User Ratings of
General-Purpose Computer Systems

This survey of user ratings of general-purpose computer systems summarizes the opinions of Datapro subscribers about their currently installed computers and presents weighted averages of the ratings assigned to each computer system for its performance in 12 important categories that cover hardware, software, and the supporting services provided by the computer manufacturers. These ratings provide a quick and easy-to-use method for prospective computer purchasers to determine what other users think are the most attractive characteristics, as well as the disadvantages, of the computer systems they are now using. Datapro solicited these views in an extensive questionnaire that was mailed on a postpaid reply form to a sample of approximately 10,000 Datapro subscribers in October 1978. By December 1, when the task of tabulating the returned questionnaires was begun, a total of 894 responses had been received.

All general-purpose computer systems of any vintage were grouped and included in the tabulated listings if they were rated in two or more user responses. Single responses describing a particular model of a computer manufacturer's product line were incorporated into the totals for the appropriate computer family under the category of "others."

In the case of questionnaires that described two or more computer systems representing two or more distinct models within a product line, each set of ratings was counted as one response. However, when only one set of ratings was given for multiple computer systems of the same model or series, that set of ratings was counted as a single response in order to avoid skewing of the final ratings by one installation reporting on a large number of identical computer systems. As a result, our survey summarizes the ratings supplied in 894 responses evaluating a total of 1,030 computer systems.

In addition to the 894 responses tabulated in this report, Datapro's 1978 computer survey also attracted responses from 417 users of minicomputers and small business computers with a total of 1,308 installed systems. The usage patterns and equipment ratings of these users are presented in a separate DATAPRO 70 report, *User Ratings of Minicomputers and Small Business Computers* (Report 70C-010-40).

The Results

Our comprehensive questionnaire asked each Datapro subscriber to describe his computer installation in considerable detail. Each respondent was asked to identify the manufacturer and model number of the computer system, the number of systems installed, the main memory size, the operating system in use, and the number of months the system has been installed.

Another question asked whether the user acquired his system by outright purchase, rental from the manufacturer, or through a third-party leasing arrangement. The results, summarized in Table 1 and detailed in Table 6,

This report conveys the results of Datapro's latest survey of general-purpose computer users. Extensive tables summarize the experience of 894 users with a total of 1,030 computer systems. The usrs' ratings pinpoint the strengths and weaknesses of each mainframe manufacturer's equipment, software, and support, yielding information that should be of great value in computer acquisition.

represent the percentages of the total number of responses for each manufacturer or model that reported each method of acquisition. Some respondents failed to supply an answer to the question, while others had used more than one method of acquisition. As a result, the percentages do not always add up to 100 percent.

We then asked our subscribers to describe the major functions of each computer system by indicating the principal application, or applications, performed by each system. The results are summarized in Table 2 and detailed in Table 6. Here the percentages nearly always far exceed 100 percent, indicating that most of the computer systems represented in the survey perform a variety of functions. Corresponding closely to the market emphasis claimed by the respective manufacturers, computers made by Amdahl, Burroughs, Honeywell, IBM, Itel, NCR, and Univac were used mainly for business data processing. Those made by Control Data and Digital Equipment Corporation showed a strong emphasis on scientific and engineering applications. The second highest usage category, after business data processing, was data communications, followed by data base management.

The next question we asked the computer users was "Who wrote the programs for your applications?" Table 3 summarizes their replies. Although the vast majority of users maintain in-house programming staffs, most have also turned to other sources for programming assistance. Hence, the figures in Table 3 also total more than 100 percent in most cases.

TABLE 1: METHOD OF ACQUISITION

Manufacturer	Purchase	Rental from Manufacturer	Third-Party Lease
Amdahl	62%	8%	31%
Burroughs	44	48	11
Control Data	60	28	12
DEC	87	—	20
Honeywell	51	32	18
IBM	38	30	44
Itel	64	18	—
NCR	38	49	14
Univac	47	57	—
Totals	42%	33%	33%

User Ratings of
General-Purpose Computer Systems

TABLE 2: PRINCIPAL APPLICATIONS

Manufacturer	Business Data Processing	Scientific and Engineering	Real-Time Control	Data Communications	Data Base Management	Other Applications
Amdahl	92%	23%	8%	62%	62%	8%
Burroughs	89	19	7	44	25	10
Control Data	68	64	4	16	20	20
DEC	73	67	13	27	27	27
Honeywell	90	31	12	41	38	6
IBM	90	16	4	38	31	9
Itel	82	18	9	36	36	0
NCR	83	5	5	30	16	5
Univac	89	19	4	49	28	15
Totals	89%	20%	5%	38%	30%	9%

▷ Computer users represented in the survey relied most often on software packages supplied by independent software houses to supplement their in-house programming efforts. These results underscore the growing importance of the proprietary software industry in the computer marketplace. The percentages listed in Table 3, however, probably underestimate the full extent of the utilization of proprietary software packages by computer users; our question specified application programs only, and many of the popular proprietary software programs supplement the services performed by the computer manufacturers' systems software.

