EDUCAUSE

CORE DATA SERVICE

Fiscal Year 2006 Summary Report

Brian L. Hawkins and Julia A. Rudy

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Acknowledgments

The EDUCAUSE Core Data Service (CDS) would not have been possible without the efforts of many individuals, whom we would like to acknowledge and thank here.

First, EDUCAUSE and the community it serves are extremely grateful for the leadership of the members of the EDUCAUSE Research Task Force who advanced the service from concept to reality. These information technology leaders from a dozen member campuses contributed their vision, expertise, and wisdom in addressing the myriad issues that arose as the service was imagined and thought through.

Next, we thank the hundreds of colleges and universities that complete and submit the core data survey annually. Without their support and willingness to participate, the service and this annual summary report would not exist. We appreciate the time and effort these campuses expend in completing the survey and trust that they are reaping a satisfactory reward in authorized access to the powerful interactive database service component of the Core Data Service.

The Core Data Service would also not exist were it not for the work of the imaginative and proficient group of IT professionals on the EDUCAUSE staff who developed and continue to refine the Web-based applications for both the core data survey and the interactive database service. The latter includes innovative tools that enable complex data comparisons by a number of demographic factors; provide statistical analyses such as means and medians on the fly for selected populations; calculate commonly sought ratios for benchmarking; and provide built-in trend analysis capability. EDUCAUSE is indebted to Becky Granger for continuing to improve and refine these important tools from year to year.

Despite the many help features and the availability of the Core Data Service tutorial, individual staff support is still required to assist participants. The EDUCAUSE Member Services team of Jan Brescia, Tammy Burkhart, Linda Kelley, and Kate McTurk does an admirable job of fielding and referring questions, technical issues, and other problems.

Finally, we would like especially to acknowledge the invaluable statistical analyses conducted by our analyst, Robert Nicolich. These analyses added rigor and understanding to the interpretation of the data.

Understanding the Core Data Service

Higher education continues to experience unprecedented pressure for accountability from both internal and external constituencies, from trustees to campus administration to prospective students and their parents to governmental agencies. In recent years, these accountability demands "have been especially targeted at information technology, putting strong pressures on IT leaders to explain and justify the costs and benefits of the expenses associated with their areas."[1] Fundamental to such efforts is having reliable data about information technology practices, structures, and expenditures at comparable institutions for benchmarking purposes.

Finding such useful and relevant comparative data for IT units in higher education has long been a challenge, and a number of data-collection activities arose through the years to meet this need. (See Appendix A for the historical context from which the current EDUCAUSE Core Data Service arose.) Six years ago EDUCAUSE determined the need for a somewhat different approach from existing data collection efforts and thus developed and launched a program called the EDUCAUSE Core Data Service (CDS), which consists of an annual survey instrument that collects data about information technology environments and practices on (primarily) member campuses; a Web-based, interactive database service available to all who complete the survey through which they can access data contributed by their peers to help benchmark, plan, and make decisions about IT on their campuses; and an annual, publicly available summary report about campus IT environments based on data contributed through the survey.

This *EDUCAUSE Core Data Service Fiscal Year 2006 Summary Report* is the fifth report published as part of the CDS program.[2] Before delving into the five major sections that follow this introductory section (each of which parallels and summarizes data from a section of the core data survey), we encourage you to read on to fully understand the CDS program, especially its underlying principles, appropriate use policies, and methodology (including use of Integrated Postsecondary Education Data System, or IPEDS,[3] data), and how data are analyzed and presented in this summary report.

Underlying CDS Principles

A defining characteristic of the EDUCAUSE CDS is its collection and presentation of data *identifiable by institution* in the interactive database component of the service. The level of participation in the program is evidence that the value of being able to select a specific comparison group of similar, peer institutions outweighs any reluctance participants might have to disclose identifiable data. (See Appendix B for a list of 2006 survey participants.) The willingness of the community to share what until the inception of the CDS had been largely unavailable financial data has allowed this service to approach the status of a breakthrough application.

A second fundamental principle of the program is that only those campuses that complete and submit the survey each year are eligible to log into the interactive database site. Nonparticipating campuses do not have access, nor do corporations, researchers, agencies, associations, the media, or the general public. However, EDUCAUSE feels an obligation to provide some overall data analysis to member campuses that do not participate, as well as to the vendor community that supports the association, and thus we publish this annual summary report for distribution on a complimentary basis to the entire EDUCAUSE membership.

A third important element of the CDS is its appropriate use policy and the efforts expended to ensure that all survey participants are well informed about the conditions and terms of use of the data captured through the CDS survey. Access to the database service is not only restricted to participating campuses but further restricted to individuals on those campuses who have been authorized by their campus to use the database. Such authorized

access is provided through an EDUCAUSE username and password issued to authenticated individuals recognized by the CDS system. The CDS has a strong copyright and appropriate use policy (see <http://www.educause.edu/coredata/use_policy.asp>) expressly to protect the information of participating institutions. Anyone authorized to access the database must "click through" and agree to all of the terms and conditions of use before gaining that access. Any campus found in violation of the terms and conditions of use will be penalized by loss of participation privileges in the CDS, and EDUCAUSE may take legal action against any party who accesses or uses database content or data without authorization.

Finally, a note about the trust relationships and partnership we enjoy with our corporate members: While use of the CDS database is restricted to campuses that complete the survey, thus de facto precluding vendor participation, some of the campus individuals who complete the survey are in fact employees or contractors with corporations that have facilities management contracts with their campuses. We contacted the companies known to offer such services (Blackwell Consulting Services, CampusWorks, SunGard Higher Education), and they graciously agreed in writing not to seek access to the service or survey data, realizing that it is strictly for campus consumption for planning and institutional analysis. Further, they agreed that if any data did come into their hands, they would not use it. It is this level of true partnership that we in higher education are fortunate to enjoy with our corporate community.

Methodology

All EDUCAUSE member campuses that have an IPEDS unit ID number as well as international member institutions (which do not have such numbers) are invited to complete the core data survey through an e-mail message sent annually in January to the primary representative at each member campus. We also invite schools that are not members of EDUCAUSE to participate in the CDS if they are members of affinity groups (such as the Council of Independent Colleges, the League for Innovation in the Community College, and others) as well as any campus that expresses an interest in completing the survey. In January 2007, more than 2,600 campuses were invited to participate in the 2006 survey.

In the case of an institution with a Carnegie classification[4] of "system," individual member campuses within the system are invited to complete the survey, provided they have an IPEDS unit ID number. A multicampus system with a single unit ID is invited to complete the survey as a single institution. System or district offices (except those that have a single IPEDS unit ID) are not eligible to complete the survey; however, if 40% of the campuses within the system or district complete the survey, the system or district office becomes eligible to access the interactive database service.

Access to the survey is provided through an authorization system that gives such access initially to the individual designated as the primary or key representative in the EDUCAUSE records database at the time the invitation to participate is extended. That individual is invited to manage the completion of the survey on his or her campus or to designate another individual or individuals to do so.

All data captured by the core data survey are submitted electronically through an easy-to-use Web-based interface that enables respondents to answer the approximately 50 questions over time; that is, they can enter data, save them, and return to the site at another time to enter more data or change data already entered. Participants are given about two months to submit the survey, which can take anywhere from several hours to several days to complete, depending on the ready availability of the campus data requested. (See Appendix C for a copy of the 2006 survey.) Note that all financial data sought through the core data survey are for the previous fiscal year, so actual funding/expenditures rather than projected budgets are captured. For example, the survey launched in January 2007 sought financial data for fiscal year 2005–2006 and thus is referred to as the 2006 core data survey. Once a campus submits its

survey, data cannot be changed except by special request, for example, in the case of incorrect data having been submitted.

Embedded throughout the survey are a variety of pop-up and linked help notices, electronic navigation to a glossary of terms and definitions, and other aids to clarify questions and to obtain consistent responses. (A list of the glossary terms appears in Appendix D of this summary report.) An audit system provides red-flag messages to respondents if inconsistent data are entered, giving the respondent an opportunity to correct data after viewing an explanation of why the data appear to be problematic.

Use of IPEDS Data

EDUCAUSE information systems enable automatically matching respondents with their corresponding IPEDS data, so these elements do not have to be entered by the respondent. Based on data reported by U.S. colleges and universities through IPEDS for 2005 (the most up-to-date IPEDS data available), the number of FTE faculty, number of FTE students, total student headcount, gross general institutional expenditures, and type of institutional control (public or private) are matched in the database, as is the Carnegie classification for each institution.

Despite the best of intentions, IPEDS data have proved to be inconsistent and inappropriate for much of what we intended to accomplish. The first year of the CDS, we conducted extensive analyses of our survey data and selected IPEDS data (faculty FTE, student FTE, and total institutional expenditures), both to ensure data integrity and to prepare the first core data summary report. Through those analyses, we determined that some of the campus IPEDS total expenditures data were inconsistent, and thus ratios using that data element, as well as approximations of the former educational and general (E&G) budget of an institution, could not be used due to their unreliability.

Various faculty and student ratios based on IPEDS data were included in that first summary report, but subsequent analyses (after the printing of the report) showed some serious problems with the IPEDS faculty data. Thus we advise that the two ratios presented in the 2002 summary report that were based on IPEDS faculty data should be considered questionable. These ratios are no longer included in our summary reports or in the ratio section of the online database component of the CDS. However, the actual IPEDS data are available through the demographic feature of the database for those who wish to include them in their analyses.

In researching the way financial and faculty data are reported to IPEDS, we collaborated with several commercial vendors, the Department of Education, the National Center for Higher Education Management Systems (NCHEMS), and other groups that are actively using comparable data. We learned that these problems are endemic with IPEDS and that there are no easy workarounds. Please see the item dated March 2, 2004, at <http://www.educause.edu/coredata/news> for details of the issues with IPEDS data on total institutional expenditures and faculty FTE numbers, as well as for suggestions for using IPEDS data, with caution, in your campus analyses.

Beginning with the 2005 core data survey, two additional data points have been requested (albeit on an optional reporting basis) as part of the agreement to merge the CDS with the COSTS Project (see Appendix A). These data points are needed to calculate benchmarks that had been available to COSTS Project participants but not previously available through the CDS database service. The requested data are total number of headcount employees (including faculty) reported the previous year to IPEDS and total campus expenses (not including financial aid) reported the previous year to IPEDS. Those who answer the latter question are also asked to indicate which accounting standards their campus used (FASB, Financial Accounting Standards Board, or GASB, Governmental Accounting Standards Board). Collection of these self-reported IPEDS data has enabled the incorporation of seven additional benchmarks into the interactive database service component of the CDS.

How Data Are Presented in This Summary Report

Data for this summary report are reported by 2000 Carnegie Classification, but we have combined like Carnegie categories for ease of reporting and for manageable data presentation in the tables. In doing this, we ensure that by combining groups we do not lose important distinctions. Appropriate statistical tests are conducted with a large number of variables in the data to determine if consistent and meaningful differences exist between like categories. Within the Carnegie categories, tests are run to determine if such categories can be combined. In all these sets of analyses, for the fifth consecutive year, no significant patterns were identified when the size differences in the schools were controlled for. This was also the case when controlling for public versus private control.

Thus, throughout this report—with very few exceptions—the data displays focus on the following combined categories: BA, which combines Baccalaureate Colleges–Liberal Arts, Baccalaureate Colleges–General, and Baccalaureate–Associate's Colleges; MA, which combines Master's Colleges and Universities I and Master's Colleges and Universities II; DR, which combines Doctoral/Research Universities–Extensive and Doctoral/Research Universities–Intensive; and AA, which includes all schools with a classification of Associate's Colleges (community colleges, technical colleges, junior colleges, and other colleges that grant associate's degrees). Definitions of these 2000 Carnegie classifications are included in Appendix E. Our category of OTHER includes Tribal Colleges and schools in the Specialized Institutions Carnegie class (such as law schools, health-related institutions, art schools, and so forth), as well as participating international institutions, which do not have Carnegie classes assigned because that is a uniquely U.S. schema.

The purpose of this report is to provide aggregate data in simple form for those who do not have access to the interactive database service. In our analyses we have not tried to provide every possible cut on the data but rather some summary data that we believe will be useful to the public. Keep in mind that the database service component of the CDS allows for viewing data much more discretely. The service offers filters, sorting tools, graphing tools, the ability to see trend data comparing last year's and this year's data (see details about trend analyses below), and a sixth section that provides automatically generated ratios in 14 areas.

We urge readers who have access to the database service to use the service rather than this report for benchmarking purposes for a more refined and accurate picture than the tables in this report can provide.

Core Data Survey Participation

A total of 933 institutions had submitted the 2006 survey when we froze the data set in May 2007 to do the analyses for this summary report. Submissions continued to come in throughout the late spring and summer and likely will continue for the rest of the 2007 calendar year. As of September 5, 2007, 950 campuses had submitted the 2006 survey.

As in previous years, there is a high level of participation in the CDS among statewide and multicampus systems and districts. Many system offices encourage the fullest participation of their member campuses. This year, once again nearly three dozen systems or districts achieved at least a 40% participation rate in the CDS (with several reaching or approaching 100%).

Trend Analyses

An electronic set of tools is available to those who use the interactive database service component of the CDS so that they can see trends within specifically defined peer groups or other categories of analysis for the past two years. Using these tools, users can determine if they want to compare the data of all 2005 and 2006 survey participants or if they want to compare data of just those institutions that completed both of the surveys (that is, institutions in the matched data set). In the latter case, actual change is more confidently ascertained, whereas in the analyses that would compare all participants from each year, some

of the change is likely to result from a different sample, possibly leading to false conclusions. In this summary report, the narrative attempts to highlight key trends when they are seen to be important, but only comparing data for the 770 schools that are in both this year's and last year's frozen data sets.

When comparing data for all of these 770 schools, finding statistical significance is likely to occur quite frequently because of the large sample sizes. Many of the most interesting changes do not occur across the board, however, but are patterns specific to community colleges, research institutions, or other Carnegie groups. When examining those subgroups within the matched data set, sample sizes become fairly small, and statistical significance is harder to find. In some of those cases, the narrative in this summary report will note these changes (which may or may not be due to chance), even though statistical significance was not found, simply to hypothesize a possible trend of special interest.

The Fallacy of Relying Only on Input Measures

We began this introductory section by proposing that the collection of IT-related data is important to help campuses plan more effectively by virtue of having access to information about IT infrastructure, funding, and management practices of schools similar to themselves. But the problem with IT benchmarks of any kind—and the CDS is no exception—is that these input comparisons are too often used to convince decision makers to keep pace with their peers and that more is better where technology is concerned.

This effort to "keep up with the Joneses" is ultimately an inflationary pressure that can be dysfunctional, acting as a negative driver. Such pressure and focus on input measures is a fallacy that higher education is finally beginning to recognize. Rather than engaging in an "arms race," we need to focus on effectiveness—trying to determine which institutions seem to be doing the best job with the fewest resources, with an eye toward understanding the environment and practices that make this possible. Hawkins and Barone made the case for a new kind of assessment model that not only uses input measures but also recognizes the even greater importance of evaluating outcomes in higher education:

> Although…efforts [using input measures] may have leveraged additional funds (appropriately or not), they do not include measures that offer insight into how technology is enabling new and better research, whether or how technology is enhancing teaching and learning, or whether administrative functions are easier for students to access or less expensive to operate. The problem is that in order to effectively measure the success and/or value of an IT investment, we must come to grips with evaluating these functional outcomes of the college or university. However, we have thus far successfully avoided grappling with these difficult challenges of assessing learning outcomes, administrative efficiency, effectiveness, and so on. Without working in tandem with others on campus to identify and evaluate these outcomes and then to understand and describe the enabling role of IT in facilitating these accomplishments (or the failure thereof), we will never be able to reasonably and meaningfully assess the return on IT investment.[5]

Some might suggest that the EDUCAUSE CDS may contribute to the fallacy of overvaluing input measures, but we would counter such an allegation on several fronts:

- First, this kind of application is in very high demand by our members for a host of reasons, among them being able to understand where the market really is and what other campuses are actually doing, in order potentially to *reduce* the pressures on growth and expansion.
- Second, even if legitimate outcome measures *were* available, we would still require input measures to understand

the effectiveness equation. Efforts such as the CDS are necessary but not sufficient to achieve the ultimate goal of defining standards of optimal achievement of goals.

- Third, the CDS database service has the potential to dispel the myths surrounding IT funding and investment by presenting detailed data that present a more accurate and reliable picture of campus IT environments.
- Fourth, the interactive service is providing a useful network to help participants find and communicate with colleagues like themselves, who have similar systems and characteristics and who are facing similar challenges, and to learn from them.
- Fifth, the CDS has the potential to promote more congruity in campus IT funding models, provide models for IT organization and support, identify exemplary processes for allocating and expending resources (both human and financial), and promote more effective IT management overall through prompting more widespread tracking of IT expenditures (whether these occur internally or externally to the central IT unit) at higher education institutions.

We believe that the CDS also has the potential to create a different sociometry for the IT community, replacing the casual inquiry to a listserv for information with a more informed method of obtaining comparative data. All too frequently a concerned member will post a query on the CIO listserv asking, for example, "Who out there has or is considering having the library report to the CIO?" A few folks respond, but the results are serendipitous and incomplete, based on who happens to be reading the listserv at the time, whether or not the respondents are from similar types of institutions, and so forth. That is but one question the CDS can answer, filtering responses based on criteria such as Carnegie class, FTE enrollment, public versus private control, and even institutional budget, until a short list of the most appropriate schools for comparison appears. Clicking on any school on the list will link to the EDUCAUSE member directory, where all of the representatives to EDUCAUSE for that campus are listed, including contact information. This facilitation of communication between and among members of the community, based on information about areas of common interest or challenges, has from the beginning been a key objective of the EDUCAUSE CDS.

As illustrated by the excerpt from Hawkins and Barone, there is a clear and pressing need for higher education to focus on outcome goals, and EDUCAUSE has both been advocating in this arena and partnering with other higher education organizations to advance this agenda. We fully recognize that our core data program is not the endgame, but it is an important part of the total picture. It is our hope that eventually our service will be part of the analysis in determining the most efficient methods and effective practices for achieving important output objectives and goals.

Notes

1. B. L. Hawkins and C. A. Barone, "Assessing Information Technology: Changing the Conceptual Framework," in *Organizing and Managing Information Resources on Your Campus*, P. A. McClure, ed. (San Francisco: Jossey-Bass, 2003), pp. 129–145.
2. The 2002, 2003, 2004, and 2005 CDS summary reports are available for free download in PDF on the EDUCAUSE Web site at <http://www.educause.edu/coredata/. Print copies of this 2006 report are available for $10 each as long as the supply lasts.
3. The Integrated Postsecondary Education Data System (IPEDS) is a single, comprehensive, data-collection program designed to capture data for the National Center for Education Statistics (NCES) for all institutions and educational organizations whose primary purpose is to provide postsecondary education in the United States. IPEDS collects institution-level data in such areas as enrollments, program completions, faculty, staff, and finances. IPEDS data reporting requires the extensive effort of a variety of offices on any campus, and this is the "official" information the college or university stands behind, used by the federal government.
4. In 1970, the Carnegie Commission on Higher Education developed a classification of colleges and universities to

support its program of research and policy analysis. Derived from empirical data on colleges and universities, the "Carnegie Classification" was published for use by other researchers in 1973 and subsequently updated in 1976, 1987, 1994, 2000, and most recently in 2005. With the 2005 revision, the single classification system was replaced by a set of multiple, parallel classifications. The original classification framework—now called the basic classification—has also been substantially revised. For details about those revisions, see <http://www.carnegiefoundation.org/classifications/index.asp>. This CDS summary report uses the basic classification system from 2000, for the sake of simplicity.

5. Hawkins and Barone, op. cit., p. 133.

ONE

IT Organization, Staffing, and Planning

The first section of the 2006 core data survey included questions that can be clustered into three areas: campus information technology leadership and organization, IT staffing, and IT strategic planning.

IT Leadership and Organization

Survey responses for the title of the highest ranking technology administrator beg the question, "What's in a name?" The title for this highest ranking IT administrator continues to be anything but consistent or predictable! Of the 933 institutions whose data were included in the frozen data set upon which the analyses in this 2006 summary report are based, 258 unique titles were reported (nine more than in last year's frozen data set, also of 933 institutions), reflecting many combinations and permutations of every level (vice president, assistant/associate vice president, dean, director, and others) and area descriptor (information systems, services, or technology, and others). These various combinations and permutations often include an addendum such as "and CIO" or "and CTO."

The most commonly reported title was in fact chief information officer (CIO), which was reported either as a unique title (22%) or as part of a broader title (18.6%) for a total of 40.6% of ALL responses, up from 35.3% last year. Also, this year 31 additional campuses reported that their top IT administrator's title is or includes chief technology officer (CTO). CIO as a unique title was followed by vice president for information technology (3.6%) and director of information technology (3.3%) as the most common titles.

Table 1-1 shows percentages of the various

Table 1-1
Title of Highest Ranking IT Administrator

	ALL	DR	MA	BA	AA	OTHER
VP, Deputy VP, Vice Chancellor, Vice Rector	22.4%	40.8%	18.0%	15.3%	23.8%	15.4%
CIO	30.1%	38.5%	34.1%	27.9%	16.9%	30.1%
CTO	3.6%	2.8%	4.3%	4.9%	3.1%	2.6%
Vice Provost, Assistant or Associate Vice Provost/ VP/VC	10.2%	12.8%	16.9%	7.1%	6.9%	3.2%
Director, Dean, Executive Director	30.2%	3.9%	26.3%	41.0%	40.0%	44.2%
Assistant or Associate Director/Dean	1.0%	0.0%	0.0%	1.6%	3.1%	0.6%
Head, Manager, Other	2.5%	1.1%	0.4%	2.2%	6.3%	0.6%

Table 1-2
Percentage of Top IT Administrators Reporting to Various Campus Officers

	ALL	DR	MA	BA	AA	OTHER
President/Chancellor/CEO	31.5%	27.9%	27.8%	30.6%	46.9%	26.9%
Highest ranking academic officer (Provost, Academic VP, Dean)	24.8%	31.8%	31.8%	30.6%	11.3%	12.2%
Highest ranking administrative officer (Administrative VP, Executive VP)	23.6%	20.1%	19.2%	15.8%	30.0%	37.2%
Highest ranking business pfficer (Business Officer, CFO)	11.6%	3.4%	16.5%	16.9%	6.3%	12.2%
Second-level academic officer (Assistant or Associate Provost/VP)	1.2%	2.8%	0.8%	0.5%	0.0%	1.9%
Second-level administrative officer (Assistant or Associate Administrative VP)	0.6%	0.6%	0.4%	1.1%	0.6%	0.6%
Jointly to President/Chancellor/CEO and Chief Academic Officer	0.8%	1.7%	0.4%	0.5%	0.0%	1.3%
Jointly to Chief Academic Officer and Chief Administrative or Financial Officer	2.1%	6.1%	1.2%	1.1%	1.3%	1.3%
Other	3.9%	5.6%	2.0%	2.7%	3.8%	6.4%

titles[1] by Carnegie classification,[2] to allow for easy comparison across segments of the higher education community. As shown in the table, the vice presidential title is most common in research universities (DR), while director is the dominant title in liberal arts colleges (BA), associate's colleges (AA), and institutions in the OTHER category. In MA institutions, the title of CIO was most often reported.

These highest ranking IT administrators not only have a variety of titles, they also have a variety of reporting relationships within their respective organizational structures. Table 1-2 shows the percentage of top IT leaders reporting to various officials on their campuses, once again broken out by Carnegie class.

The percentage of IT leaders reporting directly to the president is significantly higher for associate's colleges, while there were no significant differences in the percentage of IT leaders reporting to the highest ranking academic officer or the president for DR, MA, and BA institutions. Few respondents reported that their top IT administrator reports below the level of the highest ranking academic or administrative officer. BA schools, however, have more top IT officers who report to a business officer or chief financial officer than to an administrative or executive vice president.

Although nearly 41% of the top IT administrators at doctoral institutions carry the title vice president, vice chancellor, or something equivalent, only about 28% report to the president or chancellor. It is likely that their title reflects a level of significance and seniority within the executive leadership team, not necessarily a structural reporting relationship or an indication of who conducts this person's performance appraisal.

While reporting relationships are potentially interesting, who actually does the IT leader's performance evaluation is less important than whether the IT leader is a member of the executive cabinet. The ability to sit on the president's cabinet, executive committee, or whatever the top policy forum is called is far more important, in that this seat allows the top IT leader to actively engage in campus-level discussions about strategic directions and policy and to work with other senior officers in under-

Table 1-3
Percentage of Top IT Administrators Who Are Members of the President's or Chancellor's Cabinet

	ALL	DR	MA	BA	AA	OTHER
Yes	47.8%	54.7%	44.3%	39.9%	63.1%	39.1%
No	52.2%	45.3%	55.7%	60.1%	36.9%	60.9%

standing the role that IT can play in the various functional areas on campus. As shown in Table 1-3, the percentage of top IT administrators sitting on an executive council is substantially greater than the percentage of those who actually report to the president.

With regard to the various functional areas that report to the top IT administrator, there are as many variations as with titles. Because of the increasing complexity of information technology, there are many subgroupings and focal areas into which IT staff resources fall. Once again the core data survey attempted to identify what functions lie within the line operations of the top IT administrator as the head of the centralized campus IT organization.

There is a rather remarkable consistency in the responses to this question, with the same areas ranked in the top 16 (areas checked by more than 50% of ALL respondents) of 24 functional areas, regardless of Carnegie classification. (It should be noted that two new functional areas were added to the question this year, namely, *IT in an affiliated hospital* and *IT planning and budgeting*.) These areas, in descending order, are:

- Network Infrastructure and Services
- Desktop Computing Support/User Support Services/Training/Help Desk
- Administration of IT Organization
- IT Security
- IT Policy
- Administrative/Enterprise Information Systems
- Operations/Data Center
- Enterprise Infrastructure/Identity Management
- Web Support Services
- Telephony
- Academic Computing
- Instructional Technology
- Student Computing
- Multimedia Services
- IT Planning and Budgeting
- Technology R&D/Advanced Technology

While not all Carnegie groups had precisely this order, the differences were insignificant, as shown in Table 1-4. However, if you examine the table more carefully by rank ordering the functions that report to the top IT administrator and then look at these rankings across the Carnegie groups, an interesting pattern emerges. The rankings indicate that DR and MA institutions are the most similar to each other, but interestingly the MA schools were also similar to BA and to AA schools, suggesting that MA schools are the most typical of higher education as a whole with regard to IT reporting structures.

The following functional areas (listed in rank order) showed a significant increase from last year in reporting to the top IT administrator for ALL schools:

- Student Computing
- Academic Computing
- Enterprise Infrastructure/Identity Management
- Multimedia Services
- Research Computing
- IT Policy
- Telephony
- Distance Education
- Print/Copier Services
- Instructional Technology

IT Staffing

The core data survey requested data related to staffing levels, which we have used to sug-

Table 1-4
Functions Reporting to the Top IT Administrator

	ALL	DR	MA	BA	AA	OTHER
Academic Computing	79.4%	83.2%	83.5%	86.9%	73.1%	66.0%
Administration of IT Organization	98.2%	99.4%	99.6%	97.8%	95.0%	98.1%
Administrative/Enterprise Information Systems	95.6%	96.1%	96.1%	95.6%	93.1%	96.8%
Computer Store	13.5%	25.7%	9.0%	46.4%	3.1%	14.1%
Desktop Computing Support/User Support Services/Training/Help Desk	98.3%	97.8%	98.4%	98.9%	98.8%	97.4%
Enterprise Infrastructure/Identity Management	88.1%	95.0%	89.0%	84.2%	80.0%	91.7%
Distance Education	23.8%	15.6%	34.1%	48.0%	25.6%	21.2%
Institutional Research	6.4%	4.5%	8.6%	3.3%	7.5%	7.7%
Instructional Technology	72.0%	77.1%	77.3%	81.4%	61.9%	57.1%
IT in an Affiliated Hospital	2.1%	2.2%	0.0%	0.5%	1.9%	7.7%
IT Planning and Budgeting	62.0%	60.3%	62.0%	65.6%	59.4%	62.2%
IT Policy	97.0%	99.4%	96.5%	96.7%	96.3%	96.2%
IT Security	98.0%	98.3%	98.0%	96.7%	98.1%	98.7%
Library	13.3%	7.3%	13.3%	19.1%	14.4%	12.2%
Mailroom	4.5%	1.7%	3.1%	8.8%	4.4%	5.8%
Multimedia Services	62.5%	62.6%	69.4%	67.8%	56.9%	50.6%
Network Infrastructure and Services	98.6%	100.0%	98.8%	97.8%	98.7%	98.6%
Operations/Data Center	93.8%	99.4%	93.3%	90.2%	91.9%	94.2%
Print/Copier Services	29.8%	19.6%	22.7%	39.9%	35.6%	35.3%
Research Computing	33.1%	58.7%	28.2%	31.1%	7.5%	40.4%
Student Computing	71.1%	83.2%	83.5%	88.0%	71.9%	76.3%
Technology R&D/Advanced Technology	57.2%	65.9%	58.0%	62.8%	49.4%	47.4%
Telephony	81.9%	92.2%	82.4%	72.7%	79.4%	82.7%
Web Support Services	86.8%	92.7%	85.5%	80.9%	84.4%	91.7%
Other Function	12.5%	17.3%	14.9%	8.2%	8.1%	12.8%

gest several staffing ratios. Data related to staffing practices are also reported.

Staffing Levels

While it is fine to state that a given set of functions reports to the CIO, perhaps the more interesting question is how each of these functions is staffed on a comparative basis. The survey requested data not only for regular full-time equivalent (FTE) IT staff but also for student FTE employees because most IT organizations could not meet the needs of their campus constituencies without the skills and talents of the students who serve in a variety of capacities in IT support.

The core data survey respondents were allowed to assign decimal numbers of individuals to the various functions, which is especially important to smaller schools with fewer staff who must cover more than one functional area. Thus, if for fiscal year 2005–2006 a given individual spent 50% of her time doing network architecture, 30% of her time doing database work in administrative computing, and the remainder in security, the numbers 0.5, 0.3, and 0.2, respectively, would be appropriate to enter into those functional area cells for that individual.

The deployment of staff and student employees in these functional areas needs to

Table 1-5
Average Number of FTE Staff
in the Centralized Campus IT Organization in Each Functional Area

	ALL	DR	MA	BA	AA	OTHER
Administration of IT Organization, IT Planning, Technology R&D	5.4	14.4	3.2	1.9	2.0	6.3
Administrative/Enterprise Information Systems	12.8	35.8	7.0	3.7	3.6	16.0
Desktop Computing Support, User Support Services, Training, Computer Store	8.5	19.7	5.7	3.5	4.2	10.8
Enterprise Infrastructure and Services, Identity Management	3.8	11.1	2.0	0.8	0.8	5.3
Help Desk	3.7	8.2	2.6	1.4	1.8	4.9
IT Policy	0.5	0.9	0.3	0.2	0.3	0.7
IT Security	1.3	3.4	0.7	0.3	0.5	1.6
Instructional Technology, Multimedia Services, Student Computing	6.9	16.6	5.1	2.9	4.1	6.5
Network Infrastructure and Services	5.7	15.5	3.4	1.9	2.2	6.0
Operations, Data Center, Print/Copier Services, Mailroom	5.2	16.3	2.2	1.0	1.6	6.0
Research Computing, Academic Computing	2.1	6.6	0.9	0.5	0.7	2.2
Telephony	4.5	14.6	2.3	0.9	0.9	4.4
Web Support Services	2.6	5.5	1.9	1.0	1.3	3.5
Other Function	5.1	8.3	2.6	1.2	3.4	9.4

be understood in both absolute and relative terms. The tables in this section reflect those differences, with Tables 1-5 and 1-6 showing the average number of FTE staff and student employees, respectively, devoted to these various functions in the centralized campus IT organization. Tables 1-7 and 1-8 show the percentage of the total IT staff and student employees, respectively, devoted to each function, thus controlling to some extent for size differences across Carnegie classes.

