AFIPS Washington Report
Pender M. McCarter
AFIPS Washington Office

Congress holds hearings on Carter reorganization plan; telecommunications, computer, and information policy groups to be affected

A plan to reorganize the Executive Office of the President (EOP), including the various telecommunications, computer, and information offices within it, is now under scrutiny by the Senate and the House of Representatives. Hearings began last month on President Carter's Reorganization Plan Number 1 of 1977, which would affect such EOP organizations as the Office of Telecommunications Policy (OTP); the Office of Science and Technology Policy (OSTP); the Intergovernmental Science, Engineering, and Technology Advisory Panel (ISETAP); the President's Committee on Science and Technology (PCST); and the Federal Coordinating Council for Science, Engineering, and Technology (FCCST).

Reorganization Plan Number 1, the first in a series of Presidential proposals for streamlining the executive branch, will become law unless vetoed by Congress within 60 days. The White House submitted the proposal to Congress on July 15.

Effect on telecommunications, computer, and information policy. By replacing the White House Domestic Council with a domestic policy staff of ad hoc working groups of cabinet members and agency officials, Reorganization Plan Number 1 would “strengthen the cabinet form of government” and ensure that “interested individuals” in each department were consulted early in the decision-making process. OMB Director Bert Lance told the joint Subcommittee on Legislation and National Security. He added that the Domestic Policy Staff would be charged with setting priorities among the issues affecting EOP.

The plan would abolish OTP, ISETAP, PCST, and FCOST and transfer their functions to the President, who would in turn redelegate some or all of them. OMB would assume OTP’s present responsibility for setting procurement policy for government telecommunications facilities and services. The Domestic Policy Staff would review OTP-related policy options requiring presidential decisions. All other OTP functions, including policy development and the allocation and regulation of frequency assignments, would go to the Department of Commerce.

The plan would retain OSTP, but would transfer all the director’s functions to the President for redelegation. Reorganization Plan Number 1 would also create a position of assistant secretary of commerce for communications and information who would, according to Lance, “serve as spokesman for the administration on telecommunications issues.” The new assistant secretary would also handle all functions transferred from OTP, as well as the duties of the Office of Telecommunications in the Commerce Department.

Congress’ harshest criticism of the Carter plan focused on the new post. Governmental Affairs Committee Chairman Abraham Ribicoff (D-Conn.) feared that the new assistant secretary would get “lost in the shuffle” and that telecommunications policy might suffer from “a lack of coordination” between the new cabinet official and the assistant secretary of commerce. Rep. Jack Brooks (D-Tex.), chairman of the House Committee on Government Operations, echoed Ribicoff’s concerns, questioning how such a position, “not the juiciest job in the United States,” could coordinate government-wide policy.

House bill proposes EFTS regulation

A bill to authorize federal regulation of electronic funds transfer systems was introduced to the House of Representatives last July by Rep. Mary Rose Oaker (D-Ohio). HR 8387 would empower the comptroller of the currency to oversee EFTS for national banks, while the Federal Home Loan Bank Board would regulate savings and loan association EFTS. The Federal Deposit Insurance Corporation, the Federal Reserve, and the National Credit Union Administration would oversee the transfer systems for their member institutions.

The bill incorporates several of the legislative recommendations contained in the National Commission on Electronic Fund Transfers' (NCEFT) February 1977 interim report. NCEFT's final report will be released next month.

HR 8387 was referred to the House Committee on Banking, Finance, and Urban Affairs in July.

Comments filed on FCC study: regulation pro and con

An FCC inquiry into the role of regulated monopolies in providing unregulated data processing services received support and comment recently from government, trade, and business groups. The study, called the Second Computer Inquiry, would affect AT&T and other regulated common carriers presently forbidden by the FCC to provide unregulated data processing services.

Comments filed by the Department of Justice, the Ad Hoc Telecommunications Users Committee, AT&T, IBM, the Computer and Business Equipment Manufacturers Association (CBEMA), the Computer Communications Industry Association (CCIA), and the Association of Data Processing Service Organizations (ADAPSO) argued against severe FCC prohibitions. The Justice Department opposed broad FCC regulation of now-unregulated firms which may, in some areas, compete with AT&T. Justice expressed strong support of “the Commission’s intentions to base its rules on marketplace standards, rather than simple technological standards.”

