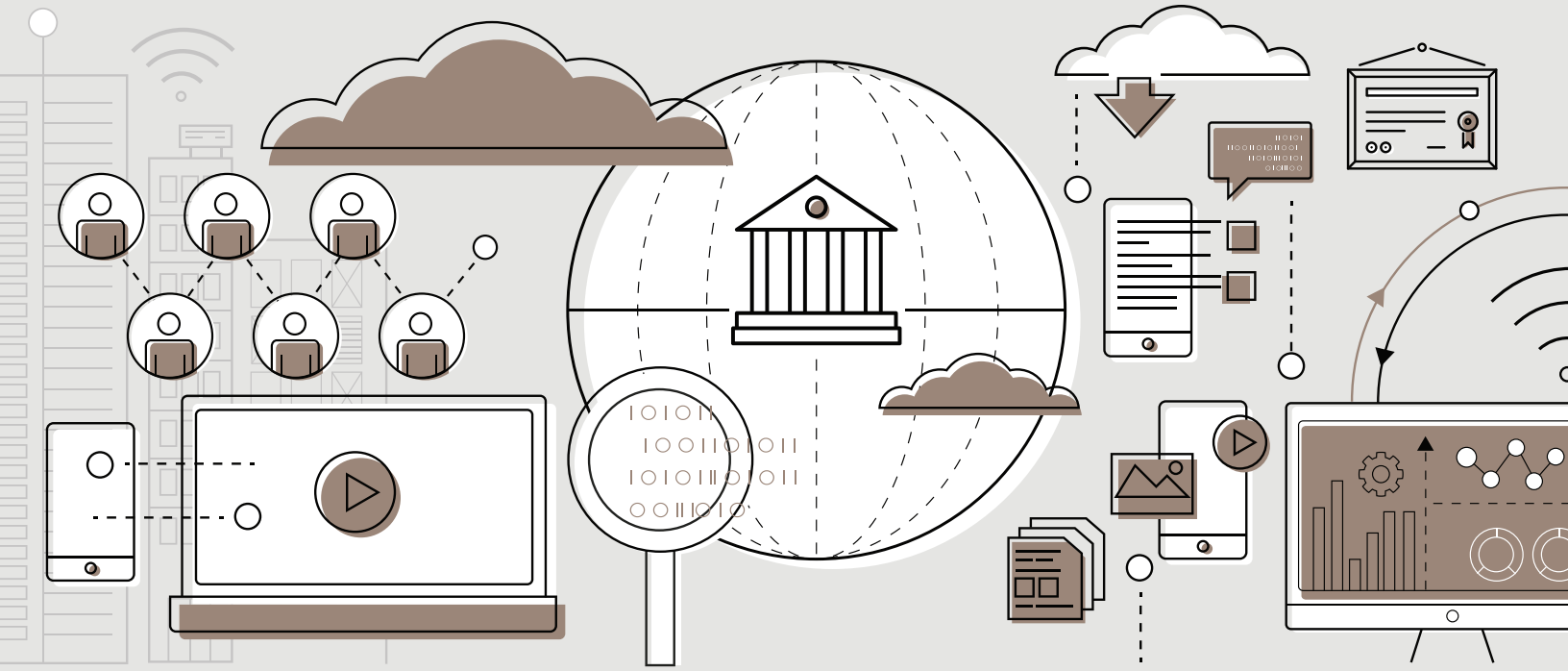
2018
CAMPUS COMPUTING

The 29th National Survey of Computing and Information Technology in American Higher Education

Kenneth C. Green



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Kenneth C. Green

October, 2018

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Begun in 1990, The Campus Computing Project is the largest continuing study of the role of computing and information technology in American higher education.

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Additional information about The Campus Computing Project is available on the World Wide Web at: campuscomputing.net.

Past (out-of-print) editions of the annual Campus Computing Survey Report (1990-2002) are available on microfiche from the ERIC Clearinghouse Service sponsored by the US Department of Education. Please check the ERIC web site: www.eric.ed.gov

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The 29th National Survey of Computing and Information Technology in American Higher Education

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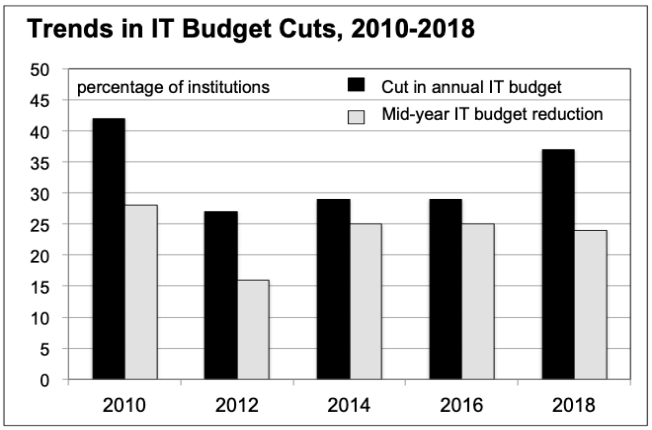
The 2018 National Survey of eLearning and Information Technology in US Higher Education

The Compounding Consequences of IT Budget Cuts; Few Campuses Evaluate the Impact of Their IT Initiatives

New data from the 2018 Campus Computing Survey highlight the compounding consequences of both annual IT budget cuts and mid-year budget reductions on campus IT organizations – and by extension, campus technology resources and services. Fully two-thirds (68 percent) of the fall 2018 survey participants report that campus IT funding has not recovered from the recurring budget cuts that began for most institutions with the "Great Recession" in fall 2008.



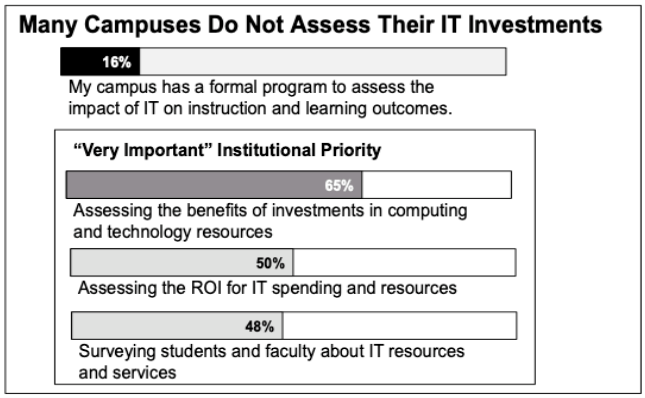
"Annual IT cuts and mid-year budget reductions have become all too common for all too many institutions over the past decade," says Kenneth C. Green, founding director of The Campus Computing Project. Green notes that public four-year colleges and community colleges, in particular, have suffered most from the reductions in IT funding in recent years. "These recurring cuts come despite the growing demand and expanding need for campus IT resources and services to support instruction and campus operations, and also increased IT security challenges," says Green. One key indicator of the budget challenges facing IT leadership is that four-fifths (79 percent) of the survey participants report that their campus "has a difficult time retaining IT talent because salaries and benefits are not competitive with off-campus job opportunities."

