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Improving IT Governance in Higher Education

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Question: How do most research universities govern the large and rapidly evolving set of information technology (IT) activities and initiatives that take place on their campuses?

Answer 1: In much the same way they manage other important activities that involve every department and almost every individual on the campus. There is usually a complex committee structure and a mix of decentralized, independent decision makers who are responsible for most local issues, with the responsibility for certain major activities, such as data and voice networks, assigned to a campus-wide IT organization.

Answer 2: Inefficiently, ineffectively, and not as well as they should.

Unfortunately both answers are most likely correct. In higher education, the IT governance process and structure usually involve a confusing hybrid of autonomous departments and one or more centralized units; individual leadership and committee consensus; and plans and policies—sometimes conflicting—developed by independent research projects, departments, colleges, the campus, and in some cases, a statewide system. These governance processes usually work, but they are confusing and time consuming. Occasionally they fail, as evidenced by the as yet unsolved problem of very damaging IT security breaches on many campuses.

Respondents to the 2006 EDUCAUSE Current IT Issues Survey once again ranked IT governance, organization, and leadership as one of the most important issues that (1) needs to be resolved for their institution's strategic success, (2) IT leaders spend the most time on, and (3) has the potential of becoming even more significant in the future (Dewey, DeBlois, & EDUCAUSE Current Issues Committee, 2006).

This research bulletin examines the ways many research universities govern their IT activities, explores some inherent problems in these processes, identifies several good practices, and suggests some potential changes that may improve the current state of the art. It focuses on research-intensive universities and draws on previous research conducted by MIT and ECAR on IT alignment and governance; the 2005 EDUCAUSE Core Data Service (CDS) survey responses; the results of an extensive review of IT governance at the University of California, Berkeley (UC Berkeley); a one-day governance workshop hosted by the Common Solutions Group (CSG); the work of a project team participating in the IT Leaders Project; and the observations and results of several external review committees on which the author has served.

Definitions of IT Governance

Because of the decentralized and independent nature of departments, colleges, research centers, and faculty, research universities are very difficult to manage. A 2003 special issue of the *ASHE-ERIC Higher Education Report* presents an excellent review of the wide-ranging literature on higher education governance. The editors define 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” (Gayle, Tewarie, & White, 2003, p. 1). They also note that effective governance clarifies strategic directions, identifies priorities, and exerts sufficient control to manage outcomes. Management differs from governance in that its primary focus is on the implementation of decisions made through the governance process.

More informally, governance describes who makes which decisions, who provides inputs and analyzes the issues, who sets priorities, who implements the results of the decisions, and who settles disputes when there is no clear consensus. Good governance processes will foster timely decisions, responsible actions, and alignment of an organization’s IT strategy with its overall mission and goals. These descriptions will serve as our working definition for governance in this bulletin.

Highlights of IT Governance in Higher Education

Responses to the 2006 EDUCAUSE Current IT Issues Survey indicate that governance is an issue that is more strategic for those in large research universities than for those in baccalaureate degree-granting colleges. However, it ranks as one of the top six issues on which IT leaders spend the most time in institutions of all sizes (Dewey et al., 2006). And the number-one time-consuming issue for all categories of institutions—funding IT—is directly related to governance and institutional priority setting.

The most recent CDS survey illuminates some of the similarities and differences in IT structures between baccalaureate degree-granting colleges and research-intensive universities (see Table 1). How the observations and recommendations in this bulletin apply to colleges and universities that are not dominated by research activities remains an open question for further study; however, several of the concepts and principles apply to all organizations, regardless of size.