The percentages of computer users in the survey who were using remote batch and/or interactive terminals varied widely. But all of the manufacturers had some representation in both categories, as shown in Table 4. Overall, almost one-half of the computer systems represented in this survey were equipped with remote batch terminals, and two-thirds of the systems included interactive terminals in their configurations.

The next question relating to the description of each configuration asked the users to specify what types of peripheral devices, if any, they had obtained from sources other than their mainframe manufacturer. The results are shown in Table 5. An entry line was left blank for users to indicate any other types of "foreign" devices that were included in their systems, and the answers included graphic plotters, MICR devices, and various types of remote terminals and front-end communications processors. As expected, the use of "foreign" peripheral devices is most common among users of IBM, Amdahl, and Itel computers, who can choose from a wide variety of plug-compatible devices. But the figures also make it clear that many users of other makes of computers are now looking to alternative sources for some of their peripheral equipment.

The answers to many of our questions concerning the size, longevity, method of acquisition, and principal applications of each computer system are detailed in Table 6. The responses for each computer system and the totals for each manufacturer are tabulated to help establish a proper frame of reference for the users' ratings which appear in a similar format in Table 7.

Table 6 also indicates that some of the computer hardware represented in this survey has had a far longer life expectancy than might have been predicted in view of the rapid pace of technological innovation and the regular arrival of new families offering ever more attractive price/performance ratios and more appealing processing facilities. The durable IBM System/360 still constitutes nearly 9 percent of the computers represented in this survey, with an average of 61 months of service. Other systems with notable longevity include three IBM 1401 systems that have been in use for over a decade.

Finally and most importantly, in order to determine the level of the users' satisfaction with their computer systems, we asked each respondent to judge his system in 12 distinct categories of performance by assigning ratings of Excellent, Good, Fair, or Poor. These responses were grouped by computer model, and a weighted average based on the number of responses for each category was computed. To calculate the weighted averages, each Excellent response was weighted as 4, Good as 3, Fair as 2, and Poor as 1. The total numbers of responses were multiplied by their corresponding weights, and the sums of these products were then divided by the total number of responses in each category. The results for each computer model that was rated by two or more users and the totals for each mainframe manufacturer are presented in Table 7.

Some Mixed Emotions

In order to establish a base line or standard of performance, the ratings received by all computer systems in this survey are summarized in the Grand Totals row at the end of Table 7. These averages have been calculated to form an overall picture of user satisfaction, and in some cases dissatisfaction, with the currently installed computer equipment.

In the important "bottom line" category of Overall Satisfaction, the respondents to the Datapro 1978 survey bestowed an overall rating of 3.1, or slightly better than Good, upon all the computer systems evaluated this year. In fact, average ratings of Good (3.0) or better were achieved in 9 out of the 12 performance categories.

The weighted average scores for all categories for all systems rated are presented below in descending order. ▷

User Ratings of
General-Purpose Computer Systems

TABLE 3: SOURCES OF APPLICATIONS PROGRAMS

Manufacturer	In-House Personnel	Computer Manufacturer's Personnel	Used "Ready-Made" Programs from Manufacturer	Used Proprietary Software Packages	Used Contract Programming House
Amdahl	100%	23%	54%	77%	31%
Burroughs	94	16	13	26	19
Control Data	100	12	20	44	16
DEC	93	20	20	33	13
Honeywell	97	24	26	25	19
IBM	92	12	28	47	25
Itel	91	0	9	73	27
NCR	95	32	43	30	14
Univac	100	23	13	30	28
Totals	94%	15%	26%	42%	24%

▷

	Weighted Averages			
		1978		1977
	Overall	IBM	Others	Overall
Reliability of Mainframes	3.4	3.5	3.3	3.4
Ease of Operation	3.3	3.3	3.4	3.3
Responsiveness of Maintenance	3.2	3.3	3.1	3.2
Compilers and Assemblers	3.2	3.2	3.3	3.1
Overall Satisfaction	3.1	3.1	3.1	3.1
Effectiveness of Maintenance	3.1	3.2	2.9	3.1
Operating Systems	3.1	3.0	3.3	3.1
Ease of Programming	3.1	3.0	3.3	3.1
Reliability of Peripherals	3.0	3.2	2.7	3.1
Ease of Conversion	2.9	2.9	3.0	2.9
Technical Support	2.8	2.9	2.5	2.8
Applications Programs	2.7	2.8	2.7	2.8

Comparing the overall 1978 results with those of the 1977 survey shows only minor differences; no category varied by more than 0.1 in weighted average. Mainframe Reliability led the list, as usual, and Technical Support and Applications Programs trailed the list, again as usual.

Because the 661 systems from IBM formed 64 percent of the 1030 total systems represented in the survey (66 percent of the responses), we calculated the totals for all the non-IBM systems in a separate totals line (the next to the last line in Table 7). The results are also presented in the table above in the order of overall finish. Notable differences (more than 0.1 in the weighted average) between the feelings of the IBM users represented in this survey and the others included pluses for IBM in Reliability of Mainframes, Reliability of Peripherals, Responsiveness of Maintenance, Effectiveness of Maintenance, and Technical Support. Pluses for the non-IBM

vendors included Operating Systems and Ease of Programming. There was no discernible difference in Overall Satisfaction between the IBM users and the collective non-IBM users.

