Information Technology Alignment in Higher Education

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Information Technology Alignment in Higher Education
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The mission of the EDUCAUSE Center for Applied Research is to foster better decision making by conducting and disseminating research and analysis about the role and implications of information technology in higher education. ECAR will systematically address many of the challenges brought more sharply into focus by information technologies.

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The EDUCAUSE Center for Applied Research (ECAR) was launched on January 1, 2002, to create a body of research and analysis on important issues at the intersection of higher education and information technology. ECAR is fulfilling its mission through a program of symposia and through the publication of:

- biweekly research bulletins oriented to senior campus managers and functional executives;
- detailed studies designed to identify trends, directions, and practices in an analytically robust fashion; and
- case studies designed to showcase campus activities and highlight effective practices, lessons learned, and other insights from campus leaders' practical experience.

Since ECAR’s inception, four symposia have been held and 98 research publications have been issued.

The EDUCAUSE Center for Applied Research remains a new and evolving venture. ECAR’s success as a research center and business enterprise depends in large measure on our reception with EDUCAUSE members and sponsors. Our members, as always, have shown great confidence in us and have shown their support by subscribing to ECAR despite the emergence, starting in 2002, of a tough economic climate for higher education. These members understand that particularly in tough times, investments in good research and analysis can save money in the long run. ECAR has been especially fortunate to enjoy the support of an unparalleled group of sponsors. While Datatel, Hewlett-Packard, Microsoft, Oracle, PeopleSoft, SunGard Collegis, and SunGard SCT provide significant financial resources to enable ECAR, they are more than financial sponsors. These companies truly believe that impartial applied research on critical issues in higher education makes for a more informed marketplace of both sellers and buyers. These firms are committed to understanding their customers and helping them make the most effective decisions related to their technologies and products. Most impressively, these sponsors understand deeply and respect the importance of intellectual independence in the marketplace of ideas.

Aligning Information Technology in the Academy

In his recent address to the Coalition for Networked Information, University of Virginia historian and Dean Ed Ayers described the modern college and university as playing simultaneously the roles of ivory tower and “fearless creator of the future.” Nancy Kantor and Steven Schomberg characterize the same duality as monastery and marketplace, describing the academy as simultaneously a “center for vibrant exchange among people...
and ideas” and a monastery or cloister “unfettered by real-world concerns and the immediacy of delivering on those concerns.” The trustees, the president (and the administration), and the faculty share the responsibility for guiding these institutions by making choices that honor both roles. Once they make these choices, institutional leaders are often reticent about making them explicit, in a constant but fluid effort to maintain a delicate balance between actions that promote the tranquility of the sheltered grove and those that stimulate the noise and vitality of the marketplace.

Organizations that must simultaneously promote two apparently contradictory ends in a context of shared political power find this challenging. Further, when the core production function (instruction and research) of such an organization is dominated by a cadre of experts who retain ownership of their intellectual property and often toil under guaranteed security of employment, aligning individual behaviors with institutional preferences is difficult. For these reasons, we might better describe colleges and universities as networks of cottage industries rather than enterprises. Aligning priorities in an enterprise is challenging. Aligning priorities within a network of cottage industries is downright hard. All of this becomes even more difficult as colleges and universities move to weather the perfect economic storm of rising tuition, increasing tuition discounting, decreasing state budgets for education, increasing student and parental consumerism, and simultaneous calls for cost containment and increased social and financial accountability.

The alignment of information technology (IT) investments, resources, effort, and priorities proves particularly problematic in this environment. The academy’s loosely coupled nature in general and the change orientation of the higher education IT profession in particular exacerbate the inherent difficulties that have been described. In addition, the IT profession’s relative youth can lead to perceptions that IT practitioners are, behaviorally, “only one floor removed from the basement of the physics building!” While IT is one of the fastest growing elements of higher education budgets, institutional leaders sometimes view IT and its practitioners skeptically as purveyors and promoters of “gee whiz” gadgets and capabilities that fail to recognize the academy’s fundamental purposes and character. This skepticism can manifest itself in the form of anxieties over technology for technology’s sake. Indeed, one recent study of more than 7,400 faculty revealed that “exuberance about electronic resources, evident several years ago, has been replaced by a gnawing dissatisfaction with the scholarly materials that are available online.”

The convergence of rising IT costs, declining budgets, and academic skepticism expresses itself in calls for greater accountability for IT organizations and in the increasing pressure for IT decisions to derive from and align with broader institutional purposes.

This study begins with a description of this tension; takes the reader through the academic and professional literature related to organizational alignment; reviews practice findings from qualitative, quantitative, and case analysis of data collected from more than 500 leaders in higher education; and ends both with a summary of effective practices and lessons learned and with a more speculative reflection on future modes of alignment in higher education organizations. We offer the following fundamental hypotheses:

- Institutions that engage in effective IT planning, governance, communications, and measurement and assessment are perceived as doing a better job of aligning IT investments with broader institutional priorities.
- Dynamic and stable organizations provide better environments for IT leaders to do
good planning, governance, communication, and measurement and assessment.

− Survey respondents that report a greater sense of alignment with broader institutional purposes will also report superior IT-enabled institutional outcomes. In other words, the efforts that go into creating good organizational alignment make a positive difference.

This ECAR study expands the developing ECAR analytical arsenal and includes a review of the literature, the results of a major survey of IT leaders, case visits to four institutions, interviews with more than 20 IT leaders, and a review of the Web sites and IT strategic plans (where available) of 250 EDUCAUSE member institutions.

**Important Contributions**

*Information Technology Alignment in Higher Education* is the third ECAR research study of 2004, and the second produced by ECAR. It is the result of a nine-month collaboration undertaken by Bob Albrecht, Bob Bender, Richard N. Katz, Judith Pirani, Gail Salaway, Toby Sitko, and John Voloudakis.

In October 2003, ECAR deployed a survey on this topic to nearly 1,500 EDUCAUSE primary representatives, and 483 institutions in the United States and Canada completed this survey. Their responses form the backbone of this study. In addition, we interviewed chief information officers (CIOs) and other leaders at 22 institutions to gain a deeper understanding of processes such as IT strategic planning, governance, communications, and measurement that are employed, in part, to foster the alignment of IT intentions and investments with those of the institution. Further, we conducted an in-depth review of 57 actual IT plans, which we found by reviewing the Web sites of a random sample of 250 EDUCAUSE member institutions. Finally, to gain an even deeper understanding, ECAR fellows Bob Albrecht, Bob Bender, Philip Goldstein, and Judith Pirani undertook detailed case studies of the processes and practices in place at Calvin College, the University of Cincinnati, the University of Delaware, and The University of Memphis. ECAR owes an enormous debt of thanks to its subscribers, and also to the engaged institutional representatives of EDUCAUSE who share their time generously with us in our quest to deepen each other’s understanding of IT’s interplay in higher education. Those who host ECAR researchers for their work developing case studies merit special and personal thanks. This thanks goes to Henry DeVries of Calvin College, Susan Foster of the University of Delaware, Doug Hurley and Jim Penrod of The University of Memphis, and Fred Siff of the University of Cincinnati.

**Endnotes**

3. V. Kiernan, “Professors Are Unhappy with Limitations of Online Resources, Survey Finds,” *Chronicle of Higher Education*, April 22, 2004. Kiernan was reporting on research performed under the auspices of Ithaka, a nonprofit organization funded by three foundations.
Executive Summary

We find after years of struggle that we do not take a trip; a trip takes us.
—John Steinbeck, Travels with Charlie

Alignment is defined as “the proper positioning or state of adjustment of parts, or an arrangement of groups or forces in relation to one another.” Many, including noted quality management authority Philip Crosby, see alignment as the essence of leadership, which Crosby defines to be the act of “deliberately causing people-driven actions (e.g., alignment) for the purpose of accomplishing the leader’s agenda.”

This ECAR study of how IT priorities, plans, intentions, resources, and actions are aligned with broad institutional vision and strategies has been a voyage of discovery. Our research team knew, for example, from the annual EDUCAUSE surveys of current issues and from the professional literature of EDUCAUSE Quarterly and EDUCAUSE Review that IT strategic planning is a perennial topic of interest to those leaders who form the core of ECAR’s base of subscribers. We were frankly unsure that strategic planning really hit the mark in terms of reader interest, or if research in this area would add materially to our readers’ managerial arsenal. As we read more and discussed our research plans with others in the higher education IT community, it became clear to us that IT strategic planning was itself only one means of deliberately causing people-driven actions for a purpose. That is, it offers one means of aligning IT priorities, plans, intentions, and actions with “the leader’s agenda.” This shift in thinking was confirmed in our review of the professional literature outside higher education and in particular in reviewing the topics that private-sector and government CIOs deemed most important. In survey after survey, private-sector survey respondents overwhelmingly identified the alignment of IT “with the business” as one of their five top concerns.

Having made this important shift in focus from strategic IT planning to IT alignment, we asked ourselves, what other activities do IT organizations employ to deliberately cause purposeful aligning actions in support of their colleges or universities? Surely IT strategic planning is one. We speculated that other such actions might include (1) communication strategy and (2) IT governance, those processes of soliciting advice and direction and making decisions collaboratively. As our new scope of inquiry began to resemble an interconnected web of strategic leadership activities, we concluded that this web would be incomplete if we didn’t include processes for measuring and assessing how well our priorities, plans, resources, intentions, and actions have contributed to accomplishing the leaders’ agenda.

The ECAR study of IT alignment in higher education therefore examines higher educa-
tion’s processes for IT strategic planning, IT governance, communications, and measurement and assessment. This study examines

- the environmental and leadership contexts in which alignment-seeking processes and activities take place;
- the state of the practice of IT planning, governance, communication, and measurement in higher education—for example, what we do, how frequently we do it, whom we do it with (or to!), and what difference it makes;
- the effectiveness of our planning, governance, communications, and measurement activities and, more important, specific practices we can deem to be either strongly effective or ineffective; and
- an extrapolation of the identified state of the practice and industry trends to form a vision of the state of the art in these activity areas and possible future directions for ECAR readers and their colleges and universities to consider.

A few straightforward research hypotheses guided our research:

- Leadership engagement and the state of the institutional environment influence the potential for and realization of IT alignment.
- Survey respondents who report effective planning, governance, communication, and measurement processes will also report high levels of perceived alignment.
- Institutions are moving from episodic, large-scale planning and governance modes to shorter-cycle or even continuous planning modes.
- Higher education IT leaders generally do not measure and assess their programs formally.
- Respondents who report high levels of IT alignment will also report high levels of overall IT effectiveness across a number of variables. In other words, we hope to confirm that IT alignment is both important and influential in driving effective IT outcomes.

This ECAR study yielded several important findings, which we describe below. In brief, this study confirmed our hypotheses. Higher levels of perceived effectiveness in the core activities of planning, governance, and communication do indeed result in higher levels of perceived alignment between IT and the institutional purpose. More interesting, an overwhelming majority of our survey respondents perceive that IT is well aligned with institutional priorities, despite the fact that a great many respondents

- don’t feel that IT governance is effective at their institutions,
- don’t feel that IT planning is effective at their institutions, and
- don’t systematically measure or assess IT performance.

We can only speculate about what these findings mean. They suggest that either

- our respondents are being too hard on themselves and that indeed their planning, governance, measurement, and communications are more effective than they think; or
- our respondents are kidding themselves (a bit), and things are not as well aligned as they think.

We worry that the latter may be true, simply because our data suggesting huge comfort with the state of IT alignment in higher education is at such strong variance with industry data suggesting that such alignment is elusive, difficult, and problematic. Can we be so good? Can higher education be exempt from the concerns about IT alignment that seem to plague IT leaders in other industries?

**Methodology and Study Participants**

ECAR used a multifaceted research methodology to collect both quantitative and qualitative data about IT strategic planning and alignment:
• a literature review to identify and clarify issues and create a working set of hypotheses to be tested;
• a quantitative online survey of 483 EDUCAUSE member higher education institutions;
• qualitative telephone interviews with 22 higher education IT executives;
• an in-depth review of 57 higher education IT plans found on the Web; and
• four case studies from on-site visits to Calvin College, the University of Cincinnati, the University of Delaware, and The University of Memphis.

Key Findings

The navigational diagram (Figure 1) provides a framework for our discussion of IT alignment. First, analyzing the institutional context provided information about the tone and environment surrounding IT planning. Second, findings on actual practices and processes—IT governance, IT planning, and IT performance measurement— provided more detailed insight. Here, we integrate and summarize our findings and relate them to the study’s core issue—perceptions of IT alignment. A recap of what we learned about IT alignment appears in the sidebar (“Which Institutions Report More IT Alignment?”) followed by a discussion of key findings.

Institutional Planning and IT Alignment

Colleges and universities are planning in earnest. Today, 90 percent of responding institutions say planning is important, and 81 percent have created an actual overall institutional plan. This number is even higher for master’s (87 percent), baccalaureate (83 percent), and associate’s (87 percent) institutions, but lower for doctoral institutions (71 percent). Doctoral-extensive universities are least likely to produce institutional plans (61 percent). Creating a meaningful strategic plan is a much more complex task in a large, diverse organization that must build consensus around highly disparate units such as professional schools, medical centers, and research organizations. And most important, institutional planning appears to pay off in terms of IT alignment with institutional priorities. Campuses that place more importance on planning, produce an institution-wide plan, or engage continuously in planning activities also report more IT alignment.

Respondents’ opinions indicate that most (74 percent) agree that the institutional vision at their campus is clearly articulated, and 66%

Which Institutions Report More IT Alignment?

Institutions …
• with a clearly articulated campus vision and/or priorities
• that consider planning important and closely linked to the institutional budget
• that have published an institutional plan or campus IT plan or that engage in planning activities continuously
• reporting dynamic or stable environmental climates (as opposed to turbulent or volatile climates)
• that perceive their IT governance process to be effective
• that perceive their IT strategic planning process to be effective
• that have greater communication with and involvement of key constituents, especially faculty and deans
• where objectives are clearly documented at the time IT initiatives are approved
percent agree that institutional priorities are clearly articulated. The link between IT alignment and institutional vision and priorities was a recurring theme in both our survey data and interviews. Our interviewees told us that they were extremely aware of the importance and usefulness of their campus vision and priorities in bringing about IT alignment. In fact, respondents who work at institutions possessing a clear institutional vision reported more central IT alignment (91 percent agreed that IT was aligned) than those who did not perceive a clear institutional vision (only 57 percent agreed). 3

IT Planning and Alignment

This trend continues into the IT arena. Among respondents, 57 percent report that they already have an institution-wide IT plan in place, with another 25 percent currently developing their first IT plan. These IT plans are most likely to be found at institutions that already have an overall campus plan. Further, more than half (54 percent) of central IT organizations have written an explicit vision statement for their unit, with three-fourths (75 percent) of these vision statements linked explicitly to the institutional vision.

Seventy-eight percent of respondents with IT plans say they explicitly link these plans to their institutional budgetary process. Nearly three-fifths (59 percent) further report that funding for their IT initiatives is allocated at the time of approval. Given that the budgetary process is well recognized as a powerful tool for alignment, it is a positive finding that 83 percent of institutions agreeing that central IT priorities are aligned also link their IT plan to the campus budget. Only 50 percent of those who disagree that central IT is aligned link their IT priorities to the institution’s budget.

By and large, IT leaders are intensely committed to aligning technology with their campus purposes and goals. More than three-fourths of respondents (76 percent) identified IT alignment as a top reason to engage in strategic planning, and 74 percent say that, indeed, IT planning does have considerable impact on the level of IT alignment achieved. Perhaps most striking is the overall comfort level of respondents with IT alignment. An overwhelming 85 percent of respondents agree with the statement “central IT priorities are aligned with institutional priorities.” Further, 70 percent agree that IT efforts in campus departments are aligned with institution-wide IT priorities. This finding is consistent across Carnegie class and public and private institutions.

While most IT leaders are positive about alignment, a small cadre of respondents (8.4 percent) say IT is not aligned at their institution and express frustration with their less-than-successful attempts to align technology with institutional priorities. Some of our interviewees who reported nonalignment or misalignment at their campuses pointed to the lack of campus vision and actionable priorities, or to vision statements that were so obviously platitudes that they were of little practical value in creating IT alignment.

Organizational Climate

Almost half (45 percent) of our respondents perceive their organizational climate as “dynamic,” and another third (35 percent) characterize their climate as “stable.” That leaves one-fifth (20 percent) of respondents who say they are living and working in “turbulent” or “volatile” institutional environments. Our data suggest meaningful differences between these populations with respect to planning and IT alignment.

Those who perceive turbulence or volatility report that their institutions are

- less likely to consider institutional planning important and link it closely to the institutional budget,
less likely to report that their institutional vision and priorities are clearly articulated, and
more likely to have new top leadership.
In contrast, institutions reporting a dynamic climate are more likely to emphasize planning, link the IT plan to the budget, and report clear institutional vision and priorities. In the end, IT alignment may work best in a favorable climate. Eighty-nine percent of respondents reporting stable or dynamic environments say that IT is aligned with institutional priorities (compared with only 69 percent of those in turbulent or volatile environments).
This finding is important. Few institutions will escape a period of turbulence, defined as times of rapid and hard-to-predict change, with its resulting high levels of uncertainty. Indeed, we could easily argue that current world conditions and trends are increasing turbulence for all. And during times of turbulence, research has shown that “information sharing, participativeness, long-term planning, and credibility of leaders decrease.”
So we have a conundrum: planning and alignment appear to be both more critical and more difficult in unfavorable organizational climates.

External Environmental Scanning
Our research findings call for the higher education IT community to rethink, revise, and enhance our practices for scanning the external environment—the systematic process of examining trends and events outside the institution’s span of control—and to “take the future into account,” that is, “prepare for the inevitable, preempting the undesirable and controlling the controllable.” And just as important, a study of external forces can uncover new possibilities and opportunities. The “external environment” covers a broad spectrum of arenas—economic, geophysical, societal, legislative, and technological—and includes markets, competitors, and consumers.
Today, the importance of environmental scanning is becoming even greater—driven by increasing globalization and connectivity, the accelerated pace of change, increasing complexity in the regulatory environment, new types of educational competition, rising potential for disruptions, and more volatility in the economic and political environments. These pressures call for organizations to become more agile, more adaptable, and better able to “sense and respond” to the environment quickly. Real-time tracking and understanding of external conditions is key to developing these capabilities.
Corroborating the impact of external forces, 58 percent of our survey respondents directly identified changes in the external environment as a top trigger for changes in their IT priorities. Yet, despite these strong external impacts on IT, discussions with our interviewees and case study participants and our review of IT plans on the Web revealed that, while some attention is given to environmental tracking and forecasting, these efforts are largely piecemeal (focused primarily on technology and higher education trends) and informal. This gap between the external environment’s growing impact and the relatively scant effort going into environmental scanning tells us that higher education leaders can benefit from a review of their processes and practices for gathering and acting on such information.

Institutional Leadership
Campus leadership is at the forefront of planning efforts. Respondents say that their presidents and chancellors are actively involved, with 40 percent acting as sponsor, 25 percent acting as participant, and 16 percent acting as champion or cheerleader. Further, the top institutional leader also appears to
embrace technology. More than three-fourths (76 percent) of respondents characterize their top leader as a champion, strong supporter, or willing enabler of technology. And while only half (48 percent) of institutional top leaders make their senior IT leader a cabinet member, 79 percent do include their senior IT leader in the institutional planning process. These campuses, in turn, report more IT alignment.

Now that technology is widely distributed throughout our colleges and universities, fully embedded in administrative processes, and moving increasingly into the core processes of teaching and research, how do senior leaders perceive IT’s impacts on their campuses? Our findings were very positive. For example, respondents generally agree that their campus leadership recognizes the IT infrastructure as an institution-wide asset (78 percent agree), understands IT’s value (77 percent agree), views central IT as indispensable to their success (77 percent), and believes that IT initiatives lead to positive and sustainable cultural change (78 percent).

Here, planning may play an important educational role. Institutions that have undertaken planning efforts resulting in an institutional and/or IT plan actually report higher levels of leadership awareness about these IT impacts. Especially interesting is that 56 percent of respondents from an institution with an IT plan agree that their leadership regularly considers IT implications of institutional decisions, as compared with only 28 percent from institutions without an IT plan. And looking specifically at IT alignment, we find that institutions where leadership is reported to have stronger awareness of these impacts of IT agree more often than others that IT is aligned with institutional priorities.

**IT Governance**

The data do not show great satisfaction with IT governance. Just over half of respondents (56 percent) agree that their IT governance process is effective, and only 45 percent say it is well understood. In terms of constituents’ involvement in the IT governance process, key administrators are most involved (76 percent agree), and academic constituents—those most closely connected to the institution’s core missions—are much less involved. Only 56 percent of respondents say that faculty are involved in the governance process, and only 45 percent say that deans are involved.

Our data also suggest that formalization matters. Two thirds of our survey respondents report taking advice on IT policy and programs from an academic IT advisory committee. Nearly as many (63 percent) are advised by an administrative IT committee. More than half of responding institutions (51 percent) have both (or combined) academic and administrative committees for IT, and 45 percent of respondents involve students on their IT committees. Our case studies and interviews further indicate that many institutions have complex structures of interlinking committees to allow more focus on specific areas such as infrastructure, teaching, research, and administration.

Institutions with academic IT committees say their deans, faculty, and students have more input to the central IT organization and that faculty are more often top stakeholders in setting IT priorities than faculty at institutions not using an academic committee. At institutions with academic computing committees, respondents say they solicit input from deans (34 percent) and faculty (39 percent) “almost always” or “always.” While these numbers are low, fewer than one-quarter of respondents from campuses with no academic computing committee indicate that their institutions solicit input from deans and faculty “almost always” or “always.” Having a formal academic committee for IT
gives the faculty a formal voice on IT issues. The data also show that larger institutions are more likely than smaller institutions to have IT academic committees and to involve students in committees.

Institutions with administrative IT committees will more likely have an IT vision statement and an institution-wide IT plan linked to the institutional budgetary process. And given the increasing importance of fully integrating IT into campus operations and processes, it is interesting that campuses using administrative IT committees also say their campus leadership is more likely to regularly consider IT implications in institutional decisions than leadership at campuses not using administrative committees.

Findings differ for the 21 percent of institutions reporting that their senior IT leader(s) make independent decisions (whether or not they also have IT advisory committees). These institutions, more than others, are private institutions, are less likely to publish an IT vision statement or institution-wide IT plan, and also rate their IT governance process as less effective. It is instructive that respondents from these campuses are less likely to agree that their leadership understands how IT projects relate to institutional strategy and goals.

Finally, as we would expect, those institutions perceiving an effective IT governance process perceive stronger IT alignment. Of institutions reporting effective IT governance, 93 percent agree that central IT is aligned with institutional priorities. This contrasts with institutions that do not report effective IT governance, where only 64 percent agree that central IT is aligned. If IT governance effectiveness is positively associated with IT alignment, as we see that it is, the question arises as to how perceptions of IT alignment can be so positive (85 percent agree) while perceptions of IT governance effectiveness are so much lower (56 percent agree).

Communication and Key Constituents’ Involvement

Our survey data support academic research findings that a key enabler of IT alignment is close relationships between IT and non-IT organizations and staff. Survey respondents and interviewees emphasized the centrality of involving key constituents in meaningful and creative ways—to gain input for determining IT directions, initiatives, and priorities and to maintain ongoing communications about IT progress and achievements. Interviewees say this is at the forefront of their thinking as they design IT governance, planning, and implementation processes. Indeed, unless a plan is shaped by many and known by all, the view of IT may be incomplete, incorrect, or incoherent.

As with IT governance, we see the familiar pattern of key constituents’ involvement heavily weighted toward administrative executives. Approximately half of central IT organizations “almost always” or “always” ask the chief administrative officer (52 percent), the provost/academic vice president (53 percent), and the chief financial officer (51 percent) for input. Looking at academic roles, less than one-third of central IT organizations “almost always” or “always” ask deans (30 percent) and faculty (33 percent) for input. Yet 69 percent of respondents agree that their IT priority-setting process is broadly inclusive. In addition, where the senior IT leader has a seat on the cabinet, top administrators, especially executives, are solicited more for input into central IT initiatives than at institutions where the top IT leader is not a cabinet member.

With respect to communicating to constituencies, respondents overwhelmingly agree that central IT keeps their constituencies well informed. More than 90 percent of respondents agree that they communicate with their chief financial officer, provost or academic vice president, and chief administrator as often as
necessary. And approximately two-thirds not only agree but agree strongly. Again we see communication focused on senior administrative executives. In contrast, fewer respondents are adamant that they communicate with deans (only 40 percent strongly agree) and faculty (only 31 percent strongly agree).

We are not surprised to see that where there is more involvement with constituencies—either through communicating about IT or soliciting input for central IT—there is more reported central IT alignment with institutional priorities. This finding is especially strong where that involvement and communication with faculty and deans are evident.

**IT Planning Effectiveness and Alignment**

One-third of respondents were not satisfied with their IT strategic planning; they did not agree with the statement that their “IT strategic planning process is effective.” Where IT leaders have a clear institutional vision and priorities to guide them and where the IT plans are integrated into the institutional budget, respondents are more positive about their IT strategic planning. And even though institutions are not enthusiastic about the effectiveness of their IT governance process (only 56 percent agree that it is effective), this process appears to be extremely important. Institutions reporting effective IT governance are much more likely to report effective IT strategic planning (82 percent) than those that do not (31 percent).

Again, it appears that many survey respondents are disproportionately focusing energy on top administrative officers to the exclusion of engaging faculty, deans, and students. Among institutions reporting that they usually solicit input from deans, 73 percent say their IT planning process is effective. By contrast, only 47 percent of institutions that do not usually solicit input from deans believe their IT planning process is effective.

This analysis of IT strategic planning confirms our intuition: effective IT planning is indeed positively associated with perceived IT alignment with institutional priorities. In other words, IT planning is an important process for gathering campus information; situating this information in the broader context of IT, the campus, and external trends; and garnering resources to accomplish initiatives supporting the institution’s purpose and goals.

**IT Plans on the Web**

ECAR’s in-depth review of 57 IT plans available on the Web found that these plans do not refer to standard planning methods and frameworks and do not conform closely to the literature’s prescriptions. Instead, these plans are strongly situated within their institutional contexts. Also, the extremely varied approaches as to why, what, and how to plan do not reveal patterns based on Carnegie classification or control (public or private). Instead, IT strategic planning methods and practices seem largely tailored to a specific institution—its mission, culture, leadership, funding, and other unique conditions.

Returning to the importance of institutional vision, we found that most institutions view the campus vision and mission as the cornerstones of their IT plan. From there, the most common themes in these IT plans are the identification of IT goals and objectives, communicating IT opportunities to the institution, the IT vision statement, and alignment of IT with institutional priorities. Further, most of these IT plans recognize the importance of addressing human resources and technical issues. The most common human resource topics mentioned are IT support for students, faculty, and staff; personnel functions and issues; and the need for technical expertise. Discussion of funding and budget issues occurred less often, and rarely is the topic of IT assessment or performance measurement included.
In general, IT plans describe broad-based and public processes for seeking input and gaining consensus. These processes serve, in part, to communicate the capacities and constraints of the IT organization and function, as well as seek input and gain consensus. Further, these IT plans are most often inward-looking and do not specifically discuss gathering information by systematically scanning the external environment. Finally, IT plans are frequently tactical in nature, with relatively few having a strategic focus. In relative terms, doctoral-extensive universities did emphasize strategic thinking or a balanced mix of strategic and tactical thinking in 10 out of the 16 plans reviewed.

**IT Performance Measurement**

IT performance assessment is not yet widespread across higher education. Further, our interviews with IT leaders reinforced our survey findings that no standard approaches or generally accepted practices yet exist to measure IT performance in higher education. Perhaps, as David G. Swartz, CIO at The George Washington University, notes, “A lot of us in technology are so engrossed in our projects, and we are not good at marketing, selling, and documenting the value of IT. Yet, you have to reinforce that you were successful, you accomplished something, and you delivered what you were supposed to. This sets the stage for the next round because the institution trusts you.”

Institutions that do measure most often use “softer” methods, such as self-assessment. Customer satisfaction analysis and surveys are not yet standard practice, with just under half of institutions using them regularly. While only a handful of institutions use full-scale assessment methodologies such as the Malcolm Baldrige process or the Balanced Scorecard, which have received much attention in the private sector, technologies and tools like performance dashboards, although relatively new, are gaining popularity.

One-third (33 percent) of institutions say they include measures in their IT initiatives at the time they are approved. In the private sector, that number is much higher: in a recent CIO Magazine survey, 58 percent of respondents stated that measuring the value of IT was a requirement for all new IT initiatives. We also found that institutions that do produce an IT plan are more likely to include measures with their IT initiatives as well as publish performance expectations for existing IT services. The discipline of IT planning likely plays an important role in motivating the use of metrics.

Nearly three-quarters of survey respondents believe that the results of IT initiatives are communicated to key stakeholders as often as necessary to keep them well informed. Only 14 percent disagree. Regularly scheduled meetings are overwhelmingly preferred as the means of communicating intentions and results. Annual reports are produced to communicate plans and performance by more than half of those responding to the ECAR survey. With respect to the tie between IT performance and job performance, results are mixed. When asked whether IT initiatives’ functional area sponsors are evaluated on these initiatives’ outcomes, as many respondents agreed as disagreed.

Although our data were largely inconclusive about whether the actual use of metrics is associated with IT alignment, some patterns did emerge. For example, of institutions reporting that they clearly document objectives at the time IT initiatives are approved, 92 percent also report IT alignment. This contrasts with those who do not clearly document objectives, where only 63 percent reported IT alignment. And institutions that communicate IT performance via regularly scheduled high-level meetings (cabinet, council, senate, and the like) also rate their institutions as having stronger IT alignment than others.
Moving Beyond Alignment

Many organizations are actively and consciously changing how they operate and plan for the future. They recognize the need for management and planning practices that fit more naturally within our rapidly changing world and that explicitly address the current drivers for transformation—extreme competition, continuous discontinuities, unrelenting financial pressures, and unpredictable threats. This means becoming an “adaptive organization” characterized by strong “sense-and-respond” capabilities. A great deal has been written about this concept, and a few common recommendations have emerged. First, organizations must focus their strategic thinking on how to most effectively respond to subtle ongoing changes in the environment, rather than planning for one or more specific scenarios. Second, leading commercial organizations advocate moving away from traditional organizational structures and toward more of a “component” model that allows a “plug-and-play” approach to accommodating changes. Finally, connectivity, speed, and access to information are essential to highlighting IT’s strategic importance.

While we see some higher education institutions taking steps to incorporate and formalize the principles of an adaptive organization, most have not yet begun to make this leap. And although institution-wide changes are needed to fully implement an adaptive strategy, forward-thinking IT organizations can begin to lay the foundation by making changes in key areas.

Governance

While a place still exists for committees that look at high-level vision and long-term priorities, there is increasing need for governance structures that can be convened quickly, have clear directives, and hold genuine decision-making authority. These structures should include the key leaders involved with the IT organization and have immediate access to the tools and information necessary to make well-aligned decisions.

Planning

Rather than making IT planning a periodic activity, institutions need to make it continuous. Institutions can develop ongoing tracking processes for both the external and internal environments to provide real-time information to IT organizations so that they can much more effectively adjust to changes. Additional flexibility in budget processes and cycles is also called for, particularly to support the quick reallocation of resources in response to changing priorities and new opportunities.

Organization

Organizational structures that are project oriented rather than functionally oriented are more conducive to an “adaptive organization.” Another approach is increasing variable costs (relative to fixed costs) through creative use of contractors, shared services, outsourcing, and partnerships. Linking employee compensation to the principles of an adaptive organization—contribution to strategic directions, responsiveness to changing needs, maintaining high levels of skills, and the like—can also help create an agile organization.

Technology

Changing how technology is deployed in an organization can help move an institution toward adaptability. An important focus is the fundamental IT architecture—ensuring that it can maintain currency and at the same time cost-effectively support changing user demands, new user technologies, and evolving business practices. IT can also provide increased support for collaborative work, business intelligence systems, and modeling tools.
Endnotes


3. The number of respondents who disagree that central IT is aligned (N = 40) is small compared with the number of respondents who agree (N = 407) that central IT is aligned.


5. Ibid.


9. The methodology started with a randomized list of EDUCAUSE member institutions from Canada and the United States. We then conducted a search of the first 250 institutions (15 percent of EDUCAUSE U.S. and Canadian members) to determine which of them actually had an IT strategic plan publicly available on their Web site. Of these, we concluded that 57 institutions had IT plans on the Web, and we used these for our in-depth review.


Introduction: Aligning IT in Higher Education

The goal of a strategic planning process should not be to make strategy but to build prepared minds that are capable of making sound strategic decisions.

—Sarah Kaplan and Eric D. Beinhocker

The Merriam-Webster Dictionary defines alignment as “the proper positioning or state of adjustment of parts, or an arrangement of groups or forces in relation to one another.” For Philip Crosby, alignment is leadership’s essential purpose: “Leadership is deliberately causing people-driven actions in a planned fashion for the purpose of accomplishing the leader’s agenda.” The twenty-first century began in the United States with bursting of the dot-com bubble, followed by a sharp recession in the high-tech industry and the increasing “offshoring” of programming and other IT activities, culminating in a sharp national debate about whether or not “IT matters.”

And without empirical evidence, we are willing to speculate that alignment is even more problematic in the idiosyncratic context of higher education and our unique and essential system of shared governance.

When asked what he did for a living when he was chief executive officer (vice chancellor) of Thames Valley University, Mike Fitzgerald replied without much hesitation, “I managed contradictions.” Contradictions in higher education abound. “Enhance academic quality and reduce costs.” “Increase access and maintain rigorous standards.” “Provide equal access and improve student retention.” “Grow enrollments and be rigorous while enhancing student satisfaction.” And so forth. Information technologists, of course, are also caught in the binds of contradictory priorities. We are expected simultaneously to promote universal connectivity through networks that are always on—at constantly decreasing costs; to be innovative in delivering mission-critical production services on a 24 x 7 basis; and to...
deliver demonstrable returns on investment without authority for influencing or controlling the institutional processes where value is derived!