The Ad Hoc Telecommunications Users Committee, a group composed of 15 user companies such as Ford Motor Company and Sears, Roebuck and Company, opposed what they termed “a prohibition against the use of new technology for communications.
purposes. " The committee suggested that the FCC confine regulated carriers' restrictions in unregulated data processing activity to "the purpose and effect of the services provided," rather than the processes or equipment.

AT&T argued against "an overly restrictive view of communications common carriage," while IBM, CBEMA, CCIA, and ADAPSO favored a broad, unregulated concept of data processing that would foster competition.

NBS plans new mini, terminal standards

The National Bureau of Standards has announced plans for a new federal interface standard called "RS-XYZ," to replace the RS-232C interface among terminals and computers (primarily mini's) and data communications equipment. A June 27 article in Computerworld predicted implementation this month.

Also under study by the NBS are protocols standardizing the user-terminal interface, and an 8-bit ASCII code to replace the traditional 7-bit code. The 8-bit ASCII code could become a federal standard as early as 1976, when a federal basic standard is also expected.

First U.S. sub-micron research facility established

The first national facility for research on electronic devices of less than one micron is being established at Cornell University. The facility has received a five-year, $5 million grant from NSF.

Called the National Research and Resource Facility for Sub-Micron Structures, the facility will enable researchers to seek improved methods of producing tiny patterns for incorporation into various electronic devices. This technology could allow researchers to achieve a tenfold increase in the density of components in an integrated circuit.

President's report finds little change in federal personal data systems

The personal data systems of 97 Executive Branch agencies remained virtually the same in "scope and nature" during 1976, according to President Carter's Second Annual Report of Federal Personal Data Systems Subject to the Privacy Act of 1974. The report, submitted by the President last June in accordance with Privacy Act of 1974 requirements, also cited "no significant change" in the use of computers to process personal data.

Specifics of the report included findings that 97 agencies maintained 6753 personal data systems, containing 3.85 billion individual records at the end of 1976. These figures reflect a net increase of 11 agencies and 30 systems over 1975, but a net decrease of 34 million individual records over the previous year.

Twenty-nine percent of the personal data systems and 74 percent of the individual records were fully or partially computerized by the end of 1976, according to the report, compared to 27 percent and 79 percent, respectively, at the end of 1975.

AFIPS in Washington

Reorganization recommendations. An AFIPS panel has submitted a consensus document on the reorganization of computer-related groups in the federal government to the Office of Management and Budget.

Formed in response to an OMB request for "a comprehensive reexamination of federal data processing," the 13-member panel, chaired by Stephen S. Yau of Northwestern University, studied ways to improve productivity in delivering government services through computer technology; improve the acquisition, management, and use of these resources; and eliminate duplication and overlap in computer-related agency jurisdictions.

OMB requested the study as part of President Carter's efforts to begin "a comprehensive review of the management of administrative services within the federal government."

Dr. Yau and Washington Office Director Philip S. Nyborg presented the AFIPS consensus document to OMB Deputy Associate Director Walter W. Haase on August 11. Haase is project leader for the data processing area of federal reorganization.

Wayne T. Granquist, OMB associate director for administrative management, suggested the meeting in reply to a letter from AFIPS President Theodore J. Williams to President Carter ("AFIPS Washington Report," 8/77). In that letter, Williams had expressed concern about the Carter reorganization program.

Essentially the AFIPS panel recommended the establishment of an independent agency with the sole mission of exercising cognizance over all federal procurement and management functions related to data processing and communications. OMB, according to the panel, should continue to provide government-wide enforcement in this area by exercising fiscal control. Recommended responsibilities of the independent agency would include authority over all other government agencies concerning the following functions related to data processing and communications:

1) management policy, procurement, technical support, and standards development and implementation (exceptions would be weapon system computers and procurements below certain minimum costs);
2) long-range planning of data processing and communications operations as part of the regular budget cycle;
3) provision of technical consultants to other agencies;
4) mandatory periodic total system performance evaluation and analysis of data processing and communications operations in all agencies;
5) maintenance of an inventory of well-documented software packages with the information on their performance;
6) recommendations to the Civil Service Commission regarding (a) adequate job categorization with particular emphasis on software personnel and (b) provision for adequate continuing education to enable personnel to remain abreast of rapid technological change.