Itel and Amdahl were sparsely represented in last year's survey—a total of 9 responses with 9 systems. This year the representation was higher—24 responses with 28 systems. The ratings of both vendors continued to be high. Digital Equipment also scored well on this year's survey. Those three vendors earned the highest ratings in users' Overall Satisfaction. Control Data, Honeywell, and IBM tied for the next place.

In individual categories, Burroughs continued to lead the rest in Ease of Operation, Operating Systems, Compilers and Assemblers, and Ease of Programming. IBM earned only one first-place rating, in Reliability of Peripherals.

Just what constitutes overall user satisfaction is a subject we haven't explored, but factors such as attractive price/performance, sophisticated software, industry expertise, and specialized computing facilities are often cited as reasons for selecting a given computer system and staying with it.

Thank You

Datapro wishes to thank all of our subscribers for responding so enthusiastically to our latest survey of user experience with general-purpose computer systems. Without your participation, it could not have been a success, and we hope that this compendium of the opinions of your colleagues will be of significant value to you. We look forward to hearing from you again next year.□

TABLE 4: TERMINAL USAGE

Manufacturer	Remote Batch Terminals	Interactive Terminals
Amdahl	69%	85%
Burroughs	42	74
Control Data	60	52
DEC	33	80
Honeywell	49	76
IBM	47	65
Itel	27	82
NCR	16	35
Univac	40	74
Total	45%	67%

TABLE 5: USAGE OF "FOREIGN" PERIPHERALS*

Mainframe Manufacturer	Disk Drives	Magnetic Tape Drives	Add-On Main Memory	Line Printers
Amdahl	85%	62%	15%	62%
Burroughs	10	9	1	15
Control Data	16	28	0	32
DEC	20	13	27	40
Honeywell	6	1	0	7
IBM	35	24	33	19
Itel	100	91	0	91
NCR	8	5	5	11
Univac	9	9	0	11
Totals	29%	21%	23%	19%

*Peripheral devices obtained from sources other than the mainframe manufacturer.

