

Information Technology Services in Community Colleges

Strengths, Opportunities, and Challenges



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EXECUTIVE SUMMARY

Information technology departments at community colleges provide services to more than 13 million students annually.¹ Community colleges are distinguished from other types of higher education institutions by their institutional missions, the populations they serve, and the degrees and certifications they confer. However, as institutions of teaching and learning, they have congruent responsibilities with all higher education institutions to provide the technological infrastructure, support, and services that students, faculty, and staff need to be successful in their respective roles. ECAR engaged in a research project about IT services in community colleges to identify the strengths, opportunities, and challenges of community college IT.

This report is the product of a secondary analysis of data from the EDUCAUSE 2011 Core Data Service (CDS)² and the report *ECAR National Study of Undergraduate Students and Information Technology, 2011*.³ Data from these sources are utilized to assess the current status of six IT service areas at community colleges. Findings show that community colleges are leaders in the area of the technology of teaching and learning, are quite similar to other higher education institutions in IT resource allocation and IT management, and lag slightly in IT governance and sustainability; IT risk management presents the biggest opportunity for progress. The results of this study offer evidence rather than anecdotes about the status and nature of community college IT.

KEY FINDINGS

IT SUPPORT OF TEACHING AND LEARNING IS A PARTICULAR STRENGTH

- Compared to students at other types of institutions, community college students own fewer mobile devices, and community colleges meet students' needs for computer access through campus-based computers or loan/check-out programs.
- Community college students report that faculty excel in using the technology students value for academic success.
- Expectations for instructor use of technology are being met—the wish list for instructor use of technology is lighter for community colleges than for students attending other types of institutions.
- The majority of community college students report good or excellent access to online services, such as online course registration, and community colleges offer more distance education–related support than other types of institutions.
- Community colleges outpace others in online learning and the deployment of learning technology and practices.

IT RESOURCE ALLOCATION AND IT MANAGEMENT PRACTICES ARE SIMILAR TO OTHER TYPES OF INSTITUTIONS

- Community colleges allocate about the same per total FTE as other types of institutions; IT expenditures are about \$645 for each FTE at community colleges and across most other types of institutions.
- Community colleges serve more students with fewer IT staff, compared to other types of institutions.
- Although outsourcing remains relatively uncommon in higher education, community colleges generally outsource IT services at higher rates than other types of institutions.

IT GOVERNANCE AND IT SUSTAINABILITY PRACTICES ARE OPPORTUNITY AREAS FOR COMMUNITY COLLEGES

- Community colleges are more likely to have IT included in their strategic plans and have representation on the president's cabinet or higher, but faculty and students are less often included in the IT advisory process when compared to other types of institutions.
- Community colleges embrace some sustainability practices that involve central IT programs to minimize energy consumption and campus-wide programs to minimize energy consumption of desktop technology.
- Community colleges lag behind other types of institutions in many areas of IT sustainability, including establishment of policies on carbon neutrality and submetering of power for data centers.

MANAGING IT RISK POSES A CHALLENGE TO COMMUNITY COLLEGES

- While doing well with security basics, community colleges are below average when compared to other types of institutions in all but a few areas of risk management.
- Fewer community colleges than other types of institutions report having a disaster recovery plan and secondary power sources, making them more vulnerable than their counterparts during catastrophic events.

TEACHING AND LEARNING

COMMUNITY COLLEGES MEET STUDENTS' NEEDS FOR COMPUTER ACCESS

According to the results of the 2011 ECAR student technology study, community college students own the same number of technology devices (about 11) as students enrolled at other types of institutions. However, the devices owned by community college students are less likely to be mobile-capable (see Figure 1). Nearly all students own a computer (97% of community college students and 99% of other students), but community college students are particularly underrepresented when it comes to owning a mobile computing device.

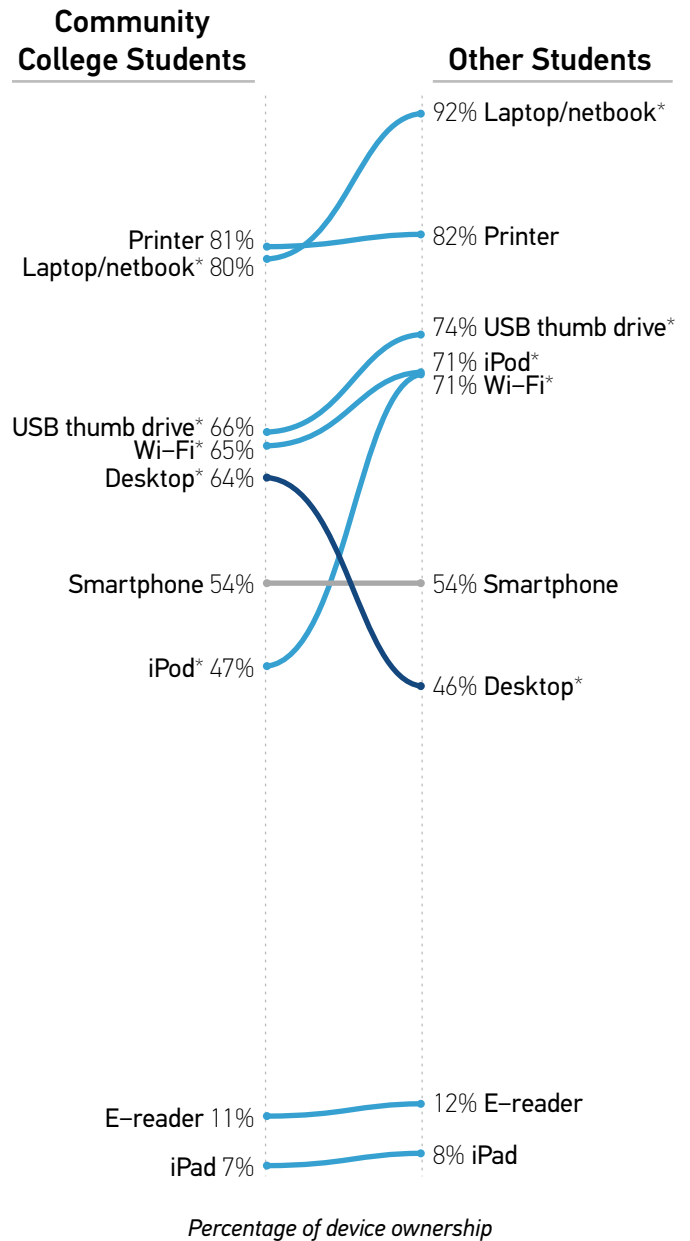
83%
OF COMMUNITY COLLEGE STUDENTS OWN A LAPTOP, NETBOOK, OR TABLET

95%
OF OTHER STUDENTS OWN A LAPTOP, NETBOOK, OR TABLET

es (about 11) as students enrolled at other types of institutions. However, the devices owned by community college students are less likely to be mobile-capable (see Figure 1). Nearly all students own a computer (97% of community college students and 99% of other students), but community college students are particularly underrepresented when it comes to owning a mobile computing device.

