

**DATA ITEM DESCRIPTION****Title: HUMAN SYSTEMS INTEGRATION PROGRAM PLAN****Number: DI-HFAC-81743A****Approval Date: 20110421****AMSC Number: N9190****Limitation: N/A****DTIC Applicable: N/A****GIDEP Applicable: N/A****Office of Primary Responsibility: AS/AIR 4.6****Applicable Forms: N/A**

**Use/Relationship:** The Human Systems Integration Program Plan (HSIPP) describes the contractor's Human Systems Integration (HSI) program; its elements to support requirements and activities for HSI specified in the contract; and how they will be managed and integrated with other program elements. It does not take the place of related plans such as the System Safety Plan; Training Plan; Programmatic Environment, Safety, & Occupational Health Evaluation; Human Engineering Program Plan (HEPP); or an HSI section in the Systems Engineering Management Plan, unless the procuring agency so directs.

- a. This Data Item Description (DID) contains the format and instructions for preparing the HSIPP content in response to applicable tasks delineated in the contract Statement of Work (SOW).
- b. Where cited below, users refer, as applicable, to operators, maintainers, trainers, support personnel (including transporters), and manufacturers.
- c. This DID supersedes DI-HFAC-81743.

**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 Acquisition Streamlining and Standardization Information System (ASSIST) database at the time of the solicitation.
2. Format. The HSIPP format shall be contractor selected and contain all the content elements described below as tailored per paragraph 3. Unless effective presentation would be degraded, the format used initially shall be used for subsequent submissions. Revisions shall be clearly indicated in a manner consistent with standard editorial practices.
3. Tailoring. The HSIPP shall be tailored to reflect the SOW, system specification, and phase of development. The proposed tailoring of the HSIPP content shall identify the paragraph, the proposed changes, and a rationale. Tailoring specified by the procuring agency shall also be included. If no tailoring is proposed beyond that specified by the procuring agency, this shall be stated.
4. Content. The HSIPP shall contain the information described in the following paragraphs.
  - a. Front matter. Table of contents; lists of tables, figures, and appendices, as applicable; and a list of acronyms and abbreviations.
  - b. Overview.
    - i. Provide the HSIPP purpose and scope. Briefly describe the system, its concept of operations, mission, human role(s), operational environment, predecessor system(s), if any, and related HSI lessons learned. Provide the system acquisition category and

## DI-HFAC-81743A

current phase of development. If applicable, state when the next submission of the HSIPP is due.

- ii. Describe the overall HSI objectives for the program, the HSI domains that will be addressed, and the strategy for addressing HSI domain objectives individually and in domain trade studies. If any HSI domains will not be addressed, provide a rationale. Briefly describe the major activities that must be accomplished in applying HSI to the system development, consistent with the contract SOW, system requirements, specification(s), and work breakdown structure.
  - iii. Provide a list of any other HSI-related contract deliverables or documents (e.g., Training Plan, Safety Plan, Manpower Estimate). For any section below whose content is substantially covered in another document, the contractor has the option of providing the required content in the HSIPP, or providing a summary of the content and reference(s) or link(s) to the document section(s) that contain the content.
- c. Organization.
- i. Human Systems Integration organization. Identify, describe, and provide an organization chart of the contractor's primary organization elements(s) and primary HSI organization elements, including the HSI Integrated Product Team, if any. Identify the HSI domain(s) addressed by each element; to whom the HSI manager/lead and HSI domain leads report; and the reporting and responsibility relationships between the HSI manager/lead and the HSI domain leads. For key positions (e.g., HSI manager/lead, domain leads, key practitioners), provide summary job descriptions and the minimum required qualifications.
  - ii. Human Systems Integration organization relationships. Describe the relationships of the contractor's HSI organization element(s) to other contractor organization elements responsible for areas affected by HSI, such as systems engineering; hardware and software design teams; training; test and evaluation; related disciplines (e.g., reliability, maintainability, supportability); applicable working groups; and government HSI counterparts.
  - iii. Human Systems Integration working group. Describe the composition of the HSI working group (e.g., contractor, subcontractor, and procuring agency HSI domain representatives and user group representatives), and its responsibility, authority, and accountability for ensuring compliance with HSI requirements. Provide a charter for the working group.
- d. Human Systems Integration Key Performance Parameters and Key System Attributes. Describe HSI Key Performance Parameters (KPPs) and HSI Key System Attributes, if any.
- e. Human Systems Integration support of affordability and performance goals. Describe the methods by which the contractor will identify and conduct tradeoffs between HSI domains and other program elements in support of primary HSI goals: to reduce total system ownership costs; improve total system performance; and ensure that the system accommodates the characteristics of the user population that will operate, maintain, train, support, and, if applicable, manufacture it. Describe how the contractor will ensure that HSI cost and performance factors will be formally considered during analysis, design, and procedure development; during technical reviews (e.g., System

## DI-HFAC-81743A

Requirements Review, Systems Functional Review, Preliminary Design Review, Critical Design Review); and in the engineering change management process.