User Ratings of
General-Purpose Computer Systems

TABLE 6: DETAILED COMPUTER ACQUISITION AND APPLICATION DATA

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Average Main Memory Size, Words or Bytes	Average Length of Time in Use, Months	Method of Acquisition, Responses			Principal Applications, Responses					
					Purchase	Rental from Manufacturer	Third-Party Lease	Business Data Processing	Scientific/ Engineering	Real-Time Control	Data Communications	Data Base Management	Other Applications
Amdahl 470V/5	3	3	4700KB	7	1	1	1	2	1	0	2	2	1
Amdahl 470V/6	9	13	6780KB	11	6	0	3	9	2	1	5	5	0
Amdahl, unspecified	1	1	8000KB	—	1	0	0	1	0	0	1	1	0
AMDAHL TOTALS	13	17	—	—	8	1	4	12	3	1	8	8	1
Burroughs B 1700 Series	14	14	177KB	31	2	9	3	12	1	0	4	1	3
Burroughs B 2700 Series	8	8	169KB	50	2	6	1	9	1	0	3	0	0
Burroughs B 3700 Series	8	8	231KB	60	3	3	2	7	1	0	3	0	1
Burroughs B 4700 Series	15	16	328KB	41	4	9	3	13	3	1	5	1	2
Burroughs B 6700 Series	14	14	3838KB	42	8	7	1	11	4	3	7	7	1
Burroughs B 7700 Series	5	5	3562KB	12	4	1	0	3	0	0	3	4	1
Burroughs B 700 Family Totals	64	65	—	—	23	35	10	55	10	4	25	13	8
Burroughs B 1800 Series	5	6	233KB	4	2	2	0	5	1	1	0	0	0
Burroughs B 2800 Series	5	5	250KB	5	3	2	0	5	1	1	3	1	0
Burroughs B 3800 Series	3	3	450KB	5	2	1	0	3	1	0	3	3	0
Burroughs B 4800 Series	3	9	500KB	44	2	1	0	3	0	0	2	2	0
Burroughs B 6800 Series	3	3	1067KB	1	1	2	0	3	2	0	3	3	1
Burroughs B 800 Family Totals	19	26	—	—	10	8	0	19	5	2	11	9	1
Burroughs, others	6	8	145KB	65	6	0	0	5	2	0	3	0	0
BURROUGHS TOTALS	89	99	—	—	39	43	10	79	17	6	39	22	9
Control Data Cyber 70 & 170	9	12	171KW	67	7	2	0	5	7	0	1	3	2
Control Data 3000 Series	7	8	72KW	78	3	3	0	6	5	0	1	0	2
Control Data 6000 Series	3	3	98KW	65	1	1	2	0	3	1	1	1	1
Control Data Omega 480	6	6	853KB	5	4	1	1	6	1	0	1	1	0
CONTROL DATA TOTALS	25	29	—	—	15	7	3	17	16	1	4	5	5
Digital Equipment DECsystem-10	11	14	268KW	40	9	0	3	7	8	2	4	3	3
Digital Equipment DECsystem-20	4	4	226KW	18	4	0	0	4	2	0	0	1	1
DIGITAL EQUIPMENT TOTALS	15	18	—	—	13	0	3	11	10	2	4	4	4
Honeywell Level 66	22	27	550KW	30	10	8	4	21	10	2	16	16	2
Honeywell Series 2000	12	15	183KB	56	7	4	1	12	0	1	2	2	0
Honeywell Series 6000	6	6	310KW	56	4	1	1	6	1	0	3	4	0
Honeywell 530 & 560 (Xerox)	4	8	76KW	27	1	2	1	2	3	2	2	1	0
Honeywell Sigma Series (Xerox)	9	14	560KB	52	9	0	0	6	7	3	2	1	1
Honeywell, others	15	29	149KB	58	4	7	5	14	0	0	3	2	1
HONEYWELL TOTALS	68	99	—	—	35	22	12	61	21	8	28	26	4
IBM 360/20	4	4	14KB	98	1	3	0	4	0	0	0	0	0
IBM 360/30	22	23	119KB	74	11	4	14	19	0	0	2	2	4
IBM 360/40	22	22	267KB	46	14	1	8	13	2	0	1	2	5
IBM 360/50	13	14	424KB	57	8	0	6	12	1	0	1	3	2
IBM 360/65	15	17	1905KB	50	4	2	9	11	3	0	5	4	3
IBM 360/75	2	2	2048KB	—	0	0	2	2	1	0	0	3	0
IBM System/360, unspecified	7	7	406KB	64	4	1	3	5	1	0	0	0	4
IBM System/360 Totals	85	89	—	—	42	11	78	53	19	2	9	11	18
IBM 370/115	13	13	210KB	40	5	7	1	13	3	0	2	3	1
IBM 370/125	19	19	324KB	38	7	8	3	14	1	1	5	4	2
IBM 370/135	29	30	384KB	54	11	6	14	28	6	1	11	7	0
IBM 370/138	63	65	722KB	12	17	31	15	63	5	2	24	19	0
IBM 370/145	61	63	1158KB	40	26	13	26	56	10	1	28	19	7
IBM 370/148	60	63	1479KB	11	18	23	23	59	10	3	28	25	7
IBM 370/155	17	18	2018KB	58	7	2	10	18	6	1	9	7	0
IBM 370/158	106	122	4247KB	35	49	15	49	99	20	7	60	51	4
IBM 370/165	4	7	3365KB	78	1	1	2	4	2	0	2	2	0
IBM 370/168	44	54	5874KB	37	17	8	19	42	8	5	26	23	3
IBM System/370, unspecified	2	2	640KB	55	1	0	1	2	1	0	2	1	0
IBM System/370 Totals	418	456	—	—	159	114	163	398	72	21	197	161	24
IBM 3031	10	11	2607KB	2	4	1	6	10	2	0	7	6	0
IBM 3032	1	1	4096KB	7	1	0	0	1	0	0	1	0	0
IBM 3033	6	7	6144KB	2	1	0	5	6	0	0	1	1	1
IBM 303X Totals	17	19	—	—	6	1	11	17	2	0	9	7	1

User Ratings of
General-Purpose Computer Systems

TABLE 6: DETAILED COMPUTER ACQUISITION AND APPLICATION DATA (Continued)