Looking at Table 1-7, there appears to be a fairly consistent distribution of staff among the various functions across all Carnegie groups, with the greatest percentage of staff being allocated to Administrative/Enterprise Information Systems followed by the functional area that encompasses Desktop Computing Support, User Support Services, Training, and Computer Store. This was true for ALL respondents as well as all Carnegie groups except AA schools, where the order was reversed, that is, the highest percentage of staff are allocated to the support area, with administrative information systems ranking second. Ranking the next five functional areas for ALL respondents in descending order, staff overall are allocated as follows:

- Instructional Technology, Multimedia Services, Student Computing
- Administration of IT Organization, IT Planning, Technology R&D
- Network Infrastructure and Services
- Help Desk
- Operations, Data Center, Print/Copier Services, Mailroom

Looking at Table 1-8, it is not surprising to find the highest percentages of students employed by the centralized campus IT organization allocated to three areas: Instructional

Table 1-6
Average Number of FTE Student Employees
in the Centralized Campus IT Organization in Each Functional Area

	ALL	DR	MA	BA	AA	OTHER
Administration of IT Organization, IT Planning, Technology R&D	0.35	1.10	0.10	0.10	0.05	0.11
Administrative/Enterprise Information Systems	0.20	0.60	0.06	0.06	0.02	0.24
Desktop Computing Support, User Support Services, Training, Computer Store	2.60	6.20	1.60	1.60	0.80	1.00
Enterprise Infrastructure and Services, Identity Management	0.12	0.34	0.01	0.06	0.01	0.13
Help Desk	2.90	7.10	1.80	0.70	0.68	1.60
IT Policy	0.01	0.02	0.00	0.00	0.00	0.01
IT Security	0.07	0.23	0.00	0.00	0.00	0.04
Instructional Technology, Multimedia Services, Student Computing	5.20	14.10	1.90	1.10	1.10	1.50
Network Infrastructure and Services	0.50	1.60	0.15	0.05	0.05	0.17
Operations, Data Center, Print/Copier Services, Mailroom	0.42	1.50	0.10	0.05	0.05	0.22
Research Computing, Academic Computing	0.50	1.40	0.19	0.08	0.08	0.21
Telephony	0.40	1.10	0.17	0.02	0.02	0.03
Web Support Services	0.40	0.90	0.30	0.04	0.04	0.18
Other Function	1.20	2.70	0.57	0.42	0.42	0.18

Technology, Multimedia Services, Student Computing; Help Desk; and Desktop Computing Support, User Support Services, Training, Computer Store. How these three are ranked varies among Carnegie groups, with doctoral universities employing the greatest percentage of students in the instructional technology area, BA schools employing the highest percentage of students on the help desk, and AA schools employing the highest percentage of students in desktop and user support.

The aggregation of data for like Carnegie groups works well for purposes of simplicity, and in almost all cases no significant meaning is lost. However, the total centralized IT staff number (summing the IT staff numbers in all of the functional areas previously described) is more meaningful when similar Carnegie classes are not grouped but separated out as in Table 1-9. The rather dramatic differences between the Doctoral Extensive and Doctoral Intensive schools shown are of particular interest. Note as well that MA I schools have significantly higher staffing levels than MA II schools, and BA LA schools have significantly higher staffing levels than BA GEN schools.

Looking at the total number of centralized FTE IT staff this year compared to last year for the 770 institutions in the matched data set, there was a significant mean increase of 1.85 FTE staff for ALL responding institutions. While each Carnegie group also showed a mean increase in total centralized IT staff members, the difference was significant for

Table 1-7
Percentage of FTE Staff
in the Centralized Campus IT Organization in Each Functional Area

	ALL	DR	MA	BA	AA	OTHER
Administration of IT Organization, IT Planning, Technology R&D	9.8%	8.5%	9.0%	9.7%	8.8%	9.8%
Administrative/Enterprise Information Systems	17.9%	20.0%	18.1%	18.0%	14.3%	18.9%
Desktop Computing Support, User Support Services, Training, Computer Store	15.9%	12.2%	15.8%	17.3%	19.9%	14.9%
Enterprise Infrastructure and Services, Identity Management	5.1%	6.9%	4.6%	3.9%	3.6%	6.6%
Help Desk	7.4%	4.9%	7.8%	8.2%	7.9%	8.0%
IT Policy	1.1%	0.6%	0.9%	1.2%	1.6%	1.3%
IT Security	2.2%	1.9%	2.0%	1.9%	2.6%	2.5%
Instructional Technology, Multimedia Services, Student Computing	11.0%	9.8%	12.2%	11.3%	12.6%	8.1%
Network Infrastructure and Services	9.4%	9.2%	9.5%	10.2%	9.5%	8.5%
Operations, Data Center, Print/Copier Services, Mailroom	6.0%	8.8%	5.0%	4.4%	5.3%	6.6%
Research Computing, Academic Computing	2.9%	3.7%	2.3%	2.5%	3.4%	2.9%
Telephony	5.2%	8.0%	5.4%	4.4%	3.6%	4.3%
Web Support Services	5.1%	3.5%	5.4%	5.5%	5.6%	5.5%
Other Function	5.8%	4.7%	5.8%	5.4%	6.8%	7.3%

schools in the DR EXT, DR INT, MA I, BA LA, and OTHER groups.

Finally, in looking at these various tables related to staffing levels, the differences noted among Carnegie groups may be due to the available funding or the complexity of the institution. We also recognize that there might be a critical mass for staffing a given area, and thus the comparable percentages may be skewed somewhat due to this factor.

Centralized Versus Decentralized Staffing

Table 1-10 shows the average number of centralized FTE IT staff for each of the Carnegie groupings in the first column, the average total campus FTE IT staff (derived from adding the total of centralized staff to the number of distributed/departmental IT staff reported in the survey) in the second column, and the percentage of the total campus IT staff that the centralized IT staff represent in the third column.[3] Clearly the number of distributed/departmental IT staff increases at a significant rate as the complexity of the institution increases, just as it did last year, with the percentage of distributed staff greatest at DR EXT campuses, at 43.7%.

Highly complex, large, research-oriented institutions have a greater need for specialized, often disciplinarily trained IT staff in the departments and colleges to support faculty. These staff may focus far more on the academic applications in a particular field, while the centralized IT staff concern themselves more with infrastructure, system-wide applications, general support, and so forth. In years past, there was a movement toward a more decentralized support model in all Carnegie groupings, but this year the percentage of distributed support remains mostly unchanged.

Staffing Ratios

While it is not clear whether stable ratios

Table 1-8
Percentage of FTE Student Employees
in the Centralized Campus IT Organization in Each Functional Area

	ALL	DR	MA	BA	AA	OTHER
Administration of IT Organization, IT Planning, Technology R&D	2.2%	3.3%	2.3%	1.3%	2.6%	0.9%
Administrative/Enterprise Information Systems	1.4%	1.5%	1.1%	0.9%	1.5%	2.8%
Desktop Computing Support, User Support Services, Training, Computer Store	22.9%	17.5%	21.4%	21.9%	30.4%	23.8%
Enterprise Infrastructure and Services, Identity Management	0.6%	0.7%	0.9%	0.0%	0.1%	1.3%
Help Desk	28.5%	21.4%	26.5%	36.4%	26.5%	35.0%
IT Policy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
IT Security	0.5%	0.8%	0.5%	0.0%	0.0%	1.4%
Instructional Technology, Multimedia Services, Student Computing	29.5%	36.5%	31.7%	22.9%	29.7%	25.4%
Network Infrastructure and Services	2.7%	3.9%	2.7%	2.1%	.4%	1.8%
Operations, Data Center, Print/Copier Services, Mailroom	2.0%	2.9%	1.4%	1.9%	2.2%	2.0%
Research Computing, Academic Computing	2.7%	3.3%	3.1%	2.2%	2.0%	2.1%
Telephony	2.1%	3.0%	2.7%	2.2%	0.3%	0.5%
Web Support Services	2.7%	2.7%	3.2%	2.8%	2.0%	2.4%
Other Function	7.2%	5.8%	7.7%	9.8%	9.5%	2.7%

Table 1-9
Summary Statistics of Total Centralized FTE IT Staff

	Mean	Median	Minimum	Maximum
ALL	64.5	32.0	1.0	653.0
DR EXT	213.0	185.4	40.6	653.0
DR INT	89.4	76.0	7.0	230.0
MA I	40.4	33.3	5.0	158.0
MA II	18.9	14.0	4.0	60.0
BA LA	24.2	22.5	3.0	64.6
BA GEN	14.6	11.0	3.0	90.8
AA	24.8	15.8	2.0	267.0
OTHER	76.9	54.5	1.0	520.0

regarding staffing are possible, part of the CDS effort is to provide benchmarks for comparison, not just descriptive statistics. Ratio analysis has long been a standard in examining business performance, and it is hoped that a variety of key ratios will emerge via the CDS that allow for effective comparison of IT data.

In terms of staffing, we were able to calculate a ratio for the number of FTE students supported per centralized IT staff member, derived by dividing the number of FTE students (a number calculated from data reported by campuses to IPEDS[4]) by the number of FTE centralized IT staff (derived from the total of

Table 1-10
Centralized FTE IT Staff as a Percentage of Total Campus FTE IT Staff

	Mean Number of Central FTE IT Staff	Mean Number of Total Campus FTE IT Staff	% Central FTE IT Staff
ALL*	58.9	96.1	81.4%
DR EXT	209.6	423.8	56.3%
DR INT	88.0	137.7	69.8%
MA I	39.1	48.9	85.0%
MA II	19.0	21.9	89.0%
BA LA	24.0	27.3	89.2%
BA GEN	14.8	17.0	89.3%
AA	24.2	27.8	89.9%
OTHER	69.6	108.3	76.8%
* *N* = 833			

Table 1-11
FTE Students Supported per Centralized FTE IT Staff Member

	ALL	DR	MA	BA	AA	OTHER
Mean	151.8	123.8	164.2	123.0	213.4	134.1
Median	137.7	117.5	152.0	104.0	187.7	132.3
Minimum	0.0	19.7	50.8	25.1	48.7	0.0
Maximum	783.5	394.4	486.8	502.3	783.5	568.4

Table 1-12
Headcount Supported per Centralized FTE IT Worker

	ALL*	DR	MA	BA	AA	OTHER
Mean	187.9	150.6	172.1	122.5	325.1	226.3
Median	148.8	141.4	147.5	102.2	283.7	169.6
Minimum	20.7	43.0	47.5	29.1	88.4	20.7
Maximum	1344.3	428.3	800.3	653.1	842.3	1344.3
**N* = 663						

the numbers entered into the survey question about functional area support). This ratio is shown in Table 1-11.

Looking at the matched data set for 2005 and 2006, the number of FTE students supported per centralized IT staff member decreased significantly. This decrease was evident for all Carnegie groups except for BA students. This might suggest that the pressure to provide support for more students is subsiding. This same pattern was seen in looking at Table 1-12, where respondents were asked to enter the total number of headcount employees (including faculty) that their campuses last reported to IPEDS. In addition, we imported into the CDS database the total student headcount number campuses reported to IPEDS for the fall of 2005. Thus we were able to derive a total campus headcount that represents all employees, including faculty, plus all students, whether part time or full time.[5] Using these data points, it was possible to derive a ratio of headcount individuals supported per centralized FTE IT worker (with IT worker defined as including both staff and student employees). For ALL institutions, there was a significant decrease in 2006 compared to 2005, with a mean of 4.04 people fewer supported per centralized FTE IT employee. A

Table 1-13
Separate Salary Scales for IT Professionals

	ALL	DR	MA	BA	AA	OTHER
Yes	31.6%	46.4%	35.7%	20.8%	23.1%	29.5%
No	68.4%	53.6%	64.3%	79.2%	76.9%	70.5%

Table 1-14
Separate IT Job Titles or a Broadband IT Classification and Compensation System

	ALL	DR	MA	BA	AA	OTHER
Yes	64.1%	76.5%	67.8%	54.6%	57.5%	61.5%
No	35.9%	23.5%	32.2%	54.4%	42.5%	38.5%

Table 1-15
Dollar Amount in Budget per Centralized FTE IT Staff Member for Professional Development/Training

	ALL	DR	MA	BA	AA	OTHER
Mean	$1,233	$1,261	$1,112	$1,387	$1,209	$1,246
Median	$1,000	$1,009	$1,000	$1,227	$1,000	$1,020
Minimum	$0	$0	$0	$0	$0	$0
Maximum	$5,235	$3,500	$4,000	$4,000	$5,200	$5,235

decrease was found for all Carnegie groups except BA institutions. AA institutions support the most and BA institutions the fewest number of individuals per staff member.

Staffing Practices

The CDS also provides insight into a number of staffing practices. In terms of meeting market pressures related to hiring and keeping qualified staff, campuses turn to a variety of techniques. Overall, 31.6% of ALL respondents reported having separate salary scales for IT professionals, which did not change significantly from the previous year. Table 1-13 indicates that this practice is employed to a greater extent among DR and MA institutions (46.4% and 35.7%, respectively). Alternatively, participants were asked if their campuses use either separate IT job titles *or* a broadband IT classification and compensation system. Table 1-14 shows that over 64% of ALL respondents use one of these approaches, with a notably higher percentage of "yes" responses by doctoral and MA universities. Once again, these figures did not change appreciably from the 2005 survey.

Finally, ongoing professional development is critical to recruiting, retaining, and retraining a qualified IT staff. Respondents were asked how many dollars are set aside in the annual budget and provided for professional development or training per centralized FTE IT staff member. Table 1-15 shows a relative consistency in the statistical measures across all Carnegie classes. On average, the amount of money that the centralized campus IT organization budgets annually per IT staff member for training increased slightly from the 2005 to the 2006 survey. This data point continues to bear watching, given the importance of keeping staff up-to-date in skills and providing professional development opportunities for growth and job satisfaction.

IT Planning and Advisory Groups

In reference to IT planning, the core data survey asked whether the campus strategic plan includes strategies and directions for IT and whether the campus has a stand-alone IT strategic plan. As seen in Table 1-16, more than 80% of ALL respondents indicated that their institutional plans do address IT direc-

Table 1-16
Campus Strategic Plan Includes Strategies and Directions for IT

	ALL	DR	MA	BA	AA	OTHER
Yes	80.1%	70.4%	80.8%	78.1%	91.9%	80.1%
No	19.9%	29.6%	17.2%	21.9%	8.1%	19.1%

Table 1-17
Campus Has a Stand-Alone IT Strategic Plan

	ALL	DR	MA	BA	AA	OTHER
Yes	73.4%	76.0%	75.3%	62.8%	84.4%	68.6%
No	26.6%	24.0%	24.7%	37.2%	15.6%	31.4%

Table 1-18
Groups Providing Advice on IT Strategy

	ALL	DR	MA	BA	AA	OTHER
Trustee Committee	18.1%	26.3%	19.2%	24.6%	7.5%	10.3%
President's Cabinet/Council	68.5%	63.7%	72.9%	67.2%	82.5%	53.8%
Administrative Committee	60.6%	74.9%	62.0%	49.2%	59.4%	56.4%
Academic Committee/ Faculty Senate	66.7%	84.9%	74.1%	56.3%	58.8%	53.8%
Technology Advisory Committee	80.3%	84.8%	80.4%	75.4%	85.0%	76.3%
Student Committee	32.7%	51.4%	39.2%	28.4%	19.4%	20.5%
State Agency	17.8%	21.2%	19.2%	5.5%	34.4%	9.0%
System/District Office	15.5%	15.6%	22.7%	6.0%	22.5%	7.7%
Other	12.9%	21.8%	12.5%	8.2%	6.3%	15.4%
No IT Advisory Groups	2.3%	1.1%	1.2%	2.2%	0.6%	2.3%

tions and strategies, which is unchanged since last year. Furthermore, 73.4% of ALL institutions also have a stand-alone IT strategic plan, as shown in Table 1-17, which was also essentially the same as the previous year. Relatively high percentages of schools report stand-alone IT plans across all the Carnegie groups, but AA schools were significantly higher than other Carnegie groups.

The last question in the first section of the survey requested data on the various groups that provide feedback about campus IT strategies. Results are reported in Table 1-18. Respondents could mark as many responses as were applicable, so the percentages do not total 100% but rather reflect the frequency of usage of each type of advisory group.

The number of institutions that involve varying campus constituents in the development of campus IT strategies is large and growing. The president's cabinet/council, administrative committee, academic/faculty committee, and technology advisory committee provide advice on IT strategy in more than half of ALL responding institutions. Furthermore, there are significant increases in the number of campuses reporting president's cabinet/council, system/district office, student committee, academic/faculty committee, and administrative committee usage this year compared with last.

One trend we are watching is the percentage of campuses that have and use a trustee committee for advice on IT strategies. This is the case at more than 26% of doctoral universities and nearly that percent of BA schools, but only 7.5% of associate's colleges reported using advice from trustees.

Notes

1. Title data were normalized for analysis into the groupings shown in Table 1-1. A vice president or vice chancellor level title that also included CIO or CTO in the title was normalized in the VP/VC category, while any other title that included CIO or CTO was normalized in the CIO or CTO category.
2. Carnegie classifications include more distinct breakouts than shown for most tables. For our analyses, we combined Doctoral/Research Universities–Extensive and Doctoral/Research Universities–Intensive into DR; Master's Colleges and Universities I and Master's Colleges and Universities II into MA; and Baccalaureate Colleges–Liberal Arts, Baccalaureate Colleges–General, and Baccalaureate/Associate's Colleges into BA. Our AA group includes institutions with the classification of Associate's Colleges. Our OTHER category includes Tribal Colleges and schools in the Specialized Institutions category as well as those institutions without a Carnegie class (primarily international institutions).
3. Note that not all of the 933 schools in the data set estimated the number of distributed/decentralized staff; thus, this ratio could only be calculated for the 833 schools that provided all the data points needed for this calculation.
4. The Integrated Postsecondary Education Data System (IPEDS) is a single, comprehensive data-collection program designed to capture data for the National Center for Education Statistics (NCES) for all institutions and educational organizations whose primary purpose is to provide postsecondary education in the United States. Among other data, campuses report the number of full-time and part-time undergraduate, graduate, and professional students to IPEDS. The total of those three categories is imported into the CDS database as "total student headcount." FTE student number is derived by adding the total full-time student number to one-third the total number of part-time students for all three categories.

   Note that not all of the 933 schools in the data set opted to provide the employee headcount number, and student headcount numbers were not available for many international respondents unless they provided this number when contacted. Thus this ratio could only be calculated for the 666 schools for which all the data were available for this calculation.

TWO

IT Financing and Management

Section two of the 2006 core data survey focused on capturing financial data about information technology on campus for fiscal year 2005–2006 as well as IT management practices, many of which have financial implications. There are six major areas of analysis and discussion in this section, including sources and amounts of funding for IT, IT personnel compensation, decentralized support costs for IT, technology fees, equipment and replacement planning, and outsourcing and service level agreements.

Sources and Amounts of Funding for IT

Understanding the funding and expenditures of IT organizations on college and university campuses has long been a challenge. One of the biggest hurdles in defining the parameters of the Core Data Service was coming up with a methodology that would be relevant for all types of institutions so that a common questionnaire could be used.

The 2006 survey requested data for nine sources of funding (plus an "other funding" option) for the centralized IT organization thought to be applicable to most higher education institutions, with a new category in 2006 for "compensation paid from an institutional budget." In Tables 2-1 and 2-2, these sources are listed with the median values for each of the Carnegie classes presented in thousands of dollars. Median values are used because they present a more accurate reflection of actual campus averages than statistical means, which provide much higher values (especially for doctoral campuses) due to the impact of having megacampus values in the data set. As was the case for the 2005 survey, respondents were required to enter $0 for a source if they did not have any funding from that source (except for "other funding"), to ensure that a value was entered into each field.

Table 2-1 shows median values for all campuses, irrespective of the value entered for each source, including $0. Since many campuses do not have all of the IT funding sources listed, a great number of $0 values appear in this first table. In Table 2-2, the values in each cell are the medians of those respondents who reported revenue other than $0 in a category, thus excluding from the data set the campuses that have no funding from a source. Keep in mind that in the Web-based interactive database component of the CDS (available to all who completed the survey), means, medians, highs, and lows are available, and ranges are not as distorted when a more narrowly defined peer group is examined.

Not surprisingly, as institutional complexity increases, so does the amount of funding from each source for the centralized IT organization. The dollar amounts for most of the funding sources are significantly greater for doctoral institutions compared to the other groups, while the amounts reported for AA and BA schools are generally the lowest. The relationship between Carnegie class and the dollar amount received by the centralized IT organi-

Table 2-1
Median Amounts of Funding for the Centralized IT Organization (in 1,000s of Dollars) by Funding Source for All Responding Institutions

Funding Source	ALL	DR	MA	BA	AA	OTHER
Operating appropriation to centralized IT organization	$2,700	$10,896	$2,450	$1,488	$1,144	$3,885
Capital appropriation to centralized IT organization	$200	$391	$150	$150	$97	$671
Revenue generated from student technology fees	$0	$0	$0	$0	$8	$0
Revenue from sale of centralized services (chargeback) to departments	$0	$4,000	$0	$0	$0	$0
Revenue from sale of centralized services to external entities	$0	$0	$0	$0	$0	$0
Net revenue from resale of products to departments, staff, students…	$0	$0	$0	$0	$0	$0
Net revenue from resale of products to external entities	$0	$0	$0	$0	$0	$0
Proportional share of dollar equivalent for systems/services provided at system or district level	$0	$0	$0	$0	$0	$0
Compensation paid from an institutional budget	$0	$0	$0	$0	$0	$0
Other funding	$121	$282	$49	$31	$65	$461

zation from these various funding sources is probably due primarily to differences in overall institutional resources. However, Carnegie classification is still a reliable predictor of the amount of money allocated to the IT organization from the campus operating budget, a source of IT funding reported by nearly 100% of all respondents. This might indicate that, for this most common funding source, the actual dollar amount provided to the centralized IT organization may not only be due to level of overall campus resources but also to different practices in money allocation among institutions in the various Carnegie classes.

Tables 2-1 and 2-2 reveal that doctoral institutions reported higher values for capital appropriations than all other groups except OTHER, with MA and BA higher than AA. This same pattern was also true for operating appropriations and revenue generated from student fees and sale of centralized services. Table 2-3 shows the percentages of campuses that have funding from the various sources, indicating that more doctoral than other types of institutions reported significant funding sources beyond operating appropriations, capital appropriations, and technology fees. Particularly, these schools appear to rely much more heavily than schools in all of the other Carnegie groups on charging for centralized services and, to a lesser degree, resale of products to generate revenue for the centralized IT organization.

Means and medians for total centralized IT funding appear in Table 2-4, with dramatic

Table 2-2
Median Amounts of Funding for the Centralized IT Organization (in 1,000s of Dollars) for Institutions Not Reporting $0

Funding Source	*N* =	ALL	DR	MA	BA	AA	OTHER
Operating appropriation to centralized IT organization	932	$2,702	$10,896	$2,450	$1,488	$1,146	$3,885
Capital appropriation to centralized IT organization	608	$539	$1,157	$420	$354	$301	$1,114
Revenue generated from student technology fees	334	$600	$1,624	$760	$306	$251	$2,500
Revenue from sale of centralized services (chargeback) to departments	408	$718	$4,979	$307	$68	$73	$1,548
Revenue from sale of centralized services to external entities	120	$215	$439	$58	$9	$20	$183
Net revenue from resale of products to departments, staff, students…	132	$69	$164	$39	$26	$1	$80
Net revenue from resale of products to external entities	50	$39	$50	$38	$15	$106	$35
Proportional share of dollar equivalent for systems/services provided at system or district level	129	$482	$2,100	$530	$342	$317	$420
Compensation paid from an institutional budget	175	$459	$2,141	$359	$378	$374	$658
Other funding	149	$313	$772	$277	$100	$289	$490

differences between Carnegie groups, as expected. (Note that the total was computed by summing the dollar values entered by respondents for all funding sources.) For comparable types of institutions in the matched data set, there was a 6.5% average increase, compared to an increase of 5.5% last year.

One of the goals of the CDS is to allow for the exploration of these data to see if various business ratios can be found that would be both stable and useful. One ratio that we explored uses data reported through IPEDS[1] for FTE students and total centralized IT funding reported through our survey to derive the ratio of mean dollars spent per FTE student. These ratios, shown in Table 2-5, increased substantially from the 2005 to the 2006 survey, but some additional explanation is necessary. If one looks at the Carnegie groups DR, MA, and AA, these categories represent a majority of schools in the U.S. Comparing data for the schools in these categories that completed both the 2005 and 2006 survey, we found increases that ranged from 5.5% to 9%.

Table 2-3
Percentage of Central IT Organizations Reporting Various Sources of IT Funding

Funding Source	ALL	DR	MA	BA	AA	OTHER
Operating appropriation to centralized IT organization	99.9%	100.0%	100.0%	100.0%	99.4%	100.0%
Capital appropriation to centralized IT organization	65.2%	62.0%	60.8%	67.2%	59.4%	79.5%
Revenue generated from student technology fees	35.8%	43.0%	42.7%	15.8%	51.3%	23.7%
Revenue from sale of centralized services (chargeback) to departments	43.7%	86.6%	43.9%	31.1%	8.8%	44.9%
Revenue from sale of centralized services to external entities	12.9%	34.1%	8.2%	2.7%	1.9%	19.2%
Net revenue from resale of products to departments, staff, students…	14.1%	33.5%	11.8%	8.7%	1.9%	14.7%
Net revenue from resale of products to external entities	5.4%	10.6%	4.3%	3.8%	0.6%	7.7%
Proportional share of dollar equivalent for systems/services provided at system or district level	13.8%	11.7%	23.5%	7.1%	17.5%	4.5%
Compensation paid from an institutional budget	18.8%	18.4%	10.8%	22.4%	21.3%	9.0%
Other funding	15.9%	22.3%	15.3%	13.7%	12.5%	15.4%

Table 2-4
Means and Medians for Total Centralized IT Funding (in 1,000s of Dollars)

	Mean	Median
ALL	$9,189	$4,050
DR EXT	$32,263	$27,532
DR INT	$12,514	$10,675
MA I	$5,467	$4,095
MA II	$2,298	$1,460
BA LA	$3,283	$2,766
BA GEN	$1,933	$1,330
AA	$3,278	$1,895
OTHER	$10,495	$6,091

Centralized IT Personnel Compensation

In Table 2-6, the median total compensation (including benefits) paid by or through the centralized IT organization is shown for four categories of personnel (plus an "other" category) in thousands of dollars. Note, again, that median values of all respondents are presented here, rather than data only for those

Table 2-5
Centralized IT Funding per FTE Student

	ALL*	DR	MA	BA	AA	OTHER
Mean	$2,800	$1,625	$920	$1,478	$708	$11,188
Median	$909	$1,187	$819	$1,176	$614	$887
* *N* = 928						

Table 2-6
Median Total Compensation for Various Types of Centralized IT Personnel (in 1,000s of Dollars) for All Responding Institutions

	ALL	DR	MA	BA	AA	OTHER
Staff	$1,905	$9,290	$1,814	$954	$787	$3,000
Students	$70	$352	$100	$56	$8	$24
Consultants	$0	$43	$0	$0	$0	$18
Contractors	$0	$6	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0	$0

Table 2-7
Median Total Compensation for Various Types of Centralized IT Personnel (in 1,000s of Dollars) for Institutions Not Reporting $0

	N =	ALL	DR	MA	BA	AA	OTHER
Staff	933	$1,905	$9,290	$1,814	$954	$787	$3,000
Students	765	$100	$373	$125	$60	$36	$75
Consultants	455	$50	$153	$40	$21	$33	$88
Contractors	341	$78	$201	$50	$39	$25	$138
Other	30	$174	$251	$66	$38	$171	$202

respondents who did not report $0 for a category of personnel. Thus, as explained earlier for the first question in this section, there are many cells in which $0 is the median because of the great number of respondents who do not employ all of these categories of personnel. Table 2-7 presents data for those institutions that reported compensation other than $0 by category of personnel.

The total compensation numbers for fiscal year 2005–2006 differ significantly by Carnegie classification. As expected, the median compensation paid to each of these personnel types increases with institutional complexity; in each case, either AA or BA schools reported the lowest compensations and doctoral schools the greatest. This is consistent with the finding above for overall centralized IT funding, likely for the same reasons with respect to level of overall campus resources, and related to campus complexity, not merely campus size. Table 2-8 shows the percentages of campuses that employ each category of personnel.

In exploring ratios that might be helpful to campuses in managing their IT resources, we calculated the total of expenditures reported for centralized IT staff as a function of total centralized IT funding, derived from the earlier question about allocations/revenues from the nine funding sources. (Note that by staff we mean specifically staff and not all types of personnel; that is, student employees, consultants, contractors, and other types of personnel are not included in this number.) Looking at the median percentages of staff compensation to total centralized IT funding in Table 2-9, we see very little difference among all types of institutions.

Table 2-8
Percentage of Centralized IT Organizations That Employ Various Categories of Personnel

	ALL	DR	MA	BA	AA	OTHER
Staff	100%	100%	100%	100%	100%	100%
Students	82.0%	96.1%	91.4%	94.0%	60.6%	58.3%
Consultants	48.8%	60.3%	42.7%	43.7%	41.3%	59.0%
Contractors	36.5%	50.8%	29.8%	28.4%	30.6%	46.8%
Other	3.5%	8.9%	1.6%	2.2%	1.3%	2.6%

Table 2-9
Percentage of Total Centralized IT Funding Spent on Centralized IT Staff Compensation

	ALL	DR	MA	BA	AA	OTHER
Mean	47.2%	47.3%	47.8%	46.5%	47.6%	46.4%
Median	46.9%	47.4%	47.5%	47.0%	48.3%	45.4%

The ratio developed from these data appears to provide some quantitative information about what is most common, irrespective of the nature of the institution, and might suggest an appropriate or acceptable balance. This ratio has been remarkably constant and similar across institutional types for several years of core data surveying. However, there was a significant decrease in this percentage for ALL respondents for 2006, and this decrease was seen for DR, MA, BA, and AA institutions as well.

Another ratio (added as of last year) considers centralized IT funding as a percentage of total campus expenditures. Respondents were invited to report the latter amount as an optional data point, and about 56% of the 933 responding schools chose to do so. This ratio is roughly equivalent to the ratio of centralized IT funding as a percentage of the educational and general budget, a calculation that hasn't been possible since E&G stopped being reported to IPEDS. Calculating this ratio is still problematic in that, depending on which campuses one uses in the comparison group, one may be mixing apples and oranges because of the differences between GASB and FASB reporting practices (Governmental Accounting Standards Board versus Financial Accounting Standards Board).[2] Furthermore, as stated, this optional data point is self-reported by survey respondents without verification.

