meeting of the Staff to consider incorporating BM into the OT&E organization. Agreement was reached by all present, except for BM. However, no additional steps were taken to change the current structure (17:--).

It was well known at the Air Staff that SAC had not formed a single OT&E agency; therefore, SAC along with other operating commands was tasked to brief the OT&E Committee of the Air Staff (18:--). Arguments again surfaced within the command on what the contents of the briefing should be, since any briefing presented would lack the information the Air Staff wanted to hear. The UCINC made the decision to brief what existed at SAC. No effort was made to cosmetically transfer functions or manning to accommodate the briefing. In May 1973, the briefing was given at the Pentagon. The major responsibilities reflected were:

a. XP is responsible for all IOT&E, except for ECM.
b. XP is responsible for all OT&E of Life Support.
c. D0 is responsible for all OT&E, less Life Support, and IOT&E of ECM.
d. BII is responsible for the evaluation of ballistic missiles.
e. XP is responsible for the analysis and evaluation of airframe systems.
f. 4201 Test and Evaluation Squadron, under XP, is responsible for the IOT&E of the B-1.
g. 4201 Test Squadron, under D0, is responsible for OT&E of the Short Range Attack Missile (SRAM).
h. 1st Strategic Aerospace Division is responsible for launch operations of ballistic missile OT&E (10:4-5).
the DH or the JP. The apparent lack of coordination between the JCS for tactical systems. Those who favored priming pointed out that OT&E is an integral part of the acquisition process, and therefore is in the most advantageous position to conduct timely, and cost effective OT&E projects. On the other hand, by definition, OT&E projects were to be accomplished by operational personnel. There was widespread opinion that they most closely fit the operational definition and therefore were more able to comprehensively and objectively determine operational suitability. The JCS/DOD stated, "Requirement and planning for weapon systems are rightful. The XPO charter and testing and operating the systems lies within operational jurisdiction." (32:1). Nevertheless, leaving JCS/DOD doing the newly proposed OT&E organization violated the basic premise for the recommended reorganization. Considerable bureaucracy and emotion were generated on both sides of the consolidating argument. Apparent lack of guidance from the Air Staff complicated the issue.

The matter was temporarily shelved until 5 June 1971 when a series of DU to XF letters called attention to General Harken's stated deadline of 1 July 1971 to have OT&E restructured and under single management within the operating commands.

I think our people have deliberated sufficiently on the complexities of establishing a Directorate for Operational Test and Evaluation. It seems we are in general agreement that such an organization is essential but disagree only on the "hair splitting" issues of what functions are OT&E and which fall into the category of engineering design and development. I realize we are bucking some heavily entrenched tradition. However, all the XPO arguments against the OT&E Ad Hoc Committee proposal only resulted in a position that essentially maintains the status quo in missile test and evaluation. I submit that if the current redundancy and fragmentation of efforts in missile testing was the best system we would not have such basic argument here, the Air Staff, or DOD (32:1).

A subsequent HQ USAF staff visit to HQ JCS on 4 January 1972 revealed that JCS had not formally responded or complied with the request or establishing an Assistant for OT&E within the headquarters with responsibilities to review, provide guidance, approval, and report on OT&E (11:3).

Two weeks later, 10 January 1972, Lieutenant General Shurard, Deputy Defense Director for Research and Engineering in DOD, visited JCS to inquire into the OT&E organization. He was briefed on the reorganization study, and the proposal for the new OT&E organization. The DU and JP came to a compromise and the concept of operational test and evaluation was formed on the JCS. The new directorate study combined DU, JP, and the new JCS management. This reorganization action
On 20 February 1971, Air Staff officially tasked Air Force Major Commands (MAJCOMs) to reorganize. SAF memo to SECDEF assured actions would be implemented by 1 July 1971:

Dr. Lucas, General Ryan, and I have discussed at length your memorandum on the "Conduct of Operational Test and Evaluation." We agree completely that improvements in our weapon system acquisition process and particularly in testing, can and should be implemented. I assure you that Air Force actions to improve testing will be implemented by 1 July, 1971, and that our system acquisition and testing methods in the immediate future will meet your requirements and standards (15:--).