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Average Main Memory Size, Words or Bytes	Average Length of Time in Use, Months	Method of Acquisition, Responses			Principal Applications Responses					
					Purchase	Rental from Manufacturer	Third-Party Lease	Business Data Processing	Scientific/Engineering	Real-Time Control	Data Communications	Data Base Management	Other Applications
IBM System/3, Model 10	7	11	28KB	72	7	1	0	7	0	0	0	0	0
IBM System/3, Model 12	8	8	74KB	19	2	7	0	7	0	0	0	1	2
IBM System/3, Model 15	17	19	191KB	28	5	12	3	17	2	1	3	1	1
IBM System/3, unspecified	5	10	183KB	31	0	4	1	5	0	0	0	0	0
IBM System/3 Totals	37	48	—	—	14	24	4	36	2	1	3	2	3
IBM System/32	17	27	27KB	23	0	15	1	15	0	0	1	1	3
IBM System/34	12	19	65KB	18	1	11	0	11	0	0	2	0	2
IBM 1400 Series	3	3	6KB	123	3	0	0	3	0	0	0	0	0
IBM TOTALS	589	661	—	—	225	176	257	533	95	24	221	182	51
Itel AS/4	5	5	1227KB	11	3	0	0	4	0	1	1	2	0
Itel AS/5	3	3	2730KB	5	2	1	0	3	1	0	2	2	0
Itel AS/6	3	3	5461KB	2	2	1	0	2	1	0	1	0	0
ITEL TOTALS	11	11	—	—	7	2	0	9	2	1	4	4	0
NCR Century 101	8	14	57KB	52	3	4	1	8	0	0	1	0	0
NCR Century 151	3	3	149KB	57	1	2	0	3	0	0	1	0	0
NCR Century 200	5	5	77KB	74	1	1	3	5	0	0	0	1	0
NCR Century 201 & 251	5	5	295KB	64	1	3	1	5	0	1	3	0	0
NCR Century 300	3	4	654KB	51	3	0	0	2	0	1	1	2	1
NCR Century Totals	24	31	—	—	9	10	5	23	0	2	6	3	1
NCR 8300 & 8400 Series	3	3	197KB	3	1	2	0	3	0	0	0	1	1
NCR 8500 Series	8	9	459KB	9	2	6	0	8	2	0	5	2	0
NCR 8000 Series Totals	11	12	—	—	3	8	0	11	2	0	5	3	1
NCR, others	2	3	91KB	7	2	0	0	1	0	0	0	0	0
NCR TOTALS	37	46	—	—	14	18	5	35	2	2	11	6	2
Univac Series 70	7	7	396KB	106	5	2	0	6	1	0	2	1	1
Univac 9000 Series	5	5	57KB	67	3	3	0	4	0	0	0	0	1
Univac 90/30	15	15	261KB	23	1	14	0	14	0	1	9	3	1
Univac 90/60	3	3	853KB	32	2	1	0	3	0	0	2	1	2
Univac 90/80	4	5	2048KB	11	3	3	0	4	0	0	2	0	0
Univac Series 90 Totals	22	23	—	—	6	18	0	21	0	1	13	4	3
Univac 1100/10, /11, /12	3	3	306KW	17	1	0	2	3	3	0	0	0	0
Univac 1100/40, /42, /44	3	4	1921KW	16	2	1	0	3	1	0	2	2	0
Univac 1100/81	1	1	524KW	2	1	0	0	1	1	0	1	1	1
Univac 1106, 1108, 1110	6	7	383KW	54	4	1	0	4	3	1	5	5	1
Univac 1100 Series Totals	13	15	—	—	8	4	0	11	8	1	8	8	2
UNIVAC TOTALS	47	50	—	—	22	27	0	42	9	2	23	13	7
RECAP OF TOTALS BY MANUFACTURER													
Amdahl	13	17	—	—	8	1	4	12	3	1	8	8	1
Burroughs	89	99	—	—	39	43	10	79	17	6	39	22	9
Control Data	25	29	—	—	15	7	3	17	16	1	4	5	5
Digital Equipment	15	18	—	—	13	0	3	11	10	2	4	4	4
Honeywell	68	99	—	—	35	22	12	61	21	8	28	26	4
IBM	589	661	—	—	225	176	257	533	95	24	221	182	51
Itel	11	11	—	—	7	2	0	9	2	1	4	4	0
NCR	37	46	—	—	14	18	5	35	2	2	11	6	2
Univac	47	50	—	—	22	27	0	42	9	2	23	13	7
Totals for manufacturers other than IBM	305	369	—	—	153	120	37	266	80	23	121	88	32
GRAND TOTALS	894	1030	—	—	378	296	294	799	175	47	342	270	83

User Ratings of General-Purpose Computer Systems

TABLE 7: USERS' RATINGS (Continued)

