Partnerships With the Deans: Delivery of the ‘Whole Product’

by Laurie L. Burns and Cheryl Munn-Fremon

The University of Michigan’s Information Technology Division (ITD) began its partnering efforts with one college of the University in 1991. This year, the lessons learned from that experience are being applied as ITD expands the partnership concept to other academic units. While the units’ priorities are advanced and the University’s IT capabilities are increased, the major benefit to ITD is an increased understanding of academic customers and the resulting ability to create “whole products” they will readily embrace.

The University of Michigan (U–M), founded in 1817, is a public research university located in Ann Arbor, with two regional campuses in Dearborn and Flint. The nineteen academic units on the Ann Arbor campus include undergraduate, graduate, and professional schools and colleges, and a large teaching hospital. The total annual operating budget is approximately $2.5 billion. The community includes 25,439 faculty and staff, and 36,845 graduate and undergraduate students. The Information Technology Division (ITD) reports, through the vice provost for information technology, to the provost.

ITD is responsible for the central computing activities in support of both academic and administrative computing, including voice and data networks, campus computing sites, and the administrative mainframe. We still have an academic mainframe, but we are in the process of phasing out mainframe service in favor of a distributed computing environment.

ITD’s partnership program with the deans and directors of U–M academic units officially began in 1993, but in a very real sense it had begun two years earlier. In May 1991, ITD entered into an agreement with the University’s largest academic unit, the College of Literature, Science, and the Arts (LS&A). Going into that agreement, we knew we wanted to work more closely with LS&A and experiment with distributed support. In a more general sense, we also knew that the kind of relationship we were pursuing with LS&A would lead us to better serve our academic customers across the University. What we didn’t know was that it would develop into a new way for us to do business with the University’s entire academic community. Although we were studying total quality and marketing principles, we hadn’t made the leap to understand what these lessons meant for serving the thousands of customers on our campus.”

Laurie L. Burns was recently appointed Associate Director of Academic, Research, and Administrative Partnerships, Information Technology Division, at the University of Michigan, with responsibility for managing ITD’s partnership and customer relationship efforts. She will also be responsible for educational efforts focused on ethical and responsible use of information technology. Formerly, she was Assistant Director of User Services, ITD, responsible for developing and coordinating the deans’ partnership program. Ms. Burns has worked in information technology since 1984.

Cheryl Munn-Fremon was recently appointed Director of Academic, Research, and Administrative Partnerships, Information Technology Division, at the University of Michigan. This new area assumes responsibility for the deans’ partnership program and the management of customer relationships. Formerly, Ms. Munn-Fremon was Director of User Services, ITD, a unit that provided centralized computing support for faculty, staff, and students. She has worked in the information technology area since 1977 and is a member of CAUSE, CUMREC, and Educom.
standing what these lessons meant for serving the thousands of customers on our campus.

Our examination of total quality and marketing concepts did, however, lead us to look more closely at our academic customers, especially the deans. What we saw gave us many reasons for concern. We found that the majority of the deans were alienated from current information technology activities. Major changes in the computing environment on campus—a transition away from a familiar, mainframe-based system to “new and improved” distributed computing—held potential for even more alienation.

Despite various efforts over the years, the deans had not seen ITD bringing them technology that seemed directly responsive to their strategic priorities. We had little ongoing involvement in their planning for the future, and they had little involvement in ours. Our services were most often provided to departments or individual faculty, staff, and students, not directly to the deans, yet the dean pays the bills for services acquired by departments and faculty. More to the point, the deans hold the political power on campus. It is important that they view our information technology services as benefiting them and supporting their objectives.

Our partnership with LS&A and our continued study of total quality, marketing, and, ultimately “whole products,” helped us address the issues we faced. The LS&A partnership, which provided needed services directly to the College, such as on-site UNIX systems administration and instructional technology applications development (see sidebar, page 10), helped us better understand the balance between centralized vs. local control. The study of whole products led us to see the value of providing more than just a core product or technology: for the product to be valuable, it has to be augmented by other services for the customer to get full benefit from its use.

Focusing on the deans as “customers” gave us the push to look at value from their perspective, and the partnership program gave us the opportunity to do so.

