

Planning for IT in Higher Education:

It's Not an Oxymoron

*Colleges and universities need creative thinkers
and planners at all levels to develop winning
strategies to remain competitive*

by **John W. McCredie**

Seventeen tumultuous years have passed since I authored *Campus Computing Strategies*, the book that initiated the Educom Strategies Series on information technology.¹ In 1983 planners on the 10 campuses involved in the Educom project did not foresee the World Wide Web or the tremendous growth of electronic commerce in their future. Nor did they recognize the influence that Microsoft would soon exert over every aspect of their environments. Few knew that four employees had incorporated earlier that year to form SUN Microsystems, and fewer still would have predicted that Digital Equipment Corporation would cease to exist as an independent corporation in the year 1998.

Do these observations imply that strategic planning for information technology (IT) may be futile? If we cannot see the future clearly and if technology continues to move at such an incredibly

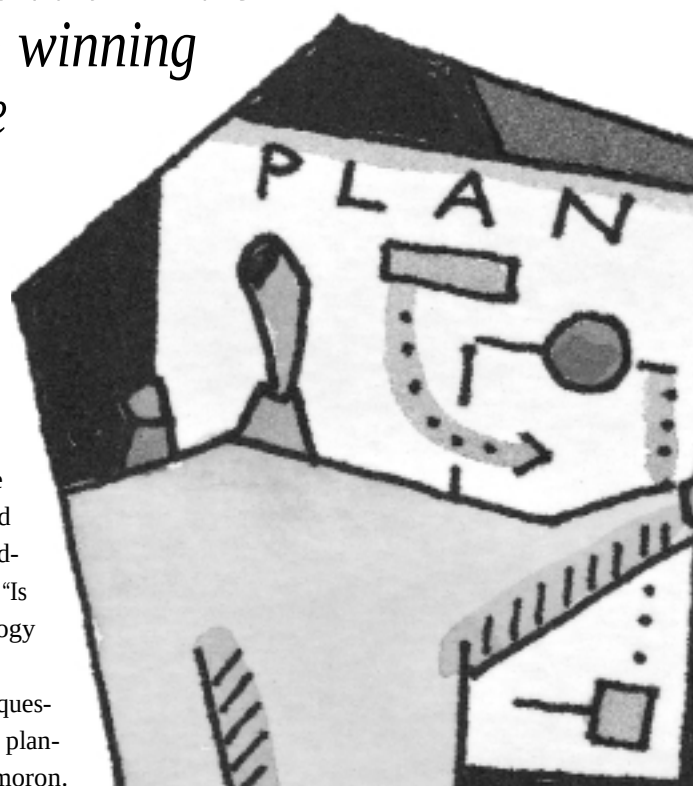
fast pace, should we avoid the frustration and significant investment required to develop strategic IT plans in higher education? Martin Ringle and Daniel Updegrove posed similar questions in their award-winning *CAUSE/EFFECT* article, "Is Strategic Planning for Technology an Oxymoron?"²

The answer to all of these questions is a simple "no." Strategic planning is certainly not an oxymoron. Whether or not your parent institution engages in strategic planning efforts, an ongoing IT strategy formulation and funding cycle is necessary if your college or university is to remain competitive in every respect.

Colleges and universities are responsible for transmitting humanity's accumulated wisdom and knowledge to the next generation—expanding the knowledge base, teaching about it, distributing it as

widely as possible, and preserving it. The central, and ever-expanding, role for information technologies in these endeavors creates an imperative for each higher education institution to formulate appropriate strategies for developing a rich set of integrated information services that are tailored to its unique educational environment.

