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CORE DATA SERVICE

2003 Summary Report

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TWO

IT Financing and Management

Section two of the core data survey focused on capturing financial data about information technology on campus for fiscal year 2002–2003 as well as IT management practices, many of which have financial implications. There are six major focal 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 (SLAs).

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 2003 survey requested data for seven sources of funding (plus an "other source" option) for the central IT organization thought to be applicable to most higher education institutions. Note that the survey requested actual allocations/revenues for the fiscal year 2002–2003, rather than projected budget for fiscal year 2003–2004. 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.

Note that two new categories of funding sources were added to the 2003 survey, based on feedback we both received and discerned from last year's data collection. These new categories were "revenue generated from student technology fees" and "other source." Medians rather than means are used because they present a more accurate reflection of actual campus averages than a statistical mean, which provides much higher values (especially for doctoral campuses) due to the impact of having megacampus values in the data set.

This year, the data for this question are presented differently, as a result of our having done two separate analyses. Last year the median values of the various sources of revenue were presented, but the data for campuses that had left a field blank or entered $0 were treated as missing data and not included in the data set. This year, respondents were required to enter $0 for a source if they did not have any funding from that source, in order 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, one sees a great number of $0 values in this first table. Table 2-2 presents the data similarly to last year, that is, 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

Table 2-1
Median Amounts of Funding for the Central 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 central IT organization	$2,288	$9,205	$2,141	$1,112	$956	$3,046
Capital appropriations for central IT organization	$184	$250	$150	$117	$105	$600
Revenue generated from student technology fees	$0	$0	$0	$0	$0	$0
Sale of central services (chargeback) to departments	$0	$2,505	$0	$0	$0	$0
Sale of central services to external entities	$0	$0	$0	$0	$0	$0
Resale of products to departments	$0	$0	$0	$0	$0	$0
Resale of products to external entities	$0	$0	$0	$0	$0	$0
Other source	$0	$0	$0	$0	$0	$0

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

Funding Source	ALL	DR	MA	BA	AA	OTHER
Operating appropriation to central IT organization	$2,300	$9,296	$2,141	$1,112	$956	$3,088
Capital appropriations for central IT organization	$470	$1,100	$400	$318	$278	$911
Revenue generated from student technology fees	$400	$1,000	$451	$180	$220	$399
Sale of central services (chargeback) to departments	$700	$4,218	$232	$52	$32	$700
Sale of central services to external entities	$193	$355	$55	$14	$14	$101
Resale of products to departments	$72	$165	$28	$8	$10	$449
Resale of products to external entities	$49	$60	$15	$11	$10	$142
Other source	$292	$601	$310	$124	$313	$400

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 central IT organization	99.6%	99.4%	100.0%	100.0%	100.0%	98.4%
Capital appropriations for central IT organization	66.2%	58.3%	63.6%	67.7%	63.9%	82.1%
Revenue generated from student technology fees	31.0%	36.8%	34.7%	18.6%	41.7%	21.1%
Sale of central services (chargeback) to departments	40.6%	81.0%	40.4%	25.1%	8.3%	46.3%
Sale of central services to external entities	15.1%	41.1%	11.1%	6.0%	1.4%	16.3%
Resale of products to departments	14.8%	33.1%	12.0%	9.6%	2.1%	17.9%
Resale of products to external entities	6.3%	16.6%	3.6%	3.6%	0.7%	8.1%
Other source	12.7%	16.0%	11.6%	15.0%	9.7%	10.6%

component of the Core Data Service (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 central 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 central IT organization 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 its operating appropriation. This may indicate that for this most common funding source, the actual dollar amount provided to the IT organization may not only be due to level of overall campus resources but also to different practices in money allocation among Carnegie classes.

Tables 2-1 and 2-2 reveal that doctoral institutions reported higher values for capital appropriations than all other groups. Table 2-3 shows the percentages of campuses that have funding from the various sources, indicating that more doctoral institutions reported funding sources other than operating appropriations. Particularly, these schools appear to rely much more heavily than all of the other Carnegie groups on charging for central services and, to a lesser degree, resale of products to generate revenue for the IT organization.