Few Campuses Evaluate the Impact of Their IT Initiatives

Fully two-thirds (65 percent) of the 2018 survey participants, typically the CIO or other senior campus IT official, identify "assessing the benefits of campus investments in computing and technology resources" as a "very important" institutional priority. However, just a sixth (16 percent) of campus officials participating the 2018 survey report a "formal [institutional] program to assess the impact of IT on instruction and learning outcomes."

The fall 2018 data mirror the numbers in past years. In fact, the percentage of institutions reporting formal IT assessment initiatives has dropped over the past decade from 21 percent in 2007 (in the wake of the Spellings Commission) to 16 percent in fall 2018.

"The reality is that while institutions and academic programs make significant investments in IT resources to support instruction, comparatively few campuses have sustained institutional initiatives to assess the impact of these efforts on student learning and institutional outcomes," notes Green. "Part of the challenge is that the academic initiatives are often programmatic or centered in academic departments, and are perhaps championed by a few faculty members who see an opportunity leverage IT and digital curricular resources to enhance courses and improve the learning experience. But in too many circumstances the formal assessment of these initiatives may be an afterthought or unfunded expense." Absent any assessment, faculty and campus officials are left with either opinion or epiphany, rather than evidence, about the impact of these efforts.



Campus IT Priorities

This year IT security emerged as the top IT priority for IT leadership, followed by hiring and retaining IT talent. Leveraging IT to support student success initiatives ranked third, followed by assisting faculty with the instructional integration of IT. These four issues have been among the top five IT priorities in the annual Campus Computing survey for the past several years. Interestingly, analytics is a newcomer to the Top Five IT priority list for fall 2018.

Top Campus IT Priorities, Fall 2018

Rank	Issue	Challenges (and yet…!)
1	IT Data Security (86%)	• Just 35% rate IT security as "excellent"
2	Hiring/Retaining IT Talent (74%)	• Four-fifths (79%) report it is hard to hire/retain IT talent because of off-campus competition and salaries
3	Leveraging IT to Support Student Success (68%)	• Only 40% say IT investments to support student success efforts have been very effective
4	Assisting Faculty with the instructional integration of IT (58%)	• Just 15% rate IT training for faculty as "excellent" • Only an eighth (12%) of campuses include faculty IT instructional initiatives as appropriate for promotion
5	Learning and Managerial Analytics (57%)	• Less than a fifth (19%) rate investments in data analytics as "very effective"

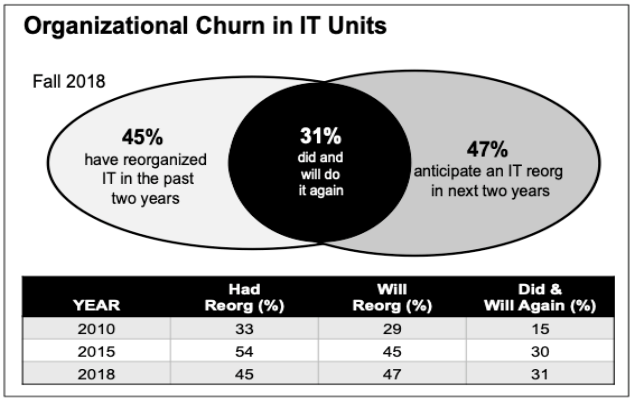
"The IT priorities list has been fairly stable for the past few years," comments Green. "Individual items may move up or down, but the four top issues for 2018 were also top priorities in recent years."

The emergence of analytics into the Top Five IT priorities is both interesting and significant, reflecting, in part, the expectation that the benefits of "Big Data" analytics, widely deployed in the

corporate and consumer sectors, now has increased priority in the higher education arena. At the same time, the 2018 data, similar to past years, also reveal disappointment with the impact of campus investments in analytics to date: less than a fifth (19 percent) of the survey participants view their institution's investments in data analysis and learning/managerial analytics over the past few years as "very effective."

Organizational Churn in IT Units

The 2018 data highlight what can only be described as the continuing "organization churn" in many campus IT units. Just under half of the participating institutions reported a reorganization of the central IT unit in the past two years. A similar number expect a reorganization in the next two years. Yet what is truly striking is that a third (31 percent) of the IT units that recently reorganized expect to do so again in the next 24 months.

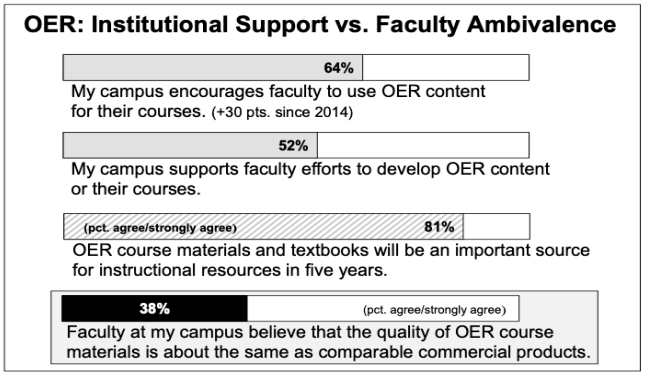


YEAR	Had Reorg (%)	Will Reorg (%)	Did & Will Again (%)
2010	33	29	15
2015	54	45	30
2018	45	47	31

The churn may be attributed to several factors such budget cuts (leading to the consolidation of various units) or major personnel changes in IT or institutional leadership. Still, the trend data showing significant IT reorg activity in both good and difficult economic times suggest that the churn may almost be a structural aspect of life in campus IT units (and for IT leadership).

Rising Institutional Support for OER

The fall 2018 survey data document rising institutional support for OER (Open Educational Resources) curricular resources: almost two-thirds (64 percent) of the participating institutions report campus efforts to "encourage faculty to use OER content for their courses," up from 34 percent in 2014. And over half the survey participants report their institution also provides some support for faculty to develop OER content.

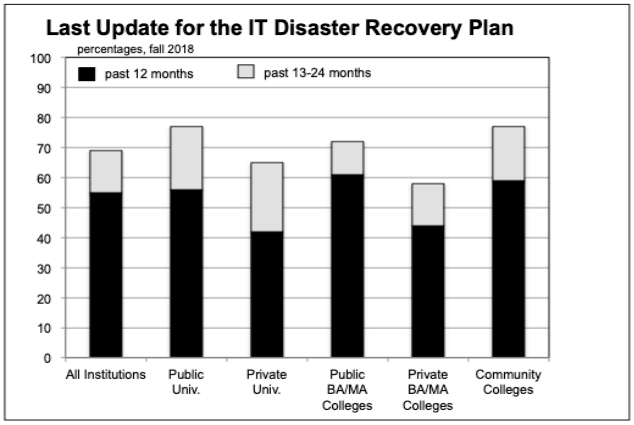


Given the rising concern about college costs and course materials, the concurrent rising support for OER is not surprising: campuses that encourage faculty to select OER materials can cite these efforts as part of institutional efforts to address college costs.

