Key Human System Integration Plan Elements for Command & Control Acquisition

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Space and Naval Warfare Systems Command

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- The lead organization responsible for transforming information technology in the US military maritime domain.
- Development, testing and acquisition of systems for future Navy command, control, communications, computers, intelligence, surveillance and reconnaissance products.
- Create a highly adaptive, networked and distributed naval force with the increased speed, agility and security required to support constantly evolving mission needs.
- Provide the operational commanders the ability to make more timely and informed decisions based upon the best information and practices.

Human System Integration

- Human Systems Integration (HSI) is a formal acquisition process that accounts for human performance in capability definition and system development.

- It is a system engineering practice designed to ensure that human performance related issues are identified early in the acquisition lifecycle and mitigated during system development and testing.

- HSI integrates human capabilities and limitations into system definition, design, development and evaluation to optimize total system performance in operational environments.

What is Human System Integration?

Human Factors Engineering	Personnel	Habitability	Manpower	Training	Safety & Occupational Health	Survivability
Interface Design Workload Situation Awareness Decision-Support Usability Maintainability	Knowledge, Skills & Abilities Personnel Classification Selection Recruiting Retention	Quality of Work Quality of Life Environmental Limits and Controls	Officer, Enlisted, Civilian Billets Wartime Requirements Peacetime Requirements	Initial, Follow-on, & Refresher Delivery Systems Embedded Training Distance Learning Individual Team	Accident Avoidance Health Hazards Risk Mitigation Medical	Damage Control Personnel Protection Fratricide

[1] Adapted from table included in the Human Systems Integration Guide (HSI Virtual SYSCOM Working Group, April 2005).

HSI For Command & Control

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Human Factors Engineering

- Tasks
  - Top-down functional analysis and allocation
  - Task-centered design
- Knowledge Engineering
  - Human information requirements & access (mapping)
  - Cognitive engineering

Human Factors Engineering - Tasks

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Top-Down Functional Analysis and Allocation

System functions are identified and then decomposed to tasks. Tasks can be allocated to users or be automated. User roles are defined and skill sets are determined.

Task-Centered Design

Takes into account relevant human performance issues and objectives. Task-centered design attempts to optimize the user interface around the capabilities of the user, rather than forcing the user to accommodate the system or function.

Human Factors Engineering - Knowledge

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Human Information Requirements & Access

Requires a full understanding of what uses need to know to perform their jobs and designing the system to customize information access and representation.

Cognitive Engineering

Individual users at various levels need access to critical information related to their assigned jobs, with the ability to access more detail as required. Development of a concept of operations must be focused on the tasks that the operational users have to perform.