Colleges and universities are highly complex organizations. IT leaders and practitioners often describe what they do in terms that most would understand: “we build and maintain networks,” or “we implement information systems,” and the like. When asked how they perform this work, these same leaders, like Fitzgerald, describe their methods in somewhat magical, metaphysical, or at least colorful ways: “I foster a dialogue,” or “I mediate conflicts,” or the perennial “I herd cats.” Social scientists would agree and have described colleges and universities as adhocracies, organic organizations, clans, and even organized anarchies. These institutions are characterized by problematic goals, unclear technology (in the broader sense of the word), and fluid participation. George Keller describes colleges and universities as “amiable and anarchic collectives of scholars overseen by a small contingent of dignified caretakers who toil at the unavoidable business edge.” The trouble with collectives, as Aristotle observed, is that when everyone owns everything, no one will take care of anything! And information technologies, of course, demand much caretaking.

Colleges and universities are unusually complex because they operate under two inherently different operating principles, philosophies, and structures. One is guided by professional administrators and holds sway over administrative affairs. The administration is accountable for the faithful stewardship of an institution’s physical, human, and financial resources. The other is guided by the faculty and is responsible for classroom activities, curriculum design, peer review, and other instructional affairs. In general, the faculty are responsible for the quality and content of the institution’s instructional program and the scope of its curriculum.

Those activities related predominantly to administrative operations more or less follow a mechanistic information processing organizational model found in many complex organizations. This model depends on rules, programs, procedures, and a hierarchy of authority and reward to alleviate complexity and uncertainty and to align the behaviors of the organization’s members. Often, organizations that operate within these principles are designed and tuned to avoid risks—of public embarrassment, financial misfeasance, or conflicts among the organization’s myriad stakeholders. In exchange for reduced risks, many administrative bureaucracies accept a somewhat slower rate of adaptability, a diminished penchant for innovation, and decreased efficiency of large-scale administrative operations in times of uncertainty.

In colleges and universities, to this organizational challenge is added the additional challenge of faculty governance. Faculty organizations look for all purposes like “adhocracies”: organizations optimized for innovation that rely nearly not at all on rules, programs, procedures, or plans. Adhocracies depend on project structures that can “fuse experts drawn from different specialties into smoothly functioning creative teams that are dominated by the experts’ pull to collaborate.” Social scientists believe all the distinctions of conventional structure disappear in the adhocracy and that “with power distributed throughout the structure, the distinction between the strategic apex (the executive leadership) and the rest of the structure blurs.” As one can imagine, participants in bureaucracies and adhocracies can be nearly incomprehensible to one another, creating unique challenges when goals and priorities span the enterprise. These challenges are further complicated by the profound differences between a scholar’s
uncompromising quest for truth in research and the administrator’s frequent trade-offs of perspective and compromise in the quest for organizational cohesion.\textsuperscript{14}

Information, information systems, and the IT infrastructure bisect and serve both the institution’s rule- and procedure-dependent administration and its purpose- and expert-driven faculty. So diverse are these elements of the academy that former University of California President Clark Kerr described colleges and universities as networks of cottage industries united by the common need for parking! So while college and university information technologists must operate production systems and networks in ways that meet the administrative mandates for access, affordability, and accountability, they must also craft plans and take actions that can win the support of a faculty preoccupied with innovation and academic excellence. Too often, administrative leaders appreciate innovation only when it is efficient. Faculty, on the other hand, may characterize investments in enterprise activities such as student services as reductions in funds for innovation or instruction! This tension is exacerbated by issues stemming from higher education’s accumulated deferred maintenance in IT. Backlogs of deferred maintenance force IT leaders to divide further their time, resources, attention, and priority to underperforming legacy systems.

The challenge, therefore, facing those charged with effecting action at the enterprise level in higher education is to align \textit{organizational} plans, investments, priorities, and actions not only with \textit{institutional} priorities emanating from the leadership but also with disparate faculty groups’ rapidly shifting goals. This last challenge is particularly vexing because the priorities of the professoriate align most frequently not with those of the institution but instead with networks of disciplinary colleagues scattered in colleges and universities across the globe.\textsuperscript{15} The already difficult task of aligning plans with “the leader’s agenda” is further compounded by higher education leaders’ propensity to leave their agendas unstated. These leaders are thought to “discover preferences through action more often than act on the basis of preferences.”\textsuperscript{16}

The impetus for this ECAR study began with the strong signal from the EDUCAUSE Current Issues Survey indicating our members’ perennial preoccupation with strategic planning.\textsuperscript{17} As ECAR researchers reviewed the field’s literature and discussed this preoccupation among ourselves and members of the higher education IT community, we came to understand better the complex and problematic nature of strategic IT planning in higher education.

The nature of the alignment problem has been an object of study by academics since the late 1970s, and the relationship between business planning and IT planning has emerged as an important cause of problems long associated with the implementation of information systems and technologies.\textsuperscript{18}

The importance of organizational issues, particularly the failure of IT planning to properly consider the organization’s broader goals and strategies, was the second most dominant factor in a model that studies IT cost and hardware and database implementation problems.\textsuperscript{19} This finding was confirmed in a study related specifically to IT uses in higher education that concludes that “alignment was positively associated with both perceived IT success and organizational performance. It therefore seems that organizations which match their IT capability to their critical success factors may not only be more successful in their IT utilization but may also perform better overall.”\textsuperscript{20}

Aligning IT plans with institutional purposes also presents cultural challenges.
President Morris W. Beverage of Lakeland Community College, for example, describes how the fundamentally differing perceptions about the pace of change in IT and in the academy complicate the already complex issues surrounding IT strategic planning in higher education specifically.\(^{21}\) In fact, differences in perceptions and expectations about the pace of change reflect only one of the differences that distinguish and separate higher education’s IT practitioners from the academy’s dominant culture (see Table 2-1).

For higher education IT practitioners, the alignment problem manifests itself early in the process of IT strategic planning. The nature and problem of IT strategic planning was framed in the provocative article “Is Strategic Planning for Technology an Oxymoron?” by Martin Ringle of Reed College and Daniel Updegrove of The University of Texas at Austin,\(^{22}\) and in the responding article by University of California at Berkeley CIO Jack McCredie.\(^{23}\) In conversations with more than 150 higher education technology officers, Ringle and Updegrove reveal the dominant motivations for strategic IT planning:

- aligning technology with other institutional priorities,
- disseminating knowledge about IT needs and constraints,
- building alliances with key decision makers,
- lobbying for (and obtaining) financial and other resources,
- addressing existing technology needs, and
- keeping an eye on the leading edge.

Ringle and Updegrove point out that these motivators have more to do with organizational issues than technological ones, a fact underscored by their observation that IT planning processes in higher education are most commonly triggered by the arrival of a new academic officer or chief information/technology officer. Their work claims that while a surprising number of CIOs and chief academic officers attribute planning failures to IT’s rate of evolution, IT practitioners primarily echo the academic literature, explaining failure in terms of

\[\text{Table 2-1. IT Culture and Academic Culture}\]

<table>
<thead>
<tr>
<th>IT Culture</th>
<th>Academic Culture</th>
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<tbody>
<tr>
<td>Emergent profession</td>
<td>Mature profession</td>
</tr>
<tr>
<td>Change agent</td>
<td>Values tradition and skepticism</td>
</tr>
<tr>
<td>Institutional focus</td>
<td>Disciplinary focus</td>
</tr>
<tr>
<td>Focus on production</td>
<td>Focus on innovation</td>
</tr>
<tr>
<td>Quest for consensus and alignment</td>
<td>Quest for truth</td>
</tr>
<tr>
<td>Organizational anonymity</td>
<td>Reputation driven</td>
</tr>
<tr>
<td>Activities/services rendered transparent</td>
<td>Labyrinthine processes and practices</td>
</tr>
<tr>
<td>Speed is a valued objective</td>
<td>Speed may be antithetical to quality</td>
</tr>
<tr>
<td>Short life cycle for products, services, outcomes, and underlying technology</td>
<td>Work products designed to endure for years, decades, or even centuries</td>
</tr>
<tr>
<td>Uses a highly idiosyncratic and technical language to communicate intentions</td>
<td>Uses a different highly idiosyncratic and technical language to communicate expectations</td>
</tr>
</tbody>
</table>
failure to tie technology to institutional mission and priorities,
• failure to get the right people on board,
• excessive focus on technical detail, and
• lack of suitable (engaged) leadership.

This work and its conclusions provide the base camp for our research. These ideas find new currency in the work of University of Illinois at Chicago’s Dean Stanley Fish, who recently concluded that “the trouble with long-range planning is that it almost never works, in part because the object of your analysis will not stand still … in part because the focus on the long-range deflects attention from the short-term problems … in part because long-range planning usually has a history in any university … of skepticism and cynicism.”

As the ECAR research team peeled back the layers of higher education’s preoccupation with strategic planning, we confirmed that what our members were really placing under this umbrella was a complex set of strategic management activities that includes
• goal setting and IT planning,
• IT governance,
• communications, and
• measurement and evaluation.

As we probed further, we concluded that all of these strategic management activities were really techniques being deployed by IT leaders in higher education at least in part to achieve goal alignment and project discipline in their complex and loosely coupled institutions.

For the purpose of this study, we treat IT strategic planning, IT governance, communication, and measurement as elements of an overall leadership process (and less frequently, a product such as a plan) designed to align
• IT priorities with the institution’s broader goals and objectives;
• the institution’s technical directions and/or IT organization with technical trends shaping the behavior of other social, governmental, or commercial institutions;
• intentions with resources;
• current conditions and capabilities with future expectations and possibilities;
• motivations and intentions of those who deliver IT services with those of key stakeholders who depend on and consume those services; and
• expectations of services to be delivered with constraints and opportunities associated with them.

Therefore, we organized this research, hence this publication, to highlight the state of the practice of higher education’s IT planning, governance, communications, and measurement and assessment activities. We also discuss at some length the organization and environmental contexts in which these activities are carried out. Finally, to reinforce leadership’s centrality to the success of any programs designed to foster alignment, we’ve devoted separate analysis to leadership’s role in fostering or hindering the alignment of IT investments with institutional priorities and plans.

Endnotes


13. Ibid., p. 302.

14. K. E. Weick, op. cit., p. 27.


Methodology and Overview of Respondents

The ECAR study on IT strategic planning and alignment used a multifaceted research methodology to gather both quantitative and qualitative data from 483 higher education institutions (464 U.S. institutions and 19 Canadian institutions). The data provide a view of one segment of higher education’s collective experience with IT strategic planning and alignment as well as in-depth institution-specific perspectives. Note that some tables presented in this study will have fewer than 483 respondents. The tables were adjusted for missing information.

Research Approach

We undertook five data collection and analytical initiatives: a literature review, a quantitative Web-based survey, qualitative telephone interviews, four case studies, and an in-depth review of IT strategic plans found on the Web.

The literature review helped us identify and clarify issues and create a working set of hypotheses to be tested. Although there is an abundant literature on the subject, the vast majority of both the academic and professional literature focuses on business rather than academe. Exceptions are the publications of EDUCAUSE, the Chronicle of Higher Education, and various studies and reports from academic institutions and business schools in the United States and abroad. A bibliography (Appendix D) appended to this study provides addresses for the Web sites and specifics for the publications we used and found helpful. The bibliography is not intended to be comprehensive.

The quantitative Web-based survey was designed by ECAR fellows. EDUCAUSE staff sent an e-mail invitation with the survey’s Web address and access code information to 1,483 institutions belonging to EDUCAUSE from Canada and the United States. Senior college and university administrators from 483 institutions responded to the survey. Most respondents were CIOs and other IT leaders. Their responses provide a detailed understanding of how higher education approaches IT strategic planning and alignment. The survey questions can be found on the EDUCAUSE Web site at <http://www.educause.edu/ir/library/pdf/ecar_so/ers/ERS0403/esi0403.pdf>. Appendix B lists the names of institutions that participated in the survey. All information collected is confidential.

An in-depth review of 57 IT plans found on the Web started with a randomized list of EDUCAUSE member institutions from
Canada and the United States. We then chose to look at the first 250 institutions on this list, representing more than 15 percent of all EDUCAUSE U.S. and Canadian members. We conducted an initial search of all 250 institutions to determine which of them actually had an IT strategic plan publicly available on their Web site. Among these institutions, we found 64 plans, 16 institutional plans with IT sections, and 15 IT mission statements. On further inspection, we concluded that only 57 of these institutions actually had IT strategic plans available publicly on the Web (listed in Appendix C). In some instances, we were able to find links to strategic plans, but access required authentication.

Qualitative telephone interviews were conducted with 22 IT executives and managers at 22 EDUCAUSE member institutions (see Appendix A for names of participating individuals). To obtain depth and breadth of practice, we chose to interview respondents from institutions of varying size and mission, and included both public and private institutions.

Four in-depth case studies were undertaken. Designed to complement the core study, each case focuses on a single institution’s IT strategic planning and alignment practices. Institutions include Calvin College, the University of Cincinnati, the University of Delaware, and The University of Memphis.

Carnegie Class as a Distinguishing Factor

The study grouped the sample by a modified Carnegie Classification of Institutions of Higher Education. The Carnegie taxonomy describes the institutional diversity in U.S. higher education. Most higher education projects rely on this classification to ensure a representative selection of participating individuals and institutions. The study collapsed the categories as follows to obtain larger numbers for statistical and descriptive purposes:

- Doctoral/research universities (DR). The study grouped the doctoral-extensive and -intensive universities together. These institutions typically offer a wide range of baccalaureate programs, and they offer graduate education through the doctorate degree. Extensive institutions award 50 or more doctoral degrees per year in at least 15 disciplines. Intensive institutions award at least 10 doctoral degrees per year in three or more disciplines, or at least 20 doctoral degrees per year overall.
- Master’s colleges and universities (MA). The study grouped Master’s Colleges and Universities I and II together. These institutions typically offer a wide range of baccalaureate programs and graduate education through the master’s degree. The distinction between Master’s I and Master’s II institutions is in the number of degrees offered.
- Baccalaureate colleges (BA). The study grouped the three baccalaureate college groups (baccalaureate colleges—liberal arts, baccalaureate colleges—general, and baccalaureate/associate’s colleges) into a single BA group. Baccalaureate colleges are primarily undergraduate colleges with major emphasis on baccalaureate programs.
- Associate’s colleges (AA) offer associate’s degree and certificate programs but, with few exceptions, award no baccalaureate degrees.
- Specialized institutions (Specialized) offer degrees ranging from the baccalaureate to the doctorate and typically award most degrees in a single field. Specialized institutions include theological seminaries and other specialized faith-related institutions; medical schools (for medical and other health professions); schools of engineering and technology; schools of business and management (which award most of their degrees in business or busi-
ness-related programs); schools of art, music, and design; schools of law; and teachers colleges. The data presented for these schools must be interpreted in light of the enormous diversity of institutions within this category.

We also provide data, where appropriate, for U.S. higher education system offices and for the 19 Canadian institutions in our study, recognizing that they vary by size and mission.

**Overview of Respondents**

Figure 3-1 compares the distribution of the responding institutions by their 2000 Carnegie class, EDUCAUSE membership, and the universe of higher education institutions in the United States. The responding schools mirror much more closely the EDUCAUSE membership than the national population of institutions by Carnegie class. Proportionally, we have strong participation from doctoral institutions (45 percent) and weaker participation from the other Carnegie classifications.

Note also that because participating institutions are drawn from the EDUCAUSE membership rather than from a random sample of all higher education institutions, results are not generalizable to all higher education institutions. Nevertheless, the overall 33 percent response rate from EDUCAUSE member institutions gives us confidence that the study’s respondents portray a reasonable image of the EDUCAUSE membership, especially for doctoral and master’s institutions.

A statistical analysis of the data’s representativeness proved inconclusive. The findings do not support the conclusion that the institutions surveyed represent the population as a whole. Nor do they support the conclusion that the respondents fail to represent the EDUCAUSE membership. Neither is statistically significant.

The mean student enrollment of institutions we studied was 6,811. For analysis purposes, we divided the institutions into six groups, as shown in Figure 3-2. Smaller institutions dominated our study, as they do higher education: slightly over 50 percent have 4,000

![Figure 3-1. Survey Respondents by EDUCAUSE Membership and Carnegie Class*](http://www.carnegiefoundation.org/Classification/CHIE2000/defNotes/Definitions.htm)
or fewer enrolled students, and only 3.9 percent have more than 25,000 students.

The survey was completed largely by senior IT leaders and reflects their experiences, observations, and opinions about IT strategic planning and alignment (see Figure 3-3). In fact, 80.1 percent of respondents say they are officially designated as their institution's top IT leader or CIO. We emphasize that this study largely represents a CIO/IT management perspective moderated by other institutional leaders’ observations obtained through complementary in-depth qualitative surveys.

Table 3-1 shows the scope of responsibility of our responding institutions’ central IT organizations. As we would expect, the most common areas of responsibility are administrative information systems (93.6 percent), data communications (92.3 percent), and academic computing (84.3 percent). And 86.7 percent of institutions report that their central IT organization includes both administrative and
Table 3-1. Areas of Responsibility (N = 483, Multiple Responses Allowed)

<table>
<thead>
<tr>
<th>Area</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Information Systems</td>
<td>452</td>
<td>93.6%</td>
</tr>
<tr>
<td>Data Communications</td>
<td>446</td>
<td>92.3%</td>
</tr>
<tr>
<td>Academic Computing</td>
<td>407</td>
<td>84.3%</td>
</tr>
<tr>
<td>Voice Communications</td>
<td>363</td>
<td>75.2%</td>
</tr>
<tr>
<td>Instructional Technology</td>
<td>335</td>
<td>69.4%</td>
</tr>
<tr>
<td>Distance Education</td>
<td>137</td>
<td>28.4%</td>
</tr>
<tr>
<td>Teaching and Learning Center</td>
<td>119</td>
<td>24.6%</td>
</tr>
<tr>
<td>High-Performance Research Computing</td>
<td>110</td>
<td>22.8%</td>
</tr>
<tr>
<td>Library</td>
<td>86</td>
<td>17.8%</td>
</tr>
</tbody>
</table>

academic computing. The median annual operating budget of respondents’ central IT organization(s) is US$3 million.

Our respondents bring much experience to our study and provide a broad view of IT strategic planning and alignment from a variety of IT positions and institutions within higher education. We are gratified by the number of respondents, which makes the findings more than simply the observations of a small subset of the industry. In the chapters that follow, we present respondents’ collective view of IT strategic planning and alignment in higher education.

Endnotes

1. We obtained qualitative data both for respondents agreeing that IT was aligned at their institution and for those disagreeing that IT was aligned at their institution.

2. See <http://www.carnegiefoundation.org/Classification/CIHE2000/defNotes/Definitions.htm>. The study notes that the Carnegie Classification of Institutions of Higher Education recognizes 1,669 associate’s institutions, whereas the American Association of Community Colleges (AACC) membership currently includes 1,171. The AACC numbers are based on the definition of colleges eligible for membership in the AACC constitution: colleges that award the associate’s degree and are regionally accredited. The Carnegie count includes career colleges and colleges accredited by the Accrediting Council for Independent Colleges and Schools.
Information technology (IT) alignment and planning activities are shaped by an institution’s unique nature, including conditions in the external environment; the evolution of the overall mission; culture and politics; and student, faculty, and leadership characteristics. This chapter looks at how our respondents described their institutional context for IT planning and alignment—specifically, attitudes and practices, leadership involvement, and organizational climate.

Summary of Findings

Our study’s qualitative and quantitative data provide a snapshot of higher education strategic planning. We have come a long way since the early 1980s, when George Keller called for higher education “to look intensely at contemporary history and an institution’s position in it and work out a planning process that actively confronts the historical movement, overcomes it, gets on top of it, and seizes the opportunities latent in it.” Today, 20 years later, colleges and universities take planning seriously and are deeply engaged in the activities associated with strategic planning. By and large, colleges and universities are creating an institution-wide vision that is clear to the campus CIO, publishing written plans that identify campus priorities derived from this vision, and planning more frequently, if not continuously. Many also emphasize the importance of integrating these planning efforts into institutional budgetary processes as well as the need to establish administrative

Key Findings

- Institutions are actively planning. Most say planning is important, have a clearly articulated vision and priorities, and have written an institutional plan. About half are engaged in planning on a continuous basis.
- Following suit, most institutions have institution-wide IT plans in place or under development, and most of these are linked to the institutional budget.
- Presidents and chancellors are actively involved in institutional planning—as champions, participants, or supporters.
- By far, most respondents report that IT is aligned with institutional priorities.
- Central IT alignment is positively associated with
  - Clear institutional vision and priorities
  - Creation of institutional and IT plans
  - Leadership awareness of the institutional impact of IT
  - Engaging in continual rather than periodic planning
- IT alignment works best in dynamic organizational climates and least well in turbulent or volatile organizational climates.
functions or offices to support their planning activities. And presidents and chancellors are actively involved, as champions, participants, and sponsors.

IT organizations are following suit, especially at institutions already active in strategic planning. IT leaders are creating institution-wide IT strategies for their campuses and tell us without equivocation that the primary reason they do so is to ensure that IT priorities, investments, and initiatives are aligned with campus directions and will effectively enable and support campus processes and initiatives. And they report success: IT planning does help them align technology with institutional priorities. Here again, presidents and chancellors are actively engaged as IT's champions, supporters, and enablers. In fact, our respondents report that campus leadership, in general, is astute when it comes to understanding IT's impact at their institutions in key areas. They understand IT's value, recognize that the IT infrastructure is an important institution-wide asset, and view central IT as indispensable to their success. However, fewer institutions put this awareness into action and regularly consider IT implications when making institutional decisions.

We now have an institutional backdrop—active campus-level strategic planning, president/chancellor engagement, senior leadership awareness of IT impacts, and IT leaders' strong desire to align with campus goals—for considering IT alignment. And here is one of the most striking findings in our data: our IT leader respondents overwhelmingly agree that central IT priorities are, in fact, aligned with institutional priorities. IT leaders perceive that they, along with their institutional leaders, are doing a good job of aligning IT. Respondents who feel that they are supported in terms of campus commitment to planning are even more positive about their ability to ensure proper alignment of technology. A clear institutional vision, actionable priorities, a continuous planning process, a president or chancellor who champions IT, and a senior leadership team that understands IT impacts might all contribute to making IT impacts easier and better.

While our IT leaders do have the best of intentions for IT alignment and report high levels of success, environmental factors may make that job either easier or more difficult. Reports of IT alignment are stronger from institutions that characterize their organizational climate as dynamic. Those respondents operating in turbulent or volatile climates say that planning activities in general, and IT alignment specifically, are more difficult to maintain. Understanding that IT alignment works best in a favorable environment is important so that conscious attention can be turned to improving the climate where possible or, if not possible, to designing compensating strategies.

The detailed analysis that follows provides the supporting quantitative and qualitative data for these findings. With respect to IT leaders' high comfort level with IT alignment, it is important to note that the professional and academic literature on the subject characterizes IT alignment as not fully understood, problematic, and difficult to achieve. In the following sections, we seek further insight into this finding by delving more deeply into the processes surrounding IT strategic planning—particularly planning practices, organizational climate, and senior leadership.

**Planning Practices**

As a starting point, we asked our respondents whether their institution has a clearly articulated vision and priorities (see Figure 4-1). Indeed, a compelling and shared vision or mission is a proven critical success factor for top-performing organizations. A clear vision or mission helps create a culture of participation and can provide a natural backdrop for organizational alignment in general and IT alignment specifically.
Our respondents were very positive about their institutional vision, with almost three-fourths (73.7 percent) agreeing it was clearly articulated and over half (51.9 percent) strongly or very strongly agreeing. They were somewhat less positive about the clarity of institutional priorities, with 65.7 percent agreeing and 40.3 percent strongly or very strongly agreeing that priorities are clear. Since defining priorities requires moving from the broad concepts of an institutional vision to more actionable items, it is not surprising to see less agreement about the clarity of priorities. Findings are largely consistent across Carnegie class, public and private institutions, and institutions of varying size.

Traditional planning practice advocates that not only institutions but also internal operating units create their own explicit vision statements. We asked our respondents if the central IT organization had a vision statement. Over half (53.6 percent) said yes, and of these, three-fourths (74.9 percent) reported that their IT vision statement was explicitly linked to the institution’s vision statement. Interestingly, IT organizations at larger institutions (68.6 percent of those with more than 15,000 students) are more likely to publish an IT vision statement than are those from smaller institutions (44.6 percent of those with 4,000 or fewer students). Larger IT departments are more likely to have the resources to dedicate to vision creation and also have greater need for a vision statement that can both motivate and communicate guidelines to the diverse teams within the department.

The institution’s culture and overall attitude about planning and alignment are also important contextual elements. Survey results indicate that institutional planning processes are largely integrated into the fabric of higher education administration—and not simply as a perfunctory requirement. Indeed, most of our respondents say that institutional planning is important, with only 10.8 percent saying that their institution does not place much emphasis on planning.

Among respondents, 55.8 percent say that not only is institutional planning important at their institution, but it is also closely linked to the institutional budget process (see Figure 4-2). Doctoral institutions show a somewhat different profile: only 47.7 percent report that planning is both important and linked to the budget, while 41.1 percent report that planning is important but not linked to the budget. We find that institutions that consider planning important are more likely to involve their senior IT leaders in their campus planning processes. For example, David G. Swartz, CIO at The George Washington University (GWU), says he plays “an integral role in the develop-
ment of the institution’s plan. I participated in the committees to help guide the vision and help people understand how technology enables them to realize their objectives in quicker, faster, and cheaper ways.”

With respect to IT planning specifically, linkage to the institutional budget is the norm. Over three-fourths (77.6 percent) of respondents reported that their institutions do tie IT priorities explicitly to the campus budget. We discuss this more fully in Chapter 6.

Institutions are definitely planning, but do planning processes necessarily result in an actual written plan? Most of our survey respondents (80.5 percent) report that they have a formal institutional plan outlining strategic priorities for the institution as a whole (see Figure 4-3). Those at doctoral institutions, however, report that only 70.8 percent have plans, and only 61.4 percent of doctoral-extensive institutions have plans. Larger institutions also appear somewhat less likely to produce an institution-wide plan. This is not surprising, because creating a meaningful strategic plan is much more difficult in a large and complex organization needing to build consensus around highly disparate units such as professional schools, medical centers, and research organizations.

Figure 4-3 also illustrates that fewer institutions have institution-wide IT plans (56.5 percent) than have institutional plans. However, another 24.6 percent of institutions are currently developing their first IT plan, and when these are complete, 81.1 percent of institutions will have IT plans. This closely matches the number of institution-wide plans (80.5 percent). Further, this pattern does not vary significantly on the basis of institution size, Carnegie class, or public versus private control. Instead, it appears that those institutions most likely to have an IT plan are those that already have an institution-wide plan (Table 4-1). Note that 88.1 percent of institutions with an overall plan either have an institution-wide IT plan or are now developing one. With respect to availability of campus IT plans, 41.0 percent publish them on the Web, and another 25.6 percent allow limited access on an intranet.

Also important, as Jonathan Rood, associate vice president, San Francisco State University (SFSU), notes, “is the synergistic relationship between institutional planning and IT planning. The institutional plan af-
fests technology and technology affects the institutional plan.” Several institutions view IT as a means for institutions to achieve their institutional plan. As Bill Post, vice provost for information resources and CIO, California State University, Chico (CSU, Chico), notes, “Most activities in our campus technology plan are enablers for our overall institutional plan.” At other institutions, institutional planning drives the IT planning process. “We have mirrored planning cycles,” states Carole Carmody, associate vice president for information technology, Bloomfield College. “If we have a sense of where the institution wants to go, then we are better off because we can align with the institutional plan.” At some institutions, the integration is so great that “there is no need for a separate IT strategic plan,” states Joel Hartman, vice provost, information technologies and resources, University of Central Florida (UCF). “In these settings,” said Hartman, “the IT unit has influenced the university plan as far as technical possibilities and risks. Then the institutional plan and its characteristics guide IT priorities and directions.”

Most institutions completed their recent institutional planning effort within the past two years, 53.6 percent in 2003 and 18.1 percent in 2002. Further, as Table 4-2 shows, most institutions (44.5 percent) say they engage in institutional planning activities on a continuous basis. Others say planning occurs annually (14.6 percent), followed by...
once every two years (4.8 percent) and every three years (6.7 percent). With respect to IT planning specifically, frequency of planning follows a similar pattern, with 44.7 percent completing their most recent plan in 2003 and 24.4 percent in 2002. And 79.4 percent update these plans every two to three years. These results are largely consistent across Carnegie class, public and private institutions, and small and large institutions.

We asked respondents whether their institution had an established office for planning. Overall, 57.8 percent of responding institutions do have an office to carry out planning support activities. And Table 4-3 shows that these institutions are more often public (50.0 percent) than private (32.5 percent). Planning offices are also more common in larger institutions: only 31.8 percent of institutions with 4,000 or fewer students have official planning offices, compared with 63.8 percent of institutions with more than 15,000 students. Larger, more complex institutions more likely have resources to allocate to the planning function as well as greater need for the coordination, documentation, and background research required for planning activities and decisions. Finally, institutions that do have an institutional planning office are also more likely to acknowledge IT as a cornerstone of success.

Looking at IT planning in specific and the provision of staff support for the IT planning effort, we find that only 13.5 percent of insti-

<table>
<thead>
<tr>
<th>Planning Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing Process</td>
<td>44.5%</td>
</tr>
<tr>
<td>No Planned Schedule</td>
<td>19.4%</td>
</tr>
<tr>
<td>Annually</td>
<td>14.6%</td>
</tr>
<tr>
<td>Every Three Years</td>
<td>6.7%</td>
</tr>
<tr>
<td>Other</td>
<td>6.1%</td>
</tr>
<tr>
<td>Every Other Year</td>
<td>4.8%</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>3.5%</td>
</tr>
<tr>
<td>Never</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Has Institutional Planning Office (N = 200)</th>
<th>Has Designated IT Planner (N = 62)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>32.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Public</td>
<td>50.0%</td>
<td>17.3%</td>
</tr>
</tbody>
</table>
tutions report having a designated IT planner other than the senior-most IT leader. “It is just part of everyone’s job,” states Jack McCredie, CIO and associate vice chancellor, information systems and technology, University of California at Berkeley (UC Berkeley). “The value of having this responsibility distributed is that you don’t delegate to somebody else the task of coming up with great ideas. The downside is that day-to-day activities drive out planning, so you don’t nearly make the kind of progress that you would like to. Most organizations need someone to facilitate this process, or it will likely bog down.”

This is precisely why Marilyn McMillan, associate provost and chief information technology officer, New York University (NYU), feels “it is important to have someone in the overall IT organization who has the planning portfolio. It is a hard but necessary thing to keep the planning activities rolling. Anytime you sit down at the table, you are not only focused on the immediate, but on the implications for the future as well.” Not surprisingly, 87.3 percent of the IT planner positions report to the CIO directly, and nearly 60 percent (59.4 percent) of these positions are full time. As with institutional planning, public institutions are more likely to have a designated IT planner, as are larger institutions. In fact, Ted Dodds, associate vice president, information technology and CIO, The University of British Columbia (UBC), recently created a planning and partnering unit within the IT department to identify and evaluate potential IT needs. “We can apply rigor with our business analysts to look at the business case for developing, buying, or other approaches to deliver new IT capabilities to the campus.”

**Purpose of IT Planning**

We asked respondents for the top three reasons IT undertook their planning efforts. Table 4-4 shows that “alignment with overall IT priorities” is by far the biggest motivator for IT planning (76 percent). For example, IT planning creates focus in decentralized institutions. “In a large, dynamic institution it sometimes feels like working inside the Big Bang,” explains UCF’s Joel Hartman. “Things expand out from the center at very high speed. Without context, sometimes people don’t come back to the core and work with each other to deal with the issues that are common among them.” Or it creates a common sense of direction. Before Indiana University (IU) instituted its IT planning process, “we had many IT projects under way partially, but the activity was so diffused,” recalls Norma Holland, associate vice president, university information systems. “The IT strategic plan gave us a solid roadmap for implementing priorities established by the institution.”

Other important reasons include “securing financial resources” (52.8 percent) and “enhancing IT services” (45.1 percent). “I think we increasingly plan to ensure that we are appropriately prioritizing our investments—not just in IT—and to look at the drain on capital across the enterprise,” explains Stephanie Reel, CIO, The Johns Hopkins University. It is also interesting to note that more than one-fifth of respondents (21.1 percent) say their institution uses IT planning to identify competitive opportunities.

Interestingly, an institution’s board members or auditors may identify lack of formal IT planning as an institutional risk. “All my planning was in my head,” explains David Edmondson, assistant provost, information services, Texas Christian University. “If I were run over by a car, no one would know how IT planning was done. So we documented the process and made it a little more formal.”

How do these reasons for IT planning match perceived outcomes? It appears that “why IT plans” is similar in pattern to the planning outcomes, with some exceptions...
(see Table 4-5). Two outcomes, “building alliances with key decision makers” and “increasing top management support,” were not rated as top reasons to plan but did emerge as strong outcomes. Even though they are not explicitly identified as motivators for planning, these would be natural consequences of key stakeholders’ extensive participation in the planning process.

What is the relationship between a specific IT planning goal and achieving that goal? Table 4-6 identifies the top five reasons for IT planning and whether respondents perceived that these outcomes were achieved. Not surprisingly, institutions see themselves as more successful in areas they target for success. For example, the top-rated motivation for IT planning is to align technology with institutional priorities. Those respondents who identified this as one of their planning objectives also reported higher levels of achieving this objective (mean score of 5.42) than did those who did not say aligning technology was a planning objective (mean score of 4.60). This pattern is consistent across all IT planning objectives—that is, “why IT plans” is strongly associated with which outcomes result.

