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**ADVANCED ON-THE-JOB TRAINING SYSTEM:
EXPANSION PLAN**

John J. O'Connor

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May 1990

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→ The Advanced On-the-job Training System (AOTS) Expansion Plan provides a technical analysis and assessment of the factors that must be considered in the expansion of the AOTS program from an operational version of the AFHRL technology demonstration program to an Air Force-wide Advanced On-the-job Training System. The Expansion Plan explains the steps necessary to incorporate new Air Force Specialties (AFSS) into the AOTS concept. It also discusses how to implement the new system on any desired military installation, and how to expand and integrate the tools necessary to fully utilize all the system capabilities. Finally, it will suggest an implementation method. *Keywords:*

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Reviewed and submitted for publication by

Jack L. Blackhurst, Major, USAF
Chief, Advanced On-the-job Training System Program

This publication is primarily a working paper. It is published solely to document work performed.

SUMMARY

The Advanced On-the-job Training System (AOTS) was an Air Staff directed, AFHRL developed, prototype system which designed, developed, and tested a proof-of-concept prototype AOTS within the operational environment of selected work centers at Bergstrom AFB, Texas, and Ellington ANGB, Texas, from August 1985 through 31 July 1989. The purpose of the AOTS Expansion Plan is to define the changes required to make the AOTS an Air Force-wide Automated Data System and to develop an orderly plan for the expansion of AOTS from a prototype system to full Air Force-wide use. The Expansion Plan provides a technical analysis and assessment of the factors that must be considered in the expansion of the AOTS program from an operational version of the AFHRL technology demonstration program to an Air Force-wide Advanced On-the-job System. The Expansion Plan explains the steps necessary to incorporate new Air Force Specialties (AFSSs) into the AOTS concept. It also discusses how to implement the new system on any desired military installation, and how to expand and integrate the tools necessary to fully utilize all the system capabilities. Finally, it suggests an implementation method.

PREFACE

This paper was developed by Ball Systems Engineering Division, the AOTS on-site integration and management contractor, under Government Contract Number F33615-C-84-0070. The AFHRL Work Unit Number for the project is 2557-00-03. The primary office of responsibility for management of the work unit is the Air Force Human Resources Laboratory, Training Systems Division, and the Air Force AOTS manager is Major Jack Blackhurst.

FOREWORD

This technical report, D-R-007-89-34, Advanced On-The-Job Training System (AOTS) Expansion Plan, is submitted by Ball Systems Engineering Division (BSED), Bergstrom Air Force Base, Texas 78743-5000, under the Integration and Site Management (I&SM) Program, prime contract F33615-84-C-0070, Contract Deliverable Requirements List (CDRL) item number 13.

The Air Force Human Resources Laboratory (AFHRL) has tasked the AOTS I&SM team to support transition and expansion planning. The purpose of the Transition and Expansion Planning task is to define the changes required to make the AOTS an Air Force wide Automated Data System (ADS), and to develop an orderly plan for the expansion of AOTS from a prototype system to full Air Force wide use.

This report documents a technical analysis and assessment of the factors that must be considered in the expansion of the AOTS program from an operational version of the AFHRL technology demonstration program to an Air Force wide Advanced OJT System. This analysis is a subtask under the Transition and Expansion Planning task and documents the actions necessary to expand the AOTS to: include a new Air Force Specialty (up to 400 different times), implement the system on a new Air Force installation, or develop and incorporate new courseware.

This document was prepared by principal investigator Mr. Darrel R. Knutson of the Ball Systems Engineering Division (BSED).

Reviewed and approved by:

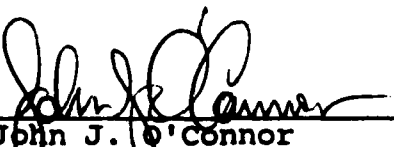

John J. O'Connor
I&SM AOTS Program Manager

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I. SCOPE. The Advanced On-the-Job Training System (AOTS) Expansion Plan describes the steps necessary to incorporate new Air Force Specialties (AFS) into the AOTS concept. It also discusses how to implement the new system on any desired military installation, and how to expand and integrate the tools necessary to fully utilize all the system capabilities. Finally, it will suggest an implementation method.

A. Approach. A three phased approach to the expansion will be described. The first phase will consist of incorporating the AFSs required to complete the automation of the development site and allow users to use an Automated Data System (ADS) to perform all basic OJT management actions. The second phase will be the movement of the operating automated system from the development site to any desired military installation. This exported system may require more Phase I expansion to develop and incorporate AFSs that were not used at the development site. The third phase will be the development effort required to produce the data bases and computer instruction and/or evaluation modules necessary to fully use the system capabilities. Because each of these phases is a separate and distinct series of actions, the user has complete flexibility in how and when to implement them.

B. Plan Organization. This plan is divided into several functional sections. Section II describes the assumptions that are essential to the development and understanding of the plan. Section III is a high level description of what the assumed operational training system will look like. On this basis, Sections IV through VII describe the various phases in a step by step fashion. Finally, Section VIII outlines a proposed scenario for actual implementation.

II. ASSUMPTIONS. This plan is based on certain key assumptions. Chief among these are that an operational training system is available and ready for expansion from a prototype implementation to full Air Force wide, operational use. The hardware and organizational environment are also key considerations. These factors and the changes needed to produce an operational training system are documented in the separately published AOTS Transition Plan. This Expansion Plan is designed to deal with the top level management of moving whatever was produced by the Transition Plan or the existing prototype system into operational use. Because of the vast extremes of what the system to be expanded may look like, this plan is intentionally general in nature.

A. Software System. The premise of this plan is that a Full Scale Development (FSD) or Technology Insertion program has been initiated that will or has produced a fully functional, operational software system. The AOTS follow-on system will have been developed as an Automated Data System (ADS) which will be standard across the Air Force. The software will contain all necessary functions to dynamically load between 250 and 400 AFSSs and access any data bases installed for the loaded AFSSs. The software system will provide the ability to manage, develop and deliver training and to evaluate training. Section III, System Description, below is a full top level description of the essential functions.

B. Hardware Architecture. The system software may be for any one of the three hardware architectures outlined in the Transition Plan. Of these three, the architecture assumed for this plan is a fully networked Personal Computer (PC) based system. A second, less preferable option, would be a stand-alone PC based system and the least preferable would be a mainframe based system. The preferred and assumed architecture is one in which the

automated training system is a portion of, yet separate from, the Personnel Concepts III (PC III) system and resides on the same hardware.