CDS data tell us that community colleges are less likely to have a policy requiring students to own or lease a computer (10% of community colleges, compared to 49% of other types of institutions), but they are more likely to provide on-campus cluster or kiosk-style computer workstations, laptop or tablet checkouts or loans, and computer workstations in classrooms that are accessible when classes are not scheduled. Looking at the percentage difference in student ownership of and access to computers best illustrates this story (see Figure 2).

Figure 1. Device Ownership



— Community college students own more
 — Community college students own less
 — No difference

*Significant at the .01 level

Figure 2. Student Computer Ownership of and Access to Computers

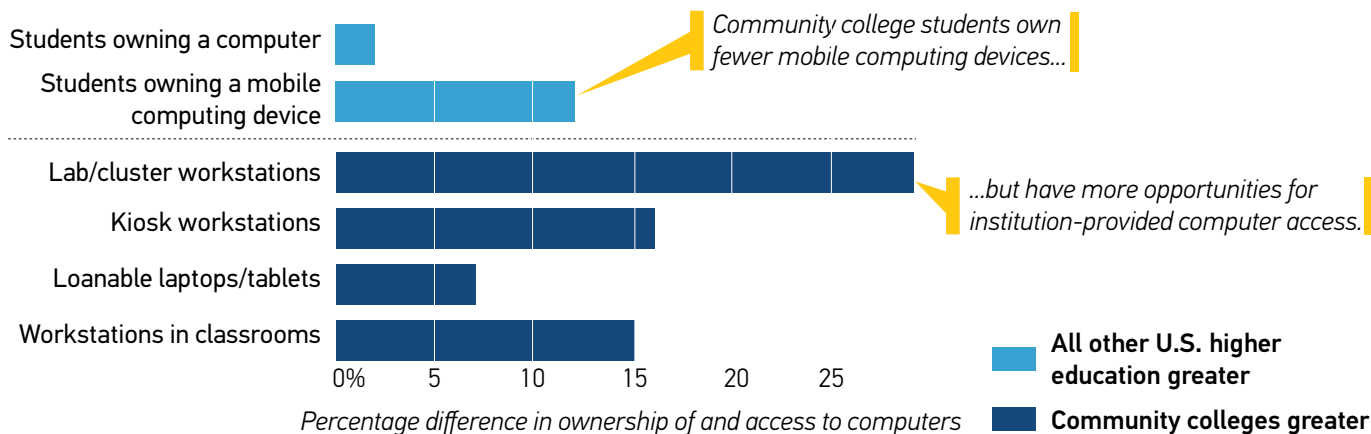
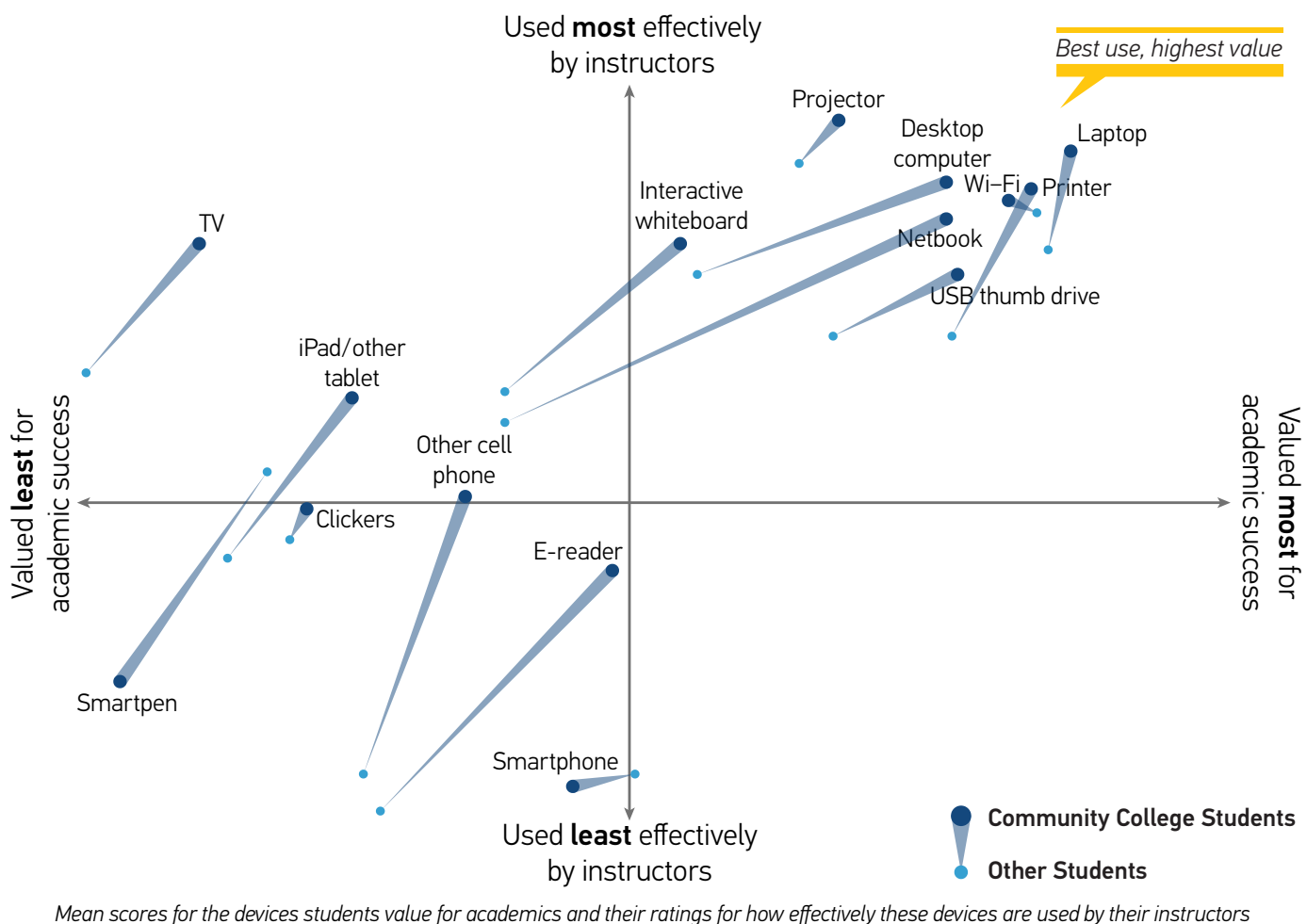


