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Office
of the Provost

July 27, 1981

MEMORANDUM

TO: Recipients of Academic Computing Committee's
Annual Report

FROM: Academic Computing Committee

SUBJECT: Errata

Some of the dollar estimates of the cost of Multics upgrades were in error. The figures in the corrected text below are believed to be more realistic:

Corrected Text

Second, more Multics hardware is desired. As this Committee has previously informed the administration, the new hardware should minimally include more main memory and more disk capacity. The estimated cost of the needed Multics acquisitions is not great. The following specific hardware acquisitions would provide significant enhancement of our capabilities at modest cost:

1. One megaword of additional main memory (~\$260,000)
2. One new disk controller (~\$150,000)
3. Four additional disk drives (~\$35,000 each)

There would be additional maintenance expenses, as well. Other items will soon be needed, such as a new front end to improve access to the system, allow adding more hard-wire and dial-up lines.

These simple modifications to Multics would benefit a wide range of users, and would allow us to maximize performance in the Multics system, a task which is complementary to the new thrust in the microcomputer direction. Such alterations to Multics would also benefit administrative users, and might even allow Oakland to sell some time for research through outside consulting arrangements with business and government. Such arrangements will help us survive future budget cuts, and will strengthen faculty and university ties with important outside constituencies. Such arrangements are not presently encouraged, due to system loads inside the university.

In short, by spending less than \$600,000 we can increase the productivity of our existing system. This is precisely the type of expenditure which should have been done in increments already. The only advantage is having waited this long is that we may now benefit from falling prices and improving technology.

July 1, 1981

MEMORANDUM

TO: University Senate
FROM: Academic Computing Committee

Donald Malm, Mathematics (Chairperson)
David Doane, Economics and Management
Bill Haga, Computer Services
Glenn Jackson, CIS
Bill Macauley, Political Science
Gary Morehead, Student Representative
Ron Mourant, Engineering
Richard Pettengill, Library
Lew Pino, Research Services
Bob Schwartz, SHES
Mary Schaefer, Student Representative

RECEIVED
JUL 13 1981
Office
of the Provost

SUBJECT: Annual Report

This committee has had an active year. Our regular biweekly meetings have been used as a "listening post" for issues which affect academic computing, and as a forum for airing and helping resolve user problems. More importantly, we have attempted an ongoing assessment of the University's current and future academic computing needs, and we have maintained a steady dialogue on trends in computing technology which may help us attain our computing objectives here at Oakland. Finally, we have consulted administrative officials, to try to identify the elusive locus of decision-making on computer priorities, and to determine the University's plans for future computer upgrading.

These discussions are easily summarized. The committee believes Oakland is falling seriously behind in computing, and must expend considerably more effort (i.e. money) to take advantage of rapidly changing technology and get the most from existing resources. User needs are not presently being well met, and evidence suggests this problem will become more severe, given the vagueness of Oakland's decision-making processes, the uncertainty of its priorities, and its failure to budget for annual computer upgrades, let alone maintenance of services at existing levels, as inflation erodes purchasing power. If uncorrected, these deficiencies will impair the University's ability to attract and retain good faculty and students, because the demands of the marketplace and technological advances are inexorable.

To explore these concerns more formally and more empirically, the Academic Computing Committee undertook a survey of computer problems faced by academic users at Oakland. It seems convenient to use this survey as a vehicle to organize the details of our annual report, and to report our interpretations of the survey results and their implications for Oakland's future plans.

We believe you will find the data and conclusions informative and useful. We are also hopeful that the University will carefully study our summary and recommendations, for we are the only constituency which can speak for the collective computer users on the academic side, and our concerns are most urgent.