Table 1. IT Structures in Research and Baccalaureate Institutions

Core Data Service Survey Question	Research	Baccalaureate
Central IT staff as percentage of total campus IT staff	49%	88%
Average size of campus IT staff	429	22
Title of IT leader is CIO or vice president for IT	76%	38%
IT leader reports to provost or president/chancellor	59%	64%
IT leader sits on cabinet	54%	41%
Campus strategic plan includes IT planning segments	74%	80%
Stand-alone IT plan exists	76%	57%
Trustees provide input to IT planning process	26%	27%
Cabinet provides input to IT planning process	54%	65%

Perhaps the largest differences in these survey data are the size and distribution of IT staff in the two categories. Research-intensive universities have full-time IT staff that average 429, almost 20 times larger than the average of 22 individuals at baccalaureate colleges. At research-intensive institutions about 51 percent of these individuals are distributed in departments throughout the campus, whereas only 12 percent are noncentral staff in baccalaureate institutions. Clearly the size and distributed nature of IT in large research universities lead to a more complex governance structure and a different set of issues than the smaller and less distributed environments in baccalaureate colleges. The 2005 survey data included responses from 121 research-intensive universities and 176 baccalaureate colleges.¹

How IT Is Organized in Many Research Universities

The governance structure for IT on most large campuses was not really designed; it evolved relatively slowly over the past 30 years while the underlying technologies and their impact on our organizations changed very rapidly. Adapting to extremely rapid environmental changes has never been identified as one of the strengths of research universities.

Campuses use titles such as chief information officer (CIO), vice president, vice provost, or associate vice chancellor to identify the single individual who is nominally responsible for guiding, shaping, and coordinating the overall condition of IT on campus. The specific title is not important; in this bulletin we use the term *CIO* to represent the top IT leader role. Interestingly, this person usually lacks real authority to implement campus-wide architectural standards or to enforce policies in key areas such as security. Often there are dozens of IT operations on large campuses, but most of these have no direct reporting relationship to the CIO. The following examples illustrate locations where significant IT resources are often located.

- *Independent research projects:* Excellence in research is a core value at universities, and many principal investigators develop their own independent computing environments. Often there is no centralized IT coordination or standards for these projects, and outside the data network, there may be little central IT support for these research efforts. However, these activities often place a large strain on the common campus IT infrastructure.
- *Departmental computing organizations:* Many departments have their own computing organizations dedicated to local users. These organizations develop their own funding mechanisms (recharge, departmental support, research overhead, and so forth), make independent purchasing decisions, and develop their own policies to govern usage of their resources. Hundreds of IT professionals, often one-half to two-thirds of the total campus IT professional staff, work in independent research projects or in local operations in academic and administrative departments.
- *Colleges and professional schools:* Many colleges and professional schools develop shared IT facilities for their faculties, students, and staff. Some are large, while others are small and understaffed. Often college-level IT shops

provide services and support to departments that have their own IT organizations.

- *Campus-wide organizations:* The central campus IT organization is often charged with providing campus-wide solutions such as the voice and data network and IT support for major enterprise administrative and academic solutions such as finance, human resources, student administration, course management, and many others.
- *System-wide coordination:* Some universities are part of larger systems, and often these systems provide important IT services such as intercampus networks, payroll and human resource services, strategic sourcing, and library and museum databases.
- *National and regional networking organizations:* Hundreds of colleges and universities obtain intercampus networking services from national organizations such as Internet2, National LambdaRail, the Energy Sciences Network, and statewide and regional networks.

Illustrative Governance Problems

The data in Table 1 indicate that on many campuses the most senior IT leader does not sit on the cabinet and often does not report to the highest ranking academic officer. These data also indicate that a significant number of campuses have neither a strategic campus plan that includes IT issues nor a stand-alone IT departmental strategic plan. Trustees do not seem to be involved heavily in IT planning activities, and a surprisingly large percentage of IT organizations receive little guidance in their planning activities from their cabinet officers. Certainly these indicators do not prove that these institutions have weak IT environments or governance structures, but they do show that many colleges and universities do not follow best-practice guidelines from industry and professional organizations.

