

Rev 11/76

User Ratings of

General-Purpose Computer Systems

It's a Matter of Opinion

As Datapro's subscribers keep telling us, a summary of users' evaluations of the pros and cons of the myriad products offered to the data processing community can be a valuable tool in selecting the product that will best meet each computer user's needs. That kind of information is often hard to come by, however, which accounts for the increasing popularity of the "User Reaction" sections of Datapro's reports on computer systems, proprietary software, and peripheral products.

This 1975 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 (in this case, DATAPRO 70 subscribers) 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 8,200 Datapro subscribers in June 1975.

By August 1, when the monumental task of tabulating the returned questionnaires was begun, a total of 2,041 responses had been received—just about double the 1,016 responses reporting on general-purpose computer systems that were received in Datapro's 1974 survey of general-purpose computer users.

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 1975 survey summarizes the ratings supplied in 2,041 responses evaluating a total of 2,381 computer systems.

A word of warning to those whose first response is to compare each manufacturer's 1975 overall ratings with those achieved in the 1974 Datapro survey: Not only do these ratings represent nearly twice the number of computer systems rated in the 1974 survey—2,381 compared to 1,288—but they also include some computer systems that were not included in last year's ratings. Systems represented in the 1975 survey for the first time include the Burroughs B 300 and B 500, the Honeywell

This report conveys the results of Datapro's 1975 survey of general-purpose computer users. Extensive tables summarize the experience of 2,041 users with a total of 2,381 computer systems. The users' 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.

Model 58, the IBM 1800, the NCR Century 50, and the Xerox 530, all of which previously were included in the user ratings tabulated in two other Datapro reports, *All About Minicomputers* and *All About Small Business Computers*. Naturally, recently announced computer systems, such as the Honeywell Series 60, the UNIVAC Series 90, and the IBM System/32, are also included for the first time in the responses for 1975.

In addition to the 2,041 responses tabulated in this report, Datapro's 1975 computer survey also attracted responses from 699 minicomputer users with a total of 2,182 installed systems. The minicomputer users' ratings are tabulated in a separate DATAPRO 70 report, *All About Minicomputers* (70C-010-20, dated September 1975).

The Results for 1975

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, 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

TABLE 1: METHOD OF ACQUISITION

Manufacturer	Purchase	Rental from Manufacturer	Third-Party Lease
Burroughs	25%	73%	7%
Control Data	53%	24%	2%
DEC	64%	16%	20%
Honeywell	40%	48%	15%
IBM	31%	43%	29%
NCR	21%	77%	8%
Univac	39%	60%	5%
Xerox	60%	36%	4%
Totals	33%	47%	23%

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TABLE 2: PRINCIPAL APPLICATIONS

Manufacturer	Business Data Processing	Scientific and Engineering	Real-Time Control	Data Communications	Data Base Management	Others
Burroughs	94%	13%	6%	46%	20%	12%
Control Data	60%	80%	16%	38%	36%	22%
DEC	44%	68%	24%	32%	16%	40%
Honeywell	96%	15%	4%	26%	25%	6%
IBM	92%	17%	6%	37%	24%	8%
NCR	91%	9%	1%	17%	9%	19%
Univac	85%	31%	9%	34%	24%	11%
Xerox	56%	76%	20%	44%	32%	12%
Totals	90%	20%	6%	36%	24%	9%

▷ 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%.

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%, indicating that most of the computer systems represented in the survey perform a variety of functions. Not surprisingly, with the exception of the computers made by Control Data, Digital Equipment Corporation, and Xerox, the emphasis is still heavily in the area of business data processing. The next highest activity is represented by data communications, with data base management ranking third. The high percentages in the "Others" category for Control Data and Digital Equipment are comprised mainly of entries for instruction, research, and administration in educational institutions.

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

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 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, nearly one-third of the computer systems represented in this survey were equipped with remote batch terminals, and just short of one-half of the systems included interactive terminals in their configurations. Although the number of each type of terminal installed

per system naturally varied widely with the size of the computer system and the data processing environment, the averages were 4 remote batch terminals and 27 interactive terminals per system.

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. Responses in the "Other Devices" category included printers, 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 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 the 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 the following table.

