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## INTRODUCTION

The Office Automation DTF was charged by Vice President Richard Schwartz on October 27, 1981. The DTF was requested to "develop a long-range plan for an integrated, humane, and effective means to increase staff productivity in an industry (education) that is among those most directly concerned with information handling."

The DTF examined four major short range issues as well:

- (1) For which campus functions (if any) does the technology currently exist to materially enhance productivity through office automation systems? For which is such technology cost effective?
- (2) To what extent should equipment be selected in conformance with standards regarding data communications, data formats, command languages, etc.?
- (3) What is the appropriate relationship between office automation and computer systems? To what extent should office automation be implemented/managed by computer services or others?
- (4) What is the appropriate relationship among word processing, printing, duplicating, and graphics? Should text processing, for example, be done centrally or locally? Should processing be done by individual staff or by a group analogous to the old style "typing pool"?

These questions are complex because they involve not only technical complexity, but organizational issues as well. The DTF began its task by attempting to educate itself concerning the "state of the art." Members of the DTF attended the Office Products Show at Seattle Center in November, collected and read articles on the subject, and discussed the technical issues. To facilitate a detailed investigation of office automation at Evergreen,

the DTF identified a list of areas to study, arranged these in priority order and formed subcommittees to deal with related areas. The subcommittees were:

- (1) A subcommittee dealing with the student evaluation process, grants, and other faculty professional work.
- (2) A subcommittee dealing with the processing of student records (other than evaluations).
- (3) A subcommittee dealing with the preparation of documents by various college offices (newsletters, catalog, correspondence, reports, etc.) and the relationships among WP, Graphics, and Printing.
- (4) A subcommittee dealing with the telephone system.
- (5) A subcommittee dealing with budget and accounting support for campus offices.

These subcommittees met throughout the rest of fall quarter and the month of January.

Reports of the subcommittees were returned to the committee of the whole at the end of January. These reports are attached as appendices to this final report. From the subcommittee reports, the DTF attempted to isolate the major overall problems and to formulate recommendations for each. Discussion of these problems and recommendations forms the remainder of our report.

It is important to note that in formulating its response to the charge, the DTF has made recommendations without detailed cost-benefit studies and without regard for any current budgetary limitations. The DTF felt that its task was to chart a direction which would be appropriate for the next several years, understanding that fiscal restraints might alter the rate of progress.

## FINDINGS

The DTF identified fifteen problems. These are not the only issues which might be considered, but the group felt that these were the major concerns about which something might be done. These problems are:

### 1. Automation anxiety

The DTF learned that, as in the rest of our society, there is widespread anxiety here about the effect that office automation will have on both the number and the quality of office jobs. The DTF feels that it is critical for the college to address these concerns head-on before they negate any productivity gains which might result from introducing office technologies. Moreover, the DTF feels that dealing with this anxiety is something which can be done now and at relatively low cost.

The DTF makes five specific recommendations in this area:

- (1) Select pilot projects in offices where people are willing and interested to experiment with the new technologies rather than "ramming them down people's throats."
- (2) Circulate articles concerning office automation (both pro and con) among staff in order to build an awareness of the issues and of the real impacts of office automation.
- (3) Organize a forum on office automation including the Personnel Office (to discuss job classes), union representatives, vendors of equipment, and personnel from offices, agencies, and schools where such technologies have been introduced.
- (4) Insure that in any case in which office automation is contemplated, those affected are consulted before a decision is reached.
- (5) Take due account of ergonomics (human factors in

the design of equipment) when selecting office automation equipment.

## 2. Whither word processing?

The DTF examined the trends in the word-processing field in connection with the current college policy of centralized word-processing and chargebacks. The DTF believes that centralization and chargeback were undertaken in order to address real problems (incompatibility of equipment, potential underutilization of expensive machinery, and overdemand from users), but that this approach is no longer appropriate. Strong trends of decreasing equipment costs, increasing computer literacy and typing ability among "professionals", and a need to fully utilize each office's secretarial support operate against the application of the typing pool model to word processing. Mechanisms other than chargeback are available to moderate demand for such centralized word processing services as may be required.

For these reasons, the DTF recommends the present Word Processing Office assume a somewhat different role and that chargebacks be eliminated. As more and more offices acquire access to text-editing capabilities themselves, the role of Word Processing as a center of production should be phased out. There will remain, however, a need for a center of expertise and a public facility for user training. Rather than constantly seeking to take on more production work, Word Processing should evaluate each application and encourage local use where appropriate.

Chargebacks should be largely eliminated. To do so, the funds expended at Word Processing by each budget unit during the current fiscal year should be re-allocated to a Word Processing budget unit in the next budget. Since there has been an ongoing deficit, some additional funds will be required, however these are already being spent somewhere to cover the deficit. After the first year, the funding for Word Processing should be allocated as are other budgeted support functions such as Computer Services.