We also asked respondents about the impact of institution-wide IT plans on other campus units. The responses were generally positive and appear in Table 4-7. Three-fourths of respondents (75.4 percent) agree that there is alignment between IT plans and institutional priorities, and 53.9 percent strongly or very strongly agree. “We created our plan based on what California State University wanted to be when it grew up and how technology might help us get there,” explains David Ernst,
Table 4-5. Outcomes of IT Planning (N = 475)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building alliances with key decision makers</td>
<td>5.30</td>
<td>1.152</td>
</tr>
<tr>
<td>Enhancing IT service levels</td>
<td>5.26</td>
<td>1.103</td>
</tr>
<tr>
<td>Aligning technology with other institutional priorities</td>
<td>5.23</td>
<td>1.264</td>
</tr>
<tr>
<td>Increasing top management support</td>
<td>5.16</td>
<td>1.246</td>
</tr>
<tr>
<td>Identifying internal improvement opportunities</td>
<td>5.15</td>
<td>1.124</td>
</tr>
<tr>
<td>Improving communications with users</td>
<td>5.13</td>
<td>1.183</td>
</tr>
<tr>
<td>Identifying new service requirements</td>
<td>5.10</td>
<td>1.163</td>
</tr>
<tr>
<td>Securing financial and other resources</td>
<td>5.08</td>
<td>1.333</td>
</tr>
<tr>
<td>Documenting institutional IT priorities</td>
<td>5.00</td>
<td>1.323</td>
</tr>
<tr>
<td>Keeping an eye on the leading edge</td>
<td>4.68</td>
<td>1.315</td>
</tr>
<tr>
<td>Identifying opportunities to differentiate our institution competitively</td>
<td>4.65</td>
<td>1.463</td>
</tr>
<tr>
<td>Orienting a new leader to the state of IT at the institution</td>
<td>4.18</td>
<td>1.492</td>
</tr>
</tbody>
</table>

*Scale = 1 (none) to 7 (a very great deal)

Table 4-6. Comparison of IT Planning Outcomes Desired and Achieved

<table>
<thead>
<tr>
<th>Outcome Desired</th>
<th>Outcome Achieved</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Align technology with institutional priorities</td>
<td>Yes</td>
<td>5.42</td>
<td>1.176</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4.60</td>
<td>1.335</td>
</tr>
<tr>
<td>Secure financial and other resources</td>
<td>Yes</td>
<td>5.23</td>
<td>1.308</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4.90</td>
<td>1.343</td>
</tr>
<tr>
<td>Enhance IT service levels</td>
<td>Yes</td>
<td>5.39</td>
<td>1.025</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5.16</td>
<td>1.156</td>
</tr>
<tr>
<td>Identify competitive opportunities</td>
<td>Yes</td>
<td>5.62</td>
<td>1.211</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4.39</td>
<td>1.415</td>
</tr>
<tr>
<td>Document institutional IT priorities</td>
<td>Yes</td>
<td>5.33</td>
<td>1.202</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4.92</td>
<td>1.341</td>
</tr>
</tbody>
</table>

*Scale = 1 (none) to 7 (a very great deal)
assistant vice chancellor and CIO, California State University, Office of the Chancellor (CSU). “The part about technology came second. It was not so much ‘where can technology take the university,’ it was more about where should we be headed and is there a role for technology along the way.”

Respondents also agreed that the IT plan influences central IT operations. As IU’s Norma Holland notes, “Although there were IT advisory committees in place, years ago someone could just call up an IT staff member with an individual request and a staff person would do it. Now people are focused on specific projects that support the overall IT strategic plan.” However, respondents were less enthusiastic about the IT plan’s impact on campus units other than central IT—particularly on academic units. Among respondents, 63.9 percent agreed (and 15.9 percent disagreed) that the IT plan influenced decisions in administrative units, whereas only 40.9 percent agreed that the IT plan influenced academic units (and 26.7 percent disagreed). “Until now, our IT plan probably does not have a lot of influence on academic activities,” notes Texas Christian University’s David Edmondson. “Everyone knows the plan exists, that planning is taking place, and they can look online and use it to help determine their priorities. So, although I think it indirectly impacts their activities, there could well be more impact.”

But one interviewee did feel IT planning had impact on other areas. “The IT plan feedback sessions with deans, department heads, etcetera, provide a forum to discuss how the plan can impact academic or administrative operations,” states GWU’s David Swartz. “They could begin to envision how activities in the IT plan could enable projects for them.” This pattern makes sense because administrators usually have broader and more frequent involvement in IT planning and governance processes, and many central IT initiatives primarily support central administrative functions.

**Organizational Climate**

We asked respondents to characterize their institutional environment. Indeed, how our respondents view their organizational climates is noteworthy (see Figure 4-4). Almost half (44.9 percent) of institutions characterize their organizational climate as dynamic, over one-third (34.7 percent) report a stable environment, and one-fifth (20.4 percent) report a turbulent or volatile environment. Although patterns did not vary significantly across Carnegie classes, public and private control, or institutions with large and small student enrollment, other important differences did emerge.

Perceptions of the organizational climate were associated with institutional planning...
characteristics. First, Table 4-8 shows respondents’ perceptions regarding the clarity of their institutional vision and priorities. Very large differences exist; for example, 66.2 percent of respondents from dynamic institutions strongly or very strongly agree that their institution has a clearly articulated vision, followed by 49.1 percent for stable institutions, 26.0 percent for turbulent institutions, and 26.2 percent for volatile institutions.\(^4\)

This pattern extends to attitudes about institutional planning, as shown in Figure 4-5. Notice that institutions our respondents characterized as dynamic are more likely to think that planning, and its link to budget, are important. In contrast, institutions characterized as turbulent or volatile are less likely to emphasize planning.\(^5\) This result is consistent with the research finding that when turbulence is encountered, “information sharing, participativeness, long-term planning, morale, innovativeness, and credibility of leaders decrease.”\(^6\)
Top Leadership and Planning

The study looked at several dimensions of leadership in relation to institutional and IT planning, including leadership tenure, leadership roles in institutional planning, leadership engagement with IT, and leadership perceptions about key IT issues.

Leadership and Institutional Planning

Much discussion has focused on the length of time presidents and chancellors occupy their positions. According to the American Council on Education, the average tenure for public university presidents is approximately five years; for their private college counterparts, it’s about seven years. Only about 100 presidents from the nation’s 1,478 four-year colleges have served more than 15 years.7 We were curious about the impact of new institutional leadership, as it often brings a change in direction and strategy and possibly shifts in institutional culture. This can challenge the existing planning cycle and its typically multiyear initiatives.

We considered the first one to three years of a presidency as a critical time for introducing evolutionary or revolutionary change. The concept of strategic momentum or inertia suggests that it often takes new top executives a few years to change an organization’s strategic direction. Figure 4-6 presents the tenure of our responding institutions’ top leaders, by Carnegie class. Overall, 35.1 percent of the presidents/chancellors from our surveyed institutions have been in their positions for three or fewer years, and 12.5 percent have been in their jobs less than one year. Our findings are consistent with the American Council of Education profile, showing that public institutions’ presidential longevity is less than that of private institutions: 39.5 percent of our public institution respondents said their president had been in office for three or fewer years, compared with only 28.5 percent for private institutions. We found no meaningful differences based on Carnegie class, size of institution, attitudes about planning, reasons for planning, or perceptions about planning outcomes. We did find, however, that top leaders who had been in office longer were somewhat more likely to have an institutional plan.

A relationship also exists between the institutional climate and the arrival of a new top leader for the institution. Table 4-9 shows data from our respondents. Institutions with turbulent or volatile environments show half (50.0 percent) having new top leadership within the past three years, followed by those with dynamic organizational climates (36.6 percent have new leaders), and lastly those with stable or dynamic climates (32.1 percent have new leaders).
with stable environments (25.2 percent have new leaders). It may be that new leadership is solicited more often in turbulent situations, or new leadership may bring disruption with changes in direction, approaches and priorities, or likely both. Also, since institutions with dynamic organizational climates report more new leadership (36.6 percent) than those with stable organizational climates (25.2 percent), new leadership might actually help create a dynamic environment—indeed, this would seem to be a goal of seeking new leadership.

Our survey also addressed leadership continuity with respect to IT. We asked how long the top IT leader had reported to his or her current boss. Almost half (47.4 percent) have had a stable reporting relationship for only three or fewer years, and 17.5 percent for under one year. Again, continuity of the IT leader’s reporting relationship may have implications for IT, as the traditional process from IT strategic planning through implementation of major IT initiatives is most often a multiyear effort. However, CSU Chico’s Bill Post advocates that “if a good CIO has enough rationality to his plan, he or she should be able to move between institutional leadership changes.”

Respondents described the role their top institutional leader plays in the planning process. Generally, presidents and chancellors are perceived as engaged in institution-wide planning, most often as a sponsor (39.9 percent) or a participant (25.3 percent). And 16.2 percent said their chief officer was ac-
tually a cheerleader or champion of campus strategic planning (see Figure 4-7). There was little difference across Carnegie class, public and private institutions, and large versus small institutions. Montgomery College CIO Dick Leurig agrees. “I don’t think being at a community college affects planning one way or another. I think an institution’s president or executive leadership is more of a factor in determining the importance of planning.”

Leadership and Engagement of IT

Presidents and chancellors do influence an institution’s attitudes about planning. “Our president likens the need for a vision to the box cover of a jigsaw puzzle,” says UBC’s Ted Dodds. “You can’t put the jigsaw puzzle together unless you have the box cover.” Indeed, Berklee College of Music’s outgoing president thinks planning is so important that he arranged his retirement to coincide with the institution’s planning cycle. “President Berk decided he did not want to remain president through our institution’s upcoming five-year planning cycle,” explains David Mash, vice president, information technology, Berklee College of Music. “He announced his retirement two years before the end of our current cycle so the college could recruit a new president to lead Berklee through our next planning initiative.”

Among respondents, 48 percent come from institutions where the president/chancellor includes the senior IT leader as a member of the cabinet. And, as one might assume, these specific institutions reported overwhelmingly (94 percent) that the senior-most IT leader also participates in overall institutional planning. “My role in the planning is that as VP of information technology, I represent the IT organization’s interests at the president’s cabinet,” states Berklee’s David Mash, “but I also guide how we use IT on a broad academic scale at the college.”

Significantly fewer respondents (65.6 percent) from institutions where the top IT leader does not “sit at the table” report that the top IT leader participates in institution-wide planning. Figure 4-8 shows how institutions involve the senior IT leader in their cabinets and in their institutional planning process, by Carnegie class. It is interesting that 93.4 percent of our AA responding institutions involve their top IT leader in institutional planning.

There were also differences between public and private institutions with respect to
inclusion of the senior IT leader in the cabinet (54.2 percent public versus 40.5 percent private) and in institutional planning (85.6 percent public versus 71.2 percent private). And institutions whose mission specifically acknowledges IT as a cornerstone of success are more likely to include their top IT leader on the cabinet. Only 36.8 percent of Canadian institutions make a place for their senior IT leader on the cabinet.

Also important is how respondents characterize their president or chancellor specifically with respect to IT (see Figure 4-9). The findings are positive and consistent across the higher education institutions we surveyed. Over three-fourths (76 percent) of respondents view their president/chancellor as a champion, strong supporter, or willing enabler of IT. Over all, many respondents mirror Stephanie Reel’s experience at The Johns Hopkins University. Said Reel, “The institution has been incredibly generous and supportive of our IT initiatives. That is due, in part, to the leadership’s healthy respect for what IT can do. It is probably because they participate in the IT planning and evaluation activities pretty heavily.” Norma Holland ties IU’s current technology strength directly back to its presidents. She explains that “the previous and current IU presidents believe that IT is a strategic asset.”

The presidents’ and chancellors’ growing understanding of technology may also affect their attitudes. “People were not as tuned in to technology years ago,” explains SFSU’s Jonathan Rood. “When I made a formal presentation to deans and the cabinet eight or 10 years ago, everyone was impressed by technology but unaware of its capabilities. Now it is much more interactive. The president, the vice presidents, and the deans are banking from home. They are totally immersed in technology. Very little surprises them now. So we relate more at a discussion level than a presentation level. Technology does not amaze them anymore. Rather, we have gained in-depth knowledge about how to use it.”

We also queried respondents about how involved their boards of trustees, regents, and governors are in IT. Professional background may play a role in their involvement. GWU’s David G. Swartz notes that “several board members, who are CEOs from high-tech firms, encouraged our IT planning process.” We found that one-fifth (20.5 percent) of institutions affiliated with a governing board had established a committee for addressing
technology issues. This number may be low because a governing board will often designate one or two members to focus on IT activities as part of their board duties rather than create a formal committee.

Presidential engagement in IT also appears to vary with the organizational climate. The top institutional leader engages as a champion, strong supporter, or willing enabler at 85.5 percent of institutions with a dynamic organizational climate, 74.7 percent of institutions with a stable organizational climate, and 68.0 percent of institutions with a turbulent or volatile organizational climate. Likely, as organizational turbulence increases, the top leader must deal with more pressing issues that detract from active engagement with IT.

Leadership and Perceptions about IT

Our study also solicited opinions on selected views about IT at the institution. Table 4-10 shows statements that focus on leadership awareness about IT’s institution-wide impact and importance. There is substantial agreement that the leadership at responding institutions recognizes the IT infrastructure as an important asset (78.0 percent), understands the value of IT (76.5 percent), views central IT as indispensable to their success (77.4 percent), and believes that IT initiatives lead to positive cultural change (78.1 percent).

Yet there is mixed review as to whether the leadership actually understands the IT vision (53.9 percent agree, 18.6 percent disagree) or regularly considers the IT implications of institutional decisions (48.1 percent agree, 32.9 percent disagree).

Corroborating the ECAR leadership study, we find that those institutions with either a formal plan outlining institutional priorities or an IT plan report higher levels of agreement with these statements. Notably, this finding is especially strong for the two lowest-rated statements. Among respondents, 66.3 percent from institutions with an IT plan agree that their leadership understands the IT vision, compared with 31.1 percent from institutions without an IT plan. Similarly, 55.7 percent of respondents from institutions with an IT plan agree that their leadership regularly considers IT implications of institutional decisions, compared with 28.1 percent from institutions without an IT plan. The process of creating an institution-wide IT plan may promote leadership understanding of key IT issues. Bloomfield College’s Carole Carmody agrees, observing that “the planning process—if not the plan itself—makes leadership aware of IT.”
Table 4-10. Leadership Perceptions of IT

<table>
<thead>
<tr>
<th>Perception</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT infrastructure recognized as an important asset</td>
<td>5.26</td>
<td>1.346</td>
</tr>
<tr>
<td>Leadership understands the value of IT</td>
<td>5.21</td>
<td>1.384</td>
</tr>
<tr>
<td>Stakeholders view central IT as indispensable to their success</td>
<td>5.19</td>
<td>1.257</td>
</tr>
<tr>
<td>IT initiatives often result in sustainable and positive cultural change</td>
<td>5.14</td>
<td>1.029</td>
</tr>
<tr>
<td>Institution has a reputation as forward-thinking in the use of IT</td>
<td>4.74</td>
<td>1.567</td>
</tr>
<tr>
<td>Decision makers understand how IT relates to institutional strategy</td>
<td>4.67</td>
<td>1.418</td>
</tr>
<tr>
<td>Stakeholders understand the IT vision</td>
<td>4.49</td>
<td>1.244</td>
</tr>
<tr>
<td>Senior leaders regularly consider the IT implications of institutional decisions</td>
<td>4.23</td>
<td>1.461</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)

**IT Alignment**

Both the literature on strategic alignment and our survey data substantiate that aligning IT priorities, projects, and funding with overall institutional priorities is a primary goal of IT planning. Two key survey questions asked respondents to rate their perceived degree of IT alignment (Figures 4-10 and 4-11). Overall, perceptions about alignment between IT and institutional priorities are quite positive. Among respondents, 84.5 percent agree that alignment exists between the central IT organization’s priorities and the institution’s priorities. And 69.8 percent of respondents agree that IT priorities in campus departments are then aligned with institutional IT priorities. We found no meaningful differences with regard to Carnegie class or public and private institutions.¹⁰

To gain more understanding, we queried some respondents who reported nonalignment of IT. These IT leaders were extremely aware of the negative impact of misalignment of IT. Ann Kovalchick, director, Center for Innovations in Technology for Learning at Ohio University, stated that “when there is nonalignment between central IT priorities and institutional priorities, decision making becomes politicized. I think creativity suffers as well, because so much energy is invested in competing for resources. Finally, efforts to build partnerships between IT staff and faculty are limited because the disconnected and disenfranchised faculty are the very individuals that can add value to technology.” David Kluth, vice president, university services, Concordia University (Austin), adds that “lack of alignment makes it more difficult to build the necessary electronic capacity to accommodate future institutional needs. And lack of alignment, or misalignment, can result in decreased performance for both administrative and academic entities within a school. With growing
competition within higher education, this can have significant detrimental effects.”

**IT Alignment and Institutional Vision/Priorities**

Figures 4-12 and 4-13 show that the overwhelming majority of respondents report both that the institution has a clear vision and priorities and that IT is aligned with institutional priorities. We see a strong statistical association as well. Those respondents perceiving a clear institutional vision report more central IT alignment (91.3 percent agreed) than those who do not perceive a clear institutional vision (only 56.9 percent agreed that IT was aligned). It seems reasonable that a well-defined campus vision and priorities would provide better direction for developing IT plans and priorities. UBC’s Ted Dodds explains, “What makes IT planning most effective is the existence of an institutional vision or plan. In an incredibly complex and diverse university like this, when there is alignment at a very strategic level, it makes it a whole lot easier for IT leaders to operate, because we have a sense of where things are going.” Although
not shown here, the pattern seen for central IT alignment with institutional priorities is also evident when looking at departmental IT priority alignment with institutional IT.

**IT Alignment and Planning**

Is there a connection between institutional planning activities and perceptions of IT alignment? In fact, institutional attitudes about planning are associated with perceptions of IT alignment (see Table 4-11). Of respondents who strongly or very strongly agree that central IT priorities are aligned with institutional priorities, 68.3 percent report that their institutions think planning is important and linked to budget, 26.4 percent report that planning is important but not linked to budget, and only 5.2 percent report that their institution does not emphasize planning. This is in contrast to respondents who strongly or very strongly disagree that central IT priorities are aligned with institutional priorities, of whom 50 percent report that their institutions don’t emphasize planning.

It makes sense, then, that respondents from institutions with an institutional plan and/or an IT plan also report more agreement that both their central and departmental IT priorities are aligned with institutional priorities. In addition, respondents from institutions
that continuously engage in planning activities report more central IT alignment (57.7 percent strongly agree) than those from institutions that don’t (38.3 percent strongly agree). Finally, institutions that include their senior IT leaders in the institutional planning process report somewhat more agreement about the alignment of central IT priorities with institutional priorities. It appears, as one would hope, that planning activities are associated with higher levels of IT alignment. “Planning provides a means for collaboration on the campus so that we can achieve alignment together,” explains SFSU’s Jonathan Rood. “Without planning I might know what’s going on, I might be able to push an agenda because I stayed tuned to technology, but there would be nobody there behind me or with me in the process.”

**IT Alignment and Leadership**

We can also look at perceptions of IT alignment in terms of how the institutional president or chancellor engages with IT (Table 4-12). Respondents who see their president as a champion agree strongly or very strongly that central IT is aligned (62.7 percent), followed by those who see their top leader as a strong supporter (49.2 percent strongly agree), willing enabler (48.1 percent strongly agree), delegator (40.8 percent strongly agree), or obstacle (20.0 percent strongly agree). We found a similar pattern for the relationship between departmental IT alignment and presidential engagement with IT.

Institutions reporting more central IT alignment also rate leadership awareness of IT’s institutional impact at their campus higher (see Table 4-13). For example, 82.6 percent of respondents who agree that central IT priorities are aligned with the institution’s report that their institutional leadership understands IT’s value. In contrast, only 35 percent of respondents who disagree that central IT is aligned report that their institutional leadership understands IT’s value. We noted more variance among responses of those who disagree that central IT is aligned (larger standard deviations). This is partially because the number of respondents who disagree that central IT is aligned (N = 40) is small compared with the number who agree (N = 407) that central IT is aligned. These patterns also hold true for perceptions of departmental IT alignment with institution-wide IT priorities.
### Table 4-12. IT Alignment by President’s/Chancellor’s Engagement with IT

<table>
<thead>
<tr>
<th>President’s/Chancellor’s Engagement with IT</th>
<th>Central IT Organization Aligned with Institutional Priorities (N = 460)</th>
<th>Department IT Priorities Aligned with Institutional IT (N = 457)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Champion</td>
<td>5.83</td>
<td>1.120</td>
</tr>
<tr>
<td>Strong supporter</td>
<td>5.39</td>
<td>1.143</td>
</tr>
<tr>
<td>Willing enabler</td>
<td>5.38</td>
<td>1.201</td>
</tr>
<tr>
<td>Delegator</td>
<td>5.24</td>
<td>1.094</td>
</tr>
<tr>
<td>Obstacle</td>
<td>4.12</td>
<td>1.716</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)*

### Table 4-13. Leadership Perceptions of IT, by Alignment of Central IT

<table>
<thead>
<tr>
<th>Leadership Perceptions</th>
<th>Disagree That Central IT Is Aligned</th>
<th>Agree That Central IT Is Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>IT initiatives often result in sustainable and positive cultural change</td>
<td>4.37</td>
<td>1.334</td>
</tr>
<tr>
<td>Stakeholders view central IT as indispensable to their success</td>
<td>3.95</td>
<td>1.616</td>
</tr>
<tr>
<td>Leadership understands the value of IT</td>
<td>3.75</td>
<td>1.645</td>
</tr>
<tr>
<td>IT infrastructure recognized as an important asset</td>
<td>3.73</td>
<td>1.485</td>
</tr>
<tr>
<td>Stakeholders understand the IT vision</td>
<td>3.38</td>
<td>1.148</td>
</tr>
<tr>
<td>Institution has a reputation as forward-thinking in the use of IT</td>
<td>3.18</td>
<td>1.662</td>
</tr>
<tr>
<td>Decision makers understand how IT relates to institutional strategy</td>
<td>3.00</td>
<td>1.240</td>
</tr>
<tr>
<td>Senior leaders regularly consider the IT implications of institutional decisions</td>
<td>2.70</td>
<td>1.265</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)*
IT Alignment and Organizational Climate

Table 4-14 shows a strong relationship between organizational stability and IT alignment. This finding is expected, given the relationships between organizational climate and institutional vision, priorities, and planning attitudes discussed previously. For example, respondents from dynamic environments most commonly reported alignment of central IT priorities with the institution (92.1 percent report alignment), followed by those from stable (83.8 percent report alignment), turbulent (73.2 percent report alignment), and volatile environments (64.3 percent report alignment). Perception of departmental alignment with institutional IT follows this pattern and is most common in dynamic environments (77.7 percent report alignment), followed by stable (68.7 percent report alignment), turbulent (58.2 percent report alignment), and volatile environments (50.0 percent report alignment).

Endnotes

4. The large standard deviations for turbulent climate reflect a small sample size in this category (N = 42) with a somewhat bimodal distribution with respect to those agreeing and disagreeing as to their institution’s clarity of vision and priorities.

Table 4-14. IT Alignment, by Organizational Climate

<table>
<thead>
<tr>
<th>Organizational Climate</th>
<th>Central IT Organization Aligned with Institutional Priorities (N = 481)</th>
<th>Department IT Priorities Aligned with Institutional IT (N = 478)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Stable</td>
<td>5.31</td>
<td>1.151</td>
</tr>
<tr>
<td>Dynamic</td>
<td>5.64</td>
<td>1.043</td>
</tr>
<tr>
<td>Turbulent</td>
<td>4.71</td>
<td>1.825</td>
</tr>
<tr>
<td>Volatile</td>
<td>4.89</td>
<td>1.216</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
8. This is consistent with the findings of the ECAR study, Information Technology Leadership in Higher Education: The Condition of the Community (Boulder, Colo.: EDUCAUSE Center for Applied Research, Research Study, Vol. 1, 2004), p. 88. Of 330 senior-most IT leaders, 50.6 percent were members of the president’s cabinet.

9. This is consistent with the findings of the ECAR study, Information Technology Leadership in Higher Education: The Condition of the Community, pp. 99–103.

10. Although we noted a pattern suggesting that smaller institutions report less IT alignment than larger institutions, results were inconclusive.

11. The large standard deviations for president’s/chancellor’s engagement with IT as “obstacle” reflect a small sample size in this category (N = 25) with a somewhat bimodal distribution with respect to those agreeing and disagreeing as to their institution’s central and departmental IT alignment.
Both the private sector and higher education recognize that IT governance is integral to the success of strategic planning and alignment. They also recognize that creating and sustaining a truly effective governance process can be quite a challenge. This chapter looks at what our respondents have to say about their institutions’ IT governance process.

Background

A 2003 ASHE-ERIC publication, Governance in the Twenty-First-Century University, reports findings from a review of the extensive literature on higher education governance. After defining governance as “the structure and process of authoritative decision making across issues that are significant for external as well as internal stakeholders within a university,” the authors present their key findings. Their data raised three core higher education governance-related issues that drive the need for evolving new governance structures and processes. And IT is central to each of these three core issues.

- Teaching and learning: The proliferation of educational technology requires effective management, integration, and use.
- IT and distance education: Well-conceived strategic decisions, as well as effective use of technology, are critical in this highly competitive arena.

Key Findings

- Respondents report only mild agreement that their IT governance process is effective. They are even less positive that the IT governance process is well understood.
- Respondents reporting that they have more involvement of key administrators, deans, and faculty say their IT governance process is more effective.
- Institutions involve faculty and deans in their IT governance processes much less often than they involve key administrators.
- Institutions use a multitude of sources and forums for soliciting advice about IT policy and programs. Most use formal advisory committees—academic, administrative, or combined.
- Institutions where the senior IT leader makes independent decisions on IT policy and programs rate their IT governance process as less effective.
- Stronger IT alignment is reported at those institutions where the IT governance process is perceived as effective.

- Resource allocation and accountability: Decisions, management, and assessment are increasingly important as the relative percentage of resources allocated to technology continues to increase.
  Further, the use of IT in higher education is surfacing a new and thorny set of issues requiring institutional attention. Decisions are needed on a growing number of topics, such as control of course content, intellectual
property rights, security policies and practices, strategies and standards for distance education, and opportunities to form strategic partnerships. The ASHE-ERIC report findings corroborate what George Keller advocated in the early 1980s—that successfully traversing this landscape requires that overall governance, including IT governance, blend effectively with institutional leadership, strategic management, and administration. Also, the influence and character of the organizational culture and climate must be carefully considered and preferably leveraged in creating meaningful governance structures and processes.

It is within this context that IT governance is set for any specific institution. IT governance involves assigning shared responsibility, authority, and/or accountability to a broad-based, cross-functional set of stakeholders, addressing numerous IT-related areas. Authority can range from purely advisory to true decision making. Structures and processes can range from very loose and informal to tightly controlled, from no committee structure to many interlocking committees. Committees can be actively involved in just a few or in many areas, such as strategic planning, policy development, technology decisions, project identification and priority setting, allocation of resources, assessment of IT, communication, and review of standards and processes. Mark Aldenderfer, director, Office of Information Technology, University of California, Santa Barbara, expressed this when he said, “There is no single model for a campus to follow to find the governance structure best suited to its history, stated strategic goals, and the practical realities of campus politics. But the discussion on that structure must be public, open, and wide ranging. Without it, we go back to business as usual, and in today's environment, we can’t afford to do this much longer.”

Although IT governance varies widely across institutions, Gartner, Kvavik, Gayle, and others have offered general guidelines, advocating that effective governance reflect and support the prevailing organizational culture; ensure committee membership has the necessary knowledge and information to carry out their responsibilities; have strong executive support and sponsorship; clearly articulate goals, process, responsibilities, and principles; keep an institutional and educational perspective; promote alignment with institutional vision and priorities; and facilitate positive organizational transformation.

**Summary of Findings**

The qualitative and quantitative data about IT governance provide further insight into IT strategic planning and alignment. Our data shows wide variety in how institutions design and carry out IT governance, as well as some common themes. Most important is that our IT leaders are only mildly positive about the effectiveness of their IT governance processes and generally do not think that IT governance at their institutions is understood. This raises intriguing questions. How is it that the same respondents who give a resounding “thumbs up” to IT alignment are not as enthusiastic about their IT governance—a process that common wisdom tells us is critical to the success of planning and alignment efforts? How can IT leaders report solid IT alignment and, at the same time, say their IT governance process is not well understood at the institution? To address these questions, we first note that our data does bear out this common wisdom, that IT governance effectiveness and IT alignment are related. Institutions that are more satisfied with their IT governance perceive that they are better aligned.
Looking further at the characteristics of IT effectiveness, we find two prominent, if not surprising, findings. First, campus participation matters a great deal. Those IT governance processes are rated more effective that have more involvement from key administrators, faculty, and deans—indeed, perceptions of effective IT governance go hand-in-hand with higher levels of constituent involvement. And this involvement follows a familiar pattern in which key administrators are significantly involved—much more so than deans and faculty. Those constituents most closely connected to the institution’s core mission—faculty, deans, and students—are much less often included in the IT governance process than are the key administrators.

Second, although the data shows clearly that institutions use many sources and forums to gain campus input and advice about IT, formalization appears to be important. Most institutions do prefer formal committee structures, including academic and administrative committees, planning committees, the president’s cabinet, and other standing or ad hoc committees. These established committees provide ready-made forums for carrying out the activities related to IT strategic planning and alignment, such as soliciting input, communicating, setting and changing priorities, and making decisions. Perhaps for these reasons, respondents using formalized committee structures told us that they think their IT governance processes are more effective.

The following sections discuss these findings in detail. They also set the stage for a more in-depth look at IT strategic planning processes (Chapters 6 and 7) and further discussion of the discrepancy between resoundingly positive perceptions of IT alignment and the lackluster perception of IT governance effectiveness.

### IT Governance Process

Our survey data provide a snapshot of the IT governance processes at our responding institutions.

<table>
<thead>
<tr>
<th>Source of Advice</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A standing academic committee</td>
<td>321</td>
<td>66.5%</td>
</tr>
<tr>
<td>A standing administrative committee</td>
<td>303</td>
<td>62.7%</td>
</tr>
<tr>
<td>Senior IT leader(s) determine after informal discussions with others</td>
<td>255</td>
<td>52.8%</td>
</tr>
<tr>
<td>Central and distributed IT leaders</td>
<td>197</td>
<td>40.8%</td>
</tr>
<tr>
<td>Senior administrators</td>
<td>165</td>
<td>34.2%</td>
</tr>
<tr>
<td>Senior IT leader(s) make independent decisions</td>
<td>102</td>
<td>21.1%</td>
</tr>
<tr>
<td>Board members</td>
<td>11</td>
<td>3.2%</td>
</tr>
</tbody>
</table>
institutions. Table 5-1 presents the primary sources of advice on IT policy and programs. By far the most common IT governance process is a standing academic committee (66.5 percent) or a standing administrative committee (62.7 percent). More than half of institutions surveyed (51.3 percent) have both an academic and an administrative standing committee for IT or a combined academic and administrative committee. And 44.5 percent of institutions reported that students were involved in advisory committees. Table 5-1 shows that institutions are using multiple sources and forums—some formal, some informal—to gain advice on IT policy and programs.

Interviewees described their use of committees. The University of Cincinnati established an IT committee structure with three working committees representing academic, administrative, and infrastructure IT interests. These revolve around a fourth executive IT steering committee and provide a structured opportunity for discussion of IT concerns. Indiana University maintains a university IT committee, headed by a faculty member. Underneath, four principal task forces mirror the IT organization: information systems, telecommunications, teaching and learning, and research. The University of California San Diego (UCSD) uses an extensive network of “campus user or client advisory groups to evaluate, provide input, and prioritize the changes and enhancements to our current systems, or the addition of new systems,” explains Steve Relyea, vice chancellor, business affairs. The California State University System maintains a complex governance structure to manage its dozen IT initiatives on all of its 23 campuses.

Yet the personal touch is a significant alignment builder at smaller, more centralized institutions. Bates College’s Gene Wiemers, associate vice president for academic affairs, director of information services, and librarian, notes, “Bates is small enough that faculty, administration, and staff are on a first-name basis. We get lots of informal communication and input.” John Bucher, director of information technology, Oberlin College, says, “My real strategy is to continue to build my web of influence every day.”

At approximately one-fifth of institutions (21.1 percent), respondents said that the senior IT leaders make independent decisions about IT policy and programs, even though more than half of these institutions also have academic (55 percent) and/or administrative (54 percent) IT advisory committees. Montgomery College’s Dick Leurig’s experience mirrored that of several respondents interviewed. “I use our technology council to provide input and move forward strategic initiatives,” he says. “They discuss relevant strategic items. Then the budget committee and cabinet use that input to prioritize total budget requests.” Governing board members do not appear to be actively involved in IT policy and programs (2.3 percent). Indeed, most IT leaders interviewed involve them only to receive final approval for IT plans and policies.

Larger institutions are more likely to create an academic IT advisory committee. Indeed, 82.7 percent of institutions with enrollments between 15,001 and 25,000 students and 88.9 percent of institutions with more than 25,000 students have a standing academic IT advisory committee, whereas only 51.2 percent of institutions with 2,000 or fewer students have such a committee. Larger institutions are more likely to solicit student participation via committee. Among responding institutions, 61.4 percent with more than 15,000 students include students on their IT advisory committees, whereas only 38 percent of institutions with 2,000 students or fewer ask students to participate. Some IT leaders question the effectiveness of using students in a formal advisory structure. San Francisco State University’s Jonathan Rood explains, “Students are a changing population, and often task forces span multiple years…. The
student government designates participants on committees, but their input is limited—perhaps because they are overshadowed by other members.” Rood believes students are valuable on campus-wide committees, but other forums, where students can interact in a group with their peers, such as focus groups, often can provide a more in-depth communication for student input.

This connection to size does not hold true for administrative IT advisory committees. We also saw minor differences by Carnegie class: fewer AA institutions have an academic IT committee or involve students on IT advisory committees.

Interesting findings emerged regarding institutions reporting that their senior IT leaders make independent decisions on IT policy and programs. Table 5-2 shows that private institutions were more likely to report that their senior IT leader(s) determines IT policy and programs after informal discussions with others (60.0 percent), or that the senior IT leader makes independent decisions (28.0 percent) than were public institutions (47.4 percent and 16.2 percent, respectively). Further, institutions where the senior IT leader makes independent decisions were significantly less likely to publish an IT vision statement, produce an institution-wide IT plan, or have an established planning office at their campus.

David Swartz at GWU relies on informal discussions because “strategic planning is something that needs to be more dynamic. The traditional process is cumbersome.” So, with help from external consultants, Swartz developed a “straw man” vision to pass around. This then generates feedback, helps set priorities, and builds consensus with senior administrators and deans. He downplays the traditional committee input structure because “faculty, students, and committees have much shorter time horizons than three to five years out.”

