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Office of Information Management  
and Communications

July 1992

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**Mission Support  
Project: User  
Perceptions on  
Computer Use and  
Network Operations**

GAO/OIMC-92-4

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**Office of Information Management  
and Communications**

July 22, 1992

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This report responds to our reporting objectives stated in the Mission Support Project's (MSP) Test and Evaluation Plan and is the second in a series of four user benefit evaluation reports.<sup>1</sup> Specifically, it provides information on the impact that computer and local area network (LAN) technology have had on GAO assignment task timeliness and quality, the impact of computers on personal productivity and morale, and user requests for technology. We have briefed GAO management and the units participating in the MSP on these issues, and this briefing report formally documents the information.

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**Results in Brief**

Overall, we found that computers and a network environment have a positive impact on assignment task timeliness and quality and that computer use has a positive impact on personal productivity and morale. Users said that a network saves time, as well as paper, facsimile, and telephone expenses, and is much more efficient for communicating with people, sending documents, accessing software, and printing documents. They also said they have experienced marked increases in personal productivity and

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<sup>1</sup>Our reporting objectives and schedule are stated in "Test and Evaluation Plan for GAO's LAN Project," issued April 8, 1991. The first report, "Report on Focus Group Interviews Concerning the Novell LAN System," was issued October 25, 1991.

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positive boosts to morale by having computers in their offices.

Although the overall response was positive, users had some concerns. They often cited problems with accessing the network via telephone modems and stressed the need to be hard-wired—physically connected—to take full advantage of the benefits of a network environment. Also, users often commented that they could further improve their productivity if they had access to better and more up-to-date hardware and software.

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## Project Background

The MSP focuses on establishing the network capability that will enhance communication and improve information access to support GAO's mission of providing accurate information, unbiased analysis, and objective recommendations. The MSP will also optimize the use of information technology to compliment and support current and future quality management initiatives in GAO. A key objective of the project is to forge a partnership between systems developers and users to ensure that the workpaper application and network environment meet user requirements. These requirements include the types, quantity, quality, location, and format of information, as well as timely and easy access to information.

A project team of evaluators from divisions and regional offices, technical specialists from the Office of Information Management and Communications, consultants, and contractor staff has been established to carry out the MSP objectives. The team consists of the Network Planning Group, the Hardware and Software Test and Evaluation Group, and the User Application Group. (See app. I for the MSP organization structure.) The evaluators dedicated to the MSP have extensive experience in conducting and completing GAO assignments and will work with

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users who carry out assignments to identify the user community's needs for technology and information access. These MSP team members will use their expertise to refine the information they receive to ensure that requirements are accurately and appropriately defined.

After the MSP team identifies user needs, it will develop a workpaper application to meet these needs. Staff from the MSP pilot sites—the Human Resources Division (HRD); Resources, Community, and Economic Development Division (RCED); and San Francisco Regional Office (SFRO)—will test the application in a network environment to determine whether user needs are met and to evaluate user benefits. Before implementing the workpaper application, the MSP team will begin to evaluate user benefits by surveying pilot participants on a semi-annual basis to obtain their perceptions on computer use in stand-alone and network environments. The team will also have groups of pilot and non-pilot staff measure the cycle time needed to complete information access and assignment tasks in a stand-alone environment. After installing the application, pilot users will measure the cycle time for completing information access and assignment tasks using the application in a network environment. The MSP team will use the perceptions and cycle time measurements to assess benefits of using the application and network technology to carry out GAO's work.

This report presents the results of the first survey of user perceptions; reports in October 1992 and April 1993 will present findings from subsequent questionnaires. Subsequent user benefit reports will provide information on cycle time measurements.

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## Scope and Methodology

To obtain the results reported here, the MSP team sent a questionnaire to 890 HRD, RCED, and SFRO staff in January 1992 to obtain information on computer use for fiscal year 1991 and to date in fiscal year 1992. More than 630 staff completed the survey, providing a response rate of over 71 percent.

The questionnaire contained numerous variables addressing the impact that computer hardware and software and network technology have had on the timeliness and quality of completing assignment tasks and activities. The survey also asked for user perceptions as to whether computers have had a positive, negative, or no impact on other variables, such as personal productivity and morale. A summary of the pilot participants' questionnaire responses are provided in Appendix II.

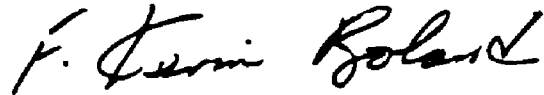
Survey respondents also provided over 400 written comments related to productivity gains, network benefits, hard-wired access benefits, dial-in access problems, printer needs, hardware needs, software needs, and training needs. A detailed list of these comments is available upon request.

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We appreciate the time and effort that the pilot participants took to complete the questionnaire. Their responses provide valuable information that will assist the MSP team in reaching its goals of (1) designing a system that will meet user requirements and (2) providing a more efficient and effective means of conducting GAO work.

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Please contact me at (202)512-6623 if you or your staff have any questions. Major contributors to this report are listed in appendix III.

A handwritten signature in black ink, reading "F. Kevin Boland". The signature is written in a cursive style with a large, stylized "F" and "B".

F. Kevin Boland  
Director, Office of Information Management and  
Communications

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**Abbreviations**

HRD	Human Resources Division
IRM	Information Resources Management
LAN	local area network
MSP	Mission Support Project
OIMC	Office of Information Management and Communications
RCED	Resources, Community, and Economic Development Division
SFRO	San Francisco Regional Office

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# Questionnaire Results

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In January 1992, we sent questionnaires to 890 pilot participants in the Human Resources Division (HRD); Resources, Community, and Economic Development Division (RCED); and San Francisco Regional Office (SFRO). The questionnaire asked participants to provide information on computer use while operating in network and stand-alone environments for fiscal year 1991 and to date in fiscal year 1992.