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 19 percent of the computers represented in this survey, with an average of 48 months of service. Other systems with notable longevity include the IBM 1130, with an average of 79 months, or over 6 years, of use, and 17 IBM 1401 systems that have been in use for nearly a decade. The overall average number of months in use for all systems was 34 months, or just under three years.

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

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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
Burroughs	95%	17%	27%	25%	16%
Control Data	98%	22%	27%	42%	27%
DEC	96%	12%	32%	24%	12%
Honeywell	99%	20%	17%	14%	12%
IBM	98%	11%	21%	42%	17%
NCR	94%	15%	56%	15%	19%
Univac	94%	22%	11%	18%	20%
Xerox	96%	8%	20%	12%	12%
Totals	97%	13%	22%	35%	17%

➤ 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 1975 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. However, not one mainframe manufacturer scored 3.0 or better in all 12 categories, indicating that, according to these computer users, the products and services offered by all of the computer manufacturers could stand improvement.

The highest level of satisfaction was achieved in the category of Reliability of Mainframe, the category which

also achieved the highest rating in Datapro's 1974 survey. Two other categories in which relatively high ratings were achieved were Ease of Operation and Responsiveness of Maintenance Service, categories which also scored well in 1974.

The major sources of user grievances also haven't changed substantially since last year. Technical support for software is probably the cause for more discontent than any other area of interaction between mainframe suppliers and computer users, as expressed both in this annual survey and in the telephone interviews that are conducted in association with the preparation of individual computer system reports for DATAPRO 70. Users frequently cite deficiencies in terms of a lack of personnel and/or inadequate training of the available people, particularly in the case of newly released software. Very few mainframe vendors have been immune from criticism of some aspect of their software support services; in this survey the highest average user rating earned by any manufacturer for the quality of its technical support was only 2.9—and that score was achieved by Xerox Corporation, which recently announced its withdrawal from the mainframe business.

Other areas in which these computer users expressed displeasure with the mainframe vendors was in the quality and selection of applications programs, where only Xerox earned a Good rating, and in the Ease of Conversion category, in which only Digital Equipment, NCR, Xerox, and Burroughs scored 3.0 or better. ➤

TABLE 4: REMOTE TERMINAL USAGE

Manufacturer	Remote Batch Terminals	Interactive Terminals
Burroughs	20%	51%
Control Data	53%	58%
DEC	12%	92%
Honeywell	21%	33%
IBM	34%	48%
NCR	17%	23%
Univac	41%	50%
Xerox	20%	80%
Total	32%	47%

TABLE 5: USAGE OF "FOREIGN" PERIPHERALS*

Mainframe Manufacturer	Disk Drives	Magnetic Tape Drives	Add-On Main Memory	Other Devices
Burroughs	16%	15%	1%	5%
Control Data	16%	20%	2%	12%
DEC	40%	28%	8%	16%
Honeywell	19%	17%	1%	0%
IBM	45%	33%	16%	12%
NCR	21%	20%	1%	1%
Univac	21%	20%	1%	1%
Xerox	28%	20%	16%	12%
Total	39%	29%	12%	9%