This was once a very important ratio to help campuses understand their spending habits related to information technology. Even with these cautionary notes taken into consideration, we believe the ratios are worth reporting. Table 2-10 shows relatively consistent results, with ratios for the largest, most complex institutions being somewhat lower because of the enormous size of their denominators. The ratios are highest for AA schools, which are far less complex, focused on instruction, and more cognizant of the critical need for the transformative role of IT in their institutional strategies. Compared with the 2005 survey, the only difference found was with AA schools, which report an even higher percentage this year, and they were already the highest of any group.

Decentralized IT Expenditures

This year's survey again sought to capture data about estimated compensation (including benefits) for IT personnel and other IT-related expenditures (hardware, software, and so forth) outside the centralized IT organization, that is, in administrative offices and academic departments. Such decentralized expenditures vary dramatically based on the type of institution.

As shown in Table 2-11, of ALL responding campuses, nearly 72% were able to make a reasonable estimate about what was spent on distributed IT staff compensation and about

Table 2-10
Centralized IT Funding as a Percentage of Total Campus Expenses

	Mean	Median
ALL*	5.3%	4.8%
DR EXT	3.7%	3.4%
DR INT	4.8%	4.5%
MA I	5.4%	5.1%
MA II	5.3%	5.7%
BA LA	4.8%	4.6%
BA GEN	5.6%	4.7%
AA	7.3%	7.0%
OTHER	5.0%	4.4%
** N = 529*		

Table 2-11
Percentage of Institutions That Cannot Estimate IT Expenditures Outside the Centralized IT Organization

	ALL	DR	MA	BA	AA	OTHER
IT compensation	28.2%	41.3%	25.5%	26.2%	18.1%	30.1%
Other IT expenditures	40.8%	49.7%	39.6%	43.2%	26.9%	44.2%

Table 2-12
Mean IT Compensation and Other Expenditures Outside the Centralized IT Organization (in 1,000s of Dollars) for Institutions Where Such Expenditures Are Known

	N =	ALL	DR	MA	BA	AA	OTHER
IT compensation	670	$2,072	$10,001	$445	$140	$147	$1,978
Other IT expenditures	552	$2,390	$9,723	$666	$145	$208	$3,473

59% were able to make a reasonable estimate about what was spent on IT outside their centralized IT organizations (including reporting $0 spent) for all other IT-related expenditures. Note that 263 institutions reported that the total compensation paid to IT personnel outside the centralized IT organization is unknown, and 381 reported not knowing the amount spent on other, non-personnel expenditures. The group most frequently reporting not knowing these amounts was doctoral institutions, in all likelihood because of their complexity and distributed nature. Our assumption is that campuses reporting $0 are essentially completely centralized, with all IT personnel being employed within the centralized IT organization and all IT-related expenditures made at the institutional rather than departmental level.

The average total compensation reported for IT personnel employed outside the centralized IT organization differs considerably by Carnegie class, as seen in the first row of Table 2-12. In fact, comparisons revealed significant differences among all groups except between AA and BA. The second row in this table reflects the expenditures by units outside the centralized IT organization on equipment and all other non-personnel items. As with other IT financing data points, the average of IT expenditures outside the centralized IT organization for the most part increased with institutional complexity. The sum of these two numbers (personnel compensation plus all other expen-

Table 2-13
Centralized IT Personnel Expenditures
as a Percentage of Total Campus IT Personnel Expenditures

	ALL*	DR	MA	BA	AA	OTHER
Mean	84.0%	63.0%	88.2%	91.5%	91.4%	78.8%
Median	89.3%	62.0%	90.1%	93.1%	99.8%	85.0%
* *N* = 670						

Table 2-14
Total Centralized IT Funding as a Percentage of Total Campus IT Expenditures

	ALL*	DR	MA	BA	AA	OTHER
Mean	82.3%	64.1%	86.1%	90.2%	88.0%	77.2%
Median	88.0%	64.8%	89.6%	93.0%	90.0%	83.0%
* *N* = 506						

ditures) is an estimate of how much is being spent on average by institutions outside their centralized IT organizations, where such expenditures are known or can be estimated.

With the increased specialization in IT, especially in academic computing, it is likely that the relative extent of decentralized versus centralized computing will only increase. To see what trends might occur in the future, we developed two ratios as a baseline for such comparisons.

The first of these ratios has to do with centralized IT personnel compensation as a percentage of total campus IT personnel expenditures, with the latter derived by combining all centralized and decentralized IT compensation numbers reported for schools where such decentralized expenditures were known or could be estimated. As shown in Table 2-13, this percentage is quite high for MA, BA, and AA schools, which appear to have predominantly centralized IT operations. The percentage for doctoral institutions is significantly lower than all other groups. This is essentially an indicator of the extent of decentralization occurring in this type of school. There have been no significant changes in these ratios for the various Carnegie groups over the past few years.

The second ratio looks at total centralized IT funding as a percentage of total campus IT expenditures, with the latter derived from adding total centralized IT organization funding to estimated IT-related personnel and other IT expenditures outside the centralized IT organization, for schools reporting such known expenditures (including $0). The mean and median percentages are shown in Table 2-14. There have been no significant changes in this ratio for the various Carnegie groups since the 2004 survey, but on the 2006 survey this ratio increased for DR and MA schools. Perhaps this greater level of centralized IT funding is an indication of a trend to handle security and storage challenges in a more centralized manner.

Technology Fees

The percentage of schools that reported charging a general student technology fee differs significantly among Carnegie classes, as seen in Table 2-15. The highest percentage was found among AA and MA schools, with about 70% and 63%, respectively, of these institutions charging a general student technology fee. Of doctoral institutions, 55% charge such a fee, while about 35% of BA schools reported doing so.

Not only does the percentage of schools charging a technology fee differ by Carnegie class, but so does the basis for charging the fee, as seen in Table 2-16. Charging a flat fee per semester was the most common method for all Carnegie classes except for AA institutions, for which charging a flat fee per credit hour was by

Table 2-15
Percentage of Campuses That Charge General Technology Fees

	ALL	DR	MA	BA	AA	OTHER
Yes	52.4%	55.3%	62.7%	35.0%	70.4%	34.6%
No	47.6%	44.7%	37.3%	65.0%	29.6%	65.4%

Table 2-16
Methods of Charging a General Technology Fee

	ALL*	DR	MA	BA	AA	OTHER
Flat fee per year	12.1%	10.1%	10.1%	25.0%	0.9%	29.6%
Flat fee per semester	43.3%	43.4%	54.4%	51.6%	25.9%	37.0%
Flat fee per quarter	2.9%	4.0%	3.8%	1.6%	1.8%	1.9%
Percentage of tuition	3.1%	2.0%	5.7%	0.0%	2.7%	1.9%
Flat fee per credit hour	31.0%	33.3%	19.0%	9.4%	63.4%	20.4%
Other	7.6%	7.1%	7.0%	12.5%	5.4%	9.3%
* *N* = 487						

Table 2-17
Total Dollars Generated per Campus from General Technology Fees (in 1,000s of Dollars) for Institutions That Charge Such Fees

	ALL*	DR	MA	BA	AA	OTHER
Mean	$1,439	$3,783	$1,156	$551	$604	$751
Median	$706	$2,609	$903	$319	$355	$425
* *N* = 487						

far the most popular strategy. Overall, the practice of charging technology fees was consistent with the pattern found on the 2005 survey.

The total of dollars generated by student technology fees also differs significantly as a function of Carnegie class, as seen in Table 2-17, which shows the mean and median total dollars collected per campus from technology fees for those schools that charge a technology fee. Obviously, with more students on campus, larger schools (for example, doctoral institutions) would be expected to generate a larger amount of money from a general student technology fee. However, after controlling statistically for indicators of campus size (FTE students, headcount employees), Carnegie class was still a reliable predictor of the total amount of money generated from the technology fee. Thus, differences in this dollar amount across Carnegie classes cannot be fully explained by differences in campus size. Comparing 2005 and 2006 data for institutions that completed both surveys and reported charging a general technology fee, a significant increase in total revenue generated was found for DR and AA institutions.

Another form of technology fee we examined has to do with whether a separate fee for residence-hall network connections is charged (see Table 2-18). Overall, charging such a fee is not a widespread practice, with only about 14% of ALL responding institutions reporting doing so. The charging of such a fee is strongly related to Carnegie class. This is not surprising, given the dramatic differences among Carnegie classes in the percentage of institutions with residence halls, shown in the fourth row of this table.

Examining only those schools with residence halls that have network connections (see Table 2-19) similarly revealed that the practice of charging a separate fee for resi-

Table 2-18
Separate Residence-Hall Network Connection Fee for All Respondents

	ALL	DR	MA	BA	AA	OTHER
Yes	14.4%	24.6%	15.7%	3.3%	3.1%	25.0%
No	65.5%	74.9%	80.0%	93.4%	18.8%	46.2%
No network connections	2.4%	0.6%	0.4%	0.0%	6.3%	6.4%
No residence halls	17.8%	0.0%	3.9%	3.3%	71.9%	22.4%

Table 2-19
Separate Residence-Hall Network Connection Fee for Institutions with Networked Residence Halls

	ALL*	DR	MA	BA	AA	OTHER
Yes	18.0%	24.7%	16.4%	3.4%	14.3%	35.1%
No	82.0%	75.3%	83.6%	96.6%	85.7%	64.9%
* *N* = 745						

Table 2-20
Percentage of Institutions Owning/Leasing Various Numbers of Computers

Number of computers	ALL	DR	MA	BA	AA	OTHER
Up to 500	9.8%	0.0%	4.3%	19.1%	10.0%	18.6%
501–1,000	18.4%	0.6%	17.6%	35.0%	31.9%	7.1%
1,001–2,000	24.7%	3.4%	33.3%	33.3%	33.8%	15.4%
2,001–3,000	12.5%	6.1%	22.0%	12.0%	13.1%	4.5%
3,001–5,000	11.5%	15.6%	16.9%	0.5%	5.6%	16.7%
5,001–10,000	13.4%	35.8%	5.5%	0.0%	5.0%	25.0%
More than 10,000	9.8%	38.5%	0.4%	0.0%	0.6%	12.8%

dence-hall network connections is significantly related to Carnegie class. This practice is most common among institutions in the OTHER group and DR institutions and least common among BA schools. Overall, only about 18% of ALL institutions that have networked residence halls reported charging a separate network connection fee.

Equipment and Replacement Planning

As institutional complexity increases, so does the number of computers owned or leased by the institution, as shown in Table 2-20. Approximately 22% of the MA, just under 42% of the AA, and about 54% of the BA schools responding to our survey reported owning or leasing 1,000 or fewer computers, while about 74% of doctoral schools reported owning or leasing more than 5,000 computers, with more than half of this group reporting owning or leasing more than 10,000 computers. An examination of the means and medians of total number of campus-owned or campus-leased computers similarly illustrates this pattern, as seen in Table 2-21. In looking at the data in the matched data set, we found no significant change in the number of computers owned or leased by institutions in any of the groups.

In an attempt to better understand the total number of computers owned or leased by a campus and to be able to make more relevant comparisons, we calculated a ratio of the number of computers owned or leased by an institution per student FTE (see Table 2-22). This ratio also varies significantly across Carnegie classes, with the pattern found for the 2006 survey nearly identical to that found

Table 2-21
Number of Campus-Owned/Leased Computers

	ALL	DR	MA	BA	AA	OTHER
Mean	4,525	12,945	2,304	1,113	1,744	5,345
Median	1,813	8,000	1,820	950	1,200	3,500

Table 2-22
Number of Campus-Owned/Leased Computers per FTE Student

	ALL	DR	MA	BA	AA	OTHER
Mean	0.89	0.73	0.43	0.61	0.43	2.70
Median	0.45	0.56	0.39	0.56	0.41	0.48

Table 2-23
Percentage of Campuses Using Various Computer Replacement Cycles in their Planning Efforts

Replacement Cycle	ALL	DR	MA	BA	AA	OTHER
None	11.0%	21.2%	11.0%	7.7%	3.1%	11.5%
< 3 years	0.4%	1.1%	0.4%	0.0%	0.0%	0.6%
3 years	12.6%	16.2%	12.2%	9.3%	7.5%	18.6%
3–4 years	27.2%	26.8%	27.8%	25.7%	26.9%	28.8%
4 years	22.5%	11.7%	21.2%	30.6%	31.9%	17.9%
> 4 years	6.4%	2.8%	7.8%	7.7%	9.4%	3.8%
Different cycles for different computers	19.7%	20.1%	19.6%	19.1%	21.3%	18.6%

for the 2005 survey, with a significant increase noted only for AA schools in the median number of computers per FTE student.

While the number of computers may be of interest to those who manage information technology, the biggest challenge faced by all IT managers is assuring that this equipment is replaced in a systematic fashion in order to capitalize on newer technologies and to reduce support costs. Therefore, the core data survey explores a variety of issues related to computer replacement.

The planned replacement cycle for campus computers reported by respondents varies by Carnegie class, as seen in Table 2-23. More than 62% of all responding institutions endorse a replacement cycle of 3 years, 3–4 years, or 4 years. This percentage ranges from a low of nearly 55% (DR) to a high of more than 66% for AA schools. However, the percentage of doctoral institutions (21.2%) reporting no planned replacement cycle is significantly greater than that for all other groups.

It is one thing to have a plan for replacing computers and quite another to have the funds for this replacement embedded (that is, actually funded) in the budget. Table 2-24 presents a profile of each Carnegie group related to the percentage of computers actually funded in the budget. An alternative presentation of these data is shown in Table 2-25, which provides the mean and median percentages of campus computers that have replacement funding in the budget. For those institutions in our matched data set, the estimated number and percentage of campus computers with replacement cycles funded in the budget increased significantly for ALL as well as DR institutions from the 2005 to the 2006 survey.

Of ALL institutions, 56% reported that at

Table 2-24
Percentage of Campuses with Replacement Funding in the Budget for Various Percents of Computers

% Computers with Funding	ALL	DR	MA	BA	AA	OTHER
0%	10.7%	10.6%	10.6%	8.7%	9.4%	14.7%
Up to 19%	9.2%	19.6%	6.3%	2.7%	7.5%	11.5%
20–39%	16.2%	20.7%	18.0%	9.3%	17.5%	14.7%
40–59%	7.9%	14.5%	6.3%	7.1%	3.8%	8.3%
60–79%	13.3%	13.4%	13.7%	10.9%	15.6%	12.8%
80–100%	42.7%	21.2%	45.1%	61.2%	46.3%	37.8%

Table 2-25
Estimated Percentage of Campus Computers with Funded Replacement Cycles

	ALL	DR	MA	BA	AA	OTHER
Mean	58.1%	42.5%	60.3%	71.7%	61.7%	52.9%
Median	70.0%	33.0%	75.0%	90.0%	72.0%	60.0%

Table 2-26
Percentage of Campus Computers Replaced in Previous Fiscal Year

% Computers Replaced	ALL	DR	MA	BA	AA	OTHER
0%	1.3%	0.0%	1.6%	1.6%	0.6%	2.6%
Up to 5%	3.0%	1.7%	3.5%	3.8%	3.8%	1.9%
6–10%	9.1%	5.6%	8.6%	9.3%	9.4%	13.5%
11–15%	8.7%	6.7%	11.8%	7.7%	10.6%	5.1%
16–20%	21.9%	26.3%	18.4%	21.9%	24.4%	19.9%
21–25%	27.5%	34.6%	25.5%	23.5%	29.4%	25.6%
26–30%	14.0%	12.8%	14.5%	15.3%	12.5%	14.7%
31–35%	9.6%	10.6%	11.4%	10.4%	5.6%	9.0%
36–40%	2.6%	1.1%	2.7%	2.7%	1.3%	5.1%
More than 40%	2.3%	0.6%	2.0%	3.8%	2.5%	2.6%

least 60% of their campus computers are on a funded replacement cycle, and this was at least the case for all Carnegie groups except for doctoral institutions, fewer than 35% of which reported at least 60% of computers with a funded replacement cycle. More than 60% of BA schools reported that 80–100% of their campus computers are on a funded replacement cycle, whereas about 21% of doctoral schools reported that level.

Having a replacement plan and having the replacement funds actually budgeted tells part of the story, but the rest of the story is told by looking at data about how many computers were actually replaced the previous fiscal year. These data are shown in Table 2-26. The results were essentially the same as those found on last year's survey.

For those campuses that reported a plan for computer replacement, the data for the number of computers actually replaced were compared with the expressed plan. If the actual replacement numbers were within 5% of the plan, campuses were grouped into a category called "on plan." If they replaced more than this percentage, they were labeled "ahead of plan," and if they replaced less than this percentage, they were labeled "behind plan."

Table 2-27
Comparison of Actual Computer Replacement to the Expressed Plan for Institutions with Replacement Plans

	ALL*	DR	MA	BA	AA	OTHER
On plan	61.5%	66.7%	61.0%	61.2%	64.4%	54.2%
Behind plan	30.3%	29.5%	29.9%	29.1%	29.8%	33.9%
Ahead of plan	8.2%	3.8%	9.1%	9.7%	5.8%	11.9%
* *N* = 646						

Table 2-28
Campuses with a Funding Model That Includes Renewal of the IT Capital Plant

	ALL	DR	MA	BA	AA	OTHER
Yes	54.1%	60.9%	51.0%	54.1%	48.1%	57.7%
No	45.9%	39.1%	49.0%	45.9%	51.9%	42.3%

These data are presented in Table 2-27. Although this methodology is not perfect, it does give one a sense that about 70% of campuses that have a plan are either on or ahead of that plan, despite economic hardships in higher education. There were no differences among the Carnegie groups for this variable.

Finally, we examined the data related to capital replacement of the IT infrastructure other than computers, including renewal of the wiring, electronics associated with the network, and so forth. More than 54% of ALL institutions reported that the current funding model of their campuses includes renewal of the capital plant, as seen in Table 2-28. The proportion of schools reporting this did not differ significantly across Carnegie classes, nor were there any notable changes in results from last year's survey, except for a significant increase in the percentage of DR institutions reporting a funding model that includes capital renewal.

Outsourcing and Service Level Agreements

The use of external suppliers to run a campus IT function appears not to be a common practice overall. More than 38% of ALL institutions reported that they do not outsource any functions or use application service providers (ASPs), as shown in Table 2-29. There were differences by Carnegie class when comparing the percentages of schools that reported no outsourcing, with AA and BA schools more often, and doctoral, MA, and OTHER institutions less often, reporting no outsourcing arrangements. Overall, the percentage of ALL institutions in the matched data set that reported using external suppliers to run various IT functions increased over the past year, from about 57% to nearly 62%, with this increase following two previous years of increases, thus reflecting a clear trend in the use of outsourced services.

The use of service level agreements (SLAs) was also analyzed, with results shown in Table 2-30. About 49% of ALL responding institutions reported some use of SLAs, with the percentage of institutions using no SLAs varying across Carnegie groups. The percentage of institutions using such agreements was significantly related to Carnegie class, with more BA and AA schools reporting no use of SLAs. Looking at the matched data set, the percentage of schools using no written service level agreements did not change significantly from the 2005 survey.

Notes

1. The Integrated Postsecondary Education Data System (IPEDS) is a single, comprehensive data-collection program designed to capture data for the National Center for Education Statistics (NCES) for all institutions and educational organizations whose primary purpose is to provide postsecondary education in the United States. IPEDS

Table 2-29
Percentage of Campuses Using External Suppliers to Run Various IT Functions

IT Function	ALL	DR	MA	BA	AA	OTHER
Administrative systems—transaction systems operation	16.9%	16.2%	20.4%	13.7%	13.1%	19.9%
Administrative systems—application development	10.6%	7.3%	10.2%	8.2%	10.0%	18.6%
Administrative systems—project management for implementations	7.9%	7.3%	7.5%	4.4%	10.0%	11.5%
All centralized IT staff and services	1.5%	0.6%	2.4%	0.0%	3.8%	0.6%
CIO/top IT administrator	2.1%	0.6%	2.4%	0.5%	5.6%	1.9%
Computer and network security	2.8%	2.8%	2.0%	1.6%	4.4%	3.8%
Computer operations	2.7%	1.7%	3.5%	0.5%	4.4%	3.2%
Data center	3.6%	1.7%	6.3%	1.6%	2.5%	5.1%
Desktop computer installation, maintenance, and/or repair services	10.9%	12.8%	7.5%	7.1%	5.0%	25.0%
Distance education	6.4%	2.2%	9.8%	3.3%	11.9%	3.8%
Help desk	5.6%	5.0%	5.1%	2.2%	8.1%	8.3%
Instructional/course management system	14.0%	9.5%	20.8%	4.9%	21.9%	10.9%
Multimedia services	1.9%	2.8%	2.0%	1.1%	3.1%	0.6%
Network services	3.9%	2.2%	3.5%	1.6%	6.3%	1.4%
Portal	3.3%	1.7%	5.1%	1.1%	5.0%	3.2%
Print services	8.9%	8.4%	11.4%	6.6%	5.6%	11.5%
Remote access to network services	5.1%	7.3%	5.5%	2.7%	3.1%	7.1%
Resnet (student residential networks)	3.6%	1.7%	6.3%	1.6%	1.9%	5.8%
Telephone services	17.4%	15.6%	15.4%	21.3%	14.4%	20.5%
User support services	2.1%	1.1%	2.4%	0.5%	3.8%	3.2%
Web development and/or hosting	18.0%	15.1%	19.6%	20.2%	14.4%	19.9%
Other IT services	13.2%	21.8%	11.8%	12.0%	10.6%	9.6%
No external suppliers	38.5%	36.3%	34.9%	45.9%	46.9%	29.5%

collects institution-level data in such areas as enrollments, program completions, faculty, staff, and finances.

2. For more information, see the discussion on page vii of the introduction to this summary report about use of IPEDS data as well as the CDS announcement, "Caution Advised in Using IPEDS Data for Ratios," dated March 2, 2004, at <http://www.educause.edu/apps/coredata/news/>.

Table 2-30
Percentage of Campuses Using Written Service Level Agreements for Various IT Services

IT Service	ALL	DR	MA	BA	AA	OTHER
Academic/research support	12.4%	20.7%	14.5%	2.7%	5.0%	18.6%
Administrative systems support	24.7%	31.3%	27.1%	13.7%	22.5%	28.2%
Computer and network security	10.4%	15.6%	8.6%	5.5%	11.69%	11.5%
Data center services	21.1%	41.9%	20.0%	5.5%	13.1%	25.6%
Desktop/user support services	30.8%	49.3%	28.6%	14.8%	26.3%	36.5%
Instructional technology support	14.3%	21.8%	16.9%	6.6%	13.1%	11.5%
Multimedia services	8.6%	13.4%	10.2%	3.3%	10.0%	5.1%
Network services	21.0%	29.1%	20.8%	9.3%	24.9%	25.0%
Print services	10.8%	12.3%	9.8%	5.5%	12.5%	15.4%
Telephone services	20.3%	29.1%	23.1%	9.3%	16.3%	22.4%
Web support services	2.1%	2.2%	2.7%	0.0%	1.9%	3.8%
Training	13.7%	24.0%	12.9%	3.8%	11.3%	17.3%
Other IT services	7.1%	17.3%	8.2%	1.6%	1.3%	5.8%
No SLAs	51.4%	29.6%	50.6%	69.4%	64.4%	43.6%

THREE

Faculty and Student Computing

Section three of the core data survey captured data about campus computing support in general terms of services and infrastructure; specific support for faculty in the use of technology in teaching and learning; and student computing policy and infrastructure. Because of the increasingly widespread use of and interest in course management systems, data about these systems are highlighted separately.

Campus Computing Support

Campus IT organizations provide common support services and infrastructure in support of the academic mission. It is this service environment that both allows students and faculty to do their work and supports the instructional mission of the campus.

The first dimension of this environment has to do with the availability of technological assistance on a campus. The help desk is critical in helping students and faculty overcome the hardware and software challenges that might interfere with their using technology in learning or research efforts. As seen in Table 3-1, the amount of support provided at different types of institutions varies, with significantly more assistance available at doctoral than other types of institutions and more at MA than BA or AA institutions.

While there is much discussion about the need for support on an around-the-clock basis, with support available 24 × 7, the CDS data tell us that this is not common practice, occurring at only about 7% of institutions that have help desks (with 4.6% of ALL institutions reporting that they do not have a help desk). There have been minor increases with regard to help desk availability in general, and 24 × 7 support in particular, since last year's survey.

A second dimension of campus support has to do with the availability of e-mail, specifically, whether students are issued e-mail accounts for the purpose of receiving official campus communications. The ubiquity of e-mail access is important to understand, as this determines

Table 3-1
Help Desk Availability

	ALL*	DR	MA	BA	AA	OTHER
No help desk	4.6%	1.7%	0.4%	4.3%	13.7%	14.3%
Help desk with 24 × 7 support*	7.2%	19.0%	5.1%	3.3%	4.3%	0.0%
Mean hours/week help desk is available*	72.7	90.6	73.5	64.9	65.6	65.8
* *N* = 890						

Table 3-2
Percentage of Institutions That Issue E-Mail Accounts to All Students

	ALL	DR	MA	BA	AA	OTHER
Yes	92.5%	98.3%	97.3%	98.4%	72.5%	91.7%
No	7.5%	1.7%	2.7%	1.6%	27.5%	8.3%

Table 3-3
Policy on Offering Universal Student E-Mail

	ALL	DR	MA	BA	AA	OTHER
Never offered	4.9%	0.6%	2.0%	0.5%	20.6%	3.8%
Offered with no plans to discontinue	87.8%	86.6%	91.0%	97.3%	71.9%	89.1%
Offered but considering discontinuing	6.0%	12.8%	6.3%	2.2%	3.0%	5.1%
Already stopped offering	1.3%	0.0%	0.8%	0.0%	4.4%	1.9%

whether faculty and/or administrators can count on being able to reach all students in a particular class or all students on campus to inform them of policies, events, and so forth.

As seen in Table 3-2, the practice of providing all students an e-mail account is very common, reported by 92.5% of ALL respondents, and fairly consistent for all Carnegie groups except for AA colleges, where the percentage of respondents reporting this practice was much lower than the others. This latter finding is probably due to the nature of these institutions, most of which are community colleges that serve diverse populations, almost all of whom are commuter students and who are not necessarily long-term attendees of the institution. The one change in these patterns since last year's survey was that about 7% more AA schools reported issuing all students e-mail accounts.

Because of the number of students who already have e-mail accounts when they arrive on campus, some campuses have stopped offering universal e-mail accounts. The data in Table 3-3 help us understand what is happening with regard to such access, to interpret the data in the previous table, and to identify patterns in the different strategies used by different types of institutions.

Campus policies on providing universal student e-mail differ significantly across Carnegie classes, but overall nearly 88% of ALL respondents offer this access with no plans to discontinue it. However, there was an increase this year in the percentage of ALL institutions that were considering discontinuing this service, with this increase accounted for primarily within the DR and MA categories. Few DR, MA, or BA schools reported that universal student e-mail was never offered.

The last dimension of general campus support is the extent to which technology is available in classrooms so that faculty and students can use electronic means for learning in their in-class experiences. The results appear in Table 3-4.

The percentage of campuses with classrooms equipped with wired Internet connectivity differed significantly as a function of Carnegie class, with MA, BA, and AA institutions all reporting significantly higher percentages of classrooms equipped with wired Internet connectivity than doctoral and OTHER institutions. However, DR institutions did report a significantly higher percentage of classrooms with wired connectivity than last year. One likely explanation for the smaller percentage of wired classrooms in doctoral institutions is that they usually have very large inventories of classrooms, so even though in absolute terms they probably have far more classrooms with this capability than

Table 3-4
Mean Percentage of Classrooms Equipped with Various Technologies

	ALL	DR	MA	BA	AA	OTHER
Wired Internet connectivity	89.3%	86.0%	92.1%	94.7%	93.0%	78.4%
Wireless Internet connectivity	56.9%	62.7%	62.0%	55.0%	50.7%	50.7%
LCD projectors	62.6%	59.4%	65.6%	63.2%	64.0%	59.0%
Computers	51.3%	41.4%	54.8%	54.0%	61.2%	43.4%
Televisions	29.4%	20.4%	33.7%	31.2%	36.4%	23.4%
Smart boards	6.4%	4.7%	6.2%	5.0%	10.0%	6.7%
Document projectors/systems/ cameras	25.2%	25.1%	26.1%	20.3%	32.8%	21.7%
Clickers (personal response systems)	4.2%	9.7%	3.0%	2.7%	2.8%	3.1%

other types of institution, the percentage of such classrooms is smaller.

Looking at the matched data set of schools that completed both the 2005 and 2006 surveys, we found that wired Internet connectivity increased significantly among ALL respondents. While doctoral institutions reported a lower percentage of wired classrooms, this group also has the highest mean percentage of classrooms with wireless connectivity (about 63%). The mean percentage of classrooms equipped with wireless Internet connectivity increased more than 11% for ALL schools in the matched data set, for the second year in a row.

The mean percentage of classrooms equipped with LCD projectors was essentially the same, irrespective of institutional type. Overall, looking at the matched data set, there was a significant increase (about 5%) over last year's results, which has been the level of increase now for several consecutive years.

The mean percentage of classrooms equipped with computers was significantly lower on doctoral campuses as compared to other Carnegie groups, as was the percentage equipped with televisions. Looking at the matched data set, the mean percentage of classrooms equipped with computers also increased for several consecutive years, this year by about 4% for ALL institutions.

The mean percentage of classrooms equipped with individual response systems (clickers) for ALL respondents was about 4%. DR institutions showed a higher mean percentage of classrooms equipped with clickers than all other groups, and we found about a 5% increase in number of classrooms equipped with clickers at DR schools since last year's survey.

Faculty Support

If e-learning is going to become a reality in higher education, the extent of support provided for faculty to learn about and incorporate electronic capabilities into their courses will be a key factor in this transformation. Table 3-5 summarizes the data about a number of dimensions of faculty support, once again examining these across the Carnegie groups and showing differences associated with the nature of the campus.

All types of support reported for faculty use of technology in teaching and learning differed significantly by Carnegie class. As was the case last year, for the most part doctoral institutions reported greater use of these approaches than other Carnegie groups. Offering faculty training upon request and offering faculty training through scheduled seminars were the two most common methods of assisting faculty reported on this year's survey, with more than 94% and 88% respectively of ALL campuses using these two strategies.

Table 3-5
How Faculty Are Supported in the Use of Technology in Teaching and Learning

	ALL	DR	MA	BA	AA	OTHER
Designated instructional technology center	68.9%	83.2%	74.1%	54.1%	66.3%	64.1%
Faculty teaching/excellence center that works with IT	54.6%	68.7%	60.0%	34.4%	53.8%	53.8%
Instructional designers who work with technologists	56.6%	77.7%	60.4%	32.2%	53.8%	57.7%
Instructional technologists who are discipline specialists	24.0%	34.1%	22.7%	21.9%	14.4%	26.9%
Student technology assistants who help faculty use technology	35.2%	52.5%	40.4%	41.5%	13.8%	21.2%
Intensive support for faculty using technology	55.2%	61.5%	61.2%	50.3%	53.1%	46.2%
Faculty training through scheduled seminars	88.3%	93.3%	92.2%	84.7%	92.5%	76.3%
Faculty training on request	94.1%	94.4%	99.2%	96.2%	93.8%	83.3%
Activities for faculty to share innovative ideas	73.4%	86.0%	79.6%	71.0%	68.8%	56.4%
Special grants/awards for faculty using technology	46.6%	60.9%	49.4%	38.8%	46.3%	35.3%

Table 3-6
Percentage of Students Reported to Be Using Their Own Computers

	ALL	DR	MA	BA	AA	OTHER
Mean	66.7%	85.8%	74.8%	85.5%	21.4%	56.2%
Median	85.0%	93.0%	85.0%	95.0%	10.0%	64.5%
Minimum	0.0%	2.0%	0.0%	1.0%	0.0%	0.0%
Maximum	100.0%	100.0%	100.0%	100.0%	97.0%	100.0%

In comparing institutions in our matched data set for the ten methodologies, there was a statistically significant increase in the aggregate (ALL) level for nine of the ten of the ways in which faculty are supported in the use of technology in teaching and learning, the exception being faculty training through regularly scheduled seminars which, as noted, was already quite high.

