



SYSTEMS MANAGEMENT STANDARD

SAE1010™

REV. A

Issued 2020-09
Revised 2023-12

Superseding SAE1010

Standard Practice for Manpower and Personnel

RATIONALE

This standard is updated to include Appendix B, DoD Adaptive Acquisition Framework Tailoring Matrix.

FOREWORD

This standard describes the best practices for consistent application and conduct of Manpower and Personnel (M&P) activities in support of a system acquisition contract. The Manpower domain is concerned with ensuring that the number and mix of system operators, maintainers, trainers, and support personnel are adequate and minimize manpower-driven ownership costs. The Personnel domain is concerned with the human aptitudes, skills, experience levels, and capabilities required to operate, maintain, and support a system and minimize personnel-driven ownership costs. M&P concerns are addressed through the coordination with design Integrated Product Teams, other disciplines such as Human Factors Engineering, Training, Safety, and Occupational Health, Habitability, Force Protection and Survivability, maintainability, logistics, test organizations, program management, and others.

The G-45 Human Systems Integration (HSI) Committee of SAE International developed this standard practice document, in collaboration with U.S. Government agencies, including the Department of Defense, U.S. Army, U.S. Navy, U.S. Marine Corps, U.S. Air Force, U.S. Coast Guard, NASA, the Department of Homeland Security (DHS), and representatives from industry. This standard will serve an even broader community of customers in the future.

Manpower and Personnel comprise two of the seven HSI domains and contribute to the overall success of an HSI program. While HSI responsibility comprises tasks to plan, manage, and integrate the HSI domains, it does not include the normal activities of the domains themselves. It is important to distinguish between domain and HSI responsibilities. The purpose of this standard is to describe the Manpower and Personnel domain responsibilities.

BACKGROUND

For many years, M&P considerations were rarely addressed comprehensively by prime contractors during system development. This was based primarily upon an assumption that the acquisition customer had total responsibility for conducting all analyses in these disciplines. However, prime contractor M&P analysis can contribute significantly to system design decisions, the ability to meet affordability goals, and the ability to minimize personnel-driven ownership costs. To date, there has never been a best practice standard to guide contractor activities in planning and executing M&P activities in support of system acquisition projects.

The DoD established an HSI Standard Working Group in 2012 to research and develop a new standard for Human Systems Integration to provide additional guidance to industry. The DoD selected the SAE International G-45 Human Systems Integration Committee to lead this task. SAE International executed a multi-year effort beginning in May 2016 that resulted in the development, release, and DoD adoption of a Best Practice standard (SAE6906).

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2023 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE SAE1010A

For more information on this standard, visit
<https://www.sae.org/standards/content/SAE1010A>

Documents

Document Sharing Hub

To achieve a full, seven-domain HSI program, an acquisition contract must contain an HSI program requirement as well as requirements in all seven of the domains. As of 2019, military and/or industry standards existed in just three of the HSI domains: Human Factors Engineering (HFE), Training, and Safety and Occupational Health. Best practice standards are needed in the other four HSI domains: Habitability, Manpower, Personnel, and Force Protection and Survivability. If the intent is for the contractor to validate existing Government M&P assumptions, then the acquisition contract should contain M&P requirements in addition to an HSI program requirement.

SAE1010 was updated in the 2021-2022 timeframe to reflect evolving DoD acquisition policy and tailor application of the standard to DoD Adaptive Acquisition Framework pathways.

