MANPRINT BULLETIN

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IMA MANPRINT Success

Peggy H. Smith
U.S. Army Personnel Integration Command

MANPRINT was originally developed to assist system developers in incorporating soldiers' needs and capabilities into weapon system design. Developers of such materiel systems now acknowledge that the human component is vital to achieving maximum total system performance. Recent events have demonstrated that MANPRINT may be equally effective in promoting total system performance in the Information Mission Area (IMA). To test this hypothesis, the Sustaining Base Information Services (SBIS) was selected as the pilot program for MANPRINTing Major Automated Information System Review Council (MAISRC) systems.

The SBIS program encompasses the information management resources and activities used to plan, raise, organize, train, equip, deploy and eventually sustain Army and other assigned forces in the accomplishment of their missions in operational theaters. The functions performed in the Sustaining Base, such as personnel management, payroll, financial accounting and control, supply and services, etc., are "business" functions, as distinct from combat related functions.

An initial MANPRINT Joint Working Group (MJWG) met on June 19-20, 1991 at Ft. Belvoir, Virginia, to establish procedures for applying MANPRINT to the SBIS system, and to write a System MANPRINT Management Plan (SMMP). The MJWG was chaired by Ms. Carol Lowery, Chief, Technical Management Division, Program Management Office, Sustaining Base Automation. Other participants included representatives from the Office of the Director of Information Systems for Command, Control, Communications, and Computers; the Office of the Deputy Chief of Staff for Personnel; the U.S. Army Information Systems Command; the

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"Remember the Soldier"

▶ **IMA:** *from page one*

U.S. Army Operational Test and Evaluation Command; the U.S. Army Research Institute for the Behavioral and Social Sciences; the U.S. Army Personnel Integration Command; and the U.S. Army Human Engineering Laboratory.

Like materiel systems, information systems have users, maintainers, and training requirements. Unlike materiel systems (such as weapon systems) where technology is developed to counter a threat, information systems are usually based on a need or on taking advantage of the latest technological advancements. Because information systems acquisitions primarily consist of nondevelopmental item (NDI) hardware with emphasis on commercial off-the-shelf (COTS) software, there is limited opportunity to influence the hardware design without costly modifications. We can, however, influence the buy. Thus software, whether a COTS purchase or specifically developed, emerges as a most significant MANPRINTable system component. The use of NDI hardware bypasses the concept and prototype development stages of the materiel acquisition process. Therefore, in the acquisition of information systems, it is essential that a system description, which includes a Target Audience Description (TAD), be written very early. The TAD is a critical element for ensuring proposed hardware and software will not exceed user capabilities.

"Information systems acquisitions primarily consist of NDI hardware with commercial off-the-shelf software, so there is limited opportunity to influence the hardware design without costly modifications. We can, however, influence the buy."

The MANPRINT Joint Working Group was successful in adapting materiel system MANPRINT procedures to information systems, but some differences do exist. For example:

- Information systems embrace a very broad range of users operating in highly diverse environments. Users that include all levels of military and civilians, working in areas such as publications and printing, automation, telecommunications, office management, and warehousing, contribute to this complexity.

- Typically, for a materiel system, a combat developer has the lead up to Milestone I, after which a materiel developer assumes responsibility. For an information system, however, the program/project manager is appointed upon Milestone O approval and takes the lead at that time. In addition, for materiel systems, the Training and Doctrine Command serves as the user representative; whereas, for information systems, virtually any activity can function in this capacity.

- In both materiel and information systems, a SMMP is prepared upon approval of the Mission Needs Statement. The difference is that in materiel systems, the combat developer takes the lead on SMMP development, and in information systems, it is the program/project manager's responsibility. Both systems, however, must initiate their MANPRINT efforts early enough to ensure the Mission Needs Statement includes basic MANPRINT values. This enables MANPRINT issues and constraints to become an integral part of required documents, such as the Test and Evaluation Master Plan; the Functional Description; the Integrated Logistics Support Plan; and, most importantly, to establish evaluation criteria for contractor proposals. Excluding MANPRINT from the contract guarantees one thing: there will be no MANPRINT analysis performed, and hence, no benefits for the user.