The questionnaire contained many variables addressing the impact of computer hardware and software and network technology on the timeliness and quality of completing assignment tasks and activities. The survey also asked for user perceptions as to whether computer usage has had a positive, negative, or no impact on other variables, such as personal productivity and morale. In addition, the questionnaire asked for general comments: respondents provided more than 400 comments about productivity gains; network benefits; hard-wired access benefits; dial-in access problems; printer, hardware, and software needs; and training needs. A total of 634 staff answered the questionnaire for a response rate of more than 71 percent.

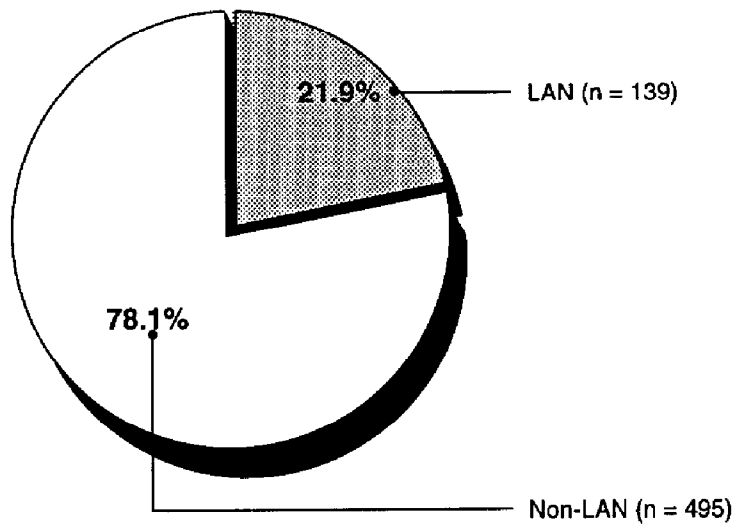
The following sections detail the survey results; a summary of responses is included in appendix II.

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## Use of Local Area Network Workstations

The number of staff using computers in a local area network (LAN) environment has increased substantially since fiscal year 1989. Only 139 people indicated that they had used a LAN workstation in fiscal year 1989; in fiscal year 1992, this figure had increased to 298. The percentage of pilot participants who used LAN and non-LAN workstations for these periods appears in figures 1 and 2. The numbers of HRD, RCED, and SFRO staff who operated in each environment in fiscal years 1989 and 1992, respectively, appear in tables 1 and 2.

**Figure 1: Percentage of Staff Using LAN and Non-LAN Workstations in Fiscal Year 1989**



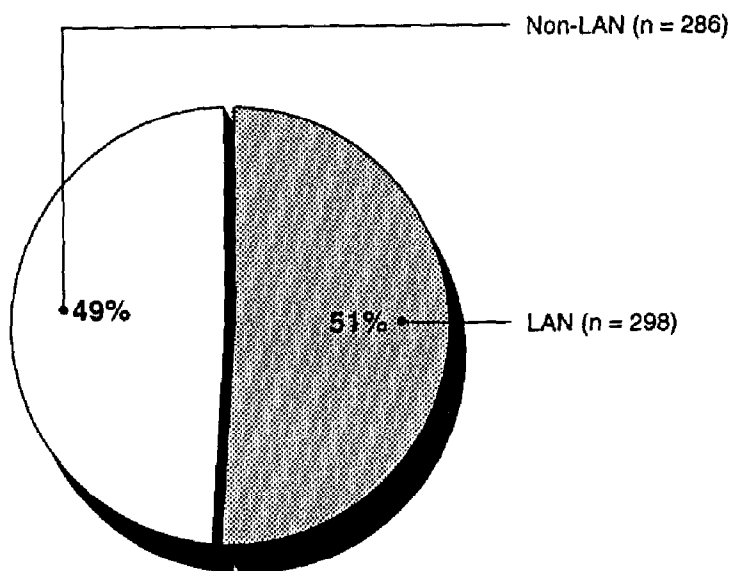
**Table 1: Number of Staff Using LAN and Non-LAN Workstations in Fiscal Year 1989**

Workstation Environment	HRD	RCED	SFRO	Total
LAN	15	49	75	139
Non-LAN	201	259	35	495
<b>Total</b>	<b>216</b>	<b>308</b>	<b>110</b>	<b>634</b>

Note: A total of 670 staff responded to the questionnaire, but only 634 indicated whether they used LAN or non-LAN workstations. The remainder either did not use a workstation or did not perform work during the entire period—fiscal years 1988 and 1989—covered by the questionnaire.

## Questionnaire Results

**Figure 2: Percentage of Staff Using LAN and Non-LAN Workstations in Fiscal Year 1992**



**Table 2: Number of Staff Using LAN and Non-LAN Workstations in Fiscal Year 1992**

Workstation Environment	HRD	RCED	SFRO	Total
LAN	129	89	80	298
Non-LAN	84	180	22	286
Total	213	269	102	584

Note: A total of 634 staff responded to the questionnaire, but only 584 indicated whether they used LAN or non-LAN workstations. The remainder either did not use a workstation or did not perform work during the entire period—fiscal year 1991 and to date in fiscal year 1992—covered by the questionnaire.

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**Impact on  
Timeliness and  
Quality**

Pilot participants indicated whether using computers in a network environment had a positive, negative, or no impact on completing their work. On average, 70 percent of staff who used computers in a network environment said that a LAN had a positive effect on the timeliness of job planning, data collection and analysis, and report preparation and review. Similarly, more than 65 percent said that the network also had a positive effect on the quality of the assignment tasks. In each case, only a small number—about 2 percent—said that it had a negative impact. (See figs. 3 and 4.)

