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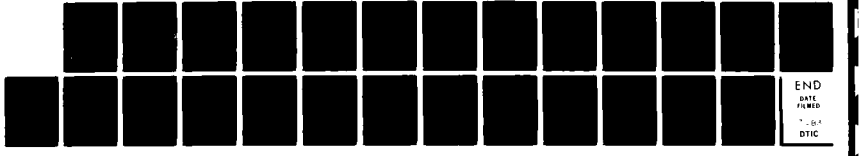

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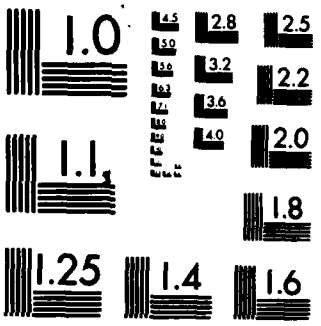

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The study objective was to examine the present single manager assignment within AFLC of aerospace training devices (simulators). Management of simulators is now assigned to OO-ALC/MMF, Hill AFB UT. Present organizational responsibilities and relationships between the simulator single manager, OO-ALC/MMF, and the associated weapon system managers and simulator users were to be examined and evaluated. Potential benefits of centralization versus decentralization of

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simulator management to weapon system managers were to be identified and evaluated.

A questionnaire was developed concerning specific aspects of centralized management and potential results of a change to decentralized management. The questionnaire was distributed to appropriate organizations throughout AFLC for comment. It was evident that of the significant responses provided, reaction to two important aspects of the study investigation were prevalent. One general consensus was that the Trainer Division, OO-ALC/MMF, has the resources and expertise critical to effective management of training devices. Secondly, simulator management has improved steadily since establishment of OO-ALC/MMF as the single manager and is presently very satisfactory. Major concerns expressed relative to a change in structure of simulator management were the uncertainty of benefits to be derived from decentralization and the associated costs both in resources and in support by AFLC.

It is concluded that responsibilities for management of aerospace training devices (simulators) remain unchanged with OO-ALC/MMF. Costs and uncertainties associated with decentralized management out-weigh potential benefits. Effective logistics support is currently being provided by the Trainer Division.

Aerospace Training Device (Simulator) Management Within AFLC

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XRS-82-067

November 1982

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Introduction

Due to the interest displayed by the AFLC staff in the area of simulator management, LOACS has requested that a study be undertaken to determine the advantages and disadvantages of decentralizing simulator management to the weapon system manager. Currently all simulators are managed under the Ogden AFLC SM. The purpose of this study is to identify the management concept (centralized or decentralized) that will provide the most effective method of supporting ATDs in the 1980s.

BACKGROUND

OO-ALC has been the manager of Aircrew Trainig Devices (ATDs) as far back as our corporate AFLC knowledge can be traced. The ATDs were managed as commodities under the old Commodities Division concept during the 1960s and early 1970s. Sometime in the mid-1970s, the ALCs reorganized into the present SM/IM concept. Under this approach, the ATDs were managed by the Ogden IM Division (MMI). In the late 1970s increased emphasis was placed on simulators by the users. As a result of this emphasis, various factions at Ogden, HQ AFLC, AFALD, HQ USAF, and the Major Commands felt that AFLC should upgrade the management of ATDs. To accomplish this, AFLC issued AFLCR 523-467 which assigned the management responsibility for ATDs to the SM Division at Ogden (MMF). HQ AFLC, ATD Branch (LOACS), was also organized at this time. This approach has provided enhanced simulation support to the using commands. However, there are some factions in the AFLC Headquarters who have consistently advocated the decentralization of ATD management (merging the weapon system and simulator management under the weapon system SM). Because of these concerns, LOACS has requested that a study be undertaken to determine the advantages and disadvantages of adapting this management concept.

METHODOLOGY

The study approach is to analyze present organizational relationships and problems between the training device (simulator) system manager, OO-ALC/MMF, and the associated weapon system managers and users and to identify potential benefits through reassignment of training device (simulator) management responsibilities.

A literature search was conducted and selected correspondence and directives relevant to the study topic were reviewed to provide background on the current management assignment.

A tentative questionnaire was prepared addressing such areas as communication, the modification cycle, funding, delays, and other aspects of the WSM/Simulator manager relationship.

A visit was made to OC-ALC and WR-ALC to interview selected system managers for informal comments and response to the preliminary questionnaire which was then sent to the remaining ALCs for response. The questionnaire was also sent to OO-ALC/MMF to allow the present trainer division to express their viewpoints on the current organizational structure and problem areas.