MANPRINT continues to evolve. The SBIS system MANPRINT Joint Working Group has made a substantial leap in identifying and resolving some of the user-related issues associated with MAISRC systems.

This initial venture into the IMA arena has demonstrated that MANPRINT provides a significant "value added" to the acquisition process of Army information systems, and will provide valuable insight for use in subsequent modifications to MANPRINT policies and procedures.

For more information, contact Peggy Smith, USAPIC, 200 Stovall Street, Alexandria, VA; (703) 325-8779.

The TAD: In Need of Redesign

Harry Chipman
MANPRINT Directorate, ODCSPER

Times are changing and so are MANPRINT's written requirements. A recent TRADOC-initiated effort to streamline the System MANPRINT Management Plan (SMMP) format again surfaced the need to relook and redesign the Target Audience Description (TAD). Once envisioned as the Army's way of providing useful information to industry's system design engineers, TADs currently being developed seem to provide little benefit to industry and are imposing increased workloads on their developers. If the TAD is to be a useful MANPRINT tool, it needs work.

In recent years, the TAD has grown into a massive, cumbersome document of minimal apparent value, not to mention a source of frustration to many in the MANPRINT community (both Army and industry). However, the Army has an obligation to define the human design parameters for an acceptable system and provide the information to industry if effective human systems integration is to be accomplished. A well-written TAD can do this by accurately describing, in terms relevant to design engineers, the soldier population who will operate, maintain, and support the future system.

Redesigning the TAD to optimize its benefit for both Army and industry is not an easy task, nor one to be done in a vacuum. Therefore, we are soliciting your comments (especially you engineers!) and assistance to generate ideas for the new format. The Army needs to clearly understand what type of data is useful to industry, what information is of little value, and how much translation of data is required to ensure the TAD becomes a useful tool for MANPRINT practitioners.

Please send comments and ideas regarding the TAD to: HQ DA, ATTN: DAPE-MR, Washington DC 20310-0300.

? DID YOU KNOW?

■ *Human Factors (HFAC) Highlights* is distributed each February and August to members and advisors of the Tri-service Human Factors Standardization Steering Committee (HFSSC) and other DoD and contractor individuals involved in the HFAC standardization program. Those in the MANPRINT community might find it useful as well. To be placed on distribution, contact Mrs. Glenda Rogers, DSN 746-6980 or COM (205) 876-6980.

■ The RAH-66 Comanche TRADOC System Manager (TSM) is placing user personnel at the Boeing/Sikorsky facility. This four-member team will monitor and track user issues in system design and will attempt to maximize MANPRINT input. The DCSPER is very supportive and is interested in implementing in other Army programs.

■ National Technological University (NTU) operates an instructional television network targeted primarily at an industry audience. MANPRINT will be the topic for October's monthly feature (to be aired 15-16 Oct). For more information, contact LTC Gary Shaw, MANPRINT Directorate, COM (703) 695-9213, DSN 225-9213.

■ The DA System Safety Coordinating Panel-Technical Subpanel (TSP) met at Ft. Rucker, AL, 24-26 June 91. The TSP finalized plans fo the Quinquennial System Safety Workshop to be held 27-29 August in the DC area. Participants reviewed the draft DA PAM 385-16, System Safety Engineering, and received status reports on software system safety, system safety resourcing, system safety program evaluation, and technical education/professional development issues.

■ The completed mark-up of the National Defense Authorization Act for FYs 92 and 93 denies a requested $70.9 million increase in development funding for the Anti-Armor Weapon System-Medium until key problems are corrected. The focal plane array technology is one primary area of concern.