Figure 3: Impact of LAN on Assignment Task Timeliness

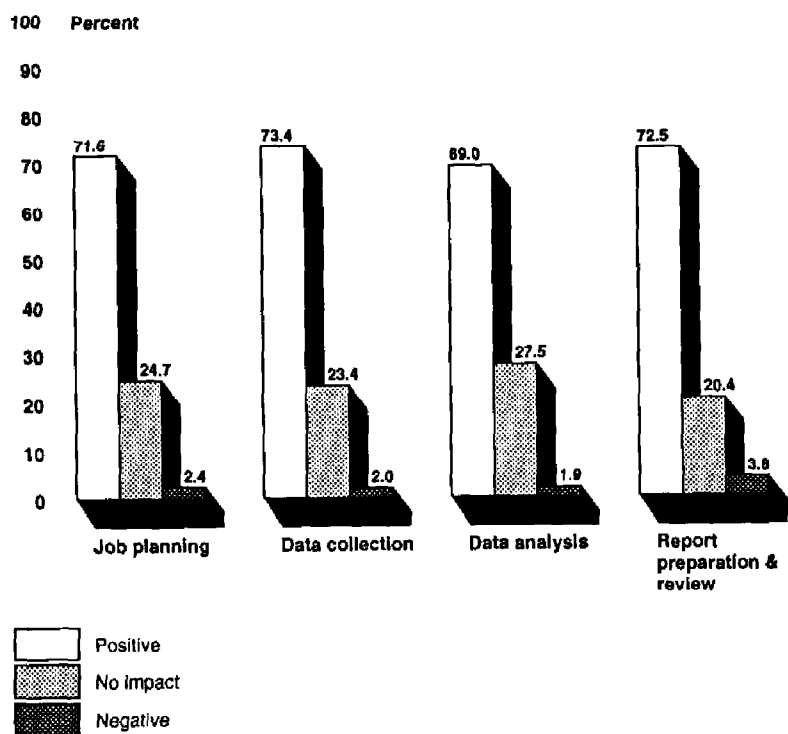
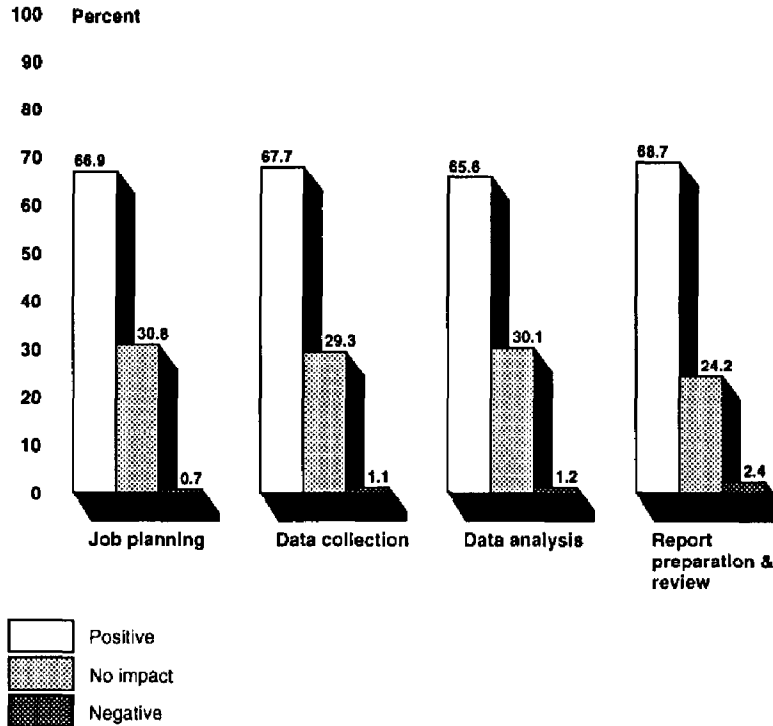


Figure 4: Impact of LAN on Assignment Task Quality



Overall, staff said that a network environment greatly improved their ability to do their jobs. They said that the LAN was a much more efficient method of sharing information, such as sending and receiving drafts for review and comment, compared to distributing or mailing hard copies. Also, they said they saved time by using the LAN to send messages which allowed them to immediately convey information and avoid playing "telephone tag." Users also cited the benefits of access to more software and better printers and

noted that an agencywide network could provide on-line help options to improve productivity.

Others mentioned the benefits of reduced bureaucracy, overhead, and rework that are realized by using a common language, interface, and network. In addition, staff frequently expressed the need to link all of GAO to the network; they noted the benefits of using it for scheduling courses, requesting job status reports, and updating administrative paperwork. Some respondents requested on-line access to computerized library material so they can conduct searches and access information critical to their work.

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### Hard-Wired Versus Dial-in Access to LAN

The network benefits staff described were almost always in conjunction with access to those computers that were hard-wired—physically connected—to a LAN. Staff using computers that were not hard-wired to a LAN frequently expressed their frustration in trying to gain access through dial-up efforts. Some examples of the comments received regarding the two access methods follow:

"My ability to do my job improved greatly since being hard-wired to the LAN—much more efficient to communicate, send documents, and access software."

"The modems are very slow, so it's too difficult to use the LAN—dial-in access is rarely successful."

Many other staff cited how slow and cumbersome it was to access the LAN through a dial-up connection and stated that it seemed more trouble than it was worth. They said they wasted time trying to locate a computer that was directly connected, and noted that both their quality and timeliness would improve if they had a network computer on their desk. Overall, staff said that direct connections must replace dial-in



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## Questionnaire Results

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access if they are to use and appreciate the full potential and benefits of a network environment.