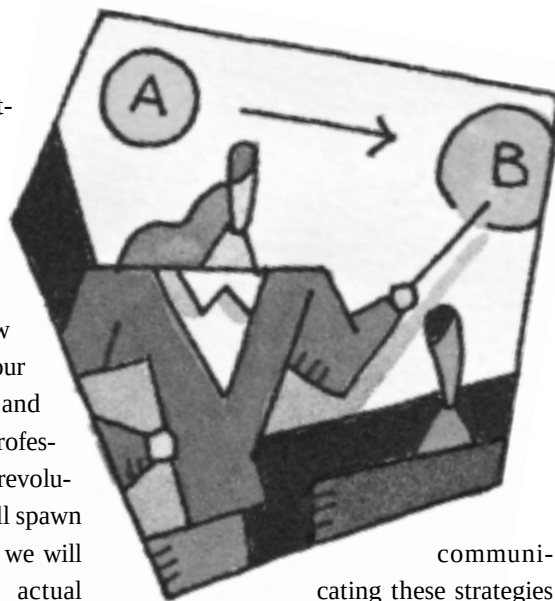
The World Wide Web, the Internet,



and ubiquitous personal computing and communication devices have already changed the way people throughout the world gain access to information and interact with one another. These technologies are changing how we learn, do research, manage our activities, reach out to others, and even have fun. Planners and IT professionals may speculate about the revolutionary effects these advances will spawn during the coming decades, but we will probably underestimate the actual impacts. We will almost certainly misjudge the timing of significant changes. Specifically, planning efforts today are not likely to predict exactly when and how emerging high-performance networks such as those developed by the Internet2 project, pervasive wireless personal digital assistants, or campus portals will actually change higher education or society at large in the decades to come.

Despite these unknowns, a well-organized IT strategic planning process can (a) reveal the fundamental direction in which an organization should move, (b) identify key strategies for energizing this movement, (c) clarify the actions needed to help departments and the college or university achieve their broader mission and goals, and (d) articulate what leadership and services the campus can expect from the IT organization.

An effective IT planning process helps leaders determine the appropriate roles for information technology in learning and teaching, research, outreach, and management and predict how these roles might change over time. A well-designed planning process enables the IT organization and other campus departments to develop a shared understanding of how technology can and should support their specific programs. The process should include ways of



communicating these strategies throughout the broad organization. Where should technology be introduced, and where should smoothly running processes be left alone? In short, the campus community should begin to understand what it means to become a *technologically wise organization*.

How should leaders articulate, communicate, and modify the planning process as technology, key managers, and the institution itself change? How can they both guide day-to-day decision-making and influence policy setting, resource allocation, and programs? How can the process become an integral part of an institution's infrastructure, not just a once-every-several-years mechanical event? What activities will help develop a shared understanding of the role of the IT organization throughout an institution's culture?

The following observations and recommendations about developing successful strategies are not theoretical, but practical and experiential in nature. My perspective is one of an IT manager who has learned important lessons deep in the trenches of both public and private computing and communications organizations. These concepts apply to both large and small institutions in different stages of infrastructure development that are committed to plotting a successful course to the future.

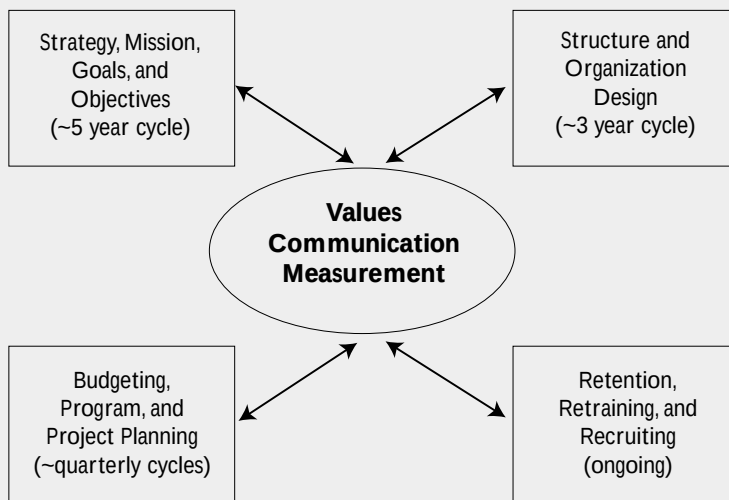
1. Set a general direction and broad objectives.

A compelling direction and winning strategies, not detailed operational plans, should be the outcomes of a well-designed strategic planning process. Many managers have unrealistic expectations for their strategic planning process. Others, having lost interest in the art of strategic planning as a result of lean budget years or frustrating experiences, no longer engage in formal strategy formulation at all. Instead, they focus on annual budget requests and short-term operational planning activities. Understanding the differences between strategic and operational planning, establishing realistic outcomes for each type of activity, and communicating the results of each are important ingredients for formulating both good long-term strategies and successful operational plans.