C. Hardware Equipment. For the user, the system could have two types of work-stations. The basic work-station will consist of a user terminal where normal OJT management actions can be performed. This will require a PC with a terminal and access to a printer. The second type could be one or more similar work-stations located in Learning Centers where they would also have Interactive Video Disks (IVD), Optical Mark Readers (OMR), printers, and any other necessary equipment attached. The user could also have only the second type of work-stations. For the installation system administrator, the system will have access to file space to store all necessary data bases and access long haul communications networks. The Air Force and Functional Area Manager or MAJCOM system administrators will be similar to the installation system administrator. The development site will have all hardware equipment used anywhere in the system.

D. Implementing Organization. This plan assumes that a program office has been established or made responsible for the implementation of this plan. The manning of this office will be flexible and vary during different phases. A general manning profile will be suggested in Section VIII of this plan. This office will also have configuration control responsibility for all software and courseware during the expansion. Following the expansion, this office will transfer configuration control to a to-be-determined central Air Force office.

E. Development Site. A development site will be used to produce the FSD or Technology Insertion AOTS follow-on system.

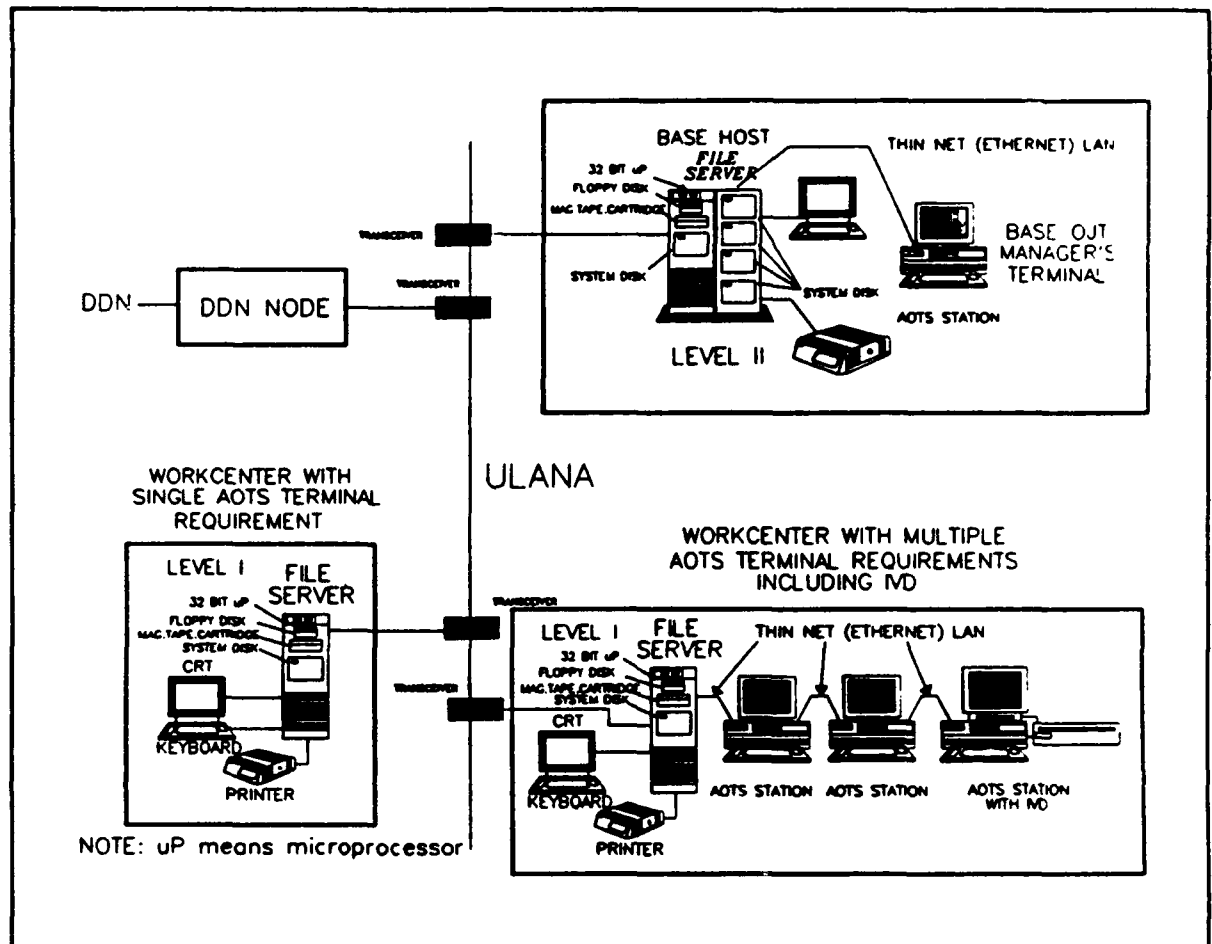


Figure 1 AOTS Hardware Architecture

This same site will be the development site for the expansion, the location of the implementing organization and responsible for implementing this plan.

F. Production Program. A production program will have carried the prototype AOTS forward and prepared it for implementation. This may have occurred during a FSD program or by the adaptation of the prototype to prepare it for a Technology Insertion into another Automated Data System (ADS). In either case, the production program will have prepared or refined the

required handbooks, users manuals, developers guides and other necessary documentation. These documents will include all the instructions necessary to operate and use the system. They will encompass everything from describing how to insert a new Air Force Specialty into the system to how to develop and modify Computer Aided Instruction (CAI) modules.

III. AUTOMATED SYSTEM DESCRIPTION. The FSD produced system will have three main functions: management, training development and delivery, and evaluation. The primary function will be the overall