**Markets, products, and whole products**

At the same time we were piloting the partnership with LS&A, we were beginning to adopt total quality principles, examine our relationships with our customers, and change our assumptions about marketing, markets, and products. This helped us understand why some aspects of the partnerships were so successful and gave us a conceptual framework in which to develop future partnerships.

To learn more about marketing principles, we studied and adopted ideas from experts such as William Davidow and Geoffrey Moore. Later we discovered a Kodak research publication written by Michael J. Lanning and Dr. Lynn W. Phillips that discussed some of the same issues and concepts.

Reading about and practicing total quality helped us to think of our users as “customers,” but did not lead us immediately to understand how to deal with the large number of customers we serve. ITD has over 40,000 individual and departmental customers to serve and satisfy. We were looking for a way to create products and services that they would choose to use without having to create a product for each customer. And so we began to think about markets.

We adopted Moore’s definition that a market is a grouping of customers for particular services or products who have a common set of needs or wants and who look to one another for advice when making a buying decision. But how were we to group our customers into markets?

**Markets**

One tool we found very helpful was to look at our customers using the technology adoption life cycle. This model distinguishes technology adopters or customers by their characteristic response to the introduction of new technology; it is helpful when used to cluster customers into two distinct markets: the Early Market and the Mainstream Market.

The Early Market consists of technology enthusiasts and visionaries, those who like innovation and enjoy trying new technologies. They will spend the time necessary to get new untried products to work. They have the insight to match emerging technologies to strategic opportunities to achieve a fundamental breakthrough in their business.

The Mainstream Market, by far the larger of the two markets, includes pragmatists and conservatives. Their goal is to use technology to make a measurable improvement in productivity. They may be confident in their ability to handle technology, but prefer a thoroughly thought-out solution to a known problem rather than receiving the “latest and greatest.” Service is critical to this group of customers.

After many lengthy discussions about the application of these principles, we began to understand why some of our products and services were so successful in the beginning, when we were dealing with the innovators and early adopters, yet met so much resistance when we tried to get the majority of our customers to use them. The importance of the product itself and its unique functionality (as compared to the importance of the auxiliary services and the context in which the product is used) was key to their success.

3. Moore, p. 28.
4. Both Geoffrey Moore (p. 9) and William Davidow (p. 30) refer to this adoption curve and the resultant marketing model.
The LS&A Partnership

The partnership between the College of Literature, Science, and the Arts and ITD grew out of discussions between ITD’s deputy vice provost and LS&A’s associate dean for research and planning about how ITD, a large, centralized service organization, could better serve the particular needs of LS&A, a large, decentralized academic organization. The college itself mirrors the diversity and complexity of the University, with over sixty departments, programs, and centers; 2,000 faculty and staff; and 17,000 graduate and undergraduate students. The partnership discussions identified two primary needs in LS&A: development and use of instructional technology, and on-site (i.e., intra-departmental) computing support for faculty and staff. ITD saw benefits in a closer working relationship with the college and the opportunity to pilot new models for distributed support. ITD and LS&A each committed financial and personnel resources to the following activities:

• **An ongoing program of instructional application development**

  The college assigned an instructional expert to work with faculty on the promotion, investigation, and selection of projects for funding, and with ITD’s Office of Instructional Technology on the development, curricular integration, and evaluation of projects. This arrangement allows the college to make decisions about which projects go forward, and to take advantage of technical expertise in ITD for the development and deployment of instructional applications in the classroom or lab. This model has proved extremely successful and has been replicated in other partnership agreements.

• **On-site UNIX systems administration**

  The LS&A UNIX systems administrators are assigned to specific departments but function as a team to work on cross-departmental projects, back each other up, and generally provide collegewide UNIX support. This support, initially provided for nine departments and centers, now extends to eleven.

• **Instructional equipment upgrades for faculty and instructional support staff**

• **A selection committee to advise ITD on instructional software in its central campus computing sites operation**

• **On-site consulting and training for faculty and staff in various topics determined by LS&A**

  This part of the partnership also provided for needs assessment and planning activities.