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

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TABLE 6: DETAILED COMPUTER ACQUISITION AND APPLICATION DATA

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Average Main Memory Size, K Words or Bytes	Average Length of Time in Use, Months	Method of Acquisition, %			Principal Applications, %					
					Purchase	Rental from Manufacturer	Third-Party Lease	Business Data Processing	Scientific/Engineering	Real-Time Control	Data Communications	Data Base Management	Other Applications
Burroughs B 300 & B 500	12	15	16KB	71	50	67	0	92	0	0	8	0	17
Burroughs B 1700	22	38	61KB	16	23	68	9	100	0	0	14	5	14
Burroughs B 2500	5	6	62KB	28	0	100	0	80	0	0	60	0	0
Burroughs B 2700	24	25	164KB	20	8	83	4	97	4	13	46	33	8
Burroughs B 3500	23	24	173KB	44	22	83	4	95	9	9	52	35	9
Burroughs B 3700	17	19	205KB	9	6	100	6	100	11	6	47	12	0
Burroughs B 4700	30	37	280KB	16	33	60	17	90	3	1	60	20	23
Burroughs B 5500 & B 5700	7	9	32KW	67	86	0	0	100	86	0	57	14	14
Burroughs B 6700	13	14	238KW	26	23	77	8	92	62	8	77	38	15
Burroughs, others	1	2	64KW	—	100	0	0	0	0	0	100	0	0
BURROUGHS TOTALS	154	199	—	28	25	73	7	94	13	6	46	20	12
Control Data 3000 Series	12	14	108KW	51	33	50	17	92	58	17	25	33	33
Control Data 6000 Series	18	21	65KW	65	61	22	11	44	94	28	56	44	28
Control Data Cyber Series	8	8	98KW	34	63	13	50	63	88	0	38	25	13
Control Data 7600	3	6	410KW	48	33	0	67	33	100	0	33	33	0
Control Data, others	4	4	48KW	112	75	0	0	50	50	0	0	25	0
CONTROL DATA TOTALS	45	53	—	59	53	24	20	60	80	16	38	36	22
Digital Equip. DECsystem-10	25	34	151KW	35	64	16	20	44	68	24	32	16	40
DIGITAL EQUIP. TOTALS	25	34	—	35	64	16	20	44	68	24	32	16	40
Honeywell Model 58	4	5	10KB	32	0	100	0	100	0	0	25	25	0
Honeywell Series 200	54	63	122KB	53	43	57	14	100	7	7	29	7	14
Honeywell Series 2000	53	58	120KB	18	34	57	13	96	8	2	23	19	6
Honeywell Series 60	7	7	339KW	4	43	57	14	86	29	0	71	43	0
Honeywell Series 600	4	9	232KW	79	75	50	0	100	75	75	75	50	25
Honeywell Series 6000	26	28	220KW	23	32	42	12	92	46	4	50	62	4
Honeywell G-400 Series	7	10	43KW	75	71	14	14	71	29	0	0	57	0
Honeywell, others	8	9	30KB	100	88	13	0	100	13	13	0	0	0
HONEYWELL TOTALS	163	189	—	38	40	48	15	96	15	4	26	25	6
IBM 360/20	26	40	16KB	70	19	65	23	88	0	0	4	4	12
IBM 360/22	8	8	59KB	42	0	100	0	63	25	0	0	0	38
IBM 360/25	7	8	37KB	65	0	86	14	100	0	0	14	29	0
IBM 360/30	97	103	95KB	52	42	11	52	95	6	1	10	11	3
IBM 360/40	122	136	213KB	48	41	6	55	92	9	5	29	17	11
IBM 360/50	71	80	549KB	34	42	3	54	94	20	1	35	23	3
IBM 360/65	52	61	1238KB	28	29	6	63	92	33	10	50	29	12
IBM 360/67	3	3	1595KB	34	100	0	0	67	67	0	33	67	33
IBM 360/75	5	5	1411KB	70	100	20	0	60	100	0	80	40	20
IBM System/360, others	6	7	788KB	77	100	17	0	67	50	17	33	17	0
IBM System/360 Totals	397	451	391KB	48	39	14	49	91	15	4	26	18	8
IBM 370/115	27	30	145KB	8	11	93	7	96	22	0	22	15	11
IBM 370/125	70	76	186KB	14	6	91	4	99	13	10	36	29	3
IBM 370/135	201	213	254KB	22	19	67	18	96	12	3	40	21	5
IBM 370/145	249	282	543KB	26	28	49	27	94	12	6	47	28	6
IBM 370/155 & 155 II	69	80	1432KB	34	57	12	32	96	28	1	57	42	9
IBM 370/158	162	195	1577KB	15	32	32	37	96	28	10	68	42	5
IBM 370/165 & 165 II	21	27	2556KB	30	62	19	29	86	57	5	57	19	5
IBM 370/168	57	82	3671KB	11	46	23	28	84	33	14	60	49	9
IBM System/370, others	7	12	591KB	24	71	71	0	100	14	29	5	43	0
IBM System/370 Totals	863	997	956KB	21	29	49	25	94	19	7	50	31	6

