

ADP CONFERENCE EMPHASIZES CHANGE

Ken Spears

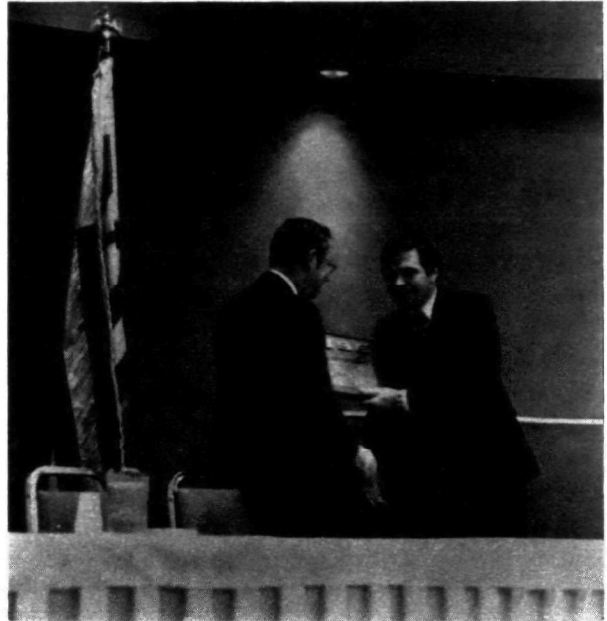
Talk of change dominated the fourth EPA ADP Conference, held this year from February 11 through February 15 at Southern Pines, N.C. The regional sessions, the general sessions, and the technical sessions all stressed the complexity of "changing information resources." As R. C. Stringer (MIDSD) noted in his opening remarks for the conference, the continuing change in EPA's data processing management programs and in data processing technology "strongly reflects the extension of computer technology from the large-scale computer room to the office, library, laboratory, and virtually every facet of the organization."

To control such change, the conference participants generally agreed on three methods: (1) plan carefully for information requirements, (2) manage existing and evolving resources effectively, and (3) consolidate information systems if possible. How well these methods work depends, of course, on thorough preparation. Reliable audits and studies are usually necessary before detailed planning begins.

DATA CENTER ACTIVITIES

According to Don Fulford (MIDSD/NCC), the National Computer Center and the Washington Computer Center also underwent a year of change and are currently in a transition period. Fulford presented the major achievements of both centers in FY1979 and previewed plans for the future.

During the past year both centers experienced continued growth, increased



R. C. Stringer (left), Director, MIDSD, presents Don Fulford, Chief, Data Center Branch, with the Service Award from the USE, Inc. (Univac Scientific Exchange) group.

direct services to users, and upgraded their hardware, software, and security systems. In addition, at WCC the dedicated organization matured and the center converted to the Multiple Virtual Storage (MVS) operating system. The NCC achieved record stability, added three new systems, and transferred equipment into its new building. "We have established a solid base," Fulford said, "from which we can move on to the future."

Both centers plan to meet the increasing needs of their users, especially in terms of reliability, maintainability, and availability. To achieve this goal, Fulford sees improved communications with users as indispensable. "As we move into the '80's," he said, "our involvement and

(Continued on page 3)

WCC HIGHLIGHTS

Maureen Johnson

✓ All WCC processing is now on the MVS/TSO/WYLBUR operating system. The new MVS system was made available to users on both the IBM 370/168 and IBM 370/3032 on January 14, 1980. Significant improvements in performance and stability have resulted from the conversion.

✓ WYLBUR users experienced a high level of frustration during December and January because of frequent lapses in WYLBUR availability and associated loss of workspaces. Several major problems, most of which are now resolved, contributed to the unstable WYLBUR situation.

✓ The XEROX 1200 located at the Washington Distribution Center is in final testing and will soon be available for user production work. The XEROX 1200, which produces high-speed, high-quality hardcopy from print image magnetic tape, is 2 to 3-1/2 times faster than the WCC's high-speed printers.

✓ The Washington Distribution Center will be expanded this summer to accommodate a PDP-11/70 minicomputer system and thus will enhance the overall capabilities of the Distribution Center.

EPA Data Talk is published bimonthly by the EPA Management Information and Data Systems Division, National Computer Center, for EPA personnel and contractors interested in general ADP topics.

Comments, suggestions, and news items should be addressed to:

William G. Allen
Editor, EPA Data Talk
National Computer Center
Research Triangle Park
North Carolina 27711

To ensure that our distribution list is up to date, please indicate any required changes on the mailing label attached to this issue and mail it to the above address.

