



HOW MUCH DOES IT COST TO RUN A USERS' AREA?

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ABSTRACT

Once the room is found, the furniture is delivered, the computers are installed, and the software is loaded, how much does it cost to run a users' area? The Computer Center at The Catholic University of America (CUA) was asked by the Executive Vice President to supply this information for planning purposes, and I volunteered to prepare the report. For the purpose of this report, we included direct costs: the wages of the students who staff the areas, paper, printers' maintenance kits and toner, replacement manuals, diskettes, and ribbons. Indirect costs such as the cost of the equipment, the salaries of the full-time staff, utilities, or overhead were not included. The report covers costs for the Computer Center's five users' areas over a one year period subdivided by semester.

We decided to cover the last three completed semesters--spring, summer, and fall of 1990. We decided to start gathering information beginning with the large expense items. This meant starting with the student wages, then paper, and so forth down the list. The appropriate calculations were done, and then the dollar figures were put into a spreadsheet.

In my discussion below, I will explain our strategy in gathering the information, the results of the report, and what steps we would suggest to others to prepare a similar report.

INTRODUCTION

Once the room is found, the furniture is delivered, the computers are installed, and the software is loaded, how much does it cost to run a users' area? The Computer Center at The Catholic University of America (CUA) was asked by the Executive Vice President to supply this information for planning purposes and I volunteered to prepare the report. The topic area of this paper is "managing services within budget constraints." Before we can really manage, trim, or control the budget, however, we need to have an idea of how much it has cost to run the users' areas in the past. For the purpose of this report we included direct costs: the wages of the students who staff the areas, paper, printers' maintenance kits and toner, replacement manuals, diskettes, and printer ribbons. Indirect costs such as the cost of the equipment, the salaries of the full-time staff, the training of the students who staff the areas, new versions of software, repairs, utilities, or overhead were not included. Simply, the real question in this case is, "How much does it cost to keep the doors open?"

The report covers costs for the Computer Center's five users' areas. There are three multi-use areas, one microcomputer- equipped classroom, and one small unproctored area in a residence hall. The equipment available includes terminals to the central VAXcluster, MS-DOS microcomputers, Macintosh microcomputers, and printers. This report covers costs over a one-year period subdivided by semester. As we began the investigation, we decided to cover the last three completed semesters- -spring, summer, and fall of 1990, rather than a fiscal year of operations. We

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USERS' AREAS' HOURS

REGULAR SEMESTER HOURS: 1/29/90-4/25/90

Cassidy	Monday--Friday	9 A.M.--11:45 P.M.
	Saturday--Sunday	Closed
O'Boyle	Monday--Tuesday	11:10 A.M.--6:30 P.M.
	Wednesday	11:10 A.M.--8:00 P.M.
	Thursday--Friday	11:10 A.M.--6:30 P.M.
	Saturday--Sunday	Closed
Pangborn 111	Monday--Thursday	9 A.M.--11:45 P.M.
	Friday	9 A.M.--6 P.M.
	Saturday	11 A.M.--6 P.M.
	Sunday	11 A.M.--11:45 P.M.
Pangborn G3	Monday	NOON--5:30 P.M. & 8:00 P.M.--11:45 P.M.
	Tuesday	NOON--5:30 P.M.
	Wednesday	NOON--2:30 P.M. & 8:00 P.M.--11:45 P.M.
	Thursday	NOON--4:30 P.M. & 8:00 P.M.--11:45 P.M.
	Friday	NOON--5:30 P.M.
	Saturday	NOON--6 P.M.
	Sunday	NOON--9 P.M.

G3 schedule is subject to change.

EXAM SCHEDULE: 4/26/90-5/4/90

Cassidy	Monday--Friday	9:00 A.M.--11:45 P.M.
	Saturday--Sunday	Closed
Pangborn 111	Monday--Friday	11:00 A.M.--9:00 P.M.
	Saturday	11 A.M.--6 P.M.
	Sunday	11 A.M.--11:45 P.M.
Pangborn G3		to be determined
O'Boyle		Closed

SUMMER HOURS: 5/7/90-8/3/90

Cassidy	Monday--Thursday	9:00 A.M.--10:00 P.M.
	Friday	9:00 A.M.--8:00 P.M.
	Saturday--Sunday	Closed
Pangborn 111	Monday--Saturday	Noon--6:00 P.M.
	Sunday	Noon--9:00 P.M.
Pangborn G3		to be determined
O'Boyle		Closed