Means and medians for total central IT funding appear in Table 2-4, with dramatic differences between Carnegie groups, as would

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

	Mean	Median
ALL	$7,635	$3,242
DR EXT	$28,190	$22,384
DR INT	$9,142	$8,500
MA I	$4,575	$3,175
MA II	$1,729	$1,270
BA LA	$2,834	$2,325
BA GEN	$1,421	$1,014
AA	$2,500	$1,483
OTHER	$9,030	$4,993

Table 2-5
Central IT Funding per FTE Student

	ALL	DR	MA	BA	AA	OTHER
Mean	$1,742	$1,396	$812	$1,232	$594	$6,189
Median	$797	$1,038	$740	$1,033	$549	$860

be expected. (Note that the total was computed by summing the dollar values entered into the survey by respondents for all funding sources.) For comparable types of institutions that filled out the survey in both years, there was a 6.3% average increase, but the biggest changes and the only ones that were significant were BA LA schools that increased 15% from last year, BA GEN institutions that increased 14%, and AA colleges that increased nearly 11%. It should be recognized that these are also the institutions with the smallest amount of total funding to begin with, so percentage changes are more dramatic because of the laws of small numbers. Also note that offering respondents an opportunity this year to specifically report technology fee dollars as well as funding from other sources, and then having the survey instrument add all the values entered and show a total for central IT funding, may have facilitated more accurate reporting on the 2003 survey and thus contributed to the across-the-board increases in total central IT funding that we are seeing.

An enormous change was also noted for the OTHER category of institutions, showing nearly a 25% increase in total funding for this group. However, when the international institutions (which showed an increase of about 29%) are removed from the analysis, the increase is only about 7%. Based on anecdotal information (from phone calls, e-mail messages, and so forth), the increase for international institutions appears not to have been actually experienced by most institutions that we contacted, but rather is an artifact of the data collection—we asked that all data be presented in U.S. dollars and because of the drop in value of the dollar compared with foreign currencies, we are seeing artificial increases here, when actual budgets appear to have been flat or realizing very modest increases.

One of the goals of the Core Data Service 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 central IT funding reported through our survey to derive the ratio of dollars spent per student (see Table 2-5). These ratios are comparable to those obtained last year, with the exception of increased spending in BA and AA schools—a logical finding given the increases in total central IT funding for these schools reported above.

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

	ALL	DR	MA	BA	AA	OTHER
Staff	$1,500	$8,086	$1,396	$664	$649	$2,127
Students	$74	$359	$115	$48	$19	$24
Consultants	$1	$32	$1	$0	$0	$6
Contractors	$0	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0	$0

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

	ALL	DR	MA	BA	AA	OTHER
Staff	$1,500	$8,086	$1,396	$664	$650	$2,127
Students	$99	$372	$125	$57	$35	$63
Consultants	$38	$121	$30	$15	$20	$60
Contractors	$68	$200	$30	$30	$35	$113
Other	$158	$270	$110	$26	$331	$506

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

	ALL	DR	MA	BA	AA	OTHER
Staff	99.9%	100.0%	100.0%	100.0%	99.3%	100.0%
Students	86.4%	96.9%	94.2%	91.6%	76.4%	62.6%
Consultants	51.1%	60.7%	51.1%	47.3%	42.4%	53.7%
Contractors	39.1%	49.1%	33.3%	34.1%	34.0%	48.8%
Other	2.7%	7.4%	1.3%	2.4%	1.4%	0.8%

Central IT Personnel Compensation

In Table 2-6, the median total compensation (including benefits) paid by or through the central 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 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, similarly to how these data were reported last year.

The total compensation numbers for fiscal year 2002–2003 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 central IT funding, likely for the same reasons with respect to level of overall campus resources, and related to campus complexity, not merely size of the campus. Table 2-8 shows the percentages of campuses that employ each category of personnel.