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

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Average Main Memory Size, K Words or Bytes	Average Length of Time in Use, Months	Method of Acquisition, %			Principal Applications, %					
					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	115	133	37KB	26	5	92	3	94	1	2	19	8	11
IBM System/32	5	6	22KB	2	0	100	0	100	0	0	20	0	0
IBM 1130	33	39	16KW	79	30	70	9	61	52	3	12	9	30
IBM 1401	17	17	12KB	116	88	18	0	88	0	0	0	0	12
IBM 1800	10	14	40KW	72	60	50	0	20	0	90	0	0	20
IBM, others	8	28	69KB	121	100	0	0	63	38	0	0	0	0
IBM TOTALS	1,448	1,665	—	32	31	43	29	92	17	6	37	24	8
NCR Century 50 & 100	6	6	24KB	44	33	67	0	100	17	0	0	17	17
NCR Century 101 & 151	19	20	49KB	23	16	84	0	100	16	0	26	16	21
NCR Century 200 & 201	36	39	88KB	36	22	72	8	86	8	0	19	8	22
NCR Century 251 & 300	10	10	282KB	11	0	90	10	100	0	10	10	0	0
NCR Century Totals	71	75	98KB	30	18	77	6	93	10	1	18	10	17
NCR 315	7	12	37KW	86	43	71	29	71	0	0	0	0	43
NCR TOTALS	78	87	—	33	21	77	8	91	9	1	17	9	19
Univac Series 70 (ex RCA)	24	32	321KB	48	33	58	13	88	21	0	33	13	8
Univac 9200	8	8	14KB	44	38	63	13	75	13	0	25	0	0
Univac 9300	11	11	28KB	51	55	64	0	82	0	0	0	0	27
Univac 9400 & 9480	9	9	149KB	41	33	67	0	100	0	0	44	33	0
Univac 9000 Series Totals	28	28	64KB	45	43	64	4	86	4	0	21	11	11
Univac Series 90	8	8	252KB	9	13	88	0	100	13	0	38	25	13
Univac 1106	14	15	221KW	27	29	71	0	100	43	21	57	50	14
Univac 1108	14	21	253KW	56	50	36	7	50	79	21	14	29	0
Univac 1110	7	9	549KW	11	29	87	0	87	100	14	57	29	14
Univac 1100 Series Totals	35	45	303KW	41	37	60	3	77	69	20	40	37	9
Univac, others	8	8	37KW	112	88	13	0	88	0	25	25	13	13
UNIVAC TOTALS	103	121	—	46	39	60	5	85	31	9	34	24	11
Xerox Sigma Series	19	21	354KB	37	63	32	5	63	74	26	47	32	11
Xerox 530	3	9	46KB	9	0	100	0	0	67	0	33	0	33
Xerox, others	3	3	343KW	3	100	0	0	67	100	0	33	67	0
XEROX TOTALS	25	33	—	30	60	36	4	56	76	20	44	32	12
RECAP OF TOTALS BY MANUFACTURER													
Burroughs	154	199	—	28	25	73	7	94	13	6	46	20	12
Control Data	45	53	—	59	53	24	2	60	80	16	38	36	22
Digital Equipment	25	34	—	35	64	16	20	44	68	24	32	16	40
Honeywell	163	189	—	38	40	48	15	96	15	4	26	25	6
IBM	1,448	1,665	—	32	31	43	29	92	17	6	37	24	8
NCR	78	87	—	33	21	77	8	91	9	1	17	9	19
Univac	103	121	—	46	39	60	5	85	31	9	34	24	11
Xerox	25	33	—	30	60	36	4	56	76	20	44	32	12
Totals for manufacturers other than IBM	593	716	—	38	36	57	10	86	26	7	33	22	13
GRAND TOTALS	2,041	2,381	—	34	33	47	23	90	20	6	36	24	9