Several scientific methods of analyzing questionnaires were investigated to determine whether or not they were applicable

management tools. One such method is Likert's method. In order to utilize this technique, the questionnaire must be structured so that answers can be categorized according to strength of agreement i.e., strongly disagree, disagree, neutral, agree, strongly agree. The questionnaire could not be effectively structured in this mannner because most responses required a thorough explanation to clarify the concerns and viewpoints of the system managers. Most answers were not strictly "Yes" or "No" but had qualifying statements attached. Therefore, the Likert method could not be utilized for the analysis.

ANALYSIS

The responses to each of the questions from the questionnaire were individually evaluated. Significant strong points for each question are listed along with a summary reflecting the overall position of the WSMs.

1. Do you think that the weapon system SM should or should not assume overall management responsibility for the associated Aircrew Training Devices (ATDs)? Explain.

Some of the strong arguments in favor of maintaining the current system include:

a. OO-ALC/MMF has the trainer expertise. WSM could not support the ATDs without the required skills and manpower.

b. Different management responsibilities exist for an aircraft vs simulator. Trainer programs are unique and do not always comply with WS managment directives and concepts.

c. User satisfaction - SAC and ATC have expressed satisfaction with OO-ALC/MMF's performance. They feel that trainer support to them has improved since the activation of the trainer division.

d. Significant manpower and logistics cost savings are realized since common decisions can be applied to several ATDs. Modifications that are common to many ATDs can be compared and the most cost-effective method of implementation selected.

e. Negotiations of single or consolidated repair contracts, data updates, and engineering costs are monitored and allow visibility to avoid duplication of efforts.

f. Consolidation would perhaps result in degradation in support for the trainer system since commanders tend to emphasize the priority of the operational system over associated support systems.

Arguments in favor of decentralization can be summarized by the following:

a. Communication path and Mod process would be simplified but not necessarily faster since the Mod process depends on many factors which are not under the control of the ALC.

b. Appear to be advantages since SM has more visibility over program affecting WS. Consolidation would centralize control within the WSM organization and avoid possible duplications related to WS/Simulator matters.

c. Mod priorities could be established by one ALC, together

with the user for specific system/trainer modification projects.

Those who expressed the position that the concept made academic sense and there were potential benefits to be derived did so with qualifying statements such as:

a. Provided the manpower and facilities are transferred along with the trainer expertise.

b. Effective implementation should occur during PMRT.

c. If ATD acquisition responsibility within AFSC is assigned to the SPO for the WS.

SUMMARY: The arguments in favor of maintaining the current single manager concept outweigh those in favor of decentralization. The majority of WSMs felt that they should not assume managment responsiblity for their respective simulators. Manpower and trainer expertise seem to be the critical argument as well as the realization that there are distinct differences in management responsibilities for aircraft vs simulators. It is a recognized fact that OO-ALC/MMF has developed a "corporate memory" i.e., the resources and experience necessary to effectively manage the trainer program.

2. In your opinion would the modification process flow smoother and faster if the weapon system SM assumed total responsibility (engineering, funding submittals, all paperwork, etc.) for modifying the ATDs? Be specific (i.e., would the weapon system Mod be faster/slower; would the ATD Mod be faster/slower; or no change).

Several answers were significant. One group felt that although there might be a minor gain (1-2 mo.) in the area of Budget Projections, the two to three year concurrency problem would remain the same. This is related to how the Air Force does business and not related to who is managing the ATDs.

Another group expressed a similar point of view. Implementing Mods depends on many factors, some of which are not under the control of the ALC.

a. Funds availability

b. Administrative and manufacturing lead time to approve Mods and procure kits.

c. Assigned priority of the Mod.

d. SIOP considerations.

e. Number of SAC wings involved.

f. Complexity of the Mods.

g. Responsible implementing organization.

SUMMARY: No consensus of opinion. Most felt that there would be no significant change since the data required and its availability would be the same in either case. However, answers ranged from improving the Mod process (flow time) by 30-90 days to actually slowing down the overall process.

3. Do you think that by eliminating the third party (ATD SM) that PMD direction, funding, requirements for ATDs would be simplified? Explain.

Potential benefit: Reduced coordination and/or mail time along with improved channels of communication.

Concerns: Consolidating funds could cause trainer Mod funds to be expended for other aspects of the Mod.

Proposal: OO-ALC/MMF suggested elimination of the Weapon System SM as the third party. PMD direction to the WS SM often fails to mention the ATD. Working the Form 48 or 2614 package and funding directly between the ATD SM and AFLC/HQ USAF would preclude the practice of the WS SM utilizing funds earmarked for Simulator programs when the WS overspends its funds. Coordination could be maintained through the use of an OO-ALC/MMF technical liaison at each ALC and technical coordination meetings.

SUMMARY: Again the responses were quite diverse. Many felt that nothing would be gained in this area. Dealing with only one point of contact might be the simplest method, but not necessarily the best. Others felt that reduced coordination and/or mail time would result along with improved channels of communication.