The panel recommended the following questions for further study:

1) Is it desirable to consolidate national policy functions, relating to computer and communications technologies, within a single group (i.e., in either the proposed independent agency or within an existing department)?
2) If the recommendation to establish an independent agency is not adopted, should such an agency be placed within the Commerce Department?
3) Finally, should a "federal data administrator" be established with the responsibility for analyzing and facilitating the overall flow of federal data?

Members of the AFIPS panel are Isaac L. Auerbach of Auerbach Associates, Inc. (first IFIP president); Joseph Cunningham (past ACM executive director); N. P. Dwivedi (IEEE); John M. Eger of Lamb, Eastman & Keats (AFIPS); George R. Eggert (DPMA); Bruce Gilchrist of Columbia University (past AFIPS executive director); Herbert Grosch (ACM president); William B. Groth of IBM (IEEE); Carl Hammer of Univar Federal Systems (ACM); Thomas McConnell, Atlanta Public Schools (past
AEDS president); William Miller of Stanford University (SIAM); Phillip S. Nyborg (AFIPS Washington Office director); H. Lewis Parker of Comsat Laboratories (AIAA); Anthony Ralston, State University of New York (past AFIPS president); Edgar Sibley, University of Maryland (ACM); Keith Uncapher of the USC Information Sciences Institute (past AFIPS president); Willis Ware of Rand Corp. (past AFIPS president); and Sidney Weinstein (ACM executive director).

Information processing study presented to OSTP. Computer manufacturing and services revenues and equipment shipments by U.S. firms will double by 1981, according to an AFIPS study presented to the White House Office of Science and Technology Policy last July.


Philip Smith, OSTP assistant director, and William Montgomery, OSTP executive officer, accepted the report on behalf of OSTP Director and Presidential Science Advisor Frank Press.

In presenting the report, AFIPS Washington Office Director Phillip S. Nyborg said that the study provides summary data on the information processing field and establishes computer technology as a "non-scarce" national resource, applicable to a broad range of policy questions. Smith described the study as "timely" and "very helpful."

The study projected a doubling of U.S. firms' world computer manufacturing and services revenues from $31.9 billion in 1976 to $64 billion in 1981, and of world computer equipment shipments from $15.9 billion to $30.5 billion for the same period. It cited manufacturing as the biggest U.S. computer user in terms of total equipment and expenditures, and the insurance and banking industries as showing the highest proportion of firms using computer services or equipment.

The nation's total labor force of full-time employees in computer-related occupations stands at 853,000, according to the report. The study also revealed that per capita spending on computer usage in the U.S. is increasing even more dramatically than the percentage of the gross national product spent on such activities.

In a letter accompanying the report, AFIPS President Theodore J. Williams offered Dr. Press "further specific reports, or less formal input, on applications of computer science and technology to achieve national program goals and to solve national problems." Williams urged Press "to regard the 110,000 men and women who constitute the 15 scientific and educational societies within AFIPS as a continuing source of . . . expertise from the information processing field."

Information Processing in the United States: A Quantitative Study is scheduled for public distribution this month at $6 per copy. For information, write the AFIPS Headquarters Office in Montvale, New Jersey, or call (201) 991-9810.

**News briefs**

Congressional opposition has forced the Department of Justice to reexamine its plans for a computerized switching system to transmit administrative messages between the National Crime Information Center and the nation's local and state law enforcement units.

The House Committee on Science and Technology convened hearings last month on the functions and operations of the Congressional Office of Technology Assessment. The committee is reportedly considering amendments to the *Technology Assessment Act* which established OTA in 1972. OTA is now examining the basis for establishing a series of OTA technology assessments of telecommunications, computers, and information policies.

"The fraudulent or illegal use of any computer owned or operated by the U.S., certain financial institutions, and entities affecting interstate commerce" would become a criminal offense if a House bill sponsored by Rep. Charles Rose III (D-N.C.) and Rep. Robert F. Drinan (D-Mass.) were to become law. The bill, introduced last July, follows similar legislation introduced in the Senate in June ("AFIPS Washington Report," 8/77).

The Organization of American States needs computer specialists for short- and long-term technical assistance missions to governments in Latin America and the Caribbean. For information, write the Unit of Cooperation with Nongovernmental Institutions, Office of International Cooperation, OAS, Washington, D.C. 20006.