Yet the survey data also suggest that faculty are concerned about the quality of OER materials compared to commercial curricular products: only two-fifths (38 percent) of the survey participants report that their faculty view OER textbooks and curricular materials as comparable in quality to commercial resources. While other recent surveys confirm that faculty are cost conscious about course materials, many faculty may view institutional efforts to promote OER as a challenge to the professorial prerogative to select text books and other course resources.

IT Disaster Recovery: A Matter of When, Not If

The hurricanes that wrecked many communities in recent years serve as a recurring reminder that colleges and universities should view IT disaster recovery as an essential task. Yet survey data dating back to the years following Hurricane Katrina, which devastated New Orleans in 2005, reveal that a significant number of institutions do not have current IT disaster plans. Almost a third (31 percent) of the institutions participating in the fall 2018 survey have not updated their IT disaster plans in the past 24 months.



"More than a decade after Katrina and the many storms that have followed, I remain surprised by the number of institutions that have not updated their IT disaster plans. This is truly an example of when, not if," says Green.

The Impending Arrival of AI and AR on Campus

The 2018 survey suggests rising recognition of the impending role of Artificial Intelligence (AI) in analytics and AI and Artificial Reality (AR/VR) in instruction. Two-fifths (42 percent) of the survey participants believe that will be an "important resource for analytics in the coming years, up from 30 percent in 2017. In contrast, just under a third (30 percent) anticipate that AI will play an important role in instruction in the next few years (up from 19 percent last year). The numbers for AR/VR in instruction are some similar: 26 percent in fall 2018 vs. 20 percent a year ago.

"The difference in the numbers between analytics/managerial deployment and instructional applications are not surprising," says Green. "The administrative and analytic deployment of AI will be an operation implementation: AI functions will be imbedded into the managerial software routinely used by campus administrators. In contrast, the use of AI and AR/VR in instruction will depend on the decisions of individual faculty and academic departments."

The 2018 Campus Computing Survey is based on data provided by senior campus IT officials, typically, the CIO, CTO, or other senior campus IT officer, representing 242 two- and four-year public and private/non-profit colleges and universities across the United States. Survey respondents completed the online questionnaire between September 20 and October 24, 2018. Copies of the 2018 report are available (free) online from Campus Computing: campuscomputing.net.

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Launched in 1990, The Campus Computing Project is the largest continuing study of the role of computing, eLearning, and information technology in American higher education. The project's national studies draw on qualitative and quantitative data to help inform campus IT leaders, college faculty and administrators, policy-makers, and others interested in a wide array of information technology planning and policy issues that affect colleges and universities.

The 2018 Campus Computing Survey was supported, in part, by the following project sponsors: Amazon, Blackboard, Campus Management, CampusWorks, Cengage, Dell/EMC, Echo360, EduNav, Ellucian, The Bill & Melina Gates Foundation, Jenzabar, Kaltura, Kuali, McGraw-Hill Higher Education, Microsoft, Moran Technology Consulting, Oracle, Pearson, Sonic Foundry, and Unit4.

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Methodology

- 242 institutions
- Web-based data collection
- Survey period: Sept 25- 24

Participants by Campus Type	Dept. of Ed N (adjusted)	Survey N	Participation Rate (%.)
Public Research & Doctoral Universities	168	37	22%
Private Research & Doctoral Universities	92	16	17%
Public 4-Year Colleges (Baccalaureate & Masters)	374	46	12%
Private 4-Year Colleges (Baccalaureate & Masters)	824	92	11%
Associate Degree/ Public Community Colleges	1018	46	4%

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Top Campus IT Priorities, Fall 2018

Rank	Issue	Challenges (and yet…!)
1	IT Data Security (86%)	• Just 35% rate IT security as "excellent"
2	Hiring/Retaining IT Talent (74%)	• Four-fifths (79%) report it is hard to hire/retain IT talent because of off-campus competition and salaries
3	Leveraging IT to Support Student Success (68%)	• Only 40% say IT investments to support student success efforts have been very effective
4	Assisting Faculty with the instructional integration of IT (58%)	• Just 15% rate IT training for faculty as "excellent" • Only an eighth (12%) of campuses include faculty IT instructional initiatives as appropriate for promotion
5	Learning and Managerial Analytics (57%)	• Less than a fifth (19%) rate investments in data analytics as "very effective"

Scale: 1=not important; 7=very important; pct. 6/7

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CIOs Have Great Faith in the Benefits of Digital Technologies for Instruction (Fall 2018)

	(%)
Adaptive learning technology has great potential to improve learning outcomes for students.	96
Digital curricular resources provide a richer and more personalized learning experience than traditional print materials	92
Digital curricular resources make learning more efficient and effective for students.	94
Our efforts to go "all digital" with course materials will be impeded by the fact that many of our students do not own the digital devices – computers or tablets – they need to access digital content and resources.	29

But actual deployment numbers are low:

- Only 17% of general education classes use courseware (+3% from 2017)
- Just 8% of developmental and general ed. courses use adaptive learning technologies

Faculty are less optimistic about digital course materials than CIOs & CAOs

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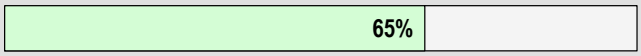
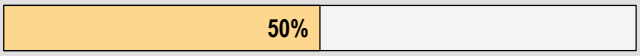
Many Campuses Still Do Not Assess Their Tech Investments

My campus has a formal program to assess the impact of IT on instruction and learning outcomes.

"Very Important" Institutional Priority



Assessing the benefits of investments in computing and technology resources



Assessing the ROI for IT spending and resources

Surveying students and faculty about IT resources and services

- Survey data going back more than a decade confirm that many campuses DO NOT evaluate the impact and benefits of their IT investments
- **Why would assessment NOT be a priority for CIOs and CAOs?**

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A Coming "IT Talent Crisis" on Campus?

- 74 percent identify "hiring/retaining qualified IT personnel as a top campus IT priority (#2 IT priority in 2018)
- 79 percent agree/strongly agree that "we have a difficult time retaining IT talent because our salaries and benefits are not competitive with off-campus job opportunities."
- 69 percent report that "our IT funding has not recovered from the budget cuts we have experienced over the past four-six years."

