



E D U C A U S E

CORE DATA SERVICE



# 2002 Summary Report

Brian L. Hawkins, Julia A. Rudy, and Joshua W. Madsen



EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. Membership is open to institutions of higher education, corporations serving the higher education information technology market, and other related associations and organizations. Resources include professional development activities; print and electronic publications, including books, monographs, and the magazines *EDUCAUSE Quarterly* and *EDUCAUSE Review*; strategic policy advocacy; teaching and learning initiatives; applied research; special interest collaboration communities; awards for leadership and exemplary practices; and extensive online information services. The current membership comprises nearly 1,900 colleges, universities, and education organizations, including 200 corporations. EDUCAUSE has offices in Boulder, Colorado, and Washington, D.C.; [www.educause.edu](http://www.educause.edu), e-mail [info@educause.edu](mailto:info@educause.edu).

© Copyright 2003 EDUCAUSE

All rights reserved. No part of this monograph may be reproduced in any form without permission in writing from EDUCAUSE.

Art direction by Joseph Daigle, Studio Productions

# IT Financing and Management

Section two of the core data survey focused on capturing financial data about information technology on campus for fiscal year 2001–2002 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.

## **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 survey requested data for six sources of funding 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 2001–2002, rather than projected budget for fiscal year 2002–2003.) In Table 2-1, these sources are listed and the median values for each of the Carnegie classes are presented in thousands of dollars. Medians rather than means are presented because this value presents a more accurate reflection of actual

campus averages, as a statistical mean provides much higher values (especially for doctoral campuses) due to the impact of having mega-campus values in the data set.

In the Web-based interactive database 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 fairly narrowly defined peer group is examined. The values in each cell of Table 2-1 are the medians of those respondents who reported any revenue in a category, so these values do not reflect the campuses that don't have any such revenue stream. Table 2-2 shows the percentages of campuses that have revenues in these categories.

One can see from Table 2-1 that doctoral campuses have a much heavier dependence on funding sources other than operating appropriations than do other kinds of campuses. They appear to rely heavily on capital appropriations and charging for central services as a method of generating revenue for the IT organization. Not only are the values in dollars higher, the propensity of doctoral institutions to employ chargeback is also much greater, as shown in Table 2-2.

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 the

**Table 2-1**  
**Median Amounts of Funding for the Central IT Organization**  
**(in \$1,000s of dollars)**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Operating appropriation to central IT organization</b>	\$2,130	\$9,800	\$2,047	\$985	\$950	\$3,000
<b>Capital appropriations for central IT organization</b>	\$498	\$1,500	\$473	\$280	\$275	\$572
<b>Resale of central services (chargeback) to departments</b>	\$800	\$5,358	\$143	\$44	\$88	\$626
<b>Resale of central services to external entities</b>	\$253	\$619	\$211	\$10	\$12	\$150
<b>Resale of products to departments</b>	\$200	\$500	\$28	\$12	\$30	\$525
<b>Resale of products to external entities</b>	\$62	\$124	\$36	\$12	\$40	\$215

**Table 2-2**  
**Percentage of Campus Central IT Organizations Having Various Sources of IT Funding**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Operating appropriation to central IT organization</b>	100%	100%	100%	100%	100%	100%
<b>Capital appropriations for central IT organization</b>	67.0%	60.4%	68.0%	64.1%	70.3%	75.3%
<b>Resale of central services (chargeback) to departments</b>	41.3%	82.8%	37.3%	18.3%	7.7%	53.6%
<b>Resale of central services to external entities</b>	21.4%	47.8%	13.6%	11.5%	5.5%	26.8%
<b>Resale of products to departments</b>	16.7%	38.8%	10.1%	7.6%	3.3%	22.7%
<b>Resale of products to external entities</b>	10.6%	23.1%	5.3%	8.4%	1.1%	14.4%

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 predic-

tor of the amount of money allocated to the IT organization from operating appropriations after controlling for campus budget. Thus, for this funding source, actual dollar amount provided to the IT organization may be due not only to level of overall campus resources but

**Table 2-3  
Central IT Funding per FTE Faculty Member**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	\$14,303	\$16,634	\$13,040	\$13,079	\$11,439	\$24,010
<b>Median</b>	\$12,271	\$14,183	\$11,762	\$12,314	\$9,131	\$18,307

**Table 2-4  
Central IT Funding per FTE Student**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	\$1,400	\$1,481	\$809	\$1,045	\$502	\$3,607
<b>Median</b>	\$765	\$1,118	\$713	\$916	\$437	\$732

also to different practices in money allocation among Carnegie classes.