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AFIPS approves publication plans, reelects officers

Preliminary plans for the new AFIPS periodical, Abacus, were approved unanimously by the AFIPS Board, meeting in Dallas June 18 following the 1977 NCC. The board also elected officers, authorized publication of a second Best Practices Manual, and heard reports on long range planning and IFIP activities.

The vote to proceed with fund raising and organizational planning for Abacus was based on recommendations presented by the ad hoc New Publication Committee, chaired by Stuart Lynn of U.C. Berkeley. The committee’s report, developed in response to the board’s June 1976 resolution requesting studies, proposed that AFIPS publish a general-interest periodical directed to computer professionals and those in related technical disciplines, as well as decision makers in industry and government and the informed public.

The board reaffirmed approval in principle. Final approval, with specific go/no-go checkpoints, will depend on satisfactory resolution of such contingencies as funding, organizational planning, and test marketing.

At the same meeting, Theodore J. Williams of Purdue was reelected president of AFIPS. Also reelected to second one-year terms, which began July 1, were Albert S. Hoagland of IBM as vice-president, Sylvia Charp of the School District of Philadelphia as secretary, and Walter A. Johnson of Consolidated Papers as treasurer.

Williams, professor of engineering and director of the Purdue Laboratory for Applied Industrial Control, is a past president of both the ISA and the American Automatic Control Council. Hoagland, manager of recording media at IBM’s San Jose Research Laboratory, is immediate past chairman of the NCC Board and a past president of the IEEE Computer Society. Charp is director of instructional systems for the School District of Philadelphia and a past president and board member of the Association for Educational Data Systems. Johnson, information systems director of Consolidated Papers in Wisconsin Rapids, has served on the AFIPS Board and is a past international secretary-treasurer of DPMA.

Presenting its final report to the board, the Long Range Planning Committee recommended that AFIPS structure remain unchanged for at least five years but be reexamined in not less than three years. The one-year LRPC study, conducted under the chairmanship of Herbert B. Safford of GTE Data Services, concluded that potential changes in the content and structure of the information processing field were likely to call for revisions in the membership and structure of AFIPS. However, since changes have been implemented only recently, there was little support among committee members for further restructuring at this time.

Other LRPC recommendations concerned membership, headquarters location, and programs. The report suggested that AFIPS consider admission of additional societies as members and recommended that AFIPS Headquarters/NCC-related activities remain under single management in Montvale. Regarding programs, the committee singled out two high-priority areas—the publication of Best Practices Manuals and the establishment of AFIPS as a principal source of statistics and directories of the information processing field.

Herbert Safford presented the Long Range Planning Committee’s report, which included recommendations on AFIPS structure, membership, and programs.

Ted Williams was reelected to a second one-year term as AFIPS president. Robert Rector, shown at right, serves as executive director.

Steve Yau and Sam Levine represent the Computer Society on the AFIPS Board along with Merlin Smith (not shown).

Photos courtesy Tom White/AFIPS.
Development and publication of an ongoing series of Best Practices Manuals was subsequently approved by the board. Updating of the AFIPS Security Manual is currently in progress, according to Richard Canning of Canning Publications, chairman of the ad hoc Committee for Improved Practices. A second manual, on designing for high integrity environments, was authorized by the board.

Reporting on IFIP activities, IFIP President Richard I. Tanaka, a private consultant, said that the Egyptian Computer Society had been admitted to membership and formal admittance of the Korean Information Science Society was scheduled for August. However, membership of the Mexican Computer Society is still uncertain.

IFIP Congress 79, sponsored by the British Computer Society, will be held in Great Britain in September 1979, Tanaka said. The third USA/Japan Computer Conference will be held in September 1978.

For further information on the board's actions, contact AFIPS at 210 Summit Ave., Montvale, NJ 07645; (201) 391-9810.

IFIP Congress 77

Held in Toronto

About 9000 DP professionals converged on Toronto August 8-12 for

Josef Kates, who heads the Science Council of Canada, a 25-member advisory committee of university and industry representatives, delivered the keynote address at IFIP Congress 77. All nations must give top priority to controlling the changes that flow from technical innovation, he said. The public needs to be better informed, according to Kates, and scientists and technologists must assume the responsibility for understanding and communicating to others the social, economic, and philosophical implications of their discoveries.

W. M. Turski of Poland, IFIP Congress 77 Program Committee chairman.

Dick Tanaka, IFIP president.
IFIP Congress 77—despite an air traffic controllers' strike that closed all Canadian airports the day before the conference began.