INTERSESSION HOURS: 8/6/90-8/28/90

Cassidy	Monday--Thursday	9:00 A.M.--9:00 P.M.
	Friday	9:00 A.M.--6:00 P.M.
	Saturday--Sunday	Closed
All other Users' Areas		Closed

Figure 1 - The Schedule

USERS' AREAS' HOURS

REGULAR SEMESTER HOURS: 1/29/90-4/25/90

	Total/ Hours	Days	Week	Weeks	Total
Pangborn 111					
Monday-Thursday 9 A.M.-11:45 P.M.	14.75	x4	59.0	x12	708
Friday 9 A.M.-6 P.M.	9.0	x1	9.0	x12	108
Saturday 11 A.M.-6 P.M.	7.0	x1	7.0	x12	84
Sunday 11 A.M.-11:45 P.M.	12.75	x1	12.75	x12	153

Figure 2 - Pangborn's Calculations

knew that finding the information would take a lot of effort and the most recent information would probably be the easiest to find.

COST VARIABLES

Again, the variables covered in this report are the wages of the students who staff the users' areas, paper, printers' maintenance kits and toner, replacement manuals, diskettes, and printer ribbons. We decided to start gathering information beginning with the most expensive components of the study. This meant starting with the student wages, followed by paper supplies, printers' maintenance kits and toner, and so forth down the list. The appropriate calculations were done and then the dollar figures were put into a Lotus spreadsheet. The actual costs were calculated first and then projections were made for future costs.

Cost of Wages

The wages for the students who staff the users' area desks are the highest expense item. (We know that some colleges and universities have unproctored areas, but four out of five users' areas at CUA are proctored; only one is unproctored.) We approached this question in two different ways. We started by finding the old newsletters that advertised the users' areas' schedules.

Each semester usually has regular semester hours and exam or intersession hours. Each area has a different schedule depending on its location

(and therefore its popularity), the equipment in it (and its need), and the security of the building. We determined how many hours per day an area was open, how many days per week it was open, and how many weeks were covered by that particular session. For example, in spring 1990 our most popular users' area, Pangborn 111, had the following schedule for "regular semester hours," 1/29/90-4/25/90.

Monday-Thursday	9 a.m. to 11:45 p.m.
Friday	9 a.m. to 6:00 p.m.
Saturday	11 a.m. to 6:00 p.m.
Sunday	11 a.m. to 11:45 p.m.

We multiplied the number of hours a day the users' area was open Monday through Thursday by 4 days and multiplied that by 12 for the number of weeks covered by the schedule. Then we continued on to Friday, Saturday, and Sunday and did similar calculations except they are only single days. We added them all up for a subtotal of the hours. We calculated the exam hours in spring and added that to the regular schedule and got a total of the hours for Pangborn 111 in the spring. This process continued with the other areas to calculate the total hours for all areas in the spring. Similar calculations were done for the summer and fall semesters. Next, these hours were converted into a dollar amount. We multiplied the hours by the average student wage of \$5.31/hour to get \$47,722 for the year.

I said that we approached this question two ways. The second approach was to find out how much we paid all the students who work for the

Computer Center. (There are some senior-level students who work on special projects and don't staff the areas.) We estimated that the total of those who staff the areas should be 2/3 to 3/4 of the total of all the students. The total wages for all students that year was \$67,703. (2/3 to 3/4 of the total would be a range of \$45,400 to \$50,800.) When we compared this number to the \$47,722 calculated the other way, we were confident that we were on the right track.

Paper Costs

The next most expensive item is paper. The users have access to Digital LN03 and PrintServer 20 laser printers from the VAX and microcomputer networks; Epson dot-matrix printers from individual microcomputers; Apple ImageWriters and a LaserWriter from an AppleTalk network; and high-speed impact line-printers.

The LN03s, PrintServers, and line-printers are all connected to the VAXcluster. (Again, the networked microcomputers as well as the VAX can access these laser printers.) Some of these printers are physically located in the users' areas, and therefore all the print-outs from these printers are for academic users (not administrative). Other printers are located in the computer room and are used by both academic and administrative users. The Computer Operations staff suggested that we strike a balance by ignoring the line-printers and counting all of the print-outs from the computer room lasers as academic. Gathering the numbers was again a two-directional approach for comparison purposes.