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

	ALL	DR	MA	BA	AA	OTHER
Mean	47.6%	49.8%	49.7%	44.6%	49.0%	43.2%
Median	47.1%	48.6%	48.8%	45.3%	48.0%	43.1%

Table 2-10
Percentage of Institutions That Cannot Estimate IT Expenditures Outside the Central IT Organization

	ALL	DR	MA	BA	AA	OTHER
IT compensation	25.2%	38.7%	20.4%	25.1%	20.1%	22.0%
Other IT expenditures	27.1%	34.4%	27.6%	22.2%	25.0%	26.0%

In exploring ratios that might be helpful to campuses in managing their IT resources, we calculated the total of expenditures reported for IT staff as a function of total central IT funding, derived from the earlier question about allocations/revenues from the eight 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.) The ratio of staff compensation to total funding showed no differences across Carnegie groups and is remarkably consistent, with about half of the total funding being spent on IT staff costs, as shown in Table 2-9. Maintaining a proper balance between people and technology has long been known to be important. The ratio developed from these data appear 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. These values were very similar to those reported last year.

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 central IT organization. Such decentralized expenditures vary dramatically based on the type of institution.

As shown in Table 2-10, of ALL responding campuses, about three-fourths were able to make a reasonable estimate about what was spent on IT outside their central IT organizations (including reporting $0 spent). Note that 207 institutions reported that the total compensation paid to IT personnel outside the central IT organization is unknown, and 223 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 central 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 central IT organization differs considerably by Carnegie class, as seen in the first row of Table 2-11. In fact, comparisons revealed significant differences among all groups except those between AA and BA. The second row in this table reflects the expenditures by units outside the central IT organization on equipment and all other non-personnel items. As with other IT financing data points, the average of IT expenditures outside the central IT organization for the most part increased with institutional complexity. The sum of these two num-

Table 2-11
Mean IT Expenditures
Outside the Central IT Organization (in 1,000s of dollars)
for Institutions Where Such Expenditures Are Known

	ALL	DR	MA	BA	AA	OTHER
IT compensation	$1,900	$9,160	$445	$95	$161	$1,480
Other IT expenditures	$2,351	$9,783	$610	$113	$314	$2,347

Table 2-12
Central IT Personnel Expenditures
as a Percentage of Total Campus IT Personnel Expenditures, 2003 Data

	ALL*	DR	MA	BA	AA	OTHER
Mean	84.7%	64.5%	87.4%	93.6%	91.0%	81.5%
Median	90.2%	65.0%	90.5%	94.4%	97.7%	86.7%
* N = 615						

Table 2-13
Central IT Personnel Expenditures
as a Percentage of Total Campus IT Personnel Expenditures, 2002 Data

	ALL*	DR	MA	BA	AA	OTHER
Mean	85.5%	66.2%	89.3%	95.0%	91.7%	80.2%
Median	92.2%	66.3%	93.4%	100.0%	100.0%	86.9%
* N = 500						

bers (personnel compensation plus all other expenditures) is an estimate of how much is being spent on average by institutions outside their central 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. In order 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 central IT personnel compensation as a percentage of total campus personnel expenditures, with the latter derived by combining all centralized and decentralized compensation numbers reported for schools where non-central expenditures were known or could be estimated. As shown in Table 2-12, this percentage is quite high for BA and AA schools, which appear to have predominantly central IT operations. This percentage is significantly lower for MA and OTHER institutions than BA and AA schools, and the percentage for doctoral institutions is significantly lower than all other groups. This is essentially an indicator of the extent of decentralization occurring in these types of schools.

In order to compare this year's and last year's data for this ratio, it was necessary to rerun data from the 2002 survey. The reason for this is that last year only central staff compensation numbers were included (as opposed to compensation for all categories of personnel), and the data for all responding institutions were the basis for the analysis, rather than just those institutions that were able to estimate such expenditures. Table 2-13 shows the 2002 analysis recalculated using the same parameters as those used for the 2003 data

Table 2-14
Total Central IT Funding
as a Percentage of Total Campus IT Expenditures, 2003 Data

	ALL*	DR	MA	BA	AA	OTHER
Mean	81.4%	61.4%	84.2%	92.2%	85.3%	78.3%
Median	87.8%	59.8%	87.8%	94.9%	90.2%	85.3%
* N = 523						

Table 2-15
Total Central IT Funding
as a Percentage of Total Campus IT Expenditures, 2002 Data

	ALL*	DR	MA	BA	AA	OTHER
Mean	80.6%	62.4%	84.4%	89.9%	84.3%	76.1%
Median	86.7%	61.0%	89.9%	94.0%	87.3%	80.6%
* N = 490						

shown in Table 2-12. Comparing data in the two tables, the mean ratios appear remarkably consistent over the two years, although there was a slight decrease in the percentages for all groups except OTHER. This ratio will bear watching over the next few years to see if the decreases continue sufficiently to identify a valid trend toward decentralization.