Personnel, not products, are the heart of the campus IT infrastructure

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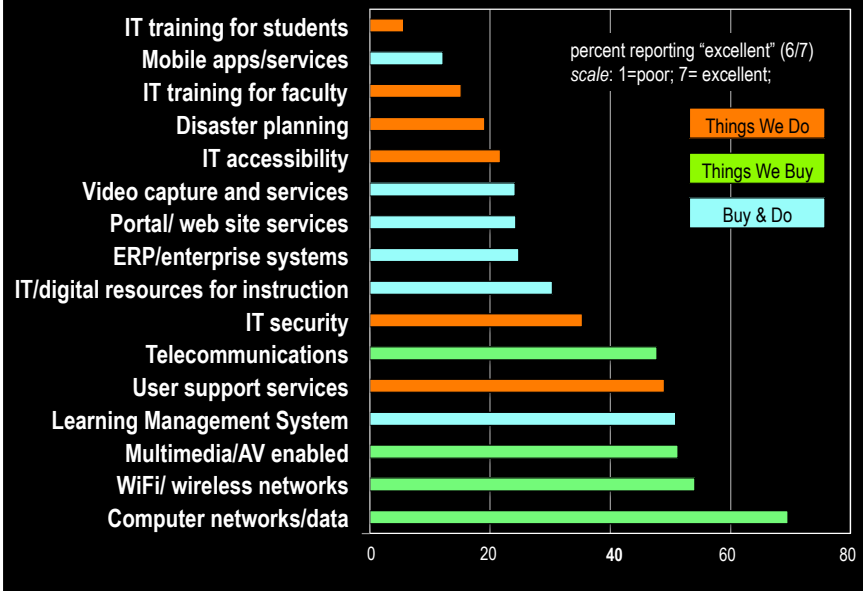
Rating the IT Infrastructure, Fall 2018



- Highest rankings for the network, "hardware," and content
- Lower rankings for services
- Would faculty and students agree with the ranking for user support services?

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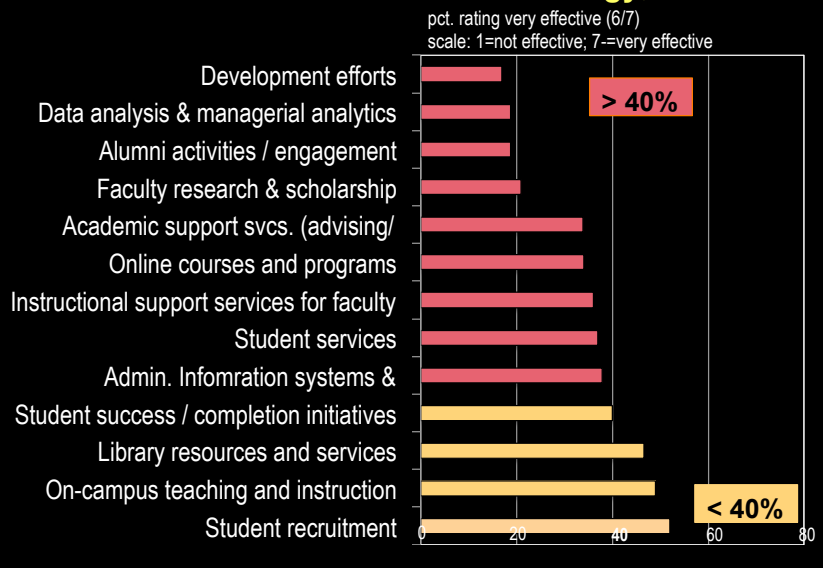
CIOs Rate the Effectiveness of Campus Investments in Information Technology, Fall 2018



- Continue to see very mixed assessments about the effectiveness of campus IT investments

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Analytic Angst

Current analytic tools, resources, and efforts currently fall far short of provider promises and of campus needs and expectations.

The Current Assessment of Analytics (fall 2018)	%
Data analytics is the #5 IT priority (% very important)	57
Campus investment in analytics rated "very effective"	18

- Not yet delivering on actual, implied, and inferred potential and promises of analytics
- Critical roles of trustworthy data, effective analytic tools, and thoughtful training
- "Data babel" caused by efforts to integrate data from various platforms

Use data as a resource, not as a weapon

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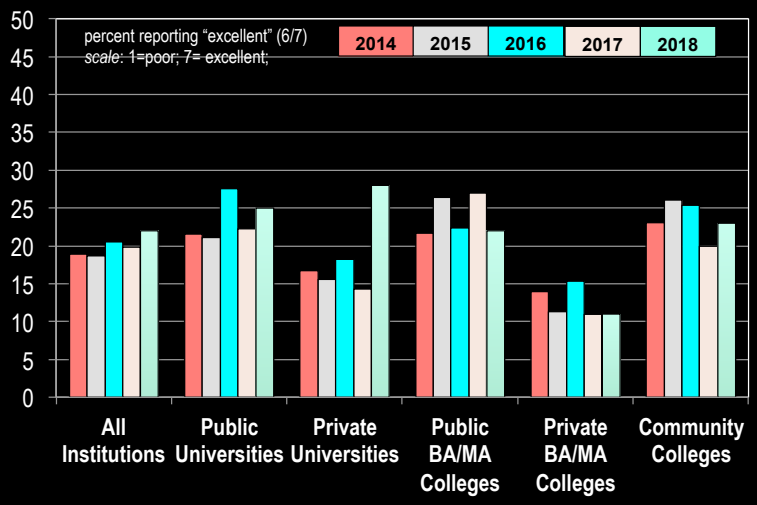
CIO Assessments of Digital Resources and Services for Disabled Users, Fall 2014-2018



- Campuses (still!) struggle to provide legally-mandated digital access and resources to disabled students.

Lawsuits Waiting to Happen

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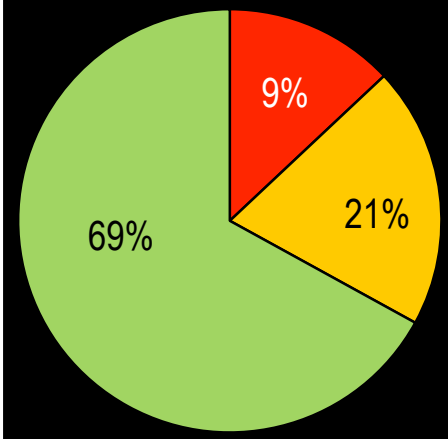
Managing Digital Accessibility Issues and ADA Compliance (Fall 2018)



- Individual campus units are responsible for compliance.
- Departments can request assistance, but are not required to do so.
- Central office or unit is responsible for compliance and works with depts.

Most faculty and departments do not have the expertise to address digital accessibility.

INTERESTINGLY: Some CIOs report that access-ibility compliance has provided new opportunities to serve other users and new or expanded student populations.

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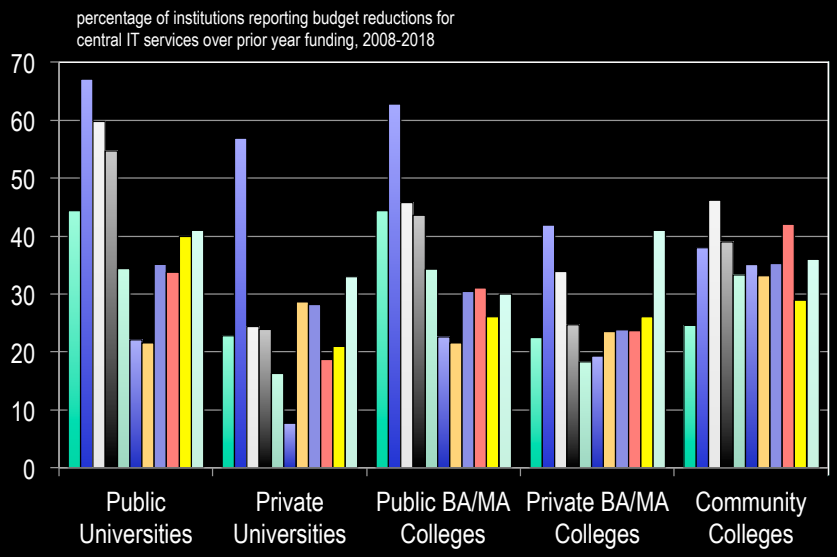
Budget Cuts, 2008-2018



- Still suffering from the compounding consequences of continuing budget cuts
- Community Colleges really suffering: 36% had budget cuts in 2018 (down from 42% last year)

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Compounding Consequences of Budget Cuts

IT units – and by extension colleges and universities – are suffering from the compounding consequences of budget cuts over the past 8 years.