According to the IFIP Organizing Committee, over 100 persons who had preregistered failed to arrive, and a large share of the delegates from more than 50 countries experienced delays and resorted to creative travel arrangements. Many arrived via shuttle bus or rented car from Buffalo, New York.

The conference, including exhibits and a concurrent symposium on medical applications, MEDINFO 77, proceeded largely as scheduled, however. Of the 100 technical papers planned, only a few were assigned for presentation at a later time, the committee noted.

Exhibit set for Paris


According to the department, French expenditures on computers and peripheral equipment exceeded $1 billion in 1975 and are forecast to surpass $2 billion in 1980. Continuing demand for new information-processing hardware by business and government should support an average growth of 16% a year in this market during 1975-80.

Imports, which have accounted for almost half of the EDP equipment purchased in France in recent years, are expected to maintain their overall market share and are projected to rise above the $1 billion mark in 1980. U.S. manufacturers of computers and peripheral equipment supplied 31.5% of these imports in 1975.

For further information contact Helen Burroughs, U.S. Department of Commerce, Office of International Marketing, France/Benelux, Room 6318, Washington, D.C. 20230; (202) 377-4941.

ACM charters group on personal computing

ACM has chartered a Special Interest Group on Personal Computing. SIGPC will be operated exclusively for educational and scientific purposes in the design and applications of computer systems for personal uses.

According to ACM, the group will focus on personal computer systems for home, clerical, small business, management, and recreational uses. Its scope will include the software and hardware technology of such systems and will emphasize techniques for integration of graphics, speech, data management, and music systems.

Portia Isaacson of The Micro Store has been appointed chairperson. Her immediate plans include appointment of other officers, publication of a quarterly newsletter, and holding SIGPC's first business meeting at ACM '77 in Seattle.

To join SIGPC write to ACM, P.O. Box 12105, Church Street Station, New York, NY 10249. The dues, including a subscription to the newsletter, are $13.00/year for ACM members, $12.00/year for non-members. A newsletter subscription without membership is $12.00/year.

For further information on SIGPC programs, contact Dr. Portia Isaacson, The Micro Store, 634 South Central Expressway, Richardson, TX 75080; (214) 231-1096.

Harger to receive award at Eascon-77

Dr. Robert O. Harger, chairman of the Department of Electrical Engineering, University of Maryland, College Park, has been chosen to receive the M. Barry Carlson Award, which is presented annually at Eascon for the outstanding paper published in the IEEE Transactions on Aerospace and Electronic Systems.

Dr. Harger's winning paper, "Harmonic Radar Systems for Near-Ground In-Foliage Nonlinear Scatterers," was published in the March 1976 Transactions.

The Carlton Award is one of several special citations which will be presented during Eascon-77, September 26-28 at the Sheraton National Hotel, Arlington, Virginia. The Aerospace Electronic Systems Society's Man of the Year Award will be presented and five area college engineering students will be honored.

Over 170 technical papers will be presented at Eascon-77. In addition, there will be two days of classified sessions, five tutorials, a reception and buffet at the National Air and Space Museum, and special speakers including Robert Frosch, NASA Administrator; Hans Mark, under secretary of the Air Force; Ambassador Ardeshir Zahedi of Iran; and political satirist Mark Russell.

Registration information may be obtained from Eascon-77, 821 15th St., N.W., Suite 636, Washington, D.C. 20005; (202) 347-7088.

Computer store owner's association in the making

Portia Isaacson, vice-president of Binary Systems Corporation, and general chairman of NCC '77 has been nominated to chair a committee to form the first national association of independent computer store owners.
The initial exploratory meeting of some 40 store owners was held in Dallas during this year's NCC.

In addition to Isaacson, who represented the Dallas area Micro Stores which are retail affiliates of Binary Systems, Inc., others elected to the committee include Ray Borrill of the Data Domain (Bloomington, Indiana); Dick Heiser of the Computer Store (Santa Monica); Larry Stein, Computer Mart of New Jersey (Iselin, New Jersey); Joseph Kappl, Byte Shop of Thousand Oaks (Thousand Oaks, California); Hollis Rogers of Computers etc. (Houston, Texas); Cary Fitch of The Computer Store of Jacksonville (Jacksonville, Florida); and Sam Knecht of Computer Systems Design (Wichita).