SAC response resulting from the 16 February 1971 Test Review Board was the formulation of an Ad Hoc Committee to present a coordinated SAC position on the recommended actions. The meeting was chaired by the Deputy XP (DCS/Plans) to explore the means of complying with the Air Force Chief of Staff directive. The committee determined that operational test and evaluation within SAC was divided between XP and DO (DCS/Operations), that the lines of responsibility for weapon system test programs were vague and overlapping, and actual test efforts were overlapping and redundant. After considerable deliberations the committee recommended by majority opinion that an OT&E Directorate be established under DCS/Operations with responsibility for all SAC OT&E weapon systems and subsystems. The consensus was that for effective management, all the major elements of OT&E should be pulled together under one agency. An immediate controversy, concerning intercontinental ballistic missile (ICBM) functions, developed between the XP and DO community. At that time many of the missile operations functions and projects were duplicated and overlapped in the XPQT and DOTM divisions. Combining these two divisions, as was suggested by the committee, would have eliminated some of the confusion on testing responsibilities; however, XPQ did not concur with the committee findings (16:--).

From the onset of the OT&E argument, XPQ essentially stood alone in resisting the integration and consolidation of missile test efforts. As the MINUTEMAN Program Element Monitor (PEM) for SAC, XPQ was reluctant to relinquish its organization and resources to a consolidation, despite the OT&E Committee recommendations. It was apparent that there was no simple, noncontroversial solution. But the argument that consolidation of the ICBM OT&E would have resulted in loss of "expertise" and program direction was not valid. The plan was to use the same people in the consolidated organization, although some "empires" would have been reduced (14:--).

It must be noted that the problems surfaced because there was the difficult choice of whether to locate the activity under
program (27:1). Criticism continued to mount in July, 1970, when a Weapon System Evaluation Group (WSEG) study of air-to-air missiles, Project Dead Eye, again pointed out some serious problems in OT&E. "These deficiencies are not just peculiar to the operational testing of air-to-air missiles, but cut across the spectrum of weapon systems. The process does not include comprehensive and continuing evaluations of the complete weapon system" (29:1). In August, 1970, an Air Force Ad Hoc Study Group reported problems of overlap, duplication, test support, adequacy of procedures and funding, all deriving from an unclear OT&E policy (4:--).

A Secretary of the Air Force (SAF) memo, 8 January 1971, recommended the Air Force develop a program which would integrate essential OT&E requirements and would serve as the basis for the direction and control of AF OT&E. The memo also said the program should clarify and align AF OT&E regulations and designate the Deputy Director of Operations as the Assistant for OT&E to the Deputy Chief of Staff, Plans and Operations (5:--).

On 11 February 1971, the SECDEF established a new OT&E policy to the Service Secretaries based on the studies that had been ongoing:

Although each Service now has a somewhat different way of organizing for operations test and evaluation, it is apparent to me that this function can be best performed by an agency which is separate and distinct from the developing command and which reports the results of its test and evaluation efforts directly to the Chief of the Service. Moreover, within the Service Headquarters's staff, there needs to be an office with a clear OT&E identification to provide staff assistance directly to the Service Chief and to provide a headquarters focal point for the independent OT&E field agency. Accordingly, each Service is requested to restructure its organization for OT&E along the lines specified above. As a second step, I am establishing a Deputy Director for Test and Evaluation with across-the-board responsibilities for OSD in test and evaluation matters. This office will review and approve test and evaluation plans prepared by the Services and will provide an assessment of the results obtained (26:--).

On 16 February 1971, a Test Concept Review Board was held at HQ USAF with the specific purpose to define the objectives for Air Force test policy; to determine the deficiencies that existed with the present program; to determine the adequacy of the present system in accomplishing Air Force test objectives; to explore alternative test concepts in accomplishing test goals; to determine the practicability and desirability of establishing an Air Force field agency for conducting OT&E; and finally, to provide recommendations for the improvement of Air Force testing.
Chapter Two

HISTORICAL LOOK AT SAC OT&E

EVOLUTION OF OT&E

To understand SAC's OT&E organizational structure and how it was derived, it is necessary to trace the evolution of OT&E policy within the Office of the Secretary of Defense (OSD), United States Air Force (USAF), and SAC.

Operational Test and Evaluation (OT&E) of aircraft and air weapons systems has been ongoing since the Wright Brothers were awarded a contract in 1908. OT&E evolved gradually in the Air Force. However, a systematic approach to testing didn't materialize until after WWII when the Air Proving Ground Command (APG) was established to conduct OT&E. This organization quickly fell from power when it was criticized for not providing the results to the using commands in a timely manner. As a result, the business of OT&E became the responsibility of the using commands in 1958. This shift in the allocation of power was a decision the Air Force soon regretted. The loss of centralized guidance on OT&E matters produced chaos and unsatisfactory results for the next twelve years (11:2-1).