There is evidence of IT governance problems even in research-intensive universities that place a heavy emphasis on technology and that invest millions of dollars annually in technology to support their research, teaching, and administrative environments. In January 2006, the CSG sponsored a one-day workshop on IT governance. Nineteen of the participants answered a questionnaire before the meeting, and several of their responses are described in the following section. These organizations share a common belief that their IT environments are strategically important. Although this is a small sample from research-intensive universities, these data are consistent with findings from the 2004 ECAR IT alignment study and illustrate why we need to improve IT governance in higher education.

Lack of Understanding of Governance Structure and Effectiveness

Several authors argue that one of the most important indicators of the health of any governance structure is whether it is understood by its constituents. The CSG survey asked participants to respond to the following statements by indicating on a scale of 1 to 7 the degree to which they disagree or agree with statements related to their institutions.

Table 2 shows a summary of the responses to several illustrative statements.² The answers, which are not very positive, indicate that there is room for improvement in IT governance, even at these technology-intensive universities.

Table 2. Responses to the January 2006 Common Solutions Group Survey

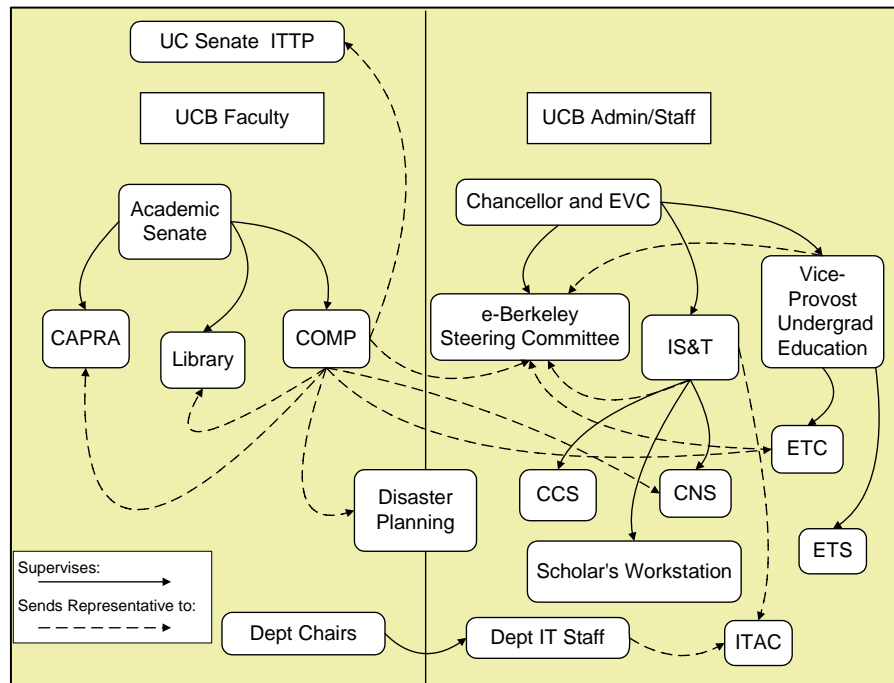
Survey Statement	Mean
The IT governance process is well understood at my institution.	3.5
The IT governance process is effective at my institution.	4.4
Faculty members are actively involved in our IT governance process.	4.5
Department IT priorities are aligned with the institutional IT priorities.	4.6
My institution's IT priority-setting process is broadly inclusive.	4.7

Scale: 1 = very strongly disagree, 2 = strongly disagree, 3 = disagree, 4 = neutral, 5 = agree, 6 = strongly agree, 7 = very strongly agree

Overly Complex Committee Structures

Universities love committees and consensus management whenever practical. "Form a committee" is often the first response to a new question or issue. Committees allow large numbers of individuals to participate in discussions, learn about issues, become involved, and feel important as a contributing member of the decision process. But some committees live long past their useful lives, waste time, and diminish in value over time. Once created, they are often hard to disband. As part of the campus strategic IT planning process at UC Berkeley, the academic senate Committee on Computing and Communications (COMP) reviewed the IT governance committee structure and presented its results in Figure 1. Note that there does not seem to be any output from this complex system of interlocking committees.