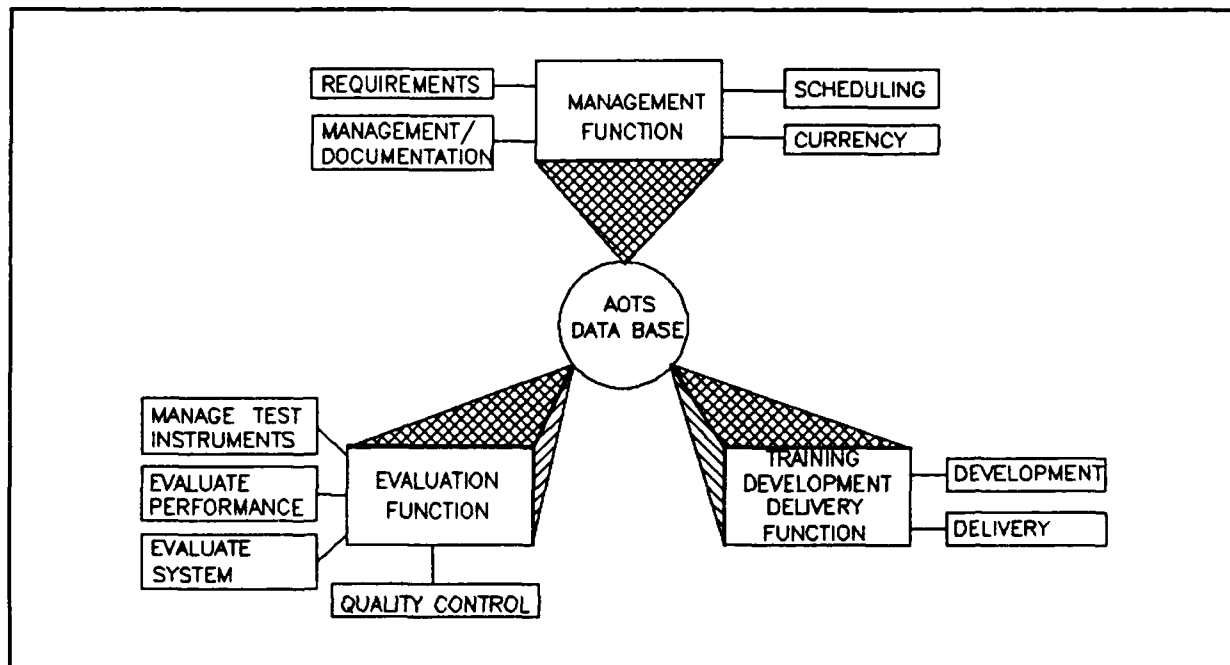


Figure 2 AOTS Components

management of OJT from the individual trainee to the top level Air Force or Functional Area Manager. A high level description of these functions is below.

A. Management Function. This segment provides several capabilities. It allows the development of data bases containing the AFS Master Task Listings (MTL) for up to 400 different AFSs and an Air Force wide Other Training Requirements (OTR) list. It also allows the copying of portions of these lists to create Generic Position Task Requirement (GPTR) and Operational Position Task Requirement (OPTR) data bases as well as the further refinement to the individual Airman Training Record (ATR) and generation of the Individual's Training Requirements (ITR) list. The trainee's personal information will be automatically extracted from the personnel data system, PC III. The supervisor can assign, schedule, train and certify task training completion for training requirements contained on the ITR. The trainee can also use the management segment to monitor his/her progress. The training managers, commanders and functional area managers have the capability of coordinating and accessing the overall training status of entire units, AFS's or other groups. Finally, it can be used to aggregate the information and monitor the training of an entire unit, installation or MAJCOM by totals or by individual AFSs.

B. Training Development and Delivery Function. This segment provides a computer-based, interactive development process in which instructional and evaluation materials can be written, evaluated, and revised. It also provides for computer presentation, storage, distribution, and control of training and evaluation materials.

C. Evaluation Function. This segment provides the supervisor the capability to administer and document performance evaluations. It also allows the scheduling and evaluation of skill knowledge tests and performance evaluations. The trainee can use it to take knowledge tests. With automated tracking capabilities it also provides standardization and quality control of training and evaluations.

IV. THREE PHASED APPROACH. The FSD or Technology Insertion program will produce a system that is a shell into which data bases can be inserted to provide complete functionality. These data bases are what tailors the system to each AFS. The development and insertion of the necessary data bases into the operational system at the development site to bring that entire installation under the system will be the First Phase. Since the operational system will be developed at a single Air Force installation, it will require spreading to other installations. This exporting of the operational system to other Air Force installations will be the Second Phase. These two phases will implement an Air Force wide basic capability that allows the management of OJT and certification of task training and essentially automates the present OJT system. While the system may be used without the Computer Aided Instruction (CAI) and on-line evaluation capability in the training and evaluation functions, they are essential to obtaining complete functionality. The Third Phase will be the development and incorporation of the modules and data bases necessary to fully use the system capabilities. Because these three phases are separate and distinct operations, the steps to accomplish each can be done in parallel with the others. This leads to a three phased approach to implementation.

