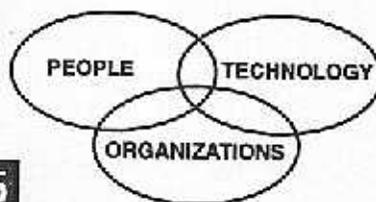




# MANPRINT Quarterly

Vol. III, No. 2 Spring 1995



## The Director's Corner

Dr. Harold R. Booher retired as the Director for MANPRINT on 3 March 1995. After joining the ODCSPER staff in July 1986, he worked tirelessly to establish MANPRINT policy and procedures to support the Army acquisition process. We would like to take this opportunity to thank him for his outstanding contributions to the MANPRINT program and wish him well in future endeavors.

Ms. Roscille W. Nelson, Deputy Director for MANPRINT, will be the Acting Director until Dr. Booher's replacement is selected.

## Meetings of Interest

### Army Integrated Logistic Support (ILS) Executive Committee Meeting

April 25 - 27, 1995  
Omni International Hotel, Norfolk, VA  
POC: Mr. Larry Hill, (703) 694-7053

### 34th Meeting of the DoD Human Factors Engineering Technical Advisory Group

May 1 - 4, 1995, Colorado Springs, CO.  
POC: Dr. Joe McDaniel  
PH: (513) 255-2558  
DSN: 785-2558  
FAX: (513) 255-9198

### Annual Industry Briefing on Modeling and Simulation

May 2 - 3, 1995  
Radisson Plaza Hotel, Alexandria, VA  
POC: NSIA, (202) 775-1440

### Safety Technology 2000

June 19, 1995  
Orlando, FL  
POC: American Society of Safety Engineers  
(708) 692-4121, ext 56/707

### 1995 Acquisition Research Symposium

June 28 - 30, 1995  
Holiday Inn Crowne Plaza  
Rockville, MD

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## MANPRINT Practitioners Conference

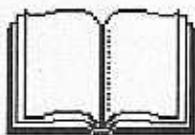


Begin making plans now for the 1995 MANPRINT Practitioners Conference. It will be held on **14-16 November 1995** at the Westpark Hotel in Rosslyn (Arlington), Virginia, the same site as the 1994 conference. More information will be published in the next edition of the MANPRINT Quarterly, Summer 1995.



## Getting the Word Out

**ATTENTION Automation Information System (AIS) MANPRINT Practitioners!** Beginning in April 1995, we will have available for limited distribution a copy of the AIS MANPRINT "How-To" Guide. After seven months of intense effort, this publication will be ready for your use. To obtain a copy of the Guide, please send your name and address to the MANPRINT Quarterly office and we will send you a copy as the Guide becomes available. We also plan to add the "How-To" Guide to the next version of the AIS MANPRINT Management Tool. (See article by Dr. David Promisel.) POC: MAJ Dan Commerford, E-mail: [commerford@pentagon-hqdadss.army.mil](mailto:commerford@pentagon-hqdadss.army.mil)



## MANPRINT Practitioner of the Year Award

The Assistant Deputy Chief of Staff for Personnel has approved the concept plan for implementation of the **MANPRINT Practitioner of the Year Award**, an ODCSPER level sponsored award. DA Circular 602-95-XX is currently out for worldwide staffing, and to date all inputs received have been positive and supportive of our new initiative. Since a DA circular is considered to be in effect and current for only two years, the award will be included in subsequent changes to AR 602-2.

The intent of the award is to select, through a nomination process, and recognize by this award, one practitioner from the materiel/automated information system program category, and one practitioner from the combat developer/functional proponent category. A board of general officers and senior executive service officials, chaired by the Assistant Deputy Chief of Staff for Personnel, will submit their selections to the Deputy Chief of Staff for Personnel for his approval. The board will consist of representatives from ODCSPER, TRADOC, AMC, SARDA, ODCSOPS, and DISC4. The award is scheduled to be presented at this year's MANPRINT Practitioners Conference. Should the circular not be available for distribution in time for the nomination process, this office will announce by separate message the procedures and criteria to be utilized. POC is LTC Watkins, DSN 225-9215.