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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
Burroughs B 300 & B 500	12	15	2.9	3.2	2.4	2.4	2.4	1.8	2.2	2.8	2.0	2.7	2.0	2.3
Burroughs B 1700	22	38	3.9	3.0	2.4	2.8	2.3	2.1	3.6	3.2	2.7	3.4	2.9	3.1
Burroughs B 2500	5	6	3.6	3.4	3.0	3.2	3.2	2.8	3.8	3.8	2.8	3.4	3.2	3.2
Burroughs B 2700	24	25	3.8	3.0	2.5	2.8	2.7	2.2	3.7	3.5	2.4	3.5	3.1	3.1
Burroughs B 3500	23	24	3.8	3.3	2.7	2.8	2.7	2.6	3.9	3.5	2.6	3.5	3.0	3.3
Burroughs B 3700	17	19	3.9	3.5	2.5	3.0	2.7	2.7	3.9	3.6	2.7	3.8	3.4	3.2
Burroughs B 4700	30	37	3.8	3.6	2.6	3.1	2.8	2.4	3.9	3.6	2.4	3.7	3.0	3.3
Burroughs B 5500 & B 5700	7	9	3.3	3.0	2.0	3.3	3.0	2.1	3.7	3.3	3.0	3.3	3.0	3.1
Burroughs B 6700	13	14	3.8	3.1	2.4	3.0	2.6	2.3	3.1	3.8	2.8	3.7	2.7	3.4
Burroughs, others	1	2	3.0	4.0	3.0	-	-	3.0	4.0	2.0	4.0	2.0	-	4.0
BURROUGHS TOTALS	154	199	3.7	3.2	2.5	2.9	2.7	2.3	3.7	3.5	2.5	3.5	3.0	3.1
Control Data 3000 Series	12	14	3.0	2.6	2.3	3.1	2.8	2.1	2.5	3.1	2.3	2.8	1.9	2.5
Control Data 6000 Series	18	21	3.1	3.2	2.6	3.2	2.9	2.5	2.7	2.9	2.5	3.0	2.6	3.0
Control Data Cyber Series	8	8	3.5	3.0	2.5	3.5	3.0	2.4	2.8	2.9	2.9	3.0	2.6	3.0
Control Data 7600	3	6	3.0	2.7	2.0	3.0	2.3	2.7	2.7	3.0	3.0	3.0	3.0	3.0
Control Data, others	4	4	3.7	3.7	3.3	3.7	3.7	3.5	3.0	4.0	3.0	3.3	2.5	3.7
CONTROL DATA TOTALS	45	53	3.2	3.0	2.5	3.2	2.9	2.4	2.7	3.0	2.4	3.0	2.5	2.9
Digital Equip. DEC-system 10	25	34	3.6	3.4	3.0	3.4	3.2	2.7	3.5	3.3	2.9	3.6	3.4	3.4
DIGITAL EQUIP. TOTALS	25	34	3.6	3.4	3.0	3.4	3.2	2.7	3.5	3.3	2.9	3.6	3.4	3.4
Honeywell Model 58	4	5	3.8	3.3	3.5	3.3	2.8	2.3	3.0	3.3	3.0	3.0	2.5	2.8
Honeywell Series 200	54	63	3.2	3.1	2.8	3.1	2.9	2.3	2.8	2.8	2.3	3.0	2.9	2.9
Honeywell Series 2000	53	58	3.2	3.2	2.9	3.2	3.0	2.4	2.7	2.8	2.4	3.0	2.8	2.9
Honeywell Series 60	7	7	3.8	3.3	3.0	3.3	2.7	2.7	4.0	3.3	2.7	3.3	3.3	3.3