Student Computing

The estimated percentage of students using their own computers on campus differed significantly as a function of Carnegie class, as shown in Table 3-6. Doctoral and baccalaureate institutions had a higher percentage than the other groups, while AA schools reported a much lower percentage than all other groups. It is notable that, compared to last year's survey, the percentage of students reported to be using their own computers on AA campuses decreased significantly. This may be due to a clarification in directions for this question on the 2006 survey. Added to the question was the following statement: "If your campus does not have residential students, please do not include computers that students use at home for which your staff are not responsible for support." The data entered for this question are used as one of the factors in determining the ratio of computers supported per central IT staff member, so it was important that non-residential campuses understand that the survey was asking for number of student-owned computers used on campus for which staff support was expected. Thus it may well be that the decrease in

Table 3-7
Average Percentage of Students Using Their Own Computers

	ALL	DR	MA	BA	AA	OTHER
Private institutions	84.6%	94.0%	80.9%	89.0%	45.5%	66.9%
Public institutions	56.3%	81.9%	69.6%	63.7%	20.4%	57.3%

Table 3-8
Policies on Student Computer Requirements

	ALL	DR	MA	BA	AA	OTHER
All students are provided a PC	2.5%	1.1%	2.4%	5.5%	0.0%	3.2%
Students in general required to buy/lease PCs	4.7%	9.5%	2.7%	2.7%	0.6%	9.0%
Students in some departments required to buy/lease PCs	15.4%	40.8%	11.4%	2.7%	3.8%	19.9%
PC buy/lease recommended but not required for all students	32.5%	29.1%	43.9%	56.3%	4.4%	18.6%
PC buy/lease recommended but not required in some departments	7.4%	7.3%	7.1%	5.5%	7.5%	10.3%
No requirements or recommendations about PCs	35.0%	10.1%	28.2%	25.1%	83.1%	37.2%
Other	2.5%	2.2%	4.3%	2.2%	0.6%	1.9%

numbers of computers is not actual but simply a correction in data reporting.

While some of the differences in student computer ownership can probably be attributed to coursework demands that would require a computer, there may well be another factor working here. When the percentage of student ownership is examined in terms of institutional control—that is, public versus private institutions—a very strong and statistically significant pattern has emerged each year. As seen in Table 3-7, at private institutions, there is approximately a 28% greater level of student ownership than at public institutions for ALL respondents. If a student is attending a private institution, there is some correlation with his or her relative affluence, even when financial aid is factored out, and hence there is probably greater means to afford the technology compared to a student who is commuting from home to the nearby public institution. This finding, along with an assumption that a digital divide still persists on any campus, be it private or public, supports the premise that public access to computers needs to continue to be offered or some students will be disadvantaged in using technology effectively in the pursuit of their academic goals.

Comparing last year's survey data and this year's for the schools that completed both, there was a significant decrease in the average percentage of students using their own computers on campus at both AA and MA schools. Since many MA institutions, like AA schools, have a substantial non-resident student population, this result might also be attributable to the change in the question's wording noted above, rather than an actual decrease in numbers.

Campuses vary greatly as to their requirements and expectations regarding student access to technology, as shown in Table 3-8.

Table 3-9
High-Speed Network Connections Offered in Residence Halls

	ALL	DR	MA	BA	AA	OTHER
Yes	78.5%	99.4%	95.7%	96.2%	18.8%	67.3%
No	2.3%	0.0%	0.4%	0.5%	4.4%	7.7%
No residence halls	19.2%	0.6%	3.9%	3.3%	76.9%	25.0%

Table 3-10
High-Speed Network Connections Offered in Residence Halls for Institutions with Residence Halls

	ALL*	DR	MA	BA	AA	OTHER
Yes	97.2%	100.0%	99.6%	99.4%	81.1%	89.7%
No	2.8%	0.0%	0.4%	0.6%	18.9%	10.3%
* *N* = 753						

Only about 10% of doctoral institutions do not have any requirements or recommendations about personal computers, whereas about 83% of AA colleges do not have such guidelines; intermediate percentages were observed among MA, BA, and OTHER institutions. Over 40% of doctoral institutions have policies requiring students in some departments to buy or lease a PC. The percentage of schools recommending PC buying or leasing for all students, but not requiring it, was highest for BA colleges, with more than half of these schools reporting such a policy. Nearly 44% of MA colleges and nearly 30% of doctoral schools reported this policy, which was virtually nonexistent among AA colleges (less than 5%). The practice of a campus providing all students with a personal computer is overall uncommon; it is rare at doctoral and MA institutions and nonexistent at AA colleges that responded to our survey. All students are provided a PC at 5.5% of BA colleges and about 3% of OTHER schools responding to our survey. The number of ALL respondents having no requirement decreased by nearly 3% since last year's survey.

Another dimension of student computing addressed by the CDS survey was the level of support provided in the residence halls that house undergraduate students. As seen in Tables 3-9 and 3-10, more than 95% of BA, MA, and DR institutions reported providing high-speed network access in the residence halls, while only about 67% of OTHER schools did so. Note, however, that 25% of respondents in this category reported not having residence halls. Only about 19% of AA colleges reported offering this access, but this number is also distorted because about 77% of the schools in this group reported not having residence halls. Nearly all schools offering high-speed network connectivity in residence halls, regardless of Carnegie class, use primarily Ethernet connections, and the speeds of connectivity reported are also consistent across school type, as seen in Tables 3-11 and 3-12. Since last year, all Carnegie groups showed a net increase in wireless network connectivity, but this change was significant only for DR schools.

In response to illegal file sharing and the undue attention that higher education has received in this regard, some institutions have begun to offer students a campus-negotiated service to provide online music and movies. For three years now, the CDS survey has included a question about this practice. Overall, about 12% of respondents currently offer such a service, up 50% percent from those who reported already offering this service last year. As shown in Table 3-13, 30% of ALL campuses currently offer, plan to offer, or are considering this option. However, it is worth noting that a significantly greater per-

Table 3-11
Primary Technology of Network Connections
for Institutions Offering High-Speed Connectivity in Residence Halls

	ALL*	DR	MA	BA	AA	OTHER
Ethernet	88.0%	87.6%	90.2%	92.0%	63.3%	83.8%
Cable modem	2.3%	1.7%	2.0%	1.1%	16.7%	1.9%
DSL	1.4%	1.7%	0.0%	0.6%	6.7%	3.8%
Wireless	7.8%	7.3%	7.4%	6.3%	13.3%	10.5%
Other	0.5%	1.7%	0.4%	0.0%	0.0%	0.0%

Table 3-12
Speed of Residence-Hall Network Connections
for Institutions Offering High-Speed Connectivity in Residence Halls

	ALL*	DR	MA	BA	AA	OTHER
10 Mbps	13.8%	19.1%	11.5%	9.1%	16.7%	17.1%
10–11 Mbps	2.7%	2.8%	2.5%	2.9%	6.7%	2.9%
10/100 Mbps	40.8%	39.9%	45.9%	41.7%	46.7%	27.6%
100 Mbps	37.2%	31.5%	35.7%	42.3%	26.7%	44.8%
> 100 Mbps	5.3%	6.7%	4.5%	4.0%	3.3%	7.6%
* *N* = 732						

Table 3-13
Campus-Negotiated Service to Offer Access to Online Music and Movies

	ALL	DR	MA	BA	AA	OTHER
Already offered	12.1%	29.6%	18.0%	6.0%	0.0%	1.9%
Plan to offer	2.6%	2.8%	3.9%	2.7%	1.9%	0.6%
Considering	15.3%	17.9%	22.4%	20.2%	5.0%	5.8%
No plans	70.0%	49.7%	55.7%	71.0%	93.1%	91.7%

centage of doctoral institutions (which are often the largest campuses) are pursuing such a strategy, with about 30% of these schools already offering such a service, and this number is significantly greater than last year (up 9%), as is also the case with MA institutions (up 12%). MA and DR schools usually have the most students and hence often have the greatest number of offenders.

Course Management Systems

A final discussion about student and faculty computing relates to the use of a course management system (CMS). The analysis here focuses on use and patterns of deployment, while section five of this summary report (see p. 50) addresses the actual systems in use.

As illustrated in Table 3-14, more than 90% of ALL responding campuses reported supporting one CMS or more. Fewer than 1% of ALL respondents have not deployed such a system and do not have plans to do so, with another 1% planning to deploy a CMS but not having yet begun and about 5% currently reviewing options. Nearly 66% of ALL responding campuses currently support a single commercial CMS, with another 2% supporting a single homegrown system and about 6% supporting a single open source CMS. About 8% reported supporting more than one commercial system. More doctoral than other types of institution reported supporting more than one commercial CMS or using a hybrid approach (some combination of homegrown, commercial,

Table 3-14
Course Management System Practices

	ALL	DR	MA	BA	AA	OTHER
Not deployed and no plans to deploy	0.9%	0.6%	0.0%	0.5%	1.3%	2.6%
Planning to deploy one CMS or more	1.0%	0.0%	0.4%	2.2%	0.6%	1.9%
Currently reviewing options	5.0%	4.5%	3.0%	6.6%	5.0%	7.1%
Support a single commercial CMS	65.9%	63.7%	75.7%	56.3%	76.3%	53.2%
Support more than one commercial CMS	7.7%	9.5%	8.6%	5.5%	6.9%	7.7%
Support a single homegrown CMS	2.0%	2.2%	1.6%	1.6%	0.6%	4.5%
Support more than one homegrown CMS	0.3%	0.6%	0.4%	0.0%	0.0%	0.6%
Support a single open source CMS	5.8%	1.1%	3.9%	15.3%	2.5%	6.4%
Support more than one open source CMS	0.2%	0.0%	0.0%	1.1%	0.0%	0.0%
Employ hybrid approach (commercial, homegrown, and/or open source)	9.6%	16.8%	5.9%	9.3%	5.0%	12.8%
Other	1.5%	1.1%	0.4%	1.6%	1.9%	3.2%

Table 3-15
Faculty Use of a Currently Deployed Course Management System

	ALL*	DR	MA	BA	AA	OTHER
Ubiquitous, employed for nearly all courses	28.7%	29.8%	27.8%	20.2%	26.0%	42.1%
Faculty use selectively	71.3%	70.2%	72.2%	79.8%	74.0%	57.9%
* *N* = 855						

and/or open source systems). Looking at the matched data set, a higher percentage of BA schools reported supporting a single commercial CMS on this year's compared to last year's survey.

Finally, we examined the nature and extent of faculty use of course management systems, as shown in Table 3-15. At the vast majority of campuses, faculty members use these systems selectively, with fewer than 30% of the campuses that support such systems reporting that they are employed for all or nearly all courses.

FOUR

Networking, Advanced Technologies, and IT Security

The fourth section of the core data survey focused on networking, methods of remote access, bandwidth shaping, videoconferencing capabilities on campus, deployment of new technologies, and practices related to network security.

Network Speed and Shaping

The core data survey requested data about the bandwidth available from a campus to the commodity Internet and to high-speed networks. Table 4-1 shows the distinct patterns that characterize bandwidth availability to the Internet by Carnegie groups for responding institutions. Doctoral schools have significantly more total bandwidth than MA, BA, and AA colleges, and master's institutions reported significantly more total bandwidth than AA and BA schools. The mean total bandwidth available to the commodity Internet from campus increased significantly among ALL institutions in the matched data set from the 2005 to 2006 survey. Increases were also found within all Carnegie groups, with doctoral institutions up 35%, MA institutions up 33%, BA institutions up 24%, and AA institutions up 15%.

Looking at access to high-performance networks from campuses, Table 4-2 shows that total bandwidth available is related to Carnegie group. The greatest access was reported by doctoral institutions, most likely due to the large data sets, visualization, and other applications needed by faculty at such institutions for their academic work. About 58% of the MA, 72% of the BA, and 66% of the AA colleges responding to our survey provide no access whatsoever to such networks. From the 2005 to the 2006 survey, the total bandwidth available to high-performance networks

Table 4-1
Total Bandwidth Available to the Commodity Internet from Campus

Bandwidth	ALL	DR	MA	BA	AA	OTHER
0 Mbps	0.3%	0.0%	0.4%	0.0%	0.6%	0.6%
More than 0–4.5 Mbps	5.5%	1.1%	3.1%	3.3%	11.3%	10.9%
4.6–12 Mbps	12.5%	0.6%	10.2%	18.6%	24.4%	10.9%
12.1–44 Mbps	23.0%	2.8%	27.1%	39.3%	25.6%	17.9%
45–89 Mbps	20.2%	8.4%	28.2%	28.4%	23.8%	7.1%
90–154 Mbps	14.1%	19.0%	16.5%	6.6%	8.8%	19.2%
155–299 Mbps	7.9%	23.5%	3.9%	1.1%	3.8%	9.0%
300–999 Mbps	6.4%	21.8%	2.4%	0.5%	0.0%	9.0%
1,000 Mbps or more	10.0%	22.9%	8.2%	2.2%	1.9%	15.4%

Table 4-2
Total Bandwidth Available to High-Performance Networks from Campus

Bandwidth	ALL	DR	MA	BA	AA	OTHER
0 Mbps	48.9%	6.7%	58.4%	71.6%	66.3%	37.2%
More than 0–4.5 Mbps	1.8%	0.0%	1.6%	2.2%	3.1%	2.6%
4.6–12 Mbps	5.1%	1.7%	8.2%	4.9%	5.0%	4.5%
12.1–44 Mbps	5.3%	3.4%	5.9%	6.0%	6.9%	3.8%
45–89 Mbps	8.5%	8.9%	7.8%	8.7%	11.3%	5.8%
90–154 Mbps	4.9%	10.1%	7.1%	1.1%	3.1%	1.9%
155–299 Mbps	5.6%	19.0%	2.0%	0.5%	2.5%	5.1%
300-999 Mbps	2.9%	8.4%	2.0%	0.0%	0.0%	4.5%
1,000 Mbps or more	17.0%	41.9%	7.1%	4.9%	1.9%	34.6%

Table 4-3
Bandwidth Tracking and Shaping

Practice	ALL	DR	MA	BA	AA	OTHER
Track bandwidth utilization	71.4%	72.6%	71.8%	66.7%	75.0%	71.2%
Shape by time of day	26.9%	30.7%	34.1%	38.3%	8.8%	16.0%
Shape by location on campus	52.6%	74.9%	66.7%	59.6%	15.6%	34.0%
Shape by type of traffic	73.0%	72.1%	86.3%	88.0%	48.8%	59.6%
Shape by direction	53.3%	63.7%	65.5%	67.2%	26.9%	32.1%
Do not track or shape	6.2%	1.1%	3.5%	3.8%	13.1%	12.2%

increased significantly among ALL institutions in the matched data set to nearly 741 Mbps, an 84% increase. There were increases for all groups, but only the increase for DR institutions was significant (it more than doubled).

Shaping bandwidth refers to adjusting parameters on the campus Internet connection to limit use through various means, such as type of connection, location of connection, direction of traffic, time of day, or other specific characteristics. A campus may choose to shape bandwidth to ensure that the downloading of large files does not interfere with the basic operational needs of the campus and that the bandwidth is available when faculty and students need it for their academic work.

As seen in Table 4-3, about 6% of ALL campuses report not tracking or shaping bandwidth at all, but this percentage is elevated by the high percentage of AA colleges (over 13%) reporting no such practices. The dominant strategy of AA colleges appears to be tracking by utilization, with this group reporting much less use of shaping strategies than the other Carnegie groups. The most popular shaping strategy overall is shaping by the type of network traffic, with AA institutions nonetheless using this strategy far less than doctoral, MA, and BA institutions. Only about 9% of AA institutions reported shaping by time of day compared to more than 38% of BA colleges, and only about 27% of AA schools reported shaping by direction compared to about 64–67% for doctoral, MA, and BA schools. Nearly 75% of doctoral institutions reported shaping by location, the highest percentage of all groups for this type of shaping.

In looking at the matched data set, there was an increase overall in the past year in the percentage of schools that track bandwidth utilization (from about 67% to over 71%). In addition, there was a significant decrease in the number of AA schools that did no tracking or shaping.

Remote and Wireless Access

Providing remote access to the Internet and to campus networks is critical to serving facul-

Table 4-4
Level of Remote Access Provided via an Internal Modem Pool to Various Constituencies

	ALL	DR	MA	BA	AA	OTHER
Faculty	40.0%	58.7%	34.5%	41.5%	16.9%	49.4%
Students	28.6%	54.2%	25.1%	26.2%	5.6%	31.4%
Staff	42.9%	59.2%	37.6%	42.6%	25.6%	50.6%
Alumni	5.4%	8.9%	5.5%	3.3%	1.9%	7.1%
Not provided	55.1%	39.7%	61.6%	55.7%	73.1%	42.9%

Table 4-5
Percentage of Institutions Providing Remote Access to Faculty in Various Ways

	ALL	DR	MA	BA	AA	OTHER
Modem pool	40.0%	58.7%	34.5%	41.5%	16.9%	49.4%
Outsourced modem pool	3.8%	5.0%	3.1%	3.3%	2.5%	5.1%
Institutionally arranged discount with ISP	11.9%	21.8%	9.0%	7.7%	5.6%	16.7%
Subsidized ISP accounts	6.1%	5.6%	5.1%	7.1%	4.4%	9.0%
State academic network	24.3%	33.5%	27.1%	10.9%	25.0%	24.4%
Regional academic network	16.2%	27.9%	11.4%	6.0%	10.6%	28.2%
Virtual private network (VPN)	61.0%	79.3%	58.4%	56.3%	45.6%	65.4%

ty and students who live off campus. The survey asked about a number of commonly used methods of providing such access to four constituencies: faculty, students, staff, and alumni. Internal modem pool access is differentially employed for various constituencies, as shown in Table 4-4, with the greatest access provided to faculty and staff and considerably less to students. Only 5.4% of ALL respondents make such access available to alumni. The percentage of institutions reporting that remote access is provided via an internal modem pool decreased significantly from the 2005 to the 2006 survey for faculty, students, and staff, and there was a significant increase in the number of institutions that reported providing no remote access via internal modem pool. This is the fourth year in a row with such decreases in use of an internal modem pool, suggesting that this type of remote access is being phased out.

Table 4-5 shows the percentage of schools providing remote access to faculty in various ways. More than 60% of ALL institutions reported providing remote access to faculty via virtual private networks (VPNs), a significant increase since the 2005 survey. About 12% are providing access via ISPs under an institutionally arranged discount, with about 6% offering subsidized ISP accounts.

The growth of wireless network access on campuses is striking. The 2006 core data survey captured detailed data (far too great to include in this summary report) about the extent of penetration of wireless into eight specified areas of the campus: classrooms, libraries, open spaces, research facilities, administrative buildings, public laboratories, student unions, and residence halls. In general, there is wide variation in the level of deployment of wireless across these categories and across Carnegie groups. Overall, the highest level of penetration is found in libraries, with over 80% of ALL respondents reporting that 76–100% of their libraries provide wireless access, an increase of nearly 10% from last year and 38% over the previous three years. Wireless access is least avail-

Table 4-6
Number of Campus Sites from Which Interactive Videoconferencing Can Be Initiated

Number of Sites	ALL	DR	MA	BA	AA	OTHER
0	15.8%	1.1%	15.7%	33.9%	9.4%	17.9%
1	16.4%	1.7%	15.7%	36.1%	15.6%	12.2%
2	12.1%	5.6%	13.7%	13.7%	16.9%	10.3%
3	9.8%	6.1%	12.5%	4.9%	14.4%	10.3%
4–5	12.3%	14.5%	13.3%	3.8%	16.3%	14.1%
6–10	18.0%	29.1%	20.8%	4.9%	17.5%	16.7%
11–20	7.3%	17.3%	4.3%	2.2%	5.6%	8.3%
More than 20	8.4%	24.6%	3.9%	0.5%	4.4%	10.3%

Table 4-7
Percentage of Campus Desktops That Can Deploy Desktop Videoconferencing

% of Desktops	ALL	DR	MA	BA	AA	OTHER
0%	25.4%	3.9%	26.7%	34.4%	34.4%	28.2%
Up to 19%	47.4%	52.5%	47.1%	40.4%	48.8%	48.7%
20–39%	8.6%	12.3%	7.8%	8.7%	6.3%	7.1%
40–59%	4.6%	10.6%	3.5%	4.4%	2.5%	1.9%
60–79%	3.9%	6.1%	4.7%	2.7%	1.3%	3.8%
80–100%	10.2%	14.0%	10.2%	9.3%	6.9%	10.3%

able in residence halls, open spaces, and research facilities.

Videoconferencing Capabilities

Videoconferencing capabilities were reported by all campus types, but about 16% of ALL responding campuses do not have any sites (excluding desktop videoconferencing) from which interactive conferences can be initiated, with that case being most common for BA institutions (about 34%). In addition, the level of penetration varied immensely by Carnegie class, as seen in Table 4-6. More doctoral institutions reported availability of these facilities, with about 25% of respondents in this category having more than 20 such sites. Since last year there was a significant increase in the number of such sites for ALL respondents, with this increase also being significant at doctoral and baccalaureate institutions.

In addition to central sites for videoconferencing, respondents were asked about the percentage of desktops that could deploy videoconferencing. The same pattern was found as with central sites, with doctoral institutions having the most such capability, followed by OTHER and MA institutions. As seen in Table 4-7, about 34% of BA and AA schools reported not having a single machine with such capability. Since last year there was a significant increase in desktop videoconferencing capability for ALL schools, as well as for all four of the major Carnegie groups.

Deployment of New Technologies

This year's core data survey explored the level of deployment of 16 technologies that are currently being addressed within the higher education IT community. Data for these technologies are presented in Tables 4-8 through 4-23.

As shown in Table 4-8, voice-over-IP (VoIP) technology is being fully deployed at more than 36% of ALL responding campuses, a significant increase since last year. There was also a significant increase in the deployment of VoIP since last year for all Carnegie groups.

Video-over-IP technology is employed to a higher extent than VoIP, as shown in Table 4-9. Of ALL campuses, 46% reported having deployed this technology, with the highest use

Table 4-8
Status of Voice-over-IP Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	36.3%	46.9%	34.1%	22.4%	45.0%	35.3%
Piloting	17.3%	28.5%	13.3%	14.2%	8.8%	23.1%
In progress	9.5%	5.6%	8.6%	9.3%	12.5%	12.8%
Considering	26.6%	15.6%	33.9%	33.3%	24.4%	21.8%
Not planned	10.3%	3.4%	10.2%	20.8%	9.4%	7.1%

Table 4-9
Status of Video-over-IP Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	46.0%	60.3%	49.0%	27.3%	50.6%	41.7%
Piloting	11.4%	15.6%	9.4%	9.3%	8.1%	15.4%
In progress	9.2%	8.9%	12.2%	6.6%	6.3%	10.9%
Considering	22.4%	1.7%	21.2%	29.0%	25.6%	25.6%
Not planned	11.0%	3.4%	8.2%	27.9%	9.4%	6.4%

Table 4-10
Status of PKI Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	16.9%	16.8%	12.9%	19.1%	22.5%	15.4%
Piloting	5.1%	9.5%	2.7%	3.3%	3.1%	8.3%
In progress	7.6%	8.4%	9.0%	6.6%	6.3%	7.1%
Considering	31.8%	48.0%	32.9%	22.4%	20.6%	34.0%
Not planned	38.5%	17.3%	42.4%	48.6%	47.5%	35.3%

by doctoral institutions and lowest use at BA institutions. Associate's colleges are second highest in reporting use of this advanced technology, probably in large part due to their innovative use of technology in teaching and learning. The use of video-over-IP technology increased since last year for ALL respondents in the matched data set. Although there was an increase in use of this technology in all groups, the increase was significant only among DR and MA institutions.

The use of public key infrastructure (PKI) is interesting to note, as this technology may be critical in the deployment of campus security policies and practices. As seen in Table 4-10, deployment of PKI is still in the early stages, despite the amount of campus discussion and numbers of conference presentations on this topic. There were no significant changes in deployment, piloting, or progress in deployment of PKI since last year—the fourth straight year of no movement on use of this technology.

Doctoral institutions use enterprise directory technology more than the other types of institution, but more than 64% of ALL responding institutions reported having deployed this technology. Such a directory is essential for authentication and authorization efforts. As shown in Table 4-11, the vast majority of respondents in all groups have already deployed it, are in the process of piloting or implementing it, or are considering it. Looking at the schools in the matched data set for the 2005 and 2006 surveys, there was a significant increase in the deployment of enterprise directories by ALL institutions, as well as within each Carnegie class.

There is still very little deployment of bio-

Table 4-11
Status of Enterprise Directory Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	64.1%	82.1%	60.4%	63.4%	50.6%	64.1%
Piloting	3.3%	1.7%	2.7%	3.8%	6.3%	2.6%
In progress	14.6%	12.3%	17.3%	13.7%	13.8%	14.7%
Considering	11.8%	2.2%	12.5%	11.5%	18.1%	15.4%
Not planned	6.2%	1.7%	7.1%	7.7%	11.3%	3.2%

Table 4-12
Status of Biometric Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	5.0%	10.6%	5.5%	1.1%	2.5%	5.1%
Piloting	3.0%	8.9%	4.7%	3.3%	4.4%	5.1%
In progress	2.0%	2.8%	2.4%	1.6%	0.6%	2.6%
Considering	24.7%	30.7%	23.9%	18.6%	25.6%	25.0%
Not planned	63.0%	46.9%	63.5%	75.4%	66.9%	62.2%

Table 4-13
Status of Smart Card Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	16.5%	25.7%	14.5%	18.0%	5.6%	18.6%
Piloting	2.0%	4.5%	0.8%	0.5%	0.6%	4.5%
In progress	5.0%	3.9%	5.9%	4.9%	4.4%	5.8%
Considering	34.7%	33.5%	38.0%	30.1%	39.4%	31.4%
Not planned	41.7%	32.4%	40.8%	46.4%	50.0%	39.7%

metric technology on campuses, which includes use of fingerprints, retinal scans, or other physiological means of user identification for security purposes. Of ALL responding campuses, 63% are not even planning for this technology (see Table 4-12), although there was a significant increase in the use of biometric technology since the 2005 survey for ALL schools.

As shown in Table 4-13, the deployment of smart cards was reported most by doctoral institutions and least by AA institutions. Only 16.5% of ALL responding institutions reported deployment of smart card technology, and almost 42% reported that this technology is not planned. However, there was a significant increase in the percentage of ALL respondents in the matched data set reporting deployment of smart cards since last year.

Web services technology refers to a set of tools and building blocks for system development. As shown in Table 4-14, this technology is relatively advanced at a large percentage of institutions overall and within each Carnegie class. Over 77% of doctoral institutions have deployed Web services technology, and another nearly 15% are piloting it or have it in progress. Among MA, BA, and AA colleges, the range of deployment of this technology is about 54–63%, and about another 10–15% of schools in these groups are piloting this technology or have it in progress. There was a significant increase in the use of this technology for ALL respondents in the matched data set comparing the 2005 and 2006 survey results.

While the status of the various technologies discussed thus far has differed considerably across Carnegie groups, nearly 100% of ALL

Table 4-14
Status of Web Services Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	61.7%	77.1%	62.7%	55.2%	54.4%	57.7%
Piloting	4.5%	7.3%	3.1%	3.3%	3.8%	5.8%
In progress	10.0%	7.3%	8.6%	7.1%	11.9%	16.7%
Considering	14.4%	7.8%	14.5%	18.0%	17.5%	14.1%
Not planned	9.4%	0.6%	11.0%	16.4%	12.5%	5.8%

Table 4-15
Status of Antivirus Software

	ALL	DR	MA	BA	AA	OTHER
Deployed	99.8%	99.4%	100.0%	100.0%	99.4%	100.0%
Piloting	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%
In progress	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Considering	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Not planned	0.1%	0.0%	0.0%	0.0%	0.6%	0.0%

Table 4-16
Status of Electronic Signatures

	ALL	DR	MA	BA	AA	OTHER
Deployed	9.3%	16.2%	8.6%	4.4%	8.8%	9.0%
Piloting	6.2%	12.3%	7.1%	2.2%	1.9%	7.1%
In progress	10.0%	12.3%	12.2%	8.2%	5.6%	10.3%
Considering	44.3%	42.5%	43.1%	42.1%	50.0%	44.9%
Not planned	30.2%	16.8%	29.0%	43.2%	33.8%	28.8%

responding institutions reported having already deployed antivirus software. Table 4-15 shows the remarkable consistency and high level of deployment of this technology across all types of institutions.

Like biometrics, electronic signature technology is not particularly common in higher education institutions across all groups, as shown in Table 4-16. Again, the percentage of campuses at which such technology has been deployed, is in the pilot stage, or is otherwise in progress is greatest for doctoral institutions, at about 41%, followed by approximately 28% and 26% of MA and OTHER colleges, respectively. This technology is not planned at about 30% of ALL institutions; however, the percentage of schools considering using electronic signatures is greater than the percentage not planning for this technology at all types of institutions except BA colleges. Looking at last year's and this year's survey results, there was a significant increase in the percentage of ALL respondents reporting use of this technology.

Table 4-17 shows the status of wireless security technologies to be particularly advanced at doctoral institutions, with over 75% reporting having deployed this technology and just 1% reporting no plans for implementation. The range of deployment for the rest of the groups is from about 58% to nearly 72%. There was a significant leap in deployment of this technology since last year's survey, with an approximately 7% increase in deployment overall, and about a 34% increase over the past three years.

The spam plague from which all of our campuses have unfortunately suffered has resulted in almost universal adoption of anti-

Table 4-17
Status of Wireless Security Technologies

	ALL	DR	MA	BA	AA	OTHER
Deployed	68.3%	75.4%	71.8%	65.0%	58.1%	68.6%
Piloting	7.9%	8.4%	6.3%	6.6%	10.6%	9.0%
In progress	14.0%	11.2%	14.1%	15.8%	15.6%	13.5%
Considering	8.5%	3.9%	6.3%	12.0%	15.0%	6.4%
Not planned	1.3%	1.1%	1.6%	0.5%	0.6%	2.6%

Table 4-18
Status of Antispam Tools

	ALL	DR	MA	BA	AA	OTHER
Deployed	97.9%	98.9%	99.6%	98.9%	94.4%	96.2%
Piloting	0.4%	0.0%	0.0%	0.0%	1.9%	0.6%
In progress	0.9%	0.6%	0.4%	0.5%	1.3%	1.9%
Considering	0.5%	0.6%	0.0%	0.5%	0.6%	1.3%
Not planned	0.3%	0.0%	0.0%	0.0%	1.9%	0.0%

Table 4-19
Status of Antispyware Software

	ALL	DR	MA	BA	AA	OTHER
Deployed	74.0%	68.7%	75.7%	80.3%	76.9%	66.7%
Piloting	5.0%	6.1%	5.1%	2.7%	5.0%	6.4%
In progress	6.3%	8.4%	4.7%	4.9%	4.4%	10.3%
Considering	12.2%	14.5%	11.8%	9.3%	11.3%	14.7%
Not planned	2.5%	2.2%	2.7%	2.7%	2.5%	1.9%

spam tools, with nearly 98% of ALL respondents having deployed this technology and virtually no campuses not planning to do so, as shown in Table 4-18. There were no notable differences across the Carnegie groups in adoption of this technology.