Revised MANPRINT Training

MANPRINT training is undergoing a complete overhaul. The result of this will be a more targeted program of instruction in both course content and audience. This significant change in MANPRINT training is a result of a USAPIC-initiated systems approach to training review. The review looked at training in its entirely with the aim of improving the training program from top to bottom.

Currently, the training courses include a 10-day MANPRINT Staff Officers Course, and a 5-day Senior Training Course with the first day set aside for a GO/SES seminar. The 10-day course is taught exclusively at Fort Lee, Virginia, and the 5-day course is taught at various installations and agencies in CONUS.

The new courses will include a 9-day MANPRINT Action Officers Course, a 2-day MANPRINT for Managers Course, and a 4-hour MANPRINT for Senior Leaders Seminar. The courses will provide each level of MANPRINT personnel with pertinent and relevant information with which to perform their MANPRINT functions.

ALMC will begin the presentation of the new courses in October 1991. The courses will be presented at host installations and agencies in CONUS. This should result in greater attendance figures with the reduced TDY costs involved. The full schedule of courses is as follows:

MANPRINT ACTION OFFICERS COURSE

Class No.	*Dates*	*Location*
92-001	21 Oct - 31 Oct 91	Inf Sys Com, Ft. Huachuca, AZ
92-002	2 Dec - 12 Dec 91	Ft. Lee, VA
92-003	7 Jan - 17 Jan 92	Intel School, Ft. Devens, MA
92-004	4 Feb - 14 Feb 92	FA School, Ft. Sill, OK
92-005	25 Feb - 6 Mar 92	Eng School, Ft. Leonard Wood, MO
92-012	16 Mar - 26 Mar 92	Signal School, Ft. Gordon, GA
92-006	13 Apr - 23 Apr 92	TROSCOM, St. Louis, MO
92-007	4 May - 14 May 92	Ft. Lee, VA
92-008	26 May - 5 Jun 92	BRD&E Ctr, Ft. Belvoir, VA
92-009	15 Jun - 25 Jun 92	ADA School, Ft. Bliss, TX
92-010	17 Aug - 27 Aug 92	AMCCOM, Rock Island, IL
92-011	14 Sep - 24 Sep 92	HEL Aberdeen Proving Ground, MD

MANPRINT FOR MANAGERS COURSE

Class No.	*Dates*	*Location*
92-001	31 Oct - 1 Nov 91	Inf Sys Cmd, Ft. Huachuca, AZ
92-002	19 Nov - 20 Nov 91	ADA School, Ft. Bliss, TX
92-003	22 Jan - 23 Jan 92	HQ TRADOC, Ft. Monroe, VA
92-004	30 Jan - 31 Jan 92	AMCCOM, Rock Island, IL
92-005	9 Mar - 10 Mar 92	Ft. Lee, VA
92-011	26 Mar - 27 Mar 92	Signal Center, Ft. Gordon, GA
92-006	1 Apr - 2 Apr 92	BRD&E Ctr, Ft. Belvoir, VA
92-007	20 May - 21 May 92	HEL, Aberdeen Proving Ground, MD
92-008	25 Jun - 26 Jun 92	ADA School, Ft. Bliss, TX
92-009	12 Aug - 13 Aug 92	ARDEC, Picatinny Arsenal, NJ
92-010	2 Sep - 3 Sep 92	TACOM, Warren, MI

U.K. MANPRINT Update

Barbara Frank
MANPRINT Directorate, ODCSPER

Dr. Harold R. Booher, Director for MANPRINT, recently completed a visit to the United Kingdom, where he participated in the MANPRINT Forum, a conference jointly sponsored by the British Ministry of Defence (MOD) and the Department of Trade and Industry (DTI). The visit also provided an opportunity to discuss progress with some of those attempting to implement MANPRINT in the British system, in particular, the Army Personnel Research Establishment (APRE) at Farnborough; Admiralty Research Establishment (ARE) at Portsmouth; University of Warwick; and British Aerospace in Bristol.