NCC HIGHLIGHTS

Tom Rogers

✓ The expansion to the computer facility building has been completed and was accepted in early January. The new IBM 3800 Laser Printer was immediately installed there along with selected hardware from the current Sperry Univac equipment. The printer provides high-quality and high-speed print capabilities to the NCC user community. All printers, high-speed disks, and communications/symbiont processors are now operational within the new space.

✓ The IBM 3800 Laser Printer, installed in January, is currently available to users on a limited basis. Further utilization details will be distributed through user memos.

✓ The revised NCC User Reference Manual (URM) was distributed to the NCC user community on January 30. The revision process began about a year ago and has resulted in an easier-to-use and easier-to-update reference document. Special thanks go to the RTP ADP Coordinators who reviewed the final draft.

✓ Progress toward completing the NCC Disaster Recovery Plan was delayed when the Bureau of Census declined to sign the formal contingency agreement with the NCC. Although an informal agreement had been reached, at the time of formal commitment the Computer Operations Division within Census was directed to procure guaranteed time at a commercial facility. However, the U.S. Treasury Department's Office of Computer Science has expressed interest in a mutual backup agreement. This possibility is being studied now.

The deadline for contributions to the May/June issue of EPA Data Talk is April 25, 1980. Contributions received after that date will be published at the discretion of the editor.

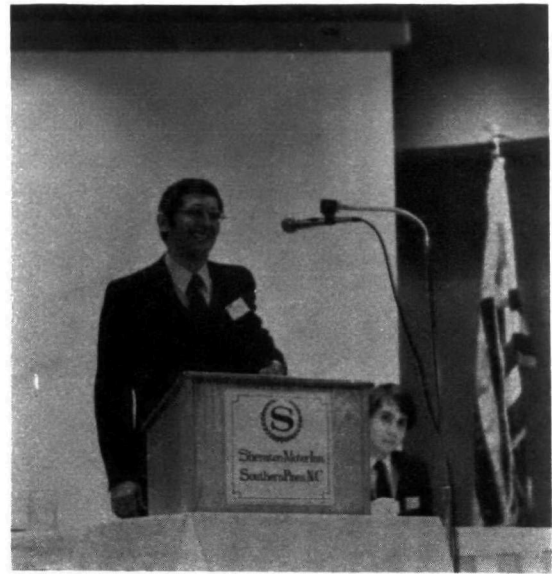
planning with the users will have to increase." Already the centers have expanded their efforts toward this goal. They now offer, for example, more training, more printed and on-line materials, and more opportunity for personal communication.

PLANNING AND MANAGEMENT

Like the address of Fulford, that of Robert L. Chartrand (Library of Congress) ranged from the past to the present to the future. His keynote address centered on the fact that the present is a time for redefinition and recommitment in terms of information technology. "So often," he said, "our management at the departmental/agency level is so busy it does not take time to learn enough about data processing and good management techniques."

Chartrand reminded the participants that now that ADP, traditional Library Science, and information services seem to be merging, workers must learn what information resources they need, which ones exist, where they are, what they cost, and how they can be accessed. He then reviewed government's endeavors to help. Within the past two years, for example, a series of studies have been made and 75 laws passed in Congress regarding information policies, programs, and technology. In addition, an Office of Federal Information Policy has been proposed and the American Society of Information Sciences has provided a list of 149 current on-line data bases. According to Chartrand, these concentrated efforts to enumerate information resources will continue.

In a session on "Decentralization of Timeshare, Plans, and Budget," Ken Byram (MIDSD), Dan Cirelli (MIDSD), and Dick Boyd (MIDSD) discussed data processing planning, data processing budgeting, and the role of the Steering Committee. To supply adequate information on requirements for timeshare services and to provide MIDSD the review and control authority it needs, the procedure they recommend would tie timeshare budgeting to the Agency's successful Zero Base Budget (ZBB) process.



Sam Brown, Director, National Computer Center, addresses the conference.

The planning process would consist of (1) overall guidance from the Steering Committee, (2) a working group by office or media, (3) a requirements plan reviewed by the Steering Committee, (4) the details added, (5) final Steering Committee approval, and (6) a 5-year plan updated yearly. The ZBB process would furnish MIDSD the details and precise information necessary to justify requesting the funds it needs to run the data centers effectively. The Steering Committee would involve upper management in ADP processing and would help resolve conflicts between users and the Agency.