The core data survey included a question about the source of funding for 13 functions potentially supported by the IT organization in order to understand whether these functions are supported primarily through operating and/or capital allocations, chargeback, fees, and so forth. While these analyses are too extensive to include in detail in this summary, they provide insight into the campus strategy and how this varies by Carnegie class. In general, for all functions the vast majority of funds come from the allocation to the central IT organization from the campus operating budget. This typically does not vary across Carnegie classes. The only exception to this pattern is the funding profile of telephony: among doctoral schools cost recovery, not the campus operating budget, was the largest contributor by a large margin for the telephony function. The relative importance of cost recovery dollars as a funding source among doctoral institutions as compared to other Carnegie classes is not as compelling for other IT functions, but is nonetheless a reliable finding. Overall, reliance on cost recovery as a funding source for IT increases as the complexity of responding institutions increases.

One of the goals of the Core Data Service is to allow for the exploration of these data to see if other business ratios can be found that would be both stable and useful. In the past, one of the key budget ratios that was useful to exam-

ine was the percentage of the educational and general (E & G) budget devoted to the central IT organization. With changes in accounting regulations and the movement away from fund accounting, this E & G value has disappeared. Currently we are exploring possible ratios related to expenditures and revenues, using IPEDS<sup>1</sup> and other regularly reported campus data, but thus far we have found no reliable, consistent, and/or meaningful denominator. This effort will be ongoing, but the current level of ambiguity led us to forego pursuing any such ratios for this report.

We did pursue two other ratios in order to explore whether any standards or benchmarks can be defined, using data reported through IPEDS for FTE faculty and students. With the caveat that these are preliminary findings, not hard science, it is interesting to note the relative consistency of the ratio of central IT dollars per faculty member presented in Table 2-3, as well as the less consistent student ratio presented in Table 2-4. These two ratios can be examined longitudinally in the upcoming years.

### **Central IT Personnel Compensation**

In Table 2-5, the amount of compensation (including benefits) paid by or through the central IT organization is shown for five categories of personnel in thousands of dollars. The total of these numbers for fiscal year 2001–2002 differs significantly by Carnegie classification. As expected, the average compensation paid to each of these personnel

**Table 2-5**  
**Median Total Compensation for Various Types of Central IT Personnel (in \$1,000s of dollars)**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Staff</b>	\$1,389	\$8,062	\$1,270	\$656	\$650	\$1,583
<b>Students</b>	\$99	\$394	\$118	\$45	\$34	\$41
<b>Consultants</b>	\$44	\$140	\$28	\$20	\$30	\$50
<b>Contractors</b>	\$68	\$176	\$50	\$30	\$45	\$120
<b>Other</b>	\$130	\$249	\$143	\$3	\$14	\$43

**Table 2-6**  
**Percentage of Campus Central IT Organizations That Employ Various Categories of Personnel**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Staff</b>	99.7%	100%	99.4%	99.2%	100%	100%
<b>Students</b>	84.6%	96.3%	92.3%	92.4%	70.3%	57.7%
<b>Consultants</b>	52.1%	58.2%	55.0%	38.2%	49.5%	59.8%
<b>Contractors</b>	43.6%	51.5%	41.4%	33.6%	44.0%	49.5%
<b>Other</b>	2.1%	5.2%	1.8%	0.8%	1.1%	1.0%

**Table 2-7**  
**Percentages of Total Central IT Funding Spent on Central IT Staff Compensation**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	50.6%	50.3%	50.5%	50.8%	55.0%	46.7%
<b>Median</b>	48.4%	48.5%	48.8%	48.5%	53.2%	44.6%

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, and likely for the same reasons with respect to level of overall campus resources.

Just as in Table 2-1, the values in each cell of Table 2-5 are the medians rather than means of those that reported any compensation in a category, and these values do not reflect the campuses that don't have any such expenditure. Table 2-6 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 looked at 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 six funding sources). The ratio of staff to total funding showed no differences across Carnegie groups and is really remarkably consistent, with about half of the total funding being spent on IT staff costs, as shown in Table 2-7. Maintaining a proper balance between people and technology has long been known to be an important consideration. The ratio developed from these data would 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.