At the MOD/DTI MANPRINT Forum, attended by more than 100 British government and industry personnel, Dr. Booher presented a summary of the U.S. MANPRINT program, with highlights on implementation in the COMANCHE program and the potential competitive benefits of human-oriented design. Another U.S. representative, Susan Dahl of MicroAnalysis & Design, gave an outstanding presentation on HARDMAN III.

Presentations from the various British government and industry representatives revealed a sophisticated appreciation of MANPRINT. David Clinton of Andersen Consulting, in his presentation on Change Management, emphasized that the benefits desired from MANPRINT could not be realized without a major institutional change in both government and industry. Michael Goom, representing British Aerospace, stated that the bulk of the change must take place in industry.

The British contractors benefited from seeing a wide acceptance of the MANPRINT concepts by the Forum's government participants. Although the MOD MANPRINT Office is Army affliated, the British Navy is equally as receptive. The Department of Trade and Industry also encouraged industry toward MANPRINT for commercial applications. A very handy guide to usability (*Human Computer Interaction*) produced by DTI was included as part of the handout materials. This guide should be of interest to the U.S. Army personnel and contractors working on MAISRC systems.

Dr. Booher had an opportunity to meet with Dr. Allan of APRE at Farnborough, who indicated the British have many of the same organizational problems in both conducting research and aiding systems development as we do. They have limited numbers of experts and complex funding streams to meet both materiel and personnel objectives. The problem of integrating the six domains of MANPRINT through a laboratory organization while providing a balance between central laboratory and field research also exists. Dr. Allan and Dr. Booher agreed that one extremely pressing issue that must be addressed is how to maximize the effectiveness of the limited supply of personnel with MANPRINT expertise. Government will continue to require individuals who can integrate MANPRINT requirements into the RFP, evaluate proposals, and conduct research in systems development. As the national and international demand for MANPRINT expertise increases, the supply process should begin to be affected.

In wrapping up his session with Dr. Allan, Dr. Booher agreed to support a British proposal for a new Action Group (UAG-13), "MANPRINT Methodologies," as a technical panel of the Technical Cooperation Panel (TTCP) nations, and will coordinate with OSD to seek formal U.S. support.

The U.K. Royal Navy (URN) activities were discussed at the Admiralty Research Establishment (ARE) in Portsmouth. ARE is not as large as APRE, but is doing some very impressive research, including work on data fusion in Naval command and control operations rooms.

The URN has a human factors initiative, DOR (Sea), their equivalent of MANPRINT. It defines human factors in six domains: 1) Personnel Requirements for Recruitment and Selection, 2) Task Design/ Human Engineering, 3) Environmental Conditions, 4) Habitability and Accommodation, 5) Training, and 6) Health Hazards and System Safety. Their initiative aims to impact overall ship performance, reduce total life cycle cost and projected difficulties in recruitment.

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UK Trip: *from page five*

URN is procuring a new generation of Command Systems for the Type 23 frigate. The human factors input to the various stages of the procurement process includes 1) Requirements specification; 2) Human factors methods guidance (Unfortunately, they found few methods to apply on large complex problems or compatible with systems analysis and design methods. Many of the U.S. technologies can't be directly applied, but their research organizations are studying modifications); 3) Providing a share of the tender (proposal) evaluation; and 4) Definition of HF acceptance tests. The URN's efforts are commendable and should help not only to institutionalize MANPRINT in the U.K., but also to draw a sharper focus on priorities for MANPRINT R&D across the services.

The British experience in implementing MANPRINT can now provide useful feedback to strengthen the U.S. effort.

Dr. Arnett, at University of Warwick, demonstrated his guidelines for Training Requirements that he has been developing for APRE. He has been particularly interested in the learnability of different tasks, but has found a general lack of performance data on the topic. Unfortunately, he may not be able to complete his project because of funding cuts. The HARDMAN efforts have shown that development of quantitative training requirements is most difficult at the present time because there is so little concrete data linking training to performance.