Systems Programming was able to produce a VAX/VMS accounting report for all the VAXcluster printers sorted by month and by print queue. The total page count was 1,231,000 pages. Computer Operations was able to give us some information also. They keep a maintenance log with each printer and note the page count at the beginning of the month and when the printer received a new a maintenance or toner kit. At first we thought that we would have to sit down with all the logs and calculate the kits and paper count. However, we made some inquiries and found that the information had already been entered into a database and could be sorted and reported any way we wanted it. (Getting this report gave us a great feeling of relief.) From this data we discovered that the page count for the academic printers in the study was 736,000. Comparing this number to the total academic and administrative page count of

1,231,000 helped us realize again that we were on the right track. We did the appropriate calculations and entered the dollar amounts into the spreadsheet.

There is only one Apple LaserWriter. A log was not available for the period that we were studying. We had to take the numbers from a different year and extrapolate for 1990. The popularity of the Macintoshes has steadily increased.

The page count for the dot-matrix printers was a estimate also. Maintenance logs are not kept. In some of the users' areas we had an idea of how much paper had been delivered, but we didn't know how much had been there at the beginning of each semester. We counted how many dot-matrix printers were in each area and calculated one to three cartons per printer per semester depending on the popularity of the particular area and equipment. We considered the fact that the use of the dot-matrix printers dropped dramatically when some microcomputers were connected to the network and could access laser printers.

Printers' Maintenance, Toner Kits and Ribbons

The laser printers' maintenance and toner kits were kept on the maintenance logs that were mentioned above in the paper count. They were already in the database and were listed in the same report as the paper count. Again, the numbers for the Apple LaserWriter had to be calculated from a different year and estimated for the period of the report.

Even though the use of the dot-matrix printers is decreasing, there was still some use. The person in charge of the computer supplies inventory was able to tell us how many ribbons were used during this period.

Replacement Manuals

We went through the requisitions for the report year, but no replacement manuals had been ordered.

Diskettes

The number of diskettes used was also estimated. Some of the microcomputers are networked and run application software from a server: therefore, no diskettes are needed. There is still a need, however, for system disks in some

areas for some machines. The Manager of User Services suggested some numbers for diskette use based on past experience.

HOW YOU CAN LEARN FROM OUR EXPERIENCE

If you want to do a similar report, then this is the most important part of this paper. Prepare now! It is difficult to gather data from the past. Decide what period(s) will be covered. Decide what variables you want to include in your report. You might think that other costs should be included or that some of those mentioned here are unimportant. That is up to you, but decide in advance and start preparations to gather the necessary information. Decide what information you will need, who will gather it, and when it will be reported. It is important that one person coordinate the data gathering and process the data.

Once you set the schedule for a semester, add up the hours. To get the wages, you can then multiply by an average wage, or you can keep track of the exact wage for each worker and get a precise figure. The person who turns in the part-time employee time-sheets is the most logical person to do this.

Most laser printers have a page counter. This number needs to be recorded from every applicable printer at the beginning and end of the period (by the semester or month). The Operations' technicians might do this for all printers or perhaps only for those in the computer room. Student workers can also be designated to keep track of the page statistics in the users' areas.

The dot-matrix printers don't usually have a counter. Someone needs to count the paper cartons in use and in storage at the beginning of the period. You need to keep track of how many cartons are delivered, count the number at the end of the period, and calculate the difference.

The printers' maintenance and toner ribbons should probably be reported by the technicians who replace them.

The manuals need to be recorded by the person who places the orders. The number of diskettes used needs to be reported by the person who places them in the users' areas. If different people are in

charge of ordering manuals and making disks for different software, then all of them need to report back to the coordinator mentioned above.

CONCLUSION

The information was given to the Computer Center's Executive Director. She will use it to correlate with such things as enrollment, number of users, equipment, classes taught in the microcomputer-equipped classroom, courses using computers, research, etc. The information will then be presented to the Executive Vice President to be incorporated into the planning process.