**Decentralized IT Expenditures**

Our survey sought to capture data about estimated compensation (including benefits) for IT personnel and other IT-related expendi-

**Table 2-8**  
**Mean Compensation for IT Professionals and Other IT Expenses**  
**Outside of the Central IT Organization (in \$1,000s of dollars)**

	All	DR	MA	BA	AA	Other
<b>IT Compensation</b>	\$1,987	\$9,101	\$404	\$57	\$138	\$1,239
<b>Other IT Expenses</b>	\$2,630	\$10,456	\$599	\$126	\$285	\$1,970

**Table 2-9**  
**Percentage of Institutions That Cannot Estimate Compensation for IT Professionals**  
**Outside of the Central IT Organization**

	All	DR	MA	BA	AA	Other
<b>Unknown</b>	19.9%	32.1%	14.2%	13.7%	12.1%	28.9%

**Table 2-10**  
**Percentage of Central IT Personnel Expenditures**  
**As a Function of Total Campus IT Personnel Expenditures**

	All	DR	MA	BA	AA	Other
<b>Mean</b>	87.6%	75.7%	89.7%	95.6%	92.4%	85.2%
<b>Median</b>	97.3%	79.3%	96.5%	100%	100%	94.7%

tures (hardware, software, and so forth) outside of the central IT organization. Such decentralized expenditures vary dramatically based on the type of institution.

The average total compensation reported for staff classified as IT professionals employed outside of the central IT organization differs considerably by Carnegie class, as seen in the first row of Table 2-8. In fact, all comparisons revealed significant differences among groups. As with other IT financing data points, the average of total compensation increased in direct relation to the complexity of the institution. The second row in this table, labeled “Other IT Expenses,” reflects the expenditures by units outside of the central IT organization on equipment and all other non-personnel items. The sum of these two numbers (personnel compensation plus all other expenditures) is an estimate of how much institutions are spending outside of their central IT organizations.

It is important to note, however, that 124 institutions reported that the total compensation paid to IT professionals outside of the central IT organization is unknown. As shown in

Table 2-9, the group most frequently reporting not knowing this amount is doctoral institutions, in all likelihood because of their complexity and distributed nature. Of all responding campuses, about 80% were able to make a reasonable estimate about what was spent outside of their central IT organizations, with this percent lower for doctoral institutions. We concluded that campuses reporting zero dollars spent are essentially completely centralized, with all staff classified as IT professionals being employed within the central IT organization.

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 compared with the total of such campus expenditures (derived by combining the centralized and decentralized compensation numbers reported). As seen in Table 2-10, this number is quite

**Table 2-11**  
**Percentage of Total Centralized IT Funding as a Function of Total Campus IT Expenditures**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	81.1%	69.5%	84.9%	89.7%	83.5%	77.1%
<b>Median</b>	86.9%	69.2%	89.9%	94.1%	87.6%	81.3%

**Table 2-12**  
**Percentage of Campuses That Charge General Technology Fees**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Yes</b>	50.2%	59.0%	56.8%	36.6%	73.6%	22.7%

**Table 2-13**  
**Methods of Charging a General Technology Fee**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Flat fee per year</b>	12.5%	10.1%	12.5%	25.0%	0.0%	31.8%
<b>Flat fee per semester/quarter</b>	39.7%	39.2%	50.0%	54.2%	14.9%	40.9%
<b>Percentage of tuition</b>	2.9%	2.5%	4.2%	2.1%	3.0%	0.0%
<b>Based on credit hours</b>	37.8%	34.2%	29.2%	16.7%	77.6%	13.6%
<b>Other</b>	7.1%	13.9%	4.2%	2.1%	4.5%	13.6%

high for BA and AA schools, which appear to have predominantly central-only IT operations. This number is significantly lower for MA institutions and lower yet for doctoral institutions. This is essentially an indicator of the extent of decentralization occurring in these types of schools, and next year's data will help us understand whether any trends can be seen in this area.

The second ratio looks at the total central IT funding compared with the total campus IT expenditures (derived by adding total central IT organization funding to estimated IT-related expenditures outside of the central IT organization). These mean and median percentages are shown in Table 2-11. There is a pattern similar to the first ratio, but the ratios here are lower for smaller and/or less complex institutions, reflecting that commitments for equipment and other IT-related costs occur in a slightly more decentralized fashion at such schools, even though decentralized staffing is a relatively rare occurrence for these groups.