Figure 3. Effective Use of the Technology Students Value



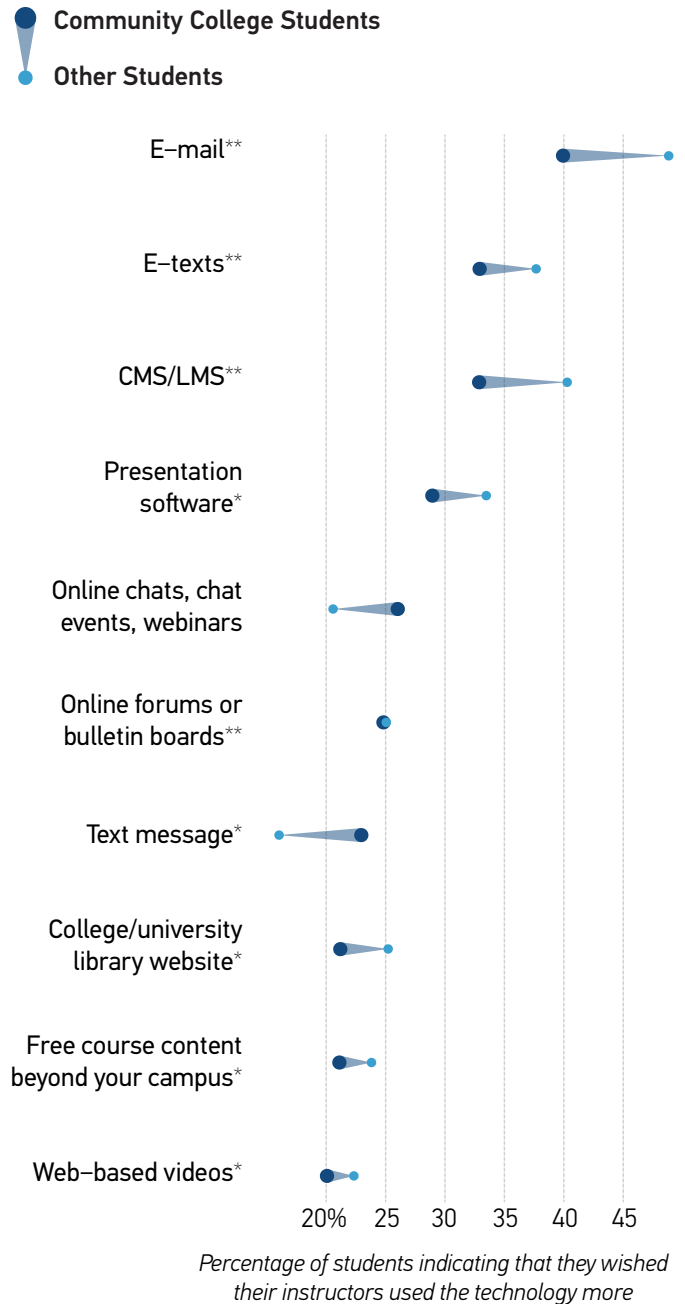
COMMUNITY COLLEGE FACULTY EXCEL IN USING TECHNOLOGY THAT STUDENTS VALUE

In comparing the technology that students value for their academic work with their ratings of effectiveness for how instructors use that technology, community colleges rate very well, according to the 2011 student study data. Community colleges outrank other types of institutions in both volume and magnitude of technologies that instructors use best and that students value the most (upper right quadrant of Figure 3).

COMMUNITY COLLEGES GENERALLY MEET STUDENTS' TECHNOLOGY EXPECTATIONS

When we asked students which technologies they wished instructors used more often, respondents at community colleges showed areas of congruence and divergence with students at other institutions. In looking at students' wish list data as a proxy for measuring the extent to which student expectations are met, community college students' technology needs are met more so than those of non-community college students (that is, community college students are more satisfied than other students; see Figure 4).

Figure 4. Technology Students Wished Their Instructors Used More



*Significant at the .05 level

**Significant at the .01 level

COMMUNITY COLLEGES PROVIDE THE ONLINE SERVICES THEIR STUDENTS VALUE

All types of institutions are doing well in terms of offering online services that students value. Community colleges take the lead in delivering some services to students online, such as course registration and textbooks. Community colleges have the most room to grow around making transcripts available online and offering online library resources (see Figure 5). Across higher education, student demand and expectations are not projected to decrease, so it will be an ongoing challenge for institutions to satisfy student demand in this arena.

Compared to other types of institutions, community colleges generally offer comparable or even larger numbers of IT services to support teaching and learning. Community colleges outpace other institutions in the areas of distance education and online learning but lag in providing student technology assistance in supporting faculty technology use (see Figure 6).

COMMUNITY COLLEGES OUTPACE OTHERS IN ONLINE LEARNING AND DEPLOYMENT OF LEARNING TECHNOLOGIES AND PRACTICES

Roughly the same percentage of students at community colleges and other institutions (79% and 80%, respectively) prefer courses with some online components, but more community college students have taken a course entirely online (70% and 59%, respectively). In line with this finding, community colleges report greater levels of broad deployment of e-learning and distance education learning technologies, compared to other types of institutions (see Figure 7).