Table 4-19 indicates that nearly three-quarters of ALL campuses have deployed antispyware software, with only 2.5% not planning to do so. The only difference found was that BA institutions had deployed this software more than schools in the other Carnegie groups, with a significantly higher rate of deployment than DR and OTHER institutions. Clearly this is a technology that has been readily embraced in a very short period of time. Comparing the results of the 2005 and 2006 surveys for the matched data set, there was a significant increase in the deployment of this technology for ALL respondents, as well as across all groups.

As seen in Table 4-20, Internet Protocol television is in the very early stages of adoption with only about 8% of ALL campuses having deployed IPTV and 55% having no plans to do so. It should be noted, however, that there is a significantly different pattern within the Carnegie groups, as doctoral institutions reported a greater level of piloting or considering this technology compared to other groups, with a significantly lower percentage of DR institutions not planning to implement IPTV. There was a significant increase in the use of this technology for ALL schools since the 2005 survey.

As with other measures related to security, the use of personal firewall software appears to have been readily embraced. As shown in

Table 4-20
Status of IPTV

	ALL	DR	MA	BA	AA	OTHER
Deployed	8.3%	12.8%	8.2%	2.2%	10.0%	8.3%
Piloting	5.0%	10.1%	3.9%	1.1%	5.0%	5.8%
In progress	3.8%	7.3%	4.7%	2.7%	2.5%	0.6%
Considering	27.9%	37.4%	29.0%	25.7%	21.9%	23.7%
Not planned	55.1%	32.4%	54.1%	68.3%	60.6%	61.5%

Table 4-21
Status of Personal Firewall Software

	ALL	DR	MA	BA	AA	OTHER
Deployed	49.9%	62.0%	49.4%	51.9%	43.8%	41.0%
Piloting	2.5%	2.8%	1.6%	1.6%	1.3%	5.8%
In progress	5.7%	7.3%	5.9%	2.2%	4.4%	9.0%
Considering	13.1%	13.4%	14.5%	9.3%	15.6%	12.2%
Not planned	28.8%	14.5%	28.6%	35.0%	35.0%	32.1%

Table 4-22
Status of Token Technology

	ALL	DR	MA	BA	AA	OTHER
Deployed	5.9%	15.6%	4.7%	1.6%	1.9%	5.8%
Piloting	2.0%	3.9%	1.2%	1.1%	0.6%	3.8%
In progress	1.6%	4.5%	0.8%	0.5%	0.6%	1.9%
Considering	24.8%	36.3%	23.1%	20.8%	18.8%	25.0%
Not planned	65.7%	39.7%	70.2%	76.0%	78.1%	63.5%

Table 4-21, nearly 50% of ALL campuses have deployed this technology. Again, with this technology there is a more active pattern of adoption in doctoral institutions, with fewer of these campuses reporting that it is not planned. Since the 2005 survey, there was a significant increase (8%) in the deployment of personal firewall software for ALL institutions, as well as for schools in the four primary Carnegie groups.

As shown in Table 4-22, only about 6% of ALL campuses have deployed token technology, with nearly two-thirds of campuses indicating that they have no plans to do so. However, a significantly greater percentage of DR institutions than schools in other Carnegie groups have deployed or are considering deployment—and conversely a significantly smaller percentage of DR than other types of institutions have no plans to deploy token technology. There was a significant increase in the use of this technology for ALL respondents in the matched data set comparing the 2005 and 2006 survey results.

Table 4-23 shows a pattern similar to that noted for tokens, with two-factor authentication being in the early stages of adoption. Again, doctoral institutions are more aggressively deploying, piloting, in the process of deploying, and considering deployment of this technology than the other types of institutions. Comparing last year's and this year's survey results, there was an increase in the percentage of ALL respondents considering or piloting this technology and a corresponding decrease in the number not considering this technology.

Table 4-23
Status of Two-Factor Authentication

	ALL	DR	MA	BA	AA	OTHER
Deployed	7.9%	18.4%	5.5%	3.8%	5.0%	7.7%
Piloting	4.3%	8.9%	3.1%	3.3%	1.3%	5.1%
In progress	3.3%	6.1%	2.4%	3.2%	1.9%	4.5%
Considering	35.9%	49.7%	36.1%	31.7%	26.9%	34.0%
Not planned	48.6%	16.8%	52.9%	59.0%	65.0%	48.7%

Table 4-24
Campus Firewall Strategies

	ALL	DR	MA	BA	AA	OTHER
Firewall at external Internet connection	89.3%	70.9%	94.5%	95.1%	95.6%	88.5%
Firewalls around certain high-security servers or networks	67.8%	93.3%	69.4%	57.9%	48.8%	67.3%
Firewalls deployed by or on behalf of individual departments	38.3%	83.8%	35.3%	14.8%	15.0%	42.3%
Campus site license for a personal firewall product	24.1%	29.6%	26.7%	15.8%	20.0%	27.6%
Plan to implement one or more firewalls	19.5%	35.2%	19.2%	10.9%	13.1%	18.6%
No firewalls	0.2%	0.6%	0.0%	0.0%	0.6%	0.0%

Security

The final area of analysis in this section is security, including the processes being used to secure campuses from disruptions of service, incursions, and other security breaches. Perhaps the most common type of security protection being used by responding campuses is a firewall. However, experience has shown that a single firewall is not adequate for security because many of the individuals who provide a threat to security are students and personnel who work and operate within the environment protected by the firewall. Table 4-24 shows various strategies currently being employed and their relative frequency within each of the Carnegie groups.

Overall, fewer than 1% of ALL respondents have no firewalls, with the most common strategy being the deployment of a firewall at the external Internet connection (89.3%). This is true for a very large percentage of schools in all categories except doctoral institutions, which more often reported deploying firewalls around high-security servers and by or for individual departments. Looking at the schools in the matched data set, there was a net increase for ALL respondents in the use of firewalls at the external Internet connection since the 2005 survey. There was also an increase in the use of firewalls around high-security servers or networks at ALL institutions, with the most significant increase at BA schools. Finally, there was an increase in the percentage of schools deploying personal firewall products at all types of schools, with significant increases at DR, MA, and AA institutions.

Table 4-25 shows the patterns and use of software patches and other practices to ensure security on campus. Far and away the most common practice is requiring all critical systems to be expeditiously patched or updated, with more than 97% of ALL respondents reporting this practice and no significant differences among Carnegie groups.

The second most common practice is requiring campus computers to be expeditiously

Table 4-25
Security-Related Practices

	ALL	DR	MA	BA	AA	OTHER
All critical systems expeditiously patched or updated	97.2%	98.3%	98.0%	98.4%	97.5%	92.9%
Campus computers expeditiously patched or updated	88.2%	80.4%	90.4%	91.3%	92.5%	84.0%
Personal computers expeditiously patched or updated	51.9%	57.5%	59.2%	60.1%	25.6%	50.6%
Proactive scans in critical systems	79.5%	89.9%	82.7%	76.5%	66.3%	79.5%
Proactive scans in campus computers connected to the network	65.1%	73.2%	70.6%	59.0%	56.3%	62.8%
Proactive scans in PCs connected to the network	39.8%	58.7%	43.9%	41.5%	19.4%	30.1%
Security system includes intrusion detection system	61.8%	84.4%	63.5%	53.6%	43.1%	62.2%

Table 4-26
Campus IT Security Risk Assessment

	ALL	DR	MA	BA	AA	OTHER
Yes	63.3%	82.1%	66.7%	48.1%	53.1%	64.7%
No	36.7%	17.9%	38.3%	51.9%	46.9%	35.3%

patched or updated, with about 88% of ALL respondents reporting this practice. Conducting proactive scans to detect known security exposures in critical systems is the third most common practice, with nearly 80% of ALL respondents reporting this. The least reported practice is conducting proactive scans to detect known security exposures in all personally owned computers connected to the campus network, reported by just under 40% of ALL respondents.

The survey asked if the respondent campus has actually undertaken an IT security risk assessment. As seen in Table 4-26, more than 63% of ALL campuses responded in the affirmative. Looking at the Carnegie groups, some significant differences are apparent. More than 82% of responding doctoral institutions reported having undertaken risk assessments. About half of the BA and AA respondents reported not having conducted such an assessment. There was a significant increase in the use of risk assessments by ALL schools since the 2005 survey, with significant increases for DR and MA institutions.

The results shown in Table 4-27 indicate that nearly 57% of ALL respondents require deployment of end-user authentication for obtaining network access, as a component of overall security strategies. Another 24.2% of this group are either in the process of implementing this requirement or are planning to do so, with an additional 12% considering it. Only 4% of ALL respondents had no plans for such a requirement. Doctoral institutions required end-user authentication significantly less than the other types of institutions. Since the 2005 survey, there was a significant increase in the percentage of ALL institutions that reported requiring end-user authentication for all network access.

Table 4-27
Status of End-User Authentication for Network Access

	ALL	DR	MA	BA	AA	OTHER
Currently require end-user authentication for all network access	56.9%	44.1%	63.1%	60.1%	55.6%	59.0%
In process of implementing end-user authentication requirement for all network access	14.0%	12.8%	15.7%	14.2%	15.0%	11.5%
Planning to require end-user authentication for all network access	10.2%	13.4%	9.0%	7.1%	15.0%	7.1%
Considering end-user authentication requirement for all network access	12.0%	18.4%	9.0%	12.0%	8.0%	13.5%
No plans for requiring end-user authentication for all network access	3.9%	5.0%	1.6%	3.8%	5.0%	5.1%
Other	3.0%	6.1%	1.6%	2.7%	1.3%	3.8%

FIVE

Information Systems

The need to provide better campus decision support systems with an integrated view of data is critically important to campuses in order to manage the complexities of our institutions in a turbulent market environment. Systems that support enterprise resource planning (commonly called ERPs) have taken on a significant role in campus IT strategies.

In this section, we examine ERP systems and the sources of costs associated with them, along with methods of implementing information systems. In particular, seven of the most commonly used campus information systems are explored from the perspective of their age, most common vendors, replacement plans, and so forth.

ERP Systems

ERP systems are a major focus, as well as a concern, on many campuses; the challenges associated with such systems have been in the top five issues in the EDUCAUSE Current Issues Survey in each of the past six years.[1] These systems are becoming a standard, but the cost and complexity of their implementation continues to be an issue.

As seen in Table 5-1, over 75% of ALL institutions reported having implemented or being in the process or RFP stage of implementing an ERP, with only about 16% reporting no plans to do so. That level of implementation is similar for the various Carnegie groups analyzed. Overall, the percentage of institutions that have completed an ERP project implementation increased significantly from the 2005 to the 2006 survey, from approximately 50% to 54% for the matched data set, with this change largely being due to significant increases at DR and MA institutions.

Table 5-2 shows the percentage of overall ERP costs spent or projected to be spent on various elements of the project by schools that reported such a project completed, in process, or in the RFP stage. Doctoral institutions reported spending the least proportionally on software and licenses and software maintenance, but this may well be an artifact of their greater spending on consulting fees. Doctoral institutions also reported spending a notable proportion on in-

Table 5-1
ERP Project Status

	ALL	DR	MA	BA	AA	OTHER
Implementation completed	53.3%	52.0%	59.6%	59.6%	41.3%	49.7%
Implementation in process	19.6%	27.3%	18.8%	12.0%	27.5%	12.9%
RFP stage	2.6%	2.2%	1.6%	3.3%	3.8%	2.6%
Considering	8.0%	8.4%	5.5%	8.2%	8.8%	11.0%
No plans	16.4%	10.1%	14.5%	16.9%	18.8%	23.9%

Table 5-2
Average Proportion of the Total Cost of the ERP by Area of Expenditure

	ALL	DR	MA	BA	AA	OTHER
Software and licenses	23.3%	16.4%	23.5%	30.5%	23.5%	22.9%
Software maintenance	10.9%	8.4%	12.4%	12.4%	11.4%	8.9%
Training	8.3%	5.8%	8.6%	9.2%	9.9%	8.0%
In-house staff costs	20.6%	24.2%	19.8%	20.7%	15.7%	22.4%
Consulting fees	20.3%	27.1%	19.5%	12.5%	19.5%	23.7%
Hardware	11.2%	11.5%	10.8%	9.6%	12.7%	11.8%
Other	5.4%	6.5%	5.4%	5.2%	7.3%	2.3%

house staff costs. This finding, in combination with their higher percentage of consulting costs, reflects the substantial personnel commitment required to implement such systems at large, complex institutions. However, doctoral institutions reported spending a significantly lower percentage than AA, BA, and MA institutions on training. The percentage spent on hardware was comparable across institutional types.

System Implementation Strategies

The survey requested information about methods of developing and implementing information systems in general, including the types of system modifications campuses make when purchasing systems. There have long been vigorous discussions about the appropriateness of building versus buying administrative systems. A 2002 ECAR study found that modification of the basic vendor code was the single most important factor related to budget overruns, and yet these modifications might be necessary to achieve the goals of a given campus.[2]

Table 5-3 presents commonly used methods of implementing systems. The respondents to the survey were allowed to check more than one method, so these do not sum to 100%. Some findings with regard to implementation strategies include the following:

- Purchasing a commercial product and customizing it is the most common acquisition strategy, with about 77% of ALL institutions reporting this method.
- The strategy of purchasing a commercial product without customization is the second most common strategy overall, with this approach being used more by DR than all other types of institution. BA schools reported using this strategy more often than purchasing and customizing a software package.
- The use of an open source product, with or without modification, was reported by about 47% of all campuses, up from about 32% last year. This strategy was most common at DR institutions and least common at AA institutions.
- Developing systems in partnership with a vendor is the second least common of the acquisition strategies (less than 39%), one that is used most at doctoral institutions and least at BA colleges.
- Developing systems in-house is more common among doctoral and OTHER than MA, BA, and AA institutions. This is undoubtedly due to the differences in size of the IT staff (as illustrated in section one of this report), with large staffs in doctoral institutions and relatively smaller staffs at other types of institution.
- The strategy of buying a package of integrated systems is used at about 62% of ALL respondents, most used by MA and doctoral institutions, and least used by AA and OTHER schools. More than 52% of ALL respondents reported buying best-of-breed applications, with much more variation among Carnegie groups for this strategy.
- The strategy of enhancing legacy systems is used significantly more at doctoral institutions (over 63%). This find-

Table 5-3
Strategies for Acquiring Information Systems

	ALL	DR	MA	BA	AA	OTHER
Develop systems in-house	59.2%	70.9%	50.6%	57.4%	51.9%	69.2%
Develop systems in partnership with a vendor	38.7%	46.9%	38.8%	32.8%	34.4%	40.4%
Purchase a commercial product without customization	72.6%	78.8%	73.3%	74.9%	69.4%	64.7%
Purchase a commercial product and customize	77.2%	85.5%	76.1%	69.4%	77.5%	78.2%
Use an open source product, with or without modification	46.6%	56.4%	43.5%	48.6%	33.8%	51.3%
Buy best-of-breed applications	52.5%	68.7%	51.8%	47.5%	38.1%	55.8%
Buy a package of integrated systems	62.2%	67.0%	67.5%	63.9%	55.6%	52.6%
Enhance legacy systems and provide Web interfaces	45.4%	63.1%	37.3%	43.2%	35.6%	51.3%
Outsource administrative systems	12.8%	16.2%	13.7%	12.0%	8.8%	12.2%
Other	1.9%	2.2%	2.0%	1.1%	1.3%	3.2%

Table 5-4
Percent of Institutions That Modify Commercial Packages

	ALL	DR	MA	BA	AA	OTHER
Yes	79.8%	93.3%	80.0%	73.8%	70.6%	80.8%
No	20.2%	6.7%	10.0%	26.2%	29.4%	19.2%

ing is congruent with a finding reported below that doctoral institutions overall have older systems, which might lead them to enhance these systems with more friendly Web-based front ends to keep them going rather than replace them.

- The practice of outsourcing administrative systems is not common in any of the Carnegie groups.
- It is interesting to note that since the 2005 survey, there was a significant increase in the use of all nine strategies for ALL institutions.

Modifying commercial software packages is a more commonly used strategy than expected at all types of institution. The data in Table 5-4 indicate that about 80% of ALL respondents buy and modify commercial software packages, with this number up significantly from last year. This practice was reported most by doctoral institutions. It is important, therefore, to understand if there are any differences in the kind of modifications made. Table 5-5 shows that the most common method of modification among ALL institutions that buy and modify software is modification of the system configuration, followed by modification of external modules, with far less modification of underlying code. All of these methods increased significantly from the 2005 to the 2006 survey for institutions in the matched data set.

Seven Types of Information Systems

Respondents were asked to provide data about seven types of information systems commonly found on college campuses. Data are presented below for these systems with respect to whether they are present on the campus, when they were implemented, plans for implementing a new system, whether they are provided at the system or district level when schools are part of a multicampus system, and

Table 5–5
Method and Extent of Modification of Commercial Packages

	ALL*	DR	MA	BA	AA	OTHER
Modify underlying code	46.2%	56.9%	41.7%	41.5%	45.0%	45.2%
Modify configuration	87.2%	91.6%	81.9%	89.6%	85.8%	89.9%
Modify external modules	75.6%	83.8%	75.5%	68.7%	67.3%	81.7%
Other	4.8%	5.4%	4.4%	1.5%	8.8%	4.8%
**N* = 745						

Table 5-6
Percentage of Institutions Having Various Major Information Systems

	ALL	DR	MA	BA	AA	OTHER
Student information system	99.2%	100.0%	100.0%	98.9%	100.0%	96.8%
Financial information system	98.7%	100.0%	99.2%	98.4%	97.5%	98.1%
Human resources system	95.0%	99.4%	98.0%	90.7%	91.9%	92.9%
Development system	80.0%	91.1%	88.2%	94.0%	50.6%	67.3%
Library information system	91.3%	91.1%	92.5%	96.8%	89.4%	91.0%
Course management system	97.3%	98.9%	98.4%	98.4%	95.6%	94.2%
Grants management system	43.7%	89.4%	35.5%	25.1%	23.8%	47.4%

the vendors reported for commercial systems.

Table 5-6 presents the average percentage of institutions that reported having each type of system. As is evident from the table:

- Virtually all campuses have student information systems and financial information systems in place, and there are no significant differences among groups for these two types of systems.
- Human resources systems are common across all groups, but fewer BA and AA colleges than other types of schools reported having these.
- Development systems are the second least reported type of system (after grants management systems at about 44%), with about 80% of ALL institutions having such systems. AA and OTHER colleges employ development systems significantly less than other types of institution, and BA colleges have the highest deployment of such systems (94.0%).
- Library systems are nearly ubiquitous, with more than 91% of ALL institutions having such systems in place, with no significant differences found among groups.
- Course management systems are nearly universally in use at all types of institution, with more than 98% of DR, MA, and BA institutions reporting having these systems.
- The use of grants management systems directly correlates with the research mission of the institution, with more than 89% of doctoral institutions and only about one-quarter of BA and AA colleges reporting use of these systems.

In looking at the data about the age of the systems, there is a relatively large difference between the mean and the median when examining the year of implementation. The mean, which is a statistical average, is almost inevitably lower than the median, which is the year for which there are an equal number of responses greater and lower than that value. The mean being lower than the median is the result of a significantly greater number of respondents reporting earlier years when systems were implemented, thereby reducing this value. This is likely because of

Table 5-7
Year of Implementation for Various Information Systems

	ALL	DR	MA	BA	AA	OTHER
Student System						
Mean	1996.0	1994.2	1996.3	1996.0	1997.2	1997.2
Median	1997.0	1997.0	1998.0	1999.0	1999.0	1998.0
Financial Information System						
Mean	1997.0	1996.3	1997.6	1996.3	1997.5	1997.0
Median	1999.0	1999.0	1997.0	1999.0	1999.0	1999.0
Human Resources System						
Mean	1997.6	1997.0	1998.0	1997.5	1997.1	1998.0
Median	1999.0	2000.0	2000.0	1999.0	1999.0	1999.0
Development System						
Mean	1998.1	1998.0	1998.0	1997.0	2000.0	1999.0
Median	1999.0	1989.0	1999.0	1998.0	2000.0	2000.0
Library System						
Mean	1998.2	1997.6	1998.3	1997.6	1999.5	1998.3
Median	1999.0	1998.0	1999.0	1999.0	2000.0	1999.0
Course Management System						
Mean	2001.0	2000.1	2001.0	2001.6	2001.2	2001.6
Median	2001.0	2000.0	2001.0	2001.0	2001.0	2001.0
Grants Management System						
Mean	1999.5	1999.3	1999.5	1998.4	1999.2	2001.0
Median	2001.0	2000.5	2001.0	2001.5	2000.0	2002.0

legacy systems that may date back to the late 1970s or early 1980s.

Table 5-7 shows that the oldest systems reported by any group are the student systems reported by doctoral institutions, as was the case the past several years. On average, for ALL respondents, these systems are about 10 years old. Financial information systems are the second oldest, with course management systems the most recently implemented of all the systems examined. This latter finding is not surprising because such systems are relatively new to the marketplace compared to other types of systems that have been available for decades. Although the numbers are not significantly different, it is worth noting that doctoral institutions appear to have been the first to implement course management systems. In terms of trends from the 2005 to the 2006 survey, there was a significant increase for ALL institutions in the replacement of all seven of the information systems, that is, the mean year of implementation increased significantly (became more recent), thus reflecting replacement.

Table 5-8 shows the percentage of campuses expecting to implement a new system in the next three years. Note a mostly consistent correlation between the age of the system and plans to implement a new system. For example, about 32% of doctoral institutions, which have the oldest of such systems, plan to implement new student information systems in the next three years. Such a correlation is also notable with respect to propensity of a group not to have a type of system and that group's implementation plans for that system—for example, while fewer AA and OTHER institutions have devel-

Table 5-8
Percentage of Campuses Expecting to Implement a New System in the Next Three Years

	ALL	DR	MA	BA	AA	OTHER
Student information system	23.6%	31.8%	26.6%	15.8%	27.5%	22.4%
Financial information system	16.5%	19.6%	10.6%	10.9%	27.5%	17.9%
Human resources system	16.6%	16.8%	12.9%	11.5%	23.8%	21.1%
Development system	12.3%	13.4%	12.5%	13.1%	11.3%	10.9%
Library system	6.5%	5.0%	7.8%	4.4%	8.8%	6.4%
Course management system	16.3%	19.0%	13.7%	14.2%	16.9%	19.2%
Grants management system	15.2%	32.4%	13.3%	7.1%	8.8%	14.7%

Table 5-9
Percentage of Various Systems Provided at the System/District Level

	ALL	DR	MA	BA	AA	OTHER
Student information system	20.0%	19.0%	16.9%	10.9%	44.4%	12.2%
Financial information system	25.5%	24.6%	29.8%	12.0%	44.4%	16.0%
Human resources system	24.5%	24.0%	29.8%	11.5%	41.3%	14.7%
Development system	7.6%	11.7%	7.5%	6.0%	8.8%	3.8%
Library system	22.6%	16.8%	22.7%	13.1%	45.0%	17.3%
Course management system	16.6%	11.2%	18.4%	6.0%	37.5%	10.9%
Grants management system	6.9%	15.1%	5.5%	3.8%	3.8%	6.4%

opment systems, it is also the case that much lower percentages of these schools plan to implement such systems. The most notable change in the data for this question from the 2005 to the 2006 survey is that for MA institutions there was a net decrease in the schools planning to implement a new financial system.

Table 5-9 presents the percentage of various information systems provided at the system/district level. Overall, the data show that the percentage of AA schools reporting systems provided at the district level is much greater than other Carnegie groups. Most of the types of information systems are provided two to three times more often by the district for these schools, except for development systems and grants management systems, which Table 5-6 shows are already much less prevalent at AA colleges. This finding is not surprising, given that the majority of these schools are public community colleges, many of them part of a broader community college district.

Finally, quite different patterns of vendors of the various types of information systems are associated with each of the Carnegie groups, as reflected in Tables 5-10 to 5-16. A word of explanation concerning the data captured about specific system vendors is warranted. Each table lists the vendors, in descending order, who were named by 5% or more of respondents who indicated having that system. Note that these vendors are categorized by corporate name, not by individual product. Thus there may be several products combined under a single vendor, or in the case of acquisitions or mergers, several companies may now be included under the company that acquired or incorporated them.[3]

Note also that if a campus reported developing its own system, this is shown in the category of "homegrown," giving a sense of what types of institution are opting for this strategy. Respondents were also asked to indicate if the system is an open source product. So, like purchased systems, homegrown and open source solutions are included in the tables if these approaches were reported by at least 5% of institutions responding that a system is in use.

In the actual data available through the

Table 5-10
Student Information System Vendors Reported by 5% or More of Respondents

ALL Institutions	
SunGard Higher Education	37.4%
Oracle/PeopleSoft	15.3%
Datatel	14.9%
Homegrown	14.3%
Jenzabar	10.4%
DR Institutions	
SunGard Higher Education	48.0%
Homegrown	24.0%
Oracle/PeopleSoft	20.7%
MA Institutions	
SunGard Higher Education	43.9%
Datatel	17.6%
Oracle/PeopleSoft	14.5%
Jenzabar	12.2%
Homegrown	8.6%

BA Institutions	
SunGard Higher Education	30.4%
Datatel	24.9%
Jenzabar	24.3%
Oracle/PeopleSoft	7.2%
Homegrown	6.1%
AA Institutions	
SunGard Higher Education	36.3%
Oracle/PeopleSoft	20.6%
Datatel	16.3%
Homegrown	14.4%
Jenzabar	6.9%
OTHER Institutions	
SunGard Higher Education	23.5%
Homegrown	22.1%
Oracle/PeopleSoft	14.1%
Datatel	10.7%
Jenzabar	6.7%

Table 5-11
Financial System Vendors Reported by 5% or More of Respondents

ALL Institutions	
SunGard Higher Education	27.9%
Oracle/PeopleSoft	20.0%
Datatel	13.9%
Jenzabar	8.9%
Homegrown	7.4%
DR Institutions	
SunGard Higher Education	35.8%
Oracle/PeopleSoft	29.1%
Homegrown	10.0%
Oracle/Oracle	8.4%
MA Institutions	
SunGard Higher Education	29.6%
Oracle/PeopleSoft	21.3%
Datatel	16.2%
Jenzabar	10.7%
Homegrown	6.3%
SAP	6.3%

BA Institutions	
SunGard Higher Education	27.8%
Datatel	24.4%
Jenzabar	22.2%
Oracle/PeopleSoft	7.8%
AA Institutions	
SunGard Higher Education	28.2%
Oracle/PeopleSoft	24.4%
Datatel	16.7%
Homegrown	10.9%
Jenzabar	5.8%
OTHER Institutions	
Oracle/PeopleSoft	17.0%
SunGard Higher Education	15.7%
Oracle/Oracle	12.4%
Datatel	9.2%
Homegrown	7.8%
SAP	5.2%

online database service to those who completed the core data survey, both these aggregate listings, as well as the specific product names, are available. For purposes of simplicity this report shows only the aggregate (normalized) data.

The percentage for the vendors reported in our survey is shown to help the reader understand the relative presence of these vendors within a given segment of the higher education community. Note that EDUCAUSE does

Table 5-12
Human Resources System Vendors Reported by 5% or More of Respondents

ALL Institutions	
SunGard Higher Education	25.3%
Oracle/PeopleSoft	22.0%
Datatel	12.8%
Homegrown	10.7%
Jenzabar	6.2%
DR Institutions	
Oracle/PeopleSoft	33.1%
SunGard Higher Education	30.3%
Homegrown	12.9%
Oracle/Oracle	6.2%
MA Institutions	
SunGard Higher Education	26.7%
Oracle/PeopleSoft	21.9%
Datatel	15.0%
Homegrown	10.1%
SAP	6.5%
Jenzabar	6.9%

BA Institutions	
SunGard Higher Education	26.2%
Datatel	23.2%
Jenzabar	17.7%
Oracle/PeopleSoft	9.8%
AA Institutions	
SunGard Higher Education	27.4%
Oracle/PeopleSoft	23.3%
Datatel	16.4%
Homegrown	14.4%
OTHER Institutions	
Oracle/PeopleSoft	21.1%
SunGard Higher Education	13.4%
Homegrown	12.0%
Datatel	7.7%
Concept	6.3%

Table 5-13
Development System Vendors Reported by 5% or More of

ALL Institutions	
SunGard Higher Education	30.8%
Blackbaud	25.3%
Datatel	10.6%
Jenzabar	6.9%
Homegrown	6.4%
DR Institutions	
SunGard Higher Education	51.9%
Homegrown	9.3%
Blackbaud	8.6%
JSI/Best	7.4%
Oracle/PeopleSoft	6.2%
MA Institutions	
SunGard Higher Education	31.8%
Blackbaud	27.4%
Datatel	13.0%
Jenzabar	8.1%

BA Institutions	
SunGard Higher Education	28.7%
Datatel	19.9%
Blackbaud	18.1%
Jenzabar	14.0%
Homegrown	5.3%
AA Institutions	
Blackbaud	46.3%
SunGard Higher Education	12.5%
Homegrown	6.3%
Oracle/PeopleSoft	7.5%
Jenzabar	5.0%
OTHER Institutions	
Blackbaud	43.0%
SunGard Higher Education	13.0%
Homegrown	9.0%
Jenzabar	5.0%

not present these data as evidence of market share or vendor dominance.

Web Portals

While not exactly a traditional information system, a Web portal offers access to a variety of campus resources, including major administrative systems. Table 5-17 shows the various stages of portal deployment that characterize each of the Carnegie groups. About 91% of ALL responding institutions have implemented a Web portal or have such

Table 5-14
Library System Vendors Reported by 5% or More of Respondents

ALL Institutions	
Innovative Interfaces	26.4%
Ex Libris	31.7%
SirsiDynix	20.7%
DR Institutions	
Ex Libris	41.7%
Innovative Interfaces	28.2%
SirsiDynix	18.4%
MA Institutions	
Innovative Interfaces	28.4%
Ex Libris	32.2%
SirsiDynix	17.8%

BA Institutions	
Innovative Interfaces	38.1%
SirsiDynix	24.4%
Ex Libris	22.0%
AA Institutions	
Ex Libris	37.1%
SirsiDynix	23.8%
Innovative Interfaces	8.4%
OTHER Institutions	
Innovative Interfaces	25.2%
Ex Libris	25.2%
SirsiDynix	20.9%

Table 5-15
Course Management System Vendors Reported by 5% or More of Respondents

ALL Institutions	
Blackboard/Blackboard	40.0%
Blackboard/WebCT	33.0%
DR Institutions	
Blackboard/Blackboard	40.7%
Blackboard/WebCT	26.3%
MA Institutions	
Blackboard/Blackboard	47.8%
Blackboard/WebCT	26.3%

BA Institutions	
Blackboard/Blackboard	46.0%
Open source	18.2%
Blackboard/WebCT	17.6%
Jenzabar	5.7%
AA Institutions	
Blackboard/WebCT	42.1%
Blackboard/Blackboard	33.6%
Desire2Learn	5.9%
Angel	5.3%
OTHER Institutions	
Blackboard/WebCT	41.8%
Blackboard/Blackboard	24.8%
Homegrown	7.1%
Open source	8.5%

an implementation in process or planned. A significantly higher percentage of doctoral institutions have already deployed Web portals compared to all other groups, while AA colleges reported the fewest portals deployed. More BA and AA institutions than schools in other categories reported no plans to implement a Web portal. The percentage of schools that had implemented a portal increased from the 2005 to the 2006 survey from 44.7% to 50.1% for institutions in the matched data set, with significant increases for MA and BA institutions.