It appears that nearly one-third of all cam-

pus IT expenses are now occurring outside of the central IT organization at doctoral institutions. This ratio might even be greater if those institutions that were unable to report distributed costs had provided estimates, as it may well be that their inability to do so was at least in part due to a much more decentralized set of operations. These will also be interesting ratios to watch in upcoming years.

### **Technology Fees**

The percentage of schools that reported charging a general student technology fee differed significantly among Carnegie classes, as seen in Table 2-12. The highest percentage of schools charging such a fee was found among AA schools, with nearly three-fourths of these institutions doing so. Approximately 60% of MA and doctoral institutions charge a general student technology fee, and only slightly more than one-third of BA schools reported that they charge such a fee. In addition, not only does the percentage of schools charging a technology fee differ by Carnegie class, but

**Table 2-14**  
**Total Dollars Collected per Campus from Technology Fees (in \$1,000s of Dollars)**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	\$1,241	\$3,047	\$956	\$331	\$466	\$321
<b>Median</b>	\$605	\$2,715	\$673	\$211	\$300	\$128

**Table 2-15**  
**Determining How Technology Fees Are Spent**

<b>Who Determines?</b>	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Students</b>	31.1%	36.7%	33.3%	8.3%	44.8%	9.1%
<b>IT administration</b>	55.8%	54.4%	61.5%	43.8%	62.7%	40.9%
<b>Campus committee</b>	37.8%	41.8%	36.5%	29.2%	47.8%	18.2%
<b>Senior administration</b>	63.1%	58.2%	62.5%	62.5%	65.7%	77.3%
<b>State agency/system</b>	2.6%	1.3%	3.1%	0.0%	6.0%	0.0%
<b>Funds restricted by policy</b>	23.7%	20.3%	26.0%	22.9%	31.3%	4.5%
<b>Other means determine</b>	6.1%	11.4%	5.2%	4.2%	4.5%	0.0%

so does the basis for charging the fee, as seen in Table 2-13. Charging a flat fee per semester/quarter 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 average total dollars generated by the student technology fee also differs significantly as a function of Carnegie classification, as seen in Table 2-14, 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 dollars generated increases in direct relation to the number of FTE students per campus. "Other," AA, and BA institutions 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 can not be fully explained by differences in campus size.

Methods of determining how money generated by the technology fee is spent are consistent across Carnegie classes, as seen in Table 2-15. However, the percentages of schools that reported that students determine how this money is spent differ significantly among classes. A greater percentage of doctoral, MA, and AA schools (36.7%, 33.3%, and 44.8%, respectively) indicated that students determine how technology fee money is spent compared to BA and "Other" schools, where such a practice is uncommon. 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 that was examined has to do with whether a separate fee for residence-hall network connections is charged, as shown in Table 2-16. 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 similarly revealed that the practice of charging a separate fee for residence-hall network connections is signifi-

**Table 2-16**  
**Separate Residence-Hall Network Connection Fee**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Yes</b>	16.9%	26.1%	17.8%	6.9%	3.3%	28.9%
<b>No</b>	62.2%	73.1%	75.1%	89.3%	8.8%	38.1%
<b>No network connections</b>	3.9%	0.0%	2.4%	0.8%	7.7%	12.4%
<b>No residence halls</b>	17.0%	0.7%	4.7%	3.1%	80.2%	20.6%

**Table 2-17**  
**Percentage of Institutions Owning/Leasing Various Numbers of Computers**

<b>Number of Computers Owned/Leased</b>	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>0-500</b>	16.7%	0.7%	11.2%	35.1%	19.8%	20.6%
<b>501-1,000</b>	21.1%	0.7%	26.6%	38.2%	29.7%	8.2%
<b>1,001-2,000</b>	19.9%	5.2%	30.2%	20.6%	29.7%	12.4%
<b>2,001-3,000</b>	10.9%	10.4%	15.4%	6.1%	11.0%	10.3%
<b>3,001-5,000</b>	11.3%	15.7%	12.4%	0.0%	7.7%	21.6%
<b>5,001-10,000</b>	11.7%	34.3%	4.1%	0.0%	2.2%	18.6%
<b>More than 10,000</b>	8.4%	32.8%	0.0%	0.0%	0.0%	8.2%

**Table 2-18**  
**Number of Computers on Campus**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	4,116	11,596	1,878	863	1,462	4,561
<b>Median</b>	1,578	7,450	1,450	650	1,200	3,000

cantly related to Carnegie class. This practice is most common among “Other” institutions among this subset of respondents, and least common among BA schools (43.1% and 7.1%, respectively). Overall, charging such a fee is not a widespread practice, with fewer than 20% of all institutions doing so.