Human Systems Integration Resources Relative to the DoD Acquisition Cycle

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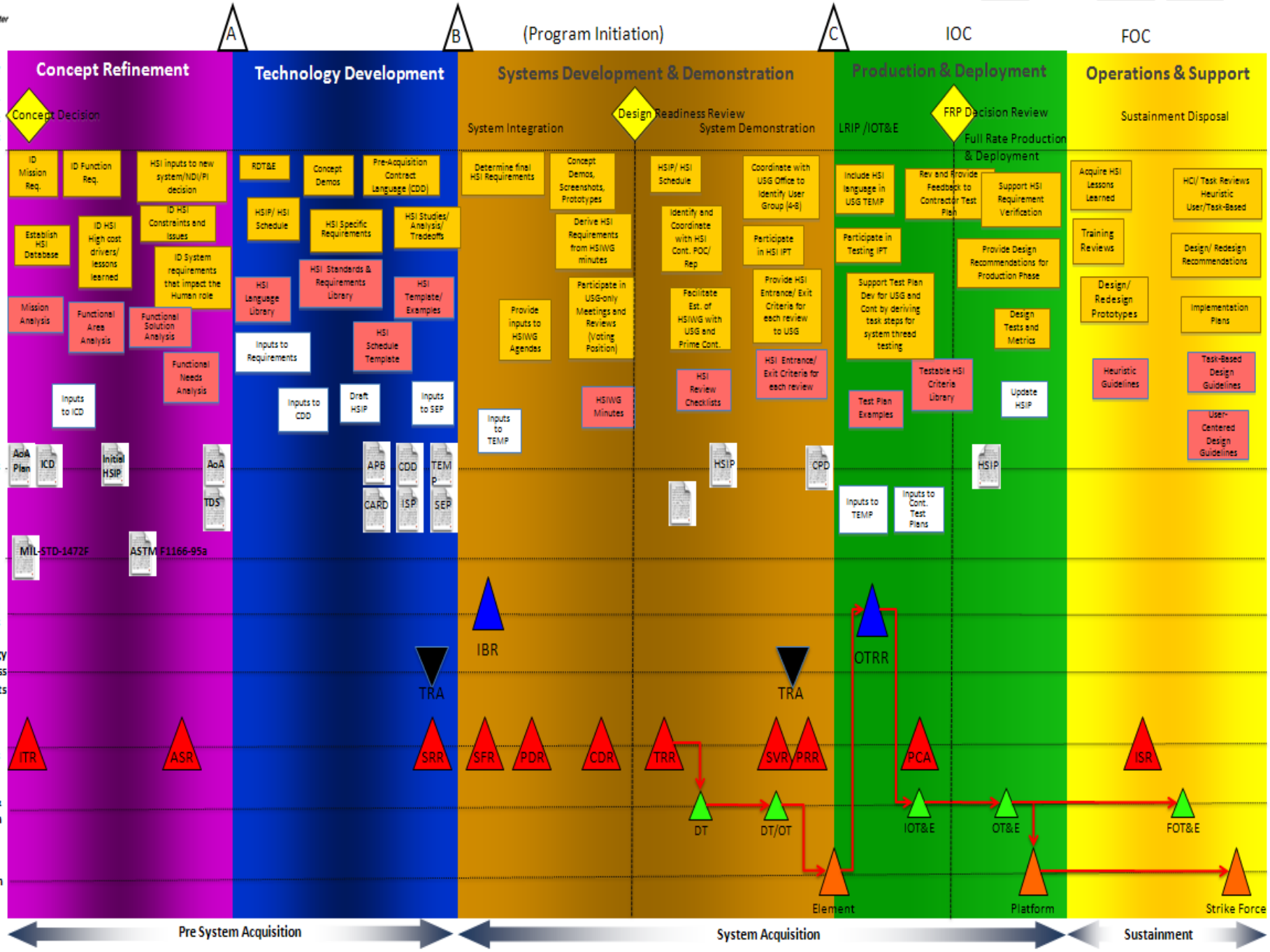
Legend: Actions | Tools | Documents | References



