

# **Training System Requirements Analysis**



## **A Systems Engineering Approach to Training Development**

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A **Training System Requirements Analysis (TSRA)** is a systems engineering process for determining the components and content of a training system. It is based on the principles of Instructional Systems Development (ISD) as outlined in Air Force pamphlet 36-2234, and Air Force Handbook 36-2235, Volume 3. ISD analyzes the requirement for training, then designs, develops, and evaluates the system. It provides for feedback loops from the evaluation into the design so that changes can be incorporated in a systematic manner. ISD also considers and develops the logistics, administrative, and management support required to deliver the training to the student.

The following documents will assist the training developer in understanding and conducting the TSRA:

AFM 36-2234, Instructional Systems Development  
AFH 36-2235, Volumes 1 and 3  
Mil-Std 1379D, 5 Dec 90  
SMC/ALX 01-94, 6 May 94 (Draft Section 500 to Mil-Std 1379D)  
DI-ILSS-80568, Mission/Task Analysis Report  
DI-ILSS-80569, Objectives and Media Analysis Report  
DI-ILSS-80570, Training Requirements Analysis Report  
DI-ILSS-80571, Training System Basis Analysis Report

Previous training developers who have used the TSRA process have found some additional information is necessary. These instructions are provided in the form of a statement of work, but may be amended to fit individual developers' needs.

1.0 The contractor should describe the functional characteristics and capabilities of any training devices and media that are recommended as a result of the TSRA for XXX

2.0 Analysis factors. (examples provided for information only - appropriate factors should be developed for each individual TSRA).

a. The operations section of the XXX training system must consider the training requirements contained in the XXX ORD.

b. Training for software maintenance must be prepared in accordance with the agreements between AFMC and AFSPC for division of software maintenance responsibility.

c. The XXX training system must consider the division of training responsibilities for operations training between AETC (IQT) and AFSPC (UQT, monthly recurring training, continuation training, and certification of XXX operations personnel).

d. The Training Augmentation Device managed by SMC/xxx should be considered as part of this analysis.

e. The analysis must consider integrating XXX training into the overall AFSPC training program as defined in the AFSPC Command Training Strategy.

f. Other training factors contained in the XXX Operational Requirements Document are to be considered.

g. This analysis applies to the follow-on training system to support XXX program and includes any initial (contractor or otherwise) training needed to implement that system.

h. Requirements for modification of the  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ are to be considered.

3.0 The contractor should conduct a TSRA containing both a Training Requirements Analysis (TRA) and a System Basis Analysis (SBA). The TRA should determine XXX training requirements, objectives, and select appropriate training system alternatives which satisfy those XXX training objectives. The SBA should propose XXX training system concepts consistent with the AFSPC training system, limiting factors, and constraints. The contractor should assess the application of proven training advances to propose XXX training systems. The contractor should review the data collected and organize it into a usable product for analysis and traceability in generating the required reports.

### 3.1 TRAINING SYSTEM REQUIREMENTS ANALYSIS DATA.

3.1.1. DATA COLLECTION. As necessary to supplement the government furnished information, the contractor should be responsible to identify, request, and collect additional data, documentation, and information on the XXX system, associated training programs, regulations, policies, etc. All information not previously provided should be requested through the Contracting Officer. Any documentation from previous TSRA analysis will be used as data only and not for analysis. The visit schedule and contents of the questionnaires should be jointly agreed to by the Government and Contractor at the initial training program review.

3.1.2 AUTOMATED DATA BASE PROGRAM. The contractor should use the AFSPC command standard data base, if available, for completion of this analysis. Any software developed by the contractor during this effort should be turned over to the Air Force with unlimited data rights. The automated database program

should organize the data to maintain proper relationship among XXX mission and segments, positions, tasks, subtasks, training objectives and allocated media alternatives. It should also, as a minimum, be sortable by mission, mission segment, position, task, objective and allocated media alternative. The data base should be kept current for the life of this contract. It should be easily expandable to incorporate changes, modifications, or additions to the TSRA data. The contractor should consider established data base programs such as (but not limited to) Microsoft Access and the Automated Training System developed by Air Education Training Command (AETC). The contractor should recommend the selected data base to the government during the initial program review. (DI-MCCR-80700/T)

3.1.3 DATA TRACEABILITY. The automated data base program should permit traceability of final training requirements back to their source data (down to the Operational Requirements Document) for those requirements. This capability should also permit tracking of revisions to the data as a result of changes to Air Force and AFSPC regulation, policies, or procedures, replacement, additions, or modification. The contraction should be required to demonstrate traceability during all phases of the program.

3.1.4. DATA VALIDITY. The contractor should be responsible for validating this TSRA for technical accuracy, completeness, and information content. However, the contractor should not be required to validate any documentation from previous TSRA efforts.