Figure 5. Student Perceptions of Online Services, Applications, and Websites

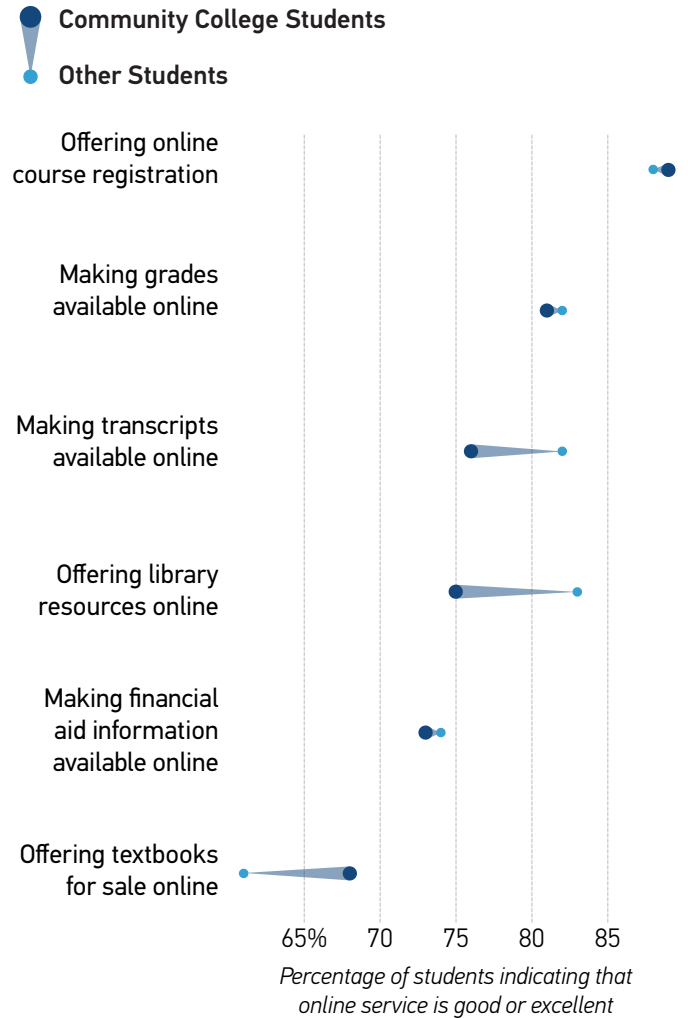


Figure 6. Support Services for Teaching and Learning

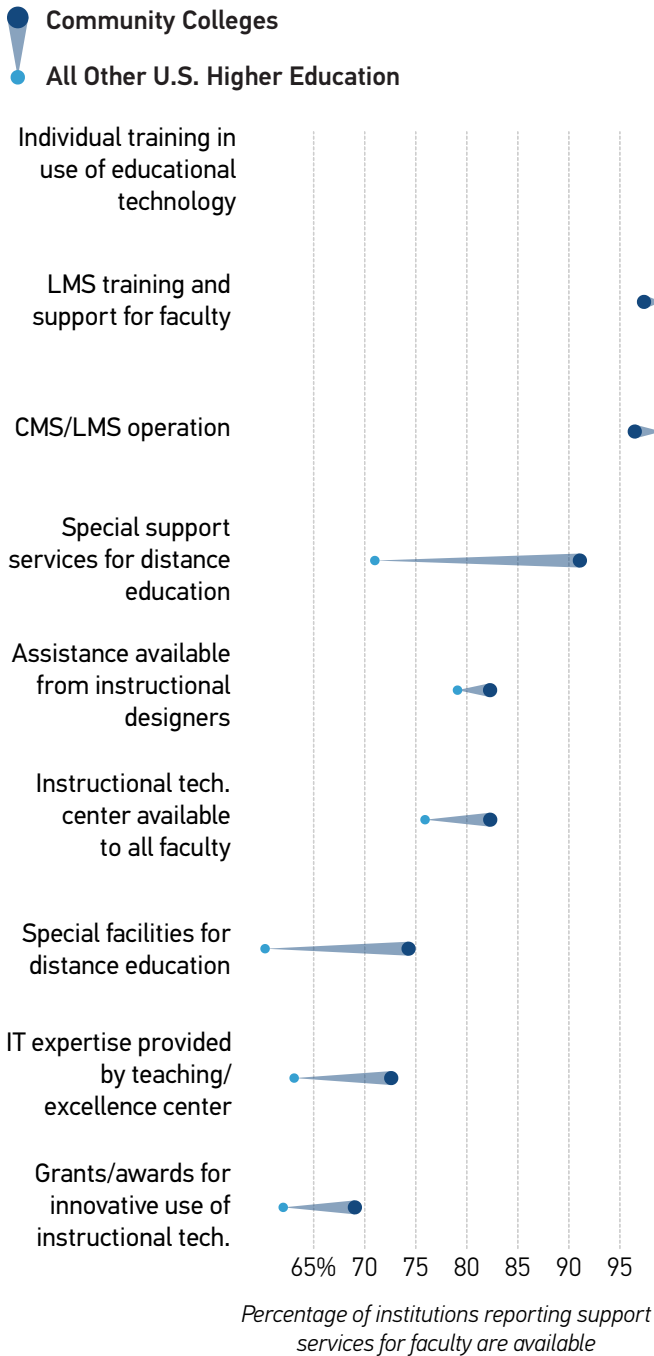
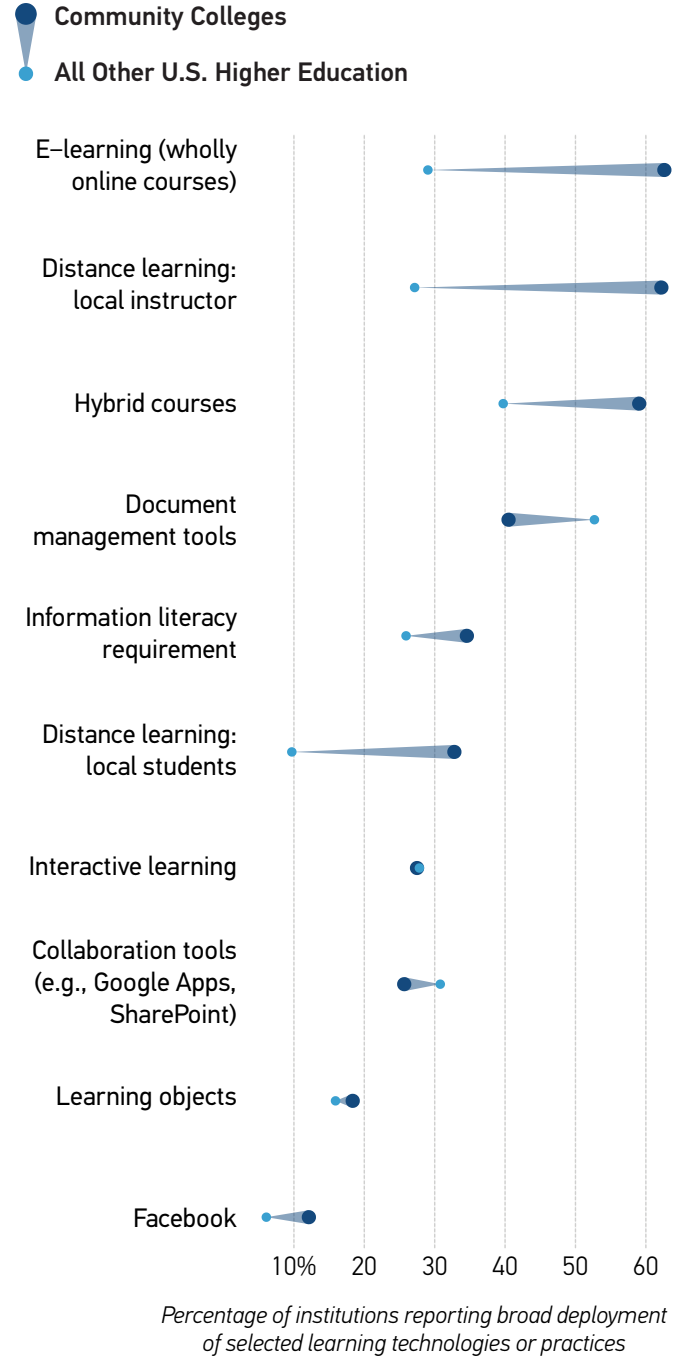