ACTUAL
Users' Areas Cost

	Spring 90					
	Cassidy	Pang 111	Pang G3	O'Boyle	Cent Vil	Total
Wages	\$5,091	\$5,962	\$3,420	\$2,485	\$0	\$16,958
Supplies						
Paper, LN03&LPS20	\$687	\$621	\$210	\$47	\$0	\$1,565
Paper, tractorfeed	\$146	\$130	\$0	\$195	\$0	\$471
Paper, LaserWriter	\$260	\$0	\$0	\$0	\$0	\$260
Maint, LaserWriter	\$869	\$0	\$0	\$0	\$0	\$869
Maint, LN03&LPS20	\$1,380	\$1,380	\$345	\$0	\$0	\$3,105
Toner, LN03&LPS20	\$504	\$486	\$90	\$0	\$0	\$1,080
Ribbons	\$0	\$0	\$0	\$0	\$0	\$130
Manuals	\$0	\$0	\$0	\$0	\$0	\$0
Disks	\$16	\$24	\$24	\$32	\$0	\$96
Subtotal	\$3,862	\$2,641	\$669	\$274	\$0	\$7,576
Total	\$8,953	\$8,603	\$4,089	\$2,759	\$0	\$24,534

Users' Areas Cost

	Summer 90					
	Cassidy	Pang 111	Pang G3	O'Boyle	Cent Vil	Total
Wages	\$5,937	\$4,301	\$1,657	\$0	\$0	\$11,895
Supplies						
Paper, LN03&LPS20	\$564	\$160	\$33	\$0	\$0	\$757
Paper, tractorfeed	\$49	\$98	\$0	\$0	\$0	\$147
Paper, LaserWriter	\$140	\$0	\$0	\$0	\$0	\$140
Maint, LaserWriter	\$713	\$0	\$0	\$0	\$0	\$711
Maint, LN03&LPS20	\$1,150	\$345	\$0	\$0	\$0	\$1,495
Toner, LN03&LPS20	\$396	\$198	\$18	\$0	\$0	\$612
Ribbons	\$0	\$0	\$0	\$0	\$0	\$0
Manuals	\$0	\$0	\$0	\$0	\$0	\$0
Disks	\$16	\$24	\$24	\$32	\$0	\$96
Subtotal	\$3,026	\$825	\$75	\$32	\$0	\$3,958
Total	\$8,963	\$5,126	\$1,732	\$32	\$0	\$15,853

Figure 3a - Spreadsheet

Users' Areas Cost

	Fall 90					
	Cassidy	Pang 111	Pang G3	O'Boyle	Cent Vil	Total
Wages	\$6,377	\$6,744	\$3,090	\$2,658	\$0	\$18,869
Supplies						
Paper, LN03&LPS20	\$676	\$549	\$329	\$55	\$0	\$1,609
Paper, tractorfeed	\$33	\$130	\$0	\$195	\$0	\$358
Paper, LaserWriter	\$260	\$0	\$0	\$0	\$0	\$260
Maint, LaserWriter	\$948	\$0	\$0	\$0	\$0	\$948
Maint, LN03&LPS20	\$1,495	\$1,035	\$651	\$115	\$0	\$3,296
Toner, LN03&LPS20	\$576	\$414	\$716	\$36	\$0	\$1,742
Ribbons	\$0	\$0	\$0	\$0	\$0	\$66
Manuals	\$0	\$0	\$0	\$0	\$0	\$0
Disks	\$16	\$24	\$24	\$32	\$0	\$96
Subtotal	\$4,004	\$2,152	\$1,720	\$433	\$0	\$8,375
Total	\$10,381	\$8,896	\$4,810	\$3,091	\$0	\$27,244

Users' Areas Cost

	Total 90					
	Cassidy	Pang 111	Pang G3	O'Boyle	Cent Vil	Total
Wages	\$17,405	\$17,007	\$8,167	\$5,143	\$0	\$47,722
Supplies						
Paper, LN03&LPS20	\$1,927	\$1,330	\$572	\$102	\$0	\$3,931
Paper, tractorfeed	\$228	\$358	\$0	\$390	\$0	\$976
Paper, LaserWriter	\$660	\$0	\$0	\$0	\$0	\$660
Maint, LaserWriter	\$2,528	\$0	\$0	\$0	\$0	\$2,528
Maint, LN03&LPS20	\$4,025	\$2,760	\$996	\$115	\$0	\$7,896
Toner, LN03&LPS20	\$1,476	\$1,098	\$824	\$36	\$0	\$3,434
Ribbons	\$0	\$0	\$0	\$0	\$0	\$0
Manuals	\$0	\$0	\$0	\$0	\$0	\$0
Disks	\$48	\$72	\$72	\$96	\$0	\$288
Subtotal	\$10,892	\$5,618	\$2,464	\$739	\$0	\$19,713
Total	\$28,297	\$22,625	\$10,631	\$5,882	\$0	\$67,435

Figure 3b - Spreadsheet