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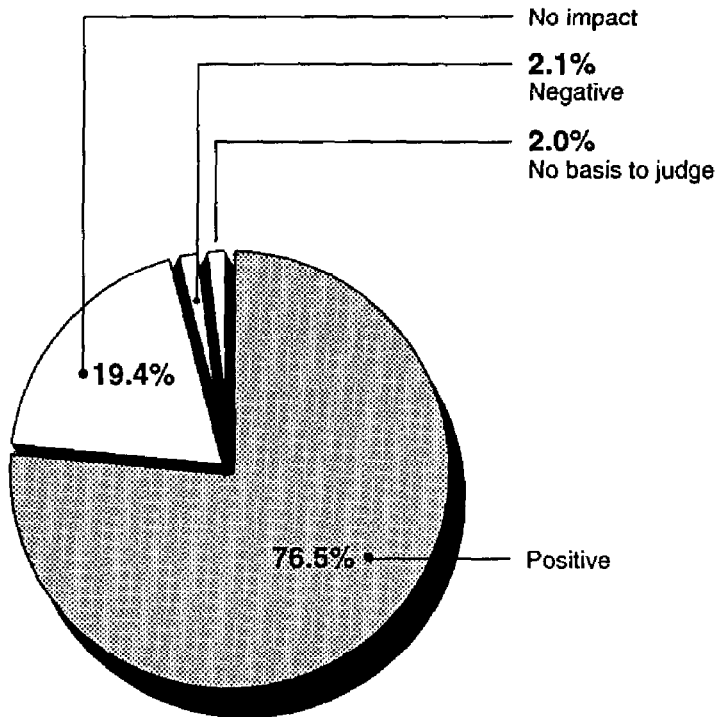
### Impact on Productivity and Morale

Staff stated that computers are the single biggest factor in increasing productivity and that they have improved overall product quality because of the ease with which data can be analyzed, restructured, and edited. A representative comment concerning these productivity gains stated that

"To increase quality, quantity, and timeliness in GAO products, everyone should have their own computer."

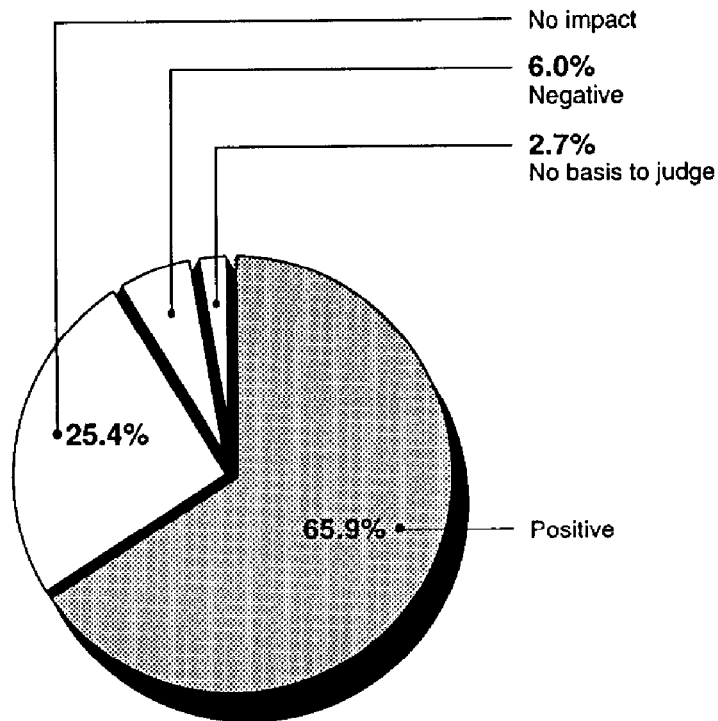
Almost 77 percent of the staff said that computers have had a positive effect on their personal productivity, and nearly 66 percent said that computers have had a positive effect on morale. Only a small percentage said that computers had a negative impact. (See figs. 5 and 6.)

Figure 5: Impact of Computer Use on Personal Productivity



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**Figure 6: Impact of Computer Use on Morale**



These positive impacts on productivity and morale, however, were most often associated with users having a computer in their personal workspace. The staff stressed the importance of having computers in their offices to more efficiently and effectively perform their work. Once they had obtained computers, they experienced significant increases in productivity and morale; they commented that their contributions were more timely since they spent less

time locating an available computer. Staff said that having their own computers makes a big difference in productivity and decreases the frustration of waiting for a computer or working in a common room with all the distractions of shared use. They also saved time by not having to return to their office for relevant workpapers and not missing telephone calls while at the computer.

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## Technology Needs

Users said they were pleased that more computers have been provided; however, many cited a need for more powerful and up-to-date technology. Many respondents commented that they were using old computers with inadequate memory, keyboards, and screens. They noted that these older computers operate at a slower processing speed than does current technology and often cannot run various software applications. Typical comments on this topic follow.

"I only have a luggable (portable) computer which cannot run WordPerfect 5.1."

"I'm pleased that GAO is finally nearing an adequate ratio of machines to people, but we still need to obtain 'state of the art' equipment."

"The computer I have does not have a hard drive, runs software very slowly, and is not connected to a LAN or a printer. All of these are impediments to getting my work done."

The staff also requested access to more and better printers and software applications; they often noted that this need could be easily met in a network environment. Specifically, staff asked for software applications to streamline the cumbersome and time-consuming indexing and referencing tasks and automate administrative and assignment forms. Users also wanted project management, statistical, and editing applications, as well as software to maintain

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## **Questionnaire Results**

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calendars, schedules, and telephone directories. In addition, they requested more versatile and innovative graphics packages to enhance and supplement GAO's product messages. Examples of their comments were

"Graphics are sorely in need of improvement."

"Instant Chart is so limiting—cannot view on screen and can only print on special printers."

Staff were frustrated by the limitations of TextFrame and the fact that it required special printers that are located only at headquarters and are of a limited number even there.