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Weighted Average User Ratings*											
			Ease of Operation	Reliability of Mainframe	Reliability of Peripherals	Responsiveness of Maintenance Service	Effectiveness of Maintenance Service	Technical Support	Operating Systems	Compilers and Assemblers	Applications Programs	Ease of Programming	Ease of Conversion	Overall Satisfaction
Amdahl 470V/5	3	3	3.7	4.0	3.5	4.0	4.0	3.5	3.7	4.0	3.5	3.3	3.7	3.3
Amdahl 470V/6	9	13	3.4	3.1	3.0	3.4	3.4	3.1	2.8	3.0	2.7	3.0	3.3	3.3
Amdahl, unspecified	1	1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
AMDAHL TOTALS	13	17	3.4	3.3	3.1	3.5	3.5	3.2	3.1	3.3	3.0	3.1	3.4	3.3
Burroughs B 1700 Series	14	14	3.9	3.3	2.7	3.0	2.4	2.1	3.9	3.8	2.6	3.5	3.3	3.3
Burroughs B 2700 Series	8	8	3.9	3.3	2.3	2.8	2.5	2.1	3.9	3.8	3.0	3.6	2.8	2.9
Burroughs B 3700 Series	8	8	3.9	3.1	2.3	2.4	2.0	1.9	4.0	3.5	2.8	3.4	2.7	2.3
Burroughs B 4700 Series	15	16	3.5	3.3	2.3	2.9	2.4	1.6	3.7	3.3	2.6	3.4	3.2	2.8
Burroughs B 6700 Series	14	14	3.8	3.0	2.4	3.0	2.6	2.2	3.9	3.6	2.4	3.7	3.1	3.0
Burroughs B 7700 Series	5	5	4.0	3.8	3.0	3.6	3.0	2.4	3.0	3.6	2.3	3.4	2.8	3.2
Burroughs B 700 Family Totals	64	65	3.8	3.2	2.5	2.9	2.5	2.0	3.9	3.6	2.6	3.5	3.1	3.0
Burroughs B 1800 Series	5	6	3.3	3.3	2.7	3.0	3.3	3.0	3.3	3.5	3.0	3.5	3.5	3.5
Burroughs B 2800 Series	5	5	4.0	3.2	2.8	3.0	2.6	2.8	4.0	4.0	2.7	4.0	3.4	3.2
Burroughs B 3800 Series	3	3	4.0	3.3	2.7	3.3	2.3	1.7	3.7	3.7	2.7	4.0	3.0	3.3
Burroughs B 4800 Series	3	9	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	3.5	3.5
Burroughs B 6800 Series	3	3	3.7	3.7	3.0	3.0	3.0	2.0	3.7	3.3	2.0	3.7	3.3	3.0
Burroughs B 800 Family Totals	19	26	3.7	3.4	2.8	3.1	2.8	2.5	3.7	3.7	2.7	3.8	3.4	3.4
Burroughs, others	6	8	3.5	3.5	2.3	3.0·	2.8	2.0	3.5	3.3	2.4	3.2	2.3	2.8
BURROUGHS TOTALS	89	99	3.8	3.3	2.5	2.9	2.6	2.1	3.8	3.6	2.6	3.6	3.1	3.0
Control Data Cyber 70 & 170	9	12	3.6	3.1	3.1	3.0	2.7	2.6	3.4	3.2	2.9	3.1	2.8	3.1
Control Data 3000 Series	7	8	2.9	2.1	2.1	3.3	3.0	2.9	2.4	2.4	2.3	2.7	3.3	2.5
Control Data 6000 Series	3	3	3.3	3.3	3.0	4.0	3.3	3.3	3.0	3.3	2.5	3.3	2.7	3.7
Control Data Omega 480	6	6	3.4	3.5	3.2	3.7	3.2	3.2	3.0	3.2	3.0	3.2	3.6	3.3
CONTROL DATA TOTALS	25	29	3.3	3.0	2.8	3.4	3.0	2.9	3.0	3.0	2.7	3.0	3.1	3.2
Digital Equipment, DECsystem-10	11	14	3.5	3.5	2.8	3.6	3.4	2.7	3.6	3.3	2.6	3.6	3.3	3.4