Figure 7. Deployment of E-Learning Practices

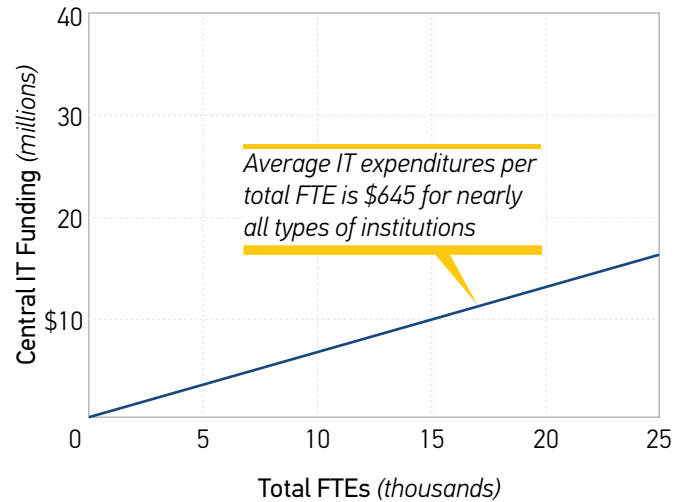


RESOURCE ALLOCATION

IT RESOURCE ALLOCATION IS APPROXIMATELY \$645 PER FTE FOR NEARLY ALL TYPES OF INSTITUTIONS

It's no surprise that IT organizations that support larger numbers of staff and students allocate more resources to IT. In fact, almost three-fourths of the variability in total central IT resource allocation can be explained by Carnegie class and total institutional FTE (employees and students). What is unexpected is that the estimated amount spent per total FTE is the same for most types of institutions. Figure 8 shows the estimated relationship between total FTE and central IT funding for community colleges. The real story about resource allocation is told by the slope of the line, showing that IT expenditures increase at about the same rate for most Carnegie classes as FTEs increase. The estimated resource allocation per total FTE is \$645 for all schools except private doctoral institutions (\$1,168 per FTE) and private liberal arts bachelor's institutions (\$1,347 per FTE). Although these estimates are based on data collected in 2011, there was no significant difference in estimates from 2009 to 2011.

Figure 8. Estimated IT Funding per Total FTE



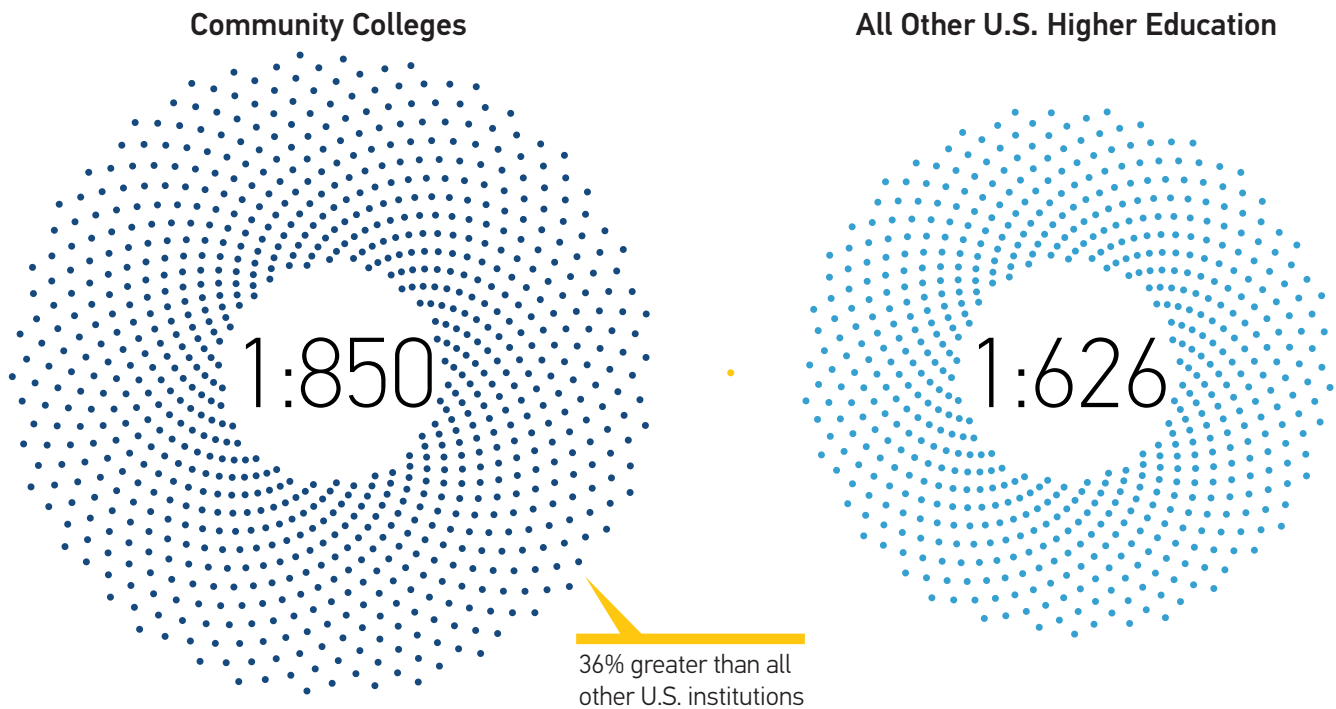
All U.S. higher education institutions, excluding private DR and private BA institutions

MANAGEMENT

COMMUNITY COLLEGES SERVE MORE STUDENTS WITH FEWER IT STAFF

Community college IT support staff serve an average of 850 FTEs each. This is 36% more than the 626 FTEs per IT support staff reported by other types of colleges (see Figure 9). IT support staff include the help desk, desktop computing, user support, training, the computer store, and other types of support services staff.

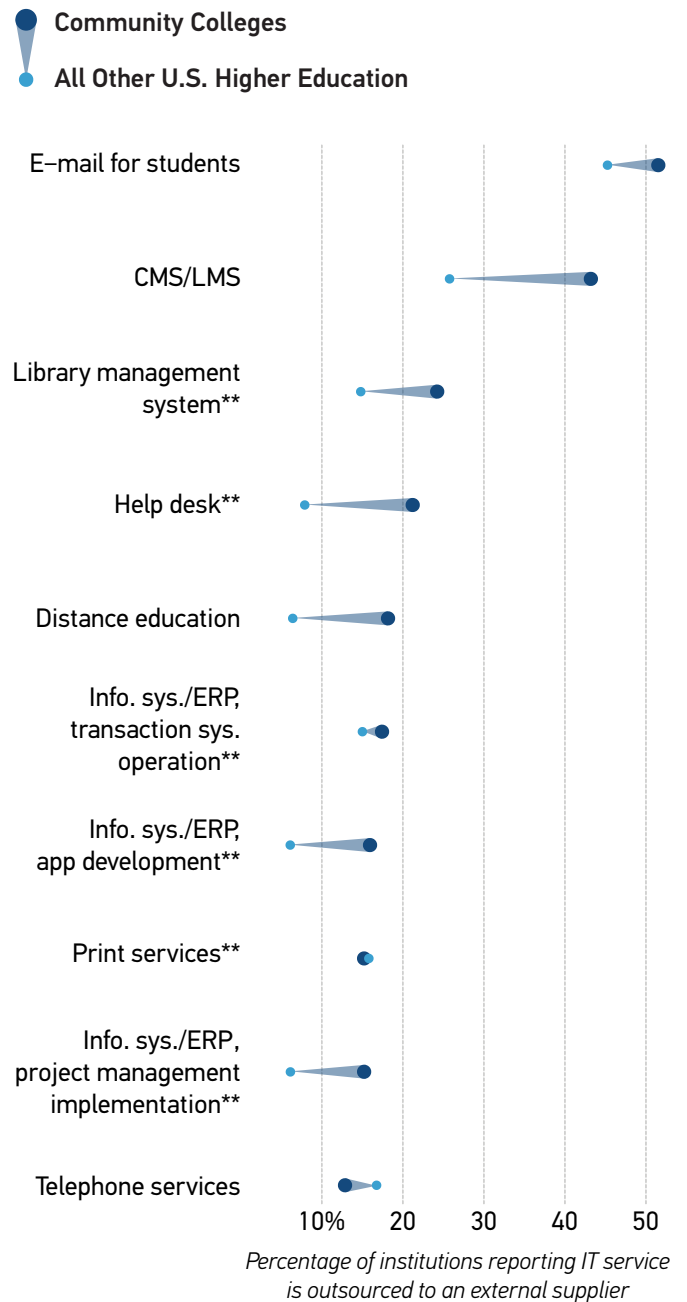
Figure 9. Ratio of IT Support Staff per Student