## MSP Organization Structure

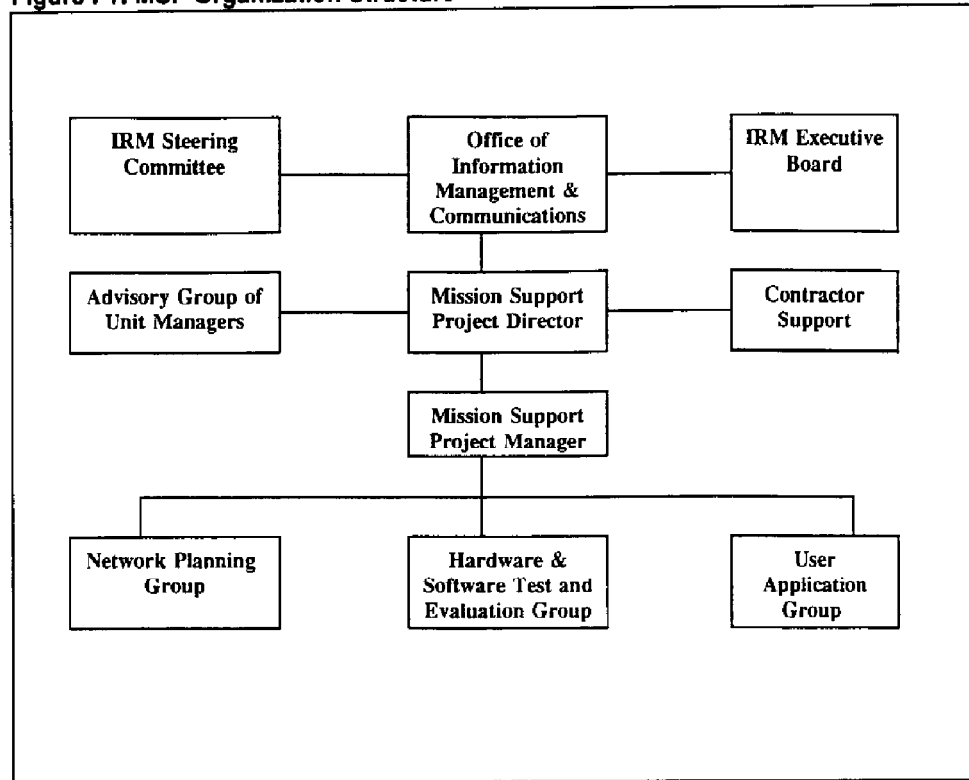
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The Mission Support Project (MSP) is under the overall management of the Office of Information Management and Communications (OIMC). OIMC is responsible for the project and is accountable to the highest level in GAO, the Office of the Comptroller General. OIMC receives policy guidance from the Information Resources Management (IRM) Executive Board and program and project guidance from the divisions and offices through the IRM Steering Committee and Project Advisory Group. As shown in figure I-1, OIMC has organized a project team to execute the project test and evaluation activities and to design and implement the network.

A Project Director heads the project team and plays a strategic role, addressing overall project direction and user community interaction. The Project Manager is responsible for day-to-day management of the project. His staff consists of the Network Planning Group, the Hardware and Software Test and Evaluation Group, and the User Application Group. Communication and coordination between each group, the user community, and other GAO organizational units is critical and is a primary responsibility of each group with general oversight from the Project Director and the Project Manager.

**Appendix I**  
**MSP Organization Structure**

**Figure I-1: MSP Organization Structure**



# Summary of Questionnaire Results

United States General Accounting Office

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## Survey of Computer Utilization

The purpose of this questionnaire is to provide "baseline" data on how computers are being used by staff and how they have affected our work. Specifically, this survey focuses on new automated data processing and office automation resources in GAO, especially in environments where microcomputers are being networked together with a Local Area Network (LAN). As you may know, your office is part of a pilot looking at office automation. Your assistance in providing information will ultimately help us to make better decisions regarding the acquisition and application of technology resources in the future.

The data from this questionnaire and information gained through case studies will be summarized and reported to the Director of OIMC. A Steering Committee consisting of OIMC, HRD, RCED and San Francisco representatives will analyze and interpret the information. This questionnaire should take about 30 minutes to complete.

*Thank you for your assistance.*

### PART I-DEFINITIONS

For the purpose of this pilot study, there are three computer environments: non-LAN workstation, LAN workstation, and mainframe workstation. A definition of each is provided below.

**NON-LAN WORKSTATION** — A microcomputer or terminal which is not part of a Local Area Network (LAN), but has the capability of communicating to another computer (such as, the computer newly installed for this pilot study) through a modem by a software package (like Crosstalk, CoSession, PC Anywhere). The software package is located either on the microcomputer's floppy or hard disk. Most microcomputers in GAO have been this type prior to the pilot study.

**LAN WORKSTATION** — A microcomputer physically cabled into a local area network (LAN) using menus to access various software packages. In a networked microcomputer environment, you can access software packages that are available through the network or stored on the microcomputer itself. For example, this environment gives you additional access to networked word processing, spreadsheet, data base, and electronic mail without using a modem.

The LAN sites for this pilot study are: headquarters RCED and HRD, RCED/DOT, RCED/AG, and the San Francisco Regional Office.

**MAINFRAME WORKSTATION** — A terminal or microcomputer which acts as a terminal that communicates to a larger remote computer using a modem. The software package is held in the mainframe computer. Typically, GAO uses the NTH or HIS as a mainframe computer.

**AUTOMATED CALENDARING** — The process where a computer is used to record a person's meetings, travel, leave, and training.

**AUTOMATED SCHEDULING** — The process where meetings are set by accessing two or more staff's calendars. Time, rooms, equipment, and participants can be scheduled.

**WORD PROCESSING** — The development of documents and files on a computer using such software packages as WordPerfect and Wylbur.