To control excessive demand for "free" services, Word Processing should establish standards such as minimum document sizes, no personal work, etc. To encourage advance planning, penalty charges might be assessed for "emergency" processing, but otherwise the service would be available to any college office without charge.

### 3. Compatibility

In view of the rapid changes in both vendors and their equipment offerings, there is considerable potential for acquisition of incompatible office automation equipment if no standards are established. Further, until there is more widespread technical expertise among college offices, care must be taken to avoid poor technical choices and to insure that applicable Data Processing Authority acquisition procedures are followed. The DTF has discussed these issues and makes two recommendations:

- (1) All office automation equipment acquired by the college must have the capability to communicate with other equipment. Technically, all such equipment should use the EIA RS-232C protocol for data communications.
- (2) To insure that good technical choices are made and that applicable state standards are followed, all office automation acquisitions must be carefully reviewed before purchase. The EAC already provides that all computer acquisitions must be approved by the Director of Computer Services and that office equipment must be approved by the Director of Central Services, but office automation has other aspects that suggest that a broader review is required for this equipment.

The DTF recommends that a standing committee be formed to establish guidelines and procedures for review and approval of all office equipment

acquisitions. This committee should include (at a minimum) the Directors of Computer Services, Central Services, and Central Repair along with the head of Word Processing.

The important point is that the college must insure that all office automation equipment which is acquired can be cost-justified, is compatible with existing equipment and planned directions to the extent possible, is maintainable, and is acquired in accord with state law.

#### 4. Drafting documents

Many campus offices prepare or process one-shot documents such as grants, reports, or papers which go through more than one draft. Such activities take place, for example, in the Grants Office, Institutional Research, Deans Office, and as faculty academic work. Office automation technology is definitely available which can facilitate such work. However, such technology is still relatively expensive and changing rapidly. Therefore the DTF feels that a small-scale demonstration of the kinds of gains in productivity which are possible is preferable to a massive commitment at this time.

The DTF recommends that Evergreen acquire word processing software for the college's HP-3000 computer system and provide access to selected campus offices and faculty. These should be people who are already anxious to utilize such technology and for whom clear gains in productivity seem likely. Among those users identified by the DTF were the Grants Coordinator and the faculty of the MPA program.

The cost of the software would be on the order of \$5,000. Access should be provided initially through the terminal already located in the Grant Coordinator's office and through a public terminal to be located in Computer Services.

#### 5. Production documents



Certain offices prepare documents and publications on a regular schedule which involves either reuse of previous materials (e.g., the catalog), or a high volume production schedule (e.g., the newsletter and the CPJ). These offices already have enough of this kind of work to justify the acquisition of an in-office word-processing capability for their exclusive use.

The DTF recommends that College Relations acquire a stand-alone word processing system having two work stations, a printer, and communications capability. This system would be used by College Relations to prepare newsletters and information releases, and for the preparation of the catalog and catalog supplement. It is possible that a contract could also be made with the CPJ so that they could also use this equipment. The cost of such a system would be \$6,000-\$10,000.

It should be noted that the DTF is deliberately recommending a different approach here from the use of the HP-3000 as proposed under (4) above. The group feels that in a time of rapidly changing technology, a diversity of approaches will provide the best chance to evaluate the competing methodologies and select a long term direction for future growth.

#### 6. Access to student records

Numerous campus offices do not have direct access to the current student records required for their daily functions. This state of affairs reduces the efficiency of these offices and impacts other offices (such as the Registrar) with a deluge of requests for current information. The Registrar's Office estimates they process approximately 100 requests for current student data each day from on campus offices! Computer Services currently produces costly multiple copies of the student master list for many offices, yet such lists go out of date very quickly because of rapid changes in basic data such as student addresses.

The on-line student information system being developed by Computer Services will make current data available to student service areas such as Admissions, the Registrar, Financial Aid, and Academic Advising. Without a method for access, however, the existence of such data will not help those other offices now seeking student data from the Registrar and will not stem the tide of paper reports.

The DTF recommends that each program secretary's office be equipped with a terminal connected to the HP-3000 system either directly or through the telephone system. Through this means, program secretaries and faculty can be given fast access to accurate student information, the Registrar's Office can be relieved of the interruptions which seriously reduce their productivity, and as much as \$2,000/year in production costs for master lists can be eliminated. These terminals would also provide program secretaries access to text editing on the HP-3000 so that they could begin to take advantage of this productivity tool. The cost to purchase eight such terminals would be \$8,000-\$12,000. Some expansion of the port capacity on the HP-3000 would also be required, but this expansion will be needed for other reasons too, so that cost should not be totally allocated to this project.