If we can clarify anything in the annual report, do not hesitate to call upon our committee.

cc: Members of the Academic Computing Committee
William Thompson, Director, Office of Computer Services
Keith Kleckner, Acting Provost
Joseph Champagne, President

APPENDIX

ACADEMIC COMPUTING COMMITTEE'S ANALYSIS OF
COMPUTER USER SURVEY RESULTS

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I. Introduction

Questionnaires (see sample attached) were distributed to all Oakland faculty by the Academic Computing Committee. We received 41 responses from Multics users, and 34 responses from non-users of computers.

II. Summary of Non-Computer Users' Views

A total of 34 non-users responded to our survey. Asked to choose among various reasons for their non-use, the following breakdown of reasons was given by the respondents (more than one reason may have been given by each respondent, so total exceeds the number of respondents):

TABLE 1: REASONS FOR NOT USING THE COMPUTER

Reason Given	Number of Respondents
Have had no computer training	23
Computing not relevant to discipline	10
No time to learn about computers	7
Documentation inadequate for new users	5
No computer facilities in my building	4
Multics is too busy	4
Multics is difficult to learn	3
Multics software is inadequate	2

Non-user respondents were mainly concentrated in SHES, Library, Economics/Management, and Languages (English, Modern Languages, Communication Arts, Learning Skills). These might be viewed as "target areas" for our efforts to broaden user interest and awareness of new developments in computing at Oakland which might make it accessible to present non-users.

From these responses, our committee concludes there is a need for continuation of efforts to provide new user training on a regular basis, and that new initiatives are in order to bring novices and/or the disenchanted into the fold of "computer users." The keys seem to be providing easily-used, convenient facilities and documentation, and a computer awareness program of some kind to alert possible users to the ways computers can enhance their own endeavors. As for the disillusioned, improvements in Multics' capacity to handle more users effectively might help. On the other hand, added microcomputer capability or access to systems such as MTS, for specific software packages or special needs, might be desirable ways to restore confidence that the system is really trying to serve user needs effectively.

It is also likely that the advent of microcomputers will attract new users, through newer "easy to use" software such as no-pencil worksheets (e.g. Visicalc, Visiplot), simple statistical programs (e.g. Ecostat), and word processing (e.g. Wordstar). But we need microcomputers to run these software items. This underscores the need for the university to complete the funding and acquisition of the proposed microcomputer lab, proposed by this committee this spring, and to be supportive of departmental proposals to acquire their own micro systems.

III. Characteristic Usage Patterns By Multics Users

There were 41 responses from Multics users. The respondents were mainly concentrated in Engineering, Mathematics, Psychology, Political Science, and SHES. Other areas with at least two responses were Sociology/Anthropology, Economics and Management, Library, Biology, and Chemistry.

Mean reported usage of Multics is 16 hours per month for 1980-81. A slight increase is anticipated for 1981-82. The reported distribution of usage by type of activity is as follows:

TABLE 2: PER CENT OF TIME SPENT ON VARIOUS ACTIVITIES

Activity	1980-81	1981-82
Word Processing	8	7
Instructional	30	33
Research	52	54
Other	10	7
Total:	100	100

IV. Faculty Perceptions of Student Computer Satisfaction

The mean percent of students the reporting faculty felt were satisfied with Multics was 40 per cent. This is based on all courses which were listed by each faculty member, and it should cover almost all the programming and applications classes taught at Oakland, since the sample of returned questionnaires included the heaviest faculty users, whose instructional responsibilities cover the most students. It should be noted that this is a subjective estimate.

Reasons for student dissatisfaction were mainly reported to be the long waiting time to get access to a terminal, and the difficulty logging in when the system is busy. Students also complain that printouts cannot be picked up on Sunday, due to the lack of an operator on that day. This complaint may stem from the fact that most Oakland students work during the week, and do much of their computing on weekends or evenings. Students who use the system in the daytime, however, lament that the system can only allow a small number of users simultaneously, in order to permit a reasonable response time to others.

At the present time, there are few complaints about inadequate disk storage space. This complaint may increase considerably, though, as capacity is approached due to recent transfers of administrative systems to Multics, and the slowly-growing libraries of all users. Some faculty expressed a desire for "faculty-only" terminals.