**Appendix II**  
**Summary of Questionnaire Results**

**PART II-BACKGROUND INFORMATION**  
**(\*Information provided in percentages\*)**

1. What is your current grade? (Check one.) (N=634)

- 7 GS-8 and below
- 30 Band I / GS-9 to GS-12
- 45 Band II / GS-13 and GS-14
- 13 Band III / GS-15
- 4 Above GS-15 and SES

2. How many years have you worked at GAO? (Round to the nearest year)

           years

3. What is your division or regional office? (Check one.) (N=634)

- 13 RCED (in headquarters building)
- 5 RCED/DOT site
- 5 RCED/AG site
- 23 Other RCED audit site
- 15 HRD (in headquarters building)
- 21 Other HRD audit site
- 17 San Francisco Regional Office
- 1 Other (Specify)

4. Which of the following describes your function, regardless of your formal position description? (Check one.) (N=634)

- 10 Clerical, secretarial, or administrative support staff
- 62 Band I and Band II evaluator or evaluator-related staff not in a specialist group
- 11 Band III evaluator or evaluator-related staff not in a specialist group
- 9 Specialist (DMTAG, TAG, or EAG member in a specialist group)
- 4 Unit Manager (Directors, Regional Managers, Division Directors, etc.)
- 4 Other (Specify)

5. Which of the following types of situations describe the computer(s) (including workstations and terminals) you most frequently used in fiscal year 1992? (Check all that apply.) (N=634)

- 9 Shared with one or two other people
- 27 Shared in a common area
- 63 I have a computer in my office or cubicle
- 1 I do not use a computer —→ Please briefly describe your reason(s). After describing your reason(s) then skip to PART IV on page 13.

## Appendix II Summary of Questionnaire Results

### PART III-USAGE PATTERNS

Part III concerns the role computers currently play in your GAO work. We are seeking information on seven tasks associated with your GAO work. These tasks are described below. It is **necessary** that you read these definitions before completing pages 3 to 10.

**JOB PLANNING**-includes assignment specific planning and the development of job-starts and management documents.

**DATA COLLECTION**-includes the acquisition and storage of data, writing interviews and other work papers as well as the retrieval of automated information from sources both internal and external to GAO.

**DATA ANALYSIS**-includes statistical analysis, data manipulation, graphics, and referencing.

**REPORT PREPARATION AND REVIEW**-includes the development of draft chapter reports, briefings, testimony, and technical documents, etc. as well as indexing, and supervisory review.

**PUBLISHING/REPORT PRODUCTION AND DISTRIBUTION**-includes the production of final chapter reports, briefings, testimony and technical documents, etc. Production includes typing, editing, and formatting files and documents.

**STRATEGIC PLANNING**-includes the development of issue area and annual work plans, setting issue area objectives, and other relevant management information system activities.

**GAO OR UNIT MANAGEMENT**-includes the tracking of assignments, staff and dollars of headquarters and regional resources as well as training, travel, ratings, and other personnel information.

### DEFINITIONS

Below are activities used in Part III. Please read them before completing pages 3 to 10.

**Communication and File Sharing**-includes storing and transferring files as well as communicating messages.

**Composing/Editing**-includes creating and composing files and documents, commenting, reviewing, indexing, or editing files.

**Analysis**-includes statistics, data manipulation and the development of graphics.

6. During any part of fiscal year 1991, did you work for GAO? (*Check one.*) (N=625)

97 Yes → CONTINUE TO QUESTION 7

3 No → SKIP TO QUESTION 10 ON  
PAGE 11

7. During fiscal year 1991, overall, how easy or difficult was it for you personally to gain access to the hardware and software packages you needed in order to perform your GAO work? (*Check one.*) (N=607)

41 Very easy

30 Somewhat easy

10 Neither easy nor difficult

15 Somewhat difficult

2 Very difficult

**Appendix II  
Summary of Questionnaire Results**

8. Thinking back to fiscal year 1991, how did you typically perform each of the following tasks/activities? (For each type of method and tasks/activities check one.) (N=607)

TASKS AND ACTIVITIES	Pencil/Paper				Non-LAN			LAN			Mainframe		
	Did Not Perform	Never Use	Sometimes Use	Frequently Use	Never Use	Sometimes Use	Frequently Use	Never Use	Sometimes Use	Frequently Use	Never Use	Sometimes Use	Frequently Use
	(1)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<b>Job Planning</b>													
1. Communication and File Sharing	24	15	38	24	18	43	26	42	19	18	67	3	1
2. Composing/Editing	21	14	43	18	11	25	53	46	11	19	66	2	1
<b>Data Collection</b>													
3. Communication and File Sharing	21	19	36	20	18	33	35	47	17	15	65	3	4
4. Composing/Editing	18	17	41	15	12	22	55	46	11	18	65	2	3
<b>Data Analysis</b>													
5. Communication and File Sharing	22	20	39	15	20	33	32	47	17	12	64	3	4
6. Composing/Editing	19	15	44	14	13	28	48	48	11	16	63	3	3
7. Analysis	19	17	42	15	16	30	41	49	15	13	61	3	7
<b>Report Preparation and Review</b>													
8. Communication and File Sharing	21	22	33	18	17	29	43	45	15	17	69	1	1
9. Composing/Editing	18	18	37	18	12	20	59	46	12	18	67	1	1
<b>Publishing and Report Production and Distribution</b>													
10. Communication and File Sharing	45	31	26	15	26	28	33	55	10	9	67	1	1
11. Composing/Editing	42	30	27	14	20	28	39	55	9	11	66	1	1
<b>Strategic Planning</b>													
12. Communication and File Sharing	52	23	34	13	26	36	20	51	13	11	63	1	1
13. Composing/Editing	52	23	33	13	21	34	29	50	12	11	61	1	1
<b>GAO or Unit Management</b>													
14. Communication and File Sharing	49	22	36	13	29	30	22	41	15	21	65	1	2
15. Composing/Editing	49	22	35	14	26	30	27	45	13	18	64	2	1

## Appendix II Summary of Questionnaire Results

9. Question 9 has three sections. Each section examines your usage of one of three computer environments: non-LAN, LAN, and mainframe workstations.