OUTSOURCING IS STILL MORE A TOPIC OF CONVERSATION THAN AN ACTION FOR COMMUNITY COLLEGES

In these difficult economic times, outsourcing is on the minds of many as a potential cost-reduction strategy. The CDS survey asked both about outsourcing IT services and outsourcing IT functions. Though community colleges lead in most areas, outsourcing is still relatively uncommon (see Figure 10). Only 4.5% of community colleges are outsourcing three or more functions, and 5.3% reported that “all or nearly all” of their IT staff were provided through an outsourcing arrangement with an external supplier. (The latter are not exactly the same institutions as the former.) But community colleges are nonetheless three times as likely as other institutions to have outsourced three or more functions and twice as likely to have outsourced all or nearly all IT staff.

Figure 10. Practices for Outsourcing IT Services



*Significant at the .05 level

**Significant at the .01 level

GOVERNANCE

COMMUNITY COLLEGES PLAN FOR IT STRATEGICALLY BUT HAVE LESS REPRESENTATION FROM FACULTY AND STUDENTS IN THEIR ADVISORY PROCESS

Community colleges report including IT in their institutional strategic plans at higher rates than other types of institutions (86% and 73%, respectively). Most community college IT departments (89%) receive advice from the president’s cabinet or above, a general IT services committee, and a separate committee for administrative information systems (see Figure 11).

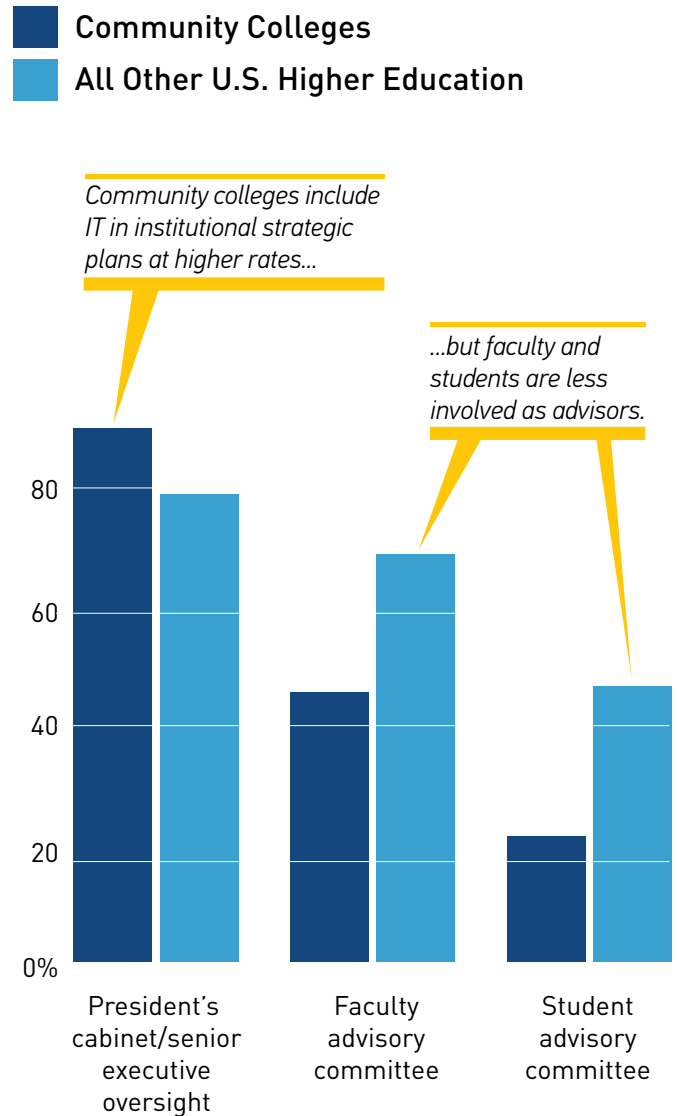
Community colleges involve faculty and students as advisors in IT governance at lower rates than other types of institutions. The most common type of student involvement is through IT-related advisory groups that exist outside central IT. However, when community college students are involved in a central IT advisory committee, they are much more likely to be included as voting members than at other types of institutions.

86%
OF COMMUNITY COLLEGES INCLUDE IT IN STRATEGIC PLANS

73%
OF OTHER INSTITUTIONS INCLUDE IT IN STRATEGIC PLANS

community college students are involved in a central IT advisory committee, they are much more likely to be included as voting members than at other types of institutions.

Figure 11. Advisory Practices for IT Governance



Percentage of institutions reporting that central IT receives advices from other constituencies

SUSTAINABILITY

COMMUNITY COLLEGES EMBRACE SOME SUSTAINABILITY PRACTICES

Community colleges are leaders in two notable areas of sustainable practices: having a central IT program to minimize energy consumption, and having a campus-wide program to minimize energy consumption of desktop technology. In both instances, the proportion of community colleges deploying these practices is about 10% higher than the percentage of other higher education institutions.