The meeting with British Aerospace at Bristol revealed a commitment to MANPRINT unmatched by any U.S. corporation. The following are some examples:

- Even though up to 2/3 of the Company's personnel in some locations are in danger of losing their jobs, MANPRINT personnel and resources are expanding significantly.

- A *MANPRINT Briefing* bulletin has been distributed monthly for more than a year throughout the entire corporation.

- All known MANPRINT methods and tools are being extensively reviewed for applicability to British industry and whenever possible, being modified to meet industry needs for design decisions. This work will be valuable to planned U.S. efforts to develop industry tools for MANPRINT; British Aerospace's experience and assistance should be sought in support of these efforts.

- All corporate policies and procedures regarding system design and manufacture are being revised to include a human centered focus.

The British, both government and industry, are on their way to making MANPRINT work in the UK. The original enthusiasm has not cooled, but the tough realities of making it work are now more visible. Because of this, their experience can provide useful feedback to strengthen the U.S. effort in several areas. The Royal Navy can help the DoD Human System Integration Program though U.S. Navy participation, advances of British industry can be applied within U.S. firms, and the improved working relationship of British Research Establishments with Army Research Labs should help to further advance MANPRINT technology.

For more information, contact Ms. Barbara Frank, HQ DA (DAPE-MR), Washington DC 20310; (703) 695-9213.

YOUR INPUT IS NEEDED!

Have announcements or news about people in your workplace that might be of interest to others in the MANPRINT community? And of course, we're always on the lookout for good articles! Contact Ms. Barbara Frank, HQDA (DAPE-MR), Washington DC 20310; (703) 695-9213.

ODCSPER Nonconcurs with the Revised AR 70-1

The Office of the Deputy Chief of Staff for Personnel has nonconcurred with the revised AR 70-1, Systems Acquisition Policy and Procedures. General concerns are:

a. The regulation must show the definite link between the DoD Human Systems Integration Program and the Army's MANPRINT Program.

b. Key principles of Human Systems Integration/ MANPRINT are not included. These include Total System Performance, Reduction of Life Cycle Costs, and Soldier in the Loop. No early design influence is mentioned in the document.

c. Responsibilities for MANPRINT/HSI must be clearly established for Materiel and Combat Developers.

d. The MANPRINT/HSI link to material testing as prescribed in DoDI 5000.2 is not addressed.

e. Responsibility for the Operator Maintainer decision is not addressed.

As it currently stands, the revision does not establish the critical link between the DoD 5000 series and the AR.

Inclusion of these items will increase the effectiveness of the 5000 series of documents and AR 70-1 as an implementing regulation. Failure to do so could result in the degradation of the current MANPRINT program.

For more information, contact Mr. Harry Chipman, HQ DA (DAPE-MR), Washington DC 20310; DSN 225-9213 or (703) 695-9213.

MOVERS & SHAKERS

PEOPLE IN THE NEWS

• **Dik Gregory and Steven Harland** of Robson Rhodes, United Kingdom, have a consulting contract with the U.K. Ministry of Defence to assist them in implementing MANPRINT. They recently visited the HQ DA MANPRINT office.

MANPRINT NOTES

From the MANPRINT Program Office

■ **ASARC Meetings.** Both the TOW Sight Improvement Program (TSIP) and the Stingray programs recently underwent decision reviews. In the case of the TSIP, no decision was reached and a meeting with the CSA and the SecArmy has been scheduled to determine the direction of the program. Primary issue is insufficient funding to accommodate a robust program (covering both the HMMWV and Bradley fleets). With respect to the Stingray program, approval was given to proceed to the next phase (Engineering and Manufacturing Development), and the procurement quantity was increased to 164. Assessments detailing MANPRINT issues/concerns were prepared for both programs and forwarded to the ASARC secretary, PMs and TSMs.