Looking at data from the institutions that reported a Web portal implemented, in process, or planned, there are fairly distinct differences among Carnegie groups with regard to procurement strategies and characteristics of the portal. As evident in Table 5-18, all groups reported a myriad of strategies, but overall the strategy of deploying a purchased product was reported most often. Customizability of implemented or planned portals is shown in Tables 5-19 and 5-20. Portals at doctoral institutions were more often reported to be customizable by and to the individual.

Table 5-21 shows the percentage of Web customization for specific constituencies for insti-

Table 5-16
Grants Management System Vendors Reported by 5% or More of Respondents

ALL Institutions	
Homegrown	27.8%
SunGard Higher Education	21.5%
Oracle/PeopleSoft	12.2%
Blackbaud	5.9%
COEUS/MIT	5.4%
DR Institutions	
Homegrown	34.9%
SunGard Higher Education	15.1%
Oracle/PeopleSoft	14.4%
COEUS/MIT	11.6%
InfoEd	6.8%
Oracle/Oracle	6.2%
MA Institutions	
SunGard Higher Education	28.9%
Homegrown	18.4%
Oracle/PeopleSoft	11.8%
Blackbaud	7.9%
Datatel	7.9%
SAP	5.3%
Jenzabar	5.3%

BA Institutions	
SunGard Higher Education	50.0%
Homegrown	19.4%
Oracle/PeopleSoft	8.3%
Jenzabar	5.6%
Blackbaud	5.6%
AA Institutions	
Blackbaud	31.0%
SunGard Higher Education	31.0%
Homegrown	13.8%
Datatel	6.9%
OTHER Institutions	
Homegrown	33.3%
Research Master	15.2%
Oracle/PeopleSoft	13.6%
SunGard Higher Education	6.1%
Blackbaud	7.6%

Table 5-17
Status of Web Portal Deployment

	ALL	DR	MA	BA	AA	OTHER
Implemented	47.9%	64.2%	47.8%	39.9%	32.5%	54.5%
In process	18.9%	14.5%	20.0%	18.6%	20.6%	20.5%
Planning	23.9%	14.0%	25.5%	27.3%	33.8%	18.6%
No plans	9.3%	7.3%	6.7%	14.2%	13.1%	6.4%

Table 5-18
Development and Procurement Strategies for Web Portals

	ALL*	DR	MA	BA	AA	OTHER
Developed in-house	14.2%	17.5%	10.1%	15.9%	7.9%	21.2%
Purchased product	67.3%	64.5%	70.2%	64.3%	75.9%	56.8%
Based on open source	12.9%	13.9%	13.0%	14.6%	5.8%	16.4%
Other	5.7%	4.2%	6.7%	5.1%	6.5%	5.5%
* *N* = 846						

tutions that have implemented, are in the process of implementing, or are planning to implement a Web portal. There were few significant differences among the Carnegie groups and few significant changes from the 2005 to the 2006 survey.

One of the main reasons for having a portal is to serve students better by providing easier access to the information they need to register for classes, conduct business with the campus, and so forth. Table 5-22 shows the extent to which campus portals are connected

Table 5-19
Percentage of Web Portals Customizable by the Individual

	ALL*	DR	MA	BA	AA	OTHER
Yes	85.3%	91.6%	87.8%	81.5%	87.8%	77.4%
No	14.7%	8.4%	13.0%	18.5%	12.2%	22.6%
* *N* = 846						

Table 5-20
Percentage of Web Portals Customizable to the Individual

	ALL*	DR	MA	BA	AA	OTHER
Yes	86.6%	91.6%	88.2%	85.4%	87.1%	79.5%
No	13.4%	8.4%	11.8%	14.6%	12.9%	20.5%
* *N* = 846						

Table 5-21
Percentages of Web Portal Customization for Specific Constituencies

	ALL*	DR	MA	BA	AA	OTHER
Current students	96.8%	98.8%	98.7%	98.1%	88.5%	97.9%
Prospective students	68.0%	72.9%	75.6%	72.6%	54.0%	58.2%
Faculty	94.3%	95.8%	97.1%	96.2%	89.2%	91.1%
Staff	94.3%	95.8%	95.4%	93.0%	92.8%	93.8%
External community	30.0%	30.1%	34.9%	30.6%	22.3%	28.8%
Alumni	54.3%	48.2%	61.3%	61.8%	43.2%	52.1%
Other	3.2%	2.4%	2.1%	5.1%	2.9%	4.1%
* *N* = 846						

Table 5-22
Web Portal Integration with Campus Administrative Systems

	ALL*	DR	MA	BA	AA	OTHER
Yes	96.2%	98.2%	97.1%	96.8%	96.4%	91.8%
No	3.8%	1.8%	5.9%	3.2%	3.6%	8.2%
* *N* = 846						

or will be connected to their administrative systems as reported by the institutions that have implemented, have in process, or plan portals. About 96% of ALL institutions reported that they have integrated or plan to integrate their Web portals. This high level of integration of administrative systems and Web portals is consistent across all Carnegie groups, and there was a significant increase in the number of ALL respondents reporting such integration since the 2005 survey.

Notes

1. Summaries of the annual EDUCAUSE Current Issues Survey are available at <http://www.educause.edu/issues/>.
2. Robert B. Kvavik and Richard N. Katz et al., The Promise and Performance of Enterprise Planning Systems for Higher Education (Boulder, Colo.: EDUCAUSE Center for Applied Research, Research Study, Vol. 4, 2002). This publication is available at no charge through the EDUCAUSE Web site at <http://www.educause.edu/LibraryDetailPage/666?ID=ERS0204>.
3. An exception to this methodology was made for Oracle

and Blackboard, which have merged with PeopleSoft and WebCT, respectively, because of the two major product lines involved in each case. These are shown with the corporate name followed by a slash and the product line. Notable changes that occurred in the library information systems area since the 2005 survey include the merger of Sirsi Corporation and Dynix and the acquisition of Endeavor Information Systems' Voyager product by Ex Libris.

APPENDIX A

Historical Context

Finding useful and relevant comparative data for information technology units in higher education has long been a challenge, and a number of data-collection activities have arisen through the years to meet this need. Prior to its consolidation with Educom in the summer of 1998,[1] CAUSE had been capturing data from its members for nearly 20 years. Early surveys collected data primarily on administrative systems, as the CAUSE mission had not yet broadened to encompass academic computing. Academic computing data were captured in a survey done annually by Charles Warlick of the University of Texas at Austin. Between these two surveys, the IT community had access to some fundamental data about academic and administrative hardware and software. Warlick's data were published regularly in a print compendium, while summary CAUSE data were published periodically in monograph form.

In addition, the CAUSE data were used to form the basis of an Institution Database (ID) service through which members could request custom reports drawn from the data in six major areas: staffing, budgets, organization, software, computer hardware, and communications. This service was quite popular with members, peaking at 442 custom reports requested in FY1994–1995 and declining in 1996 after CAUSE stopped collecting these data annually.

The CAUSE ID survey instrument changed over the years as the association's mission changed, and especially after Warlick ceased to do his survey about a decade ago. Several years earlier, Kenneth C. Green had already begun to disseminate and report the findings of a comprehensive academic computing survey (called the Campus Computing Project) that focused on the microcomputer environment on campuses throughout the country, a survey that continues today (see <http://www.campuscomputing.net>).

Another data collection activity, called the COSTS Project, was developed in the late 1990s by David Smallen and Karen Leach (now chief information officer and chief financial officer, respectively, at Hamilton College) to identify and capture information about the cost of networking on campus (see <http://www.costsproject.org>). This activity for the most part attracted the participation of small liberal arts institutions.

Following the merger of CAUSE and Educom, EDUCAUSE developed a number of strategies for delivering a research program to capture and share the data and information our members need to plan for and manage IT on their campuses. First, an EDUCAUSE Current Issues Survey was launched in 2000 and has been conducted annually since then (see <http://www.educause.edu/issues>). Then, in 2001, the EDUCAUSE Center for Applied Research (ECAR) was created (see <http://www.educause.edu/ecar>). Finally, an EDUCAUSE task force was convened in the fall of 2001 to consider establishing an ongoing core data

collection activity similar to the earlier CAUSE ID survey and service. The dozen members of this task force were representative of the demographic diversity of the EDUCAUSE membership, from small and large, public and private institutions as well as from schools with varying Carnegie classifications. The group recommended that the association develop a Core Data Service (CDS) that would disseminate a Web-based survey instrument to collect data about information technology environments and practices on member campuses.

The goal of the CDS would be to provide a new, Web-based, interactive database service available to all who complete the survey through which they can access data contributed by their peers to help benchmark, plan, and make decisions about IT on their campus; and an annual summary report about campus IT environments based on data contributed through the survey.

This new service was launched in December 2002 with the idea that it would not duplicate but rather cooperate with existing IT-related data collection efforts and explore opportunities to partner with other associations in such efforts. To that end, in the summer of 2005, leaders of EDUCAUSE and the COSTS Project agreed to integrate their respective efforts to gather and analyze data about the costs and environmental factors of information technology in higher education. Thus the annual EDUCAUSE core data survey now includes questions that enable former COSTS Project participants to use the CDS service to access the data they need for IT planning.

Note

1. CAUSE, the Association for the Management of Information Technology in Higher Education, was founded in 1971 as a nonprofit professional association, with an initial focus on administrative computing. Educom was a nonprofit consortium of higher education institutions whose mission was to facilitate the introduction, use, access to, and management of information resources in teaching, learning, scholarship, and research. The two organizations merged in 1998 to form EDUCAUSE, whose mission is to advance higher education by promoting the intelligent use of information technology.

APPENDIX B

2006 Core Data Service Participating Institutions

The following 950 institutions had completed and submitted the 2006 EDUCAUSE core data survey at the time of the publication of this report in the fall of 2007. In parentheses after each institution's name is its Carnegie classification for U.S. institutions and the country in which it is located for international institutions. Results reported in this report are aggregates of data from the 933 surveys that were in the database when it was frozen in May 2007 for analysis.

Abilene Christian University (MA I)
Abraham Baldwin Agricultural College (AA)
Adrian College (BA LA)
Agnes Scott College (BA LA)
Albany State University (MA I)
Albion College (BA LA)
Algonquin College (Canada)
Allegany College of Maryland (AA)
Allegheny College (BA LA)
Alma College (BA LA)
The American College of Greece (Greece)
The American University in Cairo (Egypt)
American University of Beirut (Lebanon)
Amherst College (BA LA)
Angelo State University (MA I)
Anne Arundel Community College (AA)
Appalachian State University (MA I)
Arcadia University (MA I)
Arizona State University (DR EXT)
Arkansas State University (MA I)
Armstrong Atlantic State University (MA I)
Art Center College of Design (ART)
Asbury College (BA GEN)
Ashland University (MA I)
Athabasca University (Canada)
Atlanta Metropolitan College (AA)
Auburn University (DR EXT)
Auburn University at Montgomery (MA I)
Augusta State University (MA I)
Augustana College (BA GEN)
Austin College (BA LA)
Austin Peay State University (MA I)
Australian Catholic University (Australia)
Australian Defence Force Academy (Australia)
Australian National University (Australia)
AUT University (New Zealand)
Azusa Pacific University (MA I)
Babson College (BUS)
Bainbridge College (AA)
Baldwin-Wallace College (MA I)
Ball State University (DR INT)
The Banff Centre (Canada)
Barry University (MA I)
Barton County Community College (AA)
Bastyr University (MA I)
Bates College (BA LA)
Bay College (AA)
Bay Path College (BA AA)
Baylor University (DR INT)
Bellevue Community College (AA)
Beloit College (BA LA)
Benedictine University (MA I)
Berea College (BA LA)
Berklee College of Music (ART)
Berkshire Community College (AA)
Berry College (BA GEN)
Bethany Lutheran College (AA)
Bethel University (MA I)
Biola University (DR INT)
Birmingham-Southern College (BA LA)
Bismarck State College (AA)
Black Hawk College (AA)
Blinn College (AA)
Bloomfield College (BA GEN)
Bloomsburg University of Pennsylvania (MA I)
Blue Ridge Community College (AA)
Bluffton University (BA GEN)
Bond University (Australia)

Boston College (DR EXT)
Boston University (DR EXT)
Bow Valley College (Canada)
Bowdoin College (BA LA)
Bowie State University (MA I)
Bradley University (MA I)
Brandeis University (DR EXT)
Brazosport College (AA)
Bridgewater College (BA LA)
Bridgewater State College (MA I)
Brigham Young University (DR EXT)
British Columbia Institute of Technology (Canada)
Broome Community College (AA)
Brown University (DR EXT)
Bryn Mawr College (BA LA)
Bucknell University (BA LA)
Buena Vista University (BA GEN)
Butler County Community College (AA)
Butte College (AA)
Caldwell College (BA GEN)
California College of the Arts (ART)
California Institute of Integral Studies (OTHER)
California Institute of Technology (DR EXT)
California Institute of the Arts (ART)
California Lutheran University (MA I)
California Polytechnic State University, San Luis Obispo (MA I)
California State Polytechnic University, Pomona (MA I)
California State University, Bakersfield (MA I)
California State University, Chico (MA I)
California State University, Dominguez Hills (MA I)
California State University, East Bay (MA I)
California State University, Fresno (MA I)
California State University, Fullerton (MA I)
California State University, Long Beach (MA I)
California State University, Los Angeles (MA I)
California State University, Monterey Bay (BA LA)
California State University, Northridge (MA I)
California State University, Sacramento (MA I)
California State University, San Bernardino (MA I)
California State University, San Marcos (MA I)
California State University, Stanislaus (MA I)
California University of Pennsylvania (MA I)
Calvin College (BA GEN)
Campbell University (MA I)
Canadian University College
Canisius College (MA I)
Cape Peninsula University of Technology (South Africa)
Capital University (MA II)
Cardinal Stritch University (MA I)
Carl Albert State College (AA)
Carleton College (BA LA)
Carleton University (Canada)
Carlow University (MA I)
Carnegie Mellon University (DR EXT)
Carroll College (BA GEN)
Carroll Community College (AA)
Case Western Reserve University (DR EXT)
Castleton State College (MA II)
Catawba College (BA GEN)
Cecil Community College (AA)
Cedar Crest College (BA GEN)
Cedarville University (BA GEN)
Central College (BA GEN)
Central Connecticut State University (MA I)
Central Lakes College (AA)
Central Michigan University (DR INT)
Central Virginia Community College (AA)
Central Washington University (MA I)
Centre College (BA LA)
Century College (AA)
Charles Darwin University (Australia)
Charles Sturt University (Australia)
Chattanooga State Technical Community College (AA)
Chesapeake College (AA)
Cheney University of Pennsylvania (MA I)
Chippewa Valley Technical College (AA)
Chowan University (BA GEN)
Christopher Newport University (BA LA)
Cincinnati State College (AA)
The Citadel (MA I)
Claremont McKenna College (BA LA)
Claremont School of Theology (FAITH)
Clarion University of Pennsylvania (MA I)
Clark College (AA)
Clark University (DR INT)
Clarke College (BA GEN)
Clemson University (DR EXT)
Cleveland Institute of Art (ART)
Cleveland State Community College (AA)
Coastal Georgia Community College (AA)
Colby College (BA LA)

Colby-Sawyer College (BA GEN)
Colgate University (BA LA)
College of DuPage (AA)
College of Menominee Nation (TRIBAL)
College of Mount Saint Joseph (MA II)
The College of New Jersey (MA I)
College of Saint Benedict/Saint John's University (BA LA)
The College of Saint Rose (MA I)
The College of Saint Scholastica (MA I)
College of Southern Maryland (AA)
College of Southern Nevada (AA)
College of the Holy Cross (BA LA)
College of the Ozarks (BA GEN)
College of William and Mary (DR INT)
College of Wooster (BA LA)
College universitaire de Saint-Boniface (Canada)
Colorado Christian University (MA I)
Colorado College (BA LA)
Colorado State University (DR EXT)
Columbia State Community College (AA)
Community College of Vermont (AA)
Concordia College–Moorhead (BA GEN)
Concordia Theological Seminary (FAITH)
Concordia University at Austin (BA GEN)
Connecticut College (BA LA)
Coppin State University (MA I)
Cornell University (DR EXT)
Curtin University of Technology (Australia)
Cuyahoga Community College (AA)
Dabney S. Lancaster Community College (AA)
Dakota Wesleyan University (BA GEN)
Dalhousie University (Canada)
Dana College (BA GEN)
Danville Community College (AA)
Dartmouth College (DR INT)
Davenport University (BUS)
Davidson College (BA LA)
Deakin University (Australia)
Dean College (AA)
Delta State University (MA I)
Denison University (BA LA)
DePauw University (BA LA)
Dickinson College (BA LA)
Dickinson State University (BA GEN)
Dodge City Community College (AA)
Dominican University (MA I)
Drake University (MA I)
Drew University (BA LA)
Drexel University (DR INT)
Duke University (DR EXT)
Duquesne University (DR INT)
Durham College (Canada)
Dyersburg State Community College (AA)
Earlham College and Earlham School of Religion (BA LA)
East Carolina University (DR INT)
East Georgia College (AA)
East Stroudsburg University of Pennsylvania (MA I)
East Tennessee State University (DR INT)
Eastern Mennonite University (BA LA)
Eastern Michigan University (MA I)
Eastern New Mexico University–Roswell (AA)
Eastern Oregon University (MA II)
Eastern University (MA I)
Eastern Washington University (MA I)
Edgewood College (MA I)
Edinboro University of Pennsylvania (MA I)
Edith Cowan University (Australia)
Elmhurst College (BA GEN)
Elms College (MA II)
Elon University (MA I)
Emory University (DR EXT)
Empire State College SUNY (MA I)
Emporia State University (MA I)
ETH Zurich (Switzerland)
Eureka College (BA GEN)
The Evergreen State College (BA LA)
Fairfield University (MA I)
Fashion Institute of Technology (BA AA)
Fayetteville State University (MA I)
Fielding Graduate University (OTHER)
Finger Lakes Community College (AA)
Fitchburg State College (MA I)
Flagler College (BA GEN)
Flathead Valley Community College (AA)
Flinders University (Australia)
Florence-Darlington Technical College (AA)
Florida Atlantic University (DR INT)
Florida Community College at Jacksonville (AA)
Florida Southern College (BA GEN)
Florida State University (DR EXT)
Fond du Lac Tribal and Community College (TRIBAL)
Fordham University (DR EXT)
Fort Belknap College (TRIBAL)
Fort Valley State University (MA I)

Franklin and Marshall College (BA LA)
Franklin W. Olin College of Engineering (ENGR)
Frederick Community College (AA)
Fresno City College (AA)
Frostburg State University (MA I)
Furman University (BA LA)
Gainesville State College (AA)
Garrett College (AA)
Genesee Community College (AA)
George Fox University (MA I)
George Mason University (DR INT)
The George Washington University (DR EXT)
Georgetown College (BA LA)
Georgetown University (DR EXT)
Georgia College & State University (MA I)
Georgia Highlands College (AA)
Georgia Institute of Technology (DR EXT)
Georgia Perimeter College (AA)
Georgia State University (DR EXT)
Germanna Community College (AA)
Gettysburg College (BA LA)
Glendale Community College (AA)
Gonzaga University (MA I)
Gordon College (BA LA)
Gordon College (AA)
Goshen College (BA LA)
Grace College and Seminary (BA GEN)
Graduate Theological Union (FAITH)
Grand Valley State University (MA I)
Grant MacEwan College (Canada)
Great Basin College (AA)
Green Mountain College (BA GEN)
Greensboro College (BA LA)
Griffith University (Australia)
Grinnell College (BA LA)
Grove City College (BA GEN)
Guam Community College (AA)
Guilford College (BA LA)
Gwynedd-Mercy College (MA II)
Hamilton College (BA LA)
Hamline University (MA I)
Harford Community College (AA)
Hartwick College (BA LA)
Harvard University (DR EXT)
Harvey Mudd College (ENGR)
Haverford College (BA LA)
Hawaii Pacific University (MA I)
The Hebrew University of Jerusalem (Israel)
HEC Montreal (Canada)
Hillsdale College (BA LA)
Hofstra University (DR INT)
Hollins University (BA LA)
Hong Kong Polytechnic University (Hong Kong)
Hope College (BA LA)
Howard Community College (AA)
Hudson Valley Community College (AA)
Humber College Institute of Technology & Advanced Learning (Canada)
Humboldt State University (MA I)
Idaho State University (DR INT)
Illinois Central College (AA)
Illinois State University (DR INT)
Illinois Wesleyan University (BA LA)
Indiana State University (DR INT)
Indiana University (DR EXT)
Indiana University East (BA GEN)
Indiana University Kokomo (BA GEN)
Indiana University Northwest (MA I)
Indiana University of Pennsylvania (DR INT)
Indiana University South Bend (MA I)
Indiana University Southeast (MA I)
Indiana University-Purdue University Fort Wayne (MA I)
Indiana University-Purdue University Indianapolis (DR INT)
Inver Hills Community College (AA)
Iowa State University (DR EXT)
Isothermal Community College (AA)
Ithaca College (MA I)
J. Sargeant Reynolds Community College (AA)
Jackson State Community College (AA)
Jackson State University (DR INT)
James Madison University (MA I)
John Brown University (BA GEN)
John Tyler Community College (AA)
The Johns Hopkins University (DR EXT)
Johnson County Community College (AA)
Johnson State College (MA I)
Kalamazoo College (BA LA)
Keene State College (MA II)
Kenyon College (BA LA)
Keystone College (AA)
Kirtland Community College (AA)
Knox College (BA LA)
Kutztown University of Pennsylvania (MA I)
Kwantlen University College (Canada)
La Trobe University (Australia)
Lafayette College (BA LA)

Lake Forest College (BA LA)
Lake Region State College (AA)
Lake Superior College (AA)
Lake Tahoe Community College (AA)
Lamar Institute of Technology (OTHER)
Lamar State College–Orange (AA)
Lamar State College–Port Arthur (AA)
Lamar University (MA I)
Lane Community College (AA)
Langara College (Canada)
Laramie County Community College (AA)
Lasell College (BA AA)
Lawrence Technological University (MA I)
Lawrence University (BA LA)
Le Moyne College (MA II)
Lebanon Valley College (MA II)
Lee University (BA GEN)
Lehigh Carbon Community College (AA)
Lethbridge Community College (Canada)
Lewis & Clark College (BA LA)
Lewis University (MA I)
Liberty University (MA I)
Lincoln University (MA I)
Lincoln University (New Zealand)
Lindsey Wilson College (BA LA)
Linkopings Universitet (Sweden)
Linn-Benton Community College (AA)
Lipscomb University (MA II)
Little Priest Tribal College (TRIBAL)
Lock Haven University of Pennsylvania (BA GEN)
Loras College (MA II)
Lord Fairfax Community College (AA)
Louisiana State University (DR EXT)
Loyola College in Maryland (MA I)
Loyola Marymount University (MA I)
Loyola University Chicago (DR EXT)
Luther College (BA LA)
Luther Seminary (FAITH)
Lynchburg College (MA I)
Lyndon State College (BA GEN)
Lynn University (MA I)
Lyon College (BA LA)
Macalester College (BA LA)
Macomb Community College (AA)
Madonna University (MA I)
Malone College (MA I)
Manhattan College (MA I)
Mansfield University of Pennsylvania (MA I)
Marietta College (BA GEN)
Marist College (MA I)
Marquette University (DR EXT)
Marshall University (MA I)
Mary Baldwin College (MA II)
Marygrove College (TEACH)
Marywood University (MA I)
Massachusetts Bay Community College (AA)
Massachusetts College of Art + Design (ART)
Massey University (New Zealand)
Mayville State University (BA GEN)
McGill University (Canada)
McHenry County College (AA)
McKendree University (BA GEN)
McMaster University (Canada)
McMurry University (BA GEN)
Medical College of Georgia (MED)
Medical University of South Carolina (MED)
Medicine Hat College (Canada)
Memorial University of Newfoundland (Canada)
Mercyhurst College (MA II)
Mesabi Range Community & Technical College (AA)
Messiah College (BA GEN)
MGH Institute of Health Professions (HEALTH)
Miami Dade College (AA)
Miami University (DR INT)
Michigan State University (DR EXT)
Michigan Technological University (DR INT)
Mid-America Christian University (FAITH)
Middle Georgia College (AA)
Middle Tennessee State University (DR INT)
Middlebury College (BA LA)
Millersville University of Pennsylvania (MA I)
Millikin University (BA GEN)
Mills College (BA LA)
Millsaps College (BA LA)
Minot State University (MA I)
Minot State University–Bottineau Campus (AA)
MiraCosta College (AA)
Misericordia University (HEALTH)
Mississippi State University (DR EXT)
MIT (DR EXT)
Mohave Community College (AA)
Monash University (Australia)
Monmouth College (BA LA)
Monroe Community College (AA)
Montana State University–Billings (MA I)
Montana State University–Bozeman (DR INT)
Montgomery College (AA)

Montgomery County Community College (AA)
Moody Bible Institute (FAITH)
Moraine Valley Community College (AA)
Motlow State Community College (AA)
Mount Aloysius College (BA AA)
Mount Holyoke College (BA LA)
Mount Ida College (BA AA)
Mount Marty College (MA II)
Mount Mary College (MA II)
Mount Saint Mary College (MA I)
Mount Saint Mary's College (MA I)
Mount Saint Mary's University (MA I)
Mount Vernon Nazarene University (BA GEN)
Mountain Empire Community College (AA)
Murdoch University (Australia)
Muskingum College (BA LA)
Naropa University (OTHER)
Nashville State Community College (AA)
National University (MA I)
National University of Singapore (Singapore)
Nazareth College of Rochester (MA I)
Nebraska Wesleyan University (BA LA)
Nelson Mandela Metropolitan University (South Africa)
Nevada State College (BA GEN)
New College of Florida (BA LA)
New England Conservatory of Music (ART)
New Hampshire Technical Institute (AA)
New Jersey Institute of Technology (DR INT)
New Mexico State University (DR EXT)
New River Community College (AA)
New York University (DR EXT)
North Carolina A&T State University (MA I)
North Carolina Central University (MA I)
North Carolina School of the Arts (ART)
North Carolina State University (DR EXT)
North Dakota State College of Science (AA)
North Dakota State University (DR INT)
North Georgia College & State University (MA I)
North Hennepin Community College (AA)
North Idaho College (AA)
Northeast State Technical Community College (AA)
Northeast Wisconsin Technical College (AA)
Northeastern Ohio Universities College of Medicine (MED)
Northeastern University (DR EXT)
Northern Arizona University (DR INT)
Northern Illinois University (DR EXT)
Northern Virginia Community College (AA)
NorthTec (New Zealand)
Northwest Nazarene University (MA II)
Northwestern Health Sciences University (HEALTH)
Northwestern University (DR EXT)
Northwood University (BUS)
Norwegian University of Science and Technology (Norway)
Nova Scotia Community College (Canada)
Nova Southeastern University (DR INT)
Oakland University (DR INT)
Oberlin College (BA LA)
Occidental College (BA LA)
Oglethorpe University (BA LA)
Ohio Dominican University (BA GEN)
Ohio Northern University (BA GEN)
The Ohio State University (DR EXT)
Ohio Wesleyan University (BA LA)
Okanagan College (Canada)
Oklahoma Baptist University (BA GEN)
Oklahoma Christian University (BA GEN)
Oklahoma State University (DR EXT)
Onondaga Community College (AA)
Ontario College of Art & Design (Canada)
Oregon Health & Science University (MED)
Oregon Institute of Technology (BA GEN)
Oregon State University (DR EXT)
Otterbein College (MA II)
Pace University (MA I)
Pacific Lutheran University (MA I)
Paradise Valley Community College (AA)
Patrick Henry Community College (AA)
Paul D. Camp Community College (AA)
Peace College (BA AA)
Pellissippi State Technical Community College (AA)
Pennsylvania College of Technology (BA AA)
Pepperdine University (DR INT)
Philadelphia University (MA I)
Piedmont Technical College (AA)
Piedmont Virginia Community College (AA)
Pima County Community College District (AA)
Plymouth State University (MA II)
Point Park University (MA II)
Pomona College (BA LA)
Pontificia Universidad Javeriana Cali (Colombia)
Portland Community College (AA)
Presbyterian College (BA LA)

Prince George's Community College (AA)
Princeton University (DR EXT)
Purchase College, SUNY (MA II)
Purdue University (DR EXT)
Purdue University Calumet (MA I)
Queen's University (Canada)
Queens University of Charlotte (MA II)
Quinnipiac University (MA I)
Quinsigamond Community College (AA)
Randolph-Macon College (BA LA)
Rappahannock Community College (AA)
Raritan Valley Community College (AA)
Reed College (BA LA)
Regis University (MA I)
Rensselaer Polytechnic Institute (DR EXT)
Renton Technical College (AA)
Rhode Island School of Design (ART)
Rhodes College (BA LA)
Rhodes State College (AA)
Rice University (DR EXT)
Rider University (MA I)
Rio Salado College (AA)
Riverland Community College (AA)
RMIT University (Australia)
Roane State Community College (AA)
Roberts Wesleyan College (MA I)
Rochester Community and Technical College (AA)
Rochester Institute of Technology (MA I)
Rockhurst University (MA I)
Rollins College (MA I)
Roosevelt University (MA I)
Rosalind Franklin University of Medicine and Science (MED)
Rowan University (MA I)
Royal Institute of Technology (KTH-CITU) (Sweden)
Rutgers, The State University of New Jersey (DR EXT)
Sacred Heart University (MA I)
The Sage Colleges (MA I)
Saint Joseph's College, New York (BA GEN)
Saint Joseph's University (MA I)
Saint Leo University (MA II)
Saint Louis University (DR EXT)
Saint Mary's College of California (MA I)
Saint Mary's University of Minnesota (MA I)
Saint Michael's College (MA I)
Saint Paul College, A Community & Technical College (AA)
Saint Xavier University (MA I)
Salem State College (MA I)
Salisbury University (MA I)
Salve Regina University (MA I)
Sam Houston State University (MA I)
Samford University (MA I)
San Francisco State University (MA I)
San Juan College (AA)
Santa Clara University (MA I)
Santa Fe Community College (AA)
Sarah Lawrence College (BA LA)
Savannah State University (MA II)
School of the Art Institute of Chicago (ART)
Seattle Central Community College (AA)
Seattle Pacific University (MA I)
Seattle University (MA I)
Seton Hall University (DR INT)
Sewanee: The University of the South (BA LA)
Seward County Community College (AA)
Shippensburg University of Pennsylvania (MA I)
Siena Heights University (MA I)
Simmons College (MA I)
Simon Fraser University (Canada)
Simpson College (BA GEN)
Sinclair Community College (AA)
Skidmore College (BA LA)
Slippery Rock University of Pennsylvania (MA I)
Smith College (BA LA)
Soka University of America (BA GEN)
Solano Community College (AA)
Sonoma State University (MA I)
South Dakota School of Mines & Technology (ENGR)
South Dakota State University (DR INT)
South Mountain Community College (AA)
Southeast Community College (AA)
Southern Connecticut State University (MA I)
Southern Illinois University at Carbondale (DR EXT)
Southern Methodist University (DR EXT)
Southern New Hampshire University (BUS)
Southern Oregon University (MA I)
Southern Polytechnic State University (ENGR)
Southwest Tennessee Community College (AA)
Southwest Virginia Community College (AA)
Southwestern Oregon Community College (AA)
Spring Hill College (MA I)

