Illustration by Kenneth D. Hannawalt

Stovepipe busters

by Lt. Col. Paul M. Booton, Jr.

Who you gonna call? If you want to be a winner in today's system development environment, it had better be a "stovepipe buster," someone who replaces a series of isolated automated systems with a single integrated system.

We can no longer afford to fix automation problems one at a time without looking at how those individual problems fit into the problem of a larger automated system. Of course, if something needs fixing, it must be fixed and as quickly as possible. However, stovepipe systems, which answer merely local, immediate needs, often end up creating even more serious long term problems.

The dilemma is how to design a fully integrated system and still build something in less than 10 years. Unfortunately, the development of an integrated system always has the designers waiting on the definition of a standard, establishment of a policy, or procurement of a product. The result is such slow progress that once a system is finally put together, it is already archaic. This situation is aggravated by the actions of frustrated customers; deciding to fix their problems themselves, they procure unique hardware, develop unique software, and build unique mini-stovepipe systems. Not only do these systems not lend themselves to integration, but they divert precious resources from the integration effort.

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Guiding principles

Though members of the personnel community have been long aware of the need for integrated systems, they have mostly settled for quick remedies to each specific situation. As a result, they now have numerous systems with similar functions and data elements, but these systems have only limited abilities to interoperate.

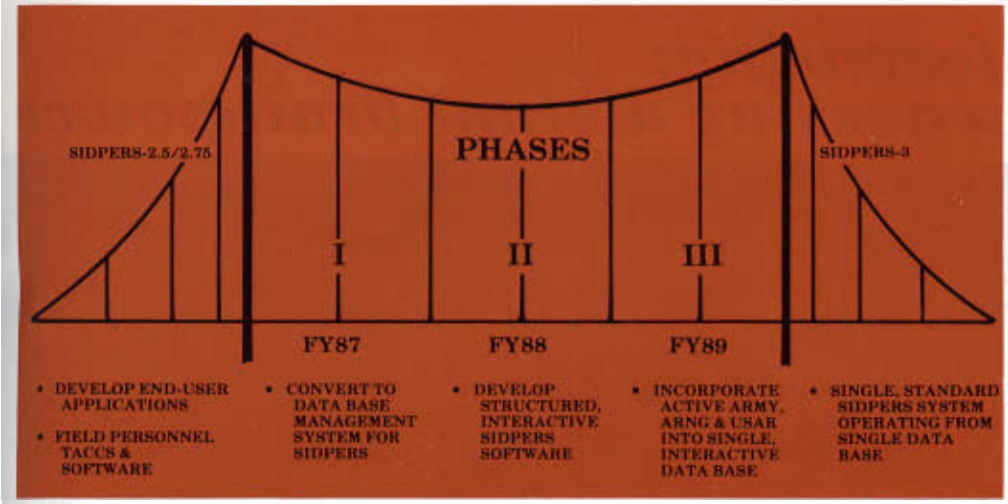
This problem was first addressed by the deputy chief of staff for Personnel and Administration in 1981 with the establishment of a Manning the Force Automation Architecture Office. (The lack of central direction was typical in other functional areas as well and was the impetus for the Army's establishment of the assistant chief of staff for Information Management and the U.S. Army Information Systems Command.)

Since all the questions have not been answered, completing a total system redesign is impossible today. However, we have at least devised principles that will allow us to move individual systems toward total integration. Our basic strategy is to take what we have today and use it as best we can while being cognizant of its role for the future. In other words we aim "to keep our feet on the ground while reaching for the stars." By evaluating the capabilities of today's tools and comparing them with anticipated requirements, we try to program the essential elements for the system's evolution.

There are four grounding principles that we are using in our "stovepipe busting" effort. The first is to define realistic phases of the evolutionary process. The second is to program resources early so that when a need arises, the resources are available. The third is to continually re-evaluate system and design goals as new information becomes available. The final and most critical principle is simply persistence in the face of the sort of bureaucratic delays that frequently inspire "stovepiping."

Our objective is a system that builds on the three-tier architecture provided by the Sustaining (Base) Army Network (STARNET).