Formal planning and management of systems development were discussed by Gene Lowrimore (MIDSD), John Hart (MIDSD), Mary Lou Melley (MIDSD), and Vic Cohen (MIDSD). To reduce dependency on contractor support for systems development, the team recommends formal management, integrated systems, program-wide coordination, and ADP planning. Such an approach, they say, would yield more intelligent use of ADP resources and more effective use of ADP systems. Although contractors would continue to implement systems requirements, management would furnish specific statements of need. Providing explicit information elements and design and testing requirements, for example, would allow MIDSD more control.

ADP SECURITY

Marguerite L. Hall, Computer Specialist

This is the second in a series of four articles on ADP Security. The first article reviewed the peculiarities of ADP that make it inherently insecure. This, the second part of the second article, looks at goals, the scope of ADP security, and its key concepts and terminology. Because of its length only the first part of this article appeared in the last issue of EPA Data Talk. The third article traces the development of awareness of ADP security in the Federal sector. The fourth article covers EPA's recently developed Agencywide security program and our plans for a staged implementation.

Core Concepts: Part II

In a way, CONTROLS are what it's all about. Controls counter threats. Control is the antonym of vulnerability. If you have a control, you don't have a vulnerability. If you have a vulnerability, you don't have control. A control can be designed to counter a single threat. A moisture detector will alert you to the presence of water. Other threats are best thwarted by a series of controls. For example, power supply problems may be countered with uninterrupted power supply equipment backed up by banks of batteries backed up by motor generators. There are some controls that work against multiple threats. More barrier for the buck, so to speak. A guard at the computer room door can prevent theft, mischief, accidents, vandalism, sabotage, and the like. Authentication (you are who you say you are) and authorization (you are privileged) software prevents unauthorized use of services, destruction, alteration, and disclosure of data.

One way of categorizing controls is by what you're trying to do with them. The word is "strategy." There are controls that prevent adverse events. There are controls that detect adverse events. There are controls to minimize the effects of adverse events, and there are controls to recover from an adverse event. Table 1 gives an example of a control strategy for fire loss.

Table 1. Control Strategy for Fire Loss

STRATEGY			
<u>Prevent</u>	<u>Detect</u>	<u>Minimize</u>	<u>Recover</u>
Clean	Smoke	Halon	
Room	Detector	Offsite	Contingency
		Data Storage	Arrangements

A second way to categorize controls is by type. There are physical, technical, administrative, and managerial controls. Physical controls are the ones thought of first. Physical controls are concerned with facility site and structure, physical layout, access barriers, and environmental monitoring equipment. They're masonry walls, vaults, locks, TV monitors, air conditioners, and filters. They're fire extinguishers and moisture detectors and alarm annunciators, brooms, mops, and vacuum cleaners.

Technical controls are imbedded in hardware, peripherals, software, and telecommunication gear. They are diagnostic circuitry, component redundancies, and memory-protect features. They are trusted operating systems and machine accounting routines. They are encryption algorithms and security violation reports and hash totals and audit trails.

Administrative controls are every bit as important as technical and physical ones but take a little more imagination to picture. Administrative controls concern people and procedures. Whom you hire, when you fire, how you train, supervise, and discipline all matter. Who is authorized to do what to which, when, matters. So does log keeping. You need to keep track of who enters a sensitive area, who receives a delivery, and who requests a sensitive report. The procedures you develop and follow for software development and for software and hardware modification matter too. So does tracking usage and chargeback. You need procedures to rotate critical data through offsite storage and procedures for contingency operation in case of data center disaster.

Managerial controls tie everything together. Picture, as in Figure 1, a three-tiered triangle with "management" at the top, "administration" in the middle, and "physical" and "technical" forming the base.

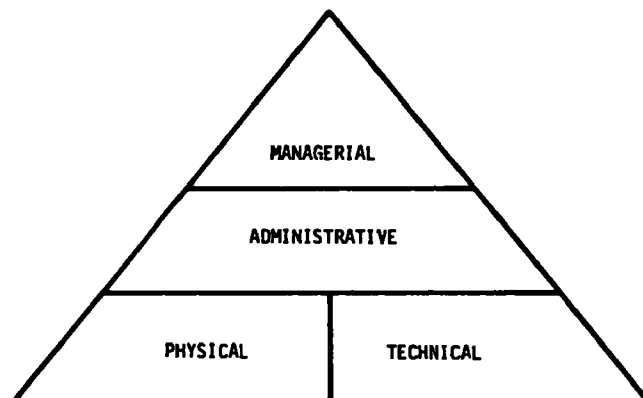


Figure 1. Controls

Managerial controls concern planning and evaluation. They involve the allocation of people, plant, equipment, time, and dollars. They include formal audit. Audit means an independent review of the effectiveness and efficiency of your controls. It's a check to make sure that your controls are actually in place, being followed, and working. When audit finds things amiss, you're back in an interactive loop -- that is, back to planning and evaluation, resource allocations, and another audit. For sure, security isn't a one-time drill.