### **Equipment and Replacement Planning**

As institutional complexity increases, so does the number of computers owned or leased by the institution, as seen in Table 2-17. Approximately one-half of the AA and three-fourths of the BA schools responding to our survey reported owning or leasing 1,000 or fewer computers; more than half of the MA institutions reported owning or leasing 501–2,000

computers; and nearly 70% of doctoral schools owned or leased 5,001 or more computers, with nearly one-third of this group reporting more than 10,000 such computers. An examination of the means and medians similarly illustrates this pattern, as seen in Table 2-18. After controlling statistically for budget, FTE students, and faculty, Carnegie classification was no longer a significant predictor of the number of computers that a campus owns or leases. This suggests that the relationship of Carnegie class to number of computers is due to differences in institution size, as measured by FTE students and number of faculty.

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

**Table 2-19**  
**Number of Campus-Owned/Leased Computers per FTE Faculty Member**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	7.6	8.2	6.6	7.1	8.6	10.0
<b>Median</b>	6.5	7.2	6.0	6.3	7.5	7.5

**Table 2-20**  
**Number of Campus-Owned/Leased Computers per FTE Student**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	0.62	0.71	0.40	0.55	0.42	1.19
<b>Median</b>	0.42	0.53	0.35	0.47	0.38	0.45

**Table 2-21**  
**Percentage of Campuses Using Various Computer Replacement Cycles in Their Planning Efforts**

<b>Replacement Cycle</b>	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>None</b>	13.5%	22.4%	11.8%	12.2%	8.8%	10.3%
<b>&lt; 3 years</b>	3.2%	1.5%	3.6%	4.6%	4.4%	2.1%
<b>3 years</b>	37.3%	35.1%	46.2%	29.0%	33.0%	40.2%
<b>3–4 years</b>	13.7%	14.2%	13.0%	13.0%	16.5%	12.4%
<b>4 years</b>	24.8%	20.9%	19.5%	36.6%	25.3%	22.7%
<b>&gt; 4 years</b>	7.6%	6.0%	5.9%	4.6%	12.1%	12.4%

comparisons, we created two ratios, namely the number of computers per faculty FTE and the number of computers per student FTE, as seen in Tables 2-19 and 2-20. The number of computers owned or leased by an institution per FTE faculty member is significantly related to Carnegie classification. The highest averages are observed among the doctoral, AA, and “Other” classes. These groups do not differ significantly from each other, but they do differ from both the BA and MA schools. The number of computers does not differ significantly between BA and MA schools. For doctoral institutions and for the “Other” institutions (which include many research universities in other countries), the research component and number of machines for the research enterprise probably explain the numbers for these two categories of institutions. With AA schools the number probably reflects the higher student-faculty ratio and the need for institutionally owned machines to fulfill the teaching mission.

The number of computers owned or leased by an institution per FTE student also varies across Carnegie classes. Doctoral and “Other” institutions reported the greatest number of computers per student, and the differences between these classes and each of the other three are all significant. BA schools have, on average, significantly more computers per student than institutions within the AA and MA classes.

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 2-21. The percentage of doctoral institutions reporting that

**Table 2-22**  
**Percentage of Campuses with Replacement Funding in the Budget**  
**for Various Percents of Computers**

<b>Percent of Computers with Funded Replacement Cycles</b>	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>0-19%</b>	28.3%	47.8%	26.0%	21.4%	19.8%	22.7%
<b>20-39%</b>	17.0%	19.4%	17.2%	9.2%	18.7%	22.7%
<b>40-59%</b>	9.0%	6.7%	8.9%	13.0%	8.8%	7.2%
<b>60-79%</b>	12.7%	13.4%	11.2%	7.6%	18.7%	15.5%
<b>80-100%</b>	33.0%	12.7%	36.7%	48.9%	34.1%	32.0%