Three years later, these components have gone from pilots for on-site services to being fully integrated into the college, providing significant and measurable benefits to LS&A faculty, staff, and ultimately, students. In an era of budget constraints and concern over the cost of technology, our work with LS&A gave us insight into how we could balance centralized services with the need for local control. Departments and individuals receive direct services from the instructional and support programs in accord with their particular needs, and economies of scale have been realized through the use of teams and pools of expertise. which the product is used) is at its highest with the technology enthusiast and at its lowest with the conservatives. We, unfortunately, were creating products as if all our customers were innovators or visionaries.

The majority of the deans, as one could predict, shared the characteristics of the Mainstream Market in terms of the adoption of computing technology for general use in their schools and colleges. If they were going to accept new technology and support the new computing environment, we would need to understand their research, curriculum, and administrative goals; gather their requirements; understand the key value of each product to them; and provide them with technology that was directly related in measurable ways to accomplishing their vision. We had to find a way to walk in the deans’ shoes and understand their schools’ culture, financial constraints, and practices.

### Whole products

This abstract understanding of what had been happening led us to the next important and helpful concept: complete or whole product. This concept is summarized by Moore:

> There is a gap between the marketing promise made to the customer—the compelling value proposition—and the ability of the shipped product to fulfill that promise. For that gap to be overcome, the product must be augmented by a variety of services and ancillary products to become the whole product.

A whole product is the totality of what a customer buys. It starts with the device or service from which the customer gets direct utility and also includes a number of other factors, services, or perceptions that make the product useful, desirable, and convenient. According to Moore, the whole product must be available from the start to satisfy the Mainstream Market.

In ITD, whole product means that for each product or service we create or offer, we must think about the ancillary needs for additional software, additional hardware, network connections, remote access, training, documentation, consulting support, publicity, standards and procedures, installation, and system integration services (accounting, billing, authentication). To get our products successfully adopted by the majority of customers, we must ensure that if any of these ancillary items is necessary to use the product, it is available to the customer. If we cannot provide it directly, we must seek alliances with those who can.

Identifying and understanding our customers in addition to knowing ourselves and our
capabilities is the key to our understanding of the reason a customer buys or uses our products. This is also the key to identifying the ancillary services and products that must be available. We believe we will be successful if our whole products are oriented toward our customers’ processes. Our partnerships with the deans are a critical factor in this understanding.

By working closely with the deans as well as faculty and students on the projects they perceive to be important to their missions, we are able to understand their business, to know their processes, and to assist them in innovations of those processes. Working with the deans is allowing us to refine our “customer characterizations.” When we go beyond just listening to our customers and learn to walk in their shoes, we can fully understand their requirements and needs and, most important, create the product that will best provide their “must have” benefits. Our goal is not to leave our customers’ success to chance or luck. Rather, we seek, through partnership with our customers, to understand their problems and solutions in their entirety and work to ensure they get the whole product.

The partnership process

ITD’s partnerships with the deans is one approach to the challenge of creating the whole products they will choose. Our partnership program, created to provide customized access to ITD expertise and resources in accord with the priorities of the academic units, has four major goals:

• advance the academic priorities of each school or college;
• create a closer working relationship with the dean and faculty leadership in the unit;
• increase the information technology capabilities of the University; and
• ensure that ITD products and resources support school and college needs.

We identified three essential steps to the partnership process: identify opportunities, create the partnership and negotiate the focus and responsibilities, and manage the partnership. Our goal was to begin the process with five schools in the fall of 1993, but first we needed to get the deans to buy into our plans.

Before we could approach the deans, we needed to sell the idea of partnerships to the provost. This was made easier by the fact that in April 1992, the Working Group for Academic Information Technology (a group of faculty and staff appointed by the provost) wrote:

... the LS&A–ITD partnership model should be made available to all schools and colleges, so that the critical expertise and resources of ITD can be harnessed to meet unit priorities; such partnership arrangements would reflect significant unit responsibility and accountability for information technology investments.