V. Advantages of Multics

Advantages and positive aspects of the Multics system were, in order of frequency of mention:

1. Flexibility, versatility, broad capacities
2. Modern, advanced, operating system
3. Software, statistical packages, and growth therein
4. Easy to use (a "friendly" system)
5. Power and speed of system (when load is light)
6. Reliability of system

Other good features of Multics which were mentioned were the text editor, security of files, the ability to call it from home at night, and the friendliness of the computer center staff.

Overall satisfaction with the Multics system is reported in the illustrated statistical display below:

TABLE 3: DEGREE OF SATISFACTION WITH MULTICS

Rating	Number of Responses
Excellent	1 ***** 4
	2 ***** 11
	3 ***** 12
	4 ***** 7
	5 ***** 4
Unsatisfactory	6 ***** 4

From these results, the Committee concludes that Multics has established itself as a good system, which indeed has earned the support of a number of faculty (unlike the previous system). Unfortunately, the good, likeable Multics system is overloaded. The advantages of Multics must not be overlooked, nor its role minimized in the future, as we expand our horizons into the newer but more individualized world of microcomputers. Oakland should build on existing strengths, and the faculty interest in Multics is an important asset to us.

VI. Faculty Problems With Multics

To focus on the problems with Multics, respondents were asked to tell how often they encountered various problems in their own usage of Multics. The results are illuminating. The table below summarizes the responses:

TABLE 4: PROBLEMS ENCOUNTERED WITH MULTICS

Problem	Often	Some times	Seldom
Response time too slow	25	12	1
No terminals available	17	14	4
All phone lines busy	15	13	5
Poor documentation	6	13	14
Consulting not available	3	15	15
Software inadequate	3	5	20
Not enough disk allocation	3	13	14
Terminal room hours too short	1	13	14
Printouts got lost	1	7	24

It is, of course, true that "tuning" can help somewhat to improve system response, and that clever procedures can be invented by the computer staff, which will get around some of the symptoms of system overload. But many of the adjustments have already been made, and it is unrealistic to expect the computer center staff to continue performing miracles, in the face of the demands placed on the system by administrative and academic users.

Clearly, three main problems areas exist, all of which reflect system overload. The solution to these problems is simple: either cut the load on Multics, or increase capacity of the system. Nobody thinks the demand for computing is going to fall, even if Oakland's enrollment does, as the University hones its comparative advantage in the student markets for computer-oriented education. So either we upgrade Multics, or we find ways to relieve its load, or we increase its capacity AND shift the load elsewhere (e.g. the microcomputer lab with Apple III's requested to handle most of the CIS instruction).

The other conclusions to be drawn from the list of Multics problems, and the frequency with which they are encountered, is that all of them should be addressed. It appears that more consulting and better documentation are needed. Overall, it does seem that the computer center is doing a good job, but needs more resources.

Specific qualitative improvements suggested in open-ended answers included requests for better printing capabilities (the quality of the line printer is inadequate for certain types of reports, intended for reproduction or formal-audiences), better documentation and clearer error messages (on-line or off-line), better software support and assistance in implementation or conversion to Multics, and additional statistical consulting.

Open-ended suggestions for future planning concentrated on two main items. First, users favored acquiring more micros and taking the beginning courses off Multics. This is the idea behind the Apple III lab, which is a relatively sophisticated alternative among microcomputers, which could substitute not only in developing students' programming skills, but also in extending our horizons into areas such as graphics. The logic behind the Apple III lab has been expounded elsewhere, and hopefully the University is convinced already of its merit.

Second, more Multics hardware is desired. As this Committee has previously informed the administration, the new hardware should minimally include more main memory and more disk capacity. The estimated cost of the needed Multics acquisitions is not great. The following specific hardware acquisitions would provide significant enhancement of our capabilities at modest cost:

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Other items may soon be desirable, such as a new front end to improve access to the system, allow adding more hard-wire and dial-up lines.