## Automating MANPRINT for Automated Information Systems

by Dr. David M. Promisel and Andrea S. Hynes  
Human Research and Engineering Directorate  
U.S. Army Research Laboratory

The development of Automated Information Systems (AIS) has become a major component of the Army's acquisition program. Although we are referring in this article to those systems covered by AR 25-3, Army Life Cycle Management of Information Systems, and the MAISRC process, information systems are pervasive throughout the Army in virtually all materiel systems. Peggy Smith wrote in these pages (Nov/Dec 1992) about MANPRINT in AIS as a "new challenge." She described a number of interim steps and new ventures such as interim AIS MANPRINT policy, a pilot program using two AIS, and the beginning development of training courses. Since that time, much has been accomplished: AIS has been incorporated in AR 602-2, AIS training courses have been made part of the MANPRINT curriculum, several training courses have been given, the MANPRINT Directorate of the ODCSPER has developed a "How-To" guide for AIS MANPRINT action officers, MANPRINT has been formally included by PMs in a number of AIS development programs, and the Human Research and Engineering Directorate (HRED) has been developing software aids to facilitate the AIS MANPRINT process. This article will focus on the HRED AIS research and development effort.

### The Distinctive Needs of MANPRINT in AIS

The HRED has developed many tools for use in applying MANPRINT to materiel systems. Why, then, are these aids not equally applicable to AIS? AIS are conceptually distinct from materiel systems in many ways.

- **System Objectives:** New AIS are acquired to achieve improved performance or to reduce cost or both. Materiel systems tend to focus on performance objectives with cost treated more as a constraint.
- **Personnel:** The Target Audience Description (TAD) is more diverse for AIS. A substantial number of civilians are involved, both government and contractor employees. Military personnel include Reserve or National Guard staff who only occasionally are involved with AIS. This diverse audience brings with it a wide range of skills and knowledge. People involved with an AIS vary in terms of their "computer literacy," the frequency of their use of the system, their educational background, etc. This contrasts with materiel systems in which personnel tend more

often to be military people who have been selected and trained for a career path leading to specific assignments.

- **Workload and Manpower:** The estimation of workload and the corresponding calculation of required manpower levels are somewhat less structured and more diverse for AIS than for materiel systems. AIS have peacetime missions that differ in levels and kinds of effort from wartime missions. Manning has to encompass both. Staff may be employed simultaneously with more than a single AIS, so that there are problems of allocating individuals' time to different duties. Furthermore, this allocation may differ with circumstances (e.g., peace vs. war).

- **Training:** The varying skills and knowledge brought to the AIS have already been mentioned. This implies a correspondingly broad range of training requirements. AIS are predominantly comprised of off-the-shelf hardware and software so that another training option beyond the usual is the use of commercial training courses.

These are some of the considerations leading to the conclusion that AIS-specific MANPRINT aids are needed for the near future. However, we do see ways that AIS and materiel MANPRINT techniques can be integrated into one set of tools over time.

### AIS MANPRINT Management Tool



The HRED has been developing a series of software-based models to aid in the identification and trade-off of AIS Manpower, Personnel, and Training (MPT) resources. The earlier models (Versions 1.0 and 2.0) contained MANPRINT descriptive information and facilities

for creating and tracking MPT data. In particular, the software includes:

- A discussion of MANPRINT and the seven domains.
- An example of a System MANPRINT Management Plan (SMMP).
- A Lessons Learned File based on recent SMMPs.
- Other kinds of guidance.
- A process for building a TAD using built-in data about military and civilian occupational specialties and a capability for importing existing TADs to use as baselines.

- A unit or work center structure for developing manpower estimates.
- Matrices for delineating training requirements plus worksheets and a simple regression equation for estimating the cost of training courses.

This software has been developed with support from the SRA Corp. and distributed by Deputy Chief of Staff for Plans, Force Integration and Analysis (DCSPLANS), U.S. Total Army Personnel Command (its proponent); the MANPRINT Directorate; and the IRED. It has been used extensively for training purposes. Version 3.0 with greatly expanded capability has just become available. It will add a "How-To" guide, an issue sheet format, and a recommended revised SMMP format.