HSI Objectives for Technical Reviews

Technical Review	Description	HSI Objective
Initial Technical Review (ITR)	The ITR is a multi-disciplined technical review to support a program's initial Program Objective Memorandum submission. This review ensures that a program's technical baseline is sufficiently rigorous to support a valid cost estimate (with acceptable cost risk), and enable an independent assessment of that estimate by cost, technical, and program management subject matter experts. The ITR assesses the capability needs and conceptual approach of a proposed program and verifies technical challenges and risks.	Ensure the technical baseline supports a valid cost estimate for HSI resources and HSI program requirements.
Alternative Systems Review (ASR)	The ASR is a multi-disciplined technical review to ensure that the resulting set of requirements agrees with the customers' needs and expectations and that the system under review can proceed into the Technology Development phase. Generally this review assesses the alternative systems that have been evaluated during the Materiel Solutions Analysis phase, and ensures that the preferred system alternative is cost effective, affordable, operationally effective and suitable, and can be developed to provide a timely solution to a need at an acceptable level of risk.	Ensure that the preferred concept and resulting set of HSI requirements agree with the customers' needs and the trade-offs with alternative systems are an acceptable risk.
System Requirements Review (SRR)	The SRR is conducted to ascertain progress in defining system technical requirements. The SRR is a multi-disciplined technical review to ensure that the system under review can proceed into the Engineering & Manufacturing Development phase, and that all system requirements and performance requirements derived from the Initial Capabilities Document or draft Capability Development Document are defined and are consistent with cost (program budget), schedule (program schedule), risk, and other system constraints.	Ensure both HSI domain requirements and HSI-related system requirements are established and sufficiently derived and decomposed to support system function allocation.
System Functional Review (SFR)	The SFR is a multi-disciplined technical review to assess the system functional requirements as captured in system specifications (functional baseline), and ensures that all required system performance is fully decomposed and defined in the functional baseline. The SFR determines whether the systems functional definition is fully decomposed to a low level, and whether the IPT is prepared to start preliminary design.	Ensure the design process properly allocates system requirements and defines system functions between the ***human***, hardware, and software in the functional baseline and is consistent with personnel KSA's, system performance objectives, infrastructure, and support requirements.
Preliminary Design Review (PDR)	The PDR is a multi-disciplined technical review to ensure that the system under review can proceed into detailed design, and can meet the stated performance requirements within cost (program budget), schedule (program schedule), risk, and other system constraints. This review assesses the system preliminary design as captured in performance specifications for each configuration item in the system (allocated baseline), and ensures that each function in the functional baseline has been allocated to one or more system configuration items.	Ensure that the preliminary design, processes used to support the design rationale, and allocated baseline adequately address the HSI domain requirements and HSI-related system requirements within acceptable cost, schedule, risk, or other constraints.

Critical Design Review (CDR)	The CDR is a multi-disciplined technical review to ensure that the system under review can proceed into system fabrication, demonstration, and test; and can meet the stated performance requirements within cost (program budget), schedule (program schedule), risk, and other system constraints. This review assesses the system final design as captured in product specifications for each configuration item in the system (product baseline), and ensures that each product in the product baseline has been captured in the detailed design documentation.	Ensure the detailed design and product baseline can satisfy the HSI domain requirements and HSI-related system requirements and the design is mature to proceed into system fabrication and testing.
Test Readiness Review (TRR)	The TRR is a multi-disciplined technical review to ensure that the subsystem or system under review is ready to proceed into formal test. The TRR assesses test objectives, test methods and procedures, scope of tests, and safety and confirms that required test resources have been properly identified and coordinated to support planned tests. The TRR verifies the traceability of planned tests to program requirements and user needs. The TRR determines the completeness of test procedures and their compliance with test plans and descriptions.	Ensure that the HSI tests and metrics exist to adequately verify compliance with HSI domain requirements, HSI-related system requirements, user needs, and operational mission objectives and adequate training plans and resources exist to support Developmental Testing (DT)/Operational Testing (OT).
System Verification Review (SVR)	The SVR is a multi-disciplined product and process assessment to ensure that the system under review can proceed into Low-Rate Initial Production and Full-Rate Production within cost (program budget), schedule (program schedule), risk, and other system constraints. This review is an audit trail from the Critical Design Review. It assesses the system final product, as evidenced in its production configuration, and determines if it meets the functional requirements (derived from the Capability Development Document and draft Capability Production Document) documented in the Functional, Allocated, and Product Baselines. The SVR establishes and verifies final product performance.	Ensure that the system is compliant with HSI-related specifications and verify human and system performance is acceptable to proceed into production phases.
Production Readiness Review (PRR)	The PRR examines a program to determine if the design is ready for production and if the producer has accomplished adequate production planning. The review examines risk; it determines if production or production preparations incur unacceptable risks that might breach thresholds of schedule, performance, cost, or other established criteria. The review evaluates the full, production-configured system to determine if it correctly and completely implements all system requirements. The review determines whether the traceability of final system requirements to the final production system is maintained.	Ensure that the HSI risks and trade-offs associated with human performance, requirement non-compliance, Program Trouble Reports (PTRs), and Engineering Change Proposals (ECPs) have been resolved or accepted.
Operational Test Readiness Review (OTRR)	The OTRR is a multi-disciplined product and process assessment to ensure that the "production configuration" system can proceed into Initial Operational Test and Evaluation with a high probability of successfully completing the operational testing. Successful performance during operational test generally indicates that the system is suitable and effective for service introduction. The Full Rate Production Decision may hinge on this successful determination.	Ensure that the system has satisfactorily demonstrated compliance with HSI domain and HSI-related system performance objectives and can proceed into the Operational Test phase with a high probability of success.
In-Service Review (ISR)	The ISR is a multi-disciplined product and process assessment to ensure that the system under review is operationally employed with well-understood and managed risk. This review is intended to characterize the in-service technical and operational health of the deployed system. It provides an assessment of risk, readiness, technical status, and trends in a measurable form.	Ensure that the human performance risks of the deployed system have been identified and contribute to the assessment for modernization.