During fiscal year 1992, did you directly use a **non-LAN workstation** in your GAO work? Please **exclude** the use of hardware or software packages which another person performs as a service to you. *(Check one.)*  
(No = 161; Yes = 422)

1. ☐ No —→ SKIP TO PAGE 7
2. ☐ Yes —→ PLEASE ANSWER THE QUESTIONS BELOW

a. Under Column A, please indicate how frequently (if at all) you used a non-LAN workstation to perform the activities for each of the job tasks listed below. *(In Column A check one for each.)*

When answering Questions b and c below, please assess the impact of the non-LAN workstation in comparison to the way you performed your work during fiscal year 1991.

b. Under Column B only for those tasks/activities you performed using a non-LAN workstation, please indicate whether there was a positive, negative or no impact on the **timeliness of the contributions** you made. *(In Column B check one for each.)*

c. Under Column C only for those tasks/activities you performed using a non-LAN workstation, please indicate whether there was a positive, negative or no impact on the **quality of the contributions** you made. *(In Column C check one for each.)*

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)
<b>Job Planning</b>										
1. Communication and File Sharing	30	31	21	15	3	27	68	1	34	63
2. Composing and Editing Data Collection	16	25	26	29	3	25	71	2	30	66
3. Communication and File Sharing	26	20	26	26	4	27	67	2	33	63
4. Composing and Editing	13	19	27	46	4	23	72	2	28	68

**Appendix II  
Summary of Questionnaire Results**

Question 9 concerning non-LAN workstations continues...

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	About No Impact (1)	Once a Month or Less (2)	Several Times a Month (3)
<b>Data Analysis</b>										
1. Communication and File Sharing	30	23	27	16	4	30	64	2	35	68
2. Composing and Editing	17	17	29	34	5	24	69	3	28	63
3. Analysis	21	19	28	26	4	23	71	3	26	66
<b>Report Preparation and Review</b>										
4. Communication and File Sharing	28	24	27	17	5	26	66	3	33	59
5. Composing and Editing	17	13	28	37	4	20	74	3	25	68
<b>Publishing/Report Production and Distribution</b>										
6. Communication and File Sharing	57	16	11	7	1	27	69	0	32	62
7. Composing and Editing	49	16	11	16	2	23	72	1	27	65
<b>Strategic Planning</b>										
8. Communication and File Sharing	60	19	8	4	2	39	57	5	37	54
9. Composing and Editing	54	21	9	6	3	35	60	3	34	58
<b>GAO or Unit Management</b>										
10. Communication and File Sharing	61	12	9	7	6	26	64	7	30	59
11. Composing and Editing	54	17	10	10	5	30	61	5	31	58

## Appendix II Summary of Questionnaire Results

During fiscal year 1992, did you directly use a LAN workstation in your GAO work? Please exclude the use of hardware or software packages which another person performs as a service to you. (Check one.) (No = 286; Yes = 298)

1. ☐ No → SKIP TO PAGE 9
2. ☐ Yes → PLEASE ANSWER THE QUESTIONS BELOW

In what month and year in fiscal year 1992 did you first use a LAN workstation? (Enter month and year)

\_\_\_\_/19\_\_\_\_

a. Under Column A, please indicate how frequently (if at all) you used a LAN workstation to perform each of the activities for each of the job tasks listed below. (In Column A check one for each.)

When answering Questions b and c below, please assess the impact of the LAN workstation in comparison to the way you performed your work during fiscal year 1991.

b. Under Column B only for those tasks/activities you performed using a LAN workstation, please indicate whether there was a positive, negative or no impact on the timeliness of the contributions you made. (In Column B check one for each.)

c. Under Column C only for those tasks/activities you performed using a LAN workstation, please indicate whether there was a positive, negative or no impact on the quality of the contributions you made. (In Column C check one for each.)

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)
<b>Job Planning</b>										
1. Communication and File Sharing	43	17	16	17	3	21	75	1	30	68
2. Composing and Editing	44	14	14	21	2	28	68	1	32	66
<b>Data Collection</b>										
3. Communication and File Sharing	43	14	17	19	2	21	75	1	27	69
4. Composing and Editing	42	10	17	24	2	26	72	1	32	66

**Appendix II  
Summary of Questionnaire Results**

Question 9 concerning LAN workstations continues...

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	At Least Several Times a Week (1)	About No Impact (2)	Positive Impact (3)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)
<b>Data Analysis</b>										
1. Communication and File Sharing	45	15	21	11	2	27	68	1	29	63
2. Composing and Editing	45	11	20	17	2	30	67	1	32	65
3. Analysis	47	12	20	14	2	25	72	1	29	69
<b>Report Preparation and Review</b>										
4. Communication and File Sharing	45	15	19	15	4	19	73	3	24	69
5. Composing and Editing	43	12	17	21	3	21	72	2	25	69
<b>Publishing/Report Production and Distribution</b>										
6. Communication and File Sharing	67	9	7	7	3	22	70	1	23	68
7. Composing and Editing	67	8	7	9	3	21	72	1	21	72
<b>Strategic Planning</b>										
8. Communication and File Sharing	64	12	8	5	6	22	70	4	27	66
9. Composing and Editing	63	15	6	5	4	28	63	3	32	63
<b>GAO or Unit Management</b>										
10. Communication and File Sharing	53	7	11	17	7	12	77	5	20	70
11. Composing and Editing	57	7	12	12	5	16	75	2	22	72

## Appendix II Summary of Questionnaire Results

During fiscal year 1992, did you directly use a mainframe workstation in your GAO work? Please exclude the use of hardware or software packages which another person performs as a service to you. (Check one.) (N = 587; No = 545; Yes = 42)

1. ☐ No → SKIP TO PAGE 11
2. ☐ Yes → PLEASE ANSWER THE QUESTIONS BELOW

a. Under Column A, please indicate how frequently (if at all) you used a mainframe workstation to perform each of the activities for each of the job tasks listed below. (In Column A check one for each.)

When answering Questions b and c below, please assess the impact of the mainframe workstation in comparison to the way you performed your work during fiscal year 1991.

b. Under Column B only for those tasks/activities you performed using a mainframe workstation, please indicate whether there was a positive, negative or no impact on the timeliness of the contributions you made. (In Column B check one for each.)

c. Under Column C only for those tasks/activities you performed using a mainframe workstation, please indicate whether there was a positive, negative or no impact on the quality of the contributions you made. (In Column C check one for each.)

