

User Ratings of Minicomputers and Small Business Computers

To determine the current level of user satisfaction with specific minicomputer systems and with minicomputers in general, Datapro Research Corporation recently conducted an extensive user survey. A Reader Survey Form was mailed to a sample of approximately 10,000 Datapro subscribers in October 1978.

By December 1, 509 usable responses had been received from users with a total of 1344 installed minicomputers and small business computer systems.

The users were asked to answer a number of questions designed to characterize their method of acquisition and their applications environment. The results are presented in Table I, organized in terms of the responses for more than 80 popular minicomputer models and families from 24 vendors.

The users reported that their minicomputers are being used in a predictably broad spectrum of applications, which can be broadly categorized as follows:

	<u>No. of Users</u>	<u>% of Total</u>
Business data processing	373	73
Scientific/engineering computations	83	16
Real-time control	61	12
Data communications	111	22
Data base management	84	17
Other	103	20

The percentage figures add up to well over 100 percent because many of the respondents were using their systems in multiple applications. The high incidence of business data processing usage is due in part to the inclusion in our survey of the widely used small business computer systems such as the IBM System/3 and System/32, Burroughs B 1800, and NCR Century Models 101 and 151.

The users were asked how they acquired their systems, and the overall results were as follows:

	<u>No. of Users</u>	<u>% of Total</u>
Outright purchase	304	60
Rental from manufacturer	137	27
Third-party lease	65	13

The great majority of users of "classical" minicomputers such as those produced by DEC and Data General had purchased their machines outright, while users of small business computers from companies such as IBM and NCR were predominantly oriented toward rental from the manufacturer. The figures make it clear that third-party leasing is not widely practiced in the minicomputer field at this time.

This report presents the results of an extensive Datapro survey and summarizes the experience of users representing 1344 installed minicomputers and small business computers. Extensive tables show how these users assessed the strengths and weaknesses of all the popular systems and their vendors.

The users were also asked who wrote the programs for their applications, with the following overall results:

	<u>No. of Users</u>	<u>% of Total</u>
In-house personnel	402	79
Computer manufacturer's personnel	54	11
Used "ready-made" programs from manufacturer	93	18
Used proprietary packages	86	17
Contract programming house	95	19

Here again, the percentage figures total well over 100 percent because numerous respondents called upon two or more sources for their applications programs.

Of the 509 survey responses, 72 reported that they were using remote batch terminals and 354 said they were using interactive terminals with their systems. Here's a breakdown of the totals:

<u>Terminal Type</u>	<u>No. of Users</u>	<u>No. of Systems</u>	<u>Terminals in Use</u>	<u>Average No. of Terminals per:</u>	
				<u>User</u>	<u>System</u>
Remote batch	72	675	782	10.9	1.2
Interactive	354	1064	10,507	29.7	9.9

The number of users reported above are only those who reported using batch or interactive terminals. The number of systems includes those responses that indicated no use of the terminals.

The users were asked to report the extent of their usage of various types of "independent" peripheral devices from sources other than the minicomputer manufacturers. The overall results were as follows:

	<u>No. of Users</u>	<u>% of Total</u>
Using independent disk drives	92	18
Using independent tape drives	59	12
Using independent main memory	48	9
Using independent line printers	130	26

User Ratings of Minicomputers and Small Business Computers

➤ In this case, of course, the percentage figures total less than 100 percent because many of the respondents were not using any independent peripheral devices on their systems.

Finally, and most importantly, the users were asked to rate their minicomputers and the associated software and vendor support by assigning a rating of Excellent, Good, Fair, or Poor to each of 12 factors: ease of operation, reliability of mainframe, reliability of peripherals, responsiveness of maintenance service, effectiveness of maintenance service, technical support, operating system, compilers and assemblers, applications programs, ease of programming, ease of conversion, and overall satisfaction.

The resulting user ratings of more than 80 popular minicomputers and small business computers from 24 vendors are reported in Table 2. All ratings are expressed in terms of Weighted Averages, which were calculated by assigning a weight of 4 to each user rating of Excellent, 3 to Good, 2 to Fair, and 1 to Poor, and then dividing the sum by the number of users who rated each factor.