45%
OF COMMUNITY COLLEGES HAVE A CENTRAL IT PROGRAM TO MINIMIZE ENERGY CONSUMPTION

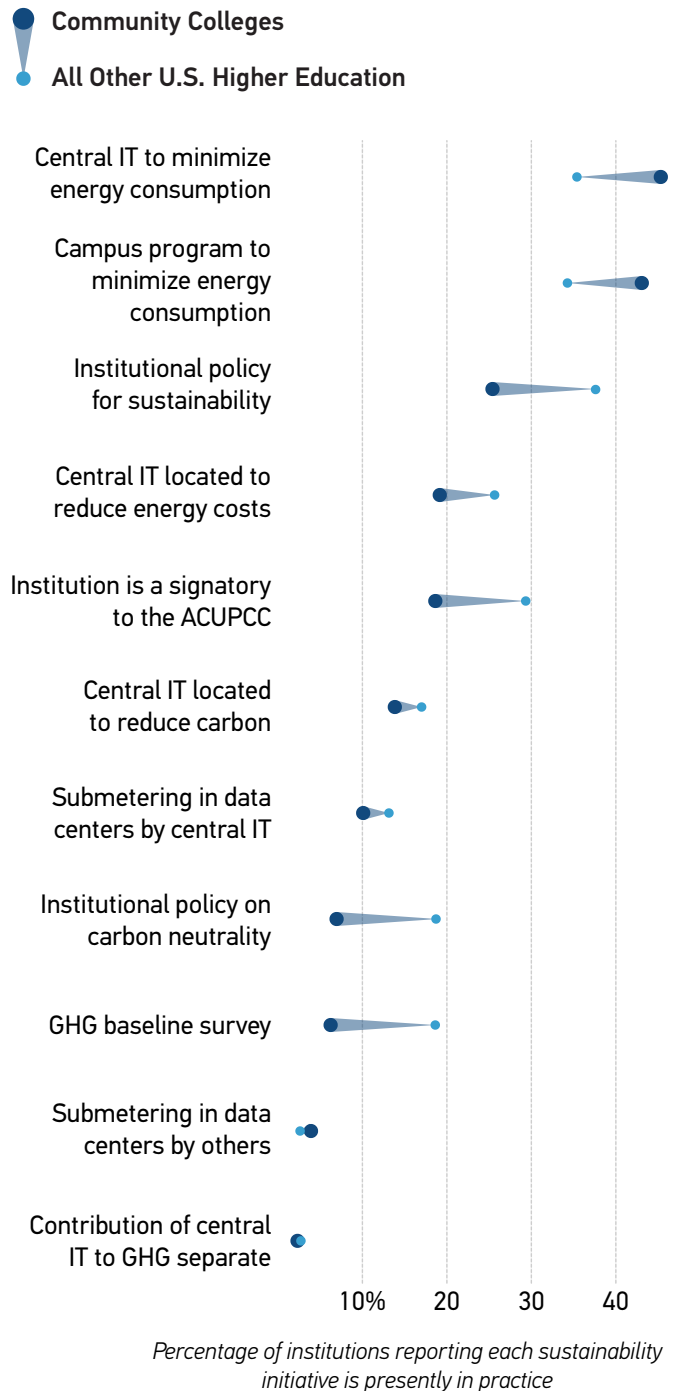
35%
OF OTHER INSTITUTIONS HAVE A CENTRAL IT PROGRAM TO MINIMIZE ENERGY CONSUMPTION

SUSTAINABILITY EFFORTS ARE UNDER DEVELOPMENT FOR COMMUNITY COLLEGES

In looking at 11 areas of sustainability, community colleges demonstrate more maturity around campus-wide or central IT programs to minimize energy consumption—these practices are moderately common. In the remaining areas, community colleges are not presently leaders. Community colleges lag the most in four areas (see Figure 12):

- Policy for sustainability
- Signatory to ACUPCC
- Policy on carbon neutrality
- Greenhouse gas (GHG) baseline survey

Figure 12. Sustainability Practices



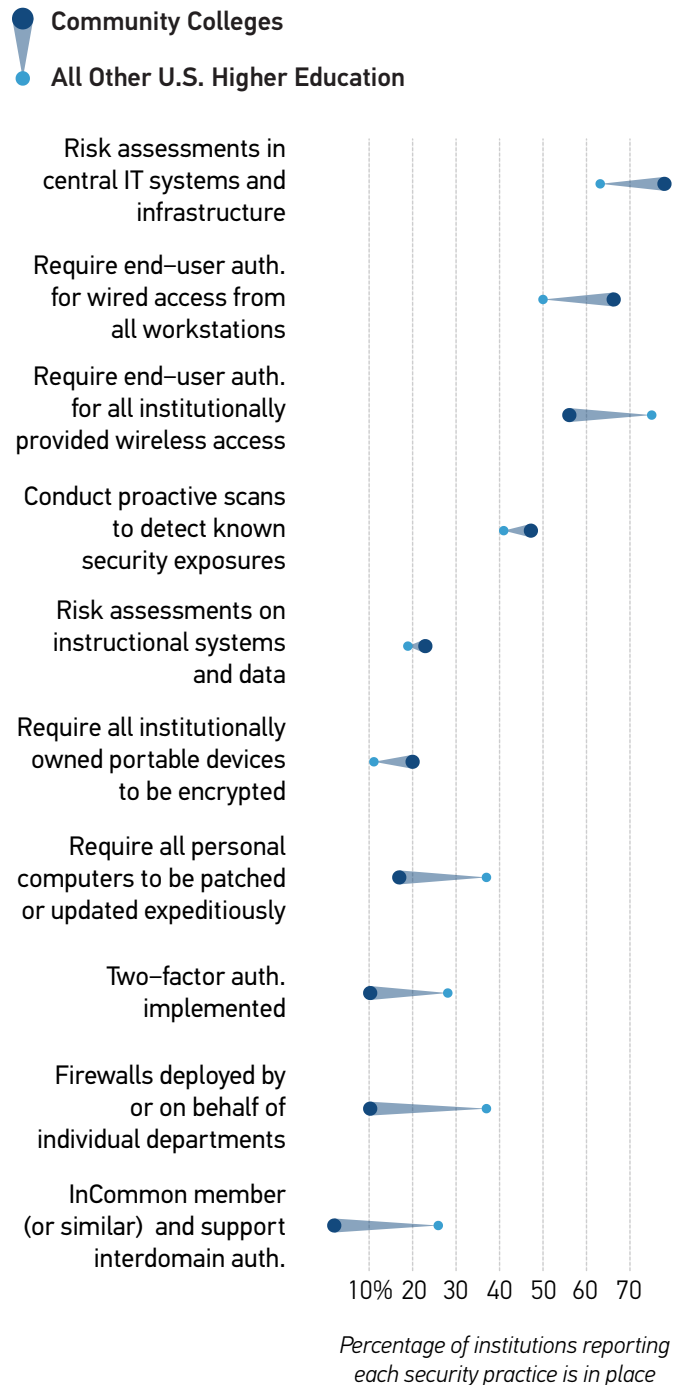
MANAGING RISK

COMMUNITY COLLEGES ARE DOING WELL AT SECURITY BASICS BUT LAG WHEN IT COMES TO IT SECURITY ACTIVITIES

All types of institutions are doing well at IT security basics, with more than three out of four having firewalls at external Internet connection(s), having requirements to expeditiously patch or update all critical systems and institutionally owned or leased computers, and giving IT security personnel the authority and ability to disable network port services.