Institutions that have an IT administrative advisory committee vary in profile from those that do not (see Table 5-3). These institutions

---

**Table 5-2. Who Determines IT Policy and Programs, by Control**

<table>
<thead>
<tr>
<th></th>
<th>Private</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior IT leader(s) after informal discussions with others</td>
<td>60.0%</td>
<td>47.4%</td>
</tr>
<tr>
<td>Senior IT leader(s) make independent decisions</td>
<td>28.0%</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

**Table 5-3. Planning Activities, by IT Administrative Advisory Committee**

<table>
<thead>
<tr>
<th></th>
<th>Institution Has Administrative Computing Committee</th>
<th>Institution Does Not Have Administrative Computing Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution has a planning office</td>
<td>46.7%</td>
<td>34.6%</td>
</tr>
<tr>
<td>IT publishes a vision statement</td>
<td>58.1%</td>
<td>46.1%</td>
</tr>
<tr>
<td>IT has an institution-wide IT plan (or has one in progress)</td>
<td>63.4%</td>
<td>45.0%</td>
</tr>
</tbody>
</table>
are more likely to have an official planning office, and the IT organization is more likely to publish a vision statement as well as an institution-wide IT plan. Further, their IT plans are more likely to be linked to the institutional budget. Interestingly, the same is not true for the existence of an academic advisory committee—the key seems to be the administration’s involvement.

The annual EDUCAUSE Current Issues Survey tells us that while CIOs worry more about academic issues, their dollars and resources are focused on administrative systems. For example, Carolyn Hershberger, vice president, information technology, Green River Community College, is using her IT planning process to facilitate the upcoming replacement of her institution’s administrative systems platform. Her plan will include “subsections of marketing, communication, training, assessment of our users, and assessment of our assets.” Hershberger also employs a planning staff person to “assess and coordinate project evaluation, assessment, scheduling, and resource requirements.” And in reverse, CSU Chico’s Bill Post and his IT team used their PeopleSoft implementation “to form relationships and to communicate activities” that can now be leveraged in his overall IT planning process.

Differences in IT governance advisory processes did not correspond to the president’s role in institutional planning, level of engagement in IT, or longevity, or to the institution’s organizational climate.

**IT Governance and Leadership**

Here we revisit the survey questions about leadership perceptions of the IT impacts on the institution. For example, some leadership perceptions about IT seem to be related to institutional governance processes. Table 5-4 illustrates that respondents from institutions that employ IT advisory committees believe that campus IT stakeholders (1) view central IT as indispensable to their success and (2) understand the IT vision more than respondents who do not employ committees. Perhaps this

<table>
<thead>
<tr>
<th>Institution has academic IT committee</th>
<th>View IT as Indispensable to Their Success</th>
<th>Understand the IT Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5.30</td>
<td>4.58</td>
</tr>
<tr>
<td>No</td>
<td>4.98</td>
<td>4.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution has administrative IT committee</th>
<th>View IT as Indispensable to Their Success</th>
<th>Understand the IT Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5.30</td>
<td>4.60</td>
</tr>
<tr>
<td>No</td>
<td>5.00</td>
<td>4.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IT leader makes independent decisions</th>
<th>View IT as Indispensable to Their Success</th>
<th>Understand the IT Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4.95</td>
<td>4.12</td>
</tr>
<tr>
<td>No</td>
<td>5.26</td>
<td>4.59</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
is because, as UBC’s Tedd Dodds notes, “the systems and processes enable the IT organization itself. We use an iterative approach that involves going outside IT services and into the community to our partners, various advisory councils, and other related subcommittees to introduce new ideas and strategies—to create a dialogue with them about our vision and plans, their importance, their potential, the timeline.”

In contrast, institutions where the senior IT leaders make independent decisions are less likely to report that their leadership understands the IT vision or considers IT indispensable to success.

Also, where an administrative IT committee serves as part of IT governance, campus leadership is more likely to regularly consider the IT implications in institutional decisions (see Table 5-5). Again, we see an inverse relationship where the senior IT leader makes independent decisions: these institutions are less likely to regularly consider the IT implications of institutional decisions. One further finding emerged about such institutions: respondents report that their key decision makers are less likely to have a clear understanding of how IT projects relate to institutional strategy and goals.

We also noted numerous areas where leadership perception of IT impacts was consistent across all types of IT governance processes. Regardless of the process used, there seems to be general agreement across institutions and governance processes about IT’s value, the IT infrastructure’s importance as an institutional asset, whether the institution has a reputation for being forward-thinking in the use of IT, and whether IT initiatives result in positive and sustainable cultural change. This suggests that these perceptions are formed exogenously and do not derive from what campus IT leaders say or do.

**Perceptions of IT Governance**

We asked several opinion questions about IT governance (see Table 5-6). Respondents agreed (73.4 percent) that the top IT leader is responsible for the governance structure. And, not surprisingly, respondents report that key administrators are the most likely group to be involved in IT governance (76.1 percent agree), followed by faculty members.

<table>
<thead>
<tr>
<th>Institution has administrative IT committee</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4.38</td>
<td>1.399</td>
</tr>
<tr>
<td>No</td>
<td>3.97</td>
<td>1.529</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IT leader makes independent decisions</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3.82</td>
<td>1.563</td>
</tr>
<tr>
<td>No</td>
<td>4.34</td>
<td>1.415</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
(56.2 percent agree), and, lastly, deans (45.2 percent agree). This stair-step pattern of administrator, faculty, and dean involvement is consistent with a previous ECAR study on IT leadership. Results are consistent across Carnegie class, institution size, and public and private institutions.

Respondents were less than positive when asked whether their IT governance process is effective (55.5 percent agree and 21.2 percent disagree). And when asked how well that IT governance process is understood at their institutions, response was also poor (45.1 percent agree that it is well understood, and 27.9 percent disagree). Yet, the association between IT governance effectiveness and how well the governance process is understood is very strong: 88.5 percent of respondents agreeing that the IT governance process is well understood also think their process is effective.

Table 5-6. Perceptions of IT Governance

<table>
<thead>
<tr>
<th>Perception</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top IT leader is responsible for the institution’s IT governance structure</td>
<td>5.13</td>
<td>1.389</td>
</tr>
<tr>
<td>Key administrators are actively involved in IT governance</td>
<td>5.06</td>
<td>1.192</td>
</tr>
<tr>
<td>IT governance process is effective</td>
<td>4.57</td>
<td>1.384</td>
</tr>
<tr>
<td>Faculty members are actively involved in IT governance</td>
<td>4.47</td>
<td>1.392</td>
</tr>
<tr>
<td>IT governance process is well understood</td>
<td>4.31</td>
<td>1.391</td>
</tr>
<tr>
<td>Deans are actively involved in IT governance</td>
<td>4.17</td>
<td>1.407</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)

Key constituents’ involvement is associated with perceptions of IT governance effectiveness. Institutions reporting more involvement of their key administrators, faculty, and deans also report that their IT governance process is more effective. Table 5-7 shows a related finding—that institutions with established IT advisory committees report that their IT governance process is more effective. Again, an inverse relationship occurs where senior IT leaders make independent decisions; these institutions are less positive (only 43.1 percent agree) about the effectiveness of their IT governance than other institutions (58.5 percent agree). With regard to students, we found that institutions involving students on advisory committees report more agreement that their IT governance process was effective.

**IT Governance and Alignment**

Figures 5-1 and 5-2 show that most respondents report both that IT is aligned with institutional priorities and that the IT governance process is effective. There is a statistical association as well. Those respondents perceiving effective IT governance report more central IT alignment (93.3 percent agreed) than those who do not perceive effective IT
Table 5-7. IT Governance Effectiveness, by Advisory Process

<table>
<thead>
<tr>
<th>Institution has academic advisory committee</th>
<th>IT Governance Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Mean: 4.72</td>
</tr>
<tr>
<td>No</td>
<td>Mean: 4.28</td>
</tr>
<tr>
<td>Institution has administrative advisory committee</td>
<td>IT Governance Effectiveness</td>
</tr>
<tr>
<td>Yes</td>
<td>Mean: 4.69</td>
</tr>
<tr>
<td>No</td>
<td>Mean: 4.38</td>
</tr>
<tr>
<td>Senior IT leader makes independent decisions</td>
<td>IT Governance Effectiveness</td>
</tr>
<tr>
<td>Yes</td>
<td>Mean: 4.08</td>
</tr>
<tr>
<td>No</td>
<td>Mean: 4.70</td>
</tr>
<tr>
<td>Students participate in advisory committees</td>
<td>IT Governance Effectiveness</td>
</tr>
<tr>
<td>Yes</td>
<td>Mean: 4.83</td>
</tr>
<tr>
<td>No</td>
<td>Mean: 4.36</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
governance (only 63.7 percent agreed that IT was aligned).

And although the use of academic and administrative computing committees is positively associated with effective IT governance and provides structure for active participation and decision making, the use of advisory committees is not in itself associated with strong IT alignment. The actual involvement of top administrators, deans, and faculty seems to be the key. These processes may naturally lead to increased alignment of IT with campus business organizations and overall institutional priorities. “With the committee input process and the campus online survey, we will have thousands who are aware of and involved in the IT planning process, instead of dozens of people,” states UC Berkeley’s Jack McCredie. Or as Berklee’s David Mash says, “The best part was, at the outcome, the entire community felt like it was their plan.”

Endnotes

5. Gayle, op. cit., p. 113.
Key Findings

- Respondents mildly agree that their IT strategic planning process is effective.
- Respondents reporting that their IT strategic planning process is effective also report stronger IT alignment.
- Effectiveness of IT strategic planning is positively associated with:
  - A clearly articulated institutional vision and priorities
  - Institutions where planning is important and linked to budget
  - More involvement of and communication with constituencies
  - Effective IT governance
- Faculty, deans, and students are much less involved in providing input to central IT than are executive administrators, yet respondents report that their IT priority-setting process is broadly inclusive.
- Institutions with an academic IT committee say their deans, faculty, and students have more input to central IT and are more often top stakeholders in setting IT priorities.
- Respondents overwhelmingly agree that central IT keeps their constituencies well informed. Institutions where the senior IT leader is a cabinet member agree even more.
- Central IT does not often solicit input using formal mechanisms such as customer satisfaction surveys and focus groups. Most input is derived from discussions with users.
- Changes in the external environment were identified as key triggers for changing IT priorities, yet IT leaders paid relatively little attention to scanning the external environment as part of the strategic planning and alignment process.
- Institutions that link their IT plan to the institutional budget report more IT alignment.

This chapter first looks at institutional processes for involving key constituents, including soliciting input for central IT, communicating IT priorities, and keeping constituents well informed. We also discuss findings about the process of setting and changing IT priorities, environmental scanning, and linking the IT plan to the budget.

Background

Today’s lively discussion about strategic planning, focusing on issues of organizational
alignment and agility, is the culmination of a century-long story. Michael G. Dolence recently provided a succinct history of strategic planning in industry and business, from its introduction in the early 1900s with Frederick W. Taylor’s *The Principles of Scientific Management*, through various stages until “Henry Mintzberg declared the end of one era of strategic planning and the dawn of another” in his 1994 *The Rise and Fall of Strategic Planning*. Dolence then comments on the difficulties higher education has experienced in attempting to apply these business concepts, models, and processes. “Differences in governance, structure, language, values, analytical demands, expectations, spans of control, and decision making have all contributed to an unhappy marriage between higher education and strategic planning.”

Regardless, colleges and universities have persevered in both institutional strategic planning and IT planning specifically. George Keller, in the early 1980s, proposed that “the time has arrived for college and university leaders to pick up management’s new tools and use them.” And, over the years, numerous formal models and processes tailored to the public sector, or higher education in specific, have been developed and proposed. Today, our survey data show that 80.5 percent of our responding institutions do have a formal plan outlining priorities for the institution as a whole. Further, 81.5 percent of institutions have an IT plan in place or under development.

If there is overwhelming agreement on any aspect of strategic planning, it is that no single model or process exists for higher education. We all know that colleges and universities are enormously diverse in terms of size, complexity, mission, culture, leadership, and a host of other variables. As one survey respondent notes, “There is no textbook approach to all this. No one set of approaches works at all campuses, at all times. Successful strategic thinking depends on the successful interaction among campus and IT leadership, mores, and culture. It ain’t about bits and bytes.” Recognizing that in higher education “one size fits one,” an effective planning process must take into account the institution’s unique character as well as the breadth of planning processes and methodologies available.

Strategic planning, applied to IT specifically, is set within this history and context. Within higher education and its CIO community, the dialogue about strategic planning and alignment is alive and well. As Bates College’s Gene Wiemers notes, “Our IT planning cannot be done in a vacuum. We need to know: What is the overall planning environment? What kind of planning is done? How detailed is it? How articulated is it? How complex is it?” Articles such as those by McCredie and Ringle and Updegrove have stimulated the debate, presenting varying perspectives and offering advice. And while all agree there is no planning model that can be applied successfully across the board, some agreement exists as to generally accepted practices. We outline below a set of common components of a traditional IT strategic planning process, compiled from the literature.

- Establish an IT planning process—determine purpose, planning process, involvement of stakeholders and IT governance, scope of the plan, and whether the IT plan is to stand alone or be integrated into the institutional plan.
- Understand the institution—mission, vision, strategic directions and priorities, academic arenas and directions, business operations, and the organizational and leadership culture.
- Scan the external environment—trends and events outside the institution’s control such as technology futures, mandates and regulatory expectations; directions and activities of competitors, collaborators, and peer institutions; and social, economic, or
political forces that may impact the institution positively or negatively.

- Assess the IT situation and user needs—organizational structure, financial and other resources, strengths and weaknesses, technology and IT infrastructure, workload commitments and backlog, relationship of decentralized IT units on campus, academic and business information and application requirements, and needs for specific technologies themselves.

- Determine IT directions and priorities—mission, vision, strategic goals and objectives, IT architecture, policies and responsibilities, organization, governance, and funding.

- Create, review, communicate, and adopt a plan—create the written plan, engage in extensive communication at all levels of the organization, and reach agreement on IT plans and objectives.

- Assess IT planning and performance—measure and assess the IT planning process and performance of resulting initiatives, and use these findings to improve future planning cycles.

We discuss some of these components in other chapters: Chapter 5 looks at governance, Chapter 7 presents findings for these components on the basis of a review of plans found on the Web, and Chapter 8 discusses approaches to the measurement of IT performance. This chapter focuses on processes related to setting IT priorities: determining user needs, stakeholder involvement, linkage to the institutional budget, and communication of IT priorities to the campus.

**Summary of Findings**

The qualitative and quantitative data obtained and evaluated pursuant to this analysis tell a mixed story. Colleges and universities participating in the ECAR study are indeed planning, and indeed many not only are planning more frequently but are also planning continuously rather than episodically. Our respondents appear not to be using standard planning methodologies, preferring instead to “psych out” the climate of the institution they serve and tailor the planning process to those that are understood and familiar to those involved. Inclusion in the planning process is the rule, though a surprising number of respondents are guided by their own or their leaders’ instincts rather than the results of broadly inclusive planning processes. These findings are not surprising, given the important influence of local conditions on IT plans and planning processes. Clearly, institutions gifted with an engaged president (a champion, strong supporter, or willing enabler) and either a stable or dynamic environment perceive more success with IT planning in general and with linking IT priorities to institutional budgets in particular.

The empirical evidence from the ECAR quantitative survey supports the strong anecdotal evidence that the “successful integration of institutional and IT strategies must involve the faculty at a deep and fundamental level.” In fact, if we had to title the summing up of the data on higher education’s IT planning process, we might be tempted to call it “inside baseball.” This refers to the existence of two games of baseball. The game typical fans see consists very simply of batters hitting balls that pitchers pitch and either being retired through pitches or fielding plays or remaining “in play” by running the bases in an effort to score. For this viewer, baseball has a moderate set of rules to understand but is otherwise straightforward. For the insider, or connoisseur, baseball is a game of a thousand subtleties. Pitchers and their managers tailor their pitching strategy to batters’ weaknesses and to base runners’ status, identity, and propensities, along with other factors. Players in the field continually shift position to reflect the circumstances of the moment, and coaches choreograph key elements of play through a complex ballet of hand signals and nonverbal
gestures. There is, in essence, a complex game occurring within an apparently simple game.

Respondents to ECAR’s survey on IT alignment unconsciously describe a similar “game within a game” with regard to the planning process. So while the data suggest that IT planning processes are broadly inclusive to all IT stakeholders, in fact there seems to be a clear preference for and proclivity among IT executives to consult with their executive colleagues in central institutional roles. This is particularly true of patterns of consultation with chief business officers, chief academic officers, and chief financial officers. Implicit in the data is a belief that inclusion of and consultation with these offices gathers, by proxy, input and inclusion from the broad community on the whole and in fact can legitimately substitute for broader inclusion. This is not to say that faculty, presidents, deans, and students are not in the game, so to speak, but clearly they are in the game to a lesser extent or are in a somewhat different game. Respondents who employ academic advisory groups as elements of their IT governance and planning are doing a significantly better job of including faculty, deans, students, and other direct stakeholders in the IT planning process.

Respondents show a strong preference for home-brewed and highly tailored processes and for informal data-gathering mechanisms. We gather planning information in the form of customer needs primarily from discussions with sophisticated users and from meetings. While many in higher education solicit customer feedback directly in satisfaction surveys, very few of us test new ideas in our institutions through focus groups, surveys, or other formal data collection efforts. The informality extends to our environmental scanning. Our dominant intelligence strategies seem to include

- use of private research services such as Gartner and others for IT trends;
- use of EDUCAUSE meetings, the EDUCAUSE Core Data Service, and ECAR for higher education IT trends; and
- institutional research department information for local regulatory, economic, and other trends.

Higher education appears to be richer in information than in the disciplined processes (modeling, simulation, scenario building) to both exploit and share the information, leading to the important and disappointing finding that our planning priorities and motivations are not well or widely understood on campus. This finding no doubt reflects in part the very real complexity of getting key people’s attention in highly decentralized institutions, but nevertheless this information is worth heeding. A major purpose of our planning processes is to create institutional awareness and engagement in our priorities and plans. We see a tendency as well to communicate priorities and plans through various channels, but to prefer regularly scheduled meetings for this purpose.

Higher education is only partially satisfied with the IT planning process’ effectiveness. When plans get real and are linked to budgets, people are more satisfied and think IT strategic planning is working more effectively. Respondents from institutions that suffer from a lack of clear vision and priorities do not believe their IT planning processes are as effective. And there is a price to be paid for “inside baseball.” While ECAR studies suggest strongly that the top IT leader’s participation in the president’s cabinet is important to the development of institutional vision and a critical web of influence, data from this study suggest that planning input received from cabinet officers such as provosts, business officers, and financial officers is not associated with perceived IT planning effectiveness as highly as is taking planning input from either deans or faculty. In essence, IT appears to be putting disproportionately more effort into winning the engagement of those who, in the end,
are not necessarily making us feel that our planning work is effective. While engaging faculty leaders and deans is harder, efforts to do so do pay off, and qualitative contributors to this study provide us with some good tips for fostering engagement.

Finally, this analysis of IT planning in higher education confirms our intuition: effective IT planning really is associated with perceived IT alignment within the institution. In other words, IT planning is an important process for gathering campus information; situating this information in the broader context of IT, campus, and external trends; identifying priorities in a socially inclusive way; and (less inclusively) garnering resources to accomplish these priorities. The effectiveness of the inclusions, process, and communications is interrelated, creating (or not) overall effective IT planning in higher education. The detailed analysis that follows not only provides the supporting data but also identifies strategies our study participants use to enhance the effectiveness of planning.

**Input to Central IT**

Central IT priorities are affected by user input on any number of issues, from management directions and policy to detailed applications requirements. Table 6-1 shows how often respondents seek input from their constituents. Approximately half of respondents “always” or “almost always” ask the chief administrative officer (52.2 percent), the provost/academic vice president (53.4 percent), and the chief financial officer (51.1 percent) for input about central IT. However, with respect to academic roles, less than one-third said they “always” or “almost always” ask deans (30.1 percent) and faculty (32.7 percent) for input. Not surprisingly, the trustees, regents, and boards had the least input. There was little difference between public and private institutions or across Carnegie classes.

While most institutions do not engage students (only 17.1 percent “always” or “almost always” ask for input), some institutions are strongly committed to understanding student needs directly. Miami University’s Reid

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief administrative officer</td>
<td>5.51</td>
<td>1.221</td>
</tr>
<tr>
<td>Provost/academic vice president</td>
<td>5.49</td>
<td>1.213</td>
</tr>
<tr>
<td>Chief financial officer</td>
<td>5.48</td>
<td>1.179</td>
</tr>
<tr>
<td>Faculty members</td>
<td>4.95</td>
<td>1.171</td>
</tr>
<tr>
<td>Deans</td>
<td>4.85</td>
<td>1.205</td>
</tr>
<tr>
<td>Department or unit heads</td>
<td>4.83</td>
<td>1.167</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>4.76</td>
<td>1.464</td>
</tr>
<tr>
<td>Students (nonemployees)</td>
<td>4.30</td>
<td>1.319</td>
</tr>
<tr>
<td>Vendors</td>
<td>4.11</td>
<td>1.269</td>
</tr>
<tr>
<td>Trustees/regents/governing board</td>
<td>3.11</td>
<td>1.593</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)
Christenberry, vice president for information technology, used a two-tiered process to solicit student input. He uses the analogy of building a restaurant menu, followed by allowing the customer to select the menu items desired. First, he ran think-tank sessions with technically savvy students to construct the “menu” of how students could benefit from IT in the absence of any constraints. These students drew from their own and peers’ experiences and their knowledge of other “low student use” functions like calendaring. General students reacted to the menu in open forums. “We felt that if we had gone directly to students and asked them what they wanted without setting some boundaries and context,” explains Christenberry, “they would not have known what all the possibilities were. Responses would have been all over the place.”

Respondents from campuses where the senior IT leader has a seat on the president’s cabinet reported that constituents—especially executives—have more frequent input to the central IT organization. The IT leader’s ongoing interaction with colleagues in the executive suite provides a forum for both generating ideas about IT services and receiving feedback about the central IT organization.

Again, committees play an important role in soliciting input. Allyn Chase, assistant vice president, Office of Information Technology, Western New England College, refers to them as “a catalyst generating machine which floats technology-laden balloons, wish lists, or requirements to me.” NYU’s Marilyn McMillan says, “I always try to focus on the ‘ning’ part of ‘planning’—the process as much as the plan. We get groups together to articulate direction. It is important to get everyone’s ideas out in front of the whole group and then work with the group to gain consensus on their priorities.” Of particular importance is a standing academic IT committee, which appears to make a difference in how often the academic side of the house provides input into the central IT organization (Table 6-2).

Where there is an academic computing committee in place, respondents say they solicit input from deans (33.5 percent) and faculty (39.3 percent) “always” or “almost always,” compared with where no academic computing committee exists (23.4 percent and 19.5 percent, respectively). Having an academic committee for IT gives the faculty a formal voice on IT issues.

Several interviewees spoke to academic involvement as a key to resolving nonalign-

### Table 6-2. Academic Constituents Providing Input to Central IT

<table>
<thead>
<tr>
<th></th>
<th>Institution Has Academic IT Committee</th>
<th>Institution Does Not Have Academic IT Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Provost/academic vice president</td>
<td>5.63</td>
<td>1.097</td>
</tr>
<tr>
<td>Deans</td>
<td>4.99</td>
<td>1.117</td>
</tr>
<tr>
<td>Faculty members</td>
<td>5.19</td>
<td>1.041</td>
</tr>
<tr>
<td>Students (nonemployees)</td>
<td>4.53</td>
<td>1.220</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)
ment problems. Kevin O’Halla, vice president for information technology, Davenport University, reported a “huge gap between academics and IT that seemed impossible to bridge. An IT strategic planning group heavily loaded with academics (deans from our four schools) was created this past year. As this planning group met, we began to bridge that gap and to have a better tie into the university overall plan. We now have a solid academic–IT working relationship at institutional and IT planning tables.” University of California, Santa Barbara’s Mark Aldenderfer tells us his experience. “Successful integration of institutional and IT strategies must also involve the faculty at a deep and fundamental level. On some campuses, this is no problem—faculty are engaged, demanding, and aware. But there are many campuses where faculty are passive and have little realistic involvement in setting strategic goals and setting future courses. The CIO must then find ways to stimulate that interest and find ways to transform this passivity into informed knowledge, and ultimately support.”

We also asked our respondents what methods they used to determine their customers’ emerging needs for IT services. Table 6-3 shows that informal discussions and formal meetings with users dominate. “The planning activity has to be part of the daily talking with people,” believes NYU’s Marilyn McMillan. “I spend much more of my time here out in the NYU community, jawboning and listening. I spend an equal amount of time in a room listening and letting people tell me what the issues are. I think it is very important to push the ITS leadership team out into the university community.” San Francisco State University’s Jonathan Rood has the same objective but suggests a different approach, using a technology assessment phase, which creates a framework from which to build. “Our idea is that technology people are like the medics. First we are going to assess the patient—the university—and then you assess the needs and treat them in a holistic way involving communication with all the units of the university: academic, teaching/learning, student services, alumni, and development. This provides a technology structure for the discussions.”

Respondents report that they “always” or “almost always” use discussions with so-

Table 6-3. Approaches to Determining Customers’ Emerging Needs

<table>
<thead>
<tr>
<th>Approach</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussions with sophisticated users</td>
<td>5.43</td>
<td>1.191</td>
</tr>
<tr>
<td>Formal meetings</td>
<td>5.18</td>
<td>1.348</td>
</tr>
<tr>
<td>In-service training sessions</td>
<td>4.84</td>
<td>1.405</td>
</tr>
<tr>
<td>Informal visits or lunch sessions</td>
<td>4.63</td>
<td>1.471</td>
</tr>
<tr>
<td>Customer satisfaction surveys</td>
<td>4.07</td>
<td>1.672</td>
</tr>
<tr>
<td>Organized focus groups</td>
<td>3.86</td>
<td>1.533</td>
</tr>
<tr>
<td>Suggestion boxes for feedback from users</td>
<td>2.96</td>
<td>1.839</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)
phisticated users (51.4 percent) and formal meetings (43.3 percent). Another 27.3 percent identified informal visits or lunch sessions as “always” or “almost always” used. This finding is consistent with much research showing that managers (including IT) rely primarily on oral forms of communication.\textsuperscript{7}

In addition to the extensive discussions our interviewees and survey respondents noted with high-level executives, some IT leaders explicitly engage their IT managers and directors for input. “I work with my directors to make sure they are aware of the challenges in their areas,” explains Bill Post of CSU, Chico. “I use their feedback and any trend information I can pick up to build a vision—at least in my own head. Then I see whether we are addressing these in our campus technology plan. If you truly involve other people on campus in your various planning committees, very seldom does a new topic or issue jump up for inclusion in the campus technology strategic plan.”

Surprisingly, customer satisfaction surveys are not yet standard fare, with just over one-fifth of institutions (22.3 percent) “always” or “almost always” surveying customers. Again, little difference emerged on the basis of Carnegie class, public or private status, or institution size. However, respondents from Miami University, the University of California, Berkeley, and San Francisco State University did mention annual surveys and focus groups as important means to solicit input.

SFU’s Jonathan Rood discusses the benefits of student focus groups. “[In a focus group setting] student input is so different—not even in the same league as the discussions with the rest of the university. For example, enhancing classrooms with audiovisual equipment is not usually on their radar. Instead, students seem to suggest incorporating elements in their lifestyle into the campus environment. For example, they want to set up Instant Messaging (IM) capability campus-wide and create IM and/or chat rooms for each class. It is a good idea. The students’ requests stem from how technology can make their daily lives more convenient and how their academic life can be more in sync with their daily lifestyle. The planning process should find the best means of expression for students to participate, to discuss incorporating current technology, in order to enable a complete learning living environment.”

A couple of IT leaders mentioned successfully using help desk logs. “The logs identify problems and thus potential training requirements,” states Gary Henrickson, director of computing and telecommunications, Eastern Iowa Community College District.

Institutions with a formal institutional planning office make more use of structured processes, such as customer satisfaction surveys (45.8 percent) and organized focus groups (40.4 percent) than institutions without a planning office (30.4 percent and 29.5 percent, respectively). A dedicated planning function can provide the professional staff resources and time necessary for these activities. Warren Bennis argues, for example, that “there must be a nucleus of persons who continually read the data provided by the organization for clues that it is time to adapt.”\textsuperscript{8}

**External Environmental Scan**

Traditional planning practice strongly advocates environmental scanning. This refers to the systematic process of examining trends and events outside the institution’s span of control to identify and understand emerging strengths, weaknesses, opportunities, and threats.\textsuperscript{9} The “external environment” covers a broad spectrum of arenas—political, economic, societal, legislative, technological—and includes markets, competitors, and consumers. The process, ideally, allows information into the planning process that is vital to survival and prosperity in that it reduces
the chances of unexpected surprises and lets institutions take advantage of opportunities, draw boundaries, and buy time to deal with either threats or opportunities.

While IT leaders who participated in our qualitative interviews did not report concerted and formalized efforts covering the full scope of environmental scanning, they did discuss the more popular resources they employ to better understand the environment outside their institutions. Most interviewees focused on technology forecasting as critical to their success.

Several institutions used outside consulting firms like the Gartner Group and the Meta Group to look farther afield into IT trends. For example, Gartner Research findings encouraged CSU Chico’s Bill Post to launch a small-scale pilot project to test handheld computers and personal digital assistants (PDAs) and determine the technology was too immature for mainstream applications. CSU Office of the Chancellor’s David Ernst used IBM consulting services to conduct a higher education IT environmental scan of best IT practices for use in CSU projects. After Reid Christenberry evaluated Miami University’s institutionally preferred characteristics—early adopter or mainstream user—“we reached a conclusion as to how we ought to be looking at technology. When a technology reaches a certain point of maturity in the Gartner ‘technology hype’ curves, then we investigate it more diligently because it is now at an appropriate level of maturity for our use. This assures that our move to adopt a technology is in alignment with our institution’s desired place in the adoption spectrum.”

A few respondents, like The Johns Hopkins University’s Stephanie Reel, also track technology vendors closely. “As we consider vendor-supplied solutions, I am more conscious of a vendor’s staying power, reliability in the market, and any industry acquisitions and mergers,” she explains. “Vendors have attempted to anticipate trends in technology, many times unsuccessfully. One example might be an ERP vendor that wrote its software based upon Microsoft .NET before [.NET] was ready for prime time and before the performance issues were clearly understood. When this happens, the purchasers and the users become victims of the vendors’ drive and desire to plan for the future. No matter how good you have been at communicating to the institution’s board, it is still hard to go back and say it’s not my fault, it is the vendor’s.”

Most IT leaders interviewed also track higher education IT trends specifically, attending meetings of collegiate IT groups like regional CIO or technology organizations to discuss joint initiatives or best practices. Others mentioned higher education IT organization sources, including EDUCAUSE. Of particular interest are the EDUCAUSE annual Current Issues Survey, Core Data Service, and ECAR research. At least one IT leader reviewed IT strategic plans from peer institutions and other best-practice institutions.

Economic factors, also of concern, are often handled by the institutional planning office; they include fund-raising, tuition trends and plans, and broader institutional financial issues. Bill Davis, vice president and CIO, Bridgewater State College, outlines some of the information his institutional planning office provides: “regional economic forecasts, an environmental demographic scan to determine employment trends, and demographic and ethnic composition of incoming students. Outside consultants also conduct an analysis of changes to our competitive environment, for example, to determine which institutions are likely to build a nearby satellite campus and to help identify best practices.” Berklee College of Music not only studies the global economy, because 30 percent of their students originate outside the United States, but also looks at music industry trends and how technology impacts the way music is com-
posed, performed, and produced. Interviewees reported that community colleges tend to stay in tune with “local business trends and requirements because one of their major missions is to prepare graduates for local employment,” states John Becker, chief technology officer, Anne Arundel Community College. “For example, we are moving all of our software to Windows XP because we know area corporate headquarters like Marriott are using it.” Unsurprisingly, public institutions study state fiscal situations closely.

**Setting IT Priorities**

We asked respondents who typically facilitates the priority-setting activities at their campus (see Figure 6-1). Clearly, the senior IT official (93.0 percent) is most often this person. Note that the total number of responses exceeds the number of respondents, reflecting that often there is joint responsibility. About one-fifth (20.5 percent) of respondents said their senior IT official works with a non-IT administrator as a team, and another 20.1 percent said the senior IT official works with a faculty member or dean to carry out IT priority setting. Again, results were consistent across institution type and size.

While Jack McCredie uses a UC Berkeley facilitator “to keep the planning process moving,” others have engaged outside consultants for assistance in special circumstances. For example, consultants helped CSU’s David Ernst in his large-scale planning effort to determine selection criteria, evaluate projects, and select the IT projects that “gave the most bang for the buck and could also scale to a system-wide effort.” As a Miami University newcomer, Reid Christenberry is using Cornelius and Associates, an outside consulting firm, to execute a fast-track six-month planning methodology to create IT priorities in time for the institution’s next budget cycle. This proved highly successful in securing significant major funding to address the specified IT strategic plan’s tactical goals for the upcoming fiscal year.

Other than the facilitator, who are the influential stakeholders in determining IT priorities? First, respondents reported that their overall IT priority-setting process was broadly inclusive (69.3 percent agreed). Next, they identified their three most influential stakeholders (see Figure 6-2). Not surprisingly, the president/chancellor, vice presidents/chancellors, and other cabinet-level officers (82.8 percent) are by far the top stakeholders in deciding what IT initiatives are launched. The senior IT leader (47.4 percent), central IT management (44.9 percent), and faculty (41.4 percent) have the next greatest
role. Deans are identified as a top stakeholder by fewer respondents (22.6 percent). And, at doctoral institutions, respondents were even less likely to list deans or faculty among their top three stakeholders. Here again, the use of an academic computing committee may make a difference. Among responding institutions, 47.4 percent of those with an academic IT committee report that faculty were one of the top three stakeholders influencing IT priorities, compared with 29.6 percent of institutions with no academic committee.

**Changing IT Priorities**

Planning is a dynamic process. Something new always seems to come along that forces IT leaders to reevaluate priorities. Some IT leaders forestall this by planning at a more strategic level. “It is very hard to write a plan and stick with it these days,” observes NYU’s Marilyn McMillan. “I think it is more important at this time to write a statement of direction and to try to herd the cats towards those directions.” UC Berkeley’s Jack McCredie elaborates, “If we are smart enough, we will get the IT priorities at a high enough level, but not so abstract that they are just ‘apple pie’ statements. They are based upon the fundamental Berkeley campus principles already developed. We have identified the handful of major issues that the campus is really going to focus on for the next five years; these issues should not change dramatically from one budget cycle to the next.” Carolyn Hershberger of Green River Community College concurs. For them, “IT must remain in a mode of being responsive. We have to adapt, especially when faculty members create new worker retraining programs or entrepreneurial courses. They need to teach the latest technology, and IT needs to support them.”