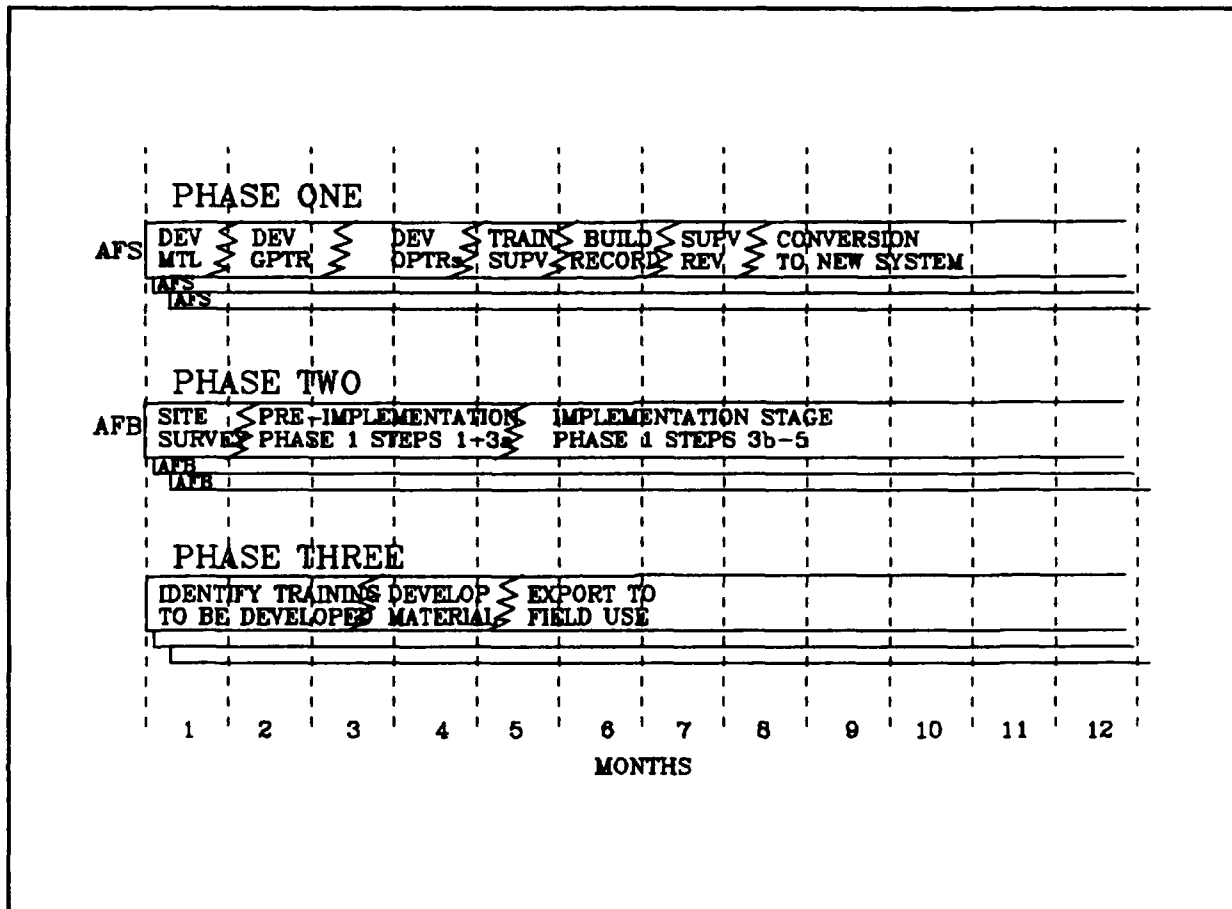


Figure 3 Expansion Sequencing Schedule

A. Phase One - Expand to Other AFSs. The first action necessary to implement this training technology concept is to develop and incorporate the data bases required for an AFS. Each AFS will require its own MTL and a review of the Air Force wide Other Training Requirements (OTR) list for applicability. The MTL will be used to develop GPTRs, and combined with the OTR to develop OPTRs. Phase One will consist of the effort to incorporate required AFSs into the system shell. This phase will also include the initial development of ATRs and ITRs necessary to bring individual airmen under the automated management system. This will provide the essential information to automate the existing OJT

system and provide a "bare bones" capability. This effort will have to be accomplished at the development site and each installation separately. However, once the basic data bases are developed the first time, they will be copied at other installations.

B. Phase Two - Expand to Other Installations. The second action is the movement of an operational system from the development site to any other Air Force installation. This will require some modifications to data base elements, the addition of new data bases, organization of essential equipment and the training of users. This step will also have to be accomplished initially at the development site and then at each new installation being incorporated into the system. This step is essential to insure that the Air Force continues to have a standardized OJT system that is responsive to changing needs on a wide scale basis.

C. Phase Three - Expand to Use Full System Capabilities. The final action will be to add the full training and evaluation capabilities to the implemented automated management system. This will require the development of data bases and training modules necessary to use training and evaluation capabilities. This is the long term process of deciding what training and evaluation to automate, developing the required courseware modules and data bases, and then exporting the courseware to the using locations. This phase will blend into and become the long term Operations and Maintenance (O&M) of the system.

V. PHASE ONE - EXPAND TO INCLUDE OTHER AFSSs. The first step in implementing the new technology system is the expansion from the four AFSSs used in the prototype development stage to all required AFSSs. The operational system will be able to handle up to 400 AFSSs

but each installation will only be concerned with those required for that installation. All Active duty, Reserve and National Guard AFSs will eventually be incorporated and each individual AFS will go through the same process at least once. This section will discuss the addition of a single new AFS into the system. It will start with the high level management and expand down to the individual airman and how he/she will be brought into the system. All other AFSs will follow the same pattern for their initial incorporation. Subsequent incorporation at different installations will start with copies of existing data bases. AFSs used in the prototype at the development site will follow the same pattern with the addition of adding in already developed training and evaluation modules. The discussion will be aimed at an active duty Air Force installation with the understanding that Air Force Reserve and National Guard units are usually associated with an active installation. In cases where they are not, the same pattern will be used. This Phase is designed to develop and load the essential information to an Automated Data System (ADS) to provide a "bare bones" use of the system. This will include all the functionality described in the Management Function paragraph III.A.

A. Essential Definitions. Knowledge of the following items is essential to understanding the Phase 1 process.

1. Specialty Training Standards. On a periodic cycle the Air Training Command (ATC) in conjunction with MAJCOM AFS Functional Area managers hold Utilization and Training Workshops. Attendees at these workshops include highly skilled senior people qualified in that AFS from operational units. Among other tasks, the workshop is designed to completely review and update the job tasks an airman may be required to perform at any level in the AFS and at any base that uses the AFS. The list of tasks they develop

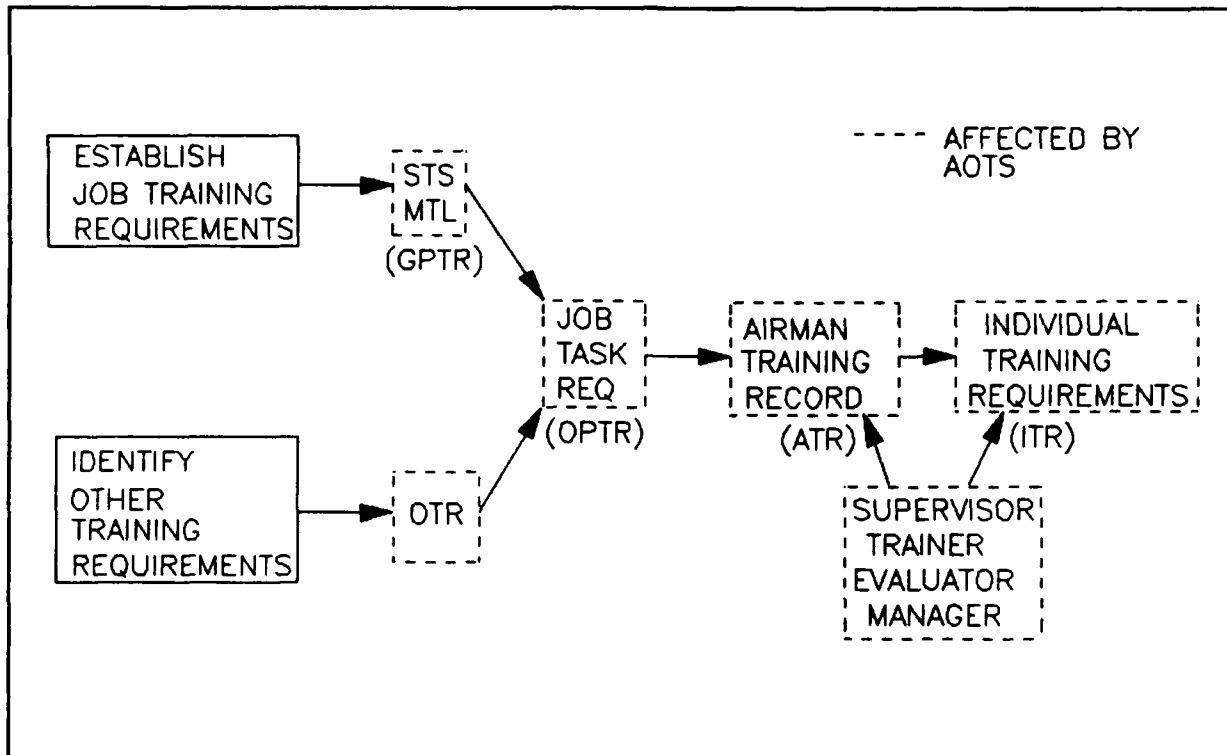


Figure 4 Establish Training Requirements

becomes the Specialty Training Standards (STS) and is used to develop requirements for formal school training courses and Career Development Courses (CDC) for that AFS. Because of the variety of possible equipment an AFS may be responsible for, the AFS may have several shred-outs grouping similar or specific equipment and each shred-out could have a separate STS. These STSs lists the primary tasks that may be required at any installation by that AFS and, once published, becomes the primary training document in the AF Form 623, OJT Training Record, for an airman requiring OJT upgrade or qualification training.