Community colleges outpace their counterparts when it comes to some security practices, such as assessing risk in central IT systems and infrastructure (78% versus 63%) and requiring end-user authentication for wired access to workstations (66% versus 50%). However, they are lagging in many other areas we asked about regarding information security activities (see Figure 13).

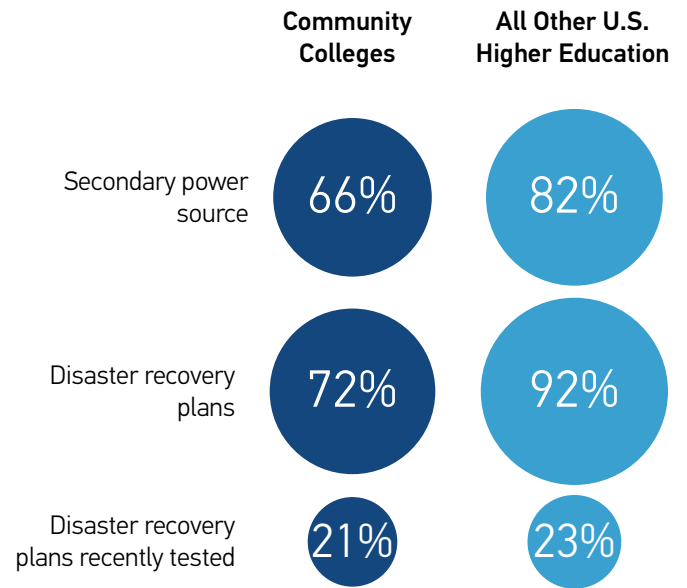
Figure 13. Selected Security Practices



DISASTER RECOVERY—BETTER THAN CROSSING FINGERS BUT ROOM TO GROW

About one in three community colleges (34%) and one in five other institutions (18%) lack a secondary power source (see Figure 14). About one in four community colleges (28%) report that they don't have a disaster recovery plan for their data center, whereas only 8% of other types of institutions lack a plan. The term "data center" is used broadly here and includes everything from ERP data to research computing data. Most institutions haven't tested their disaster recovery plans recently; however, of those institutions that have recovery plans, community colleges and other institutions test their recovery plans at about the same rate (about 20%).

Figure 14. Provisions for Secondary Power and Disaster Recovery



Percentage of institutions reporting that secondary power or disaster recovery practice is in place and system was recently tested

CONCLUSIONS AND RECOMMENDATIONS

This review was made possible by assessing data gathered through two annual EDUCAUSE data-collection projects: the Core Data Service survey and the annual student technology survey. Broad institutional participation in these surveys allowed for a comparative breakdown of responses by Carnegie class. This provided two benchmarking metrics inherent in the results: The first considers how community colleges, as a group, compare to other types of institutions, while the second considers how individual institutions compare to other community colleges. Our findings are based on the former, while our recommendations are intended to be in the context of the latter. The power and utility of these recommendations hinge on your ability to internalize the findings by comparing your institution's practices to the norm and to note where kudos are deserved or where strategic improvements can be made. Consider these questions before reading our recommendations for facilitating improved practices:

1. What do you know about the technologies your students own and how well IT services are meeting their needs?
2. What support do you currently provide to help faculty use technology in teaching?
3. How many students, faculty, and staff does each IT support FTE service? What is your IT cost per FTE?
4. Does your institution's strategic plan include IT? Do faculty and students have a voice in IT planning?
5. Do you have a program to minimize IT energy consumption, and, if so, how comprehensive is this program?
6. How safe are your data centers?
7. Do you have a disaster recovery plan, and, if so, when was the last time it was rehearsed?
8. Do you participate in CDS and the student technology surveys to give your institution access to benchmarking data about IT?

Your answers to these questions will allow you to maximize the utility of the following recommendations:

IT TEACHING AND LEARNING

- Recognize that fewer community college students than other types of students own mobile devices and assess your institution's efforts to meet student needs for computer access through campus-based computers or loan/check-out programs.

- Identify the technology that students value for their academic success, make that technology available, and continue to support faculty use of that technology.
- Assess the status and availability of student-facing services, applications, and websites and be prepared to meet students' evolving expectations for on-demand access.
- Continue to be leaders in the domain of distance education; pinpoint areas in which there is room to improve through regular benchmarking, and strategically target improvement efforts in those areas.

IT RESOURCE ALLOCATION

- Consider how your institution measures up to the overall average of \$645 in IT expenditures per total FTE, and consider whether your institution is under or over this mark by design or by chance.

IT MANAGEMENT

- Consider opportunities to outsource IT functions and services with external suppliers.

IT GOVERNANCE

- Include IT in institutional strategic plans and have IT leadership representation on the president's cabinet or higher.
- Include faculty and student representatives in the IT advisory process.

IT SUSTAINABILITY

- Continue to be leaders in sustainability practices that involve central IT programs to minimize energy consumption.
- Work toward improving sustainability practices in other areas such as establishment of policies on carbon neutrality and submetering of power for data centers.

IT RISK

- Consider how well data are protected at your institution, whether there is a current and achievable disaster recovery plan in place, and the frequency of testing that plan.

METHODOLOGY

Information Technology Services in Community Colleges: Strengths, Opportunities, and Challenges is the product of a secondary analysis of the EDUCAUSE 2011 CDS survey and ECAR National Study of Undergraduate Students and Information Technology, 2011. A total of 133 of the 827 CDS respondents were from community colleges, and the remaining 694 institutions were aggregated into a comparative “all other U.S. higher education” group. A full version of the CDS report is available at www.educause.edu/cds. A total of 1,122 community college students from 398 different institutions were included in the 2011 student technology survey sample; the remaining 1,878 students from other types of institutions were aggregated into a comparison group of “all other U.S. higher education.” The student study data were weighted to represent a national sample of undergraduate students. A full version of the 2011 student technology study report is available at www.educause.edu/ecar. Statistical significance is noted where applicable.

ENDNOTES

1. See <http://www.aacc.nche.edu/AboutCC/Documents/FactSheet2012.pdf>.
2. Susan Grajek and Pam Arroyo, *The EDUCAUSE 2011 Core Data Service Report: Highlights and Insights into Higher Education Information Technology*, Boulder, CO: EDUCAUSE, January 2012, available from <http://www.educause.edu/coredata>.
3. Eden Dahlstrom, Tom de Boer, Peter Grunwald, and Martha Vockley, with a foreword by Diana Oblinger, *ECAR National Study of Undergraduate Students and Information Technology, 2011* (Research Report), Boulder, CO: EDUCAUSE Center for Applied Research, October 2011, available from <http://www.educause.edu/ecar>.

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