■ **MSTC.** Ninety-four personnel, including 36 GO/ SES personnel, attended the MSTC held at TACOM in Warren, Michigan, on 29 July - 2 August. The combat developer presented issues, including the concept for the Block III Tank, milestones, SMMP development, and the various analyses required to support development of the system. The materiel developer presented issues, including the common chassis program, acquisition schedule and strategy, and objectives to increase crew effectiveness and reduced maintenance requirements. Specific MANPRINT issues discussed were the continuous operations and crew size concerns and reduced crew size impacts on the MOS force structure.

ALL ACQUISITION PROGRAMS HAVE CORE ACTIVITIES THAT MUST BE ACCOMPLISHED.

Core Activities Establish and Document:

✓Threat and Operational Requirements
✓Affordability
✓Acquisition Strategy and Program Baseline
✓Cost and Operational Effectiveness
✓Production, Readiness and Supportability
✓Developmental and Operational Testing

DODI 5000.2, Part 2, Para 5B

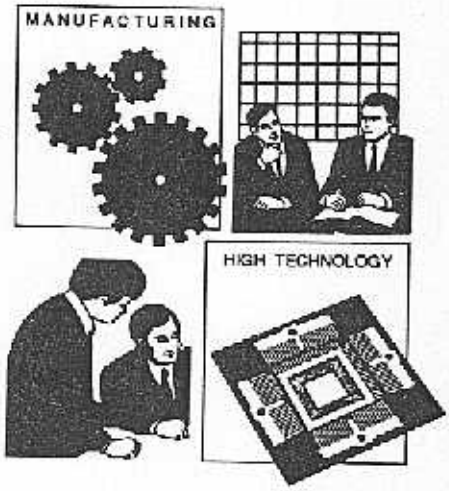
MANPRINT IS A CORE ACTIVITY.

The Human Technology Project in Japan

Sawaaki Yamada
Nomura Research Institute, Ltd.

Harold E. Price
Human Factors Consultant

The application of human factors to the design of products and systems has long been advocated as a way to improve performance. Japanese manufacturers have made great efforts to improve their products in terms of their function, reliability, and cost. Developmental research and product development have been fundamentally geared towards these three aspects. Recently, however, Japanese companies have shifted to a strategy of added value through human technology, which incorporates such areas as comfort, enjoyment, and usability.



In 1988, Nomura Research Institute (NRI) in Yokahoma, Japan, undertook a multi-client Human Technology Project involving 35 Japanese clients representing automobile companies, electronic companies, and construction companies. The survey aims to identify products and services that incorporate the Human Technology concept; important research projects related to human technology; and basic research on fundamental human behavior in areas such as cognition, perception, sensation, emotions, and attitude.

Recent Changes in the Japanese Market

Japan possesses great economic power internationally, however, in the Japanese consumers' consciousness, there is no actual feeling of affluence. Results of an opinion survey by the Prime Minister's Office revealed that 81.5% of the people surveyed felt Japan is a great national economic power, yet only 58.8% felt they have a high quality national life. In addition, the survey showed that people are attaching greater importance to "personal or emotional enrichment" rather than to "material enrichment." About 30% of the people surveyed valued material enrichment, while the number of people who attached great importance to "personal enrichment" exceeded 50%. Genuine pursuit of a higher quality of life is likely to occur.

In response to this trend, leading Japanese businesses are becoming increasingly active in the fields of marketing and new product development. Many companies have adopted slogans in which "human" has become the key word. For example, Matsushita Electrical Industrial's slogan is "Human Electronics - Technology for the Benefit of Mankind."

On the organizational side, companies are taking a new look at product development. These activities go beyond the narrow scope of concentrating merely on function into the area of higher added value. On the research and development side, NTT, Mazda and Taisei Corporation, a construction company, are extending their research capabilities into human factors. Taisei Corporation, for example, has established an environmental psychology research building where research efforts will study the compounded effects of light, sound, temperature and color environments upon human senses.