2. Occupational Survey Reports (OSR). As a separate effort, the Air Force Occupational Measurement Center (OMC) periodically surveys all AFSs. The OMC sends surveys to airmen

working in that AFS and obtains information about all the tasks actually being performed. This information is then condensed into an Occupational Survey Report (OSR) and a training extract which includes an entire list of all job types and tasks required by the AFS.

3. Task Training. Training that is accomplished to learn a specific task in the job the person holds. An example is the training a flight line mechanic needs to be able to change the tire on an airplane.

4. Position Qualification Task Training. Training that is required because of the actual position the person holds. An example is the training to perform a specific task such as the flight line mechanic tire change training (task training) as well as crew chief training (position training) and mobility training (an Other Training Requirement because of position) because the mechanic is assigned as a crew chief to a mobility position in his/her unit.

5. Other Training Requirements (OTR). The training required over and above what is required by an AFS. These include ancillary training, contingency, additional duty, formal training, CDC, and Professional Military Education (PME). During the initial stages of the implementation of this plan, this list will be developed using the AOTS prototype list and refined to include all required Air Force training. It will be continually added to with possible subsets for specific installations, AFSs, or positions. A rudimentary form of this list is currently entered on AF Form 797s in the individual airman's AF Form 623.

20 July 1989

CHECKLIST 1 - PHASE 1 SETUP

B. Preparation for Expansion. The preparation steps are to develop an Air Force wide Other Training Requirements list and identify the AFSSs and their corresponding MTLs that need to be incorporated. This needs to be done both Air Force wide and for each specific installation. The development of the OTR list will start by initially identifying all known ancillary (AFR 50-1) and additional duty (AFR 25-5) courses, contingency tasks, CDC requirements and Professional Military

Education courses. This list will be developed as all encompassing as possible and continually updated as an ongoing activity. As this list is developed, the behavioral objectives and other requirements discussed under MTLs below will be generated. As a separate action, the AFSSs, and their corresponding MTLs, to be implemented will be identified. The AFSSs should be those required at the specific installation. All the subsequent steps will refer to the specific actions for a single AFS with the understanding that the steps for all other AFSSs will be identical.

PREPARATION FOR EXPANSION

Develop AF wide OTR
Identify AFSSs Needed

STEPS FOR EACH AFS

1. Build MTL

Task Statement
Behavioral Objective
Statement
Define
References
Resources
Training Material
Evaluation Material

2. Build GPTRs

Equipment Shredouts
Generic Duty Positions

3. Build OPTRs

a. Standard OPTRs
OTR
b. Actual OPTRs
Specific Positions

4. Build Automated Training Record

Assign Airman to an OPTR
Copy OPTR
Build Training History

5. Implement

C. Master Task List (MTL). The first step in Phase 1 will be to develop a complete MTL for the AFS. For this step, a small team of subject matter experts (SME) working in the AFS will carefully examine the STSS and OSRs. They will compare the two task lists with each other, use whatever other data sources they have that are applicable to the AFS, and develop a complete task listing for the AFS. This will be at a very broad level applicable for the AFS throughout the Air Force and at a minimum include all tasks in the current STSS. This list will be entered into a data base as the MTL for that AFS. During the course of developing this listing the following will be identified:

1. Behavioral Formatted Task Statement. This will be a specific statement of what the task requires.

2. Behavioral Objectives. This will be a statement of what the desired outcome of doing the task as well as how well the task will be done. It will include, if necessary, a grading criteria by proficiency level.

3. Definition of Requirements. This will include a list of references, resources required and training and evaluation material available.

D. Generic Position Task Requirements (GPTR). For step two, the same SME team that developed the MTL for the AFS will then review this list and break it down into lists of tasks commonly performed in duty positions. Each MTL may be copied to develop several GPTRs and each GPTR may have numerous OPTRs. An example would be the copying of the MTL for flight line mechanics (for any type of aircraft) to develop a GPTR for a flight line mechanic on

an RF-4. The MTL could be copied to have a series of these GPTR subsets. The GPTR will be the same Air Force wide for that AFS and include all possible tasks for the specific equipment and types of positions for which it was developed.

E. Operational Position Task Requirements (OPTR).

1. "Standard" OPTR. The third step in Phase One will be the refinement of the GPTR to identify the training that might be required for specific duty positions. This will be a two stage process. The first stage will use the GPTR and the OTR list and identify all other training requirements that could be associated with the position. This will be done by the development team the first time each AFS is implemented. An example would be to review the RF-4 flight line mechanic GPTR and copy it to build one OPTR with the tasks and training applicable to an RF-4 crew chief and a second one for the RF-4 assistant crew chief. This stage will be done at the development site and result in standard OPTR suitable for use Air Force wide.

2. "Individualized" OPTR. The second stage in developing the OPTR will be done at the installation level by the implementation team. Here, the standard OPTR will be refined and tasks and training not required by that MAJCOM, installation, location, etc., will be removed. The resulting OPTR will be given to the supervisor to evaluate for each specific individual duty position. The supervisor will then remove any tasks and training requirements that do not apply to a specific position and identify the resulting OPTR with the actual position identification. An example would be the review of the standard RF-4 crew chief OPTR with the removal of all tasks not associated with the RF-4C at a warm weather location with no mobility tasking. The resulting OPTR

will apply only to a specific duty position at a specific installation with a specific mission.