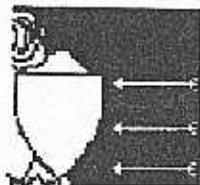
From an analytical perspective, Version 3.0 provides a building block approach to developing a TAD in which each organizational unit associated with the AIS retains its separate identification. The TAD structure is then used for facilitating manpower estimates. Each module in the TAD is addressed, one at a time, by adding the numbers of positions for each required occupational category. A fielding plan can be prepared by specifying the numbers of each unit and its accompanying manpower that will be operational for each year of anticipated system life. The model is linked to the Army Manpower Cost System data structures to estimate the costs of manpower. The model also provides more powerful means for estimating training requirements and costs. Overall training costs are estimated for each year of system life. Finally, there is provision to trade manpower and training resource requirements by comparing the requirements of alternate system concepts.

Our approach to developing this MANPRINT aid has been evolutionary. Each version has been intended to have utility in its own right and to be easy to use. They run under Windows 3.1 on a 386/486 PC and use a mouse for operation. There is a small introductory brochure provided with the software and a user's guide built into the software. Each succeeding version has tried to reflect the field's reactions. We will try to do the same with Version 3.0 (i.e., distribute it, solicit reactions to it, add our own ideas, and plan accordingly).

To obtain information about this program or a copy of the software tool, please write to:

Director, U.S. Army Research Laboratory  
ATTN: AMSRL-HR-MB (Dr. Promisel)  
Aberdeen Proving Ground, MD 21005-5425  
or phone Dr. Promisel at (410) 278-5879,  
Fax (410) 278-5032, or  
E-Mail: dpromise@arl.mil

# Methodology for Performing Soldier Survivability Assessments



*Richard A. Tauson And N. William Doss  
Human Research and Engineering Directorate  
Army Research Laboratory*

*Richard Zigler  
Survivability/Lethality Analysis Directorate  
Army Research Laboratory*

The Spring 1994 issue of the MANPRINT Quarterly announced the new domain of Soldier Survivability (SSv). The article explained the need for such a domain and discussed its six components: Reduce Fratricide, Reduce Detectability, Prevent Attack, Prevent Damage, Minimize Medical Injury, and Reduce Physical and Mental Fatigue. The last section mentioned that assessment criteria were under development. Methodology and a user's guide have now been completed; this article outlines the process for performing an assessment and briefly discusses the assessors and their responsibilities.

## Why a Formalized Methodology?

During Domain development it was determined that SSv needed formalized guidelines for the following reasons:

- The scope of the domain is clearly complex and interdisciplinary, necessitating multiple agency involvement. Thus, common guidance and consistency in approach is needed for preparing a coherent domain report.
- The newness of the domain demands that it be fully defined to show its uniqueness and differences from the other domains. One way to describe the domain is to operationally define it by listing SSv issues to be assessed.
- The requirement for systems to undergo a SSv Assessment (SSvA) was fast approaching. A formal set of methodological procedures would allow for rapid training of many analysts.

## Procedures Manual

Recently, the Soldier Survivability Procedures Manual was distributed under a U.S. Army Research Laboratory Memorandum, 6 July 1994, entitled "Establishment of New Soldier Survivability (SSv) Domain (Army Regulation (AR) 602-2, Manpower and Personnel Integration (MANPRINT) in the Material Acquisition Process, Interim Change No. I01)." It describes the SSvA process for ACAT I, II, and HQDA-Designated special interest ACAT III programs. The Procedures Manual provided compliance with AR 602-2 interim change (I01), dated 13 March 1994, which established Soldier Survivability as a MANPRINT domain as of 1 October 1994.

The Procedures Manual consists of organizational responsibilities and coordination guidelines, a Parameter Assessment List (PAL), report formats and a list of points of contact for performing SSvAs. The manual outlines how a Program Manager should request an SSvA from the ARL-SLAD Integrator Office (IO) at least seven months before the report is needed. The SLAD IO will distribute the request to the three assessment agencies: U.S. Army Research Laboratory's Survivability/Lethality Analysis Directorate (ARL SLAD), the Human Research and Engineering Directorate (ARL HRED), and the U.S. Army Medical Research and Materiel Command (MRMC). The assessors in each agency will evaluate the SSv implications of the system by completing the appropriate sections of the PAL. Each assessor will return their section of the PAL, with comments, to the SLAD IO who will integrate the PALs into a coherent SSv Domain Report.