TABLE OF CONTENTS

1.	SCOPE	3
2.	REFERENCES	3
2.1	Applicable Documents	3
2.1.1	SAE Publications	4
2.1.2	U.S. Government Publications	4
2.2	Related Publications	4
2.3	Acronyms Used in This Standard	6
2.4	Definitions	9
3.	MANPOWER AND PERSONNEL DESCRIPTION AND OBJECTIVES	11
3.1	Manpower Domain Overview	11
3.2	Personnel Domain Overview	12
3.3	Manpower and Personnel Relationship with Human Systems Integration	13
3.4	Manpower and Personnel Relationship with Systems Engineering	14
3.5	Manpower and Personnel Relationship to Logistics	14
4.	MANPOWER AND PERSONNEL PROCESS REQUIREMENTS	15
4.1	Manpower and Personnel Program Initiation	15
4.1.1	Manpower and Personnel Program Planning	16
4.2	Manpower and Personnel Analysis	21
4.3	Compliance with Programmatic Manpower and Personnel and M&P-Related System Requirements	22
4.4	Material Solutions Analysis and Technology Maturation and Risk Reduction Manpower and Personnel Activities	23
4.4.1	Define and Conduct Activities	23
4.5	Engineering Manufacturing and Development Manpower and Personnel Activities	24
4.6	Production, Operations, and Sustainment Manpower and Personnel Activities	25
5.	NOTES	25
5.1	Revision Indicator	25
APPENDIX A	COMPLIANCE MATRIX	26
APPENDIX B	DOD ADAPTIVE ACQUISITION FRAMEWORK TAILORING MATRIX	31
Figure 1	Notional human systems integration internal interactions	13
Figure 2	Contractor Manpower and Personnel (M&P) planning process	18

1. SCOPE

This standard covers Manpower and Personnel (M&P) processes throughout planning, design, development, test, production, use, and disposal of a system. Depending on contract phase and/or complexity of the program, tailoring can be applied. The scope of this standard includes Prime and Subcontractor M&P activities; it does not include Government M&P activities.

The primary goals of a contractor M&P program typically include:

- Ensuring that the system design complies with the latest customer Manpower estimates (numbers and mix of personnel, plus availability) and that discrepancies are reported to management and the customer.
- Ensuring that the system design is regularly compared to the latest customer personnel estimates (capabilities and limitations) and that discrepancies are reported to management and the customer.
- Identifying, coordinating, tracking, and resolving M&P risks and issues and ensuring that they are:
 - Reflected in the contractor proposal, budgets, and plans.
 - Raised at design, management, and program reviews.
 - Debated in Working Group meetings.
 - Coordinated with Training, Logistics, and the other HSI disciplines.
 - Included appropriately in documentation and deliverable data items.
- Identifying and pursuing opportunities to reduce Manpower and Personnel demands and costs.
- Ensuring that M&P considerations are addressed in analyses, design decisions, trade-offs, and design changes (e.g., ECPs).
- Conducting Manpower and Personnel analysis activities and supporting human factors analyses (e.g., workload analysis) and other HSI domain analyses to provide evidence to support design decisions and trade-offs and to coordinate shared data (e.g., task analyses).
- Ensuring that M&P analyses and results are timely, technically competent/complete, and in a format that enables them to be included in design decisions, tradeoffs, and changes.
- Ensuring that M&P issues discovered in test, evaluation, demonstration, Operational Test and Evaluation (OT&E), and operations are tracked and resolved in a technically competent/complete and timely manner.
- Ensuring that the subjects used in experiments, simulations, tests, evaluations, and demonstrations are consistent with the customer's latest projected target audiences.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations or contracts unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

GEIA-STD-0007	Logistics Product Data
HEB-1	Human Engineering - Principles and Practices
EIA-649	Configuration Management Standard
SAE6906	Standard Practice for Human Systems Integration
TA-STD-0017	Product Support Analysis

2.1.2 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-HDBK-502	DoD Handbook: Product Support Analysis (PSA)
MIL-HDBK-1908B	DoD Handbook: Definitions of Human Factors Terms
MIL-STD-961	DoD Standard Practice: Defense and Program-Unique Specifications Format and Content
MIL-STD-1472G	DoD Design Criteria Standard: Human Engineering
MIL-STD-46855A	DoD Standard Practice: Human Engineering Requirements for Military Systems, Equipment and Facilities

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

Air Force Instruction 38-201, Management of Manpower Requirements and Authorizations, January 2014

Air Force Pamphlet (AFPAM) 63-128, Integrated Life Cycle Management, 10 July 2014

ANSI HFES100 (2007), Human Factors Engineering of Computer Workstations

Army Regulation 602-2, Human Systems Integration in the System Acquisition Process, created by United States Department of the Army, 27 January 2015

Army Regulation 700-127, Logistics Integrated Product Support, 11 October 2016

ASTM F1166: 07(2013), Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities
Defense Acquisition Guidebook

Booher, H. (2003). *Handbook of human systems integration*. John Wiley & Sons.