F. Airman Training Record (ATR). The fourth step in phase one will be to determine the individuals actual training requirements. This process will start with the supervisor who will assign an applicable OPTR as the individual's Airman Training Record (ATR). This is exactly equal to an annotated copy of the current STS in the AF Form 623. The supervisor will then use the MTL (or GPTR), any related MTLs (or GPTRs) and the OTR to add or delete any tasks specific to the individual. On this ITR, the supervisor will certify all the tasks the individual is qualified to perform. A qualification assessment will then compare the duty position training needs with what the individual has accomplished and determine what other training is required. The tasks that have been trained will remain in the ATR and become the individuals training history. The tasks that remain required and uncertified will become the Individual Training Requirements (ITR) list of training still needed. The supervisor will then use this list to perform and certify the individuals training. This step is a normal function of the system.

G. Implementation. After the first three steps have been accomplished the user is ready to implement the system. The first two steps will be done by the system implementer at the development site. Stage one of the third step will be done by the system implementers in conjunction with the actual users and the second stage will be done by

CHECKLIST 2 - PHASE 1 IMPLEMENTATION

1. Select AFSs
2. Build MTL, GPTRs, OPTRs
3. Initial Training
4. AF Form 623 Review
4. Train Supervisors
5. Build Automated Training Record
6. Conversion

the installation implementation team in conjunction with the using supervisors. The implementation will take a controlled approach with only a few AFSs being implemented at any one time.

1. Selection of AFSs. Each installation should assess its population by AFS to determine which are the largest groups. Using this demographic information, a list of AFSs that have already been implemented elsewhere, and the AFSs primary to the mission of the installation, a rank ordering of the priority for implementation will be developed. Where possible, the AFSs will be grouped in communities such as all AFSs associated with flight line maintenance, supply, personnel, etc.. This will make the training of supervisors and end users easier and allow the people that work together to learn together. At the same time that the AFSs are being determined, the OTR list needs to be examined to incorporate any specific local training or to modify general training requirements for local conditions.

2. Training of Supervisors. Supervisors at all levels will be taught how to use the automated system to identify necessary training, certify training completion, and develop and use ITR lists. This training will be done by the installation implementation team for supervisors in the targeted AFSs. This training will be done in several stages. The first will be installation wide and provide familiarization with the new system. Then the supervisors in the target AFSs will be trained in what the records consist of and how they are developed. After this initial training, the supervisors will receive hands on training as the system is implemented in their work centers. These training courses would be developed by the implementation team along with existing Air Force On-the-Job advisory services or other responsible organizations.

3. Development of Airman Training Records. Prior to initiating the implementation but after the initial training of supervisors, an AF Form 623 review will be performed along with a complete review of each individuals position responsibilities. This inspection will insure that the forms are as up to date as possible and remove the confusion of trying to update the records at the same time they are being converted. With the order of implementation determined, key supervisors in the initial community of AFSSs will be selected to review the "standard" OPTRs and develop "installation" level OPTRs. The implementation team will help the first line supervisors refine this "installation" OPTR to make it identify the actual positions. The supervisor will then copy the OPTR over and make it into an ATR for each of his/her individual airmen. An automatic transfer of data from the personnel system (PC III) will be used to load the airman's personnel information. The training history will be developed from the existing AF Form 623 (if the individual is in OJT) or current skill level. Data entry clerks will be used to enter the initial data from the AF Form 623 and any forms used in the review of the position responsibilities. The generation of complete training histories in the ATR will be accomplished during the actual on-line operation of the system after implementation.

4. Conversion to the Automated System. The conversion to the automated system will occur on an individual basis. As soon as the individual's records have been entered into the system and the supervisor has reviewed them, that individual will come under the automated system. Training and record conversion will be aimed at establishing a core and then rapidly expanding from there to the rest of the targeted community of AFSSs. By establishing a core of

well trained supervisors in each community, a cadre of experts will be available to assist in the changeover process.

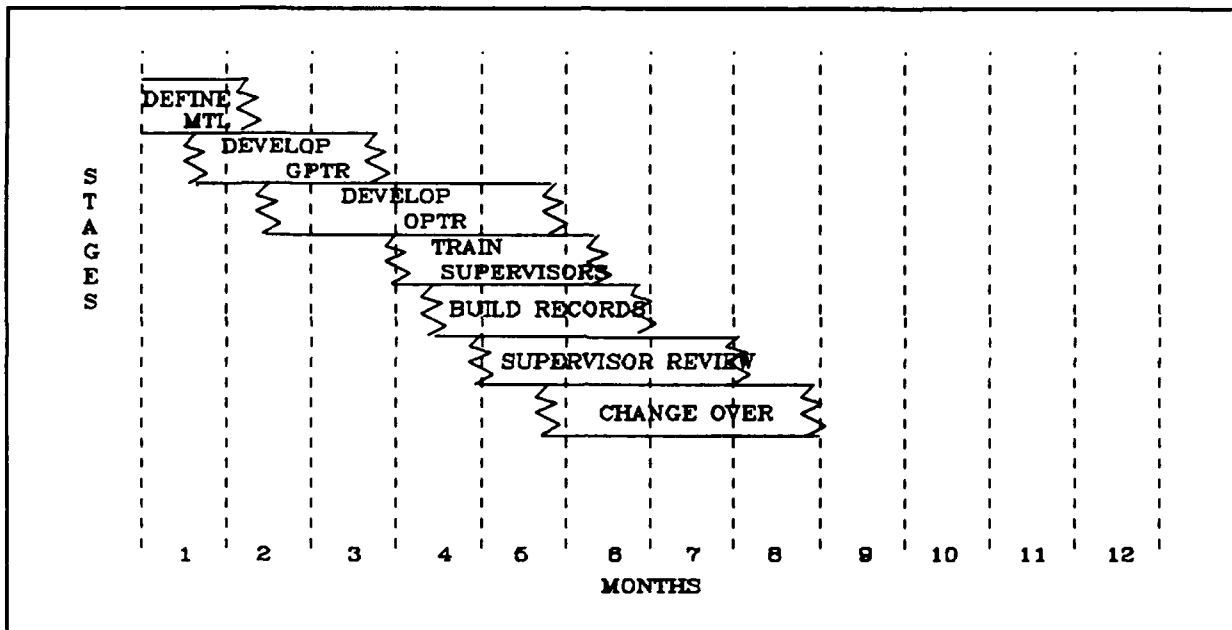


Figure 5 Phase One Schedule

G. Schedule. This phase would be repeated for each of the AFSs implemented on the operational system. After an AFS has completed the first three steps the first time, it would not have to complete them again. If a "standard" OPTR was not developed during that initial implementation of the AFS, then steps 1, 2, or 3 would have to be redone to develop the OPTR when it is needed for the first time.

VI. PHASE TWO - EXPAND TO OTHER INSTALLATIONS. The second Phase in implementing the system will be to export it to other installations. This will be essentially the same as Phase I only at a new location. The new installation will be approached in the same manner as the initial implementation installation with a few differences. The main differences are that the vast majority of

the preliminary data base development work will already have been performed and any number of installations could be implemented at the same time. Also, if priorities shift, the installation implementation order can be very flexible. This phase is crucial to the maintenance of a standard Air Force wide OJT system.