Preliminary Design Review (PDR)

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HSI Objective

Ensure that the preliminary design, processes used to support the design rationale, and allocated baseline adequately address the HSI domain requirements and HSI-related system requirements within acceptable cost, schedule, risk, or other constraints.

#	Domain	Category	Question	G	Y	R	NA	Events	Reference	Relevant Document	Comments
1	HSI	HSI-HFE	1. Are there Human Factors Engineering (HFE) issues left over from previous reviews?				x	PDR			
2	HSI	HSI-HFE	2. Has HFE design factors/requirements/processes been included in the preliminary design?				x	PDR		ICD, CDD, ISP, SEP/HSIP, System Functional Baseline, Acquisition Strategy, Exit Criteria, Sys Performance Spec, APB, TEMP, Risk Assessment	COTS system
2.a.	HSI	HSI-HFE	2.a. Have the CONOPS, design reference scenarios (use cases), user tasks, and operational workflows been developed and used to support a user-centered design process?			x		PDR	DoDI 5000.2, SECNAV 5000.2D, GIG MA ICD, MIL-STD-1472F		
2.b.	HSI	HSI-HFE	2.b. Have preliminary design been reviewed and/or evaluated by HFE personnel to assess human performance, workload, safety, error and the system's ability to meet mission objectives, requirements, and user needs?			x		PDR			Even though COTS, the system should have been evaluated by HFE personnel to assess and address potential human performance issues in the current design.
2.c.	HSI	HSI-HFE	2.c. Is function and task analyses that includes allocation of tasks to hardware, software, and humans being considered in the preliminary design?			x		PDR			Not conducted.
2.c.i.	HSI	HSI-HFE	2.c.i. Have user tasks been defined and documented in the preliminary design?			x		PDR			Not conducted.
2.c.ii.	HSI	HSI-HFE	2.c.ii. Have team tasks been identified and documented in the preliminary design?					PDR			Unable to determine if team tasks is a requirement.
2.d.	HSI	HSI-HFE	2.d. Is human performance and usability addressed in the preliminary design?			x		PDR			See above.
2.d.i.	HSI	HSI-HFE	2.d.i. Have HFE metrics been developed?			x		PDR			Not developed

HSI Plan (HSIP) for Human Factors Engineering

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- Human Engineering Program Plan (HEPP)
- Human Systems Engineering Analysis Report (HESAR)
- Task Analysis/Task Allocation Report
- Human Engineering Design Approach Document (HEDAD)
- Human Engineering Test Plan (HETP)
- Human Engineering Simulation Description
- Human Engineering Test Report (HETR)
- Task Centered Design Considerations

Human Engineering Program Plan (HEPP)

- Describes the developer's entire human engineering program, identifies its elements, and explains how the elements will be managed.
- **DI-HFAC-81742**

DATA ITEM DESCRIPTION

Title: HUMAN ENGINEERING PROGRAM PLAN

Number: DI-HFAC-81742 **Approval Data:** 20070404
AMSC Number: N7715 **Limitation:** N/A
DTIC Applicable : N/A **GIDEP Applicable:** N/A
Office of Primary Responsibility: N/AIR 4.6
Applicable Forms:

Use/relationship: The Human Engineering Program Plan (HEPP) describes the contractor's Human engineering program, identifies, and explains how the elements will be managed.

a. This Data Item Description (DID) contains the format and content preparation instructions for the HEPP resulting from applicable tasks delineated in the SOW.

b. This DID supersedes DI-HFAC-80740A.