4. If the weapon system SM were responsible for weapon system/ATD compatibility mods, would the MPA submittal (Form 48 or 2614 package) be simplified and time frames reduced? Please elaborate.

SUMMARY: Several responses indicated that some reduction in processing time would be realized since duplicate CCB actions could be avoided for Class IV Modifications and less coordination/mailing time would be required. The time savings overall, however, would be insignificant since MPA requirements would not change. Furthermore, the compatibility problem between A/C and simulators would not be resolved.

5. Would 775 (POM) submittals be more realistic if the Weapon System SM were making both inputs (WS and ATD)? Explain.

SUMMARY: Most of the responses indicated that 775 (POM) submittals would not be more realistic under consolidation. The justification for this position follows.

a. Funding forecasts are only as realistic as the data available to the person preparing the 775.

b. Due to the technical expertise required to evaluate impacts and requirements a similar knowledge level would still be required by the WS SM. In fact, if this knowledge/experience is not available to the WS SM, it could prove detremental in projecting future requirements involving current ATDs.

Those who took the position that POM submittals would be more realistic reasoned as follows.

a. Channels of communication and range of aircraft program information available within the A/C SM organization would improve and thus impact POM projections.

b. Since POM submittals for both ATD and WS currently undergo review by the SM, prioritization could be better aligned.

6. Could AFLC be more responsive to user requirements if the Weapon System SM were responsible for both the weapon system and the supporting ATDs? Explain.

SUMMARY: Again, there was a wide variation in the responses.

Those groups who believed AFLC could be more responsive to user requirements through collocation felt this was possible because:

a. Consolidation would facilitate communications and result in earlier problem definitization/resolution.

b. Using Commands usually look to the WS SM to solve all logistics problems affecting a weapon system.

Those groups who did not believe AFLC could improve its responsiveness to the user responded as follows:

a. Consolidation would perhaps result in degradation in support for the trainer system since commanders tend to emphasize the priority of the operational force over other support systems.

b. WS and ATD programs cannot be totally combined regardless of their being managed by the WS SM.

c. SM responsibilities would be the same whether it be a combined weapon system/ATD SM or a single ATD SM.

d. Responsiveness has nothing to do with consolidation.

7. If the ATD support responsibility was transferred to you and

the OO-ALC personnel did not transfer, could you support the additional work load with present manpower?

SUMMARY: The WSMs felt that they could not support the ATD work load without additional skilled manpower. To assume the work load without trained personnel would result in degraded support to the aircraft and the ATDs.

8. How would assuming the management role for the associated aircrew training devices impact these areas?

a. Manpower. The projected manpower increases ranged from over 40 additional people to only a few. Answers varied depending on size and complexity of system and current work load. Another factor which influenced some of the responses was the uncertainty as to whether the responsibility would be assigned to the IM or SM Division. Not all WSMs measured this increase quantitatively. For those who provided estimates, the average number was around 7-10 additional personnel.

b. Lagtime on Mods. Most WSMs saw little impact on lag time on Mods. Although performance could improve, it would probably not be significant. In fact, without the transfer of personnel, delays in normal modification functions could occur.

c. Contracting efforts. Again answers varied. Some felt that the additional contract interfaces would be an added work

load and would require additional contracting officers. There would be little to no improvement in obtaining signed contracts regardless of who is driving the requirements. Others believed that there would be no change. A few indicated that contracting efforts could be somewhat more effective with SM management.

d. Work load. The majority of responses indicated that the work load would increase for the SM in the technical, engineering, and program management areas. If trained manpower were not transferred to support the additonal work load some of the existing resources would have to be directed toward the development of a new skill base, thus impacting and delaying the present work load.

A few believed that there would be no overall increase in work load and no impact on accomplishment of current assignments. The difference would be in which organization accomplishes the task.

9. Is your present relationship with the Simulator SM satisfactory (i.e., communication, information, association)? If not, what problems exist and what actions might be taken to resolve them?

SUMMARY: The majority of responses indicated that the present relationship with OO-MMF was very good to satisfactory. The exchange of communication and information has been timely and

effective. There were a few responses which expressed some difficulty in obtaining information and delays in receipt of ATD modification/budget program data. They felt that this might be due in large part to prioritization of work load considerations within the ATD SM.

Some suggestions for improving the present relationship follow:

1. Closer coordination by publishing a directorate "operating instructions" (DMOI) that incorporates a detailed checklist with time phased actions that each unit must accomplish.

2. Educational effort to impress upon all people involved in the WS/SM area that trainers have a very important role in the efficiency of our fighting forces.