The second ratio looks at total central IT funding as a percentage of total campus IT expenditures, with the latter derived from adding total central IT organization funding to estimated IT-related personnel and other expenditures outside the central IT organization, for schools reporting known expenditures (including $0). These mean and median percentages are shown in Table 2-14. There is a pattern similar to the first ratio, but the ratios here are somewhat lower for all groups, suggesting that schools are more decentralized when all IT-related expenditures (not just personnel) are considered. This appears to be true especially for AA colleges, for which this ratio is closer to MA than BA schools.

Again, we have rerun our analysis of 2002 data for this ratio, looking at only those schools that reported a known or estimated amount for both non-central personnel compensation and non-central other IT-related expenditures, so that our parameters match for both years. This analysis, which is presented in Table 2-15, shows this ratio also to be relatively unchanged from last year.

Technology Fees

The percentage of schools that reported charging a general student technology fee differed significantly among Carnegie classes, as seen in Table 2-16. The highest percentage was found among AA schools, with nearly three-fourths of these institutions charging a general student technology fee. Approximately 60% of MA and doctoral institutions charge such a fee, while about 36% 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 2-17. Charging a flat fee per semester was the most common method for all Carnegie classes except for AA institutions, for which basing the fee on credit hours was by far the most popular strategy.

The use of technology fees was consistent with the pattern found last year. For the 2003 core data survey, the questions regarding the student technology fee were changed substantively, allowing for greater granularity of understanding, calculation, and comparison of fees. For this reason, many comparisons with last year's data are impossible to provide.

The total of dollars generated by student

Table 2-16
Percentage of Campuses That Charge General Technology Fees

	ALL	DR	MA	BA	AA	OTHER
Yes	52.3%	58.3%	60.4%	35.9%	72.2%	28.5%
No	47.7%	41.7%	39.6%	64.1%	27.8%	71.5%

Table 2-17
Methods of Charging a General Technology Fee

	ALL*	DR	MA	BA	AA	OTHER
Flat fee per year	13.0%	9.5%	10.3%	31.7%	1.9%	34.3%
Flat fee per semester	40.0%	41.1%	50.0%	45.0%	22.1%	42.9%
Flat fee per quarter	3.0%	3.2%	4.4%	1.7%	1.9%	2.9%
Percentage of tuition	2.8%	2.1%	3.7%	1.7%	3.8%	0.0%
Flat fee per credit hour	33.7%	34.7%	23.5%	15.0%	62.5%	17.1%
Other	7.4%	9.5%	8.1%	5.0%	7.7%	2.9%
* N = 430						

Table 2-18
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	$1,220	$3,232	$922	$377	$478	$568
Median	$586	$2,700	$672	$264	$332	$280
* N = 430						

technology fees also differs significantly as a function of Carnegie classification, as seen in Table 2-18, which shows the mean and median total dollars collected per campus from technology fees for those schools that charge a technology fee. In general, the total of dollars generated increases in direct relation to the number of FTE students per campus. Institutions in the OTHER, AA, and BA categories do not differ significantly from each other, but MA and doctoral institutions reported greater total dollar amounts than other Carnegie classes. Obviously, with more students on campus, larger schools (for example, doctoral institutions) would be expected to produce a larger amount of money from a general student technology fee. However, after controlling statistically for indicators of campus size (FTE students, number of faculty), 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 last year's and this year's data for institutions that completed both surveys and reported charging a general technology fee, we found a significant increase in the total dollars collected in 2003, compared with 2002. The biggest changes were found with doctoral institutions, associate's colleges, and OTHER institutions.