Numerous interviewees mentioned specific processes they established for midstream corrections of the strategic plan. Indiana University’s strategic planning committees met halfway through its five-year plan “to conduct a midcourse assessment: what is completed, what is unfinished, what can be taken off the table, what needs to be added to the plan,” explains Norma Holland. “If a new need emerges, a steering committee assesses its priority and relevance to the IT strategic plan.” The Johns Hopkins University conducts monthly “improvisational” sessions. “Between the periodic institutional scenario planning exercises, a group of IT representatives, senior administrators, and invited faculty members meet for dinner to talk about the plan’s ini-
tiatives,” explains Stephanie Reel. “Over time the scenarios change; we determine how we need to change. This keeps the plan alive and the faculty and leaders engaged.”

Respondents also identified the top three triggers causing IT priorities to change at their institutions (see Table 6-4). New demands for IT services are by far the strongest trigger (91.5 percent). “We are not going to implement wireless because it is sexy and cool,” states Bates College’s Gene Wiemers. “But when students start to bring wireless-enabled laptops onto the campus and carry them around, we need to adjust accordingly. When we see a pattern of behavior that is not in the plan, then we have to figure out how to adjust.”

Important triggers also include institutional funding of IT (66.7 percent) and changes in the external environment (57.8 percent). Several IT leaders say they build reserve funds into their budgets to address unexpected priority changes. “The IT reserve lets us be flexible, lets us be adaptive,” states Bridgewater State College’s Bill Davis.

One-quarter (24.6 percent) of all respondents pointed to a change in their president or chancellor. Looking more deeply at the institutions with new top leadership in the last three years (35.1 percent), almost two-fifths (39.4 percent) said this leadership change was a top trigger for changes in IT priorities.

There were differences between public and private institutions. Public institutions are more likely to identify legislative regulations and changes in the external environment as top triggers for changing IT priorities. Likewise, larger institutions more frequently identify legislative regulations as a top trigger.

The environmental climate of an organization also seems to make a difference. While institutions with a dynamic or stable environment rate new demands for IT services as a top trigger (94.3 percent), institutions experiencing volatility or turbulence do so less often (81.6 percent). This suggests that these organizations have more-pressing priorities that override new demands for IT services.

**Linking to the Institutional Budget**

Most survey respondents reported that their institution explicitly links their IT priorities with the institutional budgetary process (77.6 percent). “A big part of our internal planning

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>New demands for IT services</td>
<td>442</td>
<td>91.5%</td>
</tr>
<tr>
<td>Changes in institutional funding for IT</td>
<td>322</td>
<td>66.7%</td>
</tr>
<tr>
<td>Changes in the external environment</td>
<td>279</td>
<td>57.8%</td>
</tr>
<tr>
<td>New institutional leadership</td>
<td>119</td>
<td>24.6%</td>
</tr>
<tr>
<td>Legislative regulations</td>
<td>101</td>
<td>20.9%</td>
</tr>
<tr>
<td>New directions from the board of directors/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>regents/governors</td>
<td>84</td>
<td>17.4%</td>
</tr>
<tr>
<td>New IT leadership</td>
<td>64</td>
<td>13.3%</td>
</tr>
</tbody>
</table>
is to figure out which services we can offer within the envelope of available resources, without raising the cost to our customers,” explains NYU’s Marilyn McMillan. “Our plans are affected by and responsive to the university’s overall financial condition.”

Figure 6-3 presents findings by Carnegie class. Note that 88.2 percent of baccalaureate institutions link their IT priorities to institutional budgets, while only 70.4 percent of doctoral institutions do so. And public institutions are somewhat less likely (73.8 percent) than private institutions (82.0 percent) to tie IT priorities to institutional budget processes. Further, 59.3 percent of all respondents agree that funding for their IT initiatives is allocated at the time the initiatives are approved.

Those institutions more active in planning, both at an institutional level and with respect to IT, are more apt to link IT priorities to campus budgets (see Table 6-5). For example, 81.2 percent of respondents from institutions with a formal plan and priorities report that they link IT priorities to their campus budget process (compared with 62.8 percent for those who do not have an institutional plan). Likewise, institutions with an institutional planning office or a formal IT plan are more likely to link their IT priorities to a campus budgetary process.

Table 6-5. Institutions Linking IT Priorities to Institutional Budget, by Planning

<table>
<thead>
<tr>
<th></th>
<th>Percentage Linked to Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a formal institutional plan</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>81.2%</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>62.8%</td>
</tr>
<tr>
<td>Has a formal IT plan</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>81.5%</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>64.8%</td>
</tr>
<tr>
<td>Has an institutional planner</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>83.9%</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>73.0%</td>
</tr>
</tbody>
</table>
Looking at the institution’s leadership, we found some differences. Institutions where presidents were reported to take a passive role (approver) or no role in overall campus planning are less likely to connect IT priorities to their budgetary processes (68.6 percent) than those where the president plays an active role (81.0 percent). With respect to the president’s engagement in IT, Table 6-6 shows that institutions where presidents are supportive of IT also link their institutional budget with IT priorities more often. Note that those presidents who are perceived as engaging in IT as delegators or obstacles are much less likely to link IT priorities and the campus budget. Finally, whether or not the president included the senior IT leader on the cabinet did not make a difference.

Once again we find that the organizational climate matters (Table 6-7). Aligning IT priorities with the institution’s budget more often occurs in dynamic and stable organizational environments—and may become more difficult under volatile and turbulent conditions. This is consistent with earlier findings where, in general, institutions experiencing turbulence or volatility are less likely to engage in planning processes in general.

IT leaders also described the various roles budgeting can play in the IT planning process. It can be a source of input for central IT. Bates College’s Gene Wiemers, for example, meets with the treasurer to review every departmental budget request “to ensure IT is aware of all technology demands and requests.” The budgeting process can also create buy-in and alignment. “I do not champion any of my own initiatives; I expect my customers to do that,” explains The Johns Hopkins University’s Stephanie Reel. “When my customers come forward and present why they think $20 million needs to be invested in an information system, I can describe the planning that supports that conclusion.”

### Table 6-7. Institutions Linking IT Priorities to Institutional Budget, by Organizational Climate (N = 459)

<table>
<thead>
<tr>
<th>Organizational Climate</th>
<th>Percentage Linked to Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>77.2%</td>
</tr>
<tr>
<td>Dynamic</td>
<td>86.4%</td>
</tr>
<tr>
<td>Turbulent</td>
<td>58.5%</td>
</tr>
<tr>
<td>Volatile</td>
<td>60.7%</td>
</tr>
</tbody>
</table>

**Communication of IT Priorities**

One survey respondent notes the importance of communication in the IT planning process. “A success factor [for IT planning] has been the trust between the IT leader and the university community … [building] an IT environment that supports the cultural way of doing things while communicating continuously with shareholders about the future needs.” Indeed, while respondents generally agreed (69.3 percent) with the statement that their institution’s priority-setting process was broadly inclusive, they were
less positive (only 53.3 percent agreed) that the IT priorities themselves were well understood at their institutions. This ambivalence about the effectiveness of communication echoes a recurring theme in the recent ECAR study on IT leadership.10

One means to facilitate communication is to integrate the institutional and IT planning processes. SFSU’s Jonathan Rood believes that “there is no buy-in after the fact. You need a planning process that thoroughly captures the essence of people’s requirements, and you create the buy-in through the university-level participation at the outset. Find out what the university needs are, then determine how technology can address it.” Broad participation creates the “communication process that creates buy-in,” says UC Berkeley’s Jack McCredie.

We asked survey respondents to choose the top three communication modes used at their institutions to communicate IT priorities. Table 6-8 highlights that regularly scheduled meetings (for example, with cabinet, council, or senate) are the preferred mechanism for an overwhelming 82.8 percent of institutions. “I wish it were more scientific, but it is building trust through communications and relationships,” explains The Johns Hopkins University’s Stephanie Reel. “I spend a lot of time managing relationships and convincing my colleagues at the divisional level that the whole is better than the sum of the parts—that if we work together we can get more out of that same dollar.” Broadcast e-mails, annual reports, and newsletters are also popular communication methods. Some respondents

<table>
<thead>
<tr>
<th>Communication Mode</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularly scheduled meetings (cabinet, council, senate, and the like)</td>
<td>400</td>
<td>82.8%</td>
</tr>
<tr>
<td>Broadcast e-mail</td>
<td>195</td>
<td>40.4%</td>
</tr>
<tr>
<td>Annual reports</td>
<td>180</td>
<td>37.3%</td>
</tr>
<tr>
<td>Newsletters</td>
<td>170</td>
<td>35.2%</td>
</tr>
<tr>
<td>New faculty/student/staff orientations</td>
<td>141</td>
<td>29.2%</td>
</tr>
<tr>
<td>Focus groups</td>
<td>72</td>
<td>14.9%</td>
</tr>
<tr>
<td>Other</td>
<td>48</td>
<td>9.9%</td>
</tr>
<tr>
<td>Student newspaper articles</td>
<td>38</td>
<td>7.9%</td>
</tr>
<tr>
<td>Performance dashboards</td>
<td>16</td>
<td>3.3%</td>
</tr>
<tr>
<td>Press releases</td>
<td>14</td>
<td>2.9%</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td>13</td>
<td>2.7%</td>
</tr>
<tr>
<td>Videos</td>
<td>4</td>
<td>0.8%</td>
</tr>
<tr>
<td>Student newspaper ads</td>
<td>4</td>
<td>0.8%</td>
</tr>
</tbody>
</table>
commented that Web sites were a preferred form of communication.

Institutions with cabinet-member IT leaders showed a somewhat different profile than others, with 89.7 percent indicating they communicate via regularly scheduled high-level meetings. Of those where the IT leader does not sit on the cabinet, fewer (76.8 percent) use regularly scheduled meetings for communicating IT priorities. And although communicating IT priorities via annual reports is a top strategy for only 37.3 percent of institutions overall, cabinet-member senior IT leaders are more likely to distribute annual reports (44.0 percent) than their non-cabinet-member counterparts (31.2 percent). This makes intuitive sense because cabinet members can take advantage of the existing meeting structures to communicate about IT, and the preparation of an annual report is a natural vehicle for this communication.

CSU Chico’s Bill Post distributes portions of the IT plan at cabinet meetings as opportunity presents itself. “I send information to the cabinet and deans on a regular basis, excerpting the campus technology plan so they feel it is a living document and that the campus technology plan makes sense. For example, when I am presenting about learning management systems, I will take the relevant page from the campus IT plan which describes our initiative and timeline and attach a one-pager about the specific issue on top of that and pass it around at the cabinet meeting.”

Institutions using a more structured IT governance approach that includes an administrative and/or academic committee have a profile similar to that of cabinet members with respect to top communication methods. Those with an academic IT committee (85.4 percent) or an administrative IT committee (87.5 percent) are somewhat more likely to use regularly scheduled meetings with executives to communicate IT priorities. Again, existing committees (academic and/or administrative) provide a ready-made structure that senior IT leaders can leverage for ongoing communication about IT priorities. In contrast, institutions reporting that their senior IT leader makes independent decisions about IT policy and programs are less likely to use regularly scheduled meetings (72.5 percent).

Another survey question addressed communication with constituents (see Table 6–9). Respondents are very positive about keeping their constituents well informed about IT, especially the high-ranking institutional officers. Over 90 percent of respondents agreed that they communicate with their chief financial officer, provost or academic vice president, and chief administrator as often as needed to keep them well informed. And approximately two-thirds not only agree, but agree strongly. Again we see the pattern of involvement heavily weighted to senior administrative executives. In contrast, fewer respondents are adamant about involving deans (only 39.5 percent strongly agree) and faculty (only 31.1 percent strongly agree).

There was less agreement about campus department and unit heads. Among respondents, 70.8 percent agreed that their department heads were kept well informed, but only 28.4 percent strongly or very strongly agreed. This pattern likely reflects communication through chain of command, where the senior IT leaders communicate to peers and superiors, who then communicate to the lower levels in their organizations. Also, managers within the IT organization will also communicate to their peers across the organization. Again, trustees and governing boards are more distant in terms of communication about IT priorities.

Bridgewater State College’s Bill Davis addresses this by communicating portions of the plan to the relevant audience. “There are not many people on this campus who want to buy in or care about the whole plan. So I present different pieces of the plan to the
constituencies they impact. For example, I spent considerable time with the president, the provost, and the faculty to discuss benefits of our new notebook computer requirement. In contrast, we are talking with administrative heads, but not often to faculty, about our enterprise system transition, because many faculty are not interested in that.”

Where the IT leader has a place on the cabinet, institutions communicate more about IT priorities with the trustees or governing board, as well as with executive suite constituents such as the president or chancellor, the chief academic officer, and the chief administrative officer. Finally, those institutions having an IT plan agree more that the central IT organization communicates with its constituencies.

**IT Planning Effectiveness**

How do respondents view overall IT strategic planning at their campus? Figure 6-4 indicates that 65.5 percent of our respondents agree that their IT planning process is effective, with 14.8 percent disagreeing. Not surprisingly, respondents are more likely to report that IT planning is effective if they are from institutions where planning is deemed both important and linked to budget (70.9 percent agree), compared with institutions where planning is not emphasized (45.4 percent agree).

Respondents are somewhat more positive about IT planning effectiveness (65.5 percent agree that it is effective) than they are about their IT governance effectiveness (only 55.5 percent agree that it is effective). In fact, we found a strong relationship between perceptions about IT strategic planning and IT governance. Institutions reporting effective governance are much more likely to report effective strategic planning (82.3 percent) than those that do not report effective IT governance (30.9 percent). Further, institu-

---

### Table 6-9. Constituents Whom IT Keeps Well Informed

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief financial officer</td>
<td>5.81</td>
<td>1.100</td>
</tr>
<tr>
<td>Provost/academic vice president</td>
<td>5.80</td>
<td>1.158</td>
</tr>
<tr>
<td>Chief administrative officer</td>
<td>5.79</td>
<td>1.124</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>5.39</td>
<td>1.438</td>
</tr>
<tr>
<td>Deans</td>
<td>5.18</td>
<td>1.157</td>
</tr>
<tr>
<td>Faculty members</td>
<td>4.98</td>
<td>1.166</td>
</tr>
<tr>
<td>Department or unit heads</td>
<td>4.95</td>
<td>1.145</td>
</tr>
<tr>
<td>Students (nonemployees)</td>
<td>4.48</td>
<td>1.325</td>
</tr>
<tr>
<td>IT vendors</td>
<td>4.38</td>
<td>1.337</td>
</tr>
<tr>
<td>Trustees/regents/governing board</td>
<td>4.21</td>
<td>1.810</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
Table 6-10. IT Planning Effectiveness, by Vision, Priorities, and IT Governance

<table>
<thead>
<tr>
<th>Institution has clear vision</th>
<th>Agree</th>
<th>72.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
<td>40.0%</td>
</tr>
<tr>
<td>Institution has clear priorities</td>
<td>Agree</td>
<td>74.9%</td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td>33.9%</td>
</tr>
<tr>
<td>IT governance is effective</td>
<td>Agree</td>
<td>82.3%</td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td>30.9%</td>
</tr>
</tbody>
</table>

Institutions with a more clearly defined institutional vision and priorities are also more likely to rate their IT planning process as effective (see Table 6-10).

Table 6-11 tells us that higher levels of involvement by key constituents are associated with IT planning effectiveness (once again note the large differences for deans, faculty, and students). For example, of those institutions reporting that they usually solicit input from deans about IT, 73.2 percent say their IT planning process is effective. This is in contrast to institutions that do not usually solicit input from deans, where only 47.4 percent say their IT planning process is effective. “You do the consultation appropriately,” states UCSD’s Steve Relyea. “You ask the advisory committee members to solicit feedback from their constituencies so that when we implement a new solution, it will not only add a lot of value, but it will be embraced across the campus.” Also, this pattern holds when we ask about communication to constituencies to keep them well informed (see Table 6-12).
Table 6-11. Constituents Providing Input to Central IT, by IT Planning Effectiveness

<table>
<thead>
<tr>
<th>Constituents Providing Input to IT</th>
<th>IT Planning Is Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Mean*</td>
</tr>
<tr>
<td>Provost/academic vice president</td>
<td>5.36</td>
</tr>
<tr>
<td>Chief administrative officer</td>
<td>5.32</td>
</tr>
<tr>
<td>Chief financial officer</td>
<td>5.37</td>
</tr>
<tr>
<td>Faculty members</td>
<td>4.52</td>
</tr>
<tr>
<td>Deans</td>
<td>4.53</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>4.40</td>
</tr>
<tr>
<td>Department or unit heads</td>
<td>4.47</td>
</tr>
<tr>
<td>Students (nonemployees)</td>
<td>3.84</td>
</tr>
<tr>
<td>Trustees/regents/governing board</td>
<td>2.69</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)

Table 6-12. Central IT Communication with Constituents, by IT Planning Effectiveness

<table>
<thead>
<tr>
<th>Constituents with Whom IT Communicates</th>
<th>IT Planning Is Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Mean*</td>
</tr>
<tr>
<td>Provost/academic vice president</td>
<td>5.52</td>
</tr>
<tr>
<td>Chief administrative officer</td>
<td>5.48</td>
</tr>
<tr>
<td>Chief financial officer</td>
<td>5.46</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>4.78</td>
</tr>
<tr>
<td>Deans</td>
<td>4.57</td>
</tr>
<tr>
<td>Faculty members</td>
<td>4.40</td>
</tr>
<tr>
<td>Department or unit heads</td>
<td>4.43</td>
</tr>
<tr>
<td>Students (nonemployees)</td>
<td>3.93</td>
</tr>
<tr>
<td>Trustees/regents/governing board</td>
<td>3.39</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)
IT Planning and Alignment

Table 6-13 shows the relationship between IT alignment and linking IT priorities to the institutional budget. Eighty-three percent of institutions agreeing that central IT priorities are aligned also link their IT plan to the institutional budget, compared with 50 percent of those who disagree that central IT priorities are aligned. This pattern holds for opinions about departmental IT alignment with institutional IT priorities.

Finally, we have seen in previous chapters that IT alignment is positively associated with both IT governance and the clarity of institutional vision and priorities. Since IT planning effectiveness is also associated with these variables, it is not surprising that respondents who rate their IT planning as effective also report that IT is aligned with campus priorities. Figures 6-5 and 6-6 illustrate that most respondents report both that IT is aligned with institutional priorities and that the IT strategic planning process is effective. We see a statistical association as well. Those respondents perceiving effective IT planning report more central IT alignment (95.3 percent agreed) than those who do not perceive effective IT planning (only 55.2 percent agreed that IT was aligned). The pattern is similar when looking at departmental IT alignment with institutional IT priorities.

Table 6-13. IT Alignment, by IT Plan Linked to Institutional Budget

<table>
<thead>
<tr>
<th></th>
<th>IT Plan Linked to Budget</th>
<th>IT Plan Not Linked to Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Central IT aligned with institution</td>
<td>5.55</td>
<td>1.117</td>
</tr>
<tr>
<td>Department IT aligned with institution IT</td>
<td>5.19</td>
<td>1.249</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
Endnotes


2. Ibid.


10. This is consistent with the findings of the ECAR study Information Technology Leadership in Higher Education: The Condition of the Community (Boulder, Colo.: EDUCAUSE Center for Applied Research, Research Study, Vol. 1, 2004), pp. 75–76, 98, 101. This study identified several instances where lack of communication was an issue in higher education organizations.
As part of this ECAR study, we reviewed a random sample of IT plans that were developed and posted to the Web by U.S. and Canadian EDUCAUSE member institutions. The plans reviewed for this research represent a wide variety of institutions and reflect the even wider variety of notions about why to plan, how to plan, what to plan, and what to say publicly. This chapter presents the results of our review. By and large, our findings based on our reading of these plans, with some exceptions noted below, corroborate those found elsewhere in this study.

The planning literature—both academic and management—includes consistent patterns of recommendations. These patterns extend across higher education and beyond, even though the plans reviewed do not reveal whether or not higher education practitioners use standard models for either IT or institutional strategic planning. The abundant literature on planning is dominated in the academic context by the work of George Keller and in the general organizational context by that of Henry Mintzberg. Yet despite explicit reference to standard theory and practice, the ECAR review of plans suggests that

### Key Findings

- Higher education’s IT plans are not widespread on the public Web.
- Higher education’s IT plans do not refer to standard planning methods and frameworks and do not conform closely to prescriptions in the literature. These plans are strongly situated in their institutional contexts.
- Higher education’s IT plans are derived, in general, from public, broad-based, consensus-seeking processes that serve to communicate the capacities and constraints of the IT organization and function.
- Higher education’s IT plans tend to be inward-looking and do not benefit tremendously from a systematic scanning of the external environment.
- IT plans are more often tactical than strategic in nature.
- Most institutions studied view vision and mission as the cornerstones of their IT plan.
- Achieving public congruence between the institution and the IT priorities seems critical for the eventual implementation of strategic IT plans.

- colleges and universities explicitly share the same concerns in planning, and
- the individual cultures of those institutions shape the manner in which they plan.

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This study of IT and institutional plans reviews the elements from those recommendations and describes how those elements have been included in various IT plans. Always, we have kept in mind the wisdom of the Massachusetts Institute of Technology’s John R. Curry. After summarizing two decades of changes within higher education IT, he suggests three lessons. Paraphrased, these are the reminders that:

- within higher education, change occurs incrementally;
- universities are “deeply decentralized, loosely coupled by nature”; and
- people, organizations, and their cultures are conditioners of change.

The evaluated plans’ great diversity most especially reflects the third lesson. While certain elements and concerns may appear in a significant number of plans, the plans themselves reflect institutional environments. Our study and the literature suggest that planning frequently occurs in response to events that occur within institutions and is often specifically designed to meet institutional challenges. Further, we found significant effort to align the IT planning efforts with institutional goals and objectives at a tactical level rather than at the more abstract, longer-range strategic level.

While this can identify frequent concerns and practices, we acknowledge the limits of any attempt to impute so-called effective practices from this analysis alone. Applying external standards to planning is often fruitless because to be effective, planning must reflect the institution. We observed that plans vary in length from a few pages to more than 100 pages but understand that examples at those extreme edges might be appropriate to the institutions’ needs. In this chapter we analyze what commonly appears in strategic plans and the alignment of those plans with the institution.

ECAR compared the number of plans found in the random sample with the number of positive institutional responses to the quantitative survey question, “Is your IT strategic plan published on the Web?” (See Figures 7-1a and 7-1b.) Apparently, many colleges and universities are ambivalent about making public their planning efforts. In the quantitative survey, of the 273 institutions that have an IT plan, 112 (41.0 percent) indicated their plans were publicly available on the Web, and another 70 (25.6 percent) indicated their plans were available on their intranet only, with limited access. The ECAR review of 250 random campus Web sites found 57 plans, representing 22.8 percent of sites reviewed.
Clearly, those who intend to make their plans public have done so effectively!

Although this sample of plans might not cover all varieties of IT strategic plans used in higher education, we believe it offers considerable insight into the variety of issues that concern planners.

**Content of IT Plans**

To provide a basis for our quantitative analysis, we recorded our findings for each of the 57 plans in a matrix created for this purpose. This matrix included issues discussed in the literature, items derived from our survey questions, and items that would allow us to test several hypotheses. We organized these issues within six broad categories of concern:

- vision and mission,
- the purpose of planning,
- organization and procedures,
- inventory of concerns,
- funding issues, and
- strategic thinking.

Table 7-1 reports how frequently we identified significant planning foundations, purposes, and processes in the plans reviewed. All but three plans have IT objective statements, although these tend to be rather general. For example, a common statement in response to the purpose of planning is, “Provide necessary technology infrastructure.” Similarly, many plans include a desire to “communicate IT opportunities to the institution” as a key motive for planning.

Most (from nearly 60 percent to over 70 percent) of these plans include vision and mission statements, stress the importance of aligning IT with other institutional priorities among the reasons for planning, identify the leadership and committee structure for the planning effort, and express an interest in connecting IT plans more specifically with both business and academic plans. As indicated in the table, 45.6 percent include implementation plans, and just over a quarter (26.3 percent) have a concern for the future.

The list in Table 7-1 reflects the concerns presented in a recent IT planning study. In their award-winning 1998 essay “Is Strategic Planning for Technology an Oxymoron?” Martin Ringle and Daniel Updegrove ask the question, “What are we trying to accomplish?” Their response:

“To many people both inside and outside of information technology, the reason for technology planning seems apparent. It is to look ahead and determine which forms of hardware, software, and technical support will be required to meet the future needs of..."
the institution. In conversations with more than 150 technology officers, however, this obvious goal barely surfaced. Indeed, most technology officers express skepticism about anyone’s ability to accurately predict which kinds of technology will be needed beyond the next two or three years. The motivations for strategic technology planning that were most frequently mentioned were the socio-economic ones of:

- aligning technology with other institutional priorities;
- disseminating knowledge about technology needs and constraints;
- building alliances with key decision makers;
- lobbying for (and obtaining) financial and other resources;
- addressing existing technology needs; and
- keeping an eye on the leading edge.”

We’ve already seen that “aligning technology with other institutional priorities” and “communication” in a broad sense are important concerns in the plans reviewed. “Addressing existing needs” also ranks high. “Keeping an eye on the leading edge” falls between a “concern for long-range planning” and “planning for an unknowable future” (see Figure 7-2). “Keeping an eye on the leading edge” is positioned next to last in the list, likely due to both plan authors’ healthy focus on current needs and a bit of skepticism about their ability to address the future. These observations also reinforce a survey data finding suggesting that higher education IT planning cycles now occur more frequently and cover shorter horizons.

We hypothesized that IT strategic plans concerned with planning for the future would also express an interest in human services, technical expertise, hardware and software, and, of course, funding. In fact, two-fifths (40 percent) of the plans reviewed indicated a concern with such future priorities. We examined those 35 plans that did show some concern with future priorities more closely to

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**Table 7-1. Common Items Found in IT Plans**

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify IT goals and objectives</td>
<td>54</td>
<td>94.7%</td>
</tr>
<tr>
<td>Communicate IT opportunities to the institution</td>
<td>50</td>
<td>87.7%</td>
</tr>
<tr>
<td>Vision statement</td>
<td>40</td>
<td>70.2%</td>
</tr>
<tr>
<td>Align IT with other institutional priorities</td>
<td>39</td>
<td>68.4%</td>
</tr>
<tr>
<td>Mission statement</td>
<td>38</td>
<td>66.7%</td>
</tr>
<tr>
<td>Leadership identified</td>
<td>36</td>
<td>63.2%</td>
</tr>
<tr>
<td>Connect IT plan with business and academic plans</td>
<td>34</td>
<td>59.7%</td>
</tr>
<tr>
<td>Advisory committee</td>
<td>33</td>
<td>57.9%</td>
</tr>
<tr>
<td>Recommended implementation plan</td>
<td>26</td>
<td>45.6%</td>
</tr>
<tr>
<td>Projection of possible future IT environment</td>
<td>15</td>
<td>26.3%</td>
</tr>
</tbody>
</table>
test the hypothesis that the implementation of activities to address these concerns might involve
- developing and maintaining staff;
- addressing life-cycle funding for hardware; and
- standardization of protocols, middleware, data interchange, and/or software across an institution.

Tables 7-2, 7-3, and 7-4 show the results. As Table 7-2 makes clear, most plans do indeed recognize the need for support, the importance of addressing human resources, and the need for technical expertise. Coupling these concerns with incentive plans and clear statements about compensation is quite another question.

Table 7-3 shows that while managing hardware and software are important concerns, somewhat fewer plans address such implementation issues as life-cycle funding and standardization.

The plans we reviewed treat IT funding in a wide variety of ways (see Table 7-4). These plans most frequently addressed aligning IT funding with institutional funding and concerns about new resource allocation in the IT organization.

Perhaps the single most interesting finding is that relatively few of these plans actually focus on strategic versus what we’d call operational or tactical issues. For our purposes we use “strategic” in the military sense of describing activities for which one plans procedures or rules for the commitment of resources on a scale that is highly material to the organization. In this vein, strategic applies to a concern for aligning technology with institutional priorities, communicating technology needs and constraints, building alliances with key decision makers, lobbying for (and obtaining) financial and other resources, addressing existing technology needs, and keeping an eye on the leading edge.6 “Tactical” denotes a concern for daily operations, for getting things done that need to be done now, rather than a concern for the future. In its original context, tactical refers to the lowest level of military operations, the view from the trenches and foxholes. Tactical planning relates to the development of plans and actions designed to drive the strategy to success. An overlap between strategic and tactical exists, for example, in the area of “addressing technology needs.” Where is the dividing line between immediate needs and eventual needs? In many institutions, what needs to be done now may spread over several years; hence, time is an essential element of both strategic and tactical plans.

The plans from 10 doctoral/research universities emphasize strategic thinking or a balanced mix of strategic and tactical thinking (Figure 7-3). We also noted a bal-
Table 7-2. Human Resource Concerns in IT Plans (N = 35)

<table>
<thead>
<tr>
<th>Human Resources</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for students, faculty, and staff</td>
<td>31</td>
<td>88.6%</td>
</tr>
<tr>
<td>Human resources (personnel)</td>
<td>27</td>
<td>77.1%</td>
</tr>
<tr>
<td>Need for technical expertise</td>
<td>27</td>
<td>77.1%</td>
</tr>
<tr>
<td>Incentive plan</td>
<td>6</td>
<td>17.1%</td>
</tr>
<tr>
<td>Compensation</td>
<td>4</td>
<td>11.4%</td>
</tr>
</tbody>
</table>

Table 7-3. Hardware and Software Concerns in IT Plans (N = 35)

<table>
<thead>
<tr>
<th>Hardware and Software</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>33</td>
<td>94.3%</td>
</tr>
<tr>
<td>Software</td>
<td>29</td>
<td>82.9%</td>
</tr>
<tr>
<td>“Life-cycle funding”</td>
<td>22</td>
<td>62.9%</td>
</tr>
<tr>
<td>Standardization</td>
<td>22</td>
<td>62.9%</td>
</tr>
</tbody>
</table>

Table 7-4. Funding Concerns in IT Plans (N = 35)

<table>
<thead>
<tr>
<th>Funding</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining effective IT staff</td>
<td>22</td>
<td>62.9%</td>
</tr>
<tr>
<td>Alignment of IT funding with institutional funding</td>
<td>21</td>
<td>60.0%</td>
</tr>
<tr>
<td>Allocation of new resources into the IT department</td>
<td>18</td>
<td>51.4%</td>
</tr>
<tr>
<td>Alignment of funding schedules and procedures</td>
<td>17</td>
<td>48.6%</td>
</tr>
<tr>
<td>Reallocation of existing resources within the IT department</td>
<td>15</td>
<td>42.9%</td>
</tr>
<tr>
<td>Incentives and support for the creative use and application of IT</td>
<td>10</td>
<td>28.6%</td>
</tr>
</tbody>
</table>
anced mix of such thinking in half of the associate’s colleges’ plans. The emphasis on tactical thinking across the board, however, suggests to us that many U.S. and Canadian institutions focus chiefly on daily operations or “putting out fires.” These actions often support institutional and IT strategies but so dominate current activity that they leave little time for more-strategic concerns. This emphasis can also create risks of winning battles but losing wars.

The data we gleaned from our analysis of plans on the Web corroborates the findings of Ringle and Updegrove. While our observation of what plans included differs somewhat from the Ringle and Updegrove list, the tactical emphases remain. Most of the plans on the Web are concerned with alignment issues and focus on addressing immediate needs. Regarding long-term planning, the plans express in various ways institutions’ awareness of staff needs, required technology updates, and the inevitable funding issues.

Key Elements of IT Plans

In reviewing plans on the Web, we found it difficult to ascertain which underlying planning frameworks or models the plans’ authors followed. While consensus exists in both the higher education and business management literature on the elements to be included in strategic plans, few institutions acknowledge a source or model. This is likely typical of most plans and planning processes. We recognize too that institutions follow directions from a unique board or system office or act to meet unique institutional expectations. As we discuss later, the institution’s needs—although not always stated precisely—dictate the steps to meet those expectations.

The elements appearing consistently across the IT plans include vision and mission, alignment between IT and the institution, the purpose(s) of planning, the process, linking IT with budgeting, and (less frequently) assessment and communication. We illustrate our discussion of these topics with the range of practice to convey, as few models in the literature set out, the variety of ways in which colleges and universities actually carry out the process of strategic planning. Many institutions likely choose to plan and publish the results of their processes in ways that suit their needs and aspirations rather than follow the literature planning model.

We cannot always find the explicit alignment with institutional goals and objectives in the published plans, but we found interesting examples in the integrated plans as well as in separate IT plans. Among the integrated plans, that from Nova Southeastern University includes mission, vision, values, assump-
tions, and “critical success factors.” The IT “factor” is explicitly linked to seven “institutional goals” and focuses on “the learning environment, the delivery of instruction, and the preparedness of students in the use of technology.” This plan does not include all the parts that some frameworks do, but the tight alignment with university objectives offers a strong example of integration. The Nova Southeastern University IT strategy is linked to five institutional goals and identifies projects such as cost-benefit analyses, administrative systems, and technology training. More traditional institutions not included in this sample, such as Indiana University and the University of Nebraska, similarly draw explicit linkages between their IT plans and the explicit priorities of the institution. Athabasca University has chosen to align plans in a very different way, creating an IT plan that includes a “business plan,” and the institution’s strategic plan is published as an appendix.

Planning efforts sometimes begin with a “plan to plan.” Brown University’s IT plan recommends the development of a strategic plan, as do most of these “plan to plan” documents. In the Brown plan’s conclusion, the author(s) carefully spell out expectations that the eventual product will have “a coherent vision and plan,” “a financial plan” for specific projects, a “reliable feedback loop,” and a communication effort to make the community aware of the IT plan and its usefulness. If the institution followed the planning group’s prescription, the resulting plan might integrate IT and institutional goals and objectives with the mission and vision.

Finally, among the alignment examples, we must note another “plan to plan” document from a state university which, in its second paragraph, insists that the plan “is guided by two overarching strategic planning initiatives”—a system-wide IT plan and an institutional strategic planning process. Such an integration of system and institution planning process and document increases the likelihood that the IT plan is aligned with other processes and documents. Without such alignment, a strategic IT plan is unlikely to be implemented.