Prospective buyers should note that the small sample sizes for some of the minicomputer models make it unwise to draw firm conclusions from the indicated ratings. Rather, the ratings should be used as guides to potential product strengths and weaknesses that may call for further investigation in selecting the most suitable equipment for your needs. A minicomputer user's degree of satisfaction may depend heavily upon his specific application, the overall system in which the minicomputer is incorporated, and the quality of support and service provided by the vendor's nearest branch office. Also, as this survey clearly shows, many minicomputer users get their software, technical support, and/or peripheral equipment from sources other than the minicomputer makers.

The ratings assigned by all of the responding users can be combined to form the following overall picture of user satisfaction with the current minicomputers and small business computers:

	<u>Weighted Average User Ratings</u>
Ease of operation	3.5
Reliability of mainframe	3.5
Reliability of peripherals	3.1
Responsiveness of maintenance service	3.1
Effectiveness of maintenance service	2.9
Technical support	2.6
Manufacturer's software:	
Operating system	3.2
Compilers and assemblers	3.1
Applications programs	2.7
Ease of programming	3.1
Ease of conversion	2.9
Overall satisfaction	3.1

Of these overall weighted average user ratings, only Operating Systems differs by more than 0.1 from the results of last year's survey. This rating was up 0.2, a good sign. Apparently most minicomputer and small business computer users are fairly well pleased with their equipment and the associated software and maintenance service. The only significant weaknesses continue to be in the areas of applications programs and technical support. While the vendors have placed more stress on these areas recently, it's too early for the results of their efforts to show up in the ratings. Maybe next year...□