**Table 2-23**  
**Estimated Percentage of Campus Computers with Funded Replacement Cycles**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Mean</b>	49.4%	30.9%	51.8%	60.8%	54.7%	50.4%
<b>Median</b>	50.0%	20.0%	50.0%	75.0%	65.0%	50.0%

they have no planned replacement cycle is approximately twice as great as for other classes (22.4%). Approximately 50% of all responding institutions endorse a replacement cycle of either three years or between three and four years. This percentage is remarkably similar across Carnegie classes, although the percentage for MA schools is higher at approximately 60%. About one-fourth of MA and doctoral schools indicated that their replacement cycle is either four years or greater, whereas the percentage for all other classes for this cycle is approximately 35-40%.

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 2-22 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 2-23, which provides the mean and median percentages of campus computers that have replacement funding in the budget.

Approximately half of all institutions in each Carnegie class reported that 60% or more of their campus computers are on a replace-

ment cycle actually funded in the budget, with the exception of doctoral schools, among which the percentage is about 26%. Nearly half of all BA schools reported that 80-100% of their campus computers are on a funded replacement cycle, whereas nearly this same percentage of doctoral schools reported that 0-19% of their campus computers are on a funded replacement cycle. The average percentage reported by BA schools is significantly larger than all other classes, with the exception of AA schools, and the percentage for doctoral schools is significantly lower than for all other classes.

Finally, having a replacement plan and, further, having the replacement funds budgeted tells part of the story, but additionally respondents were asked what percentage of computers were actually replaced in the preceding fiscal year. These data are shown in Table 2-24. For those campuses that had a plan for computer replacement, the data for actually replaced computers were then compared with the expressed plan. If the actual replacement was within 5% of the plan, campuses were grouped into a category called "On Plan," while if they replaced more than this percentage they were labeled "Ahead of Plan,"

**Table 2-24**  
**Percentage of Campus Computers Replaced in Previous Fiscal Year**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>0–5%</b>	4.8%	3.7%	4.7%	8.4%	2.2%	4.1%
<b>6–10%</b>	8.0%	7.5%	5.9%	9.9%	8.8%	9.3%
<b>11–15%</b>	8.2%	8.2%	7.7%	10.7%	6.6%	7.2%
<b>16–20%</b>	25.7%	31.3%	25.4%	25.2%	20.9%	23.7%
<b>21–25%</b>	21.1%	23.9%	18.3%	19.8%	27.5%	17.5%
<b>26–30%</b>	16.6%	15.7%	16.0%	11.5%	20.9%	21.6%
<b>31–35%</b>	10.9%	8.2%	15.4%	8.4%	11.0%	10.3%
<b>&gt; 35%</b>	4.7%	1.4%	6.5%	6.1%	2.2%	6.2%

**Table 2-25**  
**Comparison of Actual Computer Replacement to the Expressed Replacement Plan for Schools with Replacement Plans**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Ahead of Plan</b>	7.6%	5.8%	8.7%	7.8%	6.0%	9.2%
<b>On Plan</b>	50.4%	50.0%	49.0%	47.8%	56.6%	50.6%
<b>Behind Plan</b>	42.0%	44.2%	42.3%	44.3%	37.3%	40.2%

**Table 2-26**  
**Percentage of Campuses with a Funding Model That Includes Renewal of the IT Capital Plant**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Yes</b>	48.9%	47.8%	47.9%	49.6%	45.1%	54.6%
<b>No</b>	51.1%	52.2%	52.1%	50.4%	54.9%	45.4%

and if they replaced less than this percentage they were labeled “Behind Plan.” These data are presented in Table 2-25. While this methodology is not perfect, it does give one a sense that about 60% of campuses have a plan and are living up to that plan, despite economic hardships in higher education.

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 2-26. The proportion of schools reporting that this is the case does not differ significantly across Carnegie classes.

### **Service Level Agreements and Outsourcing**

The use of external suppliers to run a campus IT function appears not to be a common practice overall. Over 60% of all institutions reported that they do not outsource or use ASPs at all, as shown in Table 2-27. This finding is highly consistent with a recent ECAR report on outsourcing.<sup>2</sup> There was a non-significant trend for the percentages of schools that reported use of outsourcing to differ by Carnegie class, with AA schools more often and doctoral institutions less often reporting outsourcing arrangements.