The New Paradigm Shift in Product/Service Development

The new paradigm shift for higher added value aims to make human-oriented improvements in new products, and the most advanced sciences and technology are now being used in this area. In the 1970s, the basic function of a product was improved through conventional technology. In the 1980s, the major focus was on electronics technology. This was employed in order to improve engineering capacity by making products faster, smaller, more reliable, with a larger capacity and reduced energy consumption. In

this decade, in addition to function, attention will be focused on practical use of high technology to fulfill the demand for high- level human aspects.

The direction of paradigm changes in Japan is evidenced in recent product design and development projects. These include:

- Improving the comfort of subway riding by fuzzy control.
- Automobile design emphasizing evaluation on a human sensory level.
- An experimental house based on the "science of comfort" and office "amenity environments" through intelligent devices and equipment.
- Fragrant air conditioning in offices to establish certain psychological effects.
- Natural air flow fans which fluctuate the air volume in such a way as to produce a more natural, breeze-like environment.
- Emotional computers through the use of natural networks that can add touches of "pleasure" and "powerfulness" to drawings and music.

As seen in these examples, human technology has begun to see application. However, human factors must play a "big science" role; that is, a science that describes the world that humans actually touch: the world of human senses on a human scale. Science must advance on a human scale in a global framework based on the developments in computer and mathematical sciences.

This year, NRI will expand the scope of the Human Technology Project by surveying organizations in the United States and Europe that are performing research and applications in areas emphasizing human technology. Application projects that will be emphasized in the survey include Open Space Planning; Housing/Home Electronics; Office Design; Information Technology; and Automobiles and Other Transportation Systems.

The paradigm shift by Japanese companies could challenge American and European companies in terms of expanded opportunities for Western products. The Japanese businesses will begin to take advantage of well-developed human factors research in America and Europe and attempt to overcome the notion that Japanese products excel in function and reliability but are hard to use.

The above is an edited version of an article that appeared in the CSTG Bulletin, April 1991.

What is CSERIAC?

Lawrence D. Howell, Jr.
Crew System Ergonomics Information Analysis Center

The Crew System Ergonomics Information Analysis Center (CSERIAC) is a full service information analysis center in the area of crew system ergonomics information. A DoD organization, hosted by the Armstrong Laboratory at Wright-Patterson Air Force Base, Ohio, CSERIAC provides a cost-effective means to help incorporate human centered information into developmental systems.

Crew system ergonomics information is scientific and technical knowledge and data concerning human characteristics and abilities, as well as engineering and design data concerning equipment and systems. CSERIAC's information domain is related to human performance and encompasses biomedical, physiological, behavioral, and engineering information. The information is obtained from past and present crew systems research, development, design, test, and evaluation efforts. CSERIAC also maintains current, computer-accessible bibliographic and technical information databases.

CSERIAC has produced handbooks and data books, reports, critical reviews and technology assessments, research directories, abstracts and indexes, and other materials. CSERIAC services include response to technical and bibliographic inquiries, support for revision and development of military standards and specifications, maintenance and use of computer-based models of human operators, and facilitation of technology transfer. CSERIAC sponsors symposia, workshops, and courses to apprise scientists and engineers of new developments in crew system ergonomics and to provide opportunities for professional development.

To help achieve its mission, CSERIAC has established a network among relevant knowledge sources on an international scale and has developed the media to draw upon this expertise to solve problems, achieve expert consensus, and plan for the most effective use of ergonomics information.

For more information and/or to subscribe to bulletins and newsletters, contact the CSERIAC Program Office, AL/CFH/CSERIAC, Wright-Patterson Air Force Base, OH 45433-6573.

MANPRINT TRAINING

Courses have been revised for FY 92. See page 4 for details . . .