With the provost’s approval, in September 1993 we presented our proposal for partnerships to the Academic Planning Group, which consists of the eighteen deans and one director of the nineteen academic units on campus, and the provost. We clearly stated the intention that they would reflect significant responsibility and accountability for information technology investment on the part of each school or college. Both ITD and the unit were required to invest significant and equivalent resources; financial commitments had to match. ITD and the school or college had to designate an individual responsible for the joint management of the partnership activities. We did not want the partnerships to be viewed as gifts.

Our proposal did not receive overwhelming acceptance at first. While all academic units on campus are coming to understand how critical information technology is to the accomplishment of their academic and research goals, we were well aware that some units were farther along the adoption curve than others. Because our intent was to develop agreements that included matching funds and clearly stated priorities, we chose to invest time up front with some units to develop information technology plans that complemented their strategic research and teaching plans. These efforts, along with direct contact between the vice provost for information technology and each dean, calmed their suspicions and garnered their support. The deans agreed to proceed, and several of them volunteered to begin immediately.

The new partnerships

The deans who came forward had a range of needs and ideas. A few had been working with ITD already on various joint projects and initiatives, and it was a small step to incorporate these activities into partnership agreements. Others came forward with specific instructional and research goals. And others, recognizing that the campus computing environment was shifting from mainframe-centered to distributed and that the technology investment within the school had to increase, raised the need to engage in comprehensive strategic planning. We went into the discussions in January 1994 with a commitment to forge multi-year agreements that would address these varied needs.

"When we go beyond just listening to our customers and learn to walk in their shoes, we can ... create the product that will best provide their 'must have' benefits.”

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5 The whole product concept originated with Theodore Levitt, The Marketing Imagination (New York: Free Press, 1991) and is used by William Davidow in Marketing High Technology.

6 Moore, p. 110.

7 Ibid., p. 94.

8 Ibid., p. 101.

9 Wendy P. Lougee and N. Harris McClanmoch, Co-Chairs, Report of the Working Group for Academic Information Technology (Ann Arbor, Mich.: University of Michigan, 1992). Available through the CAUSE IR Library, as #CSD1030. Call 303-449-4430 or e-mail orders@cause.colorado.edu
An instructional technology partnership

The School of Education was the first to enter into an agreement with ITD. Education enrolls 500 undergraduate and graduate students and has roughly 150 faculty and staff. The school had recently invested significant resources in multimedia and instructional technology, and had received a generous gift from the Prechter Foundation that allowed them to develop an interactive multimedia research lab.

The dean saw a leadership role for the school in integrating instructional technology into the higher education curriculum. The partnership, from his perspective, needed to support increased activity among the faculty for the development of instructional applications and increased investment and support for multimedia classrooms and facilities. With ITD planning to move one of its campus computing sites into space in the School of Education building and a corresponding shift in the focus of that site away from general purpose computing and towards multimedia technology, a three-part environment emerged: an innovative multimedia research environment for Education faculty; a cutting edge, well-equipped multimedia classroom for teaching Education students with and about instructional applications; and an open-access, multimedia computing site where products and services could be deployed and used.

The components of the agreement emerged easily from these discussions. Funding was established for:

- an instructional applications development program modeled on the LS&A partnership;
- purchase of specialized equipment and software for Education faculty and, as availability allows, for faculty outside of the school; and
- on-site technical support in the school’s multimedia classroom.

Our negotiations also established processes for decision-making. As with the LS&A agreement, a faculty member was designated to work with other faculty in the school and with ITD’s Office of Instructional Technology, and the half-time staff member identified to provide support for the classroom was brought into the team of existing technical staff in the school, so that efforts could be fully coordinated. An initial equipment purchase had already been made, for a non-linear video editor, and we agreed to continue collaborative efforts on later purchases.

A geographic information systems partnership

The School of Natural Resources and Environment (SNRE) has 600 graduate and undergraduate students and around 115 faculty and staff. A faculty committee in SNRE had been working with staff from ITD for several months on the development of a Geographic Information Systems (GIS) facility to support research and instruction. The GIS discussions became partnership discussions, and by March of 1994 agreement had been reached on funding and priorities.