At the University of California, Berkeley, the Information Systems and Technology (IST) division is involved in an evolutionary planning process that combines important elements of strategic, operational, and budget planning. *Planning for Information Systems and Technology at UC Berkeley 1999–2000* is the organization's most recent strategic plan. *Administrative Systems Departmental Plan* and *Berkeley's Student Systems—Enhancements, Customization, and New Technology* are examples of yearly operational planning documents from two of IST's departments.³

An explicit description of IST's focus for the next several years is a central element of the first document. The strategies outline what the organization will focus on, not the detailed plans of how it will accomplish these objectives. The strategic plan reflects customer input, describes what issues senior IST managers think are important, and emphasizes a flexible decision-making environment so that the organization can adapt to the rapidly changing world in which it exists. The intent of the planning pro-

Figure 1: UC Berkeley's Cyclic Planning Methodology



cess was to develop a framework to guide each member of the organization as he or she makes day-to-day decisions.

The other two documents are examples of annual operational plans. From them, any campus reader can learn what the department proposes to accomplish in the short-term and, perhaps even more important, what projects are not currently on the priority list. During the budget process, unit directors translate these documents into specific budget proposals that inform their resource allocation decisions.

2. Accept the cyclic nature of the strategy formulation process.

Strategic planning is not a one-shot activity. If we think of it as strategy formulation, it can become an integrated part of the entire process of leading and managing a complex organization. Just like the budget, performance review, and appraisal processes, strategy formulation is one of the ongoing responsibilities of the management team. The formal strategic planning cycles, however, are likely to be longer than those for more routine operational functions.

While other processes occur monthly or quarterly, both the frequency and the time horizon for a strategic IT planning effort should probably be a few years. A five-year cycle seems to be a convenient time horizon for many organizations. What is important is developing strategies with multi-year viability to give direction and a sense of stability to the organization. Managers should review, evaluate, and possibly modify these strategies on a much more frequent basis as the environment changes.

Often the impetus to begin a formal set of planning activities comes from an external source—a new chancellor or president, a new leader of the IT organization, recommendations from a governing board, or a broad planning initiative in the parent institution. At other times the impetus comes from within—a significant opportunity or challenge, a structural reorganization, or the realization that the results of the previous process are just not as relevant or as fresh as they need to be in the current environment. One of the responsibilities of a leader is to know when it is time to launch a planning process. When you sense that the time is right, do not be

timid and do not wait for permission; launch the process.

Several events prompted IST's most recent strategic planning efforts—a new chancellor; a report with recommendations from a campus commission on educational technology; and the realization that it was time to take a fresh look at the IT division's mission, strategies, and objectives.

The IT management team at UC Berkeley developed the methodology illustrated in Figure 1 to organize its overall planning framework. The processes described in the lower two boxes are ongoing monthly, quarterly, and annual events while those in the upper two boxes occur on less frequent cycles or when the need arises. IST's values and internal and external communication processes are at the core of this planning paradigm. Values should be the most constant part of a culture. They remain stable even when strategies, projects, and personnel change.

The management team, working with external consultants, developed a set of measurement tools that are routinely used to assess how these values are being practiced on a day-to-day basis in our departments and in the overall division. One of these tools is a formal, anonymous organizational climate survey sent to every employee approximately every three years. Another tool is an ongoing informal self-assessment methodology used by most managers and departments approximately every year. At staff meetings, a quick and easy poll is taken to obtain metrics about progress, or lack thereof, in improving departmentally determined success factors. The factors that have improved least then become targets for special attention in the ensuing weeks and months.

In 1996 the digital convergence of voice and data communications technologies caused managers to review the structure of our division. They decided

that a few important changes were in order to achieve the goals developed in the 1992–93 strategic planning cycle. The most significant change IST made in 1996 was to merge the voice and data communication departments in a unit called Communication and Network Services so that IST could take advantage of the technological convergence that was clearly on the horizon. This realignment of core services was a direct result of the emphasis on network development identified in the prior strategic planning cycle.