**User Ratings of Minicomputers and
Small Business Computers**
TABLE 1. PROFILE OF SURVEY RESPONDENTS (Continued)

Manufacturer and Model	Number of user replies Number of computers represented		Acquisition Method			Applications						Source of Applications Programs				Use of Terminals		Use of Independent Peripherals				
			Outright purchase	Rental from mfr.	Third-party lease	Business data processing	Scientific/engineering	Real-time control	Data communications	Data base management	Other	Written by user	Written by mfr.	Packages from mfr.	Proprietary packages	Contract prog. house	Batch	Interactive	Disk drives	Tape drives	Main memory	Line printers
Harris (all models)	3	5	2	1	1	1	1	1	0	0	1	3	0	1	0	0	2	3	0	0	0	0
Hewlett-Packard:																						
1000 Series	5	13	3	0	1	3	1	1	1	0	4	0	1	0	1	0	5	0	0	0	3	
2000 Series	6	10	4	0	2	1	3	0	2	0	5	0	1	1	0	1	6	1	0	0	1	
3000 Series	22	33	12	1	5	18	4	0	5	0	9	3	19	0	4	2	19	2	1	0	4	
9800 Series	2	3	2	0	0	1	1	0	0	0	1	1	1	1	2	0	2	0	0	0	0	
Hewlett-Packard Totals	35	59	21	1	8	23	9	1	8	11	7	29	1	9	6	4	32	3	1	0	8	
Honeywell Level 6	3	46	2	1	0	3	0	0	1	0	0	3	1	0	0	0	1	0	0	0	1	
IBM:																						
Series/1	4	14	4	0	0	2	1	1	1	0	1	4	0	0	1	0	3	1	1	0	1	
System/7	10	18	7	2	1	1	1	6	3	0	0	7	3	2	3	1	4	1	1	1	7	
1130 Series	6	6	4	3	0	5	3	0	1	0	2	6	0	1	3	0	0	3	0	1	2	
1800 Series	3	3	2	0	0	1	3	0	1	0	1	3	1	1	0	0	1	0	0	0	0	
5100 Series	4	4	2	1	1	3	0	0	0	0	1	3	0	0	2	1	1	1	0	1	0	
360/20	4	4	1	3	0	4	0	0	0	0	0	3	0	0	0	0	0	0	1	0	1	
System/3, Model 10	7	11	7	1	0	7	0	0	0	0	0	7	0	3	2	1	0	0	3	0	4	
System/3, Model 12	8	8	2	7	0	7	0	0	0	1	2	8	0	3	1	0	1	1	1	0	1	
System/3, Model 15	17	19	5	12	3	17	2	1	3	1	17	0	5	3	1	4	9	2	2	0	3	
System/3, unspecified	5	10	0	4	1	5	0	0	0	0	4	2	1	1	2	2	1	2	2	1	2	
System/3 Totals	37	48	14	24	4	36	2	1	3	2	3	36	2	12	7	4	7	11	8	4	10	
System/32	17	27	0	15	1	15	0	0	1	1	3	6	1	6	3	0	0	0	0	0	0	
System/34	12	19	1	11	0	11	0	0	2	0	2	9	0	5	2	2	10	0	0	0	1	
IBM Totals	97	143	35	59	7	78	10	8	12	3	17	74	7	27	21	13	30	14	7	8	15	
ICL/Singer:																						
10	4	4	4	0	0	4	0	0	0	0	0	1	0	3	1	0	4	0	0	0	0	
220	3	3	2	1	0	2	0	0	0	0	0	1	1	1	1	0	3	0	0	0	0	
ICL/Singer Totals	7	7	6	1	7	6	0	0	0	0	1	2	1	3	2	3	7	0	0	0	0	
Interdata:																						
7/32	7	13	6	0	1	4	3	3	2	2	7	1	0	0	1	0	7	3	3	2	5	
Others	4	12	4	0	0	1	4	3	0	1	4	0	1	0	0	0	4	2	2	1	3	
Interdata Totals	11	199	10	0	1	5	7	6	2	3	11	1	1	0	1	0	11	5	5	3	8	
Microdata:																						
Reality	8	15	6	0	2	6	0	1	2	4	4	6	0	1	2	3	2	7	2	2	4	
Royale	10	22	7	1	2	9	0	0	1	4	8	0	0	4	3	0	10	0	0	1	0	
Microdata Totals	18	37	13	1	4	15	0	1	3	8	6	14	0	1	6	6	17	2	2	1	4	
Modcomp:																						
IV	2	4	2	0	0	1	0	2	1	1	0	2	0	0	0	0	2	1	1	0	1	
II	5	41	5	0	0	2	0	3	1	1	5	0	0	0	0	1	5	4	3	1	3	
Modcomp Totals	7	45	7	0	0	3	0	5	2	2	1	7	0	0	0	1	7	5	4	1	4	
NCR:																						
399	4	5	4	0	0	4	0	0	0	1	0	3	3	1	0	1	0	0	1	0	0	
Century 101	8	14	3	4	1	8	0	0	1	0	0	7	4	5	3	0	2	0	1	0	1	
Century 151	3	3	1	2	0	3	0	0	1	0	0	3	1	1	0	1	0	0	0	0	1	
8200 Series	7	7	1	6	0	6	0	0	0	1	2	6	1	4	1	2	0	7	3	0	0	
NCR Totals	22	29	9	12	1	21	0	0	2	2	2	19	9	12	4	4	2	8	4	1	5	
Prime:																						
300	2	2	2	0	0	1	1	0	0	1	0	2	0	0	0	1	2	1	1	0	1	
400	5	6	2	2	0	3	1	0	2	3	1	5	0	0	1	2	1	5	0	0	0	
Prime Totals	7	8	4	2	0	4	2	0	2	4	2	7	0	0	1	2	2	7	1	1	1	
Qantel (all models)	3	3	3	0	0	3	0	0	0	0	0	0	2	1	1	0	3	0	0	0	0	
Tandem T-16	5	5	5	0	0	1	1	2	1	1	0	4	1	0	0	1	4	0	0	0	0	
Texas Instruments (all models)	4	8	2	1	1	3	0	2	1	1	0	4	0	0	0	1	4	2	0	0	2	
Univac 90/30	15	15	1	14	0	14	0	1	9	3	1	15	6	2	3	4	5	14	0	0	0	
Wang:																						
PCS I and II	2	2	0	2	0	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	
2200	7	7	7	0	0	7	0	0	0	0	1	3	0	0	2	2	4	13	1	0	2	
Wang Totals	9	9	7	2	0	9	0	0	0	0	1	3	2	0	2	4	4	1	0	0	4	
Other minicomputers	22	102	18	1	3	12	6	4	6	4	8	16	4	2	4	7	3	14	9	8	9	
GRAND TOTALS	509	1344	304	137	65	373	83	61	111	84	103	402	54	93	86	95	72	354	92	59	48	130

