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FEDERAL ADP PERSONNEL

Recruitment and Retention

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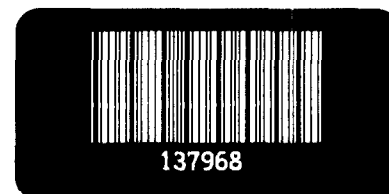Technology Division

B-231318

February 7, 1989

The Honorable David H. Pryor
Chairman, Subcommittee on Federal Services, Post
    Office, and Civil Service
Committee on Governmental Affairs
United States Senate

Dear Mr. Chairman:

On September 14, 1988, we briefed your Subcommittee staff on the results of our study regarding the federal government's ability to recruit and retain automated data processing (ADP) personnel. This report responds to your request that we document the information provided in that briefing. In particular, you asked that our report discuss: (1) the problems that information and personnel managers interviewed during our study say they experience in recruiting and retaining ADP personnel (specifically, the GS-334 computer specialist and the GS-1550 computer scientist series), and (2) Office of Personnel Management (OPM) programs that may help government managers recruit and retain a high-quality ADP work force.

We recognize that problems hiring and retaining qualified federal personnel are not unique or limited to ADP personnel. GAO and other studies have cited governmentwide personnel problems that impede hiring and retention across many different occupations. Inadequate pay, for example, is one governmentwide problem frequently discussed that also affects ADP personnel. This report highlights problems, such as pay, that managers think hinder the government's ability to hire and retain ADP personnel.

Generally, the federal managers we interviewed believe that problems related to noncompetitive pay, personnel classification standards, limited training opportunities, and the negative image of federal service affect their ability to hire and retain qualified staff. Such staff are needed to build, operate, and manage the automated information systems that provide essential services to the nation. These problems take on significance in light of the following factors: federal managers are depending more and more on emerging technology for delivery of services, information technology is a rapidly changing and expanding field, and federal expenditures for information technology are large (more than $17 billion projected in fiscal year 1989). Additionally, although

OPM has programs that may help managers recruit and retain ADP personnel, some information managers are not aware of them.

Objectives, Scope and Methodology

In performing this study, we met with 46 top information and personnel managers in 23 major civilian and defense agencies. These interviews do not constitute a statistically valid sample but were conducted to develop a good understanding of the difficulties managers experience recruiting and retaining ADP personnel across a broad spectrum of federal agencies. Additionally, we reviewed a number of studies and reports concerned with personnel management, recruiting, and employee retention. These studies are listed in the bibliography.

In addition, we sought to identify factors that could affect the marketplace competition between the civilian and federal sectors relative to hiring and retaining computer specialists and computer scientists. We did this by analyzing recent studies that include the following aspects of these occupations: supply and demand projections through the year 2000, the skills required to support computer technology, salaries from the entry to the executive level, career development opportunities, and other conditions that might influence one's choice of employer.

We conducted our work from April 1988 through August 1988, primarily in the Washington, D.C., area. Because no agency-specific information is used in this report, we did not obtain official agency comments. Our work was conducted in accordance with generally accepted government auditing standards.

Many Factors Hinder Recruitment and Retention of ADP Personnel

Noncompetitive pay, personnel classification standards, limited training opportunities, and the negative image of federal service are factors that managers say hinder their efforts to recruit and retain ADP personnel. Federal managers believe these factors have an acute impact on the difficulties they face in recruiting and retaining a high-quality ADP work force. For example:

- Pay: The government's salary for an entry-level computer programmer is as much as 33 percent less than private sector pay for similar work, according to a Bureau of Labor Statistics March 1988 report. For example, the average federal entry-level salary (GS-5) for a computer programmer is $15,118, compared to $22,531 paid by the private sector for

similar work.[1] As federal managers expressed, noncompetitive pay makes it increasingly difficult to recruit and retain entry-level computer specialists.