Requirements:

1. Reference documents: The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions shall be as cited in the current issue of the DODISS at the time of the solicitation.

2. Format. The HEPP format shall be contractor selected but must contain all elements discussed in below. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

Human Systems Engineering Analysis Report

- The HESAR describes all the HFE activities conducted as part of the system analysis. The data are used by the procuring activity to evaluate the appropriateness and feasibility of system functions and roles allocated to operators and maintainers.

- **DI-HFAC-80745B**

DATA ITEM DESCRIPTION

Title: Human Engineering System Analysis Report

Number: DI-HFAC-80745B
AMSC Number: A7319 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/Relationship: The Human Engineering System Analysis report describes the human engineering efforts conducted as part of system analysis and presents results. The data are used by the procuring activity to evaluate the appropriateness and feasibility of system functions and roles allocated to operators and maintainers.

a. This data item description (DID) contains the format and content preparation instructions for the Human Engineering System Analysis Report resulting from applicable tasks delineated in the SOW.

b. This DID supersedes DI-HFAC-80745A.

Requirements:
1. Format. The Human Engineering System Analysis Report format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

2. Content. The Human Engineering System Analysis Report shall contain the following:

a. System objective(s). In accordance with information provided by the procuring activity or contractor studies, the system objective(s) shall be described. If the objective(s) are to be met by the system operating in conjunction with other systems not within the scope of the contract, the following shall also be described.

(1) The overall (or higher level) objective(s) to be met through combined operation of systems.

(2) The sub-objective(s) to be met by the system being developed under the contract.

(3) Interactions required between systems to meet the objective(s).

Human Systems Engineering Analysis Report

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- Top-Down Functional Analysis – Machine Behaviors
- Allocation of Functions to Human
- User Enabling the Capability within Mission Context and Constraints

Task Analysis/Task Allocation Report

- Describes the results of analyses of tasks performed, including a detailed description of both manual and mental activities, task and element durations, task frequency, task allocation, task complexity, environmental conditions, necessary clothing and equipment. Provides a basis for evaluation of the design of the system, equipment, or facility.

- **DI-HFAC-81399A**

DATA ITEM DESCRIPTION

Title: Critical Task Analysis Report

Number: DI-HFAC-81399A
AMSC Number: A7322 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/relationship: The Critical Task Analysis Report describes the results of analyses of critical tasks performed by the contractor to provide a basis for evaluation of the design of the system, equipment, or facility. The evaluation will verify that human engineering technical risks have been minimized and solutions are in hand.

a. This data item description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

b. This DID supersedes DI-HFAC-81399.

Requirements:
1. Format. The Critical Task Analysis Report format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

2. Content. The Critical Task Analysis Report shall describe and analyze each critical task including:

a. Information required by and available to personnel which is relevant to the critical task assigned to them.

b. Actions which each performer shall complete to accomplish the critical task, including responses to specific information, responses to combinations of information, and self-initiated responses.

c. The functional consequences of each operator or maintainer critical task with respect to the effects upon both the immediate subsystem functions and the overall system mission.

d. All affected missions and phases including degraded modes of operation. Information on each critical task shall be

Task Analysis/Task Allocation Report

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- Job Analysis - Roles & Responsibilities
- Critical Task Identification & Description
- Work Domain & Workload Analysis
  - Traditional Job-Task Analysis
  - Cognitive Work Analysis (CWA) - example
  - Cognitive Task Analysis (CTA)
- DODAF: OV-4 by OV-5 (Roles by Activities)