Honeywell Series 600	4	9	3.3	3.3	2.5	3.5	3.3	3.7	4.0	3.7	3.0	3.3	3.3	3.3
Honeywell Series 6000	26	28	3.6	3.6	2.8	3.3	3.3	3.0	3.6	3.3	2.6	3.3	3.0	3.3
Honeywell G-400 Series	7	10	2.4	3.3	2.7	2.3	2.1	1.4	2.6	2.7	2.0	2.9	1.9	2.6
Honeywell, others	8	9	2.6	2.9	2.3	3.4	3.1	1.5	2.4	2.0	2.0	2.4	1.2	2.6
HONEYWELL TOTALS	163	189	3.2	3.2	2.8	3.2	3.0	2.4	2.9	2.9	2.4	3.0	2.8	2.9
IBM 360/20	26	40	3.1	3.5	3.2	3.2	3.1	2.5	2.7	2.8	2.7	3.2	2.8	3.2
IBM 360/22	8	8	3.6	3.8	3.4	3.4	3.4	3.0	3.1	3.3	3.6	3.4	3.3	3.3
IBM 360/25	7	8	3.4	3.7	3.6	3.3	3.2	2.7	3.0	2.7	2.8	3.3	3.3	3.3
IBM 360/30	97	103	3.4	3.5	3.1	3.2	3.1	2.5	3.0	3.0	2.7	3.2	2.9	3.0
IBM 360/40	122	136	3.3	3.5	3.1	3.1	3.0	2.6	3.1	3.2	2.8	3.1	2.9	3.1
IBM 360/50	71	80	3.3	3.2	3.0	3.3	3.1	2.5	2.9	3.1	2.8	3.0	2.9	3.1
IBM 360/65	52	61	3.3	3.3	3.1	3.3	3.2	2.9	3.1	3.1	2.9	3.0	2.9	3.1
IBM 360/67	3	3	2.7	2.7	3.3	3.7	3.0	2.0	2.7	3.0	2.0	2.0	1.0	2.7
IBM 360/75	5	5	3.0	2.8	2.8	3.5	3.0	2.8	3.0	3.0	3.0	3.0	3.0	3.0
IBM System/360, others	6	7	3.2	3.0	3.2	3.2	3.0	2.8	3.0	2.8	3.0	3.0	3.0	3.2
IBM System/360 Totals	397	451	3.3	3.4	3.1	3.2	3.1	2.6	3.0	3.1	2.8	3.1	2.9	3.1
IBM 370/115	27	30	3.4	3.7	3.3	3.6	3.4	3.2	3.1	3.3	3.0	3.1	3.0	3.4
IBM 370/125	70	76	3.4	3.6	3.3	3.3	3.2	2.9	2.9	3.1	2.7	3.1	3.0	3.2
IBM 370/135	201	213	3.3	3.6	3.2	3.3	3.2	2.7	2.9	3.1	2.7	3.1	3.0	3.2
IBM 370/145	249	282	3.3	3.6	3.3	3.3	3.2	2.8	2.9	3.0	2.6	3.0	2.8	3.1
IBM 370/155 & 155 II	69	80	3.3	3.5	3.2	3.3	3.2	2.9	2.9	3.1	2.8	3.0	2.8	3.2
IBM 370/158	162	195	3.3	3.5	3.2	3.4	3.2	2.9	2.9	3.0	2.6	2.9	2.8	3.1
IBM 370/165 & 165 II	21	27	3.2	3.2	3.0	3.4	3.1	3.0	2.8	3.0	2.8	2.9	3.1	3.0
IBM 370/168	57	82	3.1	3.3	3.2	3.4	3.3	3.1	2.8	3.0	2.7	3.0	2.9	3.1
IBM System/370, others	7	12	3.3	3.7	3.6	3.6	3.4	3.0	3.0	3.2	2.3	3.1	2.6	3.4
IBM System/370 Totals	863	997	3.3	3.5	3.2	3.3	3.2	2.9	2.9	3.1	2.7	3.0	2.9	3.1