**Vision and Mission**

Vision and mission statements commonly appear in strategic IT plans, in part because there is strong evidence that the alignment of IT priorities with institutional priorities can be fostered through those statements. In fact, 53.6 percent of our survey respondents indicated that they had an IT vision statement, and of those, 74.9 percent said that the vision statement was explicitly linked to the institutional vision. Still, IT vision and mission statements do often occur without reference to the parallel institution statements. Some plans lack explicit vision and mission statements. While vision and mission statements can promote alignment, the quality and usefulness of plans does not rest on labels. For example, Hamilton College names three strategies as the foundation of their plan:

- providing excellent support of teaching and learning,
- extending the [Hamilton] experience, and
- improving access and services.

Within each of these umbrella topics are lists of actions that reflect conscious thought of what is labeled vision and mission. The intentions of the IT unit to meet the expectations of the college and support the vision and mission of the college with a similar long view could not be clearer. In other words, the college’s IT unit apparently understands the value and intent of strategic planning for both the institution and the unit. Rather than use the labels or a model structure, the IT planner(s) expresses the strategic planning concepts that will support the organizational effort and serve to guide decision making. The value of aligning IT intention with institutional purposes cannot be underestimated. The es-
ence of alignment is supporting and furthering the institution’s goals and objectives.

The University of Nebraska–Lincoln takes a similar tack. The opening lines announce that the “document” is not intended to be a full-fledged strategic plan but rather will highlight “the key directions that will position Information Services to effectively support the institutional mission.” The strategies listed reveal an understanding of planning and, more particularly, an understanding of how IT can support the vision and mission of the university. Arguably, this flexibility suits at least some higher education institutions, revealing the ability to view the situation strategically and to plan for at least the near future without relying on an external model or process to accomplish the task.

A traditional approach is further represented in our sample by the plan from Mt. Hood Community College, whose plan begins with an executive summary followed by a description of the strategic planning process. After this description of development, the document moves to vision statements and “Information Technology Guiding Principles.” These explain the reasons behind the IT principles and how they impact the constituencies of the college. Next are the planning and resource assumptions, followed by a list of alignment factors that tie the IT plan to the college’s mission and vision. A table of IT goals matched to college goals precedes the implementation plan. These are most of the traditional elements of an IT plan, and many institutions incorporate them into plans that superficially look as though they were following a higher education template. While the arrangement of sections varies somewhat, and the level of specificity varies greatly, the typical plan at least touches on these elements.

Most institutions regard vision and mission as the cornerstone of planning. The strategic plan from Nova Southeastern labels an early section “Foundations of Planning” and includes vision, mission, and values as those foundations. At the very least, such a structure provides a common ground for those within and without the institution and may be suggestive of the nature of the academic environment. The labels may not be critical, but achieving public congruence between the institution and the IT priorities seems critical for the eventual implementation of strategic IT plans.

Purpose of IT Planning

The ways of approaching the typical elements of strategic planning vary not by Carnegie class or control (public/private) but by institution. This variation may reflect the lack of a professional planning cadre at many institutions and hence the absence of any reference to standard planning frameworks in virtually every plan we reviewed. It may simply be that local cultures determine the why, what, and how of IT planning. The purposes of planning are as varied as the other elements. Some institutions recognize the need for clarity of purpose and incorporate explicit statements in their plans. However, very few of the plans we reviewed accept aligning budget as well as mission and vision as part of the purpose of planning.

A particularly succinct rationale is presented in the plan of Mt. Hood Community College. Its authors note that IT’s increased significance in the past decade led to the need for a place within the institution’s strategic plan. This college brought in consultants to help shape an IT plan that would mesh with “the college’s vision, mission and goals and … serve as a roadmap for how information technology … can provide faculty, students and staff and the community with rich and meaningful access to technology.” The resulting plan includes separate vision, goals, and processes for IT.

Not every institution sees planning as an opportunity to reflect larger goals. The plan
of Illinois State University simply states, “The purpose of the Planning Committee was to provide Telecommunication and Network Support Services (TNSS) with guidance in terms of its 3 year planning efforts.” The effort resulted in a plan to “help [the organization] prioritize their resources and work efforts over the next 3 years.” Just how this relates to institutional vision, goals, and plans is not apparent in the document.

Some of the most elaborate plans, including that of Virginia Tech, appear to assume that the purpose of planning is self-evident. An especially brief statement appears in a short plan from the University of Nebraska–Lincoln: “This document is not intended to be a full-fledged strategic plan, but rather will highlight the key directions that will position Information Services to effectively support the institutional mission.” Surely neither of these large institutions provides models for others; they simply manifest the purpose of planning within particular contexts. The significance, we suggest, lies in those diverse needs the plans are designed to meet.

While the most frequent motive for IT strategic plans is the perceived necessity to forecast the IT strategies, tactics, costs, and personnel requirements, other reasons do occasionally occur. As we noted above, some of the Web plans are “plans to plan.” The origins of such documents are not always clear, but their purpose is typically to urge an action to meet an observed need. For example, Brown University produced an IT plan that begins with a statement on the “Urgency of Planning,” advancing three reasons for taking action: an institutional strategic planning process that has “significant implications for IT,” “lagging position [of the institution] in innovative use of IT,” and “growing frustration among the … community.” This statement of urgency is followed by the further argument that “tactical” planning has been done well but the “big picture” of integrated IT services and support is missing. Doubtless other institutions that remain silent on the purposes of planning have similar reasons for planning.

**IT Planning Process**

Advantages to CIOs and their institutions of describing the planning process leading to a strategic IT plan include alignment with institutional plans, linking budget to other planning, and communicating the involvement of faculty and others. The process can facilitate communication and information exchange between the IT organization and the rest of the institution. However, many plans appear to be the result of planning within the IT organization. Such efforts potentially miss the opportunity for engaging those who are constituents and end users of IT support.

A typical plan, such as that of New Mexico State University, summarizes the campus involvement. “This plan is the result of extensive consultation and planning across the … campus.” While this suggests a representative process, it contrasts with statements such as this one from California State University, Monterey Bay: “The IT Leadership Team … spoke to more than 100 … community members from the executive leadership to students, from faculty to IT staff.” The statement specifies reviews of the work, including “analyzing stakeholder interviews, a faculty/staff survey, a student survey, and input from other strategic planning efforts on campus.” A third institution, Brooklyn College, lists an advisory committee on academic computing; a faculty council committee; a student advisory roundtable; a teaching, learning, and technology roundtable; a technology advisement committee, “Tech Reps”; the provost’s technology committee; and the Center for Teaching.

Broad participation is the common practice. For example, one private institution, Nova Southeastern University, describes participation from “the Board of Trustees … three planning subcommittees, the Deans Council, the
Vice Presidents, administrative unit directors, and about 200 full-time faculty members.” A much smaller college, West Liberty State College, describes a planning retreat including 50 participants with representatives from the trustees, deans, students, administrative directors, department chairs, faculty senate, classified staff, and program chairs. Given the relationship between IT and virtually every constituency in an institution, these techniques and practices may be most useful.

The process differences reflect the nature of communication across our institutions. Perhaps they also reflect the complexities of governance in institutions large and small. Effective practice cannot easily be identified. As with so many factors in the world of planning, the effective practice is often that which best matches the institution. The checklist of factors to consider must include constituents’ expectations, current practice on other planning processes, recent history of such processes, the state of such communication within the institution, and, of course, the purpose of the planning process. Is it, narrowly, to produce a plan for the IT organization or, widely, to publicize a plan to inform the community?

**Linking IT Funding and Budget Planning**

Higher education institutions’ stove-pipe organizational structure puzzles outsiders as it has frustrated insiders. Therefore, few will be surprised that plans that do not include budget planning significantly outnumber those that do. Why then look for evidence of such a link? The answer relates back to our operating definition of strategic: activities that define the rules for committing resources on a large scale. The question this analysis leaves unanswered is whether the absence of an explicit and public resource component to most plans reflects the absence of such components altogether or merely a bifurcation of public planning and private budgeting. The latter is likely, since 77.6 percent of our survey respondents say they do link their IT plan to the institutional budget.

Some institutions simply omit budget linkages from the plans they publish on the Web. It is possible, of course, that the budget linkages are included in the “official” IT plans circulated within the institution. Bowie State lists seven key issues in their IT plan, including student access, campus backbone, end-user services, teaching and learning, and IT policies. The funding issues are identified later in the plan by listing the cost of some of the proposed projects. However, no indication of the mechanisms by which these are linked to budget planning can be found. More commonly, many plans simply omit any mention of funding issues.

Montana State University publishes a very short plan on the Web that includes a section on funding entitled “Keep … resources stable, secure, current, and of high quality.” This plan is not unlike many that include funding resolutions. While such a plan announces IT’s intentions to the institution, it postpones the difficult tasks of integrating IT budget plans and processes with those of the institution.

Some institutions make a visible effort to pull budget planning into the IT planning. An example of the difficulties and perhaps of the structures that may exacerbate them can be seen in a plan from California Lutheran University. This plan devotes several pages to the cost of various technology projects and staffing recommendations. At the end of the plan are listed goals, objectives, and outcomes along with the “assessment methodology” and “person responsible.” The boxes for outcomes and objectives involving budget are empty—presumably these are negotiated privately.

On the other hand, Estrella Mountain Community College has an extensive IT plan that announces the goal to “ensure continuous funding for technology.” Under this sec-
tion heading, the author(s) lists a “long-term strategy” and two “midrange” strategies. The first calls for aligning technology plans with the institutional strategic plan, including identifying costs and internal funding opportunities. The others again require IT cost analysis and the identification of external funding possibilities. In another part of the plan, a list of cost analysis projects concludes with the task of linking the outcomes of these analyses with the institution’s “Financial Resources and Academic Plans.”

Although some institutions may successfully link IT funding and budget planning, apparently most do not do so publicly. They typically do not identify the steps to connect planning and budgeting. Costs are sometimes given but seldom linked to the funding sources and opportunities. While this may be the key step in linking IT funding to institutional budgets, the budgetary process in most institutions simply does not foster this linking. One IT budgetary purpose the plans reviewed serve is to establish the IT business case—that is, the use of plans and planning processes to communicate the severity of IT needs and the advantages to the institution of funding those needs.

A few institutions choose to deal with the linking of funding to IT planning in a different way. Duke University published on the Web a “Vision for Information Technology” that is a high-level IT plan for the institution. The statement includes “Principles for Decision-Making” and areas of focus. Funding is thoroughly integrated into both. Appropriate to a vision statement, there are no details of procedure or cost; there is, however, the recognition that no strategy is complete without aligning “priorities and funding” “with institutional goals and objectives.” Similarly, Brown University simply called for a “financial plan for the development, operation, and renewal of any particular project.”

In no other area of IT planning is higher education practice, as evidenced by these plans on the Web, so differentiated from business practice models. In A Practical Guide to Information Systems Strategic Planning, Anita Cassidy calls for inextricably linking IT with the organization’s business plan. The gap analysis between where the organization must be to be effective and where it stands at the beginning of planning includes cost estimates on closing that gap. While almost every IT plan in higher education performs such a gap analysis, albeit without that label, few reveal mechanisms to secure funding allocations to meet the needs.

Communication

Communication and assessment are not always found within the strategic IT plans on the Web. Strategic IT plans in higher education only rarely incorporate assessment, whereas in the corporate sector planning models generally include evaluation or assessment. Institutions often separate planning from reporting, with a minority of them issuing separate annual reports. For many, budget planning itself does not include reports. Overlapping calendars and other factors have led to planning processes that only vaguely refer to a previous year’s outcome.

Some institutions, as some of the plans reviewed attest, view communication as a critical aspect of strategic planning. The institutions that do see communication as critical publish plans that, in various ways, provide their internal constituencies with information about IT as well as incorporating them into the processes that produce the plans. The strategic plan, after all, can so align IT with budget, academic affairs, business affairs, student services, and institutional priorities that IT can then be seen as an integral, if not a leading, element. But unless the plan is shaped by many and known by all, the view of IT may be incomplete, incorrect, or incoherent.

One of the many engaging strategic plans comes from MIT, an institution that recognizes
the potential of the strategic plan as a communication tool. This document carefully defines the major topics in an appendix: vision, mission, strategic themes, strategies, initiatives, and projects/activities. (The source of the definitions is footnoted, and the definitions are identified as part of the working glossary for other publications from the IT unit.) The plan itself begins with the statements of vision and mission and is matched to the university’s general mission statement.

The advantages in such careful framing of the plan’s content are not hard to discern: the unit communicates to internal and external constituencies its plan and how this plan, as well as its operations, “fits” the whole institution. It specifies initiatives to assure the community of the IT unit’s awareness of what needs to be done, what can be done, by whom, and how. Of course the plan speaks to the IT staff across the university as well as to the leadership who eventually must fund new projects. Statements of vision and mission within a plan provide assurance that the IT leadership is synchronized with the efforts of the others in the university. This spirit of integration, particularly in time of budget difficulties, can lead to understanding and support when change, funding issues, and uncertainty might suggest otherwise.

**Conclusion**

Nearly one-quarter of colleges and universities post an IT plan or an institutional plan with an IT component on the Web. Budget information, even among those plans that are posted publicly, is scarce. In our sample, a typical planning process seemed to take four to six months, but some extended well over a year.

Is there an ideal length of process, length of document, number of participants? Doubtless, there isn’t. The best strategic IT plans surely are those that meet institutional purposes, including links to the institutional strategic plan and budget process. Many IT plans in higher education are tactical rather than strategic, focusing on incremental change rather than long-term strategies. Not every institution sees planning as an opportunity to reflect larger goals. The choice of planning style is highly influenced by local conditions, such as institutional culture. Higher education plans generally do not explicitly reference or conform to planning models described in the literature. This may be a warning indicator, but more research needs to be done. Most institutions regard vision and mission as the cornerstone of their plans, and the most important purpose of IT planning is creating alignment of IT priorities with those of the institution.

Broad participation in the planning process is common practice. The function of IT plans as communication varies widely from mere reporting to building alliances. Finally, surprisingly few of the plans reviewed specifically relate IT planning to teaching and learning.

It is abundantly clear in the plans we reviewed on the Web that institutions are making efforts to link IT practice with institutional purposes. That occurs at several levels: mission, goals, objectives, hardware and software, and support. Read carefully, the plans tell us that IT units struggle to support the academic and research enterprises. These plans are often intended in part to explain how they can do that. Often the proposals and initiatives may seem to be requests for funding to benefit the IT infrastructure. They are, in fact, proposals to further the institutions’ purposes.

**Endnotes**

1. For our reading of the plans reported on in this chapter, we created a randomized list of EDUCAUSE member institutions from Canada and the United States. We then arbitrarily chose to look at the first 250 institutions on this list, which represent more than 15 percent of all EDUCAUSE U.S. and Canadian members. We conducted an initial search of all 250 institutions to determine which actually had something like an IT strategic plan publicly available on their Web site. Among these institutions, we found
64 plans, 16 institutional plans with IT sections, and 15 IT mission statements. On further inspection, we concluded that only 57 of these institutions actually had IT strategic plans available publicly on the Web. In some instances, we found links to strategic plans, but access required authentication.


6. Ibid.

7. Ibid.

Measuring IT Performance

A hundred objective measurements didn’t sum the worth of a garden; only the delight of its users did that. Only the use made it mean something. —Lois McMaster Bujold

Key Findings

- IT performance assessment and measurement is not widespread. The use of metrics is even less prevalent.
- Two-fifths of institutions document objectives at the time IT initiatives are approved. Those that do report more IT alignment.
- Only one-third of institutions include metrics for assessment at the time IT initiatives are approved (private-sector data show that almost twice that number include measures).
- The most common method of IT performance measurement is self-assessment. Customer satisfaction surveys are not yet a standard process.
- Only a few institutions use full methodologies such as the Malcolm Baldridge process or the Balanced Scorecard.
- Institutions that produce an institution-wide IT plan are more likely to include measures with their IT initiatives as well as publish performance expectations for existing IT services.
- Institutions where the senior IT leader is a cabinet member are more likely to communicate IT performance through high-level regular meetings and through an annual IT report.

A key component of any strategic planning model is performance assessment—of the resulting strategies and initiatives as well as of the planning process itself. This chapter looks at what survey respondents say about their campus activities related to measuring and assessing IT performance.

Background

Institutional budgets grow tighter while life-cycle costs of ever-growing IT portfolios continue to accrue—with no end in sight. Consequently, IT organizations in both the private and public sectors are under pressure to demonstrate the value of their IT investments. A recent CIO Insight survey of 404 top IT executives found that 60 percent of respondents say the pressure to calculate return on investment (ROI) for IT is on the rise, while only 2 percent say it’s decreasing.¹ And in higher education, a recent survey of CIOs and CFOs² revealed that 35 percent perceive increasing internal pressures and 27 percent perceive increasing external pressures to report on the value of IT.

Yet IT practitioners are all too familiar with the difficulty of determining IT’s value. Even with a diverse portfolio of methodologies, from the highly quantitative ROI measures to the more qualitative measures of the Balanced Scorecard, no “gold standard” exists for measuring IT value.³ And this is largely due to the nature of IT itself.

Measurement of IT is complicated by the fact that so much of its value comes from intangible benefits that are nearly impossible

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to quantify. An in-depth study of 80 CIOs\textsuperscript{4} by Peter Seddon et al. found that the top inhibitor to IT evaluation was the “inability to identify intangible benefits.” Intangible benefits are elusive and almost limitless, with examples including enhanced reputation, increased competitiveness, integration across organizational processes, improved customer relations, higher levels of innovation, and new workforce knowledge and skills.

Clearly, measuring these benefits is a challenge. Bob Lewis, president of IT Catalysts consultancy, says, “The problem of calculating the value of IT is that it’s an enabler of value, not a provider of value. That is, value comes from the improvement in business processes themselves, not the technology itself.” Economist Erik Brynjolfsson adds that “much of the benefit depends on the co-invention of users themselves” and then mentions that his corporate IT studies find that up to 90 percent of benefits are in intangibles.

The Seddon study goes on to report that the second and third top inhibitors to IT evaluation are “inappropriate measures” and “no satisfactory metrics available.” This finding is supported by a CIO Magazine survey in which 86 percent of respondents felt that measuring IT value was an important priority but only 10 percent felt their value measures were very or completely reliable. And almost one-third (30 percent) said they were not reliable.\textsuperscript{8} Although measuring IT’s value is troublesome, there is no lack of recommendations and guidelines for measuring IT performance. Solutions range from sticking with purely quantitative measures to using methodologies that guide the valuation of intangible benefits, and to Brynjolfsson’s general guideline, “what works best is fairly hard, which is to try to document some of the intangible benefits and understand those, as well as the tangible cost savings.” And when quantitative measures are appropriate, we can glean several general principles from the literature.\textsuperscript{9,10} Effective IT measures are:

- reliable and consistent over time;
- tied directly to important goals and objectives;
- understandable and easily communicated (no more than three to seven measures);
- developed with accountability for their creation and taking action on results;
- agile—they can be easily implemented, changed, and acted upon;
- business process driven, not systems driven; and
- technology independent across systems and platforms.

**IT Measurement Practices**

We first asked about institutions’ current attitudes about measurement of IT performance. Table 8-1 compares findings on respondents’ attitudes about institutional planning (discussed in Chapter 5) with their attitudes about reporting IT performance. Even though measuring performance is an integral part of the planning cycle, respondents do not consider it nearly as important as planning.

<table>
<thead>
<tr>
<th>Institution’s Attitude</th>
<th>Planning</th>
<th>Reporting IT Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important, tied to budget</td>
<td>55.0%</td>
<td>26.8%</td>
</tr>
<tr>
<td>Important, not tied to budget</td>
<td>33.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Not emphasized</td>
<td>10.8%</td>
<td>25.9%</td>
</tr>
</tbody>
</table>
One-quarter (25.9 percent) of institutions say they do not place much emphasis on reporting performance, and only 26.8 percent say they not only place importance on reporting performance but also actually tie that closely to the budgetary process. Results were consistent across Carnegie class, institution size, and public and private institutions.

As Jack McCredie of UC Berkeley explains, “It is much more of a description of an end state that we are working for. We are more goal oriented, not number oriented, in our process. One UC Berkeley goal was to wire the campus, not count the number of nodes that are actually installed. Our board doesn’t seem to require particular dashboard numbers that say we are 38 percent of the way to accomplishing our goal.” Bridgewater State College’s Bill Davis complains that “if you look at technology rankings, it is almost always inputs: how many classrooms have technology, how many computers are available per student. But the metrics don’t reveal how technology changes the quality of the educational experience for the students.” Larry Frederick, associate provost and CIO, University of the Pacific, is skeptical of metrics’ real usefulness. “The focus needs to be on specific institutional directives, not measurement per se,” he said. “If you want something to work, define the goals and make sure you have dedicated, competent management, a champion, as it were, and adequate resources so that he/she can succeed. If you want something to fail, spend your resources measuring it and your time arguing the meaning of the results.”

For institutions in the initial planning stages, Miami University’s Reid Christenberry cautions about focusing on metrics too soon. “The whole purpose of the plan is possibilities. If people are constrained at the outset to specific measurables, their perspective becomes limited. I do not like to become too focused on metrics in the early [IT planning] discussion because, if constraints surface, it prevents you from discussing possibilities.”

And once again, organizational climate surfaces as an issue. Of institutions where reporting on IT performance is both important and linked to the budget, 55.0 percent have a dynamic environment, 34.9 percent a stable environment, and only 10.1 percent a volatile or turbulent environment.

How do these attitudes translate into creating IT performance standards and making them public? Table 8-2 shows the extent to which respondents agree that their institutions publish performance expectations for

<table>
<thead>
<tr>
<th></th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application development schedules/deadlines</td>
<td>3.58</td>
<td>1.574</td>
</tr>
<tr>
<td>Help desk response</td>
<td>3.52</td>
<td>1.633</td>
</tr>
<tr>
<td>Telephony services</td>
<td>3.34</td>
<td>1.543</td>
</tr>
<tr>
<td>Academic technologies support</td>
<td>3.32</td>
<td>1.470</td>
</tr>
<tr>
<td>Other IT services</td>
<td>3.32</td>
<td>1.432</td>
</tr>
<tr>
<td>Institution-wide systems performance</td>
<td>3.31</td>
<td>1.503</td>
</tr>
<tr>
<td>Network reliability</td>
<td>3.28</td>
<td>1.530</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
key IT services. Overwhelmingly, disagreement is the most common response. Even for the top-ranked item, application development schedules, less than one-third (30.9 percent) of institutions agree that they publish expectations, and over half (51.3 percent) disagree. The pattern continues with help desk response (55.0 percent disagree), telephony services (59.6 percent disagree), and academic technology support (59.9 percent disagree). Network reliability ranked last, where 61.0 percent disagree (and 23.4 percent agree) that IT performance standards are published. Perhaps this is because, as one Forum on IT Value attendee said, “It must be perfect all the time.” There were large variations in responses evidenced by the relatively large standard deviations. This reflects the fact that while most institutions do not publish IT performance expectations, a significant cadre of colleges and universities do.

IT performance expectations are more often published at institutions that also publish an institution-wide IT plan (33.6 percent) than at those that do not (21.3 percent). Interestingly, it does not appear to matter whether the IT plan is linked to institutional budget, or whether there is an overall campus strategic plan. Since traditional planning practice includes performance measurement, it makes sense that those doing the real work of creating IT plans are also more likely to create IT performance measures.

What tools do those measuring IT performance use? Table 8-3 presents survey respondents’ use of common measurement techniques. By far the most popular evaluation method is self-assessment, with 74.4 percent of institutions reporting that they use this method “usually,” “almost always,” or “always.”

Given the effort required to implement hard measures, it is not surprising that this “softer” method is the most prevalent. Several IT leaders interviewed point to “the living exercise of constant user feedback—formal and informal—generated day by day, week by week in the various meetings and committees,” as Joel Hartman of the University of Central Florida described. This is especially the

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-assessment</td>
<td>5.12</td>
<td>1.294</td>
</tr>
<tr>
<td>Other satisfaction analysis (surveys, etc.)</td>
<td>4.38</td>
<td>1.458</td>
</tr>
<tr>
<td>Audit</td>
<td>3.88</td>
<td>1.616</td>
</tr>
<tr>
<td>Performance metrics</td>
<td>3.72</td>
<td>1.584</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>3.69</td>
<td>1.548</td>
</tr>
<tr>
<td>Focus groups</td>
<td>3.57</td>
<td>1.486</td>
</tr>
<tr>
<td>Outside assessment</td>
<td>3.38</td>
<td>1.516</td>
</tr>
<tr>
<td>Performance dashboards</td>
<td>2.01</td>
<td>1.468</td>
</tr>
<tr>
<td>Balanced Scorecard</td>
<td>1.89</td>
<td>1.359</td>
</tr>
<tr>
<td>Malcolm Baldrige Award Process and Criteria</td>
<td>1.54</td>
<td>1.082</td>
</tr>
</tbody>
</table>

*Scale = 1 (never) to 7 (always)
case at smaller, more centralized institutions, where Allyn Chase, Western New England College, notes that “quantitative methods are not needed at this institution to date because a lot of the planning and progress is communicated during group meetings with faculty and one-on-one meetings with the deans and senior administration.” For at least one IT leader, no news is good news. “I guess the one way I know that we are successful is that I don’t hear that we aren’t,” states Stephanie Reel of The Johns Hopkins University. “It is one measure that tells me that we are still hitting the mark. Hearing my customers describe the benefits, however … where we have made a difference … is the real goal!”

Fewer than half of responding institutions use customer satisfaction analysis and surveys as a measurement tool (47.4 percent usually to always), and 37.3 percent of responding institutions also usually employ these surveys to help determine customer needs. Interestingly, Bridgewater State College’s Bill Davis uses his annual user survey to both communicate past performance and encourage survey response. “The introduction summarizes what respondents discussed last year, how IT incorporated their comments into this year’s IT goals and planning, and what IT delivered in response. It tells the respondent that if they take the time to tell us their needs, IT incorporates them into our goals.”

Only a handful of institutions use full methodologies such as the Malcolm Baldrige process or the Balanced Scorecard (6.0 percent report “usually” to “always”), which have received much more attention in the private sector than in higher education. And even though the number is small, performance dashboards (9.2 percent use them “usually” to “always”), although relatively new, are apparently gaining popularity. UCSD’s Steve Relyea has implemented a dashboard measurement system which, he says, grew out of the university’s work “to restructure its administration and its infrastructure to support a much bigger system with limited resources. One of the things we talked about was better tools to manage financial information and student information.” Ratings of measurement methods did not show meaningful differences between public and private institutions, Carnegie class, or institutions of varying sizes.

Some IT leaders outlined their performance metrics. For example, CSU Chico’s Bill Post places statistics from the IT department, the campus, the system, and EDUCAUSE into a matrix that maps them to the campus technology plan. Indiana University creates “activity-based costing for every IT service by outlining exactly what IU spent on each IT service and the grade that end-user survey respondents assigned to the service,” describes Norma Holland. “It is a mechanism to review service costs and address those with low user satisfaction.” At Anne Arundel Community College, John Becker tries to assess the impact of IT activities. For example, after installing 100 instructional PCs, Becker worked with “the instructional side of the institution to help us determine how the PCs helped instruction. We even survey students to see if they are learning better.”

Respondents indicated what motivated them to implement IT measures. For some, it may be straightforward: Miami University’s Reid Christenberry wants “to make sure that the institution realizes that the IT plan is not just fluff, but a document with meat.” Table 8-4 presents respondents’ top reasons for measuring IT performance. We noted a wide variety of reasons, with no single reason taking a strong lead. This may reflect the relatively low frequency of IT measurement in general and the fact that no higher education norm exists as to why or what to measure. Approximately one-third of surveyed institutions point to the desire to measure progress toward goals (35.4 percent). Many want to document achievements (34.2 percent) and
secure funding (32.7 percent). And it is interesting to note that 5 percent of respondents have an administrative mandate to measure IT. Reasons to measure IT did not vary significantly across Carnegie class and public and private institutions.

We see a few relationships between why institutions plan and why they measure. We find that institutions that plan for the purpose of securing IT funding are more likely than others to measure for the same reason—to secure financial and other resources. Institutions that plan explicitly to identify competitive opportunities are more likely than others to engage in measurement that compares their IT services with those of leading-edge performers (for example, best practices and benchmarks).

We asked respondents several opinion questions about IT assessment (see Table 8-5) and found general agreement (71.9 percent) that implementing an IT strategic plan has allowed the documenting of significant achievements. There is less agreement (60.4 percent) that objectives are documented at the time IT initiatives are approved and launched. And translating these objectives into actual metrics is not a standard practice. Less than one-third (32.5 percent) of respondents say they include measures in their IT

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish the progress toward achieving our goals</td>
<td>171</td>
<td>35.4%</td>
</tr>
<tr>
<td>Document institutional IT achievements</td>
<td>165</td>
<td>34.2%</td>
</tr>
<tr>
<td>Secure financial and other resources</td>
<td>158</td>
<td>32.7%</td>
</tr>
<tr>
<td>Identify internal improvement opportunities</td>
<td>151</td>
<td>31.3%</td>
</tr>
<tr>
<td>Improve communication with users</td>
<td>123</td>
<td>25.5%</td>
</tr>
<tr>
<td>Counteract anecdotes about our services and performance</td>
<td>108</td>
<td>22.4%</td>
</tr>
<tr>
<td>Compare our performance with past years’ performance</td>
<td>100</td>
<td>20.7%</td>
</tr>
<tr>
<td>Educate IT staff about service-level responsibilities</td>
<td>100</td>
<td>20.7%</td>
</tr>
<tr>
<td>Compare our performance with that of other institutions</td>
<td>90</td>
<td>18.6%</td>
</tr>
<tr>
<td>Increase top management support</td>
<td>82</td>
<td>17.0%</td>
</tr>
<tr>
<td>Inform decisions about new services</td>
<td>81</td>
<td>16.8%</td>
</tr>
<tr>
<td>Compare our IT services with those of leading-edge performers</td>
<td>47</td>
<td>9.7%</td>
</tr>
<tr>
<td>Fulfill an administrative mandate for measuring</td>
<td>24</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
initiatives. In the private sector, that number is almost double; in a recent CIO Magazine survey, 58 percent of respondents stated that measuring the value of IT was a requirement for all new initiatives.14

Institutions differed in their responses to these questions on the basis of their planning practices—publication of an institutional or IT plan. Table 8-6 illustrates findings for respondents’ opinions about whether

- objectives are clearly documented when IT initiatives are approved, and
- measures are included in IT initiatives.

Campuses with an IT plan are more likely to include measures in their IT initiatives (36.0 percent) than those that do not have an IT plan (19.4 percent).

**Communication of IT Performance**

There is general consensus (72 percent agree) that the results of IT initiatives are regularly communicated to key stakeholders as often as necessary to keep them well informed. Only 13.5 percent of respondents disagree. Respondents further reported the

---

**Table 8-5. Assessment of IT**

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean*</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>At my institution we have been able to document significant achievements based on the implementation of our IT strategic plan.</td>
<td>5.10</td>
<td>1.413</td>
</tr>
<tr>
<td>Objectives are clearly documented when IT initiatives are approved.</td>
<td>4.61</td>
<td>1.377</td>
</tr>
<tr>
<td>Implementation plans specify metrics (measures) for evaluating outcomes.</td>
<td>4.13</td>
<td>1.934</td>
</tr>
<tr>
<td>Measures (metrics) for assessing how well IT initiatives are achieved are included with nearly every IT initiative.</td>
<td>3.84</td>
<td>1.437</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)*

**Table 8-6. IT Initiatives with Documented Objectives and Measures, by Type of Plan**

<table>
<thead>
<tr>
<th>Has institutional plan</th>
<th>IT Initiative Has Documented Objectives</th>
<th>IT Initiative Has Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>64.3%</td>
<td>36.0%</td>
</tr>
<tr>
<td>No</td>
<td>45.1%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Has IT plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73.5%</td>
<td>43.1%</td>
</tr>
<tr>
<td>No</td>
<td>40.4%</td>
<td>19.4%</td>
</tr>
</tbody>
</table>
top three approaches their institutions use to communicate IT performance (see Table 8-7). Regularly scheduled meetings (80.1 percent) are clearly the method of choice, with annual reports (51.6 percent) a distant second. Other common communication modes include e-mail broadcasts (34.6 percent) and newsletters (28 percent).

GWU’s David G. Swartz notes that “a lot of us in technology are so engrossed in our projects, and we are not good at marketing, selling, and documenting the value of IT. Yet, you have to reinforce that you were successful, you accomplished something, and you delivered what you were supposed to. This sets the stage for the next round, because the institution trusts you.”

Note that this profile for communicating IT performance resembles the profile for communicating IT priorities, seen earlier in Table 6-8. It makes sense that institutions would use the same vehicles to communicate both IT priorities and performance. And senior IT leaders who are cabinet members make more use of regularly scheduled meetings (86.6 percent) for reporting IT performance than do those IT leaders who are not cabinet members (74.4 percent). Institutions with cabinet-member IT leaders also make more use of annual IT reports (58.2 percent) than do other institutions (45.6 percent). It is interesting to note that IT annual reports, in general, are more often used to communicate IT performance (51.6 percent) than to communicate IT priorities (37.3 percent).

With respect to frequency of communication about progress on the IT plan, Figure 8-1 shows that nearly one-third of institutions (31.5 percent) report annually, and nearly one-fifth (18.3 percent) report IT performance on

| Table 8-7. Communicating the Performance of IT (N = 483, Multiple Responses Allowed) |
|---------------------------------|-----------------|---------------|
| Regularly scheduled meetings (cabinet, council, senate, etc.) | 387 | 80.1% |
| Annual reports | 249 | 51.6% |
| Broadcast e-mail | 167 | 34.6% |
| Newsletters | 135 | 28.0% |
| Focus groups | 55 | 11.4% |
| New faculty/student/staff orientations | 42 | 8.7% |
| Performance dashboards | 40 | 8.3% |
| Student newspaper articles | 26 | 5.4% |
| Balanced Scorecard | 21 | 4.3% |
| Press releases | 20 | 4.1% |
| Student newspaper ads | 3 | 0.6% |
| Videos | 1 | 0.2% |
a monthly basis. However, approximately one-fifth (19.6 percent) of respondents said that apprising their institutions of their progress toward IT goals was still an ad hoc process.