The tier 1/corporate level, composed of regional data centers, is a worldwide master data base consisting of data elements needed by multiple users (name, rank, social security number, unit of assignment, etc.). Although physically distributed, the tier 1 network provides the perspective of one logical data base.



Bridge to the future

The tier 2/organizational level, composed of distributed processing centers, is made up of facilities that support an installation, community, or other area commander's need. These facilities also can support local area networks, as well as interface as a front end processor to tier 1. Depending on local requirements and data base design, tier 2 facilities may also store data.

The user support will be provided primarily through the microcomputer or intelligent terminals at the tier 3/user level. Most applications can be processed at this level using data from any tier. While the ultimate objective is to have all three tiers operate interactively, we recognize that this is ambitious, both because of limited resources and because of the security considerations involved.

Stovepipe busters in action

Using the philosophy described, we are trying to modernize and integrate several key components of the personnel system.

The Standard Installation/Division Personnel System (SIDPERS), which has served the Army since the early 70s, is the first one to begin the structured evolutionary process. Through the use of the Tactical Army Combat Service Support Computer System (TACCS), a tier 3 component is being developed to support both tactical and garrison personnel operations, from the personnel office to the battalion/separate company level.

The software is being developed using a commercially available data base management system that will support users who are either deployed with limited communication, or who are in an interactive mode when networking is available. Early modules of this software, SIDPERS-2.5/2.75, have already been fielded in the 24th Infantry Division (Mechanized) and the 7th Infantry Division (Light).

Currently, only one TACCS per installation has limited interactivity with the STARNET Regional Data Center, but the system is being designed to facilitate additional interactivity as the communications capability is made available to more users. As the "SIDPERS-3 project" continues, we will attempt to redesign all components of the system.

During phase I of SIDPERS-3, the current system of complicated programs will be converted to a data base management system (DBMS), initially operating only at tier 1.

During phase II, new operating modules will be designed building on the DBMSs fielded in phase I. As each module is developed, the appropriate tier for its processing can be determined. If the desired processing site does not have sufficient capacity, the module can be run elsewhere until the desired site is made available. However, sizing requirements need to be projected early in order to make resources available when required.

The redesigned system will begin to realize the benefits of full integration during phase III, which will merge the reserve components into a common structure and capitalize on the level of interactivity permitted by available communications. A diagram of the SIDPERS "Bridge to the future," summarizing the steps and time frames, is shown above.

Simultaneous with the SIDPERS enhancements is the ongoing developmental effort for the Total Army Personnel Data Base (TAPDB), which will provide information support to personnel functions at the Department of Army level. This design is also consistent with the information architecture objectives described above and will be integrated as a component of the overall system.

We currently anticipate that the primary processing will be at tiers 2 and 3, supported by the Personnel Information Systems Command computer acquistion (80x phase II), with an integration link to other components of the personnel system through the STARNET tier 1.

Although much of the current plan is still sketchy, these systems, as well as others in earlier stages of development, are being designed for a purpose beyond their immediate function; each must also serve as a component of the corporate system. Just as SIDPERS-3 and TAPDB will absorb many "stovepipe systems" in the personnel community, other systems with unique hardware and software configurations must be disassembled and integrated a step at a time using a realistic, workable strategy.

We can't wait for perfection; the time for planning, as well as action, is now. When the soot clears, the stovepipes should be gone.

Lt. Col. Booton, chief of the Field Systems Development Division of the recently established Personnel Information Systems Command, is responsible for the development of SIDPERS applications on TACCS.

The purpose of this new command is to integrate the personnel functional area with the information system community to ensure consistency with the Army's direction in automation.

Lt. Col. Booton has experience in both the automation and personnel disciplines. He is a graduate of the Air Defense Artillery Basic Course, the Adjutant General Advanced Course, and the Command and General Staff College. Additionally, he has a master of science degree in mathematics and a masters degree in business administration. Previous assignments include command of a Nike Hercules battery, SIDPERS installation project officer for Headquarters USAEUR, assistant professor of mathematics at the USMA, and chief of Administrative Services and Personnel Services for the 24th Infantry Division (Mechanized).