An organizational plan covering bylaws, goals, services, and budgetary considerations for the association (which will be known as the "Computer Retailer's Association") was presented by Kenneth Widelitz, a Los Angeles attorney. Widelitz also suggested a plan for getting the association off the ground through store owner contributions. An interest-bearing trust account will be established, to which store owners interested in participating should send a $100 check made out to the account. Comments and ideas on forming the association should be included along with the remittance. Checks (made payable to Computer Retailer's Association) should be sent to Kenneth Widelitz, 10960 Wilshire Boulevard #1504, Los Angeles, CA 90024.

If fewer than 20 computer store owners respond — the minimum number required to form a trade association in California according to Widelitz — each $100 contribution, plus interest, will be refunded. Contributors to the trust account will be charter members of the association.

Widelitz will report by November 15 on the status of the trust account listing the contributors and including a ballot for selecting a committee of owners to finalize the articles of incorporation and the bylaws.

According to the press release, these committee members will likely serve as the initial directors of the association.

Electro announces 1978 officers


William C. Weber, Jr., general manager of Electro and Electronic Exhibits Inc., forecasts that Electro/78 will have over 600 exhibit units, and an attendance of more than 25,000 engineers and technologists.

Frost & Sullivan predict explosive growth in software market over next decade

Miniperipherals/software market to total more than $40 billion. A Frost & Sullivan study (Report #445) indicates that the minicomputer peripherals market will total $37 billion cumulatively through 1986, with minicomputer software to be $3.4 billion over the same decade. "Software and peripherals have become the most profitable portions of a minicomputer system," adds the 175-page report.

The study, which probes each of 12 miniperipherals and software categories, documents that these equipment account for an increasing proportion of total system costs—about 90 percent in the case of a small business computer system.

In addition to the minicomputer mainframe manufacturers themselves, some 200 independent companies currently produce miniperipherals. Competition among these two sectors and the software houses is extremely fierce, with all three groups soon to be supplying complete turnkey systems.

Of all peripherals, alphanumeric display terminals, printers, and magnetic disks account for more than 50 percent of sales. And disk-based peripherals are becoming a major storage medium on computer systems of all sizes. In minicomputer disk storage, the study foresees a move to cartridge disks having a serial bit packing density at 4400 BPI. This will enable 10M-byte storage on a single cartridge unit and 20M-byte on dual unit drives. In addition, average access times, now at 50 milliseconds, should come down to 30 milliseconds by the late 1970s. The big technology switch over to magnetic bubbles and charge-coupled devices, however, will not occur until the mid-1980's.

The study describes software as "the limiting factor in computer applications. The difficulties relate to the use of assembly-type languages and restrictive higher level languages that cause severe storage limitations and have created a need for high priced program analysts." Nevertheless, high level languages and specific software packages have become "absolute necessities" now that the computer market is broadening to encompass small business end users. This accounts for the big growth ahead in application software—from $100 million in annual sales this year to $575 million annually by 1986.

The study also notes that minicomputer manufacturers now regard software as a key computer element, and expect profits on it to make up for low hardware costs. "Software is the wedge they use to differentiate one system from another," the study says.

Military software market monteering. Department of Defense funding for military software will increase 135% by FY1985, according to forecasts in a 308-page study (Report #472) by Frost & Sullivan, Inc.

During the period, DOD is expected to purchase nearly $100 billion in software and software-related engineering services. As a share of the annual DOD budgets, military software will expand from 5.1% in FY1977 to 8% of the FY1986 budget.

The study emphasizes that the effective market, i.e., not preempted, for military software is in real-time and response-time software. It analyzes the software segment of the communications, command and control (C3) market, real-time software including avionics, ADF-related software, and software products separately funded mainly through RDT&E and Procurement.

The report pinpoints C3 and avionics as the major users of military software. Considered the most accessible for contract opportunities, the C3 systems reviewed for software potential are: ground based; airborne, space-based, and re-entry; shipboard command and decision; information processing, displays, and graphics; sensors, detectors, and countermeasures; communications; surveillance and intelligence.

In a section on DOD automatic data processing systems, the study combines customers, systems, and software descriptions by functional areas, such as medical data systems, weather reporting, and analysis in order to clarify DOD buying practices and to identify the leading suppliers and purchasing agencies.