A Blue Ribbon Defense Panel report published in July, 1970 severely criticized and provided recommendations regarding OT&E in the Services. This negative report brought to the subject the attention of Congress and prompted Secretary of Defense Laird to send a memo to the Service Secretaries on 13 July, expressing his concern:

A review of matters concerning operational test and evaluation in DOD causes me concern about the objectivity, quality, thoroughness, and relative priority of OT&E within the individual Services. I believe the Services should assume the responsibility for addressing the situation and taking corrective measures as necessary (28:1).

In response to the SECDEF memo, HQ USAF convened a Study Group on OT&E (Bolender Committee) in late July, 1970. The report contained a series of recommendations which formed the basis for changes in the USAF test and evaluation program, and influenced changes in the overall Department of Defense (DDD).
The author of this report is the SAC test director for the B83 test program and makes the following observations. The SAC portion of B83 advanced nuclear guided weapon DT&E was conducted with DO aircraft, DT&E direction, and DT&E resources. The DO provided direct support to the Air Force Systems Command (AFSC) and the Sandia National Laboratories. DT&E was the responsible agency for procuring the weapon, but was not involved in the developmental testing. The transition of the B83 into the operational test phase and DT&E was relatively unencumbered because DT&E conducted the OT&E. There was no change of control from DO to another when a weapon test phase was completed.

In that instance, the ALD/A2C countermeasures DT&E was dropped by a DO test director. The system is now in FOT&E of the D23 program. Flare is also conducted by D17, as well as D15 and D22. On the other hand, XP is currently planning the conduct QOT&E of the Avionics Modernization Program (AMP) on the B11. A testing detachment will be formed at McClellan AFB for this test activity. If all objectives are not met during this phase, the objectives will be finished during the FOT&E phase. XP expects the DO to assume responsibilities for the AMP test.

In regard to personnel actions, it has been made to consider the system's requirements (37:--).

Additionally, in conjunction with the AMP flight test at LSO, a test component is required to be ground tested prior to the test. This is a test of the 332 phlegmatic device is also conducted by D57. The test of D35B is going to be conducted by 332 to test the resources to be used in the test. D00A refused to participate because XP was responsible for the COPE of the AMP program. In turn, XP should have the grounds testing of the equipment was the responsibility of the test community. The situation was resolved by the 332 LSO testing effort. Garwell AFB, became the focal organization. The 283rd, which is under the direction of 332/A2C/S, established a detachment at Garwell AFB to perform the ground tests (37:--).

Additional personnel actions to the test. 332 A2 of the Open Loop

Testing System is conducted by HSAC (4200 TES/XPH); and D00A is listed as the official HQ SAC test monitor.

However, the D335/3B and the D335/3B are responsible for the conduct of the B83/A2O's and FMU-139/B conventional

weapon systems. (28:--).

The operations of HSAO, FHS, and SAC are involved throughout the test spectrum of the AMP test cycle. It appears that OT&E is established or charged on functional lines. SAC OT&E is involved in numerous organizations with no apparent logic as to where it performs what type of testing. There is no focal point for all of the testing activity, although D00A is listed as the focal point for

This involves testing. D00A is the SAC focal point for

321 test efforts. D00 represents the number and D335 represents SAC
for B-18 IOT&E. Apparently, the type of OT&E conducted is not a factor in determining which organization does it or who should do it.
Chapter Five

SUMMARY

RELUCTANCE TO ORGANIZE

The push to reorganize OT&E in the Air Force came about because the existing process was deemed inefficient in providing cost-effective and reliable weapon systems. A significant problem seemed to exist. Management of complex OT&E programs was fragmented among the operational commands which resulted in no one having the authority to speak on and develop overall OT&E policy for the Air Force. In an attempt to favorably resolve the issue, MAJCOMs were tasked to reorganize.

SAC in-house investigations revealed a testing program that was inadequate to meet the expanding requirements of OT&E. A centralized concept was proposed but a controversy developed over the control of the new agency. DOU was established as the SAC OT&E focal point in April 1972. This agency, however, was powerless. It had a voice only in matters that pertained to DO OT&E.

A power struggle between the JP, DO, and BM was the primary reason SAC did not centrally organize. The consensus was that a central organization would be best; however, both organizations looked at the ordeal as a zero-sum game and, as a result, the logical course of action to centrally organize never materialized.

Early in 1975, shortly after the establishment of AFOTEC, the CS/CS and DO took actions to undermine the four previous years of attempts at reorganization. The CS advised the DO that there were to be no further attempts at reorganization. As a result, the DO decided to disband DOU as a directorate. Apparently, the emergence of AFOTEC had lifted some of the pressure to reorganize internally.