IST's overarching strategies—providing IT leadership, building the IT infrastructure, and expanding IT technical support—guide the annual operational planning and budgeting cycles for the division's interdependent departments. Managers relate each individual project proposal and budget request back to one or more of the broad strategies before the overall budget is submitted to the university administration.

The most important concept in this overall approach is that all five elements represented in the diagram are interdependent and must receive explicit management attention. Values, frequent and clear communication, and measurement and assessment belong at the heart of the planning and management cycle. The other processes are cornerstones, or building blocks, that work together to create the overall strategic planning environment.

It is not practical to work on all five activities at the same time. In one year, strategy formulation may take precedence while, in the next, managers may concentrate on organizational development issues. Although the timeframes vary for each part of the process, every member of the management team understands that these responsibilities are part of his or her job and that it is valid to question “when,” but not “whether,” the next strategy formulation cycle should begin.

3. Focus on the major challenges.

Strategic planning textbooks contain suggestions to guide the development of planning processes tailored for almost every organizational culture imaginable. For example, there are many variations of the SWOT analysis in which managers evaluate an organization's *strengths, weaknesses, opportunities, and threats*. Another technique that has worked well in several different settings is to have the planning team agree on the most important major challenges facing the department and its parent organization.

Some of these challenges currently may be outside the responsibility of the

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planning organization, but that observation alone can lead to interesting strategies. Not every challenge needs to be tackled in the planning process, but a comprehensive list will generate a great deal of productive discussion, help everyone understand what is going on in other areas of the campus, and contribute to the important task of setting priorities. In its recent planning process, IST recognized the following issues facing the UC Berkeley campus as a whole and IST in particular.

Decentralization of IT. At most institutions, there is a great deal of ambiguity about the appropriate relationship between the central information technology organization and decentralized IT operations in departments, colleges,

and other divisions. For example, the tendency to distribute responsibilities for planning, budgeting, and system architecture decisions to autonomous local units is often in conflict with the desire for coordinated budgeting and planning, common databases and procedures, and overall system compatibility and security. These complementary, albeit sometimes competing, relationships need to be rationalized, made explicit, and communicated.

Inconsistent internal economy. What resources should be provided at no cost to all members of our campus community? What services should individuals and departments pay for? For services that are subsidized, how can central funding be scaled so that supply can match demand? For the past several years at UC Berkeley, many data networking services have been provided at no charge while traditional voice services are provided on a fee-for-service basis. Although the two units providing these services have merged, their resource allocation and cost recovery methods have been separate. As most communication services become digitized and integrated, IT organizations must develop a rational internal economy for their services. IST is working with a campuswide scalable network funding task force to implement a network funding model that will place market incentives on departments and end users while retaining a strategic central funding role to upgrade the core infrastructure.

Resource mismatch. Campus budgets are relatively fixed, but demands for information resources continue to expand rapidly. Campus departments need significantly more technical support than they now have. In order to attract and retain the best researchers, teachers, students, and administrative staff, colleges and universities must offer a competitive information services environment. In order to invest in new tech-

nologies, strategies are needed to reallocate existing resources or to develop additional resources.

Uneven educational technology. Faculty, students, and staff are increasingly integrating educational technology resources into all aspects of teaching and learning. However, campus leadership and responsibility for educational technology and academic computing are often unclear. Frequently existing services are not well coordinated and are difficult to locate and access. In addition, resources are usually unevenly distributed among disciplines, and “have-not” departments have trouble experimenting with new applications.

Emerging digital libraries. Higher education faces the enormous challenge of integrating the classic paper-and-artifact-based systems of libraries and museums with emerging electronic systems for authoring, ownership, publication, storage, delivery, and retrieval. Many libraries have projects underway to explore the new challenges and opportunities of electronic scholarly information resources. Effective partnerships among libraries, museums, and IT organizations need to be developed.

Aging administrative infrastructure. Most campus departments want improved systems for managing their operations, but campus responsibilities for developing and maintaining new departmental systems are often not clear. As a result there are often gaps or overlaps in developmental services. The growing complexity of many of these systems makes the cost of campuswide implementations very large. Questions to be addressed include: which systems should be developed and coordinated campuswide, which should be outsourced, and which should be decentralized?