*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 (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
IBM System/3	115	133	3.6	3.7	3.4	3.5	3.5	3.0	3.3	3.3	2.7	3.5	3.1	3.4
IBM System/32	5	6	3.3	3.3	3.3	3.3	3.3	2.3	2.7	2.7	2.0	3.0	3.0	2.7
IBM 1130	33	39	3.3	3.8	3.2	3.4	3.3	2.6	3.1	2.8	2.5	3.0	2.3	3.2
IBM 1401	17	17	3.3	3.3	2.9	3.2	3.3	2.4	3.0	3.2	2.6	3.1	2.6	3.1
IBM 1800	10	14	3.1	3.9	3.1	3.6	3.2	2.8	3.4	2.9	2.3	3.2	2.0	3.4
IBM, others	8	28	3.2	3.4	2.4	3.0	2.8	3.0	2.8	2.3	2.5	3.0	2.3	3.0
IBM TOTALS	1,448	1,665	3.3	3.5	3.2	3.3	3.2	2.8	3.0	3.1	2.7	3.1	2.9	3.2
NCR Century 50 & 100	6	6	3.5	3.8	3.5	3.8	3.5	3.2	3.6	3.2	3.0	3.2	3.5	3.8
NCR Century 101 & 151	19	20	3.4	3.7	3.6	3.4	3.5	2.5	3.3	3.2	2.9	3.3	3.5	3.4
NCR Century 200 & 201	36	39	3.1	3.5	3.0	3.4	3.1	2.2	2.9	2.8	2.5	3.0	3.1	3.0
NCR Century 251 & 300	10	10	3.3	3.1	2.4	2.8	2.6	2.5	2.6	2.5	2.6	2.7	2.6	2.9
NCR Century Totals	71	75	3.3	3.5	3.0	3.3	3.2	2.4	3.0	2.9	2.7	3.1	3.1	3.2
NCR 315	7	12	2.7	2.9	2.0	2.9	2.7	1.6	3.0	2.6	2.8	2.3	2.3	2.7
NCR TOTALS	78	87	3.2	3.4	2.9	3.3	3.1	2.3	3.1	2.9	2.7	3.0	3.1	3.1
Univac Series 70 (ex RCA)	24	32	3.3	3.2	2.6	3.4	3.1	2.7	3.0	3.0	2.6	3.2	3.0	3.1
Univac 9200	8	8	3.1	3.5	2.7	3.1	3.0	2.8	3.0	3.2	2.2	2.9	2.9	2.9
Univac 9300	11	11	2.9	2.9	2.6	3.2	2.7	1.6	3.1	2.7	2.1	2.6	2.6	2.5
Univac 9400 & 9480	9	9	3.3	3.0	2.4	2.8	2.7	2.3	3.0	3.0	2.0	2.9	3.0	2.7
Univac 9000 Series Totals	28	28	3.1	3.1	2.6	3.0	2.8	2.2	3.0	2.9	2.1	2.8	2.8	2.7
Univac Series 90	8	8	3.3	3.3	3.2	3.5	3.3	2.8	3.6	3.6	3.0	3.6	3.4	3.6
Univac 1106	14	15	3.6	3.6	3.0	3.4	3.1	2.9	3.6	3.2	2.0	3.3	2.8	3.2
Univac 1108	14	21	3.8	3.7	2.8	3.3	3.3	3.2	3.1	3.5	3.1	3.5	3.2	3.4
Univac 1110	7	9	3.7	3.3	2.8	3.3	2.9	2.6	3.1	3.0	2.8	3.4	3.1	3.1
Univac 1100 Series Totals	35	45	3.7	3.5	2.9	3.4	3.1	2.9	3.3	3.3	2.6	3.4	3.0	3.3
Univac, others	8	8	2.6	3.1	2.2	3.0	2.7	1.9	3.1	2.6	2.5	2.3	2.1	2.5
UNIVAC TOTALS	103	121	3.3	3.3	2.7	3.2	3.0	2.5	3.2	3.1	2.5	3.1	2.9	3.0
Xerox Sigma Series	19	21	3.4	3.5	2.9	3.2	3.0	2.8	3.4	3.3	3.1	3.2	2.9	3.3
Xerox 530	3	9	3.0	3.3	2.7	3.7	3.3	3.0	3.0	3.0	3.5	3.0	3.5	3.0
Xerox, others	3	3	4.0	4.0	3.3	3.5	3.0	3.7	3.7	3.3	3.3	4.0	3.7	3.7
XEROX TOTALS	25	33	3.5	3.6	3.0	3.3	3.0	2.9	3.4	3.3	3.2	3.3	3.1	3.3
RECAP OF TOTALS BY MANUFACTURER														
Burroughs	154	199	3.7	3.2	2.5	2.9	2.7	2.3	3.7	3.5	2.5	3.5	3.0	3.1
Control Data	45	53	3.2	3.0	2.5	3.2	2.9	2.4	2.7	3.0	2.4	3.0	2.5	2.9
Digital Equipment	25	34	3.6	3.4	3.0	3.4	3.2	2.7	3.5	3.3	2.9	3.6	3.4	3.4
Honeywell	163	189	3.2	3.2	2.8	3.2	3.0	2.4	2.9	2.9	2.4	3.0	2.8	2.9
IBM	1,448	1,665	3.3	3.5	3.2	3.3	3.2	2.8	3.0	3.1	2.7	3.1	2.9	3.2
NCR	78	87	3.2	3.4	2.9	3.3	3.1	2.3	3.1	2.9	2.7	3.0	3.1	3.1
Univac	103	121	3.3	3.3	2.7	3.2	3.0	2.5	3.2	3.1	2.5	3.1	2.9	3.0
Xerox	25	33	3.5	3.6	3.0	3.3	3.0	2.9	3.4	3.3	3.2	3.3	3.1	3.3
Totals for manufacturers other than IBM	593	716	3.4	3.2	2.8	3.2	3.0	2.5	3.2	3.1	2.7	3.2	3.0	3.1
GRAND TOTALS	2,041	2,381	3.3	3.5	3.0	3.3	3.1	2.7	3.0	3.1	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.