Figure 1. IT Governance Committee Structure at UC Berkeley



Gaps and Overlaps

Because of the distributed nature of IT, managers in research universities rarely examine or try to coordinate the total IT investment across the campus. Instead, each project, department, and college sets its own priorities and makes its own investment decisions. Therefore, it is difficult to coordinate purchases, develop common architectures, or know what the total IT investment picture looks like. The inevitable result is that overlapping, wasteful services are developed while important services remain unfunded or inadequately resourced as a result of a lack of campus-wide coordination.

Campus IT architectural standards are difficult to develop and even more difficult to implement when each organizational unit is able to define its own standards. As a result, campus-wide applications must support a wide variety of operating systems, hardware configurations, browsers, and security protocols, often by implementing costly customizations to vendor supported applications. Such customizations add significantly to the total cost of ownership for these applications.

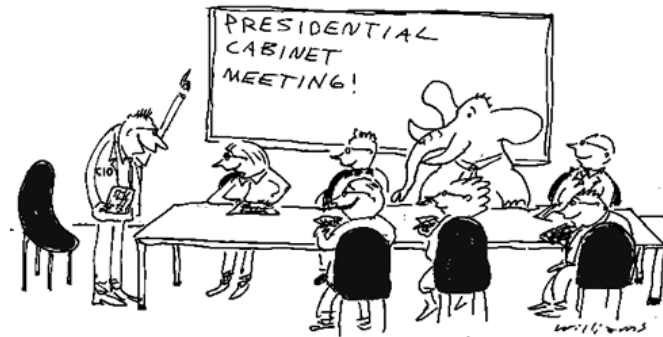
During the strategic IT planning process at UC Berkeley, one participant noted, “We do not have the budget to do the job correctly, but somehow we scrounge the resources to do it multiple times in half-baked ways.”

IT Security Breakdowns

Perhaps the most conspicuous symptom of IT governance problems in higher education is the alarming number of severe security breaches in recent years. Despite significant educational efforts and pledges to do better, many colleges and universities continue to find themselves reacting to damaging security incidents in which personally identifiable sensitive information is compromised because of unauthorized access to computer systems by hackers. Security and identity management is now the top strategic IT challenge facing higher education according to the 2006 EDUCAUSE Current IT Issues Survey (Dewey et al., 2006).

Many colleges and universities have adopted campus-wide security and privacy policies and guidelines, but often these institutions have trouble implementing them throughout their campuses because of the highly distributed nature of their IT environments and the difficulty of enforcing campus-wide policies. A large majority of the reported security incidents occur in departmental or individually managed systems rather than in centrally managed systems. Figure 2 illustrates that the inability to adequately protect private personal information is clearly “the elephant in the room” on many campuses. IT governance must be improved to make more progress on solving this crucial problem.

Figure 2. Central System Security (an ECARtoon)



I am pleased to advise you that our central systems have been secured!



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Principles of Good IT Governance

Several research studies in corporations indicate that there is no single best IT governance model. In other words, one size certainly does not fit all. Peter Weill and Jeanne Ross from the MIT Sloan School of Management have studied hundreds of corporations around the world. Their investigations indicate that IT governance is a mystery to many top managers. "On average, just one in three senior managers knows how IT is governed in his company" (Weill & Ross, 2005, p. 26). So higher education is not the only business segment that is not doing the best job of managing its IT resources. Their research shows that companies that effectively govern IT also have high performance ratings on other measures of success.

In their model, Weill and Ross break IT governance into five major decision domains:

- *IT principles*: the high-level decisions about the role of IT
- *IT architecture*: an integrated set of technical choices for the organization

- *IT infrastructure*: centrally coordinated, shared IT services that provide the foundation of the organization's IT capabilities
- *Major application requirements*: the core applications that are necessary across the organization
- *Prioritization and investment decisions*: how much and where in the organization to invest in IT

Good IT governance practices will determine, and communicate clearly, who should make and be held accountable for decisions for each of these domains in each part of the organization (central, college, department, project, and so forth).