- Classification Standards: According to an interagency task force led by the General Services Administration, the computer specialist classification standard does not hamper management's ability to effectively structure ADP positions within organizations; however, the task force did identify problems that may impede the government's ability to recruit and retain ADP staff. For instance, the standard does not effectively provide for managerial positions without supervisory responsibilities—e.g., for programs carried out through contracts. Thus, it is difficult to hire and promote experienced managers who have not supervised. Also, the sample job descriptions (attached to the standard) are obsolete, portraying mid-1970s federal computing. While managers can develop their own job descriptions, they sometimes use the OPM-provided descriptions that do not reflect the diversity of today's ADP environment—an environment that requires expertise related to artificial intelligence, office automation, and data base management. Federal information managers we interviewed think that the problems described above contribute to difficulties hiring and recruiting qualified ADP staff.

- Training: As we approach the next century, Civil Service 2000, prepared by the Hudson Institute for OPM, projects that agencies will face skill shortages for entry-level computer specialists. The report also states that the government will have to invest heavily in entry-level training for these specialists. Federal managers believe training is a necessity, not a luxury, and can serve to meet increasing technology demands and improve the quality of service. Conversely, these managers report that the benefits that can be achieved often are not realized because budget constraints limit training opportunities. This, in turn, hinders their ability to attract potential employees and restricts possible career development opportunities for ADP personnel.

Finally, as we stated in a recent report,[2] unflattering perceptions of government employment further complicate federal managers' efforts to recruit and keep an ADP work force. Managers we spoke to agree. They believe the image of federal service must be improved. They feel the lack of respect for career civil service employees negatively affects the government's ability to recruit and retain a high-quality ADP work force.

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[1] We did not analyze fringe benefits, a factor used in comparing private and public compensation.

[2] Information Technology Issues (GAO/OCG-89-6TR).

OPM Programs to Improve Recruitment and Retention

OPM has governmentwide programs intended to help federal managers recruit a high-quality federal work force. While these programs appear to offer some relief, data were unavailable to determine their effect. However, about one-half of the information managers we spoke with were not aware of the programs available to them and consequently had not benefitted from their use.[3] For example, these managers did not know that OPM is

- granting agencies direct-hire authority for the computer specialist and computer scientist occupations, thus exempting agencies from certain normally required regulations and thereby expediting the hiring process,
- granting higher pay through its special pay-rate authority for the computer scientist occupation, and
- launching its "Career America" recruiting program that markets the federal government as a good place for college graduates and others to work.

Conclusion

Recruiting and retaining a high-quality ADP work force at all levels is critical if federal managers are to build and operate effective automated information systems in a changing environment. Problems with pay and personnel management practices can be dealt with in some measure today if managers take advantage of existing programs. Unless these problems are resolved, the current situation may well worsen and further challenge the government in meeting its needs for ADP staff.

As arranged with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 10 days from the date of this letter. At that time we will make copies available to the Office of Personnel Management, Office of Management and Budget, the General Services Administration, and federal information and personnel managers. This report was prepared under the direction of Jack L. Brock, Jr., Associate Director. Major contributors are listed in appendix I.

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[3]We did not assess why managers were not aware of OPM programs.

Sincerely yours,

Ralph V. Carlone
Assistant Comptroller General

Major Contributors to This Report

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Bibliography

The following is a list of sources of information by agency in chronological order. The annotation identifies points of particular interest for this report and is not necessarily a summary of key points in the document. Publications may be obtained from the respective agencies and organizations, the Government Printing Office, or in periodicals and other documents as cited.

Bureau of Labor Statistics, Department of Labor

Sargent, Jan, "A Greatly Improved Outlook for College Graduates: A 1988 Update to the Year 2000." Occupational Outlook Quarterly, Summer 1988. Projects 9.8 percent and 13.6 percent declines respectively in the 18-24 and 25-34-year-old population for 1986-2000. Shows historical population increases of 7 percent and 56 percent respectively for ages 18-24 and 25-34, from 1972 through 1986; and a 39,500 increase in computer science degrees earned from academic year 1970-1971 to 1985-1986.

Occupational Outlook Handbook, 1988-89 ed. Describes the nature of work, working conditions, training and qualifications, job outlook, and earnings for occupations including computer programmer and systems analyst.

Occupational Projections and Training Data, 1988. Presents statistical and technical data underlying the qualitative information presented in the Occupational Outlook Handbook. Includes data by occupation including computer programmer and systems analyst for 1986 and projected 2000 employment, median earnings, sources of training, annual separation rates, and age 16-24 employees. Projects no change in federal employment of computer programmers and systems analysts due to expected increase in contracting out for services.