These simple modifications to Multics would benefit a wide range of users, and would allow us to maximize performance in the Multics system, a task which is complementary to the new thrust in the microcomputer direction. Such alterations to Multics would also benefit administrative users, and might even allow Oakland to sell some time for research through outside consulting arrangements with business and government. Such arrangements will help us survive future budget cuts, and will strengthen faculty and university ties with important outside constituencies. Such arrangements are not presently encouraged, due to system loads inside the university.

In short, by spending less than \$300,000 we can increase the productivity of our existing system. This is precisely the type of expenditure which should have been done in increments already. The only advantage is having waited this long is that we may now benefit from falling prices and improving technology.

VII. Microcomputer Usage at Oakland

One important part of the survey instrument inquired about microcomputer ownership and usage. There are approximately 40 REPORTED microcomputers currently in use by faculty, many of them privately owned. This figure is an understatement of the actual usage, and ownership by departments or individuals will increase rapidly, we anticipate. There are currently plans underway for a number of major acquisitions of microsystems around campus, a trend which will continue, because micros are a cost-effective alternative for many purposes. User satisfaction with micros is high.

This points out a key need for university-wide planning. Since micros are most useful if they can communicate with the mainframe system, the University should carefully consider how to enhance communication procedures. Usually, dial-up lines can be used to send text from micros to Multics. However, for simplicity, procedures for reading diskettes onto Multics files must be well-understood, for those who cannot have their home or departmental computers "talk" directly to Multics. Also, the 300-baud era may be drawing to a close. Micro users are used to working at 9600-baud, in many cases. The possibility of going to 1200-baud modems may be an item for the University's agenda.

VIII. Summary and Conclusions

Academic computer users at Oakland University are a loyal, deeply committed constituency. They have done a remarkable job of keeping up with developments in the computer field, and they have a lot to say about present and future directions Oakland should take. Their perceptions of the existing system are well-researched and sensible, balancing the strengths and deficiencies of the computing environment in a realistic way. The faculty have effectively utilized the available resources, and have developed a reputation for the University as a leader in bringing computer training and system design to the students at a high level, while maintaining the aura of excitement which is so necessary in this type of education.

Currently, these dedicated and clear-sighted observers agree that our computer system is in urgent need of added resources. They have a fair agreement on the need for a tripartite thrust:

1. Strengthening and deepening our programs of microcomputer acquisition.
2. Upgrading the capabilities of Multics toward its true potential.
3. Broadening the support for software and user access to computer hardware and consulting services.

Although there is good evidence that the Computer Center has done its best, the point has been reached where deterioration must annually ensue, without a formal University policy commitment to annual budgeting for computer upgrades and support services.

The world of computer technology evolves at an astounding rate. The dynamic forces which operate in this world compel us to make a sustained effort, to perceive and respond to the trends, and bring our educational processes into line with the potentialities with which many of our students seem aware. We lose credibility, and rightly so, when high school students acquire good training in computers, and then find their university education incapable of extending this knowledge, because of budgetary priorities favoring non-computer areas.

It behooves us as a University to define our "niche" in the computer area, and pursue it with vigor. We are currently in a crisis state in areas of common academic utility, such as computing and library facilities. Funds should be earmarked for computing upgrades, specifically. We need yet \$500,000 just to "catch up" with our historical failures to provide for growing computer needs, and the Committee recommends no less than \$100,000 per year for upgrading (NOT maintenance) of existing mainframe and microcomputer systems.

Never in Oakland's history has the need for new resources been more plain than in the area of computing, and never has a case been better documented year after year. Will the university respond this time? Can we afford to lose the goodwill and interest and momentum which the faculty have sustained, against the evidence, in the last few years? Can we ignore the growing importance of computers in the world, and for our students, and for our faculty, by spending little or no extra money for computer hardware, in the face of eroding quality as demand rises and existing budget dollars buy less and less?