Table 2-19
Determining How Technology Fees Are Spent

	ALL*	DR	MA	BA	AA	OTHER
Students	30.9%	33.7%	36.0%	6.7%	37.5%	25.7%
IT administration	54.0%	51.6%	55.9%	45.0%	62.5%	42.9%
Campus committee	38.6%	44.2%	36.8%	25.0%	48.1%	25.7%
Senior administration	66.5%	67.4%	66.9%	63.3%	68.3%	62.9%
State agency/system	4.7%	2.1%	5.1%	0.0%	9.6%	2.9%
Funds restricted by policy	21.6%	23.2%	20.6%	23.3%	24.0%	11.4%
Other means determine	4.7%	8.4%	2.9%	3.3%	3.8%	5.7%
* N = 430						

Table 2-20
Separate Residence-Hall Network Connection Fee for All Respondents

	ALL	DR	MA	BA	AA	OTHER
Yes	15.8%	24.5%	17.3%	7.8%	4.2%	26.0%
No	61.9%	74.2%	76.0%	89.2%	10.4%	43.1%
No network connections	3.8%	0.6%	0.9%	0.6%	11.8%	8.1%
No residence halls	18.5%	0.6%	5.8%	2.4%	73.6%	22.8%

Methods of determining how money generated by the technology fee is spent are fairly consistent across Carnegie classes, as seen in Table 2-19. However, the percentages of schools reporting that students determine how this money is spent differ significantly among groups. A greater percentage of doctoral, MA, and AA schools (33.7%, 36.0%, 37.5%, respectively) indicated that students determine how technology fee money is spent compared to BA (6.7%) and OTHER (25.7%) schools, where such a practice appears to be less common. There is a similar finding concerning the role of a campus committee in deciding how the technology fee money is spent.

Another form of technology fee examined has to do with whether a separate fee for residence-hall network connections is charged (see Table 2-20). Overall, charging such a fee is not a widespread practice, with only about 16% 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 2-21) similarly revealed that the practice of charging a separate fee for residence-hall network connections is significantly related to Carnegie class. This practice is most common among OTHER institutions among this subset of respondents, and least common among BA schools (37.6% and 8.0%, respectively). Overall, about 20% of ALL institutions in this subset reported charging a separate fee.

Table 2-21
Separate Residence-Hall Network Connection Fee for Institutions with Networked Residence Halls

	ALL*	DR	MA	BA	AA	OTHER
Yes	20.3%	24.8%	18.6%	8.0%	28.6%	37.6%
No	79.7%	75.2%	81.4%	92.0%	71.4%	62.4%
* N = 639						

Table 2-22
Percentage of Institutions Owning/Leasing Various Numbers of Computers

Number of computers	ALL	DR	MA	BA	AA	OTHER
Up to 500	14.6%	0.0%	8.0%	35.9%	16.7%	14.6%
501–1,000	20.2%	0.6%	24.4%	32.3%	30.6%	9.8%
1,001–2,000	22.6%	3.7%	33.3%	25.1%	31.3%	14.6%
2,001–3,000	10.7%	11.0%	13.3%	6.0%	10.4%	12.2%
3,001–5,000	12.8%	19.0%	15.1%	0.6%	9.0%	21.1%
5,001–10,000	11.8%	35.0%	5.8%	0.0%	2.1%	19.5%
More than 10,000	7.3%	30.7%	0.0%	0.0%	0.0%	8.1%

Table 2-23
Number of Campus-Owned/Leased Computers

	ALL	DR	MA	BA	AA	OTHER
Mean	3,902	11,190	2,076	913	1,515	4,434
Median	1,600	7,000	1,500	710	1,200	3,000

Table 2-24
Number of Campus-Owned/Leased Computers per FTE Student

	ALL	DR	MA	BA	AA	OTHER
Mean	1.1	0.70	0.42	0.54	0.41	4.9
Median	0.42	0.50	0.39	0.49	0.37	0.45

Equipment and Replacement Planning

As institutional complexity increases, so does the number of computers owned or leased by the institution, as shown in Table 2-22. Approximately one-third of the MA, nearly one-half of the AA, and nearly 70% of the BA schools responding to our survey reported owning or leasing 1,000 or fewer computers, while nearly two-thirds of doctoral schools reported owning or leasing more than 5,000 computers, with nearly 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 leased computers similarly illustrates this pattern, as seen in Table 2-23. It is worth noting that since last year the number of computers on campus not only increased overall but also increased for each of the Carnegie groups. This increase would suggest that campuses continue to meet technology needs by adding computers to their inventory.