## 3.2 TRAINING REQUIREMENTS ANALYSIS.

3.2.1 MISSION/TASK ANALYSIS. The contractor should review existing task analyses and, where required, accomplish a detailed mission/task analysis for XXX operations and maintenance. DI-ILSS-80568/T

3.2.2 TRAINING REQUIREMENTS DETERMINATION. The contractor should analyze the target populations to determine population parameters, and trainee entry requirements, and their experience level in terms of skills, knowledge, and aptitudes possesses at time of entry into the XXX system. DI-ILSS-80570/T)

### 3.2.3. OBJECTIVE AND MEDIA ANALYSIS

3.2.3.1 OBJECTIVE AND OBJECTIVE HIERARCHIES. The contractor should develop criterion referenced behavioral objectives and sub objectives which accurately represent the training requirements determined by this SOW. Objectives and sub objectives should be developed for each position and should directly relate to the tasks developed for each. Objectives (enabling, terminal, and supporting) should specify the behavior, conditions, standards, needed to confirm knowledge and skill attainment, retention, and competency, and degree of task proficiency. The

contractor should organize objectives into objective hierarchies and instructional units to develop the syllabus. (DI-ILSS-80569/T)

3.2.3.2 QUALIFICATION STANDARDS AND EVALUATION. The contractor should develop standards based on the appropriate AFSPC and AFMC regulation that accurately reflect the methods and criteria used to evaluate XXX personnel training. (DI-ILSS-80569/T)

3.2.3.3 TRAINING SYLLABUS. The contractor should develop training syllabi which accurately reflect AFSPC's overall training strategy and show interdependencies with AFSPC's other training programs. The contractor and the Training Planning Team should agree to the specific format and content of the syllabi at the initial program review. Rationale should be provided to the Air Force for any differences between the syllabus and the media model in the final allocation of the media to objectives. (DI-ILSS-80569/T)

3.2.4 TRAINING TECHNOLOGY ASSESSMENT. The contractor should review and assess proven advances in training methods, media, and technologies for possible application to the proposed XXX training system. Recommendations from the Technology Assessment should be incorporated into the media selection model. (DI-ILSS-80571/T)

3.3 SYSTEM BASIS ANALYSIS. The contractor should review, analyze, and document similar training systems to determine their feasibility for use in the XXX training system.

3.3.1 LOGISTICS AND MAINTENANCE SUPPORT. The contractor should examine and analyze the logistics and maintenance support required for support of the XXX training system for the life of the system. Contractor logistics support should be considered for training device maintenance as required by AFP 50-11. (DI-ILSS-80571/T)

3.3.2 XXX TRAINING SYSTEM CONFIGURATIONS. The contractor should propose at least two alternative training system configurations based on the results of the TSRA. Proposed configurations should be consistent with AFSPC training program strategy. Each configuration should be described in terms of training methodologies employed, functional capabilities, and characteristics of the training devices/media required, and design architecture's recommended. One configuration should represent a minimal training approach, minimizing life cycle cost and schedule to implement. The other should seek an ideal balance between life cycle cost, development time, etc. (DI-ILSS-80571/T)

4.0 TRAINING SYSTEM INTERFACE. The contractor should examine the possibilities of interface between XXX and other AFSPC training systems for the purpose of joint training exercises.

4.1 **REVIEWS.** The contractor should conduct an initial training program review within 60 days ATP, to include the approach to implementing the SOW tasks, Subject Matter Expert (SME) participation requirements, data base program selected, anticipated travel, etc. Reviews of the deliverable documents should be conducted at 50% completion. Schedule for these reviews should be jointly agreed to by the contractor and the Air Force at the initial program review.

4.2 **AIR FORCE SUBJECT MATTER EXPERTS (SMEs).** AFSPC and AFMC will make available SMEs as identified at the initial program review to support the contractor's efforts.

**Use of Mil-Std 1379D.** Mil-Std 1379D is a very large document covering many subjects. The following tasks have been identified as appropriate to the TSRA process to assist the training developer in understanding and completing the tasks set out in SMC/ALX 01-94, the draft section 500 to the Mil-Std. Training developers should request their publications sections obtain the final section 500 when it is published. These tasks, in combination with the instructions given above, provide the complete basis for the TSRA.

**Task 103: Training Development Control.** Sub tasks 103.2.1, - 103.2.-7.

**Task 104: Training Equipment Requirements Identification.** Sub tasks 104.2.1, 104.2.5, 104.2.6.

**Task 106: Training Implementation Control:** Subtask 106.2.3.

**Task 201: Training Task Analysis:** Subtasks 201.2.1- 201.2.4

**Task 202: Training Technology Assessment:** Sub tasks 202.2.1- 202.2.4.

**Task 203: Learning Analysis.** Sub tasks: 203.2.1 - 203.2.3, 203.2.11, 203.2.12, 203.2.15, 203.2.17.

**Task 204: Media Selection.** Sub tasks: 204.2.1 - 204.2.3, 204.4.5-6.

**Task 206: Training System Alternative Identification.** Sub tasks: 206.2.1 - 206.2.3, 206.2.5 - 206.2.7.

**Task 208: Training System Functional Requirements.** Sub tasks: 208.2.1 - 208.2.2, 208.2.3, 208.2.6.

**Task 209. Facilities.** Sub tasks: 209.2.1

In summary, the TSRA process insures a complete training system is prepared, including courseware, devices, logistics support, and continuous quality review. It also provides to the customer a standard basis for examining the requirements of diverse systems for inclusion in the customer's existing training structure.