User Ratings of General-Purpose Computer Systems

**TABLE 8: MANUFACTURERS' RANKINGS ACCORDING TO
WEIGHTED AVERAGE USER RATINGS**

	Burroughs	Control Data	Digital Equipment	Honeywell	IBM	NCR	Univac	Xerox
Ease of operation	1	6*	2	6*	4*	6*	4*	3
Reliability of mainframe	6*	8	3*	6*	2	3*	5	1
Reliability of peripherals	7*	7*	2*	5	1	4	6	2*
Responsiveness of maintenance service	8	5*	1	5*	2*	2*	5*	2*
Effectiveness of maintenance service	8	7	1*	4*	1*	3	4*	4*
Technical support	7*	5*	3	5*	2	7*	4	1
Operating systems	1	8	2	7	6	5	4	3
Assemblers and compilers	1	6	2*	7*	4*	7*	4*	2*
Applications programs	5*	7*	2	7*	3*	3*	5*	1
Ease of programming	2	6*	1	6*	4*	6*	4*	3
Ease of conversion	4	8	1	7	5*	2*	5*	2*
Overall satisfaction	4*	7*	1	7*	3	4*	6	2

*Tie

➤ The Accolades for 1975

This year Burroughs Corporation again leads the list for its software, scoring a top rating of 3.7 in the Operating Systems category and 3.5 for its Compilers and Assemblers. Digital Equipment and Xerox again received ratings well above the average in these two important software categories.

Only three manufacturers—Digital Equipment, Xerox, and IBM—were given ratings above the industry average in Overall Satisfaction, with Digital and its DECSYSTEM-10 computers leading the others for the second year in a row with an impressive 3.4 rating. Two other mainframe vendors, Burroughs and NCR, equalled the overall average of 3.1 achieved by all the computer systems represented in this survey.

Leaders in other rating categories include Xerox in Reliability of Mainframe, IBM in Reliability of Peripherals, Burroughs in Ease of Operation, and Digital Equipment in Ease of Programming, Ease of Conversion, and Responsiveness of Maintenance Service. DEC and IBM tied for top honors in Effectiveness of Maintenance Service.

The relative rankings of the 8 mainframe manufacturers in all 12 rating categories, as determined by the weighted average user ratings, are listed in Table 8 to help you pinpoint the relative strengths and weaknesses of the various manufacturers as judged by their own users. Please keep in mind that these rankings are necessarily based on widely varying sample sizes, ranging from 1,448 user responses for IBM down to 25 responses for both Digital Equipment and Xerox.

Since IBM computer systems comprised some 72% of the total computer systems represented in our survey this year, their users' responses naturally had a strong effect on the overall ratings for all computer systems. In order to see how all the non-IBM computer systems stacked up against the manufacturer that controls the largest section of the general-purpose computer market, we calculated a set of weighted averages that exclude the IBM users' responses (the second last line in Table 7). Non-IBM systems were rated higher than IBM systems in the following four categories: Ease of Use, Operating Systems, Ease of Programming, and Ease of Conversion, and they equal IBM's ratings for Compilers and Assemblers and for Application Programs. In terms of overall satisfaction, the non-IBM computers' 3.1 average rating barely missed matching IBM's overall score of 3.2.

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 second major 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. □