Retaining, recruiting, and retraining IT professionals. Most colleges and universities have significant problems retaining and recruiting the skilled set of

information technology professionals needed to reach their goals. Some approaches to this problem include retraining existing staff, convincing graduating students to remain at their alma mater for several years in a professional capacity, and becoming more innovative and aggressive with compensation packages.

Another often-used device (like SWOT) in the planning literature is the observation that the Chinese word and pictograph for crisis (or major challenge), “wei ji,” is a combination of two words, the first meaning danger, or threat, and the second meaning opportunity. Each of the issues noted above is now part of the UC Berkeley planning cycle as our organization develops strategies for meeting these challenges and turning them into opportunities.

4. Do not concentrate on predicting specific technological outcomes.

Information technology is evolving too quickly for planners and managers to make detailed and accurate technology predictions several years in advance. Like weather forecasts, the track record for predicting technology improves with shorter time horizons. However, several consulting firms predict specific technological outcomes with varying degrees of success. As the following forecast illustrates, the Gartner Group handles the inherent uncertainty in the process by giving probability weights to its forecasts: “By 2001, 2.5-inch HDDs will be widely adopted for fast-disk applications on Unix and NT servers (.7 probability).”⁴

Specific technical outcomes, such as the one in this example, are difficult to forecast accurately, and in fact, they are really not crucial to strategic planning activities. Many general trends, however, are stable and much better understood. Moore’s Law, which quantitatively describes the astonishing rate at which

microelectronic chips continue to improve, is a good example.⁵ In the 1960s Moore predicted that the number of transistors on a chip would double every 18 months. More than 30 years later this forecast continues to be accurate, and an important consequence of Moore’s Law is the continuing increase in performance and decrease in price for computing and communication systems. Although it is difficult to predict what specific systems and applications will emerge in the next few years because of Moore’s Law, the general trends are crystal clear. However, a significant question remains for strategic planning—when will the improvement rates predicted by this “law” slow down because it is no longer valid?

Short-term technical predictions are important when deciding on the tactics of a particular project and its related budget and operational plans. The strategy formulation process depends instead on long-term technological and organizational directions that are more likely to remain stable over the life of the plan. Concentrate on understanding these longer-term trends and build your strategies around them.

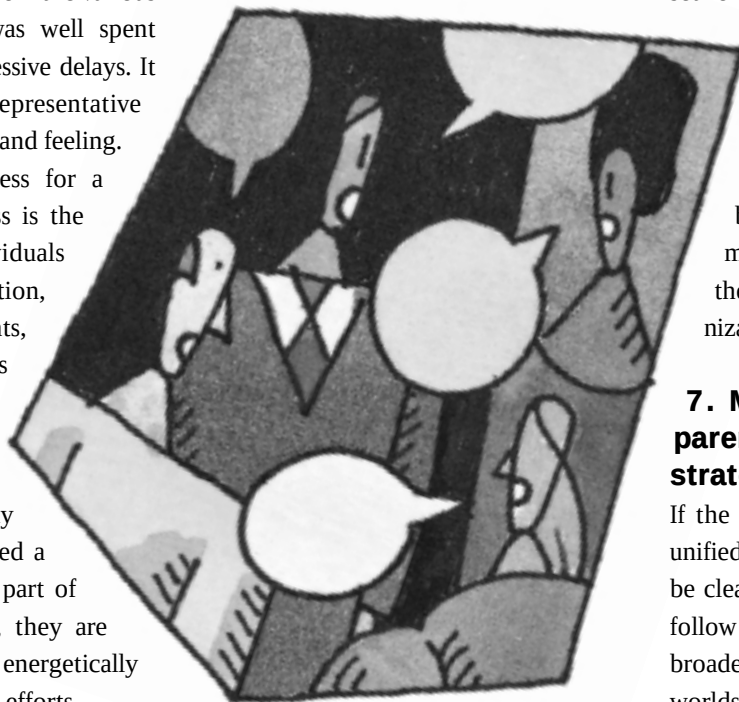
5. Engage a wide range of staff and constituents.