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)
<b>Job Planning</b>										
1. Communication and File Sharing	62	5	14	10	0	25	67	0	33	58
2. Composing and Editing	64	5	5	14	0	30	70	0	40	50
<b>Data Collection</b>										
3. Communication and File Sharing	24	12	17	36	0	22	74	0	30	70
4. Composing and Editing	31	12	7	38	4	21	75	0	29	71



**Appendix II  
Summary of Questionnaire Results**

Question 9 concerning mainframe workstations continues...

TASKS AND ACTIVITIES	Column A Frequency?				Column B Timeliness?			Column C Quality?		
	Never or Almost Never (1)	Once a Month or Less (2)	Several Times a Month (3)	At Least Several Times a Week (4)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)	Negative Impact (1)	About No Impact (2)	Positive Impact (3)
<b>Data Analysis</b>										
1. Communication and File Sharing	21	12	17	41	3	28	66	0	38	55
2. Composing and Editing	24	7	12	48	7	18	68	0	32	57
3. Analysis	10	5	19	60	3	20	74	0	23	71
<b>Report Preparation and Review</b>										
4. Communication and File Sharing	64	7	7	7	0	33	67	0	33	56
5. Composing and Editing	67	7	5	7	0	38	63	0	38	50
<b>Publishing/Report Production and Distribution</b>										
6. Communication and File Sharing	79	2	0	2	0	50	50	0	50	50
7. Composing and Editing	76	2	2	2	0	33	67	0	33	67
<b>Strategic Planning</b>										
8. Communication and File Sharing	71	12	0	0	0	40	60	0	40	60
9. Composing and Editing	74	7	2	0	0	25	75	0	25	75
<b>GAO or Unit Management</b>										
10. Communication and File Sharing	74	5	5	0	0	25	75	0	25	75
11. Composing and Editing	74	5	5	0	0	25	75	0	25	75

## Appendix II Summary of Questionnaire Results

10. In fiscal year 1991, did you personally use a computer to perform your GAO work? (Check one.) (N = 625)

88.3 Yes → CONTINUE TO QUESTION 11

4.0 No → SKIP TO QUESTION 12

11. In your opinion, overall in comparison to your experience in fiscal year 1991, has your computer usage in fiscal year 1992 had a positive, negative, or no impact on the following? Please exclude the use of hardware or software packages which another person performs as a service to you. (Check one for each.) (N = 552)

	Very Negative Impact (1)	Somewhat Negative Impact (2)	About No Impact (3)	Somewhat Positive Impact (4)	Very Positive Impact (5)	No Basis To Judge (6)
1. Your personal productivity	1	2	19	27	50	1
2. Quality of your products	1	1	25	25	46	2
3. Calendar time to complete your jobs	1	2	30	29	33	4
4. Number of staff days spent to complete your jobs	1	2	36	28	24	8
5. Your capability to do new kinds of applications	1	2	26	31	32	5
6. Your morale	1	5	25	26	40	1
7. Your coordination with other GAO headquarters units on data collection and analysis	1	1	43	21	13	18
8. Your coordination with other GAO headquarters units on developing report products	1	1	41	20	15	21
9. Your communication/messaging with other GAO headquarters units	1	2	36	20	25	14
10. Your coordination with other GAO regional units on data collection and analysis	1	1	39	16	12	28
11. Your coordination with other GAO regional units on developing report products	1	1	36	15	15	30
12. Your communication/messaging with other GAO regional units	1	2	38	17	13	27
13. Sharing automated documents and files created by others working with you	1	1	35	24	23	14

**Appendix II  
Summary of Questionnaire Results**

12. For each type of software package listed below please answer the following questions. (N = 625)

a. Under Column A, please indicate whether or not you would like training in how to use the type of software package on a **non-LAN workstation**. (In Column A check one for each.)

b. Under Column B, please indicate whether or not you would like training in how to use the type of software package on a **LAN workstation**. (In Column B check one for each.)

c. Under Column C, please indicate whether or not you would like training in how to use the type of software package on a **mainframe workstation**. (In Column C check one for each.)

TYPES OF SOFTWARE PACKAGES	Column A			Column B			Column C		
	Non-LAN Training			LAN Training			Mainframe Training		
	I want more (1)	I know enough (2)	I have no need (3)	I want more (1)	I know enough (2)	I have no need (3)	I want more (1)	I know enough (2)	I have no need (3)
1. Wordprocessing or text editing (WordPerfect, Wylbur, etc.)	32	40	15	41	27	19	10	6	65
2. Electronic spreadsheets (Lotus, Supercalc, etc.)	38	27	23	42	18	27	11	4	66
3. Data base management (dBase, Foxbase, etc.)	45	11	32	47	8	32	13	3	64
4. Statistical Analysis System (SAS)	32	8	48	31	5	48	15	5	61
5. Statistical Package for the Social Sciences (SPSS)	24	7	56	23	6	55	12	5	63
6. DYL (280/260)	9	3	71	10	3	67	7	3	69
7. File transfer with other GAO locations	36	27	24	48	15	24	12	5	63
8. Communications outside GAO (other data bases)	39	9	38	41	6	37	17	3	60
9. Email (computer messaging)	28	30	28	34	33	21	11	6	63
10. Automated Calendaring	37	8	41	42	6	37	9	2	68
11. Automated Scheduling	37	6	43	42	5	39	10	2	68
12. Graphics	56	12	19	55	7	23	15	3	62

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**Appendix II**  
**Summary of Questionnaire Results**

**PART IV-COMMENT**

13. Please place any comments you may have concerning how computers are being used by you or others around you and how they have affected our work in the space below. Please indicate the other kinds of software packages you may be using in your GAO work which were not covered in this questionnaire. Also, please describe any changes you could make in your contributions to GAO using existing computer resources. Furthermore, please describe any changes you could make in your contributions to GAO if additional computer resources were made available.  
(N = 232)

*Thank you for your assistance!*

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## Major Contributors to This Report

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