The final concept is RISK MANAGEMENT. Recall that the definition of risk was expected cost, over a certain amount of time, for the occurrence of a specific adverse event. Risk management adds another element: selection of suitable controls. At the most elementary level, it's making sure that the cost of the control is less than the risk. It would be patently ridiculous to install a \$200,000 fire prevention system at a minicomputer site where the risk is \$10,000.

Control strategy is rarely, if ever, easy. Choices range from simple to sophisticated, singular to serial, inexpensive to exorbitant. With each choice comes cost: dollars for installation and operation of controls, dollars for risk. The trick is to pick the control which will result in the lowest total "cost." Look at Table 2 and select a control.

Table 2. Example of Control Strategy

Adverse Event	Control	"Cost"		
		Control	Risk	Total
Theft	Guard Service			
	24-Hour	\$90,000	\$95,000	\$185,000
	3rd-Shift	\$25,000	\$35,000	\$ 60,000

If you picked the guard for the graveyard shift, you picked right. The price of control is less than the risk, and the total "cost" is the lower alternative. Results are often surprising, things you wouldn't guess. Hardware encryption makes sense but software encryption doesn't. Passwords must be changed more often. Employee termination procedures need reworking. Figure 2 graphically presents this effect.

The total "cost" principle works just as well for a whole data center or a complex application system as it does for a single adverse event. It's just infinitely more complicated. In fact, thousands of calculations and hundreds of iterations on the calculations are often required. Obviously, risk management is a good candidate for automation. And as you might guess, there are companies in the business of supplying proprietary software so you can do just that.

In summary, think back to our original goal to

TAKE ALL REASONABLE MEASURES TO PROTECT OUR ADP RESOURCES

"ADP resources" you now know are everything from hardware to information. "Protection" you know too. It's the prevention, detection, minimization, or recovery from a threat exploiting a vulnerability, reaching a resource, and causing an adverse event. That's control. And "reasonable" is what risk management is about. It elevates the selection of protection from guesswork to rational, predictable decisionmaking. And finally, "take" means "do it."

(Continued from page 3)

Additional training, the team believes, would also improve systems development. To illustrate the value of such training, three instructors from NADPI described the courses they teach: Wayne Savage (DeBoever, Savage, and Associates), "ADP Project Administration"; John Sherrod (independent consultant), "Overview of Information in EPA"; and John Censor (Planning & Control, Inc.), "Project Management Principles and Practices."

AUDITS AND STUDIES

Gerard Hallaren (IDC) reminded the conference participants that computer technology advances faster than most users and managers can absorb and that both hardware and software continue to become more specialized. And since EPA has embarked on an ambitious procurement program to sustain its computing resources

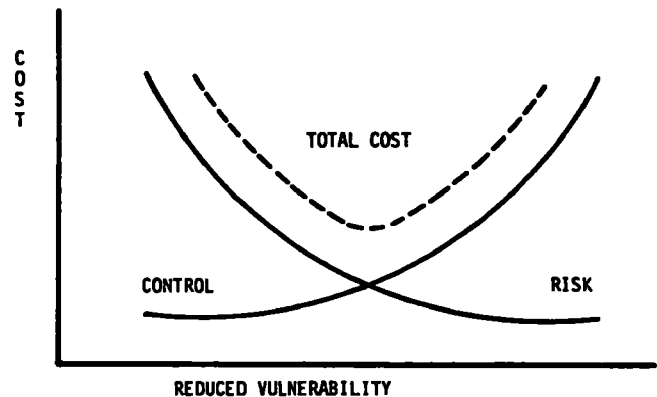


Figure 2. Control Strategy

to the year 2000, he emphasized that a sound knowledge of computing resources is essential. J. Michael Steinacher (MIDSD/NCC) then reviewed the results of the many specialized studies undertaken by the Systems Acquisition and Implementation Program team to prepare for this large computer service procurement.

Wilbur D. Campbell (GAO) described the audit program at GAO, the method of making audit assignments, and the strategy of integrating the results of these audits. He too pointed out that GAO audits and other consulting reports show the need to change ADP management structure and the programs it serves. Dan S. Soranno (GAO) reported that GAO has completed its audit of EPA's ADP program. He highlighted the audit, the approach taken, the conclusions reached, and the recommendations submitted by the team.