Strategies are not likely to have a significant influence throughout an organization if the processes that spawned them were not open and inclusive. Plans developed by a small select group and delivered to a broad organization as if they were cast in stone will probably not have the buy-in required to make them successful. Even if there is broad participation in several segments of the planning process from within an organization, outside departments, if they are not included in the discussions, may view the process as closed and may not accept, or even review, the results.

The recipe for support of IT strategies

includes broad participation in the strategy formulation process. Several managers involved in the 1998–99 IST planning process felt that it lasted too long, perhaps because the process included meetings with more than 20 campus focus groups. In retrospect, the energy invested in focus groups from the various campus constituencies was well spent and not the cause of excessive delays. It helped us hear what representative individuals were thinking and feeling.

One measure of success for a strategic planning process is the degree to which individuals throughout an organization, and in related departments, make day-to-day decisions that are influenced by the strategies developed in the process. They are much more likely to do so when they played a meaningful role in some part of the process. In addition, they are more likely to participate energetically in crucial implementation efforts.



6. Get professional facilitation, but never outsource the real work.

The content of strategic plans should come from people deeply involved in an organization, not imposed from an external source. People doing the work usually understand best what is effective and what needs changing. However, they do need support, time, and a physical environment conducive to thinking “outside of the box,” including ways to extend their knowledge of their customers’ needs and to learn more about the requirements of the broader organization. To help make the process work well and stay on target, most groups need professional facilitation to achieve their full potential.

Since all groups bring their baggage to the planning process, a good facilitator

will serve as a catalyst to help people move beyond their previous positions as they look to the future. He or she will ensure that everyone is involved and is given a fair chance to present ideas without anyone exerting too great an influence. To accomplish this, the facilitator

should be independent of the operational activities of the group and not have a vested interest in specific outcomes.

Another important function is presenting accurate summaries to the group about where they are in the process. For example, is this the *n*th time a particular issue has come up without resolution; is the group in a loop; have they lost focus; is everyone participating; are proposed strategies articulate and easily understood?

The roles for other types of planning consultants are more controversial and the benefits less clear. Some consultants are selling a particular solution, not a planning process. The danger in working with them is that the desired result is known in advance, and the engagement is focused on selling a particular answer rather than allowing individuals to search together for the right strategies

for their specific organization. This approach can be effective, however, if the solution being marketed is indeed a good one for the organization *and* if its members are willing to accept it.

In higher education, the culture of most IT organizations is such that a “canned” set of strategies is less likely to be accepted than those that are developed by the organization itself. In any case, the broad leadership of the organization, not just a few managers, needs to be involved in the real work of formulating and then communicating the strategies that will carry the organization forward.

7. Move ahead even if your parent organization has no strategic plan or process.

If the institution has an overall plan or unified planning process, the path will be clear and the IT organization should follow it. Its strategies then support the broader plan, and in the best of all worlds, they become an integral part of it. However, how should the IT organization proceed if the rest of the college or university is not engaged in a similar process or such institutional plans that may exist are not well articulated?

The independence of departments and schools within the institution is certainly one of the distinguishing features of many higher education institutions. This culture of academic independence enables the IT organization to formulate its own strategies and long-range plans even when the parent organization does not have such a plan. Since information technology is an integral part of the infrastructure supporting the operations of the entire institution, a major challenge in IT planning is to obtain the participation of other key departments in the overall IT plan. Neither the other departments, nor the overall institution, need to have their own plans, but they

need to be included and involved in a planning process for information technology that supports the essential values of the parent organization.

8. Use story telling as an important communication tool.

Let's face it—most planning documents are boring. Engaging high-level executives, technical staff, faculty, and students in a planning document where they have to wade through 20 or 30 pages of dry text about mission, goals, objectives, and performance metrics is a non-trivial task.

However, engaging them in focus groups where they can learn from each other and share stories about both their frustrations with, and appreciation for, IT can be a good way to gain insights that are important in formulating strategies. At UC Berkeley, we discovered that the focus group approach is much more effective in gathering input than sending out drafts of a plan and asking for suggestions, reactions, and recommendations.