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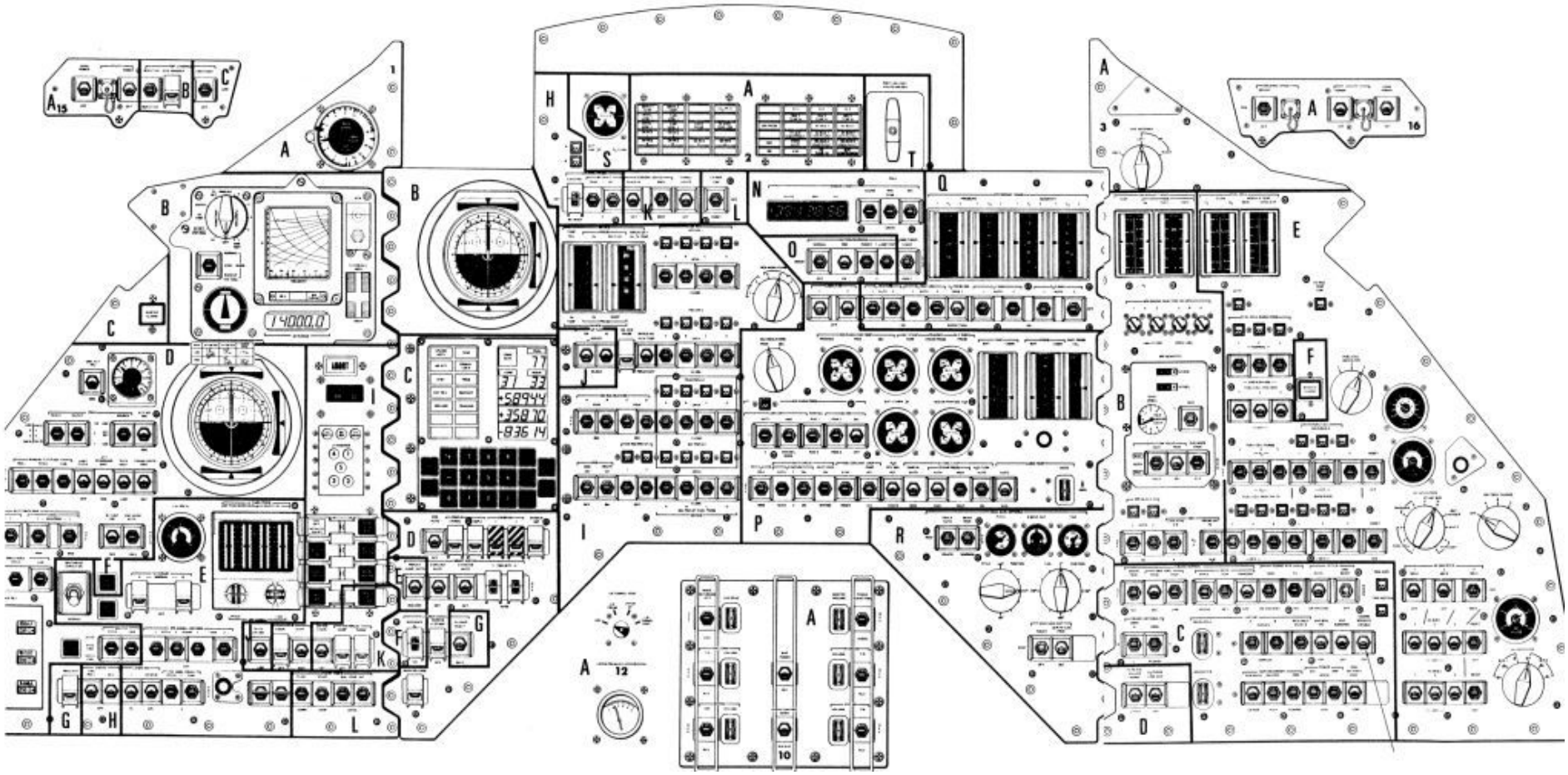

Human Engineering Design Approach Document

- The HEDAD describes design interface requirements of equipment that must be operated (HEDAD-O) and maintained (HEDAD-M). This document provides a source of data to evaluate the extent to which equipment having an interface with operators and maintainers meets human performance requirements and human engineering criteria.