In looking at the areas in which campuses use outsourcers, there are only differences between Carnegie classes for “administrative

**Table 2-27**  
**Percentage of Campuses Using External Suppliers to Run Various IT Functions**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Administrative systems—transaction systems operation</b>	9.2%	3.7%	11.8%	12.2%	5.5%	11.3%
<b>Administrative systems—application development</b>	6.3%	2.2%	5.9%	6.9%	5.5%	12.4%
<b>Administrative systems—project management for implementations</b>	4.5%	4.5%	4.1%	5.3%	4.4%	4.1%
<b>Data center/computer operations</b>	2.9%	1.5%	5.3%	2.3%	2.2%	2.1%
<b>Desktop/user support services</b>	3.2%	3.0%	1.8%	3.1%	3.3%	6.2%
<b>Instructional management system</b>	6.4%	6.7%	8.9%	3.8%	6.6%	5.2%
<b>Media services</b>	0.8%	0.7%	0.0%	1.5%	1.1%	1.0%
<b>Network services</b>	2.9%	2.2%	2.4%	4.6%	2.2%	3.1%
<b>Print services</b>	3.9%	3.7%	3.0%	3.1%	4.4%	6.2%
<b>Telephone services</b>	10.9%	9.0%	9.5%	11.5%	7.7%	18.6%
<b>Web development/hosting</b>	8.4%	4.5%	9.5%	13.0%	4.4%	9.3%
<b>All central IT staff and services</b>	1.1%	0.7%	1.8%	1.5%	1.1%	0.0%
<b>Other IT service</b>	10.9%	20.9%	8.3%	6.9%	7.7%	10.3%
<b>No external suppliers</b>	61.1%	56.7%	61.5%	64.1%	71.4%	52.6%

**Table 2-28**  
**Percentage of Campuses Using Written Service Level Agreements for Various IT Services**

	<b>All</b>	<b>DR</b>	<b>MA</b>	<b>BA</b>	<b>AA</b>	<b>Other</b>
<b>Academic/Research Support</b>	11.3%	11.9%	11.2%	6.1%	9.9%	18.6%
<b>Administrative Systems Support</b>	28.5%	23.1%	27.8%	34.4%	17.6%	39.2%
<b>Data Center Services</b>	19.6%	32.8%	17.2%	10.7%	11.0%	25.8%
<b>Desktop/User Support</b>	25.7%	38.8%	21.3%	13.7%	14.3%	42.3%
<b>Instructional Technology Support</b>	11.7%	11.9%	14.8%	6.1%	8.8%	16.5%
<b>Media Services</b>	8.8%	11.2%	9.5%	3.8%	5.5%	14.4%
<b>Network Services</b>	25.6%	26.1%	24.9%	23.7%	19.8%	34.0%
<b>Print Services</b>	9.6%	11.2%	8.3%	6.1%	11.0%	13.4%
<b>Telephone Services</b>	25.4%	23.9%	26.6%	27.5%	17.6%	29.9%
<b>Web Support Services</b>	12.5%	16.4%	10.1%	7.6%	7.7%	22.7%
<b>Other IT Services</b>	4.7%	11.9%	4.1%	1.5%	1.1%	3.1%
<b>No SLAs</b>	50.0%	35.8%	52.7%	55.0%	71.4%	38.1%

systems—transaction systems operation” and “administrative systems—application development.” The percentage of MA, BA, and “Other” institutions that reported using an external supplier to run transaction systems operation is approximately two to three times greater than the percentage of doctoral and AA schools, but these are still relatively small percentages of each Carnegie group.

Finally, we analyzed the use of service level agreements, with results shown in Table 2-28. Service level agreements in any area are only found at about half of all campuses. The percentage of schools with IT services covered by written service level agreements differs significantly by Carnegie classification for many of the services examined, with a larger number of doctoral and “Other” campuses overall having such agreements in place.

## 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.
2. Ellen Hassett et al., *IT Outsourcing in Higher Education* (Boulder, Colo.: EDUCAUSE Center for Applied Research, 2002). Information about ordering this publication is available at <<http://www.educause.edu/ecar/research/doclisters.asp>>. A summary of key findings is available at <[http://www.educause.edu/ir/library/pdf/ecar\\_so/ers/ERS0201/ekf0201.pdf](http://www.educause.edu/ir/library/pdf/ecar_so/ers/ERS0201/ekf0201.pdf)> at no charge.