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, a ratio was calculated of the number of computers per FTE student (see

Table 2-25
Percentage of Campuses Using Various Computer Replacement Cycles in Their Planning Efforts

Replacement Cycle	ALL	DR	MA	BA	AA	OTHER
None	8.4%	15.3%	7.6%	6.6%	4.2%	8.1%
< 3 years	0.6%	0.0%	0.9%	1.2%	0.0%	0.8%
3 years	24.6%	19.0%	30.7%	21.6%	18.1%	32.5%
3–4 years	17.5%	16.6%	21.8%	18.6%	16.0%	11.4%
4 years	17.9%	11.0%	14.7%	22.2%	29.9%	13.0%
> 4 years	14.8%	17.8%	11.1%	13.8%	17.4%	16.3%
Different cycles for different computers	16.2%	20.2%	13.3%	16.2%	14.6%	17.9%

Table 2-24). The number of computers owned or leased by an institution per FTE student also varies significantly across Carnegie classes. Doctoral and OTHER institutions in our data set have the greatest number of computers per student, and BA schools have, on average, significantly more computers per student than MA and AA institutions. This pattern of ratios across the Carnegie groups was nearly identical with the pattern found in 2002.

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 the newer technologies and to reduce support costs. Therefore, the core data survey explored 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 2-25. Note that this year an additional category was added for normalizing the open-ended responses to this question. When respondents provided a complex set of numbers that did not fit the five normalization categories, their responses were placed into this new category, "different cycles for different computers."

Some rather dramatic changes in replacement cycles occurred since last year. About 60% of ALL responding institutions endorse a replacement cycle of 3 years, 3–4 years, or 4 years. This percentage is similar across Carnegie classes, although the percentage for MA schools is higher at approximately 67% and is lower for DR schools at just under 47%. In general, the findings suggest more institutions are developing plans for replacement, but the plans are for a longer replacement cycle.

The percentage of doctoral institutions reporting that they have no planned replacement cycle is approximately twice as great as for other classes (15.3%), but this value is 7% less than last year, a statistically significant difference. Looking at the data for the institutions that completed both last year's and this year's surveys, there was a decrease in the number of doctoral schools that did not have a plan or had a 3-year or a 4-year replacement plan, while the percentage indicating that their replacement plan was greater than 4 years increased sharply and significantly. Over one-fifth of these institutions reported numbers that represented different replacement cycles for different types of computers.

Within this same subset, among MA colleges, the percentage of institutions that reported that they have a 3-year or a 4-year replacement plan decreased, whereas this percentage approximately doubled for cycles of 3–4 years or greater than 4 years. About one out of eight of these institutions reported numbers that represented different replacement cycles for different types of computers.

Within the BA schools in this subset, the percentage of institutions reporting that they have a replacement cycle of 3 years decreased significantly, as did the percentage endorsing a 4-year replacement plan, which dropped from

Table 2-26
Percentage of Campuses with Replacement Funding in the Budget for Campus Computers

% Computers with Funding	ALL	DR	MA	BA	AA	OTHER
0%	14.5%	19.0%	13.3%	9.6%	13.2%	18.7%
Up to 19%	10.6%	23.9%	8.0%	6.0%	5.6%	9.8%
20–39%	15.5%	20.9%	14.7%	12.0%	18.1%	11.4%
40–59%	7.2%	7.4%	7.1%	9.0%	4.9%	7.3%
60–79%	12.4%	14.1%	11.6%	5.4%	18.8%	13.8%
80–100%	39.9%	14.7%	45.3%	58.1%	39.6%	39.0%

Table 2-27
Estimated Percentage of Campus Computers with Funded Replacement Cycles

	ALL	DR	MA	BA	AA	OTHER
Mean	54.7%	34.2%	59.2%	66.6%	58.2%	53.6%
Median	60.0%	20.0%	70.0%	85.0%	69.0%	60.0%

38.1% to 22.7% from 2002 to 2003. Among these colleges, the percentage that reported that they have a replacement plan of greater than 4 years increased fourfold, to just over 12%.

Finally, among AA colleges responding to both the 2002 and 2003 surveys, there was a significant decrease in the percentage of schools reporting that they have a 3-year replacement plan for campus-owned or leased computers, from 31.3% to 17.2%.