	Had Budget Cut (%)	Had Mid-Year Cut (%)
2010	42	28
2012	27	16
2014	29	25
2016	29	25
2018	37	24

68% report IT funding has not recovered from the recurring budget cuts of recent years

- Impact on infrastructure, resources, and personnel
- Continuing consequences for instruction, research, and services
- ***What's the campus plan to fix IT funding?***

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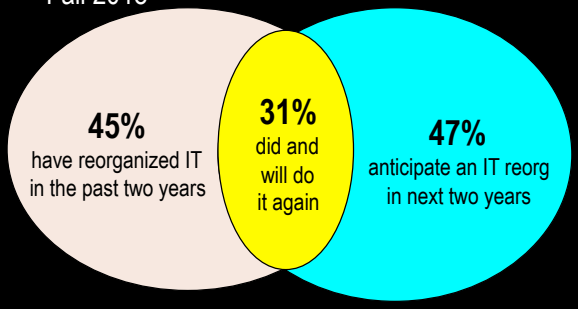
Organizational Churn

Fall 2018



YEAR	Had Reorg (%)	Will Reorg (%)	Did & Will Again (%)
2010	33	29	15
2015	54	45	30
2018	45	47	31

Year after year, many campuses that recently experienced a re-org of central IT anticipate another one in the next two years. Key factors:

- performance
- personnel - arrivals/departures
- budget issues
- other?

What's the impact of the churn on leadership, morale, IT recruitment, funding, and IT operations?

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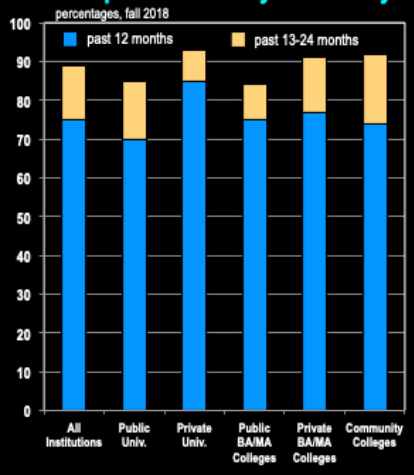
Updating Campus IT Security & Disaster Plans, Fall 2018

Last Update for IT & Cyber Security



Last Update for IT Disaster Recovery

- 11 pct. HAVE NOT updated the campus cybersecurity plan in 24 months
- 31 pct. HAVE NOT updated the IT disaster recovery plan in the past two years.

- IT Security is the #1 institutional IT priority (85%)
- Only 35% rate IT security as "excellent"
- Just a fifth (19%) assess IT disaster planning as "excellent"

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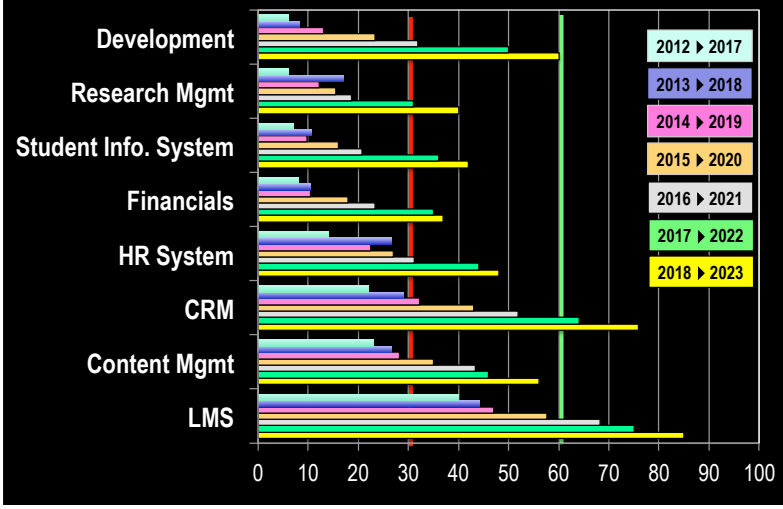
The ERP Migration to the Cloud

It is very likely that my campus will move to a Cloud/SaaS ERP Solution in five years

scale: 1=not likely; 7=very likely; percentage for very likely (6/7)



Some gains for 2018 but many CIOs still don't see "high cloud" applications coming soon to their campuses

WHY?

- Absence of clear path from ERP providers
- Can't visualize moving to Cloud
- Want to retain command and control
- Let others make the journey first

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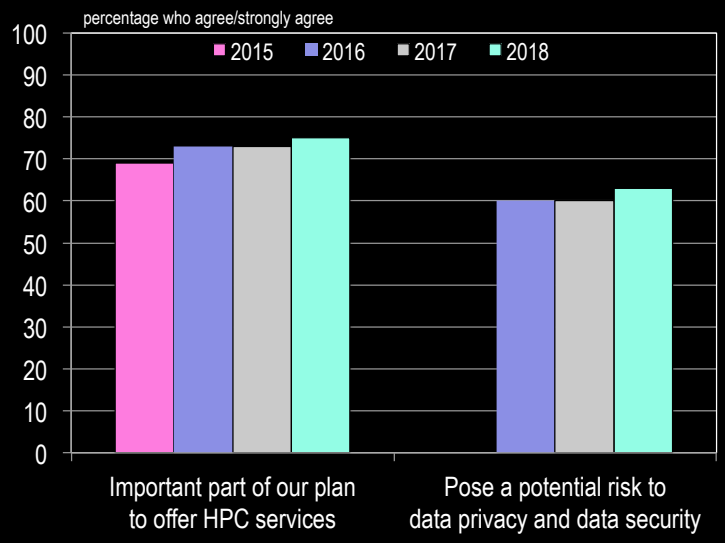
Third-Party Cloud Services: Capacity vs. Risk



REWARDS vs. RISK

Clear concerns about the risks and rewards of third-party Cloud services

- **REWARDS:** cost, convenience, and capacity.
- **RISKS:** control, security, privacy, and culpability.