Department of Homeland Security (DHS) Human Systems Integration, September 2012

DI-HFAC-80742, HESC Human Engineering Simulation Concept

DI-HFAC-80743, Notice 1 Human Engineering Test Plan (HETP)

DI-HFAC-80744, Notice 1, Human Engineering Test Report (HETR)

DI-HFAC-80745, Human Engineering Systems Analysis Report (HESAR)

DI-HFAC-80746, Human Engineering Design Approach Document – Operator (HEDAD-O)

DI-HFAC-80747, Human Engineering Design Approach Document – Maintainer (HEDAD-M)

DI-HFAC-81399, Critical Task Analysis Report (CTAR)

DI-SESS-81517, Training Situation Document

DI-SESS-81518, Instructional Performance Requirements Document

DI-SESS-81519, Instructional Media Requirements Document

DI-SESS-81520, Instructional Media Design Package

DI-SESS-81521, Training Program Structure Document

DI-PSSS-81522, Course Conduct Information Package

DI-PSSS-81523, Training Conduct Support Document

DI-PSSS-81524, Training Evaluation Document

DI-PSSS-81525, Test Package

DI-PSSS-81526, Instructional Media Package

DI-PSSS-81527, Training System Support Document

DI-HFAC-81742, Human Engineering Program Plan

DI-HFAC-81743, Human Systems Integration Program Plan (HSIPP)

DoDAF Architecture Framework Version 2.02, August 2010

DoD Instruction 1100.22, Policy and Procedures for Determining Workforce Mix, 12 April 2010

DoD Directive 1322.18, Military Training, 13 January 2009

DoD Directive 5000.01, The Defense Acquisition System, 20 November 2017

DoD Instruction 5000.02, Operation of the Defense Acquisition System (10 August, 2017), Enclosure 7

DoD Instruction 7041.04, Estimating and Comparing the Full Costs of Civilian and Active Duty Military Manpower and Contract Support

DoD Logistics Assessment Guidebook, July 2011

DoD Product Support BCA Guidebook, April 2011

DoD Risk, Issue, and Opportunity Management Guide for Defense Acquisition Programs, January 2017

ISO/IEC/IEEE 15288, Systems and software engineering – System life cycle processes, May 2015

IEEE 15288.1, IEEE Standard for Application of Systems Engineering on Defense Programs, 2014

IEEE 15288.2, IEEE Standard for Technical Reviews and Audits on Defense Programs, 2014



INCOSE Systems Engineering Handbook: A Guide for System Life Cycle Processes and Activities, 4th Edition, July 2015

ISO/IEC/IEEE 29148, System and Software Engineering – Life Cycle Processes – Requirements Management

Joint Chiefs of Staff (2021). *Charter of the Joint Requirements Oversight Council and Implementation of the Joint Capabilities Integration and Development System* (Report No. CJCSI 5123.01I). U.S. Department of Defense.

Lacson, F.C., Risser, M.R., Kosnik, W., and Gwynne, J. (2017). The human systems integration framework: Enhanced HSI support for systems acquisition. *Proceedings of the Human Factors and Ergonomics Society*, 61(1), 1720-1724.

Marine Corps Order 5311.1E, Total Force Structure Process, 18 November 2015

MIL-HDBK-470, Designing and Developing Maintainable Products and Systems, Rev A, 04 August 1997

MIL-HDBK-29612, DoD Handbook, Instructional Systems Development/Systems Approach to Training and Education (Parts 1-5), August 2001

MIL-PRF-29612, Training Data Products Performance Specification, 31 August 2001

National Aeronautics and Space Administration (NASA). Human Systems Integration (HSI) Practitioners Guide, Report number NASA/SP-2015-3709. November 2015

NATO RTO TECHNICAL REPORT TR-HFM-155, Human Systems Integration for Network Centric Warfare, February 2010

Navy Actions Needed to Optimize Ship Crew Size and Reduce Total Ownership Costs. GAO-03-520, Published: Jun 9, 2003. Publicly Released: Jun 9, 2003

Office of the Deputy Assistant Secretary of Defense (ODASD) – Systems Engineering, Best Practices for Using Systems Engineering Standards on Contracts for Department of Defense Acquisition Programs. April 2017

Office of the Deputy Assistant Secretary of Defense (ODASD) – Systems Engineering. Guidance and Tools