It is one thing to have a plan for replacement of computers and quite another to have the funds for this replacement embedded (that is, actually funded) in the budget. Table 2-26 presents a profile of each Carnegie group related to the percentage of computers actually funded in the campus budget. An alternative presentation of these data is shown in Table 2-27, which provides the mean and median percentages of campus computers that have replacement funding in the budget.

For those institutions that completed both surveys, the estimated percentage of campus computers with replacement cycles funded in the budget increased significantly for ALL respondents and for all Carnegie groups except BA colleges. However, BA schools enjoyed the highest levels of funded replacement cycles in both 2002 and 2003.

The majority of institutions in each Carnegie class reported that 60% or more of their campus computers are on a replacement cycle actually funded in the budget, with the exception of doctoral schools. Nearly 60% of all BA schools reported that 80–100% of their campus computers are on a funded replacement cycle, whereas about 64% of doctoral schools reported that fewer than 40% of their campus computers are on such a cycle. The average percentage reported by BA schools is significantly higher, while the percentage for doctoral schools is significantly lower, than for all other groups.

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 2-28, and the results were essentially the same as those found in 2002.

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

Table 2-28
Percentage of Campus Computers Replaced in Previous Fiscal Year

% Computers Replaced	ALL	DR	MA	BA	AA	OTHER
0%	1.7%	1.2%	0.4%	1.8%	1.4%	4.9%
Up to 5%	3.2%	2.5%	4.4%	4.8%	1.4%	1.6%
6–10%	7.8%	8.6%	6.7%	7.2%	9.7%	7.3%
11–15%	8.8%	8.6%	7.6%	4.8%	16.0%	8.1%
16–20%	21.3%	25.2%	20.0%	23.4%	18.8%	18.7%
21–25%	24.7%	26.4%	22.2%	26.3%	27.8%	21.1%
26–30%	15.8%	17.2%	14.2%	14.4%	13.9%	21.1%
31–35%	11.1%	7.4%	15.6%	9.6%	8.3%	13.0%
36–40%	2.2%	1.2%	3.6%	2.4%	1.4%	1.6%
More than 40%	3.5%	1.8%	5.3%	5.4%	1.4%	2.4%

Table 2-29
Comparison of Actual Computer Replacement to the Expressed Plan for Institutions with Replacement Plans

	ALL*	DR	MA	BA	AA	OTHER
On plan	61.3%	70.5%	57.9%	55.8%	61.5%	64.8%
Behind plan	28.7%	22.9%	29.2%	30.2%	30.8%	29.7%
Ahead of plan	10.0%	6.7%	12.9%	14.0%	7.7%	5.5%
* N = 753						

if they replaced less than this percentage, they were labeled "behind plan." These data are presented in Table 2-29. Although this methodology is not perfect, it does give one a sense that about 70% of campuses have a plan and are living up to that plan, despite economic hardships in higher education. There were no differences among the Carnegie groups for this variable, although doctoral campuses had the highest percentage of campuses on plan.

For ALL institutions, and within the doctoral and OTHER groups, the percentage of schools that were on plan with respect to computer replacement increased significantly from 2002 to 2003, whereas the percentage behind plan decreased significantly. Among BA colleges, the percentage ahead of plan increased significantly,

In short, when looking at the data overall related to computer replacement, there was significant movement in capitalizing and replacing the infrastructure in the last year, at least with respect to desktop computing.

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. Approximately half of ALL institutions reported that the current funding model of their campuses includes renewal of the capital plant, as seen in Table 2-30. The proportion of schools reporting this did not differ significantly across Carnegie classes, nor were there notable changes in results from last year.

Service Level Agreements and Outsourcing

The use of external suppliers to run a campus IT function appears not to be a common practice overall. More than 50% of ALL institutions reported that they do not outsource or use application service providers, as shown in Table 2-31. There was a nonsignificant difference by Carnegie class when comparing the percentages of schools that reported outsourcing, with AA schools more often and doctoral institutions less often reporting outsourcing arrangements.