In providing on-line access to student records, care must be taken to insure that only those with a valid "need-to-know" can examine relevant portions of student records and to protect records from accidental or malicious alteration.

## 7. Student evaluations

The DTF is disappointed to report that in the area in which the college generates the greatest amount of paperwork, little relief from office automation appears on the horizon. The reason for this is that student evaluations are prepared by a large number of different people. Unless these people (faculty) will use the system themselves to generate draft evaluations, little gain in productivity is possible. Under present circumstances, it is unreasonable to expect that we can provide enough work stations for all faculty to use

for preparing evaluations or that most faculty would use such a system even if it were provided.

However, the MPA faculty and Audrey Streeter are willing to experiment with using word processing to aid in the preparation of evaluations, using the system proposed under (4) and (6) above. In the event that this motivated group is able to improve their productivity by using this system, we could then consider more elaborate plans, perhaps eventually leading to a system in which evaluations would reside only on the computer (except for the student's copy and external transcripts).

The DTF also notes that module evaluations could be made much easier if the program secretaries used a word processing system to enter the module description for each module once, then electronically reproduce it for each student's evaluation. This approach could be tried using the equipment recommended under (4) and (6) above.

#### 8. Faculty support

The DTF heard statements from faculty that there is not enough secretarial support for faculty professional work and program support, especially during evaluation periods. During the first two weeks of winter and spring quarters, faculty find it very difficult to get program materials prepared.

The DTF determined that this state of affairs is a structural problem resulting from the extensive use of narrative evaluations in an environment where staffing is severely limited by tight budgets. Office automation can do little to provide relief, except for those faculty who are willing to use such systems themselves to enter and edit both evaluations and professional work.

A more promising alternative would be temporary rotation of secretarial support from administrative offices during peak evaluation periods.

## 9. Budget support

The general accounting system is primarily intended to keep track of the college's overall finances and to insure that expenditures do not exceed funds for the entire school. It is also the official record. The present system does not provide budget unit heads with the information required to manage their own budgets well. In part this is a result of lags in entering transactions and in distribution: the monthly budget statements are always out of date and do not reflect funds which have been committed by a budget unit head (hence "spent"), but which have not yet resulted in encumbrances. The "projections" provided by the system are not meaningful for many budgets because they can be grossly distorted by an atypical large expenditure. Finally, the statements are in a form which requires an inordinate amount of time to reconcile with actual expenditures relative to the likely cost savings possible from identification of errors (especially in the numerous small program budgets administered by faculty).

The DTF determined that, short of giving each unit head on-line access to the general accounting system, there was little which could be done to address the lag problem directly. As the systems which feed general accounting (such as Purchasing) are converted to on-line data entry, some of the lag will be eliminated, but it must be expected that the general accounting system will always be behind the commitment of funds by unit heads.

The DTF therefore recommends that the college acquire several micro-computers and the software package "Visicalc" to be used for budget management at the unit level. Al Warber has generously volunteered to head up development of a budget management package using these tools. Unit heads would be able to use the package, with data on their own diskette concerning their budget(s), to monitor and forecast expenditures. The DTF suggests that initially four such machines be acquired: one for the Deans, one for the Library, one for Facilities, and one to be located in the terminal room of Computer Services. Using



the APPLE-II as an example, total approximate cost for four machines would be about \$10,000. It should be noted that these machines could be used for several other purposes including access to the college's computers and for word processing. By taking this approach to budget tracking, it is expected that substantially better control of expenditures can be given to budget unit heads.

The DTF also recommends that consideration be given to simplifying the report produced by the general accounting system for those budgets that are managed by faculty, perhaps producing only the summary page. Making these changes could also reduce the cost of producing these reports which are currently ignored by many faculty anyway.

#### 10. Auxiliary enterprises

Auxiliary enterprises, particularly the bookstore, do not have access to adequate information systems for accounting, inventory, etc. The DTF did not study this area in detail, but recommends that development of such systems proceed as rapidly as possible. The DTF believes that systems and services acquired for or provided to auxiliary enterprises should be recharged.

#### 11. Typewriters

Much of the college's office equipment is wearing out and obsolete. The DTF received specific complaints about typewriters, and speed of repairs for typewriters. Many people said that these problems interfered considerably with their productivity.

Given the rapid growth in word processing power and availability coupled with falling prices, the DTF feels strongly that the college should avoid the purchase of additional typewriters if possible. Rather, the focus should be on improving maintenance of existing machines in order to ride out the transition to electronic editing. Where serious crunches appear, these might

best be dealt with through short-term leases rather than through the purchase of additional typewriters.