OPNAV Instruction 1500.76, Navy Training Systems Plan (NTSP), August 2013

OPNAVINST 5310.23, Navy Personnel Human Systems Integration, 17 October 2017

Product Support Toolkit and Human Performance Measures. Approved by: AFLCMC/LG, 1 May 2017, 1 May 2017

The Aerospace Corporation Report TOR-2015-014949-RevA, Tailoring of IEEE 15288.1: Systems and Specialty Engineering Supplement, Also published as USAF Space and Missile Systems Center standard SMC-T-006 (2017)

Under Secretary of Defense (Personnel and Readiness) Memorandum for Secretaries of the Military Departments, Interim Policy and Procedures for Strategic Manpower Planning and Development of Manpower Estimates, 01 December, 2003

USAF HSI Requirements Pocket Guide, September 2009 (Accession Number: ADA517632)

USAF Human Systems Integration Office, Human Systems Integration in Acquisition (Management Guide), Report number ADA519018. August 2009

2.3 Acronyms Used in This Standard

APA	Additional Performance Attributes
ASAP	Aircrew Systems Advisory Panel
CARD	Cost Analysis Requirements Document
CDD	Capability Development Document

CDR	Critical Design Review
COTS	Commercial Off-the-Shelf
CPD	Capability Production Document
CSWG	Crew Systems Working Group
DAG	Design Advisory Group
DHS	Department of Homeland Security
DOD or DoD	Department of Defense
ECP	Engineering Change Proposal
FOC	Full Operational Capability
GFE	Government Furnished Equipment
GFP	Government Furnished Property
GFI	Government Furnished Information
HFE	Human Factors Engineering
HSI	Human Systems Integration
HSIPP	Human Systems Integration Program Plan
IAW	In Accordance With
ICD	Initial Capabilities Document
ILSP	Integrated Logistics Support Plan
IMP	Integrated Master Plan
IMPRINT	Improved Performance Research Integration Tool
IMS	Integrated Master Schedule
IOC	Initial Operational Capability
IPT	Integrated Product Team
KPP	Key Performance Parameter
KSA	Key System Attribute
LCMP	Life Cycle Management Plan
LCSP	Life Cycle Sustainment Plan
LRIP	Low Rate Initial Production
MAP	Maintainer Advisory Panel
MER	Manpower Estimate Report

MPTP	Manpower Personnel and Training Plan
MSA	Material Solution Analysis
M&P	Manpower and Personnel
NASA	National Aeronautics and Space Administration
NTSP	Navy Training Systems Plan
OBS	Organizational Breakdown Structure
OPSTEMPO	Operations Tempo
OSA	Other System Attributes
OT&E	Operational Test & Evaluation
PDR	Preliminary Design Review
POM	Program Objectives Memorandum
PESHE	Programmatic Environmental Safety and Health Evaluation
PSA	Product Support Analysis
RFP	Request for Proposals
SDD	System Design and Development (Acquisition Phase)
SDO	Standards Development Organization
SE	Systems Engineering
SEMP	Systems Engineering Master Plan (Contractor)
SEP	Systems Engineering Plan (Government)
SME	Subject Matter Expert
SOW	Statement of Work
STRAP	System Training Plan
TAD	Target Audience Description
TEMP	Test and Evaluation Master Plan
TES	Test and Evaluation Strategy
TMRR	Technology Maturation and Risk Reduction
TPM	Technical Performance Measure
WBS	Work Breakdown Structure

2.4 Definitions

CAPABILITY REQUIREMENTS: A capability which is needed to meet an organization's roles, functions, and missions in current or future operations. To the greatest extent possible, capability requirements are described in relation to tasks, standards, and conditions IAW the Universal Joint Task List or equivalent DoD Component Task List (Joint Chiefs of Staff, 2021). Capability requirements serve as the basis for system and specification requirements.

CONTRACTOR: This term refers to the company or organization responsible for fulfilling the system acquisition contract requirements. An alternative could be "solution provider."

CONTRACTOR MANPOWER AND PERSONNEL PRACTITIONER: Qualified personnel responsible for planning, coordinating, and executing the Manpower and Personnel program; serves as the contractor's Manpower and Personnel single point-of-contact.

CONTRACTOR MANPOWER AND PERSONNEL TEAM: The Contractor (typically a prime contractor) Manpower and Personnel team responsible for performing Manpower and Personnel activities under a systems acquisition contract. An "extended" Manpower and Personnel team may also include associate contractor, subcontractor, and supplier M&P personnel.