## Parameter Assessment List (PAL)

The PAL is a tool that provides a common structure and content to SSvA. It is based on a list of issues that describe a developmental system's impact on SSv. The format guides the assessor into establishing quantitative metrics that address each issue, allowing the assessor to present the system's effect of SSv in reasonably objective terms. The PAL contains 170 SSv issues, but an assessor may add or delete issues to tailor the PAL to a given system assessment.

The first version of the PAL was a list of issues or characteristics which defined a system's impact on SSv. Personnel from DCSPER, TRADOC, SLAD, HRED, and MRMC reviewed the early PAL and contributed changes and additions. The PAL was converted into a questionnaire format and distributed for a case study in which the appropriate personnel did an abbreviated SSvA on a developmental system. Based on lessons learned from the case study, the PAL was updated and distributed as part of the SSvA Procedures Manual to the assessment community.

The sections of the PAL are:

- Instructions
- SSv Domain System Summary Rating Sheet
- Summary Rating Sheets for each of the six SSv Components

- Rating Sheets for 21 subcomponents and their attendant issues
- References and Suggested Models for use in the SSvA
- Subject Index.

The PAL follows a hierarchical organization. The effect of each issue contributes to an overall rating for a subcomponent. The ratings for each of the subcomponents are rolled into a rating for each of the six major components of SSv (Reduce Fratricide, Reduce Detectability, etc.) A final SSv rating for the system is based on a consideration of each of the component ratings. The roll up at any level is not the result of any mathematical function, but requires consideration of the real impact of any deficiencies on SSv.

When an SSv assessment is requested, the first step is to assign Required System Performance criteria for each issue. These criteria should result from consensus among the assessor, the PM, the proponent agency, and the user community. Sources of required system performance levels may come from Operational Requirements Documents (ORDs), the system's Concept of Employment, system approved Mil Standards, and the evaluation of subject matter experts. System performance requirements for each of the SSv issues should be realistic, measurable, and sufficient to assure SSv in the expected mission environment.

Once Required System Performance levels are defined, they are compared to Actual System Performance for each issue. Sources of information on system performance may include modeling output, performance from similar or predecessor systems, engineering plans, task analysis and crew workload data, and test data. In earlier milestones, this may constitute a best guess, with more substantive information becoming available later in the life cycle. Information sources should be cited and critical data attached to the completed PAL.

The comparison of the Required and Actual System Performance will lead to a rating for each issue. An issue may be assigned a deficiency rating of Critical, Major, Minor Deficiency, None, or Does Not Apply. The rating will be assigned based on the magnitude of the difference between required and actual performance and the potential effect on injury to the soldier, mission completion, loss of the system, inability of the system to complete its mission, and unacceptable impact on the MANPRINT Domains. A written explanation of any rating may be included in the assessment, but Critical or Major deficiencies must have accompanying explanations.

#### SSv Domain Report

Based on the results of the PAL, the SLAD IO completes one of two report formats. If there are no

SSv issues for a system, a one page abbreviated report is completed. Otherwise, a full SSvA report summarizes the assessment findings.

The integrator at SLAD IO reviews the individual PAL inputs from the three assessment agencies for completeness or any conflicting information when preparing the final report. If there are any conflicts between assessors, the integrator must work with the assessors toward a single coordinated position, if possible, because the integrator can not unilaterally rule on a conflicting position.

The full report provides (1) an executive summary, (2) a list of the data sources used, (3) data voids, (4) positive aspects of SSv in the system development, (5) any SSv deficiencies, grouped by Critical, Major, and Minor ratings, and (6) conclusions and recommendations.

The approved SSv Domain Report is then sent to the PM, OASA (RDA), ODCSPER, AMSAA, ODCSOPS, TRADOC, and ARL HRED. At ARL HRED the SSv Domain Report is consolidated with the six other MANPRINT Domain Reports into a MANPRINT Integration Report, which is forwarded to DCSPLANS, U.S. Total Army Personnel Command (PERSCOM), for preparation of the ODCSPER position for the Army System Acquisition Review Council meetings.