A. Implementation Teams. Prior to expanding to other installations, the implementation office will develop several traveling teams of implementation experts. Each MAJCOM will be required to establish a focal point and assign personnel to the implementation office and traveling teams. The number of traveling teams will be the determining factor in how long it will take

CHECKLIST 3 - PHASE 2

1. Setup Implementation
Teams
Survey
Implementation
Installation
2. Site Survey
Equipment
AFSS
Installation Plan
3. Phase One Setup
Checklist
4. Phase One
Implementation
Checklist

to expand to all installations. There will be three different teams used. The first will be a preliminary survey team. This team will perform a survey of the installation prior to implementation and perform the actions necessary to prepare the installation for the implementation. The second team will actually coordinate the implementation. It will perform the necessary training,

coordinate the development of required OPTRs and assist the installation implementation team. The third team will be the installation implementation team. This team should act as the implementation focal point, training system office and eventually become the system administrator after implementation.

B. Installation Priority List. A complete list of installations requiring the new system will be developed and organized by MAJCOM. Working with the MAJCOM focal points, a priority for implementation will then be developed. The length of time it requires to complete the implementation is a factor of the number of implementation teams the MAJCOM provides.

C. Site Surveys. A site survey team will visit each installation well ahead of actual implementation. Their job will be to determine if the necessary computer and communications equipment is installed and available and what AFSSs, GPTRs and OPTRs are required. They will also work with an installation focal point to develop an implementation office and an installation implementation plan.

1. Equipment. The new technology system, as this plan envisions, does not require any special equipment in and of itself. It is designed as an ADS that "piggy backs" on and uses another standard ADS's equipment. It is essential that this other ADS be installed and available prior to starting implementation. For full use of the system to perform training and evaluation as well as the basic management functions, some additional equipment such as Interactive video Devices may be required.

2. AFSSs. Determining the AFSSs, their community relationships and priority order should be started by the survey team. This determination will be refined by the installation implementation team. A large part of this task will be to determine what MTLs, GPTRs and OPTRs are required and to determine if the installation has additional OTRs not already identified and developed.

3. Installation Implementation Plan. The installation team will develop an actual implementation plan. This plan will address the equipment, its location and use. It will define the AFS implementation priority and identify all required GPTRs and OPTRs with their priority. The key personnel involved with implementation will be identified. It will set up the training schedule and identify any other factors that may be necessary.

D. Pre-implementation. After the site survey, the office implementing this plan will take several actions. One of these actions will be to work with the appropriate offices to order and install any necessary equipment. This will not replace the responsibility of the system administrator for the other ADS to install equipment. However, IVDs and OMRs may have to be specially installed. Another action will be to identify the GPTRs and OPTRs required at the installation and initiate the development of any necessary new ones. The Phase One steps 1, 2 and 3a can be done at the development site and SMEs from the installation brought in to complete step 3b. Preliminary familiarization training will also be conducted as necessary. The composition of the actual implementation team will also be determined.

E. Implementation. When the preliminary work has been accomplished and the installation is ready for implementation, the implementation team will do the actual implementation. They will use the GPTRs developed during the pre-implementation and assist the installation implementation team in developing the OPTRs, training supervisors and converting to the ADS. The same steps outlined in Phase 1 will be followed. Initially the development implementation team would assist and train the installation team. As the installation team becomes proficient and entire AFSs are

incorporated, the implementation will shift into a normal O&M function.

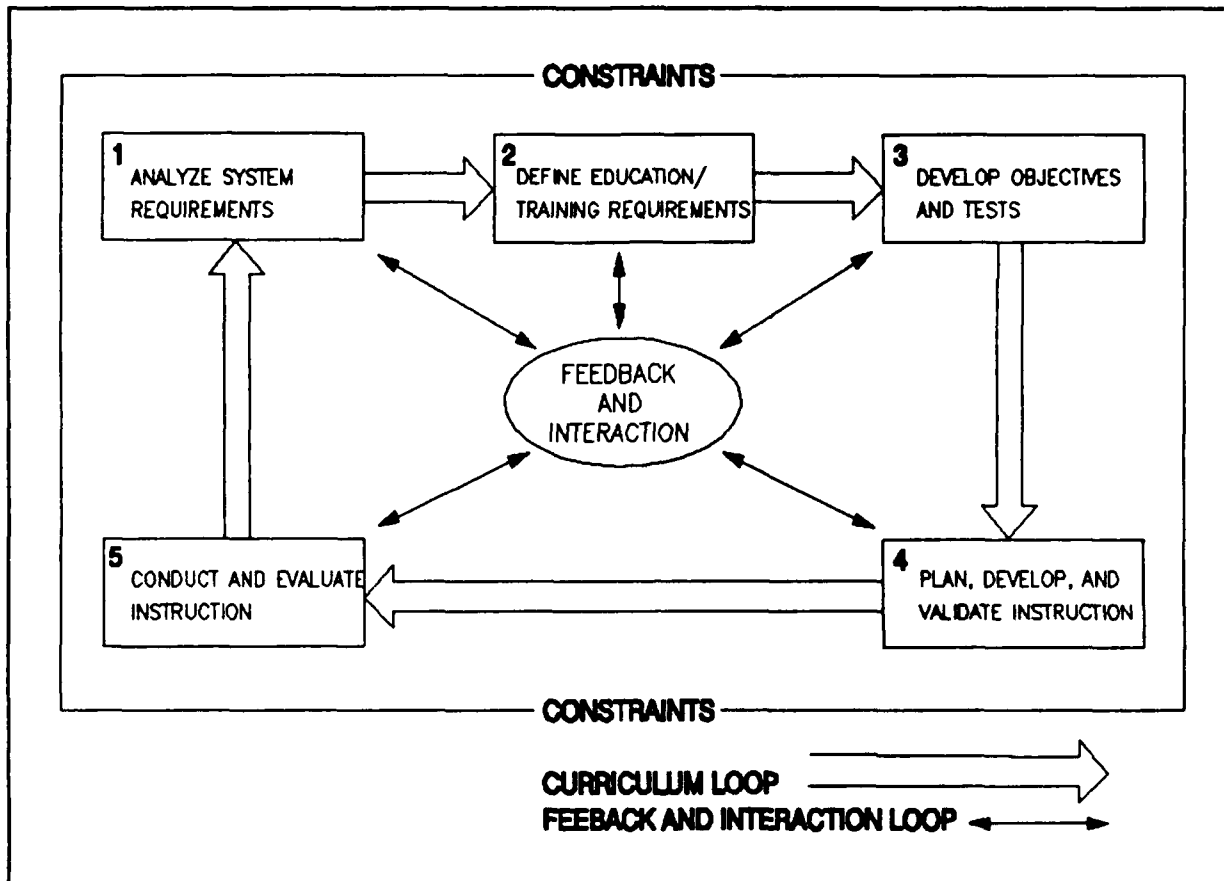


Figure 6 Air Force Instructional Systems Development

VII. PHASE THREE - EXPANSION TO USE FULL CAPABILITIES. The third phase of this plan will be to establish the long term O&M of the system and assist any requesting office develop and distribute training and evaluation courseware. This phase is also non-sequential with the other phases and multiple courseware development activities can be occurring at the same time. Implementation to this point will give the user the capability to manage individual and unit functional area training as well as other training requirements. To expand beyond this "bare bones"