3. Need for an OO-ALC/MMF technical liaison at the other ALCs and technical coordination meetings.

4. OO-ALC/MMF should contact SM more often and should give the SM an update on operational ratios/rates on simulators.

10. Can the current procedures be improved? (Form 48 processing, communications, funding, etc). Be specific.

Some of the suggestions for improving current procedures include:

a. Concurrent funding - The different types of funds involved to modify ATDs consistently create problems as funds are not always provided in the year requested and the various types of funds involved expire at different times. Better coordination of funds at AFLC level would be helpful.

b. Process all weapon system/ATD compatibility Mods through the weapon SM CCB only.

c. Design philosophy should be changed for all ATDs for weapon systems using software to incorporate the WS software as part of the ATD. Thus, when WS software is changed, ATD software is changed with minimal impact.

d. Concurrent PMD direction.

e. Improve continuing actions, i.e., early contract awards and integration agreements between contractors. Weapon Systems and ATD contractors should be required to work together throughout the development of modifications to ensure configuration concurrency.

f. Improve funding profiles and internal processing procedures.

11. What responsibility do you now have for maintenance trainers/mobile training units? Have you encountered any problems in this area? If so, please explain.

SUMMARY: During our visits to OC-ALC and WR-ALC, it became evident that there was some confusion surrounding the assignment of management responsibility for maintenance trainers/mobile training units. Mobile Training Sets are portable equipment such as training aids and operational equipment used for supporting maintenance training. This confusion prompted a review of correspondence and regulations surrounding this area of training equipment.

In reviewing correspondence pertaining to MTSs, it become apparent that this problem has plagued the ALCs for quite sometime. The management of MTSs related to WSs prior to the F-15 has been the responsibility of the WSM ALC. The training device manager (OO-MMF) is responsible for the management of Mobile Training Sets applicable to the F-15 and all future weapon systems.

Responses from some of the WS managers revealed that the management assignment still remains unclear. In other cases, no problems exist.

OO-MMF indicated that the Weapon System SM could probably more effectively manage these units since they tie in much closer to actual Weapon System hardware and design than that of the ATDs. It is their belief that MTSs having essentially 90 to 100 percent Weapon System hardware should be managed by the Weapon System SM.

12. Additional Comments. There are some trainers that do not have a parent weapon system application, i.e., chambers, tow targets, UPT, control tower, and multimedia trainers. A requirement for management of these at one central location would exist, regardless of where weapon system oriented trainers are managed.

CONCLUSIONS

Our analysis of the written and verbal responses provided by the WSM personnel indicates that there is no definitive case for decentralization. It is extremely difficult to assess the overall significance of any potential benefits which might be effected by consolidating WS/ATD management responsibility. Furthermore, there are costs involved in decentralization and figures for three different staffing alternatives are provided in a previous study (Ref. Atch 1, Addendum to AFLC Simulator Management Location Effectiveness Study (October 1981)).

In evaluating the feasibility of decentralization, the uncertainty of benefits to be derived plus the additional costs involved should be carefully weighed against the performance record of the current trainer division. This Trainer Division has the resources and the expertise that is critical to the effective management of the trainer program. User satisfaction is generally a good measure of the effectiveness of an organization. Both SAC and ATC have expressed the opinion that trainer support to them has improved since the activation of the OO-ALC Trainer Division.

In addition to the considerations presented previously in support of centralized management, an additional general concern was expressed. A lessening of simulator support could be experienced if, through decentralization, the Weapon System

Manager relegates the trainer unit functions to low priority. It would not be uncommon for a Commander to, at times give reduced attention to system, related programs in his desire to provide maximum support for the operational system. Therefore, continuation of the current assignment of responsibilites remains as the preferable alternative.

Suggestions for Further Study

In examining the Simulator management location issue, we reviewed the study activity of Veda and became aware of the NTEC organization. The Naval Training Equipment Center (NTEC) is responsible for the development, procurement, and delivery of training devices. It is a centralized concept of simulator management. Based on the information gathered and results obtained from the AFLC/XRS study, it seems appropriate that the total Air Force simulator functional area be examined in depth, possibly through use of a contract effort.

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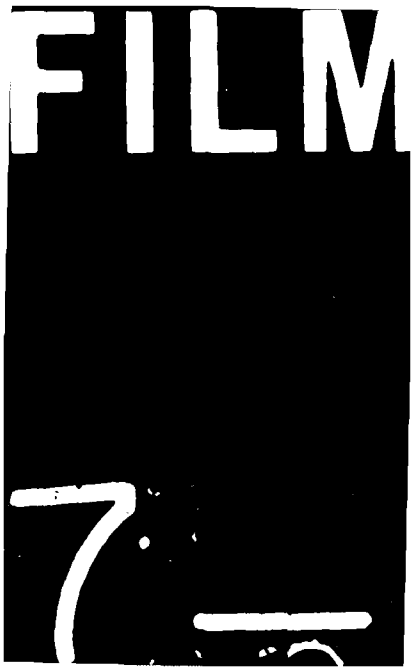
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