#### SSv Implementation Plan

A Quality Control Board (QCB) will review the first five SSv Domain Reports to ensure that the approach is of sufficient quality and contributes value to the acquisition process. The QCB members are the HQDA ADCSPER, the HQDA Acting Director for MANPRINT, the Director, U.S. Army Operational Medical Research Program, MRMC, the ARL-HRED Directorate Executive, and the ARL-SLAD Directorate Executive.

Training on SSv has been and is being conducted within the assessment organizations by HQDA, ARL-HRED and ARL-SLAD personnel, and is being provided through the available MANPRINT Courses being conducted by the Army Logistics Management College both on-site at Ft. Lee, VA and at various Army locations. POC for MANPRINT Courses is Mr. Jan Dykhuis at DSN 221-2098.

To obtain a copy of the SSv Procedures Manual or for information, please write to:

Director, U.S. Army Research Laboratory  
 ATTN: AMSRL-SL-I (Mr. Zigler)  
 Aberdeen Proving Ground, MD 21005-5068  
 Ph: DSN 298-8625 (Richard Zigler)  
 DSN 298-9398 (Judy Pasternak-Silva)  
 FAX: (410) 278-7254

# The Manpower, Personnel, and Training (MPT) Domain Report for Major Automated Information Systems

by Denise Y. McCauley and Peggy H. Smith  
Deputy Chief of Staff for Plans, Force Integration and Analysis (DCSPLANS)  
U.S. Total Army Personnel Command (PERSCOM)

The Manpower, Personnel, and Training (MPT) Domain Report is key in providing information necessary to evaluate an acquisition system's progress. The Army invests large amounts of resources in recruiting, selecting, and training personnel who will operate, maintain, and support new systems. However, the growing costs and complexity of new systems coupled with reductions in manpower and funding have made it necessary for the Army to streamline the acquisition process. Achieving this goal is the reason for using the MPT Domain Report. The MPT Domain Report was developed to assess the manpower, personnel, and training risks. This report helps to identify a system's critical and major issues and concerns and addresses their impact on MPT resources.

Prior to Milestones I through III in the life cycle of a Major Automated Information Systems Review Council (MAISRC) system, Information Systems Branch MANPRINT analysts from DCSPLANS, PERSCOM, are required to prepare this MPT Domain Report.

In all probability, Project/Program Managers and their staffs have become accustomed to their system MANPRINT MPT representative knocking on their door for copies of specific current system documentation just when they are busy preparing for a Milestone Decision Review (MDR). There is a reason why we need specific current system documentation, and there is a reason why we need it before an MDR. Preparation of an MPT Domain Report is about to get underway!

Approximately 120 days out from an MDR, the MANPRINT Division, DCSPLANS, PERSCOM, and the other four MANPRINT Domain Offices receive notification from the Office of the Deputy Chief of Staff for Personnel (ODCSPER) that an MDR for a specific milestone or combination of milestones has been scheduled by the MAISRC for a particular major automated information system. The role of the MPT Domain expert is to review all pertinent documentation and provide positive MANPRINT elements and MPT issues or concerns for inclusion in a MANPRINT Assessment by the MANPRINT Directorate, ODCSPER that is sent to the MAISRC Secretary for part of a read-ahead package for the MAISRC members.

The documentation which primarily impacts or influences the MPT Domain Report includes the revalidated Mission Need Statement, the High Level Functional Description/Functional Description, the System MANPRINT Management Plan (SMMP), the

Acquisition Strategy/Plan, the Test and Evaluation Master Plan (TEMP), the System Training Plan, the Integrated Logistics Support Plan (ILSP), the Security Plan, the Request for Proposal (RFP) and, if available, the previous System Decision Paper (SDP).

It is of utmost importance that the MANPRINT Analyst has the most current version of these documents prior to preparing the MPT Domain Report, as they are crosswalked to ensure no conflicting MPT information exists between documents and to identify any issues or concerns that were not included in the SMMP. System documentation at PERSCOM is first reviewed by the members of the MANPRINT MAISRC team individually, and then reviewed as a team effort led by the MANPRINT Analyst who serves as that system's representative.