management use will require the separate effort described in this phase. The Automated Training Technology concept incorporates steps 1 and 2 of the Air Force Instructional System Development during the task analyses and MTL development. Steps 3, 4, and 5 are supported by the Training Development, Delivery and Evaluation Subsystem. These steps are essential to completing Phase Three of the expansion.

A. Responsibility for Expansion. Phases 1 and 2 of this plan are the responsibility of the Implementation office. The operational system will provide the capability to incorporate the data bases and linkages necessary to access training and evaluation modules that are loaded into the system. Functional area managers, MAJCOMs, or offices responsible for other required training will be responsible for developing courseware. The system provides a standard training development system that courseware developers can use if they desire. For example, the Tactical Air Command (TAC) Logistics Directorate would be responsible for developing training modules for RF-4C flight line mechanics and the Hq Air Force Disaster Preparedness Office would be responsible for developing and distributing Disaster Preparedness CAI modules. Both of these organizations could use the training development and delivery function to develop the required modules. Or, they could use some other mechanism as long as it produced modules compatible with the operational training system.

B. Courseware Development. "Courseware" is the term that refers to modules that allow the system to provide both on- and off-line training and evaluations. This is specialized task that requires skilled subject matter and training experts. Development of courseware will require a complete task analysis to determine behavioral objectives, and then the construction of test or

evaluation data bases, CAI or IVD modules that provide the training. The training experts will also have to develop the test questions for both on- and off- line evaluations. The system will provide a mechanism that may be used to develop the data bases or modules.

C. Integration of Courseware to On-Line System.

Once the courseware has been developed, it will be checked for compatibility with operational training system by the configuration control agency. It will be distributed by the responsible organization as appropriate.

D. System Maintenance. The system will have the capability of being updated as new tasks are added to AFSSs, CAI modules change or test question data bases change. Data bases or CAI modules that require updating or upgrading will be the responsibility of the appropriate organization. The upgrade will be developed by the appropriate office and coordinated with the configuration control agency. Installation of the upgrade will be a normal operational system administrator responsibility. Changes or corrections to the software will be the responsibility of the system manager at the development site. After the development of the operational system at the development site, configuration control responsibility will transfer to the appropriate office as determined during the production of the system. Hardware equipment maintenance will be the responsibility of the end users under the concept determined by the ADS that the automated training system is combined with.

CHECKLIST 4 - PHASE 3

1. Determine Need
Functional Area
Manager
MAJCOM
Responsible Office
2. Develop Courseware
CAI
Test Question Data
Bases
Evaluation Data
Bases
3. Integrate
Distribute

VIII. IMPLEMENTATION.

A. Overlapping Phases. This plan identified the three separate phases that are required to implement an operational system. These three phases are all dependent on each other but can be accomplished independently. The proposed implementation will begin during the full scale development of the operational system by starting all three phases at the development installation. The implementing team will accomplish the first three step in Phase One by expanding on the existing prototype information, data bases and modules. The result will be that all necessary MTLs, GPTRs and standard OPTRs will be complete and available for implementation by the end of the FSD program. Phase 2 will start toward the latter portion of the FSD by establishing an installation implementation priority list and implementation teams. The initial site surveys will also be accomplished and pre-implementation tasks identified above accomplished. This will result in a fully operational system that provides OJT management capability throughout the development installation at the end of the FSD. At the same time, functional area managers and offices responsible for specific Other Training Requirements will be provided the means to begin developing the required modules and data bases. This will allow a smooth transition from FSD to implementation and significantly shorten the overall time to full Air Force wide operation.

B. Organization. A System Program Office (SPO) should be developed to control the transition of the automated training technology concept from a prototype proof-of-concept system through a FSD program to operational implementation. The organization should consist of both procurement and operational personnel during

the FSD portion with more operational personnel being brought in as the implementation/expansion phase begins. Within the organization, a central data base and system configuration management office (CMO) needs to be established early and function through all phases of the development and implementation. This CMO function is critical to insuring that when the system is fully installed there is an Air Force wide standard ADS. During the FSD an emphasis needs to be placed on the production of adequate user, developer and maintainer documents. As the program development winds down, the SPC should start developing installation teams and staff them with computer literate, mid-level operational personnel. A specific training development staff will be tasked to develop CAI training modules on using the management functions of the operational system. These CAI modules need to be ready early enough in the program to be available to assist providing training during the overall system implementation. Additional modules will be developed on using the training development functions and on installing or revising data bases or training/evaluation modules.

C. Schedule. The schedule depicted in Figure 3 relates to the entire transition program. Each phase will be done separately with the overall object being to implement a standard system Air Force wide as quickly and smoothly as possible.

APPENDIX A - ACRONYMS

ADS	Automated Data System
AF	Air Force
AFB	Air Force Base
AFMPC	Air Force Military Personnel Center
AFR	Air Force Regulation
AFS	Air Force Specialty
AOTS	Advanced On-the-Job Training System
ATC	Air Training Command
ATR	Airman Training Record
CAI	Computer Aided Instruction
CBPO	Consolidated Base Personnel Office
CDC	Career Development Course
CMO	Configuration Management Office
FSD	Full Scale Development
GPTR	Generic Position Task Requirements
ITR	Individual Training Requirements
IVD	Interactive Video Disk
MAJCOM	Major Air Force Command
MTL	Master Task List
OJT	On-the-Job Training
OMC	Occupational Measurement Center
OMR	Optical Mark Reader
OPTR	Operational Position Task List
OSR	Occupational Survey Report
OTR	Other Training Requirements
PME	Professional Military Education
SME	Subject Matter Expert
SPO	System Program Office
STS	Specialty Training Standard
TAC	Tactical Air Command