An improvement in maintenance procedures can also help. Users need to be made more aware of these procedures. Maintenance which has been delayed should be expedited. Machines in critical areas need more regular PM to keep them functioning as well as possible.

## 12. Copying and dittoing

The DTF received a number of complaints and suggestions regarding copying and dittoing. Sadly, to a large extent the college's choices in how to provide these services are limited by the requirement that state contracts be used to acquire equipment and by the tight budget.

The DTF does have some recommendations, however:

- (1) Efforts should be made to select a supplier of better quality ditto masters if dittos must be used.
- (2) While the present arrangement of sharing copy machines among areas makes good sense, there are some areas (e.g., Registrar) where additional capacity is probably required to prevent delays.
- (3) To reduce delays in the Lab buildings, copiers in Lab I and Lab II should be relocated to a common room near the center of the complex so that if one machine is busy, the other might be used.
- (4) More people should become "key operators" so that jam-ups, etc. can be handled more quickly and with less frustration.

## 13. Typesetting



The DTF closely studied the problems revolving around the preparation of documents which must be typeset (e.g., the catalog). There is no question but that the current machine is on its last legs and that some alternative must be found and found quickly.

The DTF was, however, unable to conclusively identify sufficient cost-savings to finance replacement from current budget. The DTF recommends that a careful cost-benefit analysis be made of the alternatives for replacing the current machine (including both a new system and use of off-campus services) and that the most cost-effective alternative be selected. In conducting the analysis, attempts should be made to identify users such as the CPJ and off-campus users (e.g., OTCC) who could help to cost-justify the new machine.

Any new typesetting machine must have communications capabilities compatible with typical word processing and computer equipment.

#### 14. Mailing lists

A persistent problem for many offices concerns both the accuracy of mailing lists and the mechanics of addressing volume mailings. Mailing lists are currently maintained by a great many different people for special purposes and there is little sharing of information. There is also no overall plan for handling various sized mailings.

The DTF recommends:

- (1) While the new student information system can provide on-line access to the "best" student address, there must be careful definition of "address". There may, in fact, be a need to carry different addresses for different purposes. Computer Services needs to work carefully with the many offices using this information to help develop common definitions and requirements for this information. Moreover, procedures will be

required to control access to this data with respect to who can see it and who can change it.

- (2) A list of mailing lists should be compiled. The most logical place to keep this list is the mail room, but an annual copy should be sent to budget unit heads. It's hoped that by compiling a list of mailing lists, it may be possible to eliminate some duplication and improve accuracy.
- (3) Word Processing and Computer Services should work together to develop a guide to addressing methods. The guide would explain techniques which can be used to maintain mailing lists and to address mass mailings of various sizes.

#### 15. Telephone system

The college faces a major uncontrolled cost in its present telephone system. Future rate increases are virtually certain. Control and accounting for SCAN and WATS is limited. Relocation of equipment is expensive. Voice and data cannot share the system in a cost-effective way. Useful features (such as call forwarding, camp-on, speed dialing, and tele-conferencing) are either not available from PNB or available only at excessive cost.

At the present time, the technology offers an extremely attractive alternative in a very competitive marketplace. The DTF recommended earlier that the college proceed as rapidly as possible to investigate acquiring its own telephone system and initial studies have been very encouraging. It seems likely that a better phone system can be had for 30-40% less annual outlay than at present.

The DTF is concerned, however, that the campus community be brought into the acquisition process more fully. The DTF therefore recommends:

- (1) A consultant (not a potential vendor) should be brought onto the campus now to educate staff

and faculty as to the capabilities and impacts of alternative telephone systems. We suggest a two-hour, widely publicized meeting be held as soon as possible so that people will begin to view alternative systems in a realistic light.

- (2) The bid document should invite each bidder to present his/her system at a public "telephone fair" to be held on a Wednesday afternoon after receipt of bids, but prior to determination of the apparent successful bidder. The campus fair would provide an opportunity to answer questions from staff, faculty, and students.
- (3) Preparation of the request for proposal should be very carefully done to insure that the college gets a state-of-the-art system capable of handling both voice and data needs for the next ten years. Because of the long period required to amortize a telephone system, it is imperative that one be selected on technical strength as well as least cost and that it have the capabilities to handle future traffic volume and diversity.

SUMMARY

The DTF believes that it has now addressed the major aspects of its charge and identified a number of areas where the technology currently exists to materially improve the functioning of college. In addition to the specific recommendations made above, the DTF notes that no single solution to "the office automation problem" is possible at this time because of rapid change in technology and pricing. Office automation is an area in which the college will need to be flexible in its planning and not put all our eggs in one basket. It is also an area in which great sensitivity to employees' needs will be required if promised gains in productivity are to be realized. Office automation affects how people work and cannot be successfully implemented unless it improves the work environment for both employer and employee.