GIS technology represents a strategic step forward for the school. Remote sensing and mapping were key elements in many of the school’s disciplines, but existing facilities and equipment were outdated. GIS technology is widely used as a resource management tool in the types of public, private, and non-profit organizations with whom SNRE collaborates and where SNRE graduates find employment. It was clear to the dean and to faculty that the school needed to invest in GIS and, at the same time, participate in growing campuswide efforts as other academic disciplines found application for GIS technology and data. The SNRE dean wanted to provide a leading edge facility for the use of GIS and natural resource scientific computing and support for the integration of GIS into the SNRE curriculum.

The SNRE faculty committee, with ITD, had already identified a key element in developing a facility: the space. SNRE and ITD agreed to renovate and refocus an existing ITD campus computing site located in the school. The space lent itself to subdivision—a smaller research area in roughly one-third of the space with restricted access to high-end GIS equipment and applications, and a larger instructional facility in the remaining two-thirds for teaching and using GIS applications and data. The instructional side would also remain an open, general-purpose computing site, which allows ITD and SNRE to leverage existing resources for the maintenance of standard workstation platforms and productivity applications.

The partnership included funding for:

- renovation of the space (removing a closet, building a wall between the research and instructional sides);
- UNIX, DOS/Windows, and Macintosh workstations and servers;
- GIS applications (ArcInfo, Erdas, Atlas GIS, etc.); and
- technical staff support for the research side and coordination with the ITD Campus Computing Sites group on support for the instructional side.

The partnership also included funding for operating costs to pay for site license and software maintenance; supplies and consumables within the facility; and equipment repair and replacement. Fees were established for the research side to recover a portion of the operating costs.
An information resource partnership

The School of Public Policy Studies (SPP), with 135 graduate students, is one of the smallest academic units on campus. With a quantitative social science focus, SPP relies heavily on access to statistical and econometric data and information resources. Several faculty members are already well known for their work in economic policy and the national information infrastructure. The dean designated two faculty members to work with us on the partnership. Our discussions focused primarily on developing an archive of social science and telecommunications research information. The archive would be a well-edited, well-structured collection of policy information, accessible through the Internet.

Such an archive would accomplish two major purposes: SPP could provide its graduate students with experience in the development of information resources and could integrate the envisioned collection into its curriculum, and ITD could collaborate with SPP on the technical aspects of developing an infrastructure for information resources.

The SPP partnership represented two other elements that were echoed in several others that followed. One was the need to invest in the unit’s technology infrastructure in order to take the next step forward. SPP needed to upgrade its graduate lab and replace other workstation equipment. It also needed to increase on-site support available to the lab, the SPP’s LAN, and the UNIX system used as the platform for the archive. The second was the knowledge that there were other areas SPP and ITD could collaborate on, such as garnering funding for campuswide site licenses for commercial resources, like LEXIS and Legislate, and other tools for information resource development and navigation.

Funding was concentrated on four priorities:
- support for faculty to develop the archive;
- equipment funding for a UNIX server and lab workstation upgrades;
- technical staff to provide on-site UNIX systems and network administration for the school; and
- development of other initiatives for the second or third years of the partnership.

A strategic planning and instructional partnership

The School of Social Work enrolls approximately 450 graduate students and has approximately 140 faculty and staff. It is one of the nation’s leading schools of social work and recently acquired an energetic new dean. It was clear to her that the school needed major investment in technology across the board if it was to continue to make innovations in social work curriculum and research. The dean was also highly committed to building an open and collaborative community within the school, and as we began our partnership discussions, she in turn opened them up to a committee of faculty and staff to assist in setting priorities. The Social Work partnership manager, assigned to assist with this planning process, became part of the committee.

The dean set forth a goal of developing the school’s internal resources to take advantage of new technologies for research, instruction, and administration. Thinking long term, the Social Work computing committee conducted needs assessments and engaged in ongoing communication with faculty, staff, and students throughout the school. The list of wants and needs was long; identifying priorities was critical. The top priority emerged early in the discussions: equipment upgrades. A recent campuswide Ethernet project had provided funding for much of the school’s connectivity needs, but the workstations available to many faculty and staff were not capable of taking advantage of the higher-speed network. For Social Work to move forward on its agenda for instructional technology development and integration into methodology courses, development of distance learning projects and research initiatives, reengineering and innovating its administrative data and processes, and taking advantage of the new distributed computing environment on campus for its electronic communication and statistical computing needs, it needed to invest in equipment and support.