**Using IT Performance Results**

A comprehensive planning process usually includes a review of implemented policies, strategies, plans, programs, and projects—as well as planning processes themselves—to decide on a future course of action. Not only do strategies not always work as expected, but also things change: problems change, the external environment changes, and institutional directions change. For some IT leaders, measurement of IT performance is more about continual evaluation, not formal metrics. Gary Henrickson of Eastern Iowa Community College District views “measurement more as a constant, ongoing evaluation because IT is always evolving. A big part of the evaluation is to determine what’s working, what needs to be updated, or what needs to be retired because we have drifted in another direction.” Berklee’s David Mash compares ongoing evaluation to music improvisation. “Improvising means being attuned to what is happening all around you and coming up with the right solution,” he explains. “So we like to think that as a management group we do the same thing. Every year we are looking at how we are doing, and we are making adjustments based upon what is happening around us.”

An overall pruning will result in maintaining good strategies, modifying less successful ones, and eliminating undesirable ones. An overall pruning will result in maintaining good strategies, modifying less successful ones, and eliminating undesirable ones. An overall pruning will result in maintaining good strategies, modifying less successful ones, and eliminating undesirable ones. An overall pruning will result in maintaining good strategies, modifying less successful ones, and eliminating undesirable ones.

Asked whether their institutions used past initiatives’ performance to help create improved new IT priorities (see Figure 8-2), 76.0 percent of our respondents agreed, with 30.5 percent strongly or very strongly agreeing. Further, those institutions that do actually include measures when IT initiatives are approved are more likely to say they use these results in considering future IT priorities. These patterns hold across Carnegie class, public and private institutions, and institutions of varying size.

![Figure 8-1. Frequency of Reporting Progress on IT Goals (N = 464)](image-url)
One final consideration is whether IT initiatives’ performance is connected to job performance for people other than those in the IT organizations. The connection between performance measures and personnel rewards (financial and nonfinancial) has long been an underpinning of good management. We asked whether the functional area sponsors of institutional IT initiatives are evaluated on these initiatives’ outcomes. Figure 8-3 shows that the results were mixed, with as many respondents agreeing (35.7 percent) as disagreeing (34.9 percent). This theme is consistent with the relative lack of overall measurement within the context of IT and lack of performance measurement in general in higher education. These findings hold across Carnegie class, public and private institutions, and large and small institutions.

**IT Measurement and Alignment**

Although findings regarding an association between use of metrics and IT alignment are inconclusive, some patterns did emerge. Descriptively, Figure 8-4 illustrates that most respondents report both that IT is aligned with institutional priorities and that they include...
clearly documented objectives in IT initiatives at the time they are approved. There is a statistical association as well. Respondents who do clearly document objectives report more central IT alignment (92.4 percent agreed) than those who do not clearly document objectives (62.6 percent agreed that IT was aligned).

Again, communication matters. Here, those who communicated IT performance using regularly scheduled meetings (cabinet, council, senate, and so on) rated their institutions as having higher levels of both central IT alignment and departmental IT alignment (Table 8-8). For example, institutions reporting IT performance through high-level meetings also perceive more IT alignment (83.6 percent) than those that did not (65.0 percent). Although it is not as strong, an association also exists between institutions using an IT annual report to communicate IT performance and higher levels of perceived IT alignment. In fact, over half (52.2 percent) of institutions that do use high-level regularly scheduled meetings also publish an IT annual report.

Table 8-8. IT Alignment and Regular Reporting of IT Performance

<table>
<thead>
<tr>
<th>Report IT Performance</th>
<th>Central IT Aligned with Institutional Priorities (N = 482)</th>
<th>Departmental IT Aligned with Institutional IT (N = 479)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Regularly scheduled meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5.45</td>
<td>1.191</td>
</tr>
<tr>
<td>No</td>
<td>4.98</td>
<td>1.280</td>
</tr>
</tbody>
</table>

*Scale = 1 (very strongly disagree) to 7 (very strongly agree)
Endnotes


7. P. B. Seddon, op. cit.


12. Chapter 6, Table 6-3 shows use of customer satisfaction surveys for determining customer needs.

13. In 2003, 19 educational institutions (not necessarily higher education) applied for Baldrige Awards, compared with 19 health care, 10 manufacturing, 8 service, and 10 small business organizations.


17. A review of the literature suggests that few organizations, inside or outside higher education, successfully measure the value of their IT investments.
Effective Practices and Lessons Learned

Only when we recognize our fantasies can we begin to appreciate the wonders of reality.
—Henry Mintzberg, The Rise and Fall of Strategic Planning

Chapters 4 through 8 describe our findings about IT strategic planning and alignment practices in higher education institutions—from a content analysis of 57 IT plans found on the Web, an online survey of 483 institutions about their planning practices, and 22 in-depth interviews with CIOs. We have focused on each aspect of our navigational diagram, looking at institutional context and leadership, and IT governance, planning, and measurement. The sidebar (“Which Institutions Report More IT Alignment?”) summarizes findings about institutions that agree that their IT is aligned with campus priorities.

This chapter synthesizes the lessons we’ve learned and the effective practices that have emerged. While many of these insights may seem familiar, their recurrence underscores the importance of incorporating them into our portfolio of good practices. It is reassuring when data validates our existing ideas of effective practices. And it is even more instructive when our data reveals surprises, where we learn that, as Richard Katz, vice president

Which Institutions Report More IT Alignment?
Institutions …
- with a clearly articulated campus vision and/or priorities
- that consider planning important and closely linked to the institutional budget
- that have published an institutional plan or campus IT plan or that engage in planning activities continuously
- reporting dynamic or stable environmental climates (as opposed to turbulent or volatile climates)
- that perceive their IT governance process to be effective
- that perceive their IT strategic planning process to be effective
- that have greater communication with and involvement of key constituents, especially faculty and deans
- where objectives are clearly documented at the time IT initiatives are approved
of EDUCAUSE, might say, “What is common wisdom is not always common wisdom.”

**Balancing the Rigor of IT Alignment Processes with Institutional Culture**

In classic higher education tradition, great diversity exists in both institutional planning processes and the resultant plans. Our case studies, in-depth interviews, and study of IT plans on the Web highlight this diversity. We found differing relationships between institutional and IT planning; much variation in plans’ focus, content, and scope; a multitude of unique processes used to birth and carry out a plan; and no consistent methods for assessing or modifying processes and plans.

And in fact, common wisdom holds that this is appropriate—that each institution create an IT planning and alignment process that makes best use of the institutional culture, leadership, mission, funding, competitive situation, and external conditions. However, given that our respondents were not overwhelmingly positive about the effectiveness of their IT planning processes, it may be useful to look at those institutions that have opted to use more rigorous planning processes and methodologies or even employ outside consulting services—even though it may rinkle the existing culture. Respondents expressed their views on these two approaches.

Reid Christenberry of Miami University feels that “if there is an institutional planning process—even if it is not rigorous or well defined—you are probably going to be much more successful if you adapt your IT planning process to the way the campus is accustomed to planning. You should fit IT planning into the institutional mold, even if it means eliminating terminology or dropping whole components of what you have been accustomed to thinking is good planning practice. Otherwise, you are fighting an uphill cultural battle and you will spend all your time arguing over process. You have to be attuned to your institutional culture before you can adapt a process for your planning.”

Others also consciously tailor their planning processes to fit their institutions. Bloomfield College’s Carole Carmody talks about her small college community where, “especially in summer, I take advantage of the fact that we can just stop each other on the street and chat about people’s needs and concerns. I get feedback from people that one might not on a larger campus.” UBC’s Ted Dodds addresses the decentralization issue at his campus. “We recognize that UBC, like many large research universities, tends to be decentralized and distributed in terms of resources, decision making, accountability, etcetera. We want to find a way to enable that decentralized environment to work effectively rather than to superimpose upon it a planning process that is more central. At the same, we want to provide opportunities for collaboration among the decentralized entities so we can move in the same direction with a common purpose and vision.”

Two of our case study institutions opted to use external consultants. Shortly after being appointed president of Calvin College, Gaylen Byker brought in a team of consultants from Purdue University to evaluate technology use at the college and issue a report. The three-member team, all of whom had earned undergraduate degrees at Calvin, focused on the college mission they had understood in their years at the school. Their report led to the strategic decision to create a new cabinet-level CIO position. The new CIO then used the consultants’ report as a road map for successful IT planning at Calvin. The University of Cincinnati used a consultant from Blackwell Consulting Services who redefined its IT leader position and designed a new IT governance process.
focused on breaking down the silos and facilitating communication about IT, which in turn very positively changed the IT culture.

Perhaps we have gone too far in adapting our processes to fit our campus cultures and would be better served to take a more balanced approach. In any case, IT leadership would do well to remain open to processes that not only leverage the campus context and culture but also take full advantage of industry-wide best practices and external resources where advantageous.

**Institutional Vision and Priorities**

There is no doubt that an overall campus vision is important. A study of top-performing organizations found that a compelling and shared vision or mission was key to their success. And if constituents consider that vision worthy, they will embrace it more fully and it will more strongly impact the institution. A clear vision and mission help create a culture of participation and provide a natural backdrop for organizational alignment in general and IT alignment in specific.

Respondents are generally positive in this regard; 73.7 percent say that their campus has a clearly articulated vision (15 percent disagree), and 65.7 percent say they have clearly articulated priorities (18.3 percent disagree). Most important, respondents who do report clear institutional vision and priorities also report, more than others, that IT is aligned on their campus—both central IT alignment with institutional priorities and departmental alignment with institution-wide IT.

Several of our interviewees talked about the value of their campus vision to their IT planning efforts. UBC’s Dodds says, “Our president likens the need for a vision to the box cover of a jigsaw puzzle. You can’t put the jigsaw puzzle together unless you have the box cover. And that vision needs to be about people, not about technology, process, or outcomes. The reason that the university exists is not to have great IT or to run great networks. It is to further the academic mission of research and learning.” Dodds feels that “IT planning is most effective where there is a clear institutional vision.”

NYU’s Marilyn McMillan thinks about aligning IT with the institutional vision in terms of former U.S. Senator S. I. Hayakawa’s ladder of semantic abstraction. “The most concrete level is, for example, a specific cow, called Bessie,” McMillan explains. “Moving up the rungs of the abstraction ladder, you’d talk less specifically about a farm animal, and further up about an asset and at the top rung, wealth. But when you say ‘wealth,’ your listeners don’t necessarily all think, ‘of course, Bessie.’ Hayakawa notes that both ends of the ladder are important and that it is important to be clear about where you and your colleagues are on the ladder. Applying this to planning, the ‘wealth’ level is your institutional vision and principles. At the ‘Bessie’ level are specific project plans. You want your project plans aligned with your vision statement.” McMillan further describes her experience with IT planning “as constantly running up and down the ladder, from the possibilities inherent in the vision to the choices about projects and priorities. The rungs of the strategy ladder help keep the planning process flexible and relevant to the institution. The hard part in a university setting, especially where technology resources are widely distributed, is to keep all of the efforts aligned in some fashion.”

**Institution-Wide IT Planning**

Both the academic and practitioner literature are clear that the primary reason for IT strategic planning is to align technology with institutional goals and priorities. Our data support this idea in two ways. First, 76.0 percent
of respondents say that IT alignment is a top reason to plan. Second, a positive relationship exists between planning and IT alignment. Institutions that publish an institutional or an IT plan, or that engage continuously in planning activities, agree more that central IT alignment exists. Responding institutions that perceive their IT strategic planning process as effective also report more IT alignment.

What factors contribute to effective IT planning? Our data indicate that effective IT planning processes are reported at institutions that have a clear institutional vision and priorities, place emphasis on institutional planning, link the IT plan to the institutional budgetary process, and more often solicit input from and communicate with key constituents. Perhaps this is why IT planning is on the upswing, with 56.9 percent of institutions already having an IT plan and another 24.6 percent now developing their first IT plan.

All of our interviewees talked about their focus on institutional goals throughout IT planning. UC Berkeley’s Jack McCredie focuses on the campus academic plan. “The academic strategic plan provides the backdrop for our current IT planning cycle. Our IT plan will fully support this recently completed academic strategic plan. The academic plan referenced information technology in some sections, but not nearly enough that you could, for example, extract three paragraphs and consider that the IT strategic plan. Our campus IT plan will be a natural tie-in to the academic plan and keep the whole planning process alive.”

Joel Hartman of UCF describes the full integration between IT and campus planning. “We contribute to and then take all of our direction from the university’s plan. Our IT group does not sit down and write a separate IT plan. There is no document that describes IT activities, saying that over the next number of years we will develop x, y, and z. We do develop technical strategies to implement the university’s plan and then feed these activities back into the institutional planning process. By not having a separate IT plan, we escape having to get separate buy-in for an IT plan. At UCF they are the same thing.”

Similarly, Bridgewater State College’s Bill Davis says that he “serves with an institutional hat on nearly all the time. What IT planning does is force me to put on my division hat and become an advocate for my own division. There is tension between being an advocate for my division and making very sure that IT still supports the institutional mission. This causes me to increase the time I spend communicating with vice presidents, deans, chairs, and the president to make sure that IT continues to be perceived as a very important resource institution-wide and a strategic differentiator for the institution.”

When we polled our respondents who do not feel that IT is well aligned, the topic of institutional vision and priorities came up repeatedly. Wayne Powel, associate academic vice president and CIO, Gonzaga University, outlines his situation: “When we developed our IT plan 18 months ago, there wasn’t, and still isn’t, a set of institutional priorities with which we can dovetail. The result is a rather generic IT plan that focuses more on the university’s technology infrastructure than on developing specific services. That way, as institutional priorities are developed, we can tune the IT plan to the university’s, and we will not have wasted resources.” Mark Aldenderfer, UCSB, feels that “many institutional plans are filled with platitudes that offer little real guidance. Phrases such as ‘we wish to promote academic excellence’ and ‘we aspire to become a world-class educational institution’ are inspiring but of little practical value. What we need are institutional priorities that make it clear exactly what the platitudes mean. Does becoming...
world-class mean creating a ubiquitous computing environment, and if so, how does that articulate with learning, teaching, and research?"

**Tracking the External Environment**

Strategic planning is greatly enhanced by a broad, deliberate, and formal look at external forces in the environment and how they might affect higher education. Henry Mintzberg states that this is one of the main reasons for planning, saying that “organizations must plan to ensure the future is taken into account—preparing for the inevitable, preempting the undesirable, and controlling the controllable.” Not only is sidestepping potential negative impacts important, but also an understanding of environmental forces can surface a myriad of opportunities to be leveraged and used creatively.

Today, this need to understand the external world is becoming even greater—driven by increasing globalization and connectivity, the ever-accelerating pace of change, increasing complexity of the regulatory environment, new types of educational competition, rising potential for disruption, and a more volatile economic environment. These factors push organizations to become more agile and move toward a “sense-and-respond” adaptive organizational model. As one survey respondent said, “My institution is moving away from formal planning mechanisms. We believe that planning is an ongoing process that must be done as part of daily management, not as a separate and distinct activity. Therefore, we are developing a set of processes and procedures, including scenario planning, that will provide guidance for continuous planning—for what might be over the horizon. We recognize that none of us can really predict or anticipate the future with any real degree of certainty.”

The IT leaders we interviewed did target some external areas for study, most often tracking technology directions. UBC’s Ted Dodds has formally integrated technology scanning into his IT organization with a new planning unit charged with conducting an ongoing industry watch of new technologies. Others track technology vendors closely or use consulting organizations to help understand technology futures. Some point to the poor track record for predicting what technologies will emerge and take hold and don’t try to do long-term technology forecasting. Instead, they focus on identifying the technological “preconditions” they think will be necessary to prepare for the next leap, whatever that may be.

Other areas of external scanning cited were legislative changes, economic forecasts, and higher education trends. While some institutions have official planning offices to help in some areas, perhaps CSU Chico’s Bill Post speaks for many when he says his primary mode of operation “is to maintain awareness of what is happening in both the broader technology industry and the higher education industry. For me personally, that means reading the literature and having your ear to the ground. A trend should not take you by surprise.” Or, as Anita Cassidy recommends in her popular book for the private sector, *A Practical Guide to Information Systems Strategic Planning,* “Keep asking and visiting and talking to employees of other similar and different organizations. Review magazines, articles, journals, and Web sites. Talk to vendors and consultants. Surf the Web. And talk to customers wherever they are.”

Indeed, the environmental tracking and forecasting practices described by our interviewees or mentioned in actual IT plans are largely informal and localized. Yet 57.8 percent of our survey respondents identified changes in the external environment as a top
trigger for changes in IT priorities. This gap between the external environment’s growing impact and the relatively scant effort going into environmental scanning tells us that higher education IT leaders would do well to carefully review their processes and practices for gathering and acting on such information. We are not alone. John Bryson noted in his *Strategic Planning for Public and Nonprofit Organizations* that “unfortunately, for various reasons, organizations typically are not very savvy about perceiving (environmental) changes quickly enough to respond effectively.” As a community, it is time for us to move to another level of sophistication in this regard.

**Linking IT Plans to the Institutional Budget**

The budgetary process is well recognized as a powerful tool for alignment. Our study substantiates this common wisdom, finding that most institutions do explicitly link their IT plans to the institutional budget (77.6 percent). And as one might expect, these specific institutions agree more than others that IT is aligned with institutional priorities. Interviewees described how this was done at their institutions.

CSU’s David Ernst mentioned that “CSU’s planning initiative arose from a group of campus presidents about 10 years ago who wanted to determine the best way to invest in IT across the CSU system. Knowing they were going to spend the money, whether they wanted to or not, the presidents thought it would be good to have a plan to guide their investments.” David Mash at Berklee College of Music describes his institution’s process: “We complete our budgets collegially; all the directors meet with the finance department. The finance department understands how our operating budgets relate to campus-wide and department projects. It helps us to work more collaboratively across department and division lines. My directors also understand how the college is balancing our needs with other areas. They understand where their piece fits into the entire institution. They are not just operating in a vacuum.”

As Bates College’s Gene Wiemers sums up, “The IT plan obviously needs to be tied to the institutional budget, so it has to be consistent with both the one-year and five-year college plans. It has to be realistic. The IT plan is not a wish list, pie in the sky, or an argument for more money. It is a plan that we intend to implement.”

**Institutional Leadership Engagement**

The president or chancellor is critical to creating a culture of strategic planning and alignment. In fact, Jerry Luftman’s research identifies senior executive support as the top enabler of IT alignment. In our study we found that in general, presidents take an active role in overall institutional planning—as champions, participants, or sponsors. Some interviewees spoke of the role of top leadership. Berklee’s David Mash talks about his outgoing president as “a rigorous planner who created a strong planning ethic at the college. He planned his retirement to coincide with the completion of our last strategic plan and the start of the new planning cycle. He announced his retirement two years before the end of the current planning cycle so the college could recruit the next president in time for him to review the previous plan and prepare for the next cycle.” Dick Leurig of Montgomery College Central Administration notes that his “president made planning part of the overall institution’s culture. If you look at many employee desks on campus, you will see a copy of the institutional strategic plan. It is thumb-worn and has stickies on it. As one administrator said, ‘It is not a coffee-table book. We use it around here. It is vibrant and current.’”
With respect to IT specifically, respondents were very positive about presidents’ engagement in IT, identifying them most often as strong supporters or willing enablers. Norma Holland points to Indiana University in this regard, saying that “the previous and current IU presidents believe that IT is a strategic asset. An institutional goal is to put ‘IU on the map in terms of technology.’ Former President Brand wanted to establish IU as a leader in absolute terms in the use and application of information technology. He really understood that IT is absolutely and critically important to higher education.”

Involving and Communicating with Key Constituents

Summarizing his research on IT alignment, Jerry Luftman observes that “a decade of research has found that the key is building the right relationships and processes.” Further, his study of inhibitors and enablers to IT alignment found that the top inhibitor was the lack of close relationships between IT and non-IT organizations and staff. Indeed, broad-based and meaningful involvement of campus leaders and constituents is central to aligning IT initiatives with overall campus goals and strategies. While this is generally accepted as “common wisdom,” our study underscores the importance of this practice.

In Chapter 5, we learned that perceived effectiveness of IT governance was related to involvement of key administrators, deans, and faculty, as well as the use of IT advisory committees. In Chapter 6, we also learned that perceived effectiveness of the IT planning processes was related to the extent of interaction with key constituents, both in terms of their providing input to central IT and being kept well informed of IT priorities. Finally, we saw that both perceived effective IT governance and effective IT strategic planning are associated with stronger IT alignment with institutional priorities.

Yet within this broad finding we see enormous variation in how institutions go about involving and communicating with their key constituents. Indeed, there are endless ways to assemble constituents and create processes. And again, successfully tailoring these processes to an institution is essential. As UC Santa Barbara’s Mark Aldenderfer advocates, “There is no single model for a campus to follow to find the governance structure best suited to its history, stated strategic goals, and the practical realities of campus politics. But the discussion on that structure must be public, open, and wide ranging. Without it, we go back to business as usual, and in today’s environment, we cannot afford to do this much longer.”

Our interviewees and survey respondents told us they make extensive use of the many traditional approaches for involving and communicating with constituents. These include IT committees; meetings with executives, deans, faculty, administrators, and staff; hall chats; lunches; written reports; facilitated sessions; consultants; suggestion boxes; and Web sites. In addition, institutions often create a unique approach for soliciting input from constituents. For example, Stephanie Reel of The Johns Hopkins University explains, “We spend quite a bit of time imagining the future in steering committees. Every four or five years, we complete a scenario-building exercise where faculty members describe, through writing or a presentation or other means, how their particular discipline will evolve over the next five to 10 years, and the enabling technology required to support their scenarios.”

The Berklee College of Music launched a program called 10,000 Ideas to solicit input from standing committees and other sources. The program also uses paper suggestions, town meetings, and a Web site for
posting ideas. A broad panel of students, faculty, administrators, trustees, alumni, and parents filtered the ideas into 10 themes, from which four categories of institutional projects emerged. “Every theme involves IT,” notes David Mash. “In each successive review, different people from the same constituencies participated to broaden the input into the process.” Mash further says that he wants to involve the extended community—the recording industry, the music products industry, and the technology industry through an external board.

Ted Dodds described UBC’s e-strategy of town hall meetings, held each year in June. “The initial one invited top-notch speakers from other peer institutions—no consultants, no salespeople, no vendors—just people who are friends of the family from other institutions to talk about their successes with either IT planning or other initiatives. We invited UCSD’s Steve Relyea to talk about the New Business Architecture, The University of Texas at Austin’s Randy Ebeling to discuss their portal, and the University of Minnesota’s Bob Kavvik to present their e-business efforts. UBC’s Richard Spencer rounded out the event by describing our own e-business initiatives. At present, the annual town hall meetings are internally focused where the presentations feature 25 to 30 departments that share their activities in a mini-internal conference.”

Organizational Climate

The importance of a stable or dynamic organizational climate for IT alignment is profound. Instability can occur for any number of reasons—pressures or events in the external environment as well as internal conditions such as top leadership challenges and budgetary crises. Organizations experiencing turbulence or volatility (20.4 percent) have very different perceptions about their IT alignment with institutional priorities. Where 88.5 percent of institutions claiming dynamic or stable environments agree that IT is aligned with institutional priorities, only 69.4 percent of institutions reporting turbulent or volatile environments say IT is aligned.

Institutions with unstable organizational climates are also less likely than others to feel that there is a clear institutional vision and priorities. Perhaps vision and priorities are compromised or in transition during times of upheaval. On the other hand, it may be that in organizations without clear vision and priorities, there is more feeling of instability and turbulence. One respondent speaks to the need for IT alignment on his campus and the lack of overall institutional vision and priorities when he asks, “How does central IT align its priorities with institutional priorities where there is little sense of the whole? Are we going to work on customer relationship management or try to integrate multiple e-mail systems? Are we going to continue to use ‘cat herding’ as our primary management tool? When will rising costs and shrinking budgets force rationalization and alignment of goals? Are we running our institutions, or are our institutions running us?”

Institutions reporting less organizational stability also more often have a new president and are less likely to have that president positively engaged with IT. One respondent noted the importance of top leadership when she pointed out that their IT alignment efforts suffered because there had been no permanent top academic leader for several years. “The faculty now have a rather cavalier attitude about research accountability and activities. There is a ‘tail wagging the dog’ climate that has placed the faculty firmly in control of the campus despite the efforts of the president. The attitude is ‘don’t bother me with your technology until I need it, and then it is an emergency.’ IT’s greatest challenge continues...
to be the lack of an academic–IT partnership that will advance student learning.”

Decades of study and experience with strategic planning and IT alignment have generated a comprehensive portfolio of textbook approaches, methods, and models, as well as a body of examples, recommendations, and effective practices. Yet these processes apparently still need supportive internal and external conditions to bring about maximum benefit. In the end, IT alignment may work best in a favorable organizational climate. This is important to recognize for those who do perceive their environments as turbulent, so that conscious attention can be given to developing compensating strategies to use within the organization.

**Measuring IT Performance**

We found relatively little emphasis placed on the assessment and measurement of IT performance. Nor was there much commonality of approaches or measures. We asked our interviewees about measurement of IT performance and found that there is growing interest in the use of measurement processes and metrics. While a few institutions have developed and use measurement processes extensively, IT leaders are increasingly thinking about how best to use metrics and assessment for IT. Some interesting uses of metrics follow.

Bridgewater State College’s Bill Davis uses his annual user survey both to communicate past performance and to encourage survey response. “The introduction summarizes what respondents discussed last year, how IT incorporated their comments into this year’s IT goals and planning, and what IT delivered in response. It tells the respondent that if they take the time to tell us their needs, IT incorporates them into our goals.”

CSU’s David Ernst tells his story: “We came up with success measures for our projects up front, not after the fact. Some of these were not the most precise metrics, but keep in mind the process was partially political. We developed metrics that made sense to not only the CSU, but also to the legislature and the state department of finance. Having the CSU agree to employ these measures was the most compelling argument to convince the legislature to appropriate a $350-million-dollar bond fund for our infrastructure build-out project. We are reporting to the legislature annually for 10 years on each one of our projects, based upon the metrics that we established up front.”

UCSD has been actively experimenting with and evolving metrics for many years, implementing the Balanced Scorecard, performance dashboards, and other measurement processes. Says Steve Relyea, “We try to develop metrics that are indicative of performance and use them as a guide to help us do what we should be doing, know where we are, and learn more about where we should be going. We started using metrics 10 years ago on a one-year basis, just to see the impact. Now, 10 years later, we have found metrics to be an integral part of our business processes and strategic planning. Initially, I thought the most valuable aspect would be in comparing ourselves to peer institutions. The greater value, however, is in comparing ourselves to our own past performance. This is the true ‘apples to apples’ comparison.”

Miami University’s Reid Christenberry uses a top-down approach. “As we develop the IT plan, we are retooling our IT organization to fully integrate the importance of alignment. We are creating top-down specifications of focal areas and performance objectives for IT units and staff that are in line with the strategic IT plan. We are propagating these down through the organization so that everyone on the staff understands how their performance relates to the implementation of our strategic goals. We want staff to understand their relevance to institutional undertakings and the
importance of their alignment with these initiatives. To dissociate from the historical perspective of performance assessment as a critique of personal behavior, we are moving away from the term ‘performance management review sessions’ and renaming it ‘quarterly alignment sessions.’ We are focusing on involving our managers in communication, management, and organizational alignment. Often, technical managers are ‘working’ managers, still actively involved with the technology as well as managing their staffs. Our goal is to help them understand their primary role is management.”

Conclusion

Our data provide a snapshot of IT strategic planning and alignment perspectives and practices in higher education—in terms of campus planning activities, organizational climate, leadership involvement, IT governance, IT planning, and IT performance measurement. Our respondents bring extensive, varied leadership and planning experience to our study and come from very diverse institutional settings. It is most interesting, then, that we found so few meaningful differences among public and private institutions, Carnegie classifications, and institutions of varying size. The IT strategic planning and alignment practices and views, although admittedly tailored to institutional cultures, appear to reflect a commonality that crosses institutional boundaries.

Endnotes

1. We also queried a number of respondents who reported nonalignment at their institution.
3. In the ECAR study Information Technology Leadership in Higher Education: The Condition of the Community, we found that respondents very often cited the mission of higher education—its contribution to society through teaching, research, and community service—as a motivating force for their choice of career at a college or university.
Looking Ahead: Shaping IT Strategy in the Future

It’s not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.
—Charles Darwin

Throughout this study, we’ve looked at various ways that colleges and universities currently approach alignment of their IT and institutional strategies. This chapter scans some trends currently reshaping strategic planning across industries and discusses how these approaches may impact the future of developing and executing IT strategies in higher education.

Trends in IT Strategy

Information technology has become a pervasive part of doing business in nearly all organizations during the last decade. It has also dramatically shifted roles, moving from mostly automating back-office processes to becoming a strategic enabler of new offerings and new ways of doing business. While this has manifested itself in many ways, from the record rise in employee productivity over the past several years to the creation of innovative new products and services that would have been impossible several years ago, IT’s coming of age has brought with it new challenges for leaders.

As we are all aware, the ever-increasing rate of change in IT makes it ever more difficult to accurately predict future needs. The capabilities of and connectivity driven by IT have also, in the opinion of many, changed the fundamental nature of business, causing product life cycles to shorten, lowering switching costs for customers, and increasing the overall uncertainty that all organizations operate in. Colleges and universities have not been immune to such technology-driven change. Significant impacts have occurred in administrative areas like admissions, registration, and academic advising, where self-service has become a necessity and students have far superior access to information than just a few years ago.

While IT has substantially impacted student and business services, perhaps no other area has been more radically altered than faculty research. In environmental, space, oceanic, and atmospheric sciences, the collection of large datasets is more the rule than the exception. These fields are defined increasingly by the development of computer-based predictive simulations and models. More traditional disciplines such as history and art history are being rethought with the emergence of resources such as ARTstor and projects such as the Valley of the Shadow project. Life sciences research,
of course, has been completely transformed by the emergence of computational biology and chemistry and of informatics, particularly in the context of human genome research. Here the life cycle of research has truly been shortened as networked information and rapidly shifting communities of practice arise, interact, and dissolve rapidly with the ebb and flow of research priorities.

IT is also transforming higher education’s core teaching mission, with applications ranging from interactive classroom technologies to course management to distance learning, changing many aspects of how students are taught.

In such an environment, the traditional strategic planning model, focused on predicting the future for some number of years out and then developing a plan that positions the organization for one or more of these possible futures, seems to fall short. Change will not wait for the start of the next planning cycle, and failure to quickly respond to change leads at best to missed opportunities, and at worst to irrelevance. The concept of aligning IT strategy to business strategy also has some deficiencies, as Tomasz Smaczny of the Australian Graduate School of Entrepreneurship pointed out. “The notion of alignment suggests a sequential execution,” he wrote. “That in itself results in a ‘master-slave,’ ‘leader-follower’ relationship. Such a relationship creates ‘follow-up’ tensions where a quick or rapid execution is very difficult. The reaction time allowed between a business decision made and the IT decision is too short for [the] IT organization to respond.”

The need for a new model for alignment in general and strategic planning in particular has not gone unnoticed. Academics, consultants, and technology vendors have given this subject much thought. While it is too early to identify the right answer, a strong trend across much of the existing literature, research, and product offerings moves beyond linear, multiyear planning efforts and instead focuses on the need for flexibility.

The Adaptive Organization

Many consultants, authors, business leaders, and academics refer to the “adaptive enterprise.” IBM Corporation refers to “on-demand business.” Gartner Inc. describes “the real-time enterprise.” Whatever it is called, a common theme emerges across this new way of thinking about IT alignment with “the business strategy.” The essential message is that organizations need to rethink how they plan for the future, with the assumption that in a world that changes extremely rapidly, long-term planning becomes nearly impossible. Organizations should focus on their strengths and build the capabilities to rapidly adapt to changes in customer demand, market dynamics, shifting technology, and other unforeseen events.

Researcher Johanna Woll succinctly summarized this point of view, arguing that “the forces propelling organizations toward the adaptive enterprise model are universal: accelerating rates of change and an increasingly volatile overall economic environment. As our global economy becomes more densely connected, we are less able to predetermine outcomes. We can no longer assume one-to-one relationships between cause and effect. Becoming an adaptive enterprise means abandoning our management habits of prediction and control and developing instead the capacity to respond to change.”

Similar descriptions abound. IBM CEO Sam Palmisano defines an on-demand business as “an enterprise whose business processes—integrated end-to-end across the company and with key partners, suppliers, and customers—can respond with speed to any customer demand, market opportunity, or external threat.” Gartner says that a real-time enterprise “achieves competitive advantage
by using up-to-date information to progressively remove delays in the management and execution of its critical business processes."\(^5\) Deloitte & Touche advocates “strategic flexibility,” which it defines as “the capacity to compete today yet at the same time devote energy to developing the capabilities needed to compete across a range of possible futures.”\(^6\) Hewlett-Packard calls an adaptive enterprise “one that can flex to handle change without disrupting the business.”\(^7\) And author Stephan Haeckel says, “A sense-and-respond organization does not attempt to predict future demand for its offerings. Instead, it identifies changing customer needs and new business challenges as they happen, responding to them quickly and appropriately.”\(^8\)

Many current works on the subject of adaptive organizations seem to agree on the basic drivers of this transformation in the business environment. IBM’s Institute for Business Value describes four categories of factors\(^9\) that provide a good summary of this thinking.

- **Competitive Darwinism**: The competitive environment is becoming even more intense as established and new companies scramble to provide value to customers in increasingly transparent markets.
- **Continuous discontinuities**: The changes in customer demands, technological innovations, and government regulations are increasingly sudden and dramatic, and are growing ever faster.
- **Unrelenting financial pressures**: The growth and predictability of revenues and margins become more challenging due to economic uncertainties, lower operating margins, and demanding investors.
- **Unpredictable threats**: Pervasive dangers become real and prevalent as global firms see increased exposure to natural disasters, unstable geopolitics, and other market shocks.

According to the literature, strategies to make an organization more adaptive should contain certain characteristics which, together, help the organization react quickly to changes in the environment. One of the simplest of these approaches comes from Theodoros Evgeniou at INSEAD, who argues that adaptive enterprises need to have both flexibility and visibility. He defines flexibility as the ability of individual business units within a larger organization to develop their own responses to particular needs, as well as enterprise-level policies that enable and support such activities. However, for the organization as a whole to succeed in such an environment, management must have real-time visibility into the information held in the local operating units.\(^10\)

The Cap Gemini Ernst & Young Center for Business Innovation conducted significant research into the adaptive enterprise concept. They defined six principles\(^11\) they feel an organization must adopt to become an adaptive enterprise.