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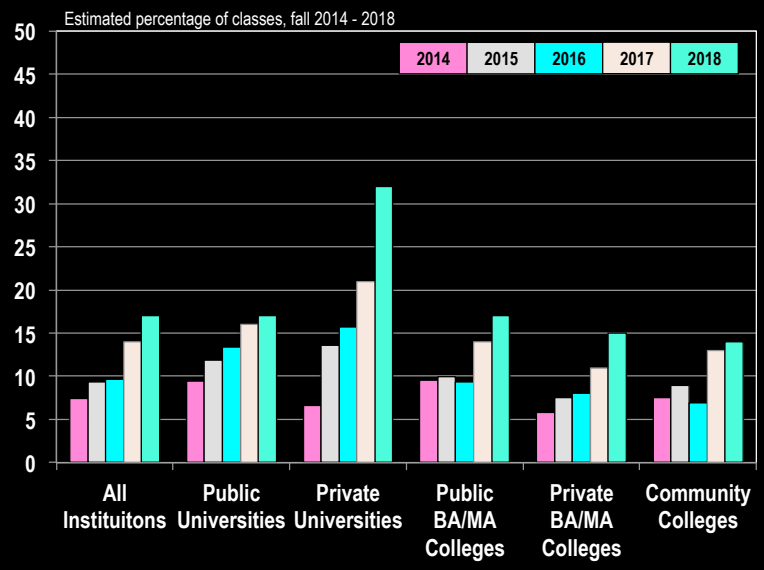
Growing Use of Video Lecture Capture



- Just 24% rate video capture services and delivery as "excellent"

- Video as a course resource has surpassed audio: 17% vs. 12%.
- Percentages understate real numbers as much of the activity is in large, lower-division undergraduate classes.
- Much more video capacity in universities.
- Video increasingly important for hybrid, flipped, and online courses

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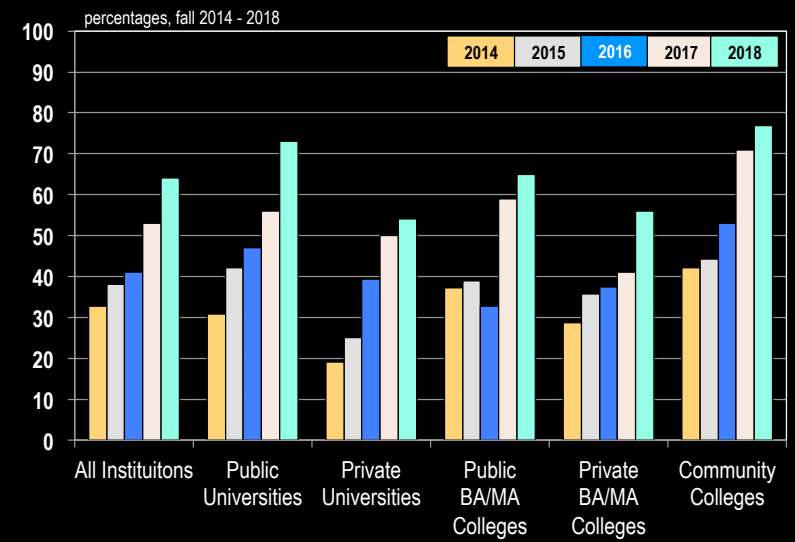
Campus Policy Encouraging Faculty to Use OER Content for Courses



- Steady gains over time for the formal institutional support for OER course materials
- 12% of courses now using OER materials (up 5% over 2016)

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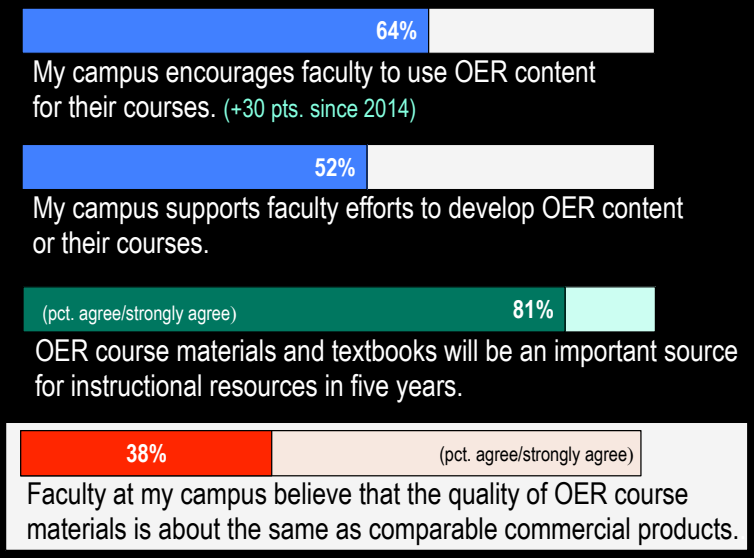
OER: Institutional Support vs. Faculty Ambivalence



The continuing campus (and policy) conversation about OER centers on student vs. faculty issues:

- **Student issues:** cost and Day One Access
- **Faculty issues**: choice and quality

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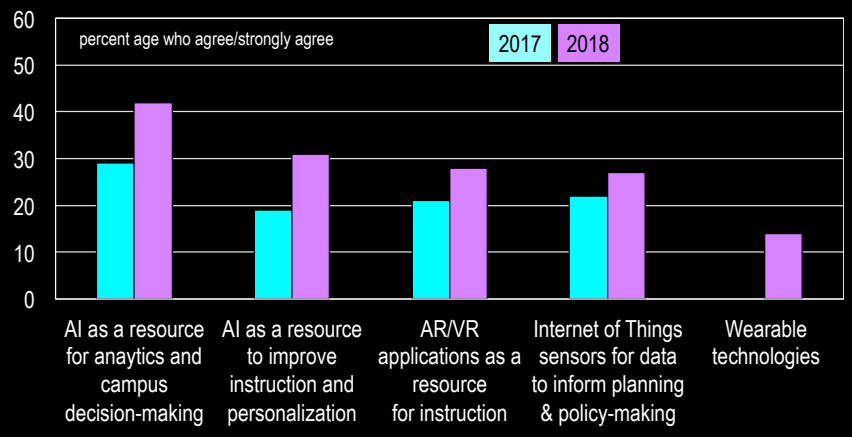
The Impending Impact of Emerging Technologies

As you think about the future of of new technologies at your institution, how important are the following:



- Early data suggest more initial interest in AI for analytics than instruction
- AI and AR / VR in instruction dependent on decisions of faculty and departments

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Mixed Messages about Blockchain

41% (pct. agree/strongly agree)

Blockchain technology will play an increasingly important role in our campus IT strategy.

45% (pct. agree/strongly agree)

Blockchain technology will dramatically transform the ways institutions manage student data and transcripts.

17% (*scale:* 1=not important; 7=very important; pct. 6/7)

As you think about future technologies, how important will Blockchain be for your institution in five years (by 2023)?

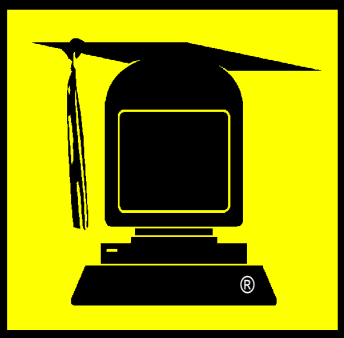
- Still too early to offer a clear prediction about Blockchain?

