DOCUMENT RESUME

ED 211 046 IR 009 847

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TITLE Word Processing for Technical Writers and Teachers.
PUB DATE May 81
NOTE 10p.; Paper presented at the Annual Conference of the International Technical Communication Society (28th, Pittsburgh, PA, May 20-23, 1981).
AVAILABLE FROM Society for Technical Communication, 815 15th Street N.W., Washington, DC 20005 ($20.00 for entire Proceedings of the Conference).

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *College Faculty; Computers; *Data Processing; *Editing; Higher Education; *Input Output Devices; Microcomputers; Office Machines; *Technical Writing; Word Processing
IDENTIFIERS *Indiana University; *Text Editors

ABSTRACT

This discussion of the computing network and word processing facilities available to professionals on the Indiana University campuses identifies the word and text processing needs of technical writers and faculty, describes the current computing network, and outlines both long- and short-range objectives, policies, and plans for meeting these needs. The benefits of two trial systems installed in November 1980--a Wang OIS 140 and a WORD-11 system on a DEC computer--are briefly reviewed. (CHC)

WORD PROCESSING FOR TECHNICAL WRITERS AND TEACHERS

by

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and

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At Indiana University in the late 1970s, the demand for word processing, the burden on the university's text processors, and the variety of commercial equipment demanded coordination to meet needs systematically. Now the university's long-range policy fosters compatibility of systems with each other and with the university's computers, enables adequate maintenance, promotes staff mobility, and still meets the needs of technical writers and editors, teachers, students, clerical staff, counselors, and administrators.

ONCE UPON A TIME: A PROBLEM

Johanna McVey, Senior Technical Writer, fidgited as she listened. The topic was modern office technology in general and word processing in particular, and the plans being discussed seemed either short-sighted or irrelevant to her professional needs. Across the table Jim Grayce, who taught business and technical writing, seemed equally disturbed.

The group had been discussing the need for features such as word wrap, global search and replace, simultaneous input and printing, automatic decimal centering, spelling dictionaries, automatic page numbering, math packs (which automatically calculate and total columns of figures, thus preventing errors in either hand calculation or transcription), automatic headers and footers, easy reformatting, and so forth. A secretary from the Admissions Office wanted "merge" functions for joining blocks of letter text with names and addresses in mailing lists.

These features sounded fine, but McVey wanted more. She often worked

on long documents and didn't want to have to worry about running out of file space. Because she often worked with Greek and mathematical symbols, she needed super- and subscripts (preferably shown on the screen) and dual-head printers, which accommodate two different printing elements simultaneously. Because she did more revising than drafting, she also wanted automatic marking of texts that have been altered by the most recent revision. Finally, she needed access to data on the main computers, and sometimes had wanted to include computerized data and graphs in documents without retyping. Her friends those who wrote documentation needed automatic paragraph and outline numbering, and automatic tables of contents, lists of tables and illustrations, and indexes.

When the group took a break, she sought out Jim, who turned out to want even more features than she did. "I want electronic mail and a desktop terminal to check and answer mail, send memos to colleagues elsewhere, write notes to students, and make assignments," he said. "I also want to be able to use the same terminal for computer work. And sometimes I want to see a student's transcript, when I write letter of recommendation, for instance. I don't want to call the registrar and wait for a copy to come in the mail--I need it right then."

"Most of all, I want my students to use word processing. Most of them are so hassled by typing that they can't concentrate on learning how to revise properly. When they get jobs, they won't have to worry about typing production copy, why should typing be a bother now? Besides, my most recent graduates tell me they are working on word processors and they do everything, from drafting to printing, by themselves, with no secretarial typing, no printers--nothing. If that's how professionals work, that's how I want my students to learn. After all, if I were teaching science, I'd require my students to learn how to use

computers. I think word processors have the same value to technical writers."

"Listen," Johanna said, "We've got to express our needs more forcefully. Most of the people here want stand-alone processors, but many others on campus have needs like ours. We've got to start somewhere . . . . "

THE NEEDS

Many of you are probably nodding. These needs seem "far out" to those who want word processing for standard office purposes. Some people with normal office needs think that meeting our needs means not meeting theirs. Such is not the case, although meeting just their needs can sometimes mean not meeting ours.

Professionals in our business require (1) large amounts of file space, (2) easy communication between files, between word processors and computers, and between computer systems, (3) graphics, (4) photocomposition interfaces, and (5) word-processing features such as floating footnotes, column swapping, and easy display and printing of Greek letters and mathematical symbols. (6) Teachers need a system that can be conveniently available for students.

THE ENVIRONMENT AND POSSIBILITIES

Indiana University, an eight-campus system with a total of approximately 79,000 students, is served by an extensive computing network that includes IBM computers for administrative use and IBM, DEC, CDC, and PRIME computers for academic uses. All computers are linked by an elab-

orate data communication system and form the Indiana University Computing Network.

We considered putting a sophisticated command-based text processor, such as NROFF, on one or more computers, with access through ordinary terminals. Equipping terminals in student clusters with floppy disk archiving stations would enable students to handle their own storage and save disk space on the system. Unfortunately, most text processors were not "user-friendly." They lacked the extensive menus that help operators to use the commercial word processors. Because many university offices have a high rate of staff turnover, training would be very costly.