St. Ambrose University (MA I)
St. Bonaventure University (MA I)
St. Cloud State University (MA I)
St. Edward's University (MA II)
St. John's University (DR INT)
St. Lawrence College (Canada)
St. Lawrence University (BA LA)
St. Mary's College of Maryland (BA LA)
St. Olaf College (BA LA)
St. Petersburg College (AA)
Stanford University (DR EXT)
Stark State College of Technology (AA)
State Fair Community College (AA)
Stephen F. Austin State University (MA I)
Stonehill College (BA GEN)
Suffolk County Community College (AA)
Sul Ross State University (MA I)
SUNY Canton College of Technology (AA)
SUNY College at Fredonia (MA I)
SUNY College at Geneseo (MA I)
SUNY College at Plattsburgh (MA I)
SUNY College of Optometry (HEALTH)
SUNY College of Technology at Cobleskill (BA AA)
Susquehanna University (BA LA)
Swarthmore College (BA LA)
Sweet Briar College (BA LA)
Syracuse University (DR EXT)
Tarleton State University (MA I)
Taylor University (BA GEN)
Tecnologico de Monterrey (Mexico)
Tennessee State University (DR INT)
Tennessee Technological University (MA I)
Texas A&M Health Science Center (HEALTH)
Texas A&M International University (MA I)
Texas A&M University (DR EXT)
Texas A&M University–Corpus Christi (MA I)
Texas Lutheran University (BA GEN)
Texas State University–San Marcos (MA I)
Texas Wesleyan University (MA II)
Texas Woman's University (DR INT)
Thomas College (BUS)
Thomas Jefferson University (MED)
Thompson Rivers University (Canada)
Tidewater Community College (AA)
Toccoa Falls College (BA GEN)
Towson University (MA I)
Tri-State University (BA GEN)
Trinity College (BA LA)
Trinity University (MA I)
Truckee Meadows Community College (AA)
Tufts University (DR EXT)
Tulane University (DR EXT)
Tunxis Community College (AA)
Ulster County Community College (AA)
Union College (BA LA)
Union County College (AA)
United Arab Emirates University (United Arab Emirates)
United States Air Force Academy (OTHER)
United States Coast Guard Academy (OTHER)
United States Naval Academy (OTHER)
Unity College (BA GEN)
Universidad de Los Andes (Colombia)
Universitat Oberta de Catalunya (Spain)
Universite de Lausanne (Switzerland)
Universite de Montreal (Canada)
University at Albany, SUNY (DR EXT)
University at Buffalo (DR EXT)
University College Cork (Ireland)
University College Dublin (Ireland)
The University of Adelaide (Australia)
University of Akron (DR INT)
University of Alabama (DR EXT)
University of Alabama at Birmingham (DR EXT)
University of Alaska Anchorage (MA I)
University of Alaska Fairbanks (DR INT)
University of Alberta (Canada)
The University of Arizona (DR EXT)
University of Arkansas at Little Rock (DR INT)
The University of Auckland (New Zealand)
University of Baltimore (MA I)
University of Bridgeport (DR INT)
The University of British Columbia (Canada)
University of Calgary (Canada)
University of California, Berkeley (DR EXT)
University of California, Davis (DR EXT)
University of California, Irvine (DR EXT)
University of California, Merced (BA GEN)
University of California, Riverside (DR EXT)
University of California, San Diego (DR EXT)
University of California, Santa Cruz (DR EXT)
University of Canberra (Australia)
University of Canterbury (New Zealand)
University of Central Florida (DR INT)
University of Central Missouri (MA I)
University of Chicago (DR EXT)
University of Cincinnati (DR EXT)
University of Colorado at Boulder (DR EXT)

University of Colorado at Denver and Health Sciences Center (DR INT)
University of Connecticut (DR EXT)
University of Dayton (DR INT)
University of Delaware (DR EXT)
University of Detroit Mercy (MA I)
University of Dubuque (MA II)
The University of Findlay (MA I)
University of Florida (DR EXT)
University of Georgia (DR EXT)
University of Guelph (Canada)
University of Hawaii (DR EXT)
University of Hawaii Leeward Community College (AA)
University of Helsinki (Finland)
University of Houston (DR EXT)
University of Houston–Downtown (BA GEN)
University of Houston–Victoria (MA I)
University of Idaho (DR EXT)
University of Illinois at Springfield (MA I)
University of Illinois at Urbana-Champaign (DR EXT)
University of Indianapolis (MA I)
The University of Iowa (DR EXT)
University of Kansas (DR EXT)
University of La Verne (DR INT)
University of Lethbridge (Canada)
University of Louisville (DR EXT)
University of Maine (DR EXT)
University of Maine at Augusta (BA AA)
University of Maine at Fort Kent (BA GEN)
University of Manitoba (Canada)
University of Mary (MA I)
University of Mary Washington (MA I)
University of Maryland (DR EXT)
University of Maryland Eastern Shore (MA I)
University of Maryland, Baltimore County (DR EXT)
University of Massachusetts Amherst (DR EXT)
University of Massachusetts at Worcester (MED)
University of Massachusetts Dartmouth (MA I)
University of Massachusetts Lowell (DR INT)
The University of Melbourne (Australia)
The University of Memphis (DR EXT)
University of Miami (DR EXT)
University of Michigan–Ann Arbor (DR EXT)
University of Michigan–Dearborn (MA I)
University of Michigan–Flint (MA I)
University of Minnesota (DR EXT)
University of Minnesota Duluth (MA I)
University of Mississippi (DR EXT)
University of Missouri–Columbia (DR EXT)
University of Missouri–Kansas City (DR INT)
University of Missouri–Rolla (DR INT)
The University of Montana (DR INT)
University of Nebraska–Lincoln (DR EXT)
University of Nebraska at Kearney (MA I)
University of Nebraska at Omaha (MA I)
University of Nevada, Las Vegas (DR INT)
University of Nevada, Reno (DR EXT)
University of New Hampshire (DR EXT)
University of New Hampshire at Manchester (BA GEN)
University of New Mexico Gallup Branch (AA)
University of North Carolina at Chapel Hill (DR EXT)
University of North Carolina at Charlotte (DR INT)
University of North Carolina at Greensboro (DR INT)
University of North Carolina at Pembroke (MA I)
University of North Carolina at Wilmington (MA I)
University of North Dakota (DR INT)
University of North Florida (MA I)
University of North Texas (DR EXT)
University of North Texas Health Science Center at Fort Worth (MED)
University of Notre Dame (DR EXT)
University of Oklahoma (DR EXT)
University of Oklahoma Health Sciences Center (MED)
University of Ontario Institute of Technology (Canada)
University of Oregon (DR EXT)
University of Otago (New Zealand)
University of Ottawa (Canada)
University of Pennsylvania (DR EXT)
University of Puget Sound (BA LA)
The University of Queensland (Australia)
University of Redlands (MA I)
University of Rhode Island (DR EXT)
University of Richmond (MA I)
University of Rochester (DR EXT)
University of Saint Francis (MA I)
University of Saint Mary (MA I)
University of San Diego (DR INT)
University of San Francisco (DR INT)
The University of Scranton (MA I)

University of Sioux Falls (MA II)
University of South Africa (South Africa)
University of South Australia (Australia)
University of South Carolina (DR EXT)
University of South Carolina Upstate (BA GEN)
The University of South Dakota (DR INT)
University of South Florida (DR EXT)
University of Southern California (DR EXT)
University of Southern Maine (MA I)
University of Southern Mississippi (DR INT)
University of Southern Queensland (Australia)
University of St. Francis (MA I)
University of St. Thomas (MA I)
University of Stellenbosch (South Africa)
University of Sydney (Australia)
University of Tasmania (Australia)
University of Technology, Sydney (Australia)
The University of Tennessee (DR EXT)
University of Tennessee at Chattanooga (MA I)
University of Tennessee at Martin (MA I)
The University of Texas at Arlington (DR EXT)
University of Texas at Austin (DR EXT)
University of Texas at Brownsville (MA I)
University of Texas at Dallas (DR INT)
University of Texas at El Paso (DR INT)
University of Texas at San Antonio (MA I)
University of Texas at Tyler (MA I)
University of Texas Health Center at Tyler (HEALTH)
The University of Texas Health Science Center at Houston (MED)
University of Texas Health Science Center at San Antonio (MED)
The University of Texas M. D. Anderson Cancer Center (MED)
University of Texas Medical Branch (MED)
University of Texas of the Permian Basin (MA I)
University of Texas Southwestern Medical Center at Dallas (MED)
University of Texas–Pan American (MA I)
University of the Pacific (DR INT)
University of the Sunshine Coast
The University of the West Indies
The University of Toledo (DR EXT)
University of Toronto (Canada)
University of Tulsa (DR INT)
University of Utah (DR EXT)
University of Vermont (DR EXT)
University of Victoria (Canada)
University of Virginia (DR EXT)
University of Waikato (New Zealand)
University of Washington (DR EXT)
University of Washington Bothell (MA I)
University of West Florida (MA I)
University of West Georgia (MA I)
University of Western Australia (Australia)
The University of Western Ontario (Canada)
University of Western Sydney (Australia)
University of Wisconsin–Eau Claire (MA I)
University of Wisconsin–Green Bay (MA II)
University of Wisconsin–La Crosse (MA I)
University of Wisconsin–Madison (DR EXT)
University of Wisconsin–Milwaukee (DR EXT)
University of Wisconsin–Oshkosh (MA I)
University of Wisconsin–Platteville (MA I)
University of Wisconsin–River Falls (MA I)
University of Wisconsin–Stevens Point (MA I)
University of Wisconsin–Stout (MA I)
University of Wisconsin–Superior (MA I)
University of Wisconsin–Whitewater (MA I)
University of Witwatersrand (South Africa)
University of Wyoming (DR EXT)
University of Zululand (South Africa)
Ursinus College (BA LA)
Ursuline College (MA I)
Valdosta State University (MA I)
Valley City State University (BA GEN)
Valparaiso University (MA I)
Vancouver Community College (Canada)
Vanderbilt University (DR EXT)
Vassar College (BA LA)
Vermont Law School (LAW)
Vermont Technical College (ENGR)
Victoria College (AA)
Victoria University (New Zealand)
Villanova University (MA I)
Virginia Commonwealth University (DR EXT)
Virginia Tech (DR EXT)
Virginia Western Community College (AA)
Volunteer State Community College (AA)
Wabash College (BA LA)
Wagner College (MA I)
Walsh University (MA I)
Walters State Community College (AA)
Wartburg College (BA GEN)
Washington & Jefferson College (BA LA)
Washington and Lee University (BA LA)
Washington College (BA LA)

Washington State University (DR EXT)
Waycross College (AA)
Wayne State University (DR EXT)
Weber State University (MA II)
Wellesley College (BA LA)
Wesleyan College (BA LA)
Wesleyan University (BA LA)
West Chester University of Pennsylvania (MA I)
West Hills Community College District (AA)
West Kentucky Community and Technical College (AA)
West Liberty State College (BA GEN)
West Texas A&M University (MA I)
West Virginia School of Osteopathic Medicine (MED)
West Virginia University (DR EXT)
West Virginia Wesleyan College (BA LA)
Western Carolina University (MA I)
Western Connecticut State University (MA I)
Western Kentucky University (MA I)
Western New England College (MA I)
Western New Mexico University (MA I)
Western Oregon University (MA I)
Western State College of Colorado (BA GEN)
Western Technical College (AA)
Westmont College (BA LA)
Wheaton College (BA LA)
Wheeling Jesuit University (MA I)
Whitman College (BA LA)
Whittier College (BA LA)
Whitworth University (MA I)
Wilkes University (MA I)
Willamette University (BA LA)
William Paterson University of New Jersey (MA I)
William Woods University (MA I)
Williams College (BA LA)
Williston State College (AA)
Winston-Salem State University (BA GEN)
Wor-Wic Community College (AA)
Worcester Polytechnic Institute (DR INT)
Wytheville Community College (AA)
Xavier University (MA I)
Yale University (DR EXT)
Yeshiva University (DR EXT)
York University (Canada)
Young Harris College (AA)
Yuba College (AA)

APPENDIX C

2006 Core Data Survey Questionnaire

2006 EDUCAUSE Core Data Survey

When responding to the survey questions, please enter data that describe your current IT environment unless a question specifically requests data for the fiscal year 2005-2006.

Please note that for any term in the survey that is underlined there is a corresponding definition or explanation for that term in the glossary of terms which appears at the end of the printable version of the survey. When working with the survey online, simply clicking on the term will bring up its definition/explanation from the glossary.

IT Organization, Staffing, and Planning

1. What is the title of the highest ranking technology administrator / officer on your campus?

2. To whom does the highest ranking technology administrator / officer on your campus report?

- ○ President / chancellor / CEO
- ○ Highest ranking academic officer (Provost, Academic VP, Dean)
- ○ Highest ranking administrative officer (Administrative VP, Executive VP)
- ○ Highest ranking business officer (Business Officer, CFO)
- ○ Second level academic officer (Vice Provost, Assistant or Associate Provost / Academic VP)
- ○ Second level administrative officer (Assistant or Associate Administrative VP)
- ○ Reports jointly to president / chancellor / CEO *and* chief academic officer
- ○ Reports jointly to chief academic officer *and* chief administrative or financial officer
- ○ Other

3. What functions report to or are included in the responsibilities of the highest ranking information technology administrator / officer on your campus? (Check all that apply.)

- ☐ Academic Computing
- ☐ Administration of IT Organization
- ☐ Administrative Information Systems
- ☐ Computer Store
- ☐ Desktop Computing, User Support Services, Training, Help Desk
- ☐ Enterprise Infrastructure and Services, Identity Management
- ☐ Distance Education
- ☐ Institutional Research

- [ ] Instructional Technology
- [ ] Information Technology in an Affiliated Hospital
- [ ] Information Technology Planning and Budgeting
- [ ] Information Technology Policy
- [ ] Information Technology Security
- [ ] Library
- [ ] Mailroom
- [ ] Multimedia Services
- [ ] Network Infrastructure and Services
- [ ] Operations, Data Center
- [ ] Print / Copier Services
- [ ] Research Computing
- [ ] Student Computing
- [ ] Technology R&D, Advanced Technology
- [ ] Telephony
- [ ] Web Support Services

Other

4. Is the highest ranking information technology administrator / officer a member of your president's or chancellor's cabinet?

- ○ Yes
- ○ No

5. Please enter the number of full-time equivalent (FTE) staff (including clerical, support, and management staff) and students employed by the centralized IT organization of your campus in each of the functional areas listed below for FY 2005-2006. Please include part-time, temporary, and limited-term employees in your count. Please do *not* include employees who supported a hospital or who supported IT for other campuses if your campus is part of a multicampus system or district.

If your campus has contracted with an external supplier to provide all or nearly all IT services through an outsource arrangement, please include the supplier's employees as staff for the purposes of this question and check the box below the table to report this outsourcing arrangement. If your campus has merged the library and IT organizations, please see the glossary term Library / IT Staff for directions.

If you had no employees in a functional area, enter 0. If you had less than 1 FTE in an area, use a decimal number rather than a fraction to indicate what portion of an FTE employee supported that area. NOTE that the total of the numbers that you enter in each of these columns should be equal to the total number of FTE staff and students employed by your centralized IT organization for FY 2005-2006. Please use "other" to enter the number of FTE staff and/or students who do not fit into any of the functional areas listed and describe the functions these employees support in the box provided. Please do not use the "other function" area to report that you do not have other functions or that you have 0 other staff. If you have no other functional areas and no other staff, leave the boxes for line 14 blank.

Click on or pass your cursor over the underlined functional area to see how we have defined these areas for survey reporting purposes. Even if you do not use this taxonomy on your campus, please re-distribute your FTE numbers according to these definitions to ensure comparable data comparisons across all campuses. These definitions are also found in the full glossary available by clicking on Survey Help.

Function	Staff FTE	Student FTE
1. Administration of IT Organization, IT Planning, Technology R&D		

2. Administrative / Enterprise Information Systems		
3. Desktop Computing, User Support Services, Training, Computer Store		
4. Enterprise Infrastructure and Services, Identity Management		
5. Help Desk		
6. Information Technology Policy		
7. Information Technology Security		
8. Instructional Technology, Multimedia Services, Student Computing		
9. Network Infrastructure and Services		
10. Operations, Data Center, Print/Copier Services, Mailroom		
11. Research Computing, Academic Computing		
12. Telephony		
13. Web Support Services		
14. Other Function		

Total centralized IT unit FTE:

☐ Please check this box if all or nearly all of your IT staff are provided through an outsourcing arrangement with an external supplier (other than your system or district office if your campus is part of a multicampus system or district).

☐ Please check this box if your campus is part of a multicampus system or district that provides staffing support from the centralized system or district office that is not reflected in the numbers you have entered above.

6. Please **estimate** the number of full-time equivalent (FTE) information technology personnel who were employed by departments or offices **outside the centralized IT organization** of your campus for FY 2005-2006 (for example, employed by administrative offices or academic departments), including part-time, temporary, and limited term employees. Your campus HR office may be able to provide this number. If no IT personnel were employed outside the centralized IT organization, enter 0. If you cannot estimate this number, please check the box below to report that.

FTE

☐ We are unable to estimate this number.

7. Does your campus have a separate salary scale for information technology professionals?

○ Yes

○ No

8. Does your campus use *either* a separate set of information technology (IT) job titles *or* a broadband IT classification and compensation system?

○ Yes

○ No

9. Please answer the following questions regarding strategic planning for information technology at your campus.

Does your campus strategic plan include strategies and directions for information technology?

- ○ Yes
- ○ No

Does your campus have a stand-alone information technology strategic plan?

- ○ Yes
- ○ No

10. Which of the following types of group(s) at your campus provide(s) advice about information technology strategies? (Check all that apply.)

- ☐ Trustee committee
- ☐ President's cabinet / council
- ☐ Administrative committee
- ☐ Academic committee / faculty senate
- ☐ Technology advisory committee
- ☐ Student committee
- ☐ State agency
- ☐ System or district office in multicampus system or district
- Other ☐
- ☐ None of the above — we do not have any IT advisory groups.

IT Financing and Management

1. Please enter the dollar amounts your centralized information technology organization received in FY 2005-2006 from each of the funding categories listed.

If you had no funding in a category, enter 0. Enter the dollar amount in whole U.S. Dollars without commas or decimals, e.g., $588,499.41 would be entered as 588499. NOTE that the total of all of the dollars entered should represent the total funding your centralized IT organization received in FY 2005-2006. Click on the underlined terms for an explanation of what these funding sources are meant to include. If you had a category of funding not listed, please describe it in the "other" category and enter the dollar amount received from that source. **Please do not use the "other funding" category to report 0 other funding;** if you have no other funding sources, simply leave both of the boxes on line 10 blank.

NOTE that we are asking campuses in a multicampus system or district to enter a best estimate of their share of the dollar equivalent for systems or services that are provided at no charge by the central system or district office to its campuses. We urge you to contact your system or district office for help in calculating this estimate. For examples of these calculations, click here. EDUCAUSE has contacted system and district offices to alert them that their campuses may be in touch with them for help with this data point. Note also that you should not report an amount that your campus has actually paid to your system or district office for systems or services provided, as those dollars are assumed to be included in the expenditures from your centralized IT organization's operating appropriation. If, however, you have not included those dollars on line 1, you may enter them on line 8.

Please note also a new line item on this year's survey. Line 9 allows you to report separately the amount of compensation and/or benefits for centralized IT staff that was paid from an institutional budget rather than included in your centralized IT organization's operating appropriation / budget. If for previous surveys you have reported such compensation and/or benefits as part of your central IT operating allocation, please be sure not to include the amount in line 1 if you now enter it on line 9. Also, if you enter an amount on line 9, please be sure to also report this amount on line 1a of Section 2 Question 4 of the survey.

Category of Funding	Dollar Amount
1. Operating appropriation to centralized IT organization	$
2. Capital appropriation to the centralized IT organization (other than those amortized through rates)	$
3. Appropriation to the centralized IT organization from revenue generated from student technology fees (if not included above in line 1, operating appropriation)	$
4. Revenue from sale (chargeback) of centralized services (e.g., network or phone services, computer repairs) to campus departments, students, staff, and others	$
5. Revenue from sale of centralized services (e.g., computer store sales) to entities external to the campus	$
6. Net revenue from resale of products (e.g., computer store sales) to campus departments, students, staff, and others	$
7. Net revenue from resale of products (e.g., computer store sales) to entities external to the campus	$
8. If your campus is part of a multicampus system or district, enter your best estimate for your campus's proportional share of the dollar equivalent for systems or services provided at the system or district level.	$
9. If compensation or fringe benefits for centralized IT staff were paid from an institutional budget (that is, not included in your centralized IT organization's funding or budget), please enter the amount here (if you have not already accounted for this equivalent funding in line 1 above).	$
10. Other Funding	$
Total centralized IT Funding for FY 2005-2006:	

2. Please **estimate** what percent of funding for each centralized IT function came from these various funding sources for FY 2005-2006.

Enter percentages as whole numbers, e.g., 70% would be entered as 70. If a function is not applicable, **leave the entire row blank**. Otherwise, please ensure that your percentages for a **functional row** add up to 100%. Click on or pass your cursor over the underlined functional area to see how we have defined each area for survey reporting purposes to ensure comparable data comparisons across all campuses. These definitions are also found in a full glossary available by clicking on Survey Help.

NOTE that we are requesting that you estimate what percent of equivalent funding came from the system/district office for each function if your campus is part of a multicampus system that provides IT functionality at the system/district level.

Centralized Campus IT Function	Appropriation from Campus Operating Budget	Appropriation from Campus Capital Budget	Student Tech Fee	Cost Recovery (Chargeback)	Provided at the System / District Level	Other Sources	Total
1. Administration of IT Organization, IT Planning, Technology R&D	%	%	%	%	%	%	
2. Administrative / Enterprise Information Systems	%	%	%	%	%	%	
3. Desktop Computing, User Support Services, Training, Computer Store	%	%	%	%	%	%	
4. Enterprise Infrastructure and Services, Identity Management	%	%	%	%	%	%	
5. Help Desk	%	%	%	%	%	%	
6. Information Technology Policy	%	%	%	%	%	%	
7. Information Technology Security	%	%	%	%	%	%	
8. Instructional Technology, Multimedia Services, Student Computing	%	%	%	%	%	%	

9. Network Infrastructure and Services		%		%		%		%		%	
10. Operations, Data Center, Print / Copier Services, Mailroom		%		%		%		%		%	
11. Research Computing, Academic Computing		%		%		%		%		%	
12. Telephony		%		%		%		%		%	
13. Web Support Services		%		%		%		%		%	
14. Other Function		%		%		%		%		%	

3. What dollar amount, if any, does the centralized IT organization of your campus annually budget **per IT staff member** (on average) for training or professional development?

Enter the dollar amount in whole U.S. Dollars, without commas or decimals, e.g., $1,250.78 would be entered as 1251. Enter 0 if you do not allocate funds for this purpose.

NOTE that this question does not refer specifically to the past fiscal year, but is a request for the average amount per IT staff member that is usually budgeted annually. **Please be sure that the amount you enter is per IT staff member, not your entire organizational training / professional development budget.**

$

4. What was the total compensation for FY 2005-2006 (including fringe benefits even if benefits are paid elsewhere on campus and not charged to the centralized IT organization) for the following categories of personnel employed by or through the centralized IT organization of your campus? If for question 5 of section 1 of this survey you counted as "staff" individuals employed through an IT service outsource arrangement, please enter compensation for those individuals in the "staff" rather than "contractors" category below. If you reported FTE student employees, there is an expectation that you will enter congruent compensation for this category. If you enter $0 because you do not compensate your student employees from centralized IT funding, or if the compensation amount entered is subsidized by work study or other funding external to your IT organization, please check the appropriate box below the question to indicate this arrangement.

Note that new this year is the ability to report an amount for compensation and/or benefits for centralized IT staff that was paid from an institutional budget rather than from your centralized IT organization's operating appropriation / budget. Please note that if you include such an amount on line 1 it should NOT also be reported on line 1a. If you enter an amount on line 1a, please be sure that you have also reported this amount on line 9 of Section 2 Question 1 of the survey.

Enter the dollar amount in whole U.S. Dollars, without commas or decimals, e.g., $58,499.41 would be entered as 58499. NOTE that the total of all the numbers entered should reflect the total compensation expended for all centralized IT personnel for FY 2005-06. If your centralized IT organization compensated personnel that do not fall into any of the categories listed, please include this information in the "other" category and enter the dollar amount of total compensation for these personnel. **Please do not use the "other" category to report $0 for no other kinds of staff compensation;** if you had no other kind of staff compensation, simply leave both of the boxes on that line blank. Click on the underlined term for an explanation of that category of personnel.

1. Staff	$
1a. If staff compensation and/or fringe benefits were paid from an institutional budget rather than from your centralized IT funding / budget, and you have not included those dollars on line 1 above, please enter the amount here.	$
2. Students*	$
3. Consultants	$
4. Contractors	$
5. Other	$

☐ *Please check here if your student employees are compensated in whole or part by Work Study or other funding that you did not report as part of your centralized IT organization's funding in Section 2, Question 1 or that you did not include in line 2 above .

☐ Please check this box if all or nearly all of your IT staff are provided through an outsourcing arrangement with an external supplier (other than your system or district office if your campus is part of a multicampus system or district).

Total centralized IT Personnel Compensation for FY 2005-2006:

5. Please enter your best **estimate** of the total spent on salaries (including benefits) for FY 2005-2006 for IT personnel who are employed in departments or offices **outside the centralized IT organization** of your campus (for example, employed by administrative offices or academic departments), including limited term employees.

Enter the dollar amount in whole U.S. Dollars, without commas or decimals. Your campus HR office may be able to provide this figure. If no IT personnel are employed outside the centralized IT organization, enter 0. If you cannot estimate this amount, please check the box to indicate that.

$ [ ]

☐ We cannot estimate this amount.

6. Please enter your best **estimate** of the total spent in FY 2005-2006 on information technology (other than salaries and benefits) in departments or offices outside the centralized IT organization of your campus.

These expenditures would include hardware, software, licenses, and so forth, that is, non-personnel expenditures. The operative phrase here is "best estimate." We do not expect this figure to be an exact calculation of actual dollars spent. Enter the estimated dollar amount in whole U.S. Dollars without commas or decimals. If your campus has no IT expenditures (other than salaries and benefits) outside the centralized IT organization, enter 0. If you cannot estimate this amount, please check the box to indicate that.

$ [ ]

☐ We cannot reasonably estimate this amount.

7. Does your campus charge a general student technology fee, that is, a fee designated wholly for IT that is levied on all students, regardless of major or school (as opposed to specific, individual technology fees that might be charged based on academic major or other criteria)?

○ Yes

○ No

If you answered yes to the question above, please answer the following four questions...

On what basis is the fee charged and what is the amount of the fee per FTE student? (Select only one and enter the amount in U.S. dollars. NOTE that decimals are permitted here.)

Basis for charge:	**Amount of fee:**
○ Flat fee per year	$ [ ]
○ Flat fee per semester	$ [ ]
○ Flat fee per quarter	$ [ ]
○ Flat fee per credit hour	$ [ ]
○ Percentage of tuition	[ ] %
○ Other [ ]	[ ]

What were the total dollars generated by this fee for FY 2005-2006? (Enter amount in whole U.S. dollars without commas or decimals.)

$ [ ]

Who determines how these dollars are spent? (Check all that apply)

- ☐ Students
- ☐ IT administration
- ☐ Campus committee
- ☐ Senior administration
- ☐ State agency
- ☐ System or district office in a multicampus system or district
- ☐ Funds are earmarked or restricted by policy

Other [ ]

8. Do students pay a separate fee for residence-hall network connections at your campus?

- ○ Yes
- ○ No
- ○ There are no residence-hall network connections
- ○ There are no residence halls

9. **Estimate** how many computers your campus owns or leases. (Enter a whole number.)

[ ] computers

10. What is the planned replacement cycle for the computers owned or leased by your campus?

- ○ Less than every three years
- ○ Three years
- ○ Between three and four years
- ○ Four years
- ○ More than every four years
- ○ We have different replacement cycles for different types of computers.
- ○ We have no formal replacement plan.

11. What percent of the computers owned or leased by your campus are on a replacement cycle for which dollars are funded in the budget? (Enter percentages as whole numbers, e.g., 70% would be entered as 70.)

[ ] %

12. What percent of the computers owned or leased by your campus were replaced in FY 2005-2006? (Enter percentages as whole numbers, e.g., 70% would be entered as 70. NOTE that replacement refers to replacing with new computers rather than repurposing machines.)

[ ] %

13. Regardless of how your campus network is financed, does the current funding model include renewal of the capital plant including wiring, electronics, and so forth?

- Yes
- No

14. Please indicate which of the following internal information technology services are covered by written service level agreements between the IT organization and departments. (Check all that apply.)

- Academic and/or research support
- Administrative / enterprise information systems support
- Computer and network security
- Data center services
- Desktop services / user support services / help desk
- Instructional technology support
- Multimedia services
- Network services
- Print services
- Telephone services
- Training
- Web support services

Other [ ]

- None of the above — we have no written service level agreements.

15. Please indicate which if any of the following are run either partially or entirely by an external supplier (that is, a non-affiliated entity such as a vendor or other organization) with whom your campus has contracted through an outsource or ASP arrangement. (NOTE that if your campus is part of a multicampus system or district, the district or system office should not be considered an external supplier.)

- Administrative system(s) — transaction systems operation (e.g., payroll, grants, admissions, etc.)
- Administrative systems — application development
- Administrative systems — project management for implementations
- All or nearly all centralized IT staff and services
- CIO / top IT administrator
- Computer and network security
- Computer operations
- Data center

☐ Desktop computer installation, maintenance, and/or repair services

☐ Distance education

☐ Help desk

☐ Instructional / course management system

☐ Multimedia services

☐ Network services on campus

☐ Portal

☐ Print services

☐ Remote access to network services

☐ Resnet (student residential networks)

☐ Telephone services

☐ User support services

☐ Web development and/or hosting

Other ☐

☐ None of the above — we do not outsource or use ASPs.

16. Enter in the box below the total number of *headcount employees* (including faculty) that your campus last reported to IPEDS. Your Institutional Research Office should be able to provide you with this number.

NOTE that this question has been added to the EDUCAUSE Core Data Service survey by an agreement with the leaders of the COSTS Project, whose survey has been merged with the CDS survey. Any campus that has participated in the COSTS Project and any campus that is a member of the Consortium of Liberal Arts Colleges (CLAC) will need to complete this question in order for benchmarks that have been available through the COSTS Project to continue to be available through the CDS interactive database service.

This question is optional for other survey respondents, so you may elect not to provide this information. If that is the case, please check the box below to indicate this. **NOTE** that if you do provide this number, your data will be included in the related benchmark ratios that will be available in the CDS interactive database service when it is launched in the spring of 2007.

☐

☐ We have elected not to provide this number.