- **Enable self-organization**: Specify rules, not a detailed plan, and empower your employees with more connections, information, and freedom. Encourage experimentation to speed innovation, and begin to regard failures as an investment.
- **Recombine to reinvent**: Borrow ideas and practices liberally, make every product upgradeable, breed ideas and processes early and often, and view interchangeable modules for people and products as essential for mass customization.
- **Make boundaries permeable**: Increase the number and density of connections to your environment to speed information flow and adaptation, be transparent with your information, and promote diversity of opinions and experience to speed innovation.
- **Close feedback loops**: Measure your company and market reactions continuously and in real time, understand and measure intangible assets, and avoid anonymity to...
increase trust, reputation, and information flow.

- **Apply selective pressure**: Balance encouraging diversity with filtering the bottom 10 percent of people, processes, systems, values—of everything. Manage your network to remove less-productive partners, and demand continuous innovation from your technologies and practices.

- **Live at the edge of chaos**: Sense changes in the environment and respond, embracing disequilibria over stability, and use more resources to explore new possibilities for your business.

IBM has defined four dimensions for success for on-demand businesses\(^{12}\) that it feels directly address the four competitive pressures discussed earlier.

- **Focused**: Committed to concentrating on differentiating competencies, using tightly integrated strategic partners to manage selected nondifferentiating activities.

- **Responsive**: Seeming almost intuitive in its ability to sense and respond rapidly to unpredictable changes in the market environment and the needs of all its constituents.

- **Variable**: Able to adapt cost structures and business processes flexibly to reduce risk and to do business at higher levels of productivity, cost control, capital efficiency, and financial predictability.

- **Resilient**: Prepared for changes and threats, be they technological, economic, or political, enabling the business to continue operating with consistent availability, security, and privacy.

They also identified three critical structural enablers\(^{13}\) that allow organizations to execute on a strategy including the above dimensions.

- **Business components**: Discrete business areas comprising people, processes, and/or technologies that have a clear purpose and maintain financial viability.

- **Global connectivity platforms**: Architectures that permit a seamless connection between business components within the firm, across external partners, and throughout the world.

- **Best-in-class specialists**: External partners that provide best-in-class expertise in a specific business component through scale, knowledge, and delivery.

Although the characteristics of an adaptive organization vary somewhat in these different points of view, several common themes emerge. The first is a fundamental change in business strategy focus. This is well summarized in a presentation made by IBM Vice President Dan Forno, who described this change as “Sense and Respond vs. Plan, Make, and Sell.”\(^{14}\) Forno went on to say that in this model, effective tactics in essence become the strategy. Organizations focus their strategic thinking on how to most effectively respond to anything the market throws their way, rather than planning for one or more specific scenarios.

Gartner analyst Walter Janowsky offers a different view: “Real-time enterprise is not a business strategy. Rather, enterprises should evaluate their strategies to determine where real-time techniques can offer value.”\(^{15}\) Lord John Browne, CEO of BP Amoco, offers another perspective: “Giving up the illusion that you can predict the future is a very liberating moment. All you can do is give yourself the capacity to respond … the creation of that capacity is the purpose of strategy.”\(^{16}\)

Another thread in the literature and business world is the strategic redesign of organizations—moving from traditional organizational structures toward a componentized model that allows a “plug-and-play” approach, both internally and with strategic business partners, as changes need to be made. This line of thinking advocates that organizations develop strong capabilities that allow them to be best in class and find
partners to provide best-in-class capabilities for other functions.

The need for speed, connectivity, and access to information is clearly evident in all of these points of view, highlighting IT’s strategic importance to the adaptive organization model. Technology gives adaptive organizations the connectivity they need to work in real time with an ever-changing web of partners, the business intelligence capabilities to understand their environment as it is evolving, and the predictive capabilities to model and simulate scenarios and develop the capabilities to respond. Chris Meyer, a business author and a pioneer in research into the adaptive organization, summarizes this well, saying, “If you believe competitive advantage lies in the ability to sense change in the environment and respond to it faster than anyone else, and thereby keep your opponents off balance even though you feel off balance because you are operating as fast as you can, then IT can create a competitive advantage by being able to go through the orient-observe-decide-act cycle faster.”

IBM echoes this point of view, pointing to the importance of making IT an integral part of the process of developing business strategy. Their Executive Guide to On-Demand Business says, “Make IT part of your business strategy. The productivity gains that come from on-demand business are powered by the interaction of IT and strategy: Technology enables business decisions, and business decisions drive technology implementations. You need to get the two working together.”

The Future of IT Alignment with Institutional Strategy

To succeed in a future defined by rapidly changing business needs and accelerating technology growth, institutions must change their traditional thinking about IT strategy development. Many consider the alignment of business strategy and IT strategy to be an effective model for ensuring that IT investments reflect the organization’s strategic needs. However, as mentioned in the quote from Smaczny in the introduction to this chapter, an alignment model may be too slow to react appropriately to changing demands. Additionally, business strategies developed under such a model may not take full advantage of IT’s capabilities.

Figure 10-1 shows a spectrum of possible models for developing business and IT strategies. The diagram’s left side shows a reactive approach whereby a business strategy is developed and IT leadership develops an IT strategy.
strategy on their own to correspond to their understanding of that vision. This often leads to significant differences of opinion between IT and business leaders as to important areas of focus. The deficiencies of the reactive approach have led many organizations to the alignment model, whereby a business strategy is developed and IT and business leaders then work together to develop an IT strategy that optimally supports that business vision. This model has shown itself to be superior to the reactive model, as organizations using it are more likely to invest in IT initiatives that directly support the organization’s business goals.

The diagram’s right side depicts a blended strategy, whereby business and IT leaders work together to develop a strategy for the organization, taking full advantage of technology’s capabilities and understanding its limitations. This model provides several advantages over the alignment approach. It allows IT leaders to contribute to the business strategy discussion by sharing their knowledge of the business capabilities technology can bring to bear and their view of what new technologies are on the horizon. This can help identify new areas where IT could provide a competitive advantage. And since IT leaders are involved in the business strategy development, they can move faster to build out the necessary technology capabilities and expand the window of strategic opportunity available to the organization.

Numerous organizations already use the blended approach to strategy, and many in the adaptive organization camp advocate it. Smaczny describes this approach as fusion. He writes, “The IT strategy is developed not separately to business strategy but at the same time. As a matter of fact, the two are intertwined, and IT-related ideas might create business opportunities that otherwise would not even be considered and vice versa, business ideas need to be enabled by IT ideas…. If [this] proposition is correct, there is only one strategy, and one set of operational plans that follow the strategy.”

In a white paper on what it calls “adaptive IT,” which describes IT strategies needed to enable an adaptive organization, Cap Gemini Ernst & Young wrote, “Business strategy and technology capability are now so closely linked that it is impossible to separate them. IT investments should no longer take place after strategic decisions are made and they do not exist simply as enablers of core processes.” As early as 1995, Astra Merck, Inc. was using such a blended strategy approach. According to then-CEO Wayne Yetter, “We do not consider technology investments in isolation. We look at capabilities, such as developing drugs faster or providing customers with service they can shape themselves. If technology is necessary to make a capability work, then technology investments become part of the package.”

Some colleges and universities already use the blended approach. “The institutional [strategic] plan is the IT plan. IT is viewed as a means to help the institution achieve its plan,” said David Mash of Berklee College of Music. Joel Hartman of UCF says of his institution, “There is heavy senior leadership investment in the institutional planning process, and the plan guides resource allocations. So it has all the right ingredients to be a driver. The institutional plan is not just a document on a shelf, but in fact a living document.”

### Moving Beyond Alignment

Anne Keehn and Donald Norris describe a vision of IT planning for higher education that sounds very much like the adaptive organization models being discussed in other industries. “Most institutions use IT planning as an exercise in developing infrastructure to accomplish simple extrapolations of current practices,” they write. “Rather than enabling a new future, they extrapolate more efficient
versions of current practices into the future, five years at a time. Such practices squander a golden opportunity to transform IT planning into a strategic instrument for focusing and mobilizing the innovative capacity of colleges and universities, at the enterprise level. IT strategic planning should be a continuous developmental process, not a once-every-now-and-again activity. It should be regenerative, engaging campus leadership at all levels from the top (President, CIO, CFO, Provost, Advancement, Student Affairs) to the grassroots around the organizing principals [sic] of innovation and value. And it should aim to develop stretch goals, a culture supporting innovation, and the capacity to make sound, expeditionary decisions about the selection and use of technologies."

This study’s findings indicate that although some higher education institutions have moved in this direction, many have not yet begun to take the leap. For example, in Chapter 4 we learned that 85 percent of respondents agreed that there was alignment between the central IT organization priorities and institutional priorities. However, only 48 percent of institutions include the top IT executive on the president’s cabinet, and only 66 percent of those institutions where the CIO is not part of the cabinet include IT in the institutional planning process. And despite the fact that only 35 percent of respondents indicated that their organizational climate was stable, only 45 percent of respondents indicated that they think of institutional planning as a continuous process. And in Chapter 7, we saw that only 28 percent of IT strategic plans found on the Web examined addressed “planning for an unknowable future.”

Some institutions already are embracing components of the adaptive organization. UCF’s Joel Hartman describes his IT organization’s approach: “All of our IT people are listening all of the time for [change] to occur, and we are in a position to rapidly respond and adapt. So to some extent it is a living plan, an ongoing process that involves a great deal of user interaction, collaboration, and feedback. It also pays a lot of attention to what is going on in an attempt to find out even ad hoc things that occur that are not part of the plan that would need or benefit from a technological response.”

Although higher education as a whole tends to change at a slower pace than many other industries, many issues compelling the move toward more adaptive strategies in the for-profit world are affecting or will affect higher education. Institutions looking to employ such a strategy will need to implement some building blocks of the adaptive organization to make themselves more nimble to changes in their environment. While changes are needed across the institution to fully implement an adaptive strategy, forward-thinking IT organizations can begin to lay the foundation by making changes in some key areas.

**Planning and Governance**

Some of the most important changes to be made for an adaptive strategy to take hold are in the areas of planning and governance. As seen in Chapter 4, IT planning is an infrequent activity for many institutions, with 79 percent indicating they update their IT plans every two to three years. As a result, IT organizations may be working toward goals established several years earlier that haven’t been updated to account for new conditions or needs. Some organizations try to make up for this by using the institution’s budget cycle as an opportunity to plan for coming needs. However, most institutions operate on an annual or even a biannual budget cycle, and budgets often must be submitted three to six months in advance, also creating a problematic time delay.

Another obstacle many institutions will face is governance structures that are unclear, time-consuming, or unprepared to make fact-
based decisions. In Chapter 5, we reported that over 60 percent of respondents had a standing academic or administrative IT advisory committee as part of their governance structure, and 83 percent of institutions with more than 15,000 students had an academic advisory committee. Not surprisingly, survey respondents rated current IT governance models as only mildly effective on the whole, and fewer than half of respondents agreed that their governance model was well understood.

To make IT and, by proxy, the rest of the organization more responsive to their constituents’ changing needs and environment, most institutions will need to rethink their IT governance structures and IT planning processes. Rather than being a periodic activity, IT planning needs to become a much more frequent if not continuous process. To accomplish this, the organization must be able to sense change as rapidly as possible, both by developing the capability and rigor to conduct periodic scanning of the environment (internal and external) and by developing mechanisms for collecting real-time feedback on the institution’s needs.

Some institutions have already implemented such scanning processes in the technology area. The University of British Columbia, for example, has tasked its IT planning unit with “conducting an ongoing watch of new technologies and help[ing] devise appropriate strategies, as for example, creating a voice over IP strategy for the university. The planning folks will look for and anticipate new technology requirements that the campus may not be asking for now.” University CIO Ted Dodds described the value of UBC’s approach: “Several years ago when we put together our wireless strategy, we were able to gain first-mover advantage. By doing so, we were able to establish a single, integrated wireless network that enables campus-wide roaming. If we had not moved quickly and strategically, we would likely be faced with fragmented, inconsistent connectivity.”

IT organizations will also need to have the flexibility to reassign resources and funding to new priorities as they become apparent, which is often difficult to do in traditional budgeting environments. Some ways to do this include using the budgeting cycle to plan for broad spending categories rather than line items and allocating funds for specific priorities over time. Also, allowing IT (and other departments) to retain unused funds in reserve from year to year can provide some budget flexibility during times of need. Bridgewater State College’s Bill Davis describes this approach: “The IT reserve lets us be flexible, lets us be adaptive. There are lots of things that come in over the transom in the middle of the planning cycle, and I can’t tell people that it is a good idea but let’s wait eight months.”

To help ensure that IT is focusing on the correct priorities, institutions must also reexamine the governance model. While a committee representing a broad canvas of the institutional culture may continue to be involved in setting high-level vision or long-term priorities, institutions need a structure that can be convened faster and has clear procedures and genuine decision-making authority to be able to move quickly in the face of changing needs. This group should include key leaders from the units that IT supports and should have access to the appropriate tools and information to make wise (and well-aligned) choices. Enough budgetary flexibility and political engagement should be available to prevent placing IT leaders in the position of having to determine which business or academic priorities must slip in order to accommodate changing needs. IT and other institutional leaders will need to work closely together, as described earlier, to ensure that the decisions being made accurately reflect both the institution’s needs and technology’s capabilities and limitations.
Jeanne Ross and Peter Weill of MIT highlighted the need for such engaged collaborative governance: “IT executives are the right people to make numerous decisions about IT management—the choice of technology standards, the design of the IT operations center, the technical expertise the organization will need. But an IT department should not be left to make, often by default, the choices that determine the impact of IT on a company’s business strategy.” Ross and Weill highlight six areas, including setting budgets, setting priorities, and defining service levels, that should be the responsibility of business executives, not technology executives. They also advocate a blended approach: “While we firmly believe that senior business executives err when they abdicate responsibility for these IT decisions, we aren’t advocating that any of the decisions be made unilaterally in the executive suite. Although senior managers need to ensure that IT spending and initiatives are aligned with and further the company’s strategy and goals, such decisions are best made with input from both business unit and IT executives.”

Organization

Some institutions may also need to change how they structure their IT organizations. Many institutions have traditionally had a do-it-yourself approach to IT, building organizations focused on supporting the institution’s IT infrastructure and applications. This can leave little capacity available for handling special projects or supporting changing faculty needs, resulting in the need to hire expensive external consultants to supplement staff when an unforeseen situation or a large project arises. And the institution’s IT organization may not be able to provide support services in the most cost-effective way available.

To make the IT organization more able to support an adaptive strategy, several approaches can be considered. First, the institution may wish to evaluate which of the IT organization’s tasks are core needs or areas of particular strength and which might be better handled—either from a cost or performance standpoint—by an external provider. If any tasks can be outsourced, the organization can redirect the savings to support more strategic initiatives.

Another possible approach is to create an internal structure that is project oriented rather than functionally oriented, either across the majority of the IT organization or in one or more units that act as internal consulting organizations. This builds in the flexibility to support changing needs and special projects. Institutions should support their IT staff’s continuous learning to ensure they develop the skills needed to support the institution in the future.

Alternatively, contracts with external service providers can provide staff augmentation when needed. Such contracts let the IT organization quickly meet the needs of unforeseen projects, providing access to both additional personnel and scarce skill sets without having to go through the time and expense of a procurement process each time it requires a service. This approach also lets an organization allocate more of its budget to variable costs, making it possible to scale services up when needed and pare down when slow. This is particularly valuable in an environment where unspent budgets can be retained for future use.

Organizations making the changes described above will also likely need to rethink the ways they measure and reward IT staff. Working in an adaptive environment can be difficult, and proper alignment of expectations and incentives can help employees understand and focus on what is important. Project-based teams need to be measured on project success criteria, including on time and on budget but also customer satisfaction and creation of business value. Team members
in such environments should be rewarded on the basis of their responsiveness to their customers’ needs and to the IT organization’s changing needs and abilities to contribute to the institution’s strategic agenda. Those working in experimental or investment areas should be encouraged to innovate, and work climates should recognize that mistakes are okay in such innovative environments. To support such a system of incentives, a measurement architecture needs to be developed and deployed to solicit frequent feedback from IT customers, track project outcomes, and measure progress against the institution’s overall strategic objectives. The ultimate goal is to build a culture that embraces and thrives in a changing environment.

**Technology**

To operationalize an adaptive strategy, institutions must also change how they deploy technology. Although technology itself is not strategic, the right technology architecture and the right tools allow the institution to move more adroitly in the face of new challenges. Traditional technology platforms were selected for the long term and tended to be built around monolithic applications that could not easily be changed. While this worked relatively well in a static environment, such technologies can be difficult to adapt to even relatively minor changes in the business environment.

Developing technology capabilities to support an adaptive organization requires an architecture that is flexible enough to support frequent changes in user demands, technologies, and business requirements. Attributes and goals of such an architecture include:

- **Modularity**: It should be possible to easily add and remove components of the architecture on the basis of changing needs—without having to undertake complex efforts to do so.
- **Integration**: Systems should be designed to easily connect with one another and with systems hosted by external vendors and partners, as needed.
- **Flexibility**: Organizations should have the capacity to rapidly scale IT capabilities up or down to meet changing demand.

Banking giant JP Morgan Chase has pursued such a strategy to reduce the fixed costs of its IT operations and provide scalable capacity. “[JPMC] is aggressively increasing its cost variability by externalizing a significant portion of its data processing technology infrastructure, including data centers, help desks, distributed computing, data networks, and voice networks. With the help of an external partner, it created a virtual pool of computing resources that can be accessed and deployed on an ‘as-needed’ basis. Using this approach, JPMC can not only reduce costs, but also create capacity for growth and accelerate innovation.”

Higher education’s current research and interest in computing grids reflects some of this thinking.

In addition to making core IT services better suited to the adaptive model, IT organizations may need to add some capabilities to let the institution’s users and leaders execute an adaptive strategy. Below we describe some of those key capabilities.

**Business Intelligence**

Business intelligence systems provide an organization’s users with the right information at the right time to make the right decisions. They can take several forms. A commonly deployed business intelligence tool is a data warehouse, which helps institutions develop an enterprise-wide view of important financial, human resources, and customer (student and alumni) data. When combined with an ad hoc query tool, the warehouse enables users to run custom queries to quickly find the answers they need. The closer to real time
such information can be provided, the more valuable it is in helping users at all levels of the organization make the right decisions.

An emerging business intelligence capability involves the use of intelligent agents built into key software applications. Depending on the situation, such agents can suggest a course of action to the user on the basis of predefined logic, making it more likely that efficient, consistent, and effective service will be provided throughout a process.

**Feedback Loop**

A key characteristic of an adaptive organization is its ability to sense and respond to changes in its environment in as close to real time as possible. IT must help users develop the capability to obtain such feedback from its systems, processes, and users themselves in as close to real time as possible.

Examples include creating business rules within applications that alert the appropriate person when a particular parameter is abnormal, allowing them to quickly react to the situation, and incorporating feedback mechanisms into as many of the institution’s offerings and services as possible, allowing continued adjustment to better meet demand. Digital dashboards, which present relevant, real-time information to management in a graphical, easy-to-use form, can be a good way for executives to get their finger on the pulse of the organization.

**Modeling**

Computer-based modeling tools help the institution’s leadership understand the impact their decisions may have on various aspects of the institution. Such tools can range from space optimization (if we take away three classrooms, what impact will that have?) to process modeling (if we add two more staff members, would that help us reduce financial aid backlog?) to more sophisticated tools that help plan for possible future scenarios. Emerging techniques like agent-based modeling promise to provide even more power in this area, allowing modeling of complex systems such as consumer behavior and giving executives better insight into an uncertain future.

By developing technology infrastructure and capabilities that contain the characteristics outlined above, institutions will lay a strong foundation for the execution of an adaptive strategy without fear that technology will be a barrier to its success.

**Conclusion**

This chapter provides a look at a new school of thought regarding the future of enterprise and IT strategy and how organizations looking to move to such a model need to prepare. While such approaches to strategy appear to be dramatically different from those used in the past, strategic planning approaches have been evolving for many years, and adaptive strategy is the current, and probably not the last, step in this genesis.

As Table 10-1 shows, IT strategic planning began with “big planning” efforts that generated large binders but little progress. Such plans were focused on the long term, but, as Stanley Fish of the University of Illinois at Chicago recently wrote, “The trouble with long-range planning is that it almost never works, in part because the object of your analysis will not stand still and wait for your process to complete itself.” As a result, many organizations have moved to shorter-term planning methods, whereby IT plans are aligned to institutional planning. The focus is more on setting a strategic direction for the institution but not including a level of detail that is overwhelming and likely to be misguided as time progresses.

While some institutions still use the strategic direction model, the for-profit world and some higher education institutions found they needed more-flexible methods. In the mid-1990s, a more iterative approach to plan-
ning emerged. In this model, organizations set a direction for themselves and developed a broad architecture that they hoped would support this direction. Results were delivered quickly, in a series of small projects that built upon one another, and allowed the organization to change direction more quickly than earlier efforts. The University of California’s New Business Architecture is an example of such an approach. Over time, the need for even faster responsiveness brought about the adaptive organization methods discussed in detail in this chapter, whereby organizations focus not on planning but on sensing and responding to the changing environment in as close to real time as possible.

While the future is uncertain and impossible to predict, the move toward adaptive strategy appears to be well under way across industries, with vendors and their customers offering numerous examples of how such strategies work in practice. Colleges and universities should watch and understand how such strategy models are developing and determine on the basis of their own strategic needs the right time to incorporate aspects of this approach and move beyond alignment to a more flexible and adaptive approach.

Table 10-1. The Evolution of IT Strategic Planning

<table>
<thead>
<tr>
<th>Planning Style</th>
<th>Time Frame</th>
<th>Focus</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Big Planning</td>
<td>1970s</td>
<td>Long-term planning</td>
<td>Detailed plans</td>
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<td>Large documents</td>
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<td>Not much action</td>
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<td></td>
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<td>Separate business and IT planning</td>
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<tr>
<td>Strategic Direction</td>
<td>1980s</td>
<td>Medium-term planning</td>
<td>Set a vision</td>
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<td></td>
<td>Less specificity</td>
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<td></td>
<td></td>
<td></td>
<td>Project-based execution</td>
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<td></td>
<td></td>
<td></td>
<td>Alignment of business and IT planning</td>
</tr>
<tr>
<td>Iterative Planning</td>
<td>1990s</td>
<td>Short-term planning</td>
<td>Set a direction</td>
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<td></td>
<td></td>
<td></td>
<td>Build an infrastructure</td>
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<td></td>
<td></td>
<td></td>
<td>Deliver small components quickly</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Joint business and IT planning</td>
</tr>
<tr>
<td>Adaptive Organization</td>
<td>2000s</td>
<td>Just-in-time planning</td>
<td>Focus on sensing, not planning</td>
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<td></td>
<td></td>
<td></td>
<td>Modular infrastructure</td>
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<td></td>
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<td></td>
<td>Rapid execution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Close business and IT cooperation</td>
</tr>
</tbody>
</table>
Endnotes


13. Ibid., p. 16.


15. W. Janowski, op. cit.


18. IBM Corp., On-Demand Business.


25. IBM Corp., On-Demand Business, p. 16.


Appendix A
Interviewees in Qualitative Research

Anne Arundel Community College
John Becker, Chief Technology Officer

Bates College
Gene Wiemers, Associate Vice President for Academic Affairs, Director of Information Services and Librarian of Bates College, The George and Helen Ladd Library

Berklee College of Music
David Mash, Vice President, Information Technology

Bloomfield College
Carole Carmody, Associate Vice President for Information Technology

Bridgewater State College
Bill Davis, Vice President and Chief Information Officer

California State University, Office of the Chancellor
David Ernst, Assistant Vice Chancellor and Chief Information Officer

California State University, Chico
Bill Post, Vice Provost for Information Resources and Chief Information Officer

Concordia University (Austin, Texas)
David Kluth, Vice President, University Services

Davenport University
Kevin O’Halla, Vice President for Information Technology
Eastern Iowa Community College District
   Gary Henrickson, Director of Computing & Telecommunications

The George Washington University
   David G. Swartz, Chief Information Officer

Gonzaga University
   Wayne Powel, Associate Academic Vice President and Chief Information Officer

Green River Community College
   Carolyn Hershberger, Vice President, Information Technology

Indiana University
   Norma Holland, Associate Vice President, University Information Systems

The Johns Hopkins University
   Stephanie Reel, Chief Information Officer

Miami University
   Reid Christenberry, Vice President for Information Technology

Montgomery College
   Dick Leurig, Chief Information Officer

New York University
   Marilyn McMillan, Associate Provost and Chief Information Technology Officer

Oberlin College
   John Bucher, Director of Information Technology

Ohio University
   Ann Kovalchick, Director, Center for Innovations in Technology for Learning

San Francisco State University
   Jonathan Rood, Associate Vice President

South Dakota State University
   Mike Adelaine, Chief Information Officer

Texas Christian University
   David Edmondson, Assistant Provost, Information Services

The University of British Columbia
   Ted Dodds, Associate Vice President, Information Technology and Chief Information Officer
University of California at Berkeley
   Jack McCredie, Chief Information Officer and Associate Vice Chancellor, Information Systems and Technology

University of California, San Diego
   Steve Relyea, Vice Chancellor–Business Affairs

University of California, Santa Barbara
   Mark Aldenderfer, Director, Office of Information Technology

University of Central Florida
   Joel Hartman, Vice Provost, Information Technologies and Resources

University of the Pacific
   Larry Frederick, Associate Provost and Chief Information Officer

Western New England College
   Allyn Chase, Assistant Vice President, Office of Information Technology
Appendix B
Institutional Respondents to
the Online Survey

Abilene Christian University
Acadia University
Adirondack Community College
Agnes Scott College
Allegheny College
Alvernia College
Anne Arundel Community College
Appalachian State University
Aquinas College
Arcadia University
Arizona State University
Arizona State University West
Armstrong Atlantic State University
Athabasca University
Auburn University
Auburn University at Montgomery
Augustana College
Austin Community College
Ave Maria College
Babson College
Baker University
Baldwin-Wallace College
Barnard College
Bates College
Baylor University
Bellarmine University
Bemidji State University
Berea College
Berklee College of Music
Bethel College and Seminary
Bethune-Cookman College
Big Bend Community College
Binghamton University
Bishop’s University
Bloomfield College
Bluefield State College
Boston College
Bowdoin College
Bowling Green State University
Brandeis University
Brazosport College
Bridgewater State College
British Columbia Institute of Technology
Brooklyn Law School
Bryant College
Bryn Mawr College
Buffalo State College
Cabrini College
Caldwell College
California College of the Arts
California Institute of the Arts
California Lutheran University
California Maritime Academy
California State Polytechnic University, Pomona
California State University, Bakersfield
California State University, Channel Islands
California State University, Chico
California State University, Dominguez Hills
California State University, Fresno
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<tr>
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Millersville University of Pennsylvania
Mills College
Minnesota State Colleges and Universities
MiraCosta College
Montana State University–Bozeman
Montclair State University
Montgomery College Central Administration
Montgomery College, Germantown Campus
Montgomery County Community College
Moravian College
Morningside College
Mount Aloysius College
Mount Mary College
Murray State University
New Jersey Institute of Technology
New River Community & Technical College
New York University
North Carolina A&T State University
North Carolina School of the Arts
North Central College
North Dakota State University
North Dakota University System
North Harris Montgomery Community College District
North Lake College
Northeastern University
Northern Michigan University
Northwestern College
Northwestern College of Iowa
Oakland University
Oberlin College
Ohio Northern University
Ohio University
Ohió College
Okanagan University College
Oregon Health & Science University
Oregon State University
Ottawa University
Otterbein College
Pace University
Paradise Valley Community College
Parker College of Chiropractic
Pennsylvania College of Technology
Phillips Academy
Phoenix College
Pima County Community College District
Pitzer College
Plymouth State University
Polk Community College
Pomona College
Prairie Bible Institute
Prescott College
Prince George’s Community College
Princeton University
Providence College
Queens College/CUNY
Quinnipiac University
Radford University
Raritan Valley Community College
Red Deer College
Reed College
Rensselaer at Hartford
Rensselaer Polytechnic Institute
Rhode Island School of Design
Richard Bland College
Rider University
Roane State Community College
Roberts Wesleyan College
Rochester Institute of Technology
Rockhurst University
Rollins College
Rowan University
Rutgers, The State University of New Jersey, New Brunswick
Ryerson University
Saint Anselm College
Saint Joseph’s University
Saint Mary’s University (Nova Scotia)
Saint Mary’s University of Minnesota
Saint Meinrad School of Theology
Salem State College
Salve Regina University
Samuel Merritt College
San Diego Community College District
San Diego Miramar College
San Francisco State University
San Jacinto College District
San Jose State University
Santa Fe Community College
Saskatchewan Institute of Applied Science & Technology
Savannah College of Art and Design
School of the Art Institute of Chicago
Shepherd College
Simmons College
Simpson College
Sinclair Community College
Skidmore College
Sonoma State University
South Dakota State Board of Regents System Office
South Dakota State University
South Texas College of Law
Southeastern Community College
Southern Adventist University
Southern Illinois University at Carbondale
Southern Illinois University Edwardsville
Southern Methodist University
Southwest Baptist University
St. Cloud State University
St. Lawrence University
St. Mary’s College of Maryland
St. Mary’s University (Tex.)
St. Olaf College
St. John’s University
St. Philip’s College
SUNY College at Cortland
SUNY College at Old Westbury
SUNY College at Plattsburgh
SUNY College of Environmental Science & Forestry
SUNY College of Optometry
Sweet Briar College
Syracuse University
Temple University
Tennessee Board of Regents
Texas A&M University at Galveston
Texas A&M University at Qatar
Texas Christian University
Texas State Technical College–Harlingen
Texas State University–San Marcos
The College of New Jersey
The Evergreen State College
The George Washington University
The Graduate Center (CUNY)
The Pennsylvania State University
The University of British Columbia
The University of Iowa
The University of Kansas Medical Center
The University of Texas at Arlington
The University of Toledo
Thomas University
Union County College
United States Air Force Academy
United States Merchant Marine Academy
Universidad Carlos Albizu
University at Albany, SUNY
University at Buffalo
University of Alaska Anchorage
University of Alaska Fairbanks
University of Arizona
University of Calgary
University of California, Berkeley
University of California, Irvine
University of California, Los Angeles
University of California, Merced
University of California, Office of the President
University of California, San Diego
University of California, Santa Barbara
University of California, Santa Cruz
University of Central Florida
University of Chicago
University of Cincinnati
University of Dayton
University of Delaware
University of Denver
University of Florida
University of Georgia
University of Hartford
University of Hawaii at Manoa
University of Houston–Clear Lake
University of Idaho
University of Illinois at Springfield
University of Illinois at Urbana–Champaign
University of Illinois Central Administration
University of Kansas
University of Kentucky
University of La Verne
University of Massachusetts
University of Massachusetts Boston
University of Miami
University of Minnesota Duluth
University of Mississippi
University of Missouri System
University of Missouri–Kansas City
University of Montana–Western
University of Nebraska–Lincoln
University of Nebraska at Kearney
University of Nevada, Las Vegas
University of New Brunswick
University of New Hampshire
University of New Haven
University of New Mexico
University of North Carolina at Charlotte
University of North Carolina, Office of the President
University of North Dakota
University of North Texas Health Science Center at Fort Worth
University of Oklahoma
University of Oklahoma Health Sciences Center
University of Oregon
University of Puerto Rico–Bayamon
University of Puget Sound
University of Rhode Island
University of South Carolina
University of South Carolina–Beaufort
University of Southern Maine
University of St. Thomas
University of Texas at Dallas
University of Texas at San Antonio
University of Texas Health Science Center at San Antonio
University of Texas System
University of Texas–Pan American
University of the Pacific
University of the South
University of the Virgin Islands
University of Tulsa
University of Utah
University of Vermont
University of Virginia
University of Washington
University of Washington–Tacoma
University of West Florida
University of Winnipeg
University of Wisconsin System Administration
University of Wisconsin–Eau Claire
University of Wisconsin–Madison
University of Wisconsin–Stevens Point
University of Wisconsin–Stout
University System of Maryland
Valley City State University
Valparaiso University
Vancouver Community College
Vanguard University of Southern California
Vassar College
Vermont Law School
Vermont State Colleges
Virginia Military Institute
Virginia Polytechnic Institute and State University
Weber State University
Wesleyan University
West Virginia School of Osteopathic Medicine
West Virginia Wesleyan College
Westchester Business Institute
Western Kentucky University
Western New England College
Westmont College
Wheaton College
Wichita State University
Widener University
Willamette University
William Woods University
Williams College
Winona State University
Winston-Salem State University
Winthrop University
York College of Pennsylvania
Appendix C
Information Technology Plans Reviewed

Athabasca University, (Canada)
Barnard College, BA LA
Bemidji State University, MA II
Bowie State University, MA I
Brown University, DR EXT
California Lutheran University, MA I
California State University, Monterey Bay, BA LA
California State University, San Bernardino, MA I
Case Western Reserve University, DR EXT
City University of New York (Brooklyn College), MA I
College of the Holy Cross, BA LA
College of Wooster, BA LA
Colorado College, BA LA
Duke University, DR EXT
Emory University, DR EXT
Emporia State University, MA I
Estrella Mountain Community College, AA
Fayetteville State University, MA I
Florida A&M University, MA I
Hamilton College, BA LA
Hope College, BA LA
Keene State College, MA II
Lansing Community College, AA
Louisiana State University, Shreveport, MA I
Mansfield University of Pennsylvania, MA I
Maple Woods Community College (Penn Valley), AA
Massachusetts Institute of Technology, DR EXT
Montana State University-Bozeman, DR INT
Mt. Hood Community College, AA
New Mexico Institute of Mining and Technology, DR INT
New Mexico State University, DR EXT
North Carolina Central University, MA I
Northwest Vista College, AA
Oakland University, DR INT
Oregon Health & Science University, MED
Oregon Institute of Technology, BA GEN
Phoenix College, AA
Pittsburgh State University, MA I
Queensborough Community College/CUNY, AA
Texas Tech University Health Science Center, MED
The George Washington University, DR EXT
The University of South Dakota, DR INT
Union College, BA LA
University of California, Santa Cruz, DR EXT
University of Cincinnati–Raymond Walters College, AA
University of Massachusetts Dartmouth, MA I
University of Missouri–Kansas City, DR INT
University of North Carolina at Wilmington, MA I
University of Northern Colorado, DR INT
University of Saskatchewan, (Canada)
University of Southern Maine, MA I
University of Utah, DR EXT
University of Wisconsin–River Falls, MA I
University System of Maryland, SYS
West Virginia University, DR EXT
Western Kentucky University, MA I
Wittenberg University, BA LA


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