National Survey of Professional, Administrative, Technical, and Clerical Pay: Private Service Industries, March 1987. Compares salaries by occupation in private industries with those of federal government employees, including five levels of computer programmers and six levels of systems analysts. Defines responsibilities of each level. Private-sector computer programmer and computer system analyst salaries respectively ranged from 18 to 28 percent and 15 to 19 percent higher than federal salaries. Salaries showed greatest percentage differences at first two levels.

Monthly Labor Review, September 1987. Includes projections that computer systems analyst and programmer occupations will grow 76 and 70

percent respectively, 1986 to 2000, under the moderate economic growth scenario.

Occupational Outlook Quarterly, Fall 1987. Presents in chart form, historical data and projections on the (1) changing labor force, (2) demands for goods and services, (3) growing need for education, (4) changing employment in industries, and (5) changing employment in occupations (including computer and data processing).

Congressional Committees and Office of Technology Assessment

Educating Scientists and Engineers: Grade School to Grad School, Office of Technology Assessment, 1988. Concludes that the scientific labor market, including computer scientists, will continue to adjust to demand, albeit with transitory and costly shortages and surpluses. Suggests the federal government may need to play a more active role with policies directed toward (1) preparing scientists, including computer scientists, for teaching careers and the general labor force; (2) investing in the educational system; and (3) ensuring opportunities for participation of all population groups.

"Excellence in Government Management Act," hearings before the Subcommittee on Civil Service, House Committee on Post Office and Civil Service on House Report 2882, Mar. 24 and Apr. 14, 1988. Bill amends Title 5, U.S. Code, to increase the productivity of the government by promoting excellence in government management. Center for Excellence in Government testified on the government's problems in attracting and retaining personnel; recruiting and retention data to adequately define and help solve the problem; and on the need to change the role of OPM.

Federal Government Information Technology: Management, Security, and Congressional Oversight, Office of Technology Assessment, February 1986. Discusses widespread federal managers' perception that the federal government cannot compete effectively to hire and retain computer staff, and discusses lack of relevant data. Cites studies related to pay disparities.

Alternative Pay Systems in the Federal Government, hearings before the Subcommittee on Civil Service, Post Office, and General Services, Senate Committee on Governmental Affairs, Apr. 15, 30, and May 14, 1986. The General Accounting Office, the Federal Managers Association, the American Federation of Government Employees, OPM, the National Federation of Federal Employees, and several agencies testified regarding recruitment and retention, pay comparability, and other issues.

Demographic Trends and the Scientific and Engineering Work Force, hearings before the Task Force on Science Policy, House Committee on Science and Technology, Feb. 19, 20, 27, 1986. Presents and discusses the Office of Technology Assessment's (OTA) Demographic Trends and the Scientific and Engineering Work Force. Discusses factors affecting the supply of computer scientists including college-age population decline, market forces and career choices, female and minority participation, and the supply of university faculty.

Demographic Trends and the Scientific and Engineering Work Force, Office of Technology Assessment, December 1985. Examines factors influencing supply and demand for computer scientists. Concludes that career choices and market forces have a greater impact on supply than demographic trends. Discusses unreliability of projections of supply and demand and predictions of shortages. Concludes that demographic trends increase importance of female, minority, and foreign national participation.

General Accounting Office

The Public Service, GAO/OCG-89-2TR, November 1988. This transition report addresses the need to ensure that the government has top-quality people. The negative image of the federal government and pay problems are also discussed.

Information Technology Issues, GAO/OCG-89-6TR, November 1988. This summary report addresses major policy, management, and program issues facing the new administration. This report describes the environment in which information technology has been managed and identifies four areas that need attention: (1) strategic planning that ties agencies' technology to their missions, (2) systems development projects that provide technical capability, (3) security that protects sensitive information, and (4) personnel who oversee complex automated systems.

Federal Workforce: A Framework for Studying Its Quality Over Time, GAO/PEMD-88-27, Aug. 4, 1988. Examines the feasibility of assessing the quality of the federal civilian work force over time, and outlines a design for the assessment.