The Campus Computing Project

Hot Spots

Attention Must Be Paid

- IT Assessment
- Money Matters
- IT Staffing and Leadership
- Analytics
- Changing the Data Culture



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CAMPUS COMPUTING, 2018

Casey Green • The Campus Computing Project

Casey Green

THE CAMPUS COMPUTING PROJECT

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Casey Green is the founding director of The Campus Computing Project, the largest continuing study of the role of eLearning and information technology in American colleges and universities. The project is widely cited by campus officials and corporate executives as a definitive source for data, information, and insight about IT planning and policy issues affecting higher education.

The author or editor of some 20 books and published research reports and more than 100 articles and commentaries that have appeared in academic journals and professional publications, Green also serves as the moderator and co-producer for *To a Degree,* the postsecondary success podcast of the Bill & Melinda Gates Foundation. Additionally, he directs the Digital Fellows Program for the Association of Chief Academic Officers and moderates the TO A DEGREE podcast for the Bill & Melinda gates Foundation. Green's *Digital Tweed* blog is published by *Inside Higher Ed.*

In 2002 Green received the first EDUCAUSE Award for Leadership in Public Policy and Practice. The EDUCAUSE award cites his work in creating The Campus Computing Project and recognizes his "prominence in the arena of national and international technology agendas, and the linking of higher education to those agendas."

A graduate of New College (FL), Green earned his Ph.D. in higher education and public policy at the University of California, Los Angeles.

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
Number of Institutions	242	37	16	46	97	46
GENERAL CAMPUS POLICIES ABOUT DESKTOP COMPUTERS						
Does your institution have a special computer use / technology fee or annual / term computer use charge for all students? *(percentages)*	56.3	83.3	37.5	78.3	37.5	58.7
Average total annual (full-time) student fee or charge for A/Y 2018-19	$ 278	$ 260	$ 569	$ 243	$ 324	$ 170
How does your institution allocate the student tech fee funds?						
Primarily as a source of additional money for the core IT budget	75.4	79.3	83.3	78.8	77.8	61.5
Primarily to support new IT services, resources, or initiatives	24.6	20.7	16.7	21.2	22.2	38.5
How does your institution spend the tech fee money?						
Campus computer labs	43.3	64.9	37.5	67.4	21.6	56.5
Enhanced WiFi services	42.3	64.9	25.0	58.7	24.7	45.7
Instructional facilities/resources	38.1	64.9	31.3	60.9	17.5	43.5
Curricular resources for students	24.7	54.1	12.5	41.3	5.2	28.3
Library resources for students	18.6	29.7	18.8	32.6	3.1	21.7
User support services for students	35.1	64.9	25.0	60.9	15.5	43.5
Free/discounted printing services for students	27.8	35.1	25.0	41.3	21.6	23.9
Non-IT related institutional expenses	16.5	13.5	12.5	13.0	21.6	13.0
As you think about institutional priorities for IT resources and services over the next three years, how do you rate the importance of the following IT issues? *(Scale: 1=not important; 7=very important; percentages for 6/7)*						
Assisting faculty integrate technology into instruction	58.4	67.6	60.0	51.1	62.4	50.0
Leveraging the potential of adaptive learning applications/platforms in gateway courses	24.0	50.0	46.2	31.1	11.8	15.9
Supporting online/distance education courses and programs	56.3	85.3	53.3	62.2	39.8	63.6
Launching/supporting competency-based education (CBE courses and programs	11.4	20.6	14.3	13.3	5.4	13.6
Migrating to Cloud computing for core IT infrastructure	43.5	40.0	46.7	53.3	43.0	36.4
Hiring/retaining qualified IT staff	74.0	82.4	86.7	77.8	68.8	70.5
Implementing/supporting mobile computing	45.3	45.7	60.0	57.8	39.8	38.6
Providing adequate user support	72.4	68.6	80.0	77.8	66.7	79.5
Upgrading/replacing administrative IT/ERP systems	33.6	37.1	20.0	20.0	40.9	34.1
Upgrading/replacing the current campus Learning Mgmt System (LMS)	15.5	25.7	26.7	15.6	12.9	9.1
Upgrading/replacing the campus network	56.5	65.7	60.0	64.4	52.7	47.7
Upgrading/enhancing data security	85.8	85.7	100.0	84.4	84.9	84.1
IT succession planning	32.0	29.4	40.0	28.9	28.0	43.2
Data analysis/learning and managerial analytics	56.9	74.3	66.7	62.2	50.5	47.7
Digital content management	21.6	33.3	40.0	22.2	14.1	21.4
Professional development for IT personnel (IT staff and senior IT officers)	50.0	51.4	73.3	51.1	41.9	56.8
Leveraging IT resources and services to advance the student success/student completion priorities of my institution	68.4	82.9	86.7	73.3	55.4	72.7
Using/leveraging social media as a resource for instruction	10.4	14.3	21.4	11.1	7.5	9.1
IT business continuity / IT disaster planning and recovery	54.5	48.6	71.4	48.9	60.2	47.7
Leveraging IT resources to reduce the cost of instruction	33.2	48.6	46.7	35.6	23.7	34.1
Leveraging IT resources to reduce the cost of campus operations	52.2	62.9	60.0	55.6	47.3	47.7
Digital accessibility: compliance with ADA and other mandates for instruction and campus services	55.7	60.0	86.7	54.5	42.4	70.5
What applications or platforms does your institution use for a lecture capture / video management? *(percentages; not mutually exclusive)*						
Brightcove	-	-	-	-	-	-
Desire2Learn	6.2	8.1	12.5	4.3	2.1	10.9
Echo360	10.3	29.7	18.8	8.7	7.2	2.2
Kaltura	20.6	43.2	12.5	21.7	10.3	23.9
Matterhorn	-	-	-	-	-	-
Mediacore	1.0	5.4	-	-	1.0	-
Panopto	12.4	29.7	31.3	13.0	25.8	13.0
Polycom	6.2	5.4	6.3	2.2	6.2	2.2
Sharestream	2.1	-	-	6.5	2.1	-
Sonic Foundry (Mediasite)	10.3	13.5	18.8	19.6	5.2	4.3
TechSmith (Camtasia)	27.8	-	6.3	30.4	27.8	41.3
Tegrity	3.1	2.7	12.5	6.5	1.0	4.3
Vbrick	-	-	-	-	1.0	2.2
Other	28.9	13.5	-	23.9	35.1	26.1