User Ratings of Minicomputers and Small Business Computers

TABLE 2. USER RATINGS (Continued)

Manufacturer and Model	No. of User Replies	No. of Computers Represented	Average Length of Time, in Use, Months	Average Memory Size, Words or Bytes	Weighted Average User Ratings*											
					Ease of operation	Reliability of mainframe	Reliability of peripherals	Responsiveness of maintenance service	Effectiveness of maintenance service	Technical support	Operating system	Compilers and assemblers	Applications programs	Ease of programming	Ease of conversion	Overall satisfaction
Harris (all models)	3	5	17		3.3	3.0	3.0	3.0	3.0	2.0	3.7	3.0	3.0	3.7	3.5	3.3
Hewlett-Packard:																
1000 Series	5	13	22	47KW	3.0	3.8	3.5	3.5	3.0	2.3	2.3	2.3	1.0	2.0	1.8	2.8
2000 Series	6	10	44	32KW	3.8	3.7	3.3	2.7	3.0	2.2	3.7	3.5	3.0	3.5	3.0	2.3
3000 Series	22	33	15	404KB	3.6	4.0	3.1	3.2	3.4	3.0	3.4	3.2	3.3	3.5	3.5	3.5
9800 Series	2	3	17	12KB	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Hewlett-Packard Totals	35	59	21	—	3.6	3.9	3.3	3.1	3.3	2.8	3.3	3.2	3.1	3.3	3.1	3.4
Honeywell Level 6	3	46	6	120KW	3.0	4.0	3.7	3.0	3.0	2.0	2.7	2.7	2.0	3.0	3.0	3.0
IBM:																
Series/1	4	14	1	69KB	3.5	3.7	2.7	3.3	3.7	2.8	2.8	3.0	2.7	2.8	2.5	3.7
System/7	10	18	59	47KB	3.3	3.9	3.3	3.2	3.1	2.5	3.0	2.9	2.8	2.2	2.4	2.9
1130 Series	6	6	83	12KW	3.5	3.7	3.6	3.3	3.2	3.2	3.3	3.0	2.3	3.0	3.0	3.3
1800 Series	3	3	123	20KW	3.0	3.3	3.0	3.3	3.0	2.0	2.7	2.7	2.7	2.3	2.0	2.7
5100 Series	4	4	31	48KW	3.2	3.8	3.5	3.3	3.3	3.2	3.0	3.0	2.0	3.2	2.3	3.0
360/20	4	4	98	14KB	4.0	4.0	3.5	4.0	3.5	3.0	4.0	4.0	4.0	4.0	4.0	4.0
System/3, Model 10	7	11	72	28KB	3.6	3.6	2.9	3.2	3.2	2.4	3.3	3.4	2.8	3.3	2.8	3.3
System/3, Model 12	8	8	19	74KB	3.9	3.9	3.5	3.8	3.4	3.1	3.5	3.6	3.3	3.6	3.4	3.5
System/3, Model 15	17	19	28	191KB	3.5	3.9	3.7	3.4	3.4	2.9	3.4	3.2	2.9	3.4	3.3	3.4
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
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
System/32	17	27	23	27KB	3.5	3.7	3.8	3.6	3.3	3.0	3.3	3.3	2.7	3.4	3.1	3.3
System/34	12	19	18	65KB	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 Totals	97	143	34	—	3.5	3.7	3.5	3.5	3.3	2.8	3.2	3.2	2.7	3.1	3.0	3.3
ICL/Singer:																
10	4	4	34	31KB	3.2	3.2	3.0	3.3	2.7	1.7	2.2	2.2	2.2	2.0	3.0	2.5