Table 2-30
Campuses with a Funding Model That Includes Renewal of the IT Capital Plant

	ALL	DR	MA	BA	AA	OTHER
Yes	52.6%	54.0%	52.4%	51.5%	51.4%	53.7%
No	47.4%	46.0%	47.6%	48.5%	48.6%	46.3%

Table 2-31
Percentage of Campuses Using External Suppliers to Run Various IT Functions

IT Function	ALL	DR	MA	BA	AA	OTHER
Administrative systems—transaction systems operation	12.5%	5.5%	15.1%	15.6%	10.4%	15.4%
Administrative systems—application development	6.8%	2.5%	6.2%	4.8%	9.0%	13.8%
Administrative systems—project management for implementations	5.0%	4.9%	4.0%	3.6%	6.3%	7.3%
All central IT staff and services	1.7%	0.0%	2.7%	1.2%	2.8%	1.6%
CIO/top IT administrator	1.5%	0.0%	2.2%	1.8%	2.8%	0.0%
Computer operations	2.7%	1.2%	4.0%	1.8%	5.6%	0.0%
Data center	3.2%	1.8%	4.9%	1.8%	4.2%	2.4%
Desktop computer installation, maintenance, and/or repair services	6.7%	7.4%	7.1%	4.8%	5.6%	8.9%
Distance education	3.8%	0.6%	6.2%	1.2%	6.9%	3.3%
Help desk	3.6%	2.5%	4.9%	1.8%	3.5%	5.7%
Instructional/course management system	9.2%	9.2%	12.9%	4.2%	11.1%	7.3%
Multimedia services	1.6%	1.8%	1.3%	1.2%	1.4%	2.4%
Network services	3.5%	2.5%	4.0%	3.0%	4.2%	4.1%
Portal	2.3%	0.6%	4.0%	2.4%	2.8%	0.8%
Print services	6.3%	5.5%	4.0%	5.4%	6.9%	12.2%
Remote access to network services	4.0%	6.1%	2.2%	2.4%	2.8%	8.1%
Telephone services	14.8%	14.7%	14.2%	18.0%	11.8%	15.4%
User support services	1.6%	0.0%	1.3%	1.2%	3.5%	2.4%
Web development and/or hosting	11.8%	9.8%	12.4%	16.2%	7.6%	12.2%
Other IT service	9.0%	17.2%	4.9%	4.8%	8.3%	12.2%
No external suppliers	51.0%	47.2%	53.8%	53.3%	55.6%	42.3%

The percentage of institutions completing both surveys that reported using external suppliers to run various IT functions increased significantly over the past year, from about 40% to 45%. In particular, the use of outsourced providers increased significantly for instructional/course management systems, print services, telephone services, Web development and hosting, and desktop computer installation, maintenance, and/or repair services.

Table 2-32
Percentage of Campuses Using Written Service Level Agreements for Various IT Services

IT Service	ALL	DR	MA	BA	AA	OTHER
Academic/research support	11.2%	15.3%	11.6%	4.8%	9.7%	15.4%
Administrative systems support	30.7%	25.2%	33.8%	31.1%	28.5%	34.1%
Data center services	20.9%	34.4%	22.7%	8.4%	13.2%	26.0%
Desktop/user support services	27.6%	41.1%	25.3%	15.6%	19.4%	39.8%
Instructional technology support	13.9%	13.5%	16.9%	10.2%	13.9%	13.8%
Multimedia services	8.4%	8.6%	10.2%	4.8%	7.6%	10.6%
Network services	27.1%	27.6%	25.3%	23.4%	24.3%	38.2%
Print services	10.6%	10.4%	8.0%	9.6%	13.2%	13.8%
Telephone services	25.3%	23.9%	31.6%	21.6%	18.8%	28.5%
Web support services	12.9%	20.2%	9.3%	9.0%	11.1%	17.1%
Other IT services	6.0%	12.3%	6.2%	4.2%	0.7%	5.7%
No SLAs	46.4%	34.4%	45.3%	56.3%	58.3%	36.6%

Finally, the use of service level agreements was analyzed, with results shown in Table 2-32. About 54% of ALL responding institutions reported the 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 for academic/research support, data center services, desktop/user support services, network services, telephone services, and Web support services.

In comparing the 2002 and 2003 CDS data sets, several significant trends were observed in this area among schools completing both surveys. The percentage of schools using written service level agreements increased from 2002 to 2003 for the following IT functions: desktop/user support services; instructional technology support; network services; telephone services; and other IT services. With the increases across these areas, and no decreases, it is not surprising that there was a significant increase in the percentage of schools reporting that they do use SLAs, from 50% to 54.3%.

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