A recent change in the MPT Domain Report preparation process now allows us to provide a copy of the draft MPT Domain Report to the System Functional Proponent and the Project/Program Manager for review and input prior to the MAISRC MDR. Our new way of doing business using the Total Quality Management (TQM) customer-oriented philosophy should ensure that system Project/Program Managers or Functional Proponents encounter no surprises at an MDR.

\* \* \* \* \*



## 1995 MANPRINT Directory

Last chance to submit your updates!  
Please fax or e-mail to:

FAX: (703) 697-1283

E-mail: [simmons@pentagon-hqdadss.army.mil](mailto:simmons@pentagon-hqdadss.army.mil)

# Traveling with MANPRINT Along the Information System Highway

by D.J. Imbs

Deputy Chief of Staff for Plans, Force Integration and Analysis (DCSPLANS)  
U.S. Total Army Personnel Command (PERSCOM)

There was a time, not too long ago, that MANPRINT was not considered during the acquisition process for information systems. Information system developers have always looked at training, manpower, human engineering and hardware requirements, but not always with an integrated approach. MANPRINT forces system developers to look at the integration of seven domains to ensure all possible issues are examined and considered for the system.

The role of MANPRINT in the acquisition of information systems is crucial to successful fielding. All seven domains of MANPRINT are important; however, for this article the focus is on the training domain.

The age of computers and digitization development efforts offers new challenges for training. There are new tasks that the system operators/users must learn to perform their mission. System users must learn how to power down and backup systems, make communication connections, and in some instances be able to perform the same tasks on automation systems once reserved for computer system analysts/operators.

Strong consideration must be given to the capabilities of system users to understand the training, documentation, system screens and help text. Will computer literacy be required? If so, we must consider how to measure it. There will also be new requirements for system and network administrators.

Providing the initial training is a challenge, but so is the sustainment effort. Who will pay for it? Who will be responsible for keeping it current? If it is embedded in the system or computer assisted training, will it be updated by the software maintainers? Who trains the software maintainers? Are the major commands and installations willing to support or assume financial responsibility for training?

The planning of how Reserve Components will be trained must be decided. This is particularly important to support the mobilization effort. Training delays during mobilization could have a disastrous effect on the Army mission.

If the system creates an impact on any MOSs or AOCs, have proponent schools been contacted or been part of the system development or training plan? If the system is tactical then the combat developer must also be a part of the system development and training. Security training for information systems must also be developed based on the sensitivity of the data being processed.

One of the most important things to remember is that the definition of a system includes the hardware, software and users/maintainers. Even if you are developing only software, each integral part that makes up the total system must be considered. All the hard work that goes into developing a system will mean absolutely nothing if the training portion is not correct or does not consider the capabilities of those individuals who must operate and maintain it.

Therefore, during the acquisition process, training, as a domain, must be considered to ensure the Army has the personnel with the requisite knowledge, skills and abilities to operate and maintain systems under any type of operational conditions to accomplish the mission of the Army.

\* \* \* \* \*

## Training Update

### FY95 MANPRINT Training Schedule

#### MANPRINT Action Officer Courses

Class	Dates	Location
95-704	04 - 13 Apr	FT Sill, OK
95-705	06 - 15 Jun	FT Hood, TX
95-706	01 - 10 Aug	FT Leonard Wood, MO
95-002	14 - 24 Aug	FT Lee, VA

#### MANPRINT for Managers Courses

Class	Dates	Location
95-706	25 - 26 Apr	FT Sill, OK
95-707	16 - 17 May	FT Bliss, TX
95-708	20 - 21 Jun	FT Monmouth, NJ
95-709	22 - 23 Aug	Rock Island Arsenal, IL
95-710	19 - 20 Sep	FT Leonard Wood, MO

#### MANPRINT Workshop

Class	Dates	Location
TBD	02 - 04 May	TACOM, MI
TBD	09 - 11 May	TACOM, MI
95-704	26 - 29 Sep	FT Huachuca, AZ (AIS)