In Mar. 1976, DOU was officially listed as the SAC focal point for OT&E with no defined responsibilities and authority. In essence, SAC OT&E organization in 1976 was no different than it was in 1970. There has been no appreciable change in OT&E organization between 1976 and 1985.
Chapter Six

FINDINGS/CONCLUSIONS

As presently structured, the conduct of OT&E at Strategic Air Command remains the fragmented organization first identified in 1970. The numerous organizations participating in OT&E, and the lack of a decision-making agency to oversee the entire program makes the process inefficient. The system is not conducive to the impartiality required for objective weapon system assessment and reporting. The existing process is uncoordinated in objective, responsibility, planning, testing, and reporting.

From 1976 to the present, SAC has had no Air Staff pressure to reorganize, although the DO has made futile attempts to incorporate the 4200 TES under his control. This lack of concentrated effort does not imply that all the problems have been magically solved. On the contrary, in light of the emphasis that system acquisition and testing is receiving in Congress, and the publicity over fraud and integrity that seem to exist in the acquisition and testing of multi-million dollar weapons of today, reorganization at SAC must once again be brought into the open for serious discussions and implementation. The objectives of an efficient and effective OT&E program in Strategic Air Command were sacrificed at the expense of retaining power, control, and organizational integrity.

As shown by SACR 55-57, SAC conduct of OT&E is more fragmented today than it was in 1970. The division of OT&E responsibilities between the XP and DO seems to be based not on functional lines, but based on arbitrary decisions. This is clearly shown by the fact that XP and DO are involved throughout the entire T&E process. The XP argument that IOT&E is closer to the functional responsibilities of DCS/Plans is valid, but if that is true, why then is not all IOT&E under the purview of the XP? The DO argument that OT&E best fits the functional lines of DCS/Operations is also valid. Why then is it also involved in OT&E of nuclear gravity weapons and ECM equipment, which seems to be closer aligned with the functional lines of XP?

SAC is technically complying with appropriate OT&E directives, but not with the intent. For instance, although listed as the SAC focal point for OT&E, D0OA has little influence in OT&E planning and reporting of matters performed by DOM, XPQ, XPH, or LBM. All of the organizations performing OT&E as listed in SACR 55-57 do not report their OT&E findings to D0OA, or ask for recommendations. Not until 1983 was XP even required to coordinate aircraft related 4200 TES programs with D0OA. Simply
put, the Aircraft and Weapons Division does not function as AFR 80-14 intends.

Aside from not optimally organizing and performing OT&E, SAC is not living up to the standard specified in SACR 23-6. This document is the focus for SAC organization policy and guidance, and the present OT&E structure at SAC is not tailored "to ensure maximum productivity and the best possible use of resources" (214).

When the SECDEF established a new OT&E policy in 1971, he had two objectives. First was the establishment of a single AF test agency that was separate from the services that could conduct independent testing and reporting. His second aim was to have the services centrally organize their OT&E functions to better assist this new test agency. AFOTEC was established and fulfilled the requirement of the first objective; however, to this date SAC has refused to centrally organize. Past efforts to do so were valid. The plans were dismissed because of parochialism and narrow point of view that resulted from a power struggle within the command. The major players agreed the change was justified, warranted, and beneficial. The problem identified in 1970 still exists today, and the SAC dilemma remains. If a consolidation is implemented, under who's authority do you put it? This question must be put to rest before a significant change in how SAC conducts OT&E can be realized. There are crucial considerations that must be addressed before the issue of reorganization can surface again.

Arguments over who is responsible for what kind of OT&E can go on indefinitely because the guidance provided is unclear and subject to interpretation. What must be put in the forefront is that the purpose of OT&E is to estimate the military utility of a system, subsystem, or item of equipment. Is the present way of doing business the best way? This study has shown that it's not. The irony is that very few will argue that it is. Parochial views must be put aside for any meaningful chance of reorganization to occur. The opportunity is here to voluntarily change for the better because it will only be a matter of time before SAC will once again be brought to task for their present inadequate OT&E system.
Chapter Seven

RECOMMENDATIONS

In looking at possible ways of improving SAC's OT&E structure, it must be emphasized that SAC's program is inefficient. OT&E management requirements are increasing dramatically as evidenced by the numerous organizations now involved in OT&E. Action to consolidate certain OT&E functions was required in 1970 and it is required now. One of the recommendations made by the Ad Hoc Committee in 1971 was to maintain the status-quo. It was adopted. Unfortunately, the choice of doing nothing then has made the adoption of a coherent OT&E policy more difficult today. Nevertheless a change must be pursued because it is in the best interest of a more objective and thorough OT&E program. OT&E is only one part of a dynamic system acquisition process. It requires constant review and the attention of OT&E managers at all levels to ensure that it is optimally performed. The following suggestions are possible alternatives to SAC's way of doing OT&E.