On the other hand, commercial systems, which make training easier, lacked many of the necessary features and would be hard to make available to students. To make matters worse, the marketplace presented a bewildering variety of brands and combinations of equipment, with little standardization. Thus, choosing the right equipment for an office required some technical knowledge and systematic office study.

OBJECTIVE, POLICIES, AND PLAN

Objective

To provide faculty, administrators, staff, and students with the resources needed to do their work more effectively, the university's long-range objective is to have a common system, for both word processing and text processing, that integrates with the data processing capabilities of the IU Computing Network. Unfortunately, such a system does not now exist in the marketplace and is not likely to become available for the

next several years.

Central to the long-range objective is the **policy of technical concurrence**, which requires that units choose software and equipment from an approved list. The intent is not to be arbitrarily restrictive but rather to make possible a high quality of long-range, overall service. A major reason for the limited list is the need to facilitate an eventual interface between pre-existing campus word processors through the computing network. A second reason is to make maintenance and repair more efficient and cost effective. A third reason is to facilitate training and job changes by trained operators.

Short-Range Plan

Word processors will become available to administrative and academic users in several ways: (1) Shared-logic systems in several campus locations will serve academic and administrative users who have both data processing and word processing needs. Users who need only word processing will also be served in this fashion. (2) When service cannot be provided from a shared campus site, the university will authorize stand-alone word processors whose software is compatible with that of the shared systems. (3) Microcomputers with approved word-processing software may be acquired by individual faculty for research uses.

Operating Guidelines

For the next two to four years, while awaiting the technological advances needed to integrate all word and data processing, Indiana University will work to achieve as much compatibility and integration as is

feasible within the available and everchanging technologies. Specifically, the policies and plans call for:

1. On each campus, strategically locating time-shared or shared-logic word processors to serve several offices.

2. Supporting a limited number of software packages on approved microcomputers for use by individuals and small project groups of faculty and students.

3. Establishing text management capabilities within the IU Computing Network's resources for academic users who need access to both text and data files simultaneously. Currently available processors have adversely affected faculty and students who use the computers for other purposes. The goal, then, is to develop on one or more other computers a fully interactive word processor that can be accessed through the Computing Network.

4. Continuing to install stand-alone word processors in units with self-contained needs.

5. Further limiting the number and types of word and text processing software and hardware to be installed at IU. Currently, Indiana University approves word processors from three commercial vendors.

Initial funding for "ports" into the clusters has been provided in the form of four- or five-year loans from the university, acquired by means of a contract with our office.

All offices in need of word or text processing begin the process by contacting an office consultant, who helps with analysis of need, assessment of available equipment or software, preparation of purchase requests, training of staff, and installation of equipment. In addition, during 1980-81 the consulting staff and purchasing agents sent out a Request for Information to all vendors, inventoried word-processing equipment on all campuses, designed a method for studying the needs of office systems, and prepared a booklet that describes the what, why, and how of word processing (designed for all staff and administrators on all IU campuses).

THE RESULTS

On the Bloomington campus, the first cluster system for administrative users, a Wang OIS 140, was installed in November 1980. At the same time, a WORD-11 system on a DEC computer, intended primarily for academic users, was installed at IUPUI. Both are trial systems. If they satisfy the users, more will be installed. A third trial system is the MUSE word processing software that was installed in October on the Northwest (Gary) campus's PRIME 550 computer. Like many of the commercial systems, MUSE operates by command keys and thus holds the possibility of serving all users well. Indeed, MUSE's main drawback was the lack of some features, such as automatic tables of contents and indexes, that technical writers value.

THE BENEFITS

The Wang system came with "CICS pass-through," which enabled users to reach the administrative data on the IBM computer, and has been judged very friendly to users. For academic users, the system has two drawbacks: it cannot access the academic computers, and the terminals are too expensive to install in unsupervised clusters for students.

The WORD-11 cluster enables academic users to communicate with all university computers, and at least one user department was planning trial access for students on ordinary terminals. Graphics packages were available on the computers. Photocomposition interfaces were on the drawing boards, and with one exception, WORD-11 had the formatting features needed. The exception was easy formatting of equations with on-screen display of Greek, math, and super- and subscripts. Short-term

plans to meet this need include use of A. B. Dick stand-alone systems, which handle equations well, and investigation of techniques devised by other users of WORD-11. For the long run, WORD-11's developers plan to add this capability.

Limiting the hardware and software has enabled planning for eventual compatibility. Equally important is the planning we can do to provide "staff compatibility" as, for instance, when staff move from offices with Wang equipment to offices with DEC or A. B. Dick equipment.

Going slowly helps users in all groups to find out what processors and combinations of equipment best meet ther needs before they have invested too much to back off. It does not lock technical writers and teachers or office staffs into systems that don't meet their needs. It is also enabling the university to use its computing expertise to solve communication problems and to study modern office technologies. The DEC system also has one further advantage: DEC computers are popular with our faculty. If WORD-11 proves unsatisfactory, the university can convert the computers to academic use.

CONCLUSION

Indiana University's approach to modern office technology is important to technical writers and teachers in academic institutions because it directs action in a community with diverse needs. However, the approach is generally important because it gives a long-range view of responsible acquisition in this highly technical field.