MANPRINT Action Officers Course

21 Oct - 31 Oct 91 (Ft. Huachuca, AZ)
2 Dec - 12 Dec 91 (Ft. Lee, VA)
7 Jan - 17 Jan 92 (Ft. Devens, MA)

MANPRINT for Managers Course

31 Oct - 1 Nov 91 (Ft. Huachuca, AZ)
19 Nov - 20 Nov 91 (Ft. Bliss, TX)
22 Jan - 23 Jan 92 (Ft. Monroe, VA)

ARTICLES & COMMENTS

Articles, comments, and suggestions are welcomed. Mail to: MANPRINT Bulletin, ATTN: HQDA (DAPE-MR), Washington, DC 20310-0300; AV 225-9213, COM (703) 695-9213.

MEETINGS OF INTEREST

- **28 October - 1 November 1991**

33rd Annual Military Testing Association Conference. *San Antonio, TX. Contact: Mr. Jay Tartell, (512) 652-6623.*

- **2 - 5 December 1991**

Interservice/Industry Training Systems & Technology and Innovation in Training & Education Conference. *Orlando, FL. Contact: ADPA, (703) 522-1820.*

- **15 - 17 January 1992**

International Conference on Hazard Identification and Risk Analysis, Human Factors, and Human Reliability in Process Safety. *Orlando, FL. Contact: ETA, 125 Elm Street, PO Box 2008, Westfield, NJ 07091; 1-800-543-4451.*

MANPRINT INFORMATION

POLICY: *MANPRINT Directorate, HQDA (DAPE-MR), Washington, DC 20310-0300. AV 225-9213, COM (703) 695-9213.*

MANPRINT TRAINING: *US Army Personnel Integration Command, ATTN: ATNC-NM, 200 Stovall St., Alexandria, VA 22332-0400. AV 221-3706, COM (703) 325-3706.*

PROCUREMENT & ACQUISITION: *US Army Materiel Command, ATTN: AMCDE-AQ, 5001 Eisenhower Ave., Alexandria, VA 22333-0001. AV 284-5696, COM (703) 274-5696.*

HUMAN FACTORS ENGINEERING STANDARDS AND APPLICATIONS: *Human Engineering Laboratory - MICOM Detachment, ATTN: SLCHE-MI, Redstone Arsenal, AL 35898-7290. AV 746-2048, COM (205) 876-2048*

MANPOWER, PERSONNEL AND TRAINING RESEARCH: *US Army Research Institute, ATTN: PERI-SM, Alexandria, VA 22333-5600. AV 284-9420, COM (703) 274-9420.*

TEST & EVALUATION: *Operational Test and Evaluation Command, 4501 Ford Ave, Alexandria, VA 22302-1458; (703) 756-2487.*

LTG William H. Reno, Deputy Chief of Staff for Personnel

MG Ronald E. Brooks, Commander, Soldier Support Center (Proponent for Army MANPRINT Training)

Ms. Barbara Frank, ODCSPER Coordinator

Ms. Nan B. Irick, Editor

Harold R. Booher
Director for MANPRINT

The MANPRINT Bulletin is an official bulletin of the Office of the Deputy Chief of Staff for Personnel (ODCSPER), Department of the Army. The Manpower and Personnel Integration (MANPRINT) program (AR 602-2) is a comprehensive management and technical initiative to enhance human performance and reliability during weapons system and equipment design, development, and production. MANPRINT encompasses the six domains of manpower, personnel, training, human factors engineering, system safety, and health hazard assessment. The focus of MANPRINT is to integrate technology, people, and force structure to meet mission objectives under all environmental conditions at the lowest possible life-cycle cost. Information contained in this bulletin covers policies, procedures, and other items of interest concerning the MANPRINT Program. Statements and opinions expressed are not necessarily those of the Department of the Army. This bulletin is prepared bimonthly under contract for the MANPRINT Directorate, Office of the Deputy Chief of Staff for Personnel under the provisions of AR 310-2 as a functional bulletin.

* U.S. G.P.O.:1991-281-483:40053