CUSTOMER MANPOWER AND PERSONNEL TEAM: The government Manpower and Personnel team in the organization(s) responsible for providing Manpower and Personnel support. The team may be in the procuring agency or distributed between the procuring agency and one or more other organizations. The team may include Manpower and Personnel support contractors.

DOMAIN-SPECIFIC SYSTEM REQUIREMENTS: System specification/technical requirements impacting the humans (operator, maintainer, supporter, or other type of user) associated with the system, to the extent that human performance, mission effectiveness, and the HSI domain design/implementation considerations may be affected. Specific HSI domains are responsible for the development, configuration management, and verification of these system-based requirements.

HUMAN PERFORMANCE: A measure of human functions and action in a specified environment, reflecting the ability of actual users and maintainers to meet the system's performance standards, including reliability and maintainability, under the conditions in which the system will be employed (excerpt from MIL-HDBK-1908.)

HUMAN SYSTEMS INTEGRATION: Human Systems Integration (HSI) is a comprehensive management and technical approach applied to systems development and integration as part of a wider Systems Engineering process to ensure that human performance is optimized to increase total system performance and minimize total systems ownership costs. The HSI discipline focuses on addressing human considerations within system engineering and logistics processes to optimize total system performance. HSI efforts accomplish this by ensuring that the human is fully and continuously considered as part of the total system in the development and acquisition of all systems. HSI considerations comprise Human Factors Engineering (HFE), Safety and Occupational Health, Habitability, Force Protection and Survivability, Manpower, Personnel, and Training.

MANAGEMENT: Contractor senior managers and/or program manager. The term "management" does not apply to the procuring agency program manager or staff.

MANPOWER: The number and mix of people required, authorized, and available to operate, maintain, support, and train for the system. This number is based on the range of operations during peacetime, low-intensity conflict and wartime, and considers continuous, sustained operations, needed surge capability, and for disposal at the end of the system life.

MANPOWER AND PERSONNEL ACTIVITIES: The management and application of technical disciplines of planning, leading, coordinating, and optimizing all Manpower and Personnel considerations during system design, development, test, production, use, and disposal of systems, subsystems, equipment, and facilities.

MANPOWER AND PERSONNEL ISSUES: Issues are risks that have a likelihood of 100%, or in other words, have been realized. Manpower and Personnel issues are issues that are specific to the Manpower and Personnel domains.

MANPOWER AND PERSONNEL PRACTITIONER(S): Personnel trained and/or experienced in the Manpower and Personnel domains who participate in the execution of the Manpower and Personnel program. May also be called Manpower and Personnel Subject Matter Experts (SME).

MANPOWER AND PERSONNEL PROGRAM: All the planning, analysis, design support, test, and evaluation, coordination, and documentation activities undertaken in response to Manpower and Personnel requirements contained in the system acquisition contract Statement of Work.

MANPOWER AND PERSONNEL PROGRAMMATIC REQUIREMENTS: Statement of Work requirements for Manpower and Personnel tasks for the contractor Manpower and Personnel team to execute. Focus of these requirements is on Manpower and Personnel program planning, coordination, execution, documentation, and reporting.

MANPOWER AND PERSONNEL-RELATED REQUIREMENT: A requirement not directly associated with the Manpower and Personnel domains, but with Manpower and Personnel implications, including capability, system, or lower-level specification, logistical or human performance requirements. These requirements may interface with multiple domains and multiple disciplines. The Manpower and Personnel team does not have formal responsibility for developing, managing, and testing these requirements, but are a significant stakeholder in the fulfillment of these requirements during system design/development and throughout the system life cycle.

MANPOWER AND PERSONNEL RISK: A condition of potentially adverse impact on humans and/or systems. Manpower and Personnel risks can be technical as well as programmatic. An example of a major Manpower and Personnel risk would be that the assigned personnel, trained in accordance with the training developed, will not be able to safely and effectively operate (or maintain) the system as delivered.

MANPOWER AND PERSONNEL TASK: Any task performed by the Manpower and Personnel team or Manpower and Personnel practitioner that contributes materially to achieving Manpower and Personnel goals of improving Manpower and Personnel integration, improving human performance or reducing personnel-driven ownership costs.