- f. Human Systems Integration issues and risks. Describe the methods by which the contractor will identify, document, validate, prioritize, coordinate, track, report, and resolve or mitigate HSI issues and risks over the life of the program. Describe the process for trading off HSI issues and risks among HSI domains, and between HSI and other disciplines. Describe the process by which HSI risks will be elevated to formal program-level risk management status.
- g. Human Systems Integration in subcontractor efforts. If subcontractors are responsible for work on hardware or software components that have operator, maintainer, or supporter interfaces, or other HSI efforts (e.g. serving as subject matter experts, performing trade studies), describe the subcontractor's organization element responsible for HSI and the subcontractor's HSI activities. Describe the process by which requirements for HSI will be levied upon subcontractors, implemented, and integrated across subcontractors for all HSI domains. Describe the method(s) by which the prime contractor will monitor subcontract compliance with HSI requirements.
- h. Human Systems Integration in system analysis. Identify the HSI efforts in system analysis and the organization element(s) responsible for their conduct. Describe how HSI will participate in analyzing, flowing down, aligning, and deriving requirements; performing mission analysis; determining system functional requirements and capabilities; determining system architecture; allocating system functional requirements to humans, hardware, and/or software; developing system functional flows; and performing system effectiveness analyses, studies, and modeling. List the HSI analyses that will be performed to support system definition for all domains (e.g., manpower estimation, critical function analysis). For each analysis, (1) provide a description or a reference to the paragraph(s) where it is described elsewhere in the HSIPP or other document(s) and (2) identify any data, software, databases, models, or equipment required from the procuring agency.
- i. Human Systems Integration in system design. Describe the HSI effort (for all applicable domains) in system design to ensure fulfillment with the requirements and guidance documents for HSI specified in the contract. Describe HSI participation in the preparation of system design and performance specifications; selection of commercial off-the-shelf or non-developmental items; trade studies and analyses; mock-up evaluations and dynamic simulations; usability assessments; tests; detailed drawing reviews; and system and program technical reviews. Describe the planned involvement of (and coordination to obtain) end-user personnel (e.g., operators, maintainers, trainers, and support personnel) in assessing the design, operation, maintenance, training, and support of the system. Describe and provide a rationale for the methodology and human performance criteria to be used.
- j. Human Systems Integration in procedure development. Describe the HSI role in creating, reviewing, and validating procedures for users. This involves activities such as developing operator manuals, interactive electronic technical manuals, and training media.
- k. Human Systems Integration in habitability. Describe the methods by which the contractor will analyze and meet habitability requirements, if any. Examples include requirements for the physical environment (e.g., adequate personnel work and living

## DI-HFAC-81743A

space and environment control); for personnel services (e.g., medical and mess); and for living conditions (e.g., rest/housing, education, recreation, and personal hygiene) that have an impact on human performance contributions to system performance or affect the quality of life.

- l. Human Systems Integration in personnel survivability. For systems with missions that require exposure to natural and combat threats, describe the methods by which the contractor will analyze and meet requirements for personnel survivability. Issues to be addressed include: protection from detection, fratricide, injury, and nuclear, biological, and chemical effects; the integrity of the crew compartment; life support equipment; and provisions for rapid egress when the system is severely damaged or destroyed.
- m. Human Systems Integration in manpower, personnel, and training (MPT). Describe the methods by which the contractor will analyze MPT constraints and requirements early in system acquisition and how the results will be used in the design process to meet manpower, personnel, and training requirements and KPPs. Include methods for the following, as applicable:
  - i. Analyses of tradeoffs among the numbers and aptitudes of personnel (e.g., active duty versus reserve, military versus civilian, contractor versus Department of Defense), training, and system performance.
  - ii. Experience-level analysis.
  - iii. Manpower affordability analysis.
  - iv. Analysis of tradeoffs between system design and training requirements (e.g., user interface commonality, usability, and complexity versus human performance versus training costs).
  - v. Manpower and personnel estimation, analysis, and reporting.
  - vi. Estimates of the contributions of manpower, personnel, and training costs to the life cycle cost of operations and support.
  - vii. Analysis of training and media requirements, including options for individual, collective, and joint training for operators, maintainers and support personnel; and the use of training effectiveness evaluations.
  - viii. Plan for developing training materials, including options to use simulation, embedded training, distributed learning, or other techniques to acquire and maintain skills, reduce costs, and provide training flexibility.
- n. Human Systems Integration in Environment, Safety, and Occupational Health (ESOH). Describe the methods by which the contractor will analyze, prevent and/or control ESOH hazards where possible and manage them when they cannot be avoided. Include plans for documenting and managing hazardous materials used in the system or system manufacturing, and for system demilitarization and disposal.
- o. Human Systems Integration in Human Factors Engineering (HFE). Describe the methods by which the contractor will apply HFE principles, methods, criteria, best practices, and standards to ensure that operator, maintainer, trainer, support personnel, and, if applicable, manufacturer user interfaces are designed to improve both human and total system performance. Describe the HFE activities including analysis, design support, evaluation, and requirement verification not already described in paragraph 4.h.

## DI-HFAC-81743A

- p. Human Systems Integration in test and evaluation. Describe HSI participation in test and evaluation and other verification activities as part of the contractor's integrated test and evaluation program. Describe how (e.g., methods, metrics, and tools) and when the contractor will verify the design for compliance with HSI requirements. Identify the number and role(s) of HSI personnel who will support test and evaluation. Provide a summary schedule that depicts HSI tests, evaluations, and other verification activities (inspections, analyses, and demonstrations) in support of program milestones.
  - q. Data sources. Identify contractor, industry, technical society, and government standards, handbooks, and other documents that will be applied to the HSI effort and activities and any proposed tailoring.
  - r. Human Systems Integration deliverable data products. Identify and briefly describe each HSI deliverable data product specified in the contract.
  - s. Time-Phase schedule and level of effort. Provide a milestone chart that identifies each separate HSI activity to be accomplished during the contract period of performance. Include key HSI decision points and their relationship to the program milestones. Provide information on the proposed number of personnel on an annual basis.
  - t. HSI program quality control. Describe the approach for assessing and reporting on the quality (relative success and progress) of the overall HSI effort and each HSI domain over the course of contract. Describe the approach for assessing the following contributors to HSI success: implementation of HSI policy and processes; implementation of a human-centered design process; education and qualifications of HSI personnel; HSI involvement in subcontractor requirements and selection; availability and use of HSI tools; and HSI participation in verification.
5. End of DI-HFAC-81743A.