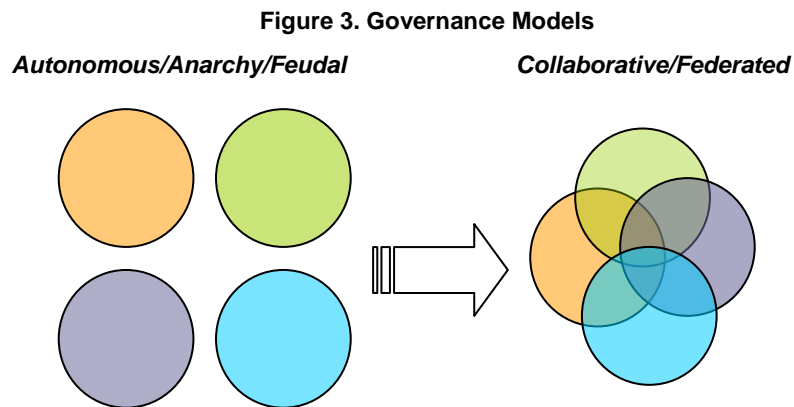
As part of a two-year IT strategic planning process, UC Berkeley recently completed an analysis of its IT governance structure by a combined external and internal review team. The final report from this review outlines several practices that should be incorporated into any changes that the university undertakes. The review team then made several specific recommendations about changes that the UC Berkeley administration should consider to improve its IT governance. The following set of recommendations is derived from the values, goals, and recommendations sections (IV and V) of that report,³ as well as the author's experience on several visiting committees at other universities:

- Develop clear, transparent, and widely communicated governance structures.
- Foster true partnerships and coordination between central and local IT units.
- Recognize the substantial differences between campus-wide IT issues and services deployed locally—while many priorities must be set centrally, many decisions about how these priorities can best be achieved should be made locally.
- Clarify and enable the position of CIO.
- Clarify IT decision-making roles and responsibilities of other campus leaders.
- Simplify the campus committee structure, define clear roles, and define clear "sunsetting" provisions.
- Connect analysis and technical decisions to the budgeting process and rationalize the funding processes for instructional, research, and administrative computing.
- Develop structures that produce incentives rather than prescriptions and constraints.
- Ensure that the IT governance structure and processes are consistent with the overall governance and management cultures of the organization.

What It Means to Higher Education

Information technologies support every phase of higher education’s mission. In recent years many universities and colleges have invested large sums to upgrade campus networks, administrative systems, research environments, course management systems, and other important areas. But on many campuses there is a growing concern that we are not doing the best job possible in setting priorities for new IT applications, collaborating across departmental boundaries, and sharing expensive infrastructure. Many campuses have been hit with costly security breaches of their IT environments that have resulted in compromises to the private information of thousands of individuals. In short, trustees, campus leaders, students, and the public are asking higher education to do a better job of managing its IT investments. One path toward improving the current situation is to improve our IT governance processes.

Many campuses have several IT organizations that do not collaborate or share infrastructure or best practices. Weill and Ross (2005) describe these structures as “anarchy” or “feudal” models (see Figure 3). To achieve a higher level of coordination, campuses should consider moving toward more “federated” structures in which areas that overlap can be defined and governed more collaboratively, efficiently, and effectively.



A good place to start improving IT governance on campus is by rethinking the role of the CIO. As noted above, the CIO position on many campuses evolved from the role of the individual who was the department head of the organization that provided centralized computing facilities on the campus. In the early days, this role was often very technical, not very political, and not usually involved in major campus policy issues. The CIO role today should be much different, but few campuses have taken serious steps to redefine what is needed now that IT is a strategic asset in higher education with almost everyone dependent on the campus IT infrastructure. If your campus does not have a CIO, now is the time to consider the advantages of defining such a position. If one exists, now is the time to rethink what the IT leadership role needs, wants, and most importantly, is willing to fully support.