- **DI –HFAC-80746B & DI-HFAC-80747B**

DATA ITEM DESCRIPTION

Title: Human Engineering Design Approach Document-Operator

Number: DI-HFAC-80746B
AMSC Number: A7320 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/Relationship: The Human Engineering Design Approach Document - Operator (HEDAD-O) describes equipment which interfaces with operators. This document provides a source of data to evaluate the extent to which equipment having an interface with operators meets human performance requirements and human engineering criteria.

a. This data item description (DID) contains the format and content preparation instructions for HEDAD-O resulting from applicable tasks delineated in the SOW.

b. This DID supersedes DI-HFAC-80746A.

Requirements :
1. Reference documents . The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions shall be as cited in the current issue of the DODISS at the time of the solicitation.

2. General . The HEDAD-O shall describe the layout, detail design, and arrangement of crew station equipment having an operator interface; it shall also describe operator tasks (see below) associated with equipment. The HEDAD-O shall describe the extent to which human performance requirements and applicable human engineering design criteria (e.g., MIL-STD-1472) have been incorporated into the layout, design, and arrangement of equipment having an operator interface. Findings from analysis of operator tasks shall be presented as part of the rationale supporting the layout, design, and integration of crew station equipment.

3. Format . The HEDAD-O format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

Human Engineering Design Approach Document

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- Describe all equipment that has a user interface – Enablers
- **Maintainer -** Installation & Sustainment
- **Operator** –
  - Layout & Arrangement
  - Control & Display
  - Vision of
  - Environmental (Noise, Heat, Vibration, etc)
  - Ingress/Egress
  - Lighting
  - Alerts
  - User Posture
  - Access to Comms
  - Unique Mission Features and use of Multiple Workstations

Human Engineering Test Plan (HETP)

- Indentifies test requirements to ensure that human performance requirements for maintainers and system operators are met and demonstrate that the personnel, equipment/software combination can accomplish the intended operational system, administration and maintenance functions. The HETP should identify the types of tests to be conducted, the participants to be used and how they compare to the user population, and the data collection and reporting methods to be used. To avoid duplication with other system tests, the developer can reference other system test reports.

- **DI-HFAC-80743B**

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DATA ITEM DESCRIPTION

Title: Human Engineering Test Plan

Number: DI-HFAC-80743B
AMSC Number: A7317 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/Relationship: The Human Engineering Test Plan details the proposed testing to demonstrate that the personnel-equipment/software combination can accomplish the intended operation and maintenance functions in accordance with system specifications. This plan serves as the principal means of planning for validating human performance requirements, accuracy of personnel selection criteria, adequacy of training, and acceptability of design of the personnel-equipment/software interface.

a. This data item description (DID) contains the format and content preparation instructions for a Human Engineering Test Plan resulting from applicable tasks delineated in the SOW.

b. This DID is related to DI-HFAC-80744B, "Human Engineering Test Report". This plan serves as the principal means of planning for validating human performance requirements, accuracy of personnel selection criteria, adequacy of training, and acceptability of design of the personnel-equipment/software interface.

c. This DID supersedes DI-HFAC-80743A.

Requirements:
1. General. The Human Engineering Test Plan shall detail the contractor's plan for gathering and analyzing data to show that the system, when fielded, will satisfy four criteria:

a. All human performance requirements for operations and maintenance can be performed to an acceptable level or standard under conditions of expected use.

b. The human performance requirements for operations and maintenance can be performed reliably by personnel reasonably representative of the military personnel who will ultimately perform them.

Human Engineering Test Plan (HETP)

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- Can user operate and maintain the equipment?
- Identify equipment to-be-tested and descriptions of participants.
- List of tasks to-be-performed, under what conditions.
- Performance measures, data collection & analysis.
- Leverage on-going system tests.
- Will you need a simulation or mockup?

