Issues in Use of Information/ Communication Technology

Information technology can aid on- and off-campus students in their learning, can build bridges between the university and the communities it serves, and can serve the information needs of a wide variety of clients throughout the state and the world. Four professionals involved in the use of information technology at Michigan State University described its potential impact from their individual perspectives.

Networking with Small Business

The Technology Reinvestment Project at Michigan State University seeks to build a communications network linking knowledge providers, small business users, and industrial extension agents in Michigan. In its second year of development, the project is revealing some key issues, according to Nicholas Altiero of the College of Engineering at MSU. There is a significant difference between industrial and agricultural extension. Industrial customers are more diverse, representing a broad range of industries. Customers' needs range from training and technical or managerial assistance to complex problem solving and new product or process development.

Because knowledge providers in industrial education are not centrally located, many different people are needed to make the project work: extension agents, surfers (information finders), indexers, catalogers, domain experts, information providers, assistance providers, linkers (to get people to the partners they need), research and development partners. Can these valued partners all be brought together via telecommunications? One problem is that many medium and small businesses are not on-line and so need intermediaries to get information to them. Once on-line, businesses often require assistance in accessing and making use of the information they find.

Realizing the Potential of the World Wide Web

One dramatic mechanism to access information is the Internet and the World Wide Web. Charles Severance, systems programmer at MSU, believes that the Internet is a natural extension of people's desire to communicate. The Internet itself has been around for a long time, while the World Wide Web is a more recent and improved interface between the person and the computer. Many people have access to the Internet and the "Web" and now have someone out there to talk to.

One view of the World Wide Web is that it puts the user at the center of the universe. So much information is coming from the Web that the choice is vast. The Web of the future must evolve from being a fun toy into a form of communication capable of handling all necessary communication. Think of the Web as greeting customers as they walk

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into a business site. Information technology is still communication between people, in this case the consumer and the producer.

For those in the knowledge business at the university, the key is to "produce, produce, produce." The university can carry out the student application process over the Web. Publications and teaching materials can be uploaded onto the Web. The university must reward people for publishing materials over the Internet, not just indexing it there. Content is the true value.

Librarians as Translators of Information

Laurel Jizba, principal cataloger at the Michigan State Libraries, believes that librarians add value and intelligence to the Internet by organizing information. Librarians help define information needs, make them more specific, and provide information to specific users. They can provide outreach agents with information they need, such as industry or agriculture, for specific communities.

Librarians serve as translators of information between people and databases. The language in a database must match the language of the user describing the problem to be solved through information. A quality database is accurate, authorized, and current. It links the user to appropriate information organized with intelligent words and concepts. That does not accurately describe the Internet. What is published there includes a mass of previously published and unpublished materials which have never met any editorial standards. Without librarians, the Internet will remain a "pile of unlinked, unorganized information."

Benefits of linking and organizing information on the Internet include cutting the time and cost required to search. If the automated search engines available become more effective, a greater number of search "hits" will result, and search results will be more accurate.

Technology as Enabler of Relationships

Michael Martin, of the College of Engineering, serves as a "linker," a person who can construct a bridge between the university and the community, spanning knowledge boundaries. If knowledge is information in action, as Peter Drucker maintains, then the action of business taking and using information from the university is one way that knowledge is created. At one time, business people felt they had no reason to come to the university. Now, information and knowledge have new value in the business world, and the university is a key source. Therefore, any improvement to the accessibility of information through information technologies benefits both the knowledge producers (the universities) and the knowledge consumers (businesses). Knowledge is the only thing that increases the more you give it away.

Information adds value to business products and services. It cannot dribble information down the hierarchy, as in the past. Businesses are moving from the structure of the pyramid to that of the pear. Managers and executives must be able to manage information on their own, working in a collaborative environment. Product design is integrated with the manufacturing process. A business cannot compete when the other producer can get a product to markets more swiftly. Linking designer and manufacturer and the entire supply chain makes it possible to be competitive, and the Internet is one key linkage.

Different cultures exist in the university and in business, but change is common to both. Both are having to learn to do business differently, both are being pushed to collaborate with each other at the basic research level. Michigan has several large companies, but sixty percent of total manufacturing is done in small firms with fewer than 500 employees each, and fifty percent of firms employ fewer than fifty people. These companies are often not computer oriented. Their concerns range from meeting payroll on Friday to developing new products. The problem for the university is how to find them and how to serve them better.

Martin's role as engineering linker is to establish relationships, to build MSU's credibility as a development partner, to link firms with faculty members willing and able to work with them. The linker brings them together, helps them define the problem, translates between the two cultures, facilitates, helps identify resources, and manages the project. The linker takes individuals with diverse interests and moves them to a point that can benefit both parties where they can agree on objectives, tasks, resources.

The Internet can help establish relationships. Over the Internet, one can develop a proposal, research different fields, organize a workshop. Michigan State publishes its research strengths on the Internet so that people can identify the university as a resource. According to Altiero, well-designed, well-organized information on the Internet not only serves as a conduit for information retrieval and usage but also as a filter to make the calls from potential clients more relevant to the services the university can provide.