As with SPP, the partnership agreement we negotiated with Social Work included the immediate priority of capital equipment investments, with money set aside in the later years of the partnership for other initiatives that would build on the foundation laid in the first year. The Social Work and ITD representatives, including the dean, also established a communication mechanism for ongoing planning as the school’s overall capability was raised. Funding was focused on four areas:
- equipment upgrades, with an additional push to establish a capital equipment replacement fund;
- instructional technology development initiatives;
- process innovation efforts for administrative data and systems; and
- distance learning projects, particularly for outreach to community service agencies and social workers in the field for in-service education.

"Academic units are sensitive to the amount of time it takes to learn and use information technology ..."
Lessons learned about whole products

We are still at the beginning of gaining a solid understanding about whole products for an academic audience. Our partnership relationships are helping us see some of the driving forces in an academic unit—the need to show the link between new technology and academic productivity; the need for faculty to drive the integration of technology into the curriculum and research activities; the need to tap the academic spirit of experimentation and innovation by investing sometimes small amounts of money in a piece of equipment or a demonstration project; the need to keep administrative costs low in favor of building faculty quality; and the effectiveness of ad hoc communication (faculty glean information from each other more readily than from official communication from the top or from outside the unit).

Many academic units look for what they can use of what others have done; communicating about projects within each school or college as well as across all of them cuts down on reinventing the wheel, and takes a burden off individual faculty and individual units to research alternatives and options. Academic units are sensitive to the amount of time it takes to learn and use information technology; the payoff for the time investment needs to come quickly, and the transitions need to be smooth and seamless.

The partnerships often include product and service development activities that will allow ITD to experiment with the right mix of ancillary services. Through the partnerships we are learning more about academic unit processes that technology needs to support and facilitate: class preparation, homework assignments and grading, grant submission, administrative information management. A key factor in this learning is making a connection to the disciplines in each school and college. Wherever possible, we have assigned a partnership manager who understands the main business of that unit and the unique ways in which technology is used there. We have also integrated the support staff assigned to each partnership with other support staff in the school or college, creating a team approach to consulting, training, and other support activities.

The success of the partnerships has brought home the value of whole products in another way. The partnerships are in themselves dependent on factors outside the actual negotiated agreement, and effective management of the partnership often means coordinating ITD’s other efforts to serve that unit. (The dependence of some partnership activities on the completion of Ethernet wiring projects is but one example of this.) In this sense, for a partnership to be successful it must be seen as part of another whole product: the overall service relationship ITD has with that unit.

Conclusion

As of spring 1995, ITD has negotiated partnerships with seventeen of the nineteen U-M academic units, and discussions have begun with the remaining two. By the end of 1995–96, we expect to have nineteen agreements. We have seen common themes emerge, many of which fit with ITD’s long-term strategic priorities, such as investing in infrastructure and equipment, developing instructional applications, developing distance learning initiatives, information resources management, and process innovation services. We have seen a major trend away from general purpose computing sites towards more specialized ones (Education and SNRE are just two examples), which will have implications for how students do their computing in the future.

We went into the partnership program with a vision of being able to make exponential leaps in the use of technology for academic purposes. It quickly became clear that in many units, investments had to be made in basic needs such as equipment upgrades and local networking, and in developing a planning structure, to get us to what we all saw as the real starting line. The schools and colleges at the University of Michigan, as in many places, vary greatly in terms of available resources, and in the degree to which existing technology is seen as giving the disciplines within any one unit an edge in achieving their instructional, research, and administrative goals. The investments made in building a foundation of technology use are the critical first step, and still have been done in the spirit of partnership.

Challenges have abounded, and will continue to do so. We have had to balance the need to invest in the future with the need to invest in right now. As we near the end of the negotiations and move into managing these agreements, we will need to continually revisit priorities. Most importantly, we have established closer working relationships with our academic customers and the deans. By working together on specific planning, development, and support activities, we can understand their world and shape ours to fit it.