As a first step, the Aircraft and Weapons Test Division (DOOA) should be reinstated as a directorate. This change will give more credibility and prestige to an organization that is supposed to be the SAC focal point for OT&E. This action will provide more autonomy, independence, and efficiency in conducting and reporting test results. DOOA's responsibilities have grown immeasurably since it was disbanded as a directorate in 1975. It maintains direct control of SAC Project Office at Eielson AFB and the Electronic Countermeasures Laboratory at Offutt AFB; it is responsible for the 4201 TESTS at Parksdale, and the R-18 Detachment Squadron at Las Vegas AFB. Additionally, the 4201 TESTS has grown significantly with the incorporation of the 2BH41

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The transfer from OT&E to FOT&E can be simplified and result in less overlap, and may remove the total gaps that now exist in accomplishing the T&E mission.

Another alternative is for the DCS/Operations to consolidate all its testing activities of major systems under the proposed new directorate. This would include the ICBM activities now performed by DORV. In essence, this structure would be similar to the one disbanded in 1975.

A third option includes incorporating XP ICBM testing with DC ICBM testing and placing the new OT&E functions under the proposed new directorate. To resolve the dilemma of which DCS would control this new agency, this plan would place the proposed new testing directorate under the control of Science and Research (SR), which presently provides technical and analytic assistance in the design and analysis of OT&E. This small consolidation would provide a more independent SAC FOT&E focal point that can provide guidance and direction to the rest of the SAC organizations performing OT&E. Given the power and authority to cross staff lines, this new agency can fulfill the intent of the current OT&E regulations.

A fourth option is to place the new directorate under the authority of the SAC Chief of Staff. XP, DO, LG, and all major participants in weapon system testing functions conducted within the headquarters would be included in this new agency, thus eliminating the continuing XP/DO arguments over territorial rights of OT&E. This action would identify a single executive manager for OT&E and would satisfy OT&E directives, manuals, and regulations. Such a realignment will consolidate functions, reduce overlap of responsibilities, and may reduce manpower requirements within SAC. It should decrease administrative workload and increase communications efficiency. However, implementation would require extensive study and time. Although the ideal solution, enactment would be difficult unless both the XP and DO would be in favor of it. OT&E can be accomplished more effectively by an independent agency reporting directly to the SAC Chief of Staff, but there are considerable, strong forces within the command which resist such an OT&E organization no matter how valid the need. Unless these forces are identified and are brought to favorable terms, any attempt at complete reorganization will be futile. Efficient resource allocation continues to be a growing problem within the Air Force. Any reorganization should strive to maximize these resources.

Test and Evaluation is a process that may be performed throughout the life cycle of a weapon system and should not be constrained by the boundaries of an inefficient system. The weapons we have are only as good as the process we use to evaluate them.
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DEFINITIONS

On-A-Cornerstone: Technical, that engineering design and development have resulted in design flaws, and that the design is being tested and evaluated. 

On-A-Cornerstone: A detailed engineering analysis of a system's components, including individual subsystems and progressing to a complete system, where system design is tested and evaluated against engineering and performance criteria by the user-accepting command. OT&E, a natural part of the contractor's design, should be initiated as early in the design as possible and includes testing of components, subsystems, and full operation of the entire system.

On-A-Cornerstone: Test and evaluation (OT&E): Test and evaluation

On-A-Cornerstone: Test and evaluation (OT&E): Test and evaluation of a prospective system's military utility, technical effectiveness, and operational suitability, and need for operational and support personnel. It provides information on organization, utilization, doctrine, tactics, and may result in modifying operational and maintenance concepts. OT&E should be conducted as operational and support personnel of the system are expected to use and maintain the system. Testing and should be conducted in as realistic an operational environment as possible.

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From tactics and logistics supportability collection can be completed by conditions similar to those present during a full-scale operational test. Operational testing should incorporate operational test and evaluation (OT&E) conducted in parallel or in conjunction with actual tactical operations. OT&E is normally conducted in parallel with the final phase of the program. OT&E is normally conducted at least as early as the first phase of OT&E to determine initial estimates made during FOT&E. The second phase of OT&E is conducted to define the initial estimates made during the first phase and to ensure that production and performance requirements are feasible. The effectiveness/availability is based on a greater than 90% production activity.

One of the first tasks is to evaluate the initial estimates made during OT&E. The initial estimates are based on a greater than 90% production activity.