Digital Equipment DECsystem-20	4	4	3.8	3.5	3.8	4.0	3.8	3.8	3.5	3.3	3.0	3.3	3.5	3.5
DIGITAL EQUIPMENT TOTALS	15	18	3.6	3.5	3.1	3.7	3.5	3.0	3.6	3.3	2.6	3.5	3.4	3.4
Honeywell Level 66	22	27	3.4	4.0	3.2	3.1	3.2	2.5	3.3	3.3	2.8	3.3	2.7	3.3
Honeywell Series 2000	12	15	2.9	2.8	2.4	2.3	2.2	2.0	2.3	2.8	2.5	2.8	2.3	2.5
Honeywell Series 6000	3	6	3.5	3.5	2.8	3.5	3.3	2.8	3.3	3.2	3.2	3.0	3.2	3.3
Honeywell 530 & 560 (Xerox)	4	8	3.5	3.7	2.3	3.0	3.0	2.0	3.5	3.3	3.0	3.0	3.3	3.3
Honeywell Sigma Series (Xerox)	9	14	3.7	3.3	2.8	2.3	2.0	2.3	3.8	3.4	2.9	3.3	3.0	3.3
Honeywell, others	15	29	3.1	3.1	2.7	3.1	3.0	2.5	3.1	3.1	2.7	3.1	2.6	2.9
HONEYWELL TOTALS	68	99	3.3	3.4	2.8	2.9	2.8	2.4	3.2	3.2	2.8	3.1	2.7	3.1
IBM 360/20	4	4	4.0	4.0	3.5	4.0	3.5	3.0	4.0	4.0	4.0	4.0	4.0	4.0
IBM 360/30	22	23	3.0	3.3	3.0	3.2	3.0	2.5	2.8	3.0	2.2	2.9	2.5	3.0
IBM 360/40	22	22	3.0	3.4	2.6	3.0	2.6	2.1	2.8	3.2	2.7	2.9	2.5	2.9
IBM 360/50	13	14	3.0	2.8	2.7	3.0	2.8	2.6	2.9	2.9	2.7	2.7	2.5	2.8
IBM 360/65	15	17	3.3	2.8	2.7	2.9	2.8	2.5	3.3	3.2	2.8	3.2	2.5	2.8
IBM 360/75	2	2	3.0	3.0	3.5	3.5	3.5	3.0	3.0	3.0	3.0	2.5	2.5	3.0
IBM System/360, unspecified	7	7	3.3	3.0	2.8	3.0	2.8	2.4	2.8	2.7	2.5	3.0	3.0	3.0
IBM System/360 Totals	85	89	3.1	3.2	2.8	3.1	2.9	2.5	3.0	3.1	2.6	3.0	2.6	3.0
IBM 370/115	13	13	3.1	3.8	3.4	3.1	3.1	2.8	3.0	3.1	3.0	3.0	2.9	3.1
IBM 370/125	19	19	3.1	3.6	3.1	3.3	3.1	2.8	3.0	3.1	2.3	2.8	2.7	3.1
IBM 370/135	29	30	3.2	3.6	3.1	3.4	3.3	3.0	2.8	3.0	2.7	2.8	2.7	3.1
IBM 370/138	63	65	3.3	3.5	3.2	3.2	3.2	2.9	2.9	3.1	2.6	2.9	2.8	3.1
IBM 370/145	61	63	3.4	3.5	3.3	3.3	3.2	2.9	3.2	3.2	2.8	3.1	2.8	3.2
IBM 370/148	60	63	3.2	3.3	3.2	3.3	3.2	3.1	3.0	3.2	2.8	3.0	3.0	3.1
IBM 370/155	17	18	3.1	3.3	2.9	3.1	3.1	2.6	2.8	3.0	2.7	2.8	2.6	2.9
IBM 370/158	106	122	3.3	3.6	3.2	3.2	3.2	3.0	3.1	3.3	3.0	3.0	2.9	3.2
IBM 370/165	4	7	3.0	2.5`	2.5	2.8	2.5	2.5	2.5	2.8	2.8	3.0	2.5	2.8
IBM 370/168	44	54	3.3	3.4	3.2	3.4	3.2	3.1	3.0	3.2	2.9	3.0	2.9	3.1
IBM System/370, unspecified	2	2	2.5	3.5	3.5	3.5	3.5	2.5	2.5	3.0	3.0	2.5	3.0	3.0
IBM System/370 Totals	418	456	3.3	3.5	3.2	3.3	3.2	3.0	3.0	3.2	2.8	3.0	2.9	3.1
IBM 3031	10	11	3.3	2.9	2.9	3.2	2.8	3.0	3.4	3.7	3.2	3.1	3.5	3.0
IBM 3032	1	1	4.0	3.0	4.0	4.0	4.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0
IBM 3033	6	7	3.7	3.3	3.5	3.3	3.2	3.5	3.2	3.2	3.2	3.2	3.6	3.5
IBM 303X Totals	17	19	3.5	3.1	3.2	3.3	3.0	3.2	3.3	3.4	3.2	3.1	3.6	3.2