220	3	3	28	41KB	3.3	3.3	3.3	2.7	2.7	3.3	3.0	3.0	3.0	3.0	1.7	3.0
ICL/Singer Totals	7	7	31	35KB	3.3	3.3	3.3	3.0	2.7	2.5	2.6	2.6	2.6	2.4	2.3	2.7
Interdata:																
7/32	7	13	26	251KB	3.1	3.6	2.7	2.8	2.7	2.4	2.7	2.9	2.5	3.0	2.8	3.0
Others	4	12	27	142KB	2.8	3.0	2.3	2.3	2.3	2.5	2.5	2.8	3.5	3.0	3.3	2.8
Interdata Totals	11	25	21	199KB	3.0	3.4	2.5	2.7	2.6	2.5	2.6	2.8	3.0	3.0	3.0	2.9
Microdata:																
Reality	8	15	18	54KB	3.8	3.5	3.1	3.3	3.1	2.4	3.5	3.4	2.7	3.8	3.4	3.5
Royale	10	22	24	112KB	3.6	3.5	3.4	3.1	3.1	2.6	3.4	3.0	2.9	3.8	3.3	3.2
Microdata Totals	18	37	21	88KB	3.7	3.5	3.3	3.2	3.1	2.5	3.4	3.2	2.8	3.8	3.4	3.3
Modcomp:																
IV	2	4	—	256KB	3.5	3.5	3.5	4.0	3.5	3.0	3.0	3.0	—	4.0	4.0	4.0
II	5	41	33	134KB	3.2	3.8	3.0	3.0	3.3	2.8	3.4	3.2	3.0	3.4	3.5	3.6
Modcomp Totals	7	45	31	933KB	3.3	3.7	3.1	3.3	3.3	2.9	3.3	3.1	3.0	3.5	3.6	3.7
NCR:																
399	4	5	51	37KB	2.8	2.5	2.3	2.5	2.0	3.3	2.8	2.7	2.3	2.8	2.3	2.5
Century 101	8	14	52	57KB	3.1	3.6	3.3	3.5	3.0	2.6	3.3	2.8	3.0	2.5	3.3	3.1
Century 151	3	3	57	149KB	3.3	3.3	2.7	2.7	2.0	2.7	2.3	2.3	2.5	3.5	3.7	3.0
8200 Series	7	7	15	91KB	3.9	3.4	2.5	3.0	3.0	2.1	2.9	2.9	2.4	3.4	2.7	2.7
NCR Totals	22	29	38	73KB	3.3	3.3	2.8	3.0	2.8	1.8	3.0	2.7	2.7	3.0	3.0	2.9
Prime:																
300	2	2	9	160KB	4.0	4.0	3.5	3.5	3.0	2.5	4.0	3.5	4.0	4.0	3.0	4.0
400-	5	6	15	560KB	4.0	3.8	3.8	3.6	3.6	3.4	3.8	3.8	3.5	3.6	3.5	3.6
Prime Totals	7	8	13	427KB	4.0	3.9	3.7	3.6	3.4	3.1	3.9	3.7	3.6	3.7	3.4	3.7
Qantel (all models)	3	3	12	75KB	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.7	3.3	3.7
Tandem T-16	5	5	8	1840KB	3.0	3.4	3.2	3.0	3.0	3.4	3.4	3.2	3.0	3.4	1.8	3.0
Texas Instruments	4	8	66	96KB	3.8	4.0	3.5	2.5	2.5	2.8	3.0	2.8	2.8	3.3	2.5	3.0
Univac 90/30	15	15	23	261KB	3.3	3.3	3.1	3.3	2.9	2.6	3.2	3.3	2.8	3.3	3.1	3.3
Wang:																
PCS I and II	2	2	12	48KB	4.0	3.0	3.0	2.0	3.0	3.0	4.0	—	—	2.0	3.0	3.0
2200	7	7	13	33KB	3.7	3.9	3.3	2.7	2.3	2.4	3.0	3.3	2.3	3.1	2.2	2.9
Wang Totals	9	9	13	36KB	3.8	3.7	3.2	2.6	2.5	2.6	3.3	3.3	2.3	2.9	2.4	2.9
Other minicomputers	22	102	53	60KB	3.4	3.5	3.1	3.2	3.1	2.8	3.0	3.3	3.1	3.1	3.1	3.2
GRAND TOTALS	509	1344	—	—	3.5	3.5	3.1	3.1	2.9	2.6	3.2	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.