Perhaps even more important is the role of stories, or scenarios, in the communication phase of the planning cycle. An excellent example of a compelling scenario is "The Electronic University" written by Robert Spinrad in 1983. Early in this article he makes the following

observation: "But my crystal ball is, alas, cloudy as to the *exact* shape of things to come. I have decided, therefore, to present my vision to you in the form of three vignettes: The Student, The Professor and The Administrator. These scenes are set in the very near future."⁶

The vision presented in this article remains compelling 17 years after it was written. Higher education has moved significantly closer to achieving many of Spinrad's predictions, but a great deal remains to be accomplished. In its 1993 plan, IST reprinted the Spinrad article and included two fresh vignettes written by IST managers who had the advantage of an additional decade of experiences. Stories like these bring the dry prose of planning documents to life. They are excellent communication vehicles for spreading important planning messages.

9. Stay the course.

Strategic planning activities can wear people, and organizations, out. Building winning strategies, reaching agreement on controversial issues, engaging the relevant constituencies, and communicating the status of the process on a regular basis all require a great deal of energy and discipline.

External events that require immediate attention are bound to occur during a planning cycle. Without discipline and

dedication, short-term crises can derail longer-range planning. A maxim of organization theory is that tactical, unscheduled events can easily expand to fill all of the time available, thereby driving out the time available for long-term and strategic considerations. Without the support and involvement of top IT management, the strategy formulation process can grind to a halt or wither on the vine.

Commit to a thorough and complete set of planning activities; stick to a realistic time schedule; modify the schedule when necessary; re-energize people when they get off the track; and above all, stay the course and complete the process so that strategic thinking and decision making actually occur.

Professor Emeritus Freeman Dyson of the Institute for Advanced Study in Princeton, New Jersey, proclaimed in the 1998 Chautauqua Lecture that "genetic engineering, solar power, and the Internet will be the three most important technologies of the coming century."⁷ Certainly information technologies are already transforming both society and higher education. The IBM PC was introduced only 19 years ago, the Apple Macintosh 16 years ago, the commercial commodity Internet about 10 years ago, and the World Wide Web about 7 years ago.

Technologies fueling advances like these continue to emerge at breakneck speed. Clearly higher education's ability to incorporate these tools and realize their full potential is still in its infancy. Who can forecast accurately what effects these changes will bring? Perhaps Professor Dyson's crystal ball gazing, looking a full century ahead, will not stand the test of time. However, the Internet and related technologies will certainly spawn some of the most important advances of the coming decade.

UC Berkeley Profile

Founded in 1868, the University of California, Berkeley is one of the world's leading research universities. Approximately 31,000 students (25 percent of them in graduate programs) pursue degrees in about 300 different programs. The university consists of 14 colleges and schools. Information Systems and Technology (IST), the central IT organization, is responsible for the campus data, voice, and wireless networks. There are more than 35,000 connection points to the data network from both on- and off-campus locations. In addition, IST manages several enterprise level systems and applications such as financial and human resource management systems, student administrative systems, central mail and Web servers, and dozens of systems for research and academic programs. IST's academic support function includes managing 15 labs and classrooms distributed throughout the campus, the Museum Informatics Project, and the Social Sciences Computing Laboratory.

How will higher education adapt to an era of electronic commerce in which every person will have vast amounts of information available at the touch of a keyboard? High-quality distance learning, intelligent tutoring programs, electronic libraries, virtual classrooms, high-bandwidth economical communication, and competition from for-profit corporations are applications that are right over the horizon. Clearly colleges and universities need creative thinkers at all levels to develop the winning strategies that will enable them to remain competitive throughout the transformation that has already begun. **e**

Acknowledgment

Many of the observations, ideas, and recommendations described in this chapter came from members of the IST senior staff and leadership team at UC Berkeley. These groups developed both a planning process and a plan that is serving our organization and the university well. I would like to thank every member of these teams for their insights and hard

work. We hope that this article captures the essential features of our framework and that others may benefit from our learning process.

Endnotes:

1. J. W. McCredie (ed.), *Campus Computing Strategies* (Bedford, MA: Digital Press, 1983).
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