Edward J. Hanley (OMAS) presented the recommendations of the DAA Advisory Group on Monitoring and reviewed the basis for the recommendations, the ADP management study performed by Nolan and Norton. Hanley predicted that the study will become part of a major management initiative and will affect hundreds of Agency personnel.

SYSTEMS CONSOLIDATION

A. Michael Kaplan (FMD) reported on the Office of Resource Management (ORM) Integration Project. The project involves developing a management information system by combining data from Personnel, Contracts, Finance, ZBB, and Grants. The project team is currently working to provide management with better and more efficient information. They have, for example, furnished data to programming offices, developed a project control that allows users to access data in the financial management data base, and directed programming offices to input their data directly into the financial management system. In addition, they hired Arthur Young and Associates to study the requirements of management.

Donald Fitzpatrick (Arthur Young and Associates) discussed the findings of the ORM study, "Alternative Strategies for the Integration of ORM Information." The report offers four alternatives designed to improve information handling capability in ORM, to improve management of ORM's current information resources, and to assist ORM in planning for future support requirements.

Morris Yaguda (MIDSD) and six panelists representing various activities in EPA's Consolidated Permit Program discussed this new consolidated approach to contractor resources and management.

Currently, information is collected by EPA and the states, but management lacks common facility and chemical ID numbers, standard geographical codes, data element standards, integrated information systems, a comprehensive process to maintain high-quality information, and a formal structure to manage information at headquarters, in the regions, and in the states.

By integrating separate information systems and permit programs, the Consolidated Permit Program seeks to (1) provide complete residual controls, (2) remove inconsistencies and overlaps, (3) streamline permit processing to a single regional office, (4) encourage public participation, and (5) reduce costs. And by showing that the program works, EPA hopes to foster state participation and eventually transfer the program to the states.

How to establish a Chemical Substances Information Network (CSIN) was demonstrated by Sidney Siegel (OTS/OPII). CSIN, a network of coordinated on-line information systems concerning chemical substances, can provide access to information in hundreds of potentially relevant data bases. Thus it could satisfy requirements regarding toxic substances legislation and a broad spectrum of related activities.

To implement such a program, Siegel says that you need two things: "the physical and mental attributes of an alley fighter."

According to Siegel, CSIN could be used by regulatory agencies, research institutions, industry, public interest groups, and educational institutions. Its benefits include increased productivity of professional staff, high product quality, rapid response, and effective interagency data sharing. A CSIN prototype, he said, will be in place with some capability near the end of 1980.

SPECIAL INTEREST GROUPS

New to this year's conference were meetings held by user groups: Regional ADP Coordinators, Financial Management Officers and Users, and Minicomputer Managers. Where appropriate, joint meetings were conducted.

Included for the second time were the "Birds-of-a-Feather" sessions. These small, informal meetings were devoted to special-interest topics such as word processing, RACF security and MVS conversion at WCC, and distributed data processing.

(Continued on page 8, column 2)

8 **NCC REQUESTS
GRAPHICS INFORMATION**

Ernie Watson

"A picture is worth a thousand words" is a quotation especially applicable to graphics in the computer industry. Although the technology for graphically representing data has existed for some time, only recently has it come of age. To better plan for this "coming of age" in EPA, the National Computer Center needs your input.

The NCC has mailed a graphics survey to all ADP Coordinators in the Agency. It asks for specific recommendations and poses questions about current requirements and support. Thus it is designed to help the NCC assess not only your future graphics requirements but also your present level of satisfaction relative to graphics.

The NCC hopes that your ADP Coordinator will seek your assistance. If not, however, won't you share your viewpoint with the coordinator anyway?

**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
National Computer Center
Research Triangle Park
North Carolina 27711**

**OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
AN EQUAL OPPORTUNITY EMPLOYER**

(Continued from page 7)

SUMMARY

The conference centered on change, planning, management, and systems consolidation. Its overall theme of "Information Resources in Transition" recurred frequently as the 310 participants exchanged ideas, outlined plans, and highlighted programs and studies. The conference demonstrated that EPA's current activities should give the Agency the blueprint it needs to build for the future. R. C. Stringer perhaps summed up the general feeling best in his closing remarks. "After meeting a lot of you," he said, "I am far more optimistic about our chances of success."

**POSTAGE AND FEES PAID
U S ENVIRONMENTAL
PROTECTION AGENCY
EPA-335**