Key Questions to Ask

- What percentage of your campus community could describe the IT governance structure on your campus?
- Is there a single individual on your campus who is responsible and accountable for important campus-wide IT decisions? If so, does that person report at a high enough level to carry out that responsibility effectively?
- To what degree could your college or university save significant money if you could enforce important IT standards throughout your campus?
- How many different e-mail systems exist on your campus? How many do you need?
- In what ways could you improve services and/or the quality of your IT personnel by coordinating their career paths throughout the campus?
- Should your campus CIO also manage the central IT operational unit? What conflicts are inherent in such a structure?
- What are the best strategies for enforcing standards, coordinating personnel, and implementing security policies with the decentralized IT governance structure common on most large campuses?
- Why do IT governance practices in higher education differ so much from best practices in successful corporations?

Where to Learn More

- Aebersold, E., Green, W., Jones, J., Krawczyk, J., & McKeehan, S. (2006). *ITLP strategic project: IT governance in higher education*. Watertown, MA: MOR Associates, Inc. Available from <http://www.morassociates.com/itlp/itlpprojnotebks3.htm#asn2>
- Albrecht, B., Bender, B., Katz, R. N., Pirani, J. A. , Salaway, G., Sitko, T. D., & Voloudakis, J. (2004). *Information technology alignment in higher education*. (Research Study, Vol. 3). Boulder, CO: EDUCAUSE Center for Applied Research. Available from <http://www.educause.edu/ecar/>
- Clark, A. J. (2005, November 22). *IT governance: Determining who decides*. (Research Bulletin, Issue 24). Boulder, CO: EDUCAUSE Center for Applied Research. Available from <http://www.educause.edu/ecar/>
- Murray, J. (2005). Bridging the GAP: Unified approaches to governance, architecture, and procurement. (Presentation). Boulder, CO: EDUCAUSE Center for Applied Research. Available from <http://www.educause.edu/ecar/>
- Weill, P., & Ross, J. W. (2004). *IT governance: How top performers manage IT decision rights for superior results*. Boston: Harvard Business School Press.

References

- Dewey, B. I., DeBlois, P. B., & EDUCAUSE Current Issues Committee. (2006). Current IT issues survey report, 2006. *EDUCAUSE Quarterly*, 29(2), 15. Retrieved June 9, 2006, from <http://www.educause.edu/eq/eqm06/eqm0622.asp>
- Gayle, D. J., Tewarie, B., & White, A. Q., Jr. (Eds.). (2003, November). Governance in the twenty-first-century university: Approaches to effective leadership and strategic management. *ASHE-ERIC Higher Education Report*, 30(1). Available from <http://www.wiley.com/WileyCDA/WileyTitle/productCd-078797174X.html>
- Weill, P., & Ross, J. (Winter 2005). A matrixed approach to designing IT governance. *MIT Sloan Management Review*, 46(2), 26–34. Available from <http://sloanreview.mit.edu/smr/issue/2005/winter/08/>

Endnotes

1. The author performed several retrievals from the 2005 EDUCAUSE Core Data Service survey to develop these indicators. Two peer groups were formed using Carnegie classifications for research-intensive universities and baccalaureate degree-granting institutions.
2. On January 4, 2006, the Common Solutions Group sponsored a one-day work shop on IT governance issues in higher education at Duke University. Materials from this workshop, including a summary of the survey results, are available at <<http://www.stonesoup.org/>>. Follow the link from “Past meetings” to the Winter 2006 meeting and then scroll to “IT Governance and Funding Workshop Presentations.”
3. The URL for the UC Berkeley strategic planning process is <<http://technology.berkeley.edu/>>. The final report of the external/internal review committee can be found in critical issue section 5, “Governance, Funding, and Structure.” The direct link to this January 18, 2006, report is <http://technology.berkeley.edu/pdf/IT_Report.pdf>.

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