*Basis is 4 for each user rating of Excellent, 3 for Good, 2 for Fair, and 1 for Poor.

User Ratings of General-Purpose Computer Systems

TABLE 7: USERS' RATINGS

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Weighted Average User Ratings*											
			Ease of Operation	Reliability of Mainframe	Reliability of Peripherals	Responsiveness of Maintenance Service	Effectiveness of Maintenance Service	Technical Support	Operating Systems	Compilers and Assemblers	Applications Programs	Ease of Programming	Ease of Conversion	Overall Satisfaction
IBM System/3, Model 10	7	11	3.6	3.6	2.9	3.2	3.2	2.4	3.3	3.4	2.8	3.3	2.8	3.3
IBM System/3, Model 12	8	8	3.9	3.9	3.5	3.8	3.4	3.1	3.5	3.6	3.3	3.6	3.4	3.5
IBM System/3, Model 15	17	19	3.5	3.9	3.7	3.4	3.4	2.9	3.4	3.2	2.9	3.4	3.3	3.4
IBM System/3, unspecified	5	10	2.5	2.8	2.4	2.8	2.6	1.8	2.2	2.4	1.3	2.2	2.3	2.4
IBM System/3 Totals	37	48	3.5	3.7	3.2	3.3	3.2	2.7	3.2	3.2	2.7	3.3	3.1	3.2
IBM System/32	17	27	3.5	3.7	3.8	3.6	3.3	3.0	3.3	3.3	2.7	3.4	3.1	3.3
IBM System/34	12	19	3.5	3.8	3.8	3.8	3.8	2.8	3.2	3.3	2.3	3.3	3.1	3.4
IBM 1400 Series	3	3	3.0	3.3	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
IBM TOTALS	589	661	3.3	3.5	3.2	3.3	3.2	2.9	3.0	3.2	2.8	3.0	2.9	3.1
Itel AS/4	5	5	3.6	3.6	3.0	3.8	3.4	3.0	2.7	3.0	—	3.5	3.8	3.4
Itel AS/5	3	3	3.7	3.3	3.3	3.7	3.7	3.7	4.0	4.0	4.0	3.5	3.7	3.7
Itel AS/6	3	3	3.3	4.0	3.0	3.3	3.7	3.7	3.0	3.0	3.0	3.0	3.5	3.3
ITEL TOTALS	11	11	3.5	3.6	3.1	3.6	3.5	3.4	3.0	3.2	3.5	3.3	3.7	3.5
NCR Century 101	8	14	3.1	3.6	3.3	3.5	3.0	2.6	3.3	2.8	3.0	2.5	3.3	3.1
NCR Century 151	3	3	3.3	3.3	2.7	2.7	2.7	2.0	2.7	2.3	2.5	3.5	3.7	3.0
NCR Century 200	5	5	3.0	3.0	2.6	3.2	3.0	1.4	2.8	2.8	2.5	2.6	2.8	2.4
NCR Century 201 & 251	5	5	3.0	2.8	2.2	3.2	2.8	1.6	2.4	2.6	2.0	3.0	2.8	2.5
NCR Century 300	3	4	3.7	3.7	3.3	3.3	3.5	3.0	3.7	3.7	3.0	3.0	2.7	3.0
NCR Century Totals	24	31	3.2	3.3	2.8	3.3	3.0	2.0	3.0	2.8	2.7	2.8	3.0	2.8
NCR 8300 & 8400 Series	3	3	4.0	3.7	3.7	3.3	3.3	2.7	3.7	3.3	3.0	3.7	3.3	3.3
NCR 8500 Series	8	9	3.5	3.8	3.1	3.0	2.6	2.6	3.5	3.4	2.6	3.3	3.0	3.3
NCR 8000 Series Totals	11	12	3.6	3.7	3.3	3.1	2.8	2.6	3.5	3.4	2.7	3.4	3.1	3.3
NCR, others	2	3	3.0	3.5	2.0	3.0	2.5	2.5	3.0	3.5	3.0	2.5	2.5	2.0
NCR TOTALS	37	46	3.3	3.4	2.9	3.2	2.9	2.2	3.1	3.0	2.7	2.9	3.0	2.9
Univac Series 70	7	7	2.4	2.6	2.4	3.0	2.4	2.4	2.9	3.0	2.1	2.7	2.3	2.4
Univac 9000 Series	5	5	3.2	3.0	3.2	2.8	2.6	1.4	2.6	2.4	1.5	2.8	2.6	2.8
Univac 90/30	15	15	3.3	3.3	3.1	3.3	2.9	2.6	3.2	3.3	2.8	3.3	3.1	3.3
Univac 90/60	3	3	3.3	3.0	3.0	3.0	3.0	2.7	3.3	3.3	3.0	3.7	3.3	3.3
Univac 90/80	4	5	3.3	3.8	2.5	2.5	3.0	3.3	3.3	3.0	2.3	3.8	3.5	3.0
Univac Series 90 Totals	22	23	3.3	3.4	3.0	3.1	3.0	2.7	3.2	3.2	2.8	3.5	3.2	3.2
Univac 1100/10, /11, /12	3	3	3.3	4.0	3.0	3.7	2.7	3.3	3.3	3.3	3.0	3.0	2.7	3.3
Univac 1100/40, /42, /44	3	4	3.0	3.0	3.0	3.3	3.0	3.0	3.0	2.7	3.0	3.3	2.7	3.0
Univac 1100/81	1	1	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	—	4.0	—	3.0
Univac 1106, 1108, 1110	6	7	3.2	2.8	3.0	3.2	2.8	3.6	2.8	3.0	2.0	2.7	2.4	2.8
Univac 1100 Series Totals	13	15	3.2	3.2	3.0	3.3	2.8	3.4	3.1	3.1	2.5	3.1	2.5	3.0
UNIVAC TOTALS	47	50	3.1	3.1	2.9	3.1	2.8	2.7	3.1	3.1	2.5	3.2	2.8	3.0
RECAP OF TOTALS BY MANUFACTURER														
Amdahl	13	17	3.4	3.3	3.1	3.5	3.5	3.2	3.1	3.3	3.0	3.1	3.4	3.3
Burroughs	89	99	3.8	3.3	2.5	2.9	2.6	2.1	3.8	3.6	2.6	3.6	3.1	3.0
Control Data	25	29	3.3	3.0	2.8	3.4	3.0	2.9	3.0	3.0	2.7	3.0	3.1	3.1
Digital Equipment	15	18	3.6	3.5	3.1	3.7	3.5	3.0	3.6	3.3	2.6	3.5	3.4	3.4
Honeywell	68	99	3.3	3.4	2.8	2.9	2.8	2.4	3.2	3.2	2.8	3.1	2.7	3.1
IBM	589	661	3.3	3.5	3.2	3.3	3.2	2.9	3.0	3.2	2.8	3.0	2.9	3.1
Itel	11	11	3.5	3.6	3.1	3.6	3.5	3.4	3.0	3.2	3.5	3.3	3.7	3.5
NCR	37	46	3.3	3.4	2.9	3.2	2.9	2.2	3.1	3.0	2.7	2.9	3.0	2.9
Univac	47	50	3.1	3.1	2.9	3.1	2.8	2.7	3.1	3.1	2.5	3.2	2.8	3.0
Totals for manufacturers other than IBM	305	369	3.4	3.3	2.7	3.1	2.9	2.5	3.3	3.3	2.7	3.3	3.0	3.1
GRAND TOTALS	894	1030	3.3	3.4	3.0	3.2	3.1	2.8	3.1	3.2	2.7	3.1	2.9	3.1

*Basis is 4 for each user rating of Excellent, 3 for Good, 2 for Fair, and 1 for Poor.