Senior Executive Service: Executives' Perspectives on Their Federal Service, GAO/GGD-88-109FS, July 20, 1988. GAO survey results show about 90 percent of Senior Executive Service members were dissatisfied with federal employee image, 65 percent were dissatisfied with compensation, and 13 percent would recommend public service to others.

Strong Leadership Needed to Revitalize Public Service, testimony of Charles A. Bowsher, Comptroller General of the United States, GAO/T-GGD-88-21, Mar. 24, 1988. Discusses how programs and services are affected by not having high-quality human resource management.

Procurement Personnel: Information on the Procurement Workforce, GAO/GGD-88-7, Nov. 5, 1987. Reviews the characteristics of the procurement work force in federal civilian agencies.

Federal Workforce: OPM's Approach for Conducting Personnel Management Evaluations, GAO/GGD-88-11, Nov. 4, 1987. Describes how OPM conducts personnel management evaluations of federal agencies and how agency personnel managers perceive the evaluation approach.

Human Resource Management: Status of Agency Practices for Improving Federal Productivity, GAO/GGD-87-61FS, June 16, 1987. Identifies human resources management practices. A survey of 71 federal organizations shows agencies use a variety of human resources management practices.

ADP Systems: SSA's Modernization Efforts Need Redirection, GAO/IMTEC-87-16, Apr. 10, 1987. Reviews SSA's Systems Modernization Plan to determine if it should be redirected or canceled, and assesses the agency's claims that automation improvements can reduce staff. Also illustrates the problems associated with the lack of sufficient high-quality technical staff.

Federal Workforce: Pay, Recruitment, and Retention of Federal Employees, GAO/GGD-87-37, Feb. 10, 1987. Examines the federal and national pay disparities, attrition rates, and recruiting difficulties for the scientific and engineering work force. Includes summaries of agency comments to the Executive Office of the President on recruitment and retention of scientists and engineers.

Training Budgets: Agency Budget Reductions in Response to the Balanced Budget Act, GAO/GGD-86-98BR, July 16, 1986. Discusses the impact budget reductions have on training.

Description of Selected Systems for Classifying Federal Civilian Positions and Personnel, GGD-84-90, July 13, 1984. Describes federal classification systems used to determine the value or worth of about 85 percent of federal civilian personnel.

Federal White-Collar Special Rate Program, GAO/GGD-84-54, Mar. 30, 1984. Summarizes several alternatives to the special rate program. Presents agencies' belief that OPM's decisions are hindering their ability to attract and retain staff.

Standards For Internal Controls In The Federal Government, 1983. Specifies that (1) federal agency managers and staff are to maintain and demonstrate a level of skill necessary to help ensure effective performance, and (2) once on the job, individuals should be given the necessary formal and on-the-job training.

General Services Administration, Information Resources Management Service	The Senior Federal IRM Manager: Major Roles And Responsibilities As We Move Into The 1990's, November 1987. Examines the key roles and responsibilities of senior IRM managers and identifies which of those will continue to be significant in the 1990s. Getting Ready For The 1990's: Solutions To Emerging IRM Personnel Problems, September 1987. Developed by an interagency task group of information resources and personnel managers. They conclude that (1) the federal government is not successfully competing with private industry in recruiting and retaining computer specialists, (2) benchmark descriptions in the classification standards are badly out of date and restrictive, (3) low federal salaries make it difficult to recruit for entry-level computer occupations, and (4) special pay rate procedures appear cumbersome.
Departments of Labor, Education, and Commerce	Building a Quality Workforce, July 1988. Discusses the gap between the needs of businesses and the skills of entry-level workers, and the roles and responsibilities of business and educators. Employers are nearly unanimous in their concern that entry-level workers are deficient in basic math and communication skills, which are important to computer occupations. Cites ranking of U.S. students on math and science achievement tests as far below those in many other countries. Based on consultations with 134 business representatives, 34 educators, and others.

| Merit Systems Protection Board | Attracting Quality Graduates to the Federal Government: A View of College Recruiting, July 1988. Summarizes the findings from a survey of selected college officials on student attitudes towards the federal government as an employer. Eight computer science school officials surveyed unanimously cited the public image of federal government as a hindrance to college recruiting.