Human Engineering Simulation Description

- Describes simulation use related to human engineering which details the developer's intended use of mockups and simulators in support of human engineering analysis, requirements definition/implementation, design support, and test and evaluation.
- Describe scenarios & conditions.
- **DI-HFAC-80742B**

DATA ITEM DESCRIPTION

Title: Human Engineering Simulation Concept

Number: DI-HFAC-80742B
AMSC Number: A7316 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/Relationship: The Human Engineering Simulation Concept describes the contractor's intended use of mockups and simulators in support of human engineering analysis, design support, and test and evaluation.

a. This data item description (DID) contains the format and content preparation instructions for the Human Engineering Simulation concept resulting from applicable tasks delineated in the SOW.

b. This DID is related to DI-HFAC-80741B, "Human Engineering Progress Report." This document may be used by the procuring activity to assist in and assess simulation approaches when there is a need to resolve potential critical human performance problems, particularly where government facilities, models, data or participants are required.

c. This DID supersedes DI-HFAC-80742A.

Requirements:
1. Format. The Human Engineering Simulation Concept format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

2. Content. The Human Engineering Simulation Concept shall contain the following information:

a. Rationale and general description. The need for a mockup or simulation program shall be described. The overall simulation concept shall be described. Benefits to be derived shall be stated. The interrelationships between mockups, simulators, and other human engineering analysis, design support, and test and evaluation techniques shall be described.

Human Engineering Test Report (HETR)

- Documents the compatibility of the human performance requirements, personnel selection criteria, training program, and design of the personnel equipment/software interfaces. The HETR confirms that human performance requirements have been met or defines the degree to which problems may exist. The developer can reference other system test reports.

- **DI-HFAC-80744B**

DATA ITEM DESCRIPTION

Title: Human Engineering Test Report

Number: DI-HFAC-80744B
AMSC Number: A7318 **Approval Date:** 19980708
DTIC Applicable: **Limitation:**
Office of Primary Responsibility: A/AMCOM **GIDEP Applicable:**
Applicable Forms:
Use/Relationship: The Human Engineering Test Report provides evidence that the human-system interface requirements for the operation, maintenance, and support of the system have been met. This report serves as the principal means of assessing the compatibility of the human performance requirements, personnel selection criteria, training program, and design of the human-equipment/software interfaces. This report will be used to determine whether and to what level or standard(s) each trained individual can perform in the specified sequence all assigned systems tasks, to determine whether and to what extent each individual's performance is affected by equipment configuration, the performance of other system personnel, or both; and to assess the impact of the measured human performance on the attainment of task, task group, and mission requirements.

a. This data item description (DID) contains the format and content preparation instructions for a Human Engineering Test Report resulting from the work task delineated in the SOW.

b. This DID is related to DI-HFAC-80743A, "Human Engineering Test Plan".

c. This DID supersedes DI-HFAC-80744A.

Requirements:
1. General. The Human Engineering Test Report shall be prepared for each personnel position in the system being developed. All of the operations and maintenance tasks required of the individual assigned to a personnel position shall be referred to as the "task group" of the position.

2. Format. The Human Engineering Test Report format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

3. Content. The Human Engineering Test Report shall contain the following:

Human Engineering Test Report (HETR)

- Evidence that the user can operate & maintain equipment attaining mission requirements.
  - Summary Description of your Test Plan
  - Results & Findings & Analysis of Errors
  - Findings from other Relevant Test Reports
  - Implications of Findings
  - Recommend Solutions, Work-Arounds, Job Aids, & Training

Task Centered Design (TCD) Considerations

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- TCD is a user-interface design process which systematically identifies and takes into account relevant human performance issues and objectives. Task-centered design attempts to optimize the user interface around the capabilities of the user, rather than forcing the user to accommodate the system or function.

- Human task centered design focuses on the human in the loop, making the human the independent variable in the systems engineering process.

- Additional content will be required to document the TCD process.

- The task-centered analysis report will describe a defined set of tasks, subtasks and supporting procedures to enable (1) the development of human task-centered structures and (2) the identification of skill requirements for a given job or group of jobs.

Summary

Human System Integration and Command & Control

- HSI is a vital ingredient in the acquisition of Command & Control systems.
- HSI is part of the total systems engineering approach to concept refinement, design, development and testing.
- HSI integrates user capabilities with system definitions, designs, development, and deployment to operational environments.
- Key HSI elements for Command & Control evolve around situational awareness, distributed decision-making, and action.
- These elements should be documented, guided by the requirements specified in the Defense Acquisition Framework.