17. Enter in the box below *total campus expenses* (not including financial aid expenses) last reported to IPEDS. Enter a whole number, without commas or decimals, in U.S. dollars. This number comes from the audited financial statement for your institution and should be available from your campus business office.

NOTE that this question has been added to the EDUCAUSE Core Data Service survey by an agreement with the leaders of the COSTS Project, whose survey has been merged with the CDS survey. Any campus that has participated in the COSTS Project and any campus that is a member of the Consortium of Liberal Arts Colleges (CLAC) will need to complete this question in order for benchmarks that have been available through the COSTS Project to continue to be available through the CDS interactive database service.

This question is optional for other survey respondents, so you may elect not to provide this information. If that is the case, please check the box below to indicate this. **NOTE** that if you do provide this number, your data will be included in the related benchmark ratios that will be available in the CDS interactive database service when it is launched in the spring of 2007.

$ ☐

☐ We have elected not to provide this number.

If you have elected to provide total campus expenses (net financial aid) in the box above, please check below which accounting standards are followed by your campus. Again, your business office should be able to provide this information.

- ○ GASB (Governmental Accounting Standards Board)
- ○ FASB (Financial Accounting Standards Board)

Faculty and Student Computing

1. How many hours a week does the public help desk service provided by your centralized IT organization operate during the academic year? (Enter a whole number, e.g., 24 x 7 support would be entered as 168, 24 x 5 support would be entered as 120, and so forth. NOTE that this number cannot exceed 168.)

_____ hours

☐ We do not have a public help desk.

2. **Estimate** what percent of undergraduate students at your institution use their own personal computers on campus. (NOTE that this includes students using computers they already owned before enrolling that they brought with them or using computers that your campus has provided or leased to them or required them to purchase after enrollment. **If your campus does not have resident students, please do not include computers that students use at home for which your staff are not responsible for support.** Enter the percentage as a whole number, e.g., 70% would be entered as 70.)

_____ %

3. Check the one statement below that best describes the student computer policy of your campus.

- ○ All students are provided a personal computer.
- ○ Students in general are required to purchase/lease a personal computer.
- ○ Students in some departments or majors are required to purchase/lease a personal computer.
- ○ Personal computer purchase/lease is recommended but not required for all students.
- ○ Personal computer purchase/lease is recommended but not required for students in some departments or majors.
- ○ There are no requirements or recommendations regarding personal computer purchase or lease.
- ○ Other _____

4. Does your campus offer high-speed network connections to students in residence halls?

- ○ Yes
- ○ No
- ○ There are no residence halls

If you answered yes to the question above, please answer the following two questions...

Which is the most prevalent speed offered?

- ○ 10 mbps
- ○ 10-11 mbps
- ○ 10/100 mbps
- ○ 100 mbps
- ○ > 100 mbps

What is the most prevalent technology? (Select only one.)

- Ethernet
- Cable Modem
- DSL
- Wireless
- Other

5. Please select the statement below that best describes your campus with regard to providing students a campus-negotiated service to access online music and/or movie services.

- We are already offering such a service.
- We are planning to offer such a service.
- We are considering offering such a service.
- We have no plans to offer such a service.

6. Does your campus issue an e-mail account to each student for the purpose of receiving official communications?

- Yes
- No

7. Because students arrive with e-mail addresses of their own, some campuses have stopped providing universal student e-mail. Please select the one statement below that best describes your practice.

- We have never offered universal student e-mail.
- We offer universal student e-mail and have no plans to discontinue this service.
- We offer universal student e-mail but are seriously considering discontinuing this service.
- We have already stopped offering universal student e-mail.

8. Please check all the statements below that describe your campus' support for faculty in the use of technology in teaching and learning.

- [ ] We have a designated instructional technology center available to all campus faculty.
- [ ] Our campus faculty teaching / excellence center works closely with IT and has a strong emphasis on technology.
- [ ] We have instructional designers available to work with instructional technologists to help faculty develop courses that use technology.
- [ ] We employ instructional technologists who are discipline specialists to work in academic departments.
- [ ] We provide student technology assistants who help faculty use technology.
- [ ] We offer intensive support for faculty who are heavy users of technology in teaching.
- [ ] We offer faculty training in scheduled seminars.
- [ ] We offer faculty training upon request.
- [ ] We offer activities and opportunities for faculty who use technology in innovative ways to share their experiences (e.g., technology fairs, brown bags, etc.).
- [ ] We offer special grants or awards to faculty to support innovative use of technology in teaching and learning .

Other

If you checked either one or both of the first two options above, please estimate what percent of the faculty are using the center(s). Enter the estimate as a whole number without a percent sign.

[ ] %

9. Please check the one statement that most accurately describes your campus's practice regarding course management systems.

- We have not deployed a course management system and do not plan to.
- We are planning to deploy one or more course management systems.
- We are currently reviewing options, considering deploying a course management system or changing our current course management system approach.
- We support a single commercial-product course management system.
- We support more than one commercial-product course management system.
- We support a single homegrown course management system.
- We support more than one homegrown course management system.
- We support a single open source course management system.
- We support more than one open source course management system.
- We employ a hybrid approach (support a combination of homegrown, open source, and/or commercial course management systems).
- Other [ ]

If you checked that you currently support one or more course management systems, please select the statement that most accurately describes faculty use of the system(s) at your campus:

- Our course management system(s) is (are) ubiquitous, employed for all or nearly all courses.
- Our course management system(s) is (are) used selectively by faculty.

10. Please indicate the status at your campus of the following learning technologies or practices, whether at the campus or individual departmental level.

Technology or Practice	Deployed	Experimenting with	Considering	Not planned
Blogs	○	○	○	○
E-learning	○	○	○	○
E-portfolios	○	○	○	○
Hybrid courses	○	○	○	○
Information literacy requirement	○	○	○	○
Interactive learning	○	○	○	○
Learning objects	○	○	○	○
Wikis	○	○	○	○

11. Please indicate the percent of campus classrooms that are centrally scheduled that are permanently equipped with the technologies listed. (Enter percentages as whole numbers, e.g., 70% would be entered as 70. If a technology is not applicable, enter 0.)

Wired Internet connections	[ ] %
Wireless Internet connectivity	[ ] %

LCD projectors	%
Computers	%
Televisions	%
Smart boards	%
Document projectors / systems / cameras	%
Clickers (personal response systems)	%
Other technology	%

Networking and Security

1. What is the total bandwidth available (capacity in megabits, e.g., a T1 would be entered as 1.5) from your campus? (If no bandwidth, enter 0.)

...to the commodity internet
Mbps (megabits per second)

...to high-performance networks such as Abilene
Mbps (megabits per second)

2. Please check all statements that apply regarding tracking or shaping bandwidth utilization on your campus Internet connection.

- ☐ We do not track or shape bandwidth utilization.
- ☐ We track utilization.
- ☐ We shape by time of day.
- ☐ We shape by location on campus (for example, residence halls).
- ☐ We shape by type of traffic (e.g., P2P file sharing).
- ☐ We shape by direction (inbound versus outbound).

Other

3. Please check the way(s) in which remote access is provided at your institution for the following campus constituents. (Check all that apply. If you have no modem pool lines, leave the "Total Number of Lines" box empty and check "Not Provided.")

	Total Number of Lines	For Faculty	For Students	For Staff	For Alumni	Not Provided
Modem pool		☐	☐	☐	☐	☐
Outsourced modem pool		☐	☐	☐	☐	☐
Institutionally arranged discount with ISP		☐	☐	☐	☐	☐
Subsidized ISP accounts		☐	☐	☐	☐	☐
State academic network		☐	☐	☐	☐	☐

Virtual Private Network (VPN)	☐	☐	☐	☐	☐
Regional academic network	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

4. Please indicate the percentage of the following areas that have wireless access at your campus.

Area	Not Applicable	0%	1-25%	26-50%	51-75%	76-100%	
Classrooms	○	○	○	○	○	○	
Public Labs	○	○	○	○	○	○	
Library	○	○	○	○	○	○	
Residence Halls	○	○	○	○	○	○	
Student Union	○	○	○	○	○	○	
Research Facilities	○	○	○	○	○	○	
Administration Buildings	○	○	○	○	○	○	
Open Spaces	○	○	○	○	○	○	
Other Area	○	○	○	○	○	○	Clear Row

5. From how many campus sites (not counting individual desktops) can an interactive videoconference be initiated? (NOTE that this question relates to designated sites that are set up with permanent equipment for conducting interactive videoconferencing. Enter a whole number. If you have no such sites, enter 0.)

sites

6. **Estimate** the percentage of personal computers owned or leased by your campus that can deploy videoconferencing from the desktop. Enter the percentage as a whole number, e.g., 20% would be entered as 20. If you have no desktop computers with this capability, enter 0.

%

7. Please indicate the status at your campus of the following technologies.

Technology	Deployed	Piloting	In progress	Considering	Not planned
Antispam tools	○	○	○	○	○
Antispyware software	○	○	○	○	○
Antivirus software	○	○	○	○	○
IPTV	○	○	○	○	○
Personal firewall software	○	○	○	○	○
Video over IP	○	○	○	○	○
Voice over IP	○	○	○	○	○
Web Services	○	○	○	○	○
Wireless security technologies	○	○	○	○	○

8. Please indicate the status at your campus of the following identity management technologies.

Technology	Deployed	Piloting	In progress	Considering	Not planned
Biometrics	○	○	○	○	○
Electronic signatures	○	○	○	○	○
Enterprise directory	○	○	○	○	○
PKI	○	○	○	○	○
Smart cards	○	○	○	○	○
Tokens	○	○	○	○	○
Two-factor authentication	○	○	○	○	○

9. Please check the statement that most accurately describes the status of end-user authentication for network (wired and wireless) access on your campus.

- ○ We currently require end-user authentication for all network access.
- ○ We are in the process of implementing an end-user authentication requirement for all network access.
- ○ We are planning to require end-user authentication for all network access.
- ○ We are considering an end-user authentication requirement for all network access.
- ○ We have no plans for requiring end-user authentication for all network access.
- ○ Other

10. Please check all of the following that apply at your campus regarding firewalls.

My campus has:

- ☐ a firewall at our external Internet connection
- ☐ firewalls around certain high-security servers or networks
- ☐ firewalls deployed by or on behalf of individual departments
- ☐ a site license for a personal firewall product
- ☐ a plan in place to implement one or more firewalls
- ☐ no firewalls

Other

11. Please check all of the following that apply at your campus regarding security-related practices.

- ☐ We require all of our critical systems to be expeditiously patched or updated.
- ☐ We require campus-owned or -leased computers to be expeditiously patched or updated.
- ☐ We require all personally owned computers to be expeditiously patched or updated.
- ☐ We conduct proactive scans to detect known security exposures in our critical systems.

- [ ] We conduct proactive scans to detect known security exposures in all campus owned computers connected to our network.
- [ ] We conduct proactive scans to detect known security exposures in all personally owned computers connected to our network.
- [ ] Our security system includes an intrusion detection system.

Other

12. Has your campus undertaken an IT security risk assessment?

- ( ) Yes
- ( ) No

Information Systems

1. Please complete the following grid regarding the major information systems at your campus.

For campuses within multicampus systems or districts, if an information system is or soon will be provided at the system or district level, please enter the information requested for your campus but also check "provided at system or district level" for that system. If you have not implemented or do not plan to implement a specified system, please check "Not Applicable" for that system and do not check any other boxes for that system. If your campus (or system/district office on behalf of your campus) plans to implement a system in the next three years, check the box for that option. If the system is or will be a commercial product, please enter the name(s) of the vendor(s) and product(s); if open source, please enter "open source" and the product name(s); if developed in house, please enter "homegrown." NOTE that you cannot enter a year in the future for the "year implemented." If the system is in the process of being implemented, enter the year in which the implementation was begun.

System	Not Applicable	Year Implemented (yyyy)	Enter Vendor and Product Name, Open Source and Product Name, and/or "Homegrown"	Will Implement or Replace in the Next 3 Years	Provided at System/ District Level
Student	☐			☐	☐
Financial	☐			☐	☐
HR	☐			☐	☐
Development	☐			☐	☐
Library	☐			☐	☐
Course Management	☐			☐	☐
Grants Management	☐			☐	☐

2. Check the strategies below that your campus (or system or district office if information systems are provided at that level) employs for implementing or converting information systems. (Check all that apply.)

- [ ] Develop systems in house (homegrown)
- [ ] Develop systems in partnership with a vendor
- [ ] Purchase a commercial product without customization
- [ ] Purchase a commercial product with customization

- [ ] Use an open source product, with or without customization
- [ ] Buy best-of-breed applications
- [ ] Buy a package of integrated systems
- [ ] Enhance legacy systems and provide Web interfaces
- [ ] Outsource administrative systems

Other _____

3. Do you modify commercial or open source products that you implement?

- ( ) Yes
- ( ) No

If you answered yes, please indicate the usual extent of modification. (Check all that apply.)

- [ ] Underlying code
- [ ] Configuration
- [ ] External modules

Other _____

4. Please check the appropriate statement for your campus (or system or district office if systems are provided at that level) regarding enterprise resource planning (ERP) systems.

- ( ) We have no plans for an ERP implementation.
- ( ) We are considering an ERP implementation.
- ( ) We are in the RFP stage of an ERP implementation.
- ( ) We have an ERP implementation in process.
- ( ) We have completed an ERP implementation or completed the segments we have chosen to implement.

If you selected one of the last three choices above...

Please **estimate** the percent of the total cost of the project that was or will be spent on the following ERP project components at the time of implementation. (Enter percentages as whole numbers, e.g., 70% would be entered as 70.)

	% of Total Cost
Software and software licenses	_____ %
Software maintenance	_____ %
Training	_____ %
In-house staff costs	_____ %
Consulting fees	_____ %
Hardware	_____ %
Other _____	_____ %

5. Please check the one statement that is most appropriate regarding a Web portal at your campus (or system or district office if this functionality is provided at that level).

- ○ We have implemented a Web portal.
- ○ We are in the process of implementing a Web portal.
- ○ We are planning to implement a Web portal.
- ○ We have no plans to implement a Web portal.

If you selected one of the first three choices above, please answer the following five questions...

Our portal is or will be:

- ○ developed in-house
- ○ a commercial product
- ○ an open source product
- ○ Other

Is your portal (or will your portal be) customizable by the individual?

- ○ Yes
- ○ No

Is your portal (or will your portal be) customized to the individual?

- ○ Yes
- ○ No

For what audience is your portal (or will your portal be) designed? (Check all that apply.)

- ☐ for current students
- ☐ for prospective students
- ☐ for faculty
- ☐ for staff
- ☐ for the external community
- ☐ for alumni

Other

Is your portal (or will your portal be) integrated with campus administrative systems?

- ○ Yes
- ○ No

APPENDIX D

Glossary of Terms from the 2006 Core Data Survey

Administration of IT Organization, IT Planning, Technology R&D

For the purposes of our survey, please include the following in this area if applicable:

- Financial planning and management for IT
- Campus IT planning
- IT communications and publications
- Human resource management for the IT organization
- Facilities management for the IT organization
- Advanced technology, technology R&D
- Staff who support these functions (administrative and clerical)
- CIO or CTO position

Administrative/Enterprise Information Systems

Administrative/enterprise information systems include legacy administrative systems or enterprise resource planning (ERP) systems such as student administration (admissions, financial aid, registration, etc.), financial information systems, procurement systems, human resource systems, payroll, research administration (grants and contracts), and library systems (if supported by the IT organization). For the purpose of our survey, please include the following in this area if applicable:

- Development and implementation of these systems
- Maintenance of these systems
- Training of users of these systems
- Programming support related to these systems
- Database/data administration
- Hardware, software, staff, and other infrastructure needed to support these systems

Biometrics

In computer security, biometrics refers to authentication techniques that rely on measurable physical characteristics that can be automatically checked. Examples include retinal scans, computer analysis of fingerprints or speech, or other physiological means of user identification for security purposes.

Blogs

Refers to Web logs that are analogous to personal online diaries in which individuals share their observations and opinions.

Broadband

In the human resources context, broadband refers to an approach to job classification and pay structure that is broader and flatter than traditional systems, characterized by wider salary ranges and fewer job titles and vertical levels.

Calculating the Estimate of Dollar Equivalent for Systems and Services

There is no one formula for calculating the dollar equivalent of systems and services provided at no direct charge to its campuses by the central office in a multicampus system or district. One simple, straightforward methodology might be to estimate the system or district office's total cost in providing system-wide or

district-wide IT systems and services, then allocate an estimated cost for each campus in the system or district based on campus FTE or other means of estimating usage. EDUCAUSE has set up a Web site providing examples from three system offices that worked with their campuses to provide estimates for the 2005 core data survey. See <http://www.educause.edu/coredata/s2q1_calculation.asp>.

Capital Appropriation

Refers to appropriation to the central IT organization from the campus capital budget to fund major purchases and implementations such as networks, ERP systems, and buildings. Does not include capital appropriations amortized through rates; an example of a capital appropriation amortized through rates would be funds derived from taking out a loan or drawing on the institution's endowment for an initiative such as a major network enhancement or a phone switch. Such special funds require payback and are usually repaid through a fee structure.

Computers

Refers to all devices that have the basic functionality of a microcomputer (e.g., desktops, laptops, servers). It does not refer to Palm devices or personal digital assistants.

Consultants

Refers to individuals or a firm that advises or consults with the institution about information technology plans or directions, either in general or with regard to a specific technology implementation or project.

Contractors

Refers to employees with whom the institution contracts to provide IT infrastructure and/or specific IT services that might otherwise be delivered by in-house IT staff. For the purposes of our survey, consultants are not to be included in the "contractors" category. If your campus outsources all or nearly all IT services and the outsourcer provides staff on site, please count these employees as staff as opposed to contractors.

Desktop Computing Support, User Support Services, Training, Computer Store

For the purposes of our survey, please include the following in this area if applicable:

- Desktop computer technical analysis and consulting staff
- Computer resale activities and staff
- Computer installation, maintenance, and repair
- Technicians and technical support for desktop computing
- Computer repair staff
- Support for knowledge bases, self-help tools
- General user training and education and related staff
- User documentation and general informational publications and related staff
- Infrastructure support for departmental IT support providers
- User support staff (other than help desk staff)
- Reference desk and staff (if you wish to distribute library/IT staff in a merged organization)

E-Portfolios

An e-portfolio is a digitized collection of artifacts used to document accomplishments of an individual or institution. The collection may contain text-based, graphic, or multimedia elements archived on a Web site or on other electronic media such as a CD-ROM or DVD. E-portfolios can be used as a tool in student advising, to document learning outcomes and institutional quality for accreditation, or to demonstrate accomplishments for career searches.

E-Learning

Refers to learning content or interaction that is facilitated electronically, such as delivery of digital content or use of threaded online discussion.

ERP

Refers to an integrated suite of administrative information systems designed to support

and automate business processes through a centralized database system. In higher education, these systems usually include student systems, financial systems, and human resources (payroll/personnel) systems, as well as warehouse and planning tools.

Electronic Signatures

Refers to data appended to a message or document that authenticates the identity of the message sender or document signer to ensure that the message or document content has not been changed in the transmission process.

Enterprise Directory

Refers to a database where different types of identifiers are correlated to support identity management, authentication, authorization, and other services.

Enterprise Infrastructure and Services, Identity Management

For the purposes of our survey, please include the following in this area if applicable:

- Portal development and support
- Middleware development and support
- Security infrastructure development and support
- Service-oriented architecture (Web services) development and support
- Identity management
- E-mail
- Staff, hardware, and software to support enterprise infrastructure

External Modules

Refers to modules that are not part of the core application suite, that is, a module that you create or purchase that allows you more functionality than the core application.

FTE

Refers to full-time-equivalent personnel, not number of individuals employed. For the purposes of our survey, please calculate FTE based on a 40-hour work week over the course of the full fiscal year (or approximately 2,000 hours per year). For student FTE, a simple formula for calculating total FTE might be to take the number of students employed times the number of hours per week they work times the number of weeks a year they work and divide that total by 2,000. The total FTE number derived can then be distributed across the 13 functional areas listed in question 5 of section 1.

Firewalls

Refers to a set of related programs and policies that protects the resources of a private network from users on other networks. A firewall can also control what outside resources users of the private network can access.

Help Desk

For the purposes of our survey, please include the following in this area if applicable:

- Walk-in support for students, faculty, and staff
- Call-in support for students, faculty, and staff
- Call centers
- Support for knowledge bases, self-help tools
- Specialized support centers
- Help desk staff

Hybrid Course

Refers to a course in which part of the course is delivered online and part is delivered in face-to-face class meetings. Hybrid courses typically reduce the number of days of face-to-face class meetings (for example, from three to two meetings).

IPEDS

The Integrated Postsecondary Education Data Systems (IPEDS) is a single, comprehensive, data-collection program designed to capture data for the National Center for Education Statistics (NCES) for all U.S. institutions and educational organizations whose primary purpose is to provide postsecondary education. IPEDS collects institution-level data in such areas as enrollments, program completions, faculty, staff, and finances. IPEDS data reporting requires the extensive effort of a variety of offices on any campus, and this is the "official"

information the college or university stands behind, used by the federal government.

IPTV (Internet Protocol Television)

Refers to a system where a digital television service is delivered to subscribing consumers using the Internet Protocol over a broadband connection.

Information Literacy Requirement

Refers to a requirement to prove the student knows how to find relevant information resources online, but also can evaluate the quality of the resource and use technology appropriately for search, categorization, retrieval, and analysis, as well as understand the ethics associated with the use of intellectual property.

Information Technology Policy

For the purposes of our survey, please include the following in this area if applicable:

- IT policy development, dissemination, and education
- Information usage/management policy development and education
- Interpretation of current policy related to specific issues, situations, and incidents
- Coordinating response to incidents of inappropriate use of information or information technology
- Policy staff

Information Technology Security

For the purposes of our survey, please include the following in this area if applicable:

- Vulnerability analysis
- Security planning and design and implementation
- Security policy and process development
- User education and guidance programs
- Incident response
- Security administration staff

Instructional Technology, Multimedia Services, Student Computing

For the purposes of our survey, please include the following in this area if applicable:

- Classroom technology (physical renovation and maintenance; provision of fixed and mobile technology)
- Course management systems (homegrown or purchased)
- Specialized training and support for faculty
- Specialized training and support for students
- Instructional support staff (including technologists and designers)
- Multimedia services (support for audio, video, graphics, and so forth)
- TV, broadcasting
- Public student lab support
- Teaching and technology center staff

Interactive Learning

Refers to learning environments that involve interaction between the student and (a) faculty, (b) other students, or (c) resources. Interactive learning can involve Q&A, simulations, games, role-playing, experimentation, and so forth.

Learning Objects

Refers to reusable digital learning material, such as a simulation, data set, or glossary. Learning objects include metadata, which allows them to be categorized and searched.

Library/IT Staff

If your campus IT organization has merged with the campus library, please include in your staff count only the library FTE personnel who perform IT-related functions. Do not include library FTE who support traditional library functions that do not relate to technology. You may distribute your library/IT FTE among the 13 functional areas listed or you may enter the total FTE for this category of staff in the "other" category and describe them as "library/IT staff." If your IT organization has not merged with the library but you have staff supporting library systems, please include these staff in your count for Administrative/Enterprise Information Systems.

Net Revenue

Refers to revenue remaining after accounting for expenditures for products and the cost of doing business.

Network Infrastructure and Services

For the purposes of our survey, please include the following in this area if applicable:

- Wire and cable infrastructure for data and video networks
- Campus data network
- Remote access (modem pools, ISP)
- Commodity Internet
- High-performance research network (e.g., Abilene)
- Video network
- Converged network
- Wireless network
- Staff, hardware, and software for network infrastructure

Operating Appropriation

Refers to the allocation to the central IT organization from the campus operating budget that is generally used to cover all non-capital IT operations costs such as staff compensation and benefits, operating expenses, equipment (including maintenance and repair), software licenses, and so forth.

Operations, Data Center, Print/Copier Services, Mailroom

For the purposes of our survey, please include the following in this area if applicable:

- Systems administration and operation
- System backups
- Data center environmental support systems such as HVAC, UPS, and backup power supply, and systems monitor
- Print services
- Copier services
- Mail room services
- Staff, hardware, and software affiliated with these functions

Outsource or ASP

Outsource in this context refers to contracting with an external entity or vendor to provide IT services or infrastructure that you might otherwise have employed your IT staff to perform. It does not refer to an arrangement with another part of your institution or with a system office. ASP refers to an arrangement with an application service provider to provide services remotely using high-speed private networks. A common example is a Web site that other Web sites use for accepting payment by credit card as part of their online ordering systems.

PKI

Public key infrastructure (PKI) refers to a system of public key encryption using digital certificates from Certificate Authorities and other registration authorities that verify and authenticate the validity of each party involved in an electronic transaction.

Portal

Refers to an approach to an institution's Web site that aims to leverage investments in enterprise information systems, data warehouses, and infrastructure by providing a seamless and easy-to-navigate Web interface to an integrated set of information services for various campus constituents.

Research Computing, Academic Computing

For the purposes of our survey, please include the following in this area if applicable:

- Research computing hardware and software
- Research computing cycles from remote sites
- Staff for research computing consulting and technical assistance
- Academic hardware and software that does not relate to instruction
- Discipline-specific applications development, programming, and support not related to instruction
- General statistical support

Shaping

"Shaping" bandwidth utilization refers to adjusting parameters on the campus Internet connection to limit use through various means, such as type of connection, location of connection, direction of traffic, time of day, or other specific characteristics.

Smart Cards

Refers to a small electronic device about the size of a credit card that contains electronic memory, and possibly an embedded integrated circuit. Smart cards are used for a variety of purposes, including storing information, storing digital cash, and providing a means to access computer networks.

Staff

Refers to all staff employed by the central IT organization, including clerical, technical, and management staff and limited-term or temporary employees who were employed for fiscal year 2005–2006. For the purposes of our survey, if your campus contracted with a vendor or external organization to provide all or nearly all IT services during that period, including all IT staff on site, please count the employees of the outsourcer as staff rather than contractors. If your IT organization has merged with the library, please include in your staff count only the library FTE personnel who perform IT-related functions (see Library/IT Staff).

Telephony

For the purposes of our survey, please include the following in this area if applicable:

- Wire and cable infrastructure for voice network
- Dial tone (including services to student housing)
- Voice mail
- Long-distance resale
- Cellular and paging services
- Telephony staff, hardware, software, etc.

Token

Refers to a small physical device used to authenticate the holder to a computer system or network. Tokens can hold cryptographic keys or provide one-time passwords. Tokens typically require a user-entered PIN and therefore can directly implement two-factor authentication.

Two-Factor Authentication

Refers to any authentication protocol that requires two forms of authentication to access a system. This contrasts with traditional password authentication, which requires only one factor (knowledge of a password) in order to gain access to a system. Three standard kinds of authentication factors are recognized: something you know (such as a password or PIN), something you have (such as a credit card or a hardware token), or something you are (such as a fingerprint, a retinal pattern, or other biometrics).

Web Services

Refers to a standardized way of integrating Web-based applications using the XML, SOAP, WSDL, and UDDI open standards over an Internet Protocol backbone. XML is used to tag the data, SOAP is used to transfer the data, WSDL is used for describing the services available, and UDDI is used for listing what services are available. Used primarily as a means for businesses to communicate with each other and with clients, Web services allow organizations to communicate data without intimate knowledge of each other's IT systems behind the firewall. Web services are sometimes referred to as application services.

Web Support Services

For the purposes of our survey, please include the following in this area if applicable:

- Content management support
- Web server support
- Content design and Web-based publication
- Web-based applications development or interface
- Web support staff, hardware, and software

Wiki

Refers to an editable Web page that can be edited by anyone with access to the wiki.

Wireless Security Technologies

Refers to technologies used to prevent unauthorized access, ensure the confidentiality of data, and detect misuse of wireless networks.

APPENDIX E

Carnegie Classification Definitions

In 1970, the Carnegie Commission on Higher Education developed a classification of colleges and universities to support its program of research and policy analysis. Derived from empirical data on colleges and universities, the "Carnegie Classification" was published for use by other researchers in 1973 and subsequently updated in 1976, 1987, 1994, 2000, and most recently in 2005. With the 2005 revision, the single classification system was replaced by a set of multiple, parallel classifications. The original classification framework—now called the basic classification—has also been substantially revised (see <http://www.carnegiefoundation.org/classifications/index.asp>.

This CDS summary report uses the basic classification system from 2000 (described below) for the sake of simplicity. The 2000 Carnegie Classification included all colleges and universities in the United States that are degree-granting and accredited by an agency recognized by the U.S. Secretary of Education.

Doctorate-Granting Institutions

Doctoral/Research Universities–Extensive: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the doctorate. During the period studied, they awarded 50 or more doctoral degrees per year across at least 15 disciplines.

Doctoral/Research Universities–Intensive: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the doctorate. During the period studied, they awarded at least 10 doctoral degrees per year across three or more disciplines, or at least 20 doctoral degrees per year overall.

Master's Colleges and Universities

Master's Colleges and Universities I: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. During the period studied, they awarded 40 or more master's degrees per year across three or more disciplines.

Master's Colleges and Universities II: These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. During the period studied, they awarded 20 or more master's degrees per year.

Baccalaureate Colleges

Baccalaureate Colleges–Liberal Arts: These institutions are primarily undergraduate colleges with major emphasis on baccalaureate programs. During the period studied, they awarded at least half of their baccalaureate degrees in liberal arts fields.

Baccalaureate Colleges–General: These institutions are primarily undergraduate colleges with major emphasis on baccalaureate programs. During the period studied, they awarded less than half of their baccalaureate degrees in liberal arts fields.

Baccalaureate/Associate's Colleges: These institutions are undergraduate colleges where the majority of conferrals are below the baccalaureate level (associate's degrees and certificates). During the period studied, bachelor's degrees accounted for at least 10 percent of undergraduate awards.

Associate's Colleges

These institutions offer associate's degree and certificate programs but, with few exceptions, award no baccalaureate degrees. This group includes community, junior, and technical colleges where, during the period studied, bachelor's degrees represented less than 10 percent of all undergraduate awards.

Specialized Institutions

These institutions offer degrees ranging from the bachelor's to the doctorate, and typically award a majority of degrees in a single field. The list includes only institutions that are listed as separate campuses in the *2000 Higher Education Directory*. Specialized institutions include:

Theological seminaries and other specialized faith-related institutions: These institutions primarily offer religious instruction or train members of the clergy.

Medical schools and medical centers: These institutions award most of their professional degrees in medicine. In some instances, they include other health professions programs, such as dentistry, pharmacy, or nursing.

Other separate health profession schools: These institutions award most of their degrees in such fields as chiropractic, nursing, pharmacy, or podiatry.

Schools of engineering and technology: These institutions award most of their bachelor's or graduate degrees in technical fields of study.

Schools of business and management: These institutions award most of their bachelor's or graduate degrees in business or business-related programs.

Schools of art, music, and design: These institutions award most of their bachelor's or graduate degrees in art, music, design, architecture, or some combination of such fields.

Schools of law: These institutions award most of their degrees in law.

Teachers colleges: These institutions award most of their bachelor's or graduate degrees in education or education-related fields.

Other specialized institutions: Institutions in this category include graduate centers, maritime academies, military institutes, and institutions that do not fit any other classification category.

Tribal Colleges and Universities

These colleges are, with few exceptions, tribally controlled and located on reservations. They are all members of the American Indian Higher Education Consortium.

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