Toward Effective Performance Management in the Federal Government, July 1988. Reviews aspects of several performance management programs covering federal employees, focusing primarily on general schedule and general management positions.

Working for the Federal Government: Job Satisfaction and Federal Employees, October 1987. Discusses federal employees' perceptions about their work.

In Search of Merit: Hiring Entry-Level Federal Employees, September 1987. Examines two topics particularly important to a civil service based on merit: (1) entry-level hiring for 118 occupations formerly covered by the Professional and Administrative Career Examination (PACE), and (2) a new examination for apprentices in various trade and craft occupations. |
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| Office of Management and Budget | Management of the United States Government, Fiscal Year 1989. Discusses administration concerns, governmentwide problems, and general plans for improving the information technology work force and other personnel initiatives.

OMB Circular A-130, "Management of Federal Information Resources." Dec. 24, 1985. Requires OPM to (1) evaluate periodically future personnel management and staffing requirements of federal information resources management, and (2) develop and conduct training programs on IRM and end-user computing. |
| Office of Personnel Management | Civil Service 2000, William B. Johnston, Hudson Institute, June 1988. Examines federal job trends, skills, and training needs for occupations including computer scientists. Reviews demographics of the national and federal work force, salary issues, federal image, and federal management practices. Discusses policies for the 1990s including decentralization of authority and responsibility for operations and hiring, minority issues, education of federal workers, and pay and benefits. |

"New Program to Fill GS-5 and 7 Entry-level Jobs," OPM Congressional Advisory, June 22, 1988. Announces a program (for hiring GS-5 and 7 personnel) to replace the PACE exam with another written exam, which would not be required for students with high college grade point averages.

"OPM's Recruiting Initiatives," presentation by Fran Lopes, Assistant Director for Affirmative Recruiting and Employment, OPM, to the Information Systems Workforce Conference, June 15, 1988. Discusses changes in the labor force, realities facing federal government and OPM programs designed to aid federal agency recruiters deal with these issues.

"Pay Rates and Systems (General)," Federal Personnel Manual, chapter 530. Describes federal pay systems in general and the conditions necessary for establishment of special pay rates, which have been granted for computer scientist positions in selected agencies.

"Direct-Hire Authority for Eligibles in Shortage or Critical Shortage Occupations," Federal Personnel Manual, section 332, Appendix D. Describes the direct-hire authority granted for computer specialists and computer scientists in the Washington, D.C., area.

"Guide to Short-Range Personnel Planning," Appendix L, Federal Personnel Manual. Includes guidance on identifying personnel needs and preparing a staffing plan.

Other

The Executive Presidency: Federal Management for the 1990's, National Academy of Public Administration, September 1988. Addresses the need for presidential attention to civil service issues. Recommends OPM and presidential action on the negative image of federal service, pay comparability, decentralization of responsibilities, and simplification of procedures.

Recruiting Trends, September 1988. Shows College Placement Council's report on salary offers to new college graduates by field, including computer science.

Bernstein, Aaron, "Where the Jobs Are Is Where the Skills Aren't." Business Week, Sept. 19, 1988. Discusses the mismatch between workers and jobs and its effects on the economy. Cites the possibility of a shortage of scientists and engineers.

Caudle, Sharon L., "Federal Information Resources Management After the Paperwork Reduction Act," Public Administration Review. July/August 1988. Reports on major findings of a study of federal information resources management (IRM). Finds that IRM has not penetrated very far across departments and into bureau management.

Goldstein, Mark L, "Tomorrow's Workforce Today." Industry Week, Aug. 15, 1988. Discusses demographics of work force, gap between business needs and work force education and skills, benefits, elderly care, retirement, and women and minority issues.

Commencement Address of Derek Bok, President of Harvard University, June 9, 1988. Discusses declining number of college students selecting careers in the public service.

Clark, Timothy and Wachsel, Marjorie, "The Quiet Crisis Goes Public." Government Executive, June 1988. Provides results of an opinion poll of nearly 4000 readers (primarily federal employees) regarding compensation and recruitment.

Report on Automated Data Processing/Office Automation, President's Private Sector Survey on Cost Control, 1983. Finds that the government's ability to hire and retain qualified ADP personnel is adversely affected by noncompetitive pay and restrictive classification standards.

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