MANPOWER AND PERSONNEL WORKING GROUP: Typically, a chartered organization charged with carrying out all the Manpower and Personnel activities associated with a system acquisition program. The Manpower and Personnel Working Group (or may be called an Integrated Product Team [IPT] depending on the program or service) is typically co-chaired by customer and prime contractor Manpower and Personnel Practitioner. Membership usually includes representatives from the prime contractor and customer. The Manpower and Personnel Working Group may also include representation from major subcontractors, associate contractors, and major suppliers.

PERSONNEL: The skills, grade, aptitudes, physical attributes, and education and training backgrounds of military and civilian people required to operate, maintain, train, and support the system equipment and associated support equipment and facilities in its operational environment.

PROCURING AGENCY: The procuring agency is the organization responsible for system acquisition and as such can be considered the “customer” (e.g., Naval Air Systems Command).

SENIOR MANAGER OR PROGRAM MANAGER: Refers to the contractor’s Senior Manager or Program Manager.

SHALL: “Shall” indicates normative requirements, those for which compliance with the specific statement is required.

SHOULD: “Should” is used for informative statements, wherever noncompliance with the specific recommendation is permissible.

STANDARD PRACTICE (OR BEST PRACTICE): The recommended process to be followed in implementing and executing work for a program (i.e., HSI efforts for a program) against which other practices are measured. For HSI, best practices are determined by a broad-based group of DoD and contractor SMEs, who are experienced in the practice and application of HSI on a variety of acquisition programs.

USER: People who will operate, maintain, train, and support the equipment, system, or facility.

3. MANPOWER AND PERSONNEL DESCRIPTION AND OBJECTIVES

3.1 Manpower Domain Overview

The Manpower domain includes the number and mix of people required, authorized, and available to operate, maintain, support, and train the system. This number is based on the range of operations during peacetime, low-intensity conflict, and wartime, and considers continuous, sustained operations, and needed surge capability. The determination of the numbers and kinds of personnel for new or modified systems is historically the responsibility of the customer. This includes:

- a. Determining the number and mix of military and DoD civilian manpower and contract support people necessary to operate, maintain, support, and provide training for the system through its expected life, including disposal.
- b. Documenting projections of the Manpower requirements throughout the system's life cycle.
- c. Establishing Manpower parameters (objectives and thresholds) consistent with existing departmental constraints including consideration of any changes required to existing organizational/career structures and their long-term sustainability. If the program is manpower intensive, this may include establishing a manpower Key Performance Parameter (KPP).

Typical Manpower-related products produced by the customer that can be made available to the contractor include:

- a. Manpower requirements including the customer's Manpower/mix estimate included as part of the Cost Analysis Requirements Description (CARD) and System Training Plan (STRAP) for the Army, the Navy Training Systems Plan (NTSP) for the Navy, for the Marine Corps Manpower, Personnel and Training Plan (MPTP), Manpower Estimate Report (MER) for the Navy, Marine Corps and Air Force, and the Integrated Logistics Support Plan (ILSP) for the Coast Guard.
- b. Manpower Program Objective Memorandum (POM).
- c. Actual or implied Manpower requirement from acquisition documents including the Initial Capabilities Document (ICD), Capability Development Document (CDD), Capability Production Document (CPD), or Concept of Operations.
- d. Legacy system-specific criteria and data.
- e. Documentation of Manpower at required operational readiness levels and operations tempo (OPSTEMPO).
- f. Life Cycle Management Plan (LCMP), Life Cycle Sustainment Plan (LCSP), and Integrated Logistics Support Plan (ILSP).
- g. Service-specific instructions.
- h. System specifications.
- i. Government Systems Engineering (SEP) and HSI Plans (HSIP).

Since the majority of Manpower analyses are typically conducted by customer Manpower practitioners, contractor Manpower practitioners **should** frequently communicate and collaborate with customer Manpower personnel. Contractors **should** remain cognizant of customer manpower goals during system design and development so that design decisions and tradeoffs properly support system availability and are consistent with the customer's operational or sustainment cost objectives. Contractors **should** also seek and recommend opportunities for Manpower life-cycle cost savings through system design approaches such as simplifying user interfaces, automation, built-in-test, increased system reliability, remove/replace maintenance strategies, just-in-time training, that can reduce manpower/personnel demands and costs.