THE 2018 CAMPUS COMPUTING SURVEY

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
USES OF INFORMATION TECHNOLOGY						
percentage of respondents (CIOs/Sr. IT officers) who agree/strongly agree:						
Digital curricular resources make learning more efficient and effective for students.	94.0	91.2	100.0	93.2	95.4	92.5
Digital curricular resources provide a richer and more personalized learning experience than traditional print materials.	92.2	94.1	100.0	93.2	88.5	95.0
Adaptive learning technology has great potential to improve learning outcomes for students.	95.4	100.0	100.0	97.7	91.8	95.0
Our IT funding has not fully recovered from the budget cuts we experienced over the past four-six years.	67.7	73.5	30.8	79.5	68.6	60.0
Wearable technology will become an important part of our plan to offer IT resources to students.	33.3	40.6	38.5	34.1	28.7	35.0
Faculty at my institution believe that the quality Open Source/OER curricular resources is about the same as comparable commercial products.	37.8	51.6	7.7	34.1	38.1	40.0
Open Source textbooks/OER content will be an important source for instructional resources in five years.	81.2	90.3	69.2	74.4	79.3	89.7
Our efforts to "go all digital" with course materials are impeded by the fact that many of our students do not own the digital devices (computers or tablets) that they need to access digital content and resources.	29.3	21.9	7.7	47.7	18.6	45.0
We are experiencing major cost over-runs in our ERP deployment activities.	23.3	14.7	15.4	23.3	19.8	41.0
We are experiencing major unexpected costs in our ERP deployment activities.	26.0	14.7	23.1	27.9	22.1	43.6
Outsourcing instructional services (course development, user support, etc.) offers a viable and effective strategy for many campuses to launch/expand online courses and programs.	50.0	42.4	61.5	45.2	51.2	55.0
Outsourcing instructional services (course development, user support, etc.) offers a profitable strategy for many campuses to launch/expand online courses and programs	34.0	43.8	33.3	33.3	30.2	35.0
We have a difficult time retaining IT talent because our salaries and benefits are not competitive with off-campus job opportunities	78.9	76.5	84.6	77.3	79.3	80.0
Perspectives on the Cloud and Blockchain *(percentage agree/strongly agree)*						
Cloud computing will play an increasingly important role in our campus ERP/IT strategy.	92.7	79.4	100.0	97.7	95.4	90.0
Cloud computing is an important part of our campus technology plan to reduce IT costs.	57.7	56.3	92.3	54.5	54.7	57.5
Cloud computing services offer a level of data reliability that equals or exceed the level of security and reliability we can provide with on-campus hosting.	80.6	73.5	83.3	81.8	84.9	75.0
Cloud computing services offer a level of data security that equals or exceed the level of security and reliability we can provide with on-campus hosting.	75.1	61.8	69.2	77.3	83.7	67.5
Third-party Cloud services (Amazon, Google, IBM, Microsoft) are an important part of our campus plan to offer high performance computing services.	75.1	58.8	76.9	86.4	74.7	76.9
The use of third-party Cloud services (Amazon, Google, IBM, Microsoft) by our faculty and researchers poses a potential risk to data privacy and data security.	63.1	58.8	46.2	61.4	62.1	76.9
Blockchain technology will dramatically transform the ways institutions manage student data and transcripts.	45.5	55.9	69.2	42.9	36.9	50.0
Blockchain technology will play an increasingly important role in our campus IT strategy.	41.8	32.4	76.9	45.2	35.7	47.5
CURRENT IT / COMPUTER FACILITIES AND RESOURCES						
Proportion of the classrooms that are multimedia or are AV enabled	84.2	85.9	75.4	79.6	85.8	87.0
Percentage of your faculty have taught an online course (80 pct of content online) over the past two years:						
Full-time faculty	25.2	28.3	14.0	23.8	19.5	41.4
Part-time faculty	29.3	35.7	15.0	28.7	26.1	36.8
Percentage of classes that use:						
LMS / course management tools for online course resources	70.8	76.0	78.7	72.5	67.7	69.2
Audio lecture capture	12.7	15.4	29.7	13.5	10.0	10.5
Video lecture capture	16.4	17.4	37.8	17.6	14.8	11.0
"Clickers" / classroom response system	10.8	19.3	19.2	10.4	9.2	5.8
Anti-plagiarism software for written assignment	40.4	33.5	51.3	43.9	40.9	37.7
Online proctoring/monitoring applications	13.8	14.9	19.8	16.4	8.5	19.4
Open Source / OER curricular resources	12.4	11.6	9.0	10.7	12.2	16.5
Adaptive learning tools in developmental and genderal education courses	8.2	7.1	10.8	6.1	6.8	13.2
Courseware in general education classes	17.7	17.6	36.5	13.7	13.5	25.5
Gaming technologies	5.4	4.0	7.0	5.9	5.5	5.2

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
ACADEMIC & INSTRUCTIONAL COMPUTING POLICIES AND PROCEDURES & RESOURCES						
Does your campus / institution (percentages)						
Have a formal program to recognize and reward the use of information technology as part of the routine faculty review and promotion process?	12.3	27.3	-	4.5	4.6	27.9
Have a formal program to assess the impact of IT on instruction and learning outcomes?	16.3	30.3	-	15.9	10.2	23.3
Have a formal policy regarding ownership of Web-based curriculum resources and intellectual property developed by faculty?	65.0	82.4	66.7	54.5	62.1	67.4
Have a formal policy for students to record (audio/video) class lectures, presentations, and discussions	20.4	14.7	53.8	16.3	19.3	20.9
Inform / counsel students about privacy issues related to social networking sites (Facebook, LinkedIn, etc.)?	57.7	47.1	84.6	43.2	64.8	58.1
Encourage the use of the Creative Commons license on digital works?	47.5	53.1	46.2	41.9	45.3	53.5
Encourage faculty to use Open Source / OER instructional content for their courses?	64.1	72.7	53.8	65.1	55.7	76.7
Support faculty efforts to develop Open Source / OER instructional content for their courses?	52.1	66.7	23.1	53.5	42.5	67.4
Have a campus / department license for anti-plagiarism software (e.g., Turnitin, SafeAssign)?	78.7	93.9	84.6	90.9	68.2	74.4
Outsource various aspects of your online program activities (recruitment, course development, student services)?	29.1	46.9	53.8	22.7	23.9	25.6
Use a proctoring application to monitor online exams?	54.8	81.8	76.9	68.2	30.7	62.8
Use chatbots on institutional or departmental websites?	19.0	18.2	30.8	22.7	13.6	23.3
Currently comply with Gramm-Leach-Bliley (GLBA) requirements on consumer financial information?	86.8	94.1	92.3	85.7	85.1	83.7
Currently comply with European Union's General Data Protection Requirements (GDPR)?	48.6	59.4	69.2	45.2	49.4	35.7
When did your institution develop / last update the campus plan for the IT issues listed below?						
Overall campus IT plan						
n / a	5.1	6.3	7.7	9.1	3.5	2.6
past 12 months	40.2	40.6	38.5	27.3	44.2	46.2
13 to 24 months ago	29.9	25.0	30.8	31.8	26.7	38.5
more than 24 months ago	24.8	28.1	23.1	31.8	25.6	12.8
Using IT to enhance instructional learning						
n / a	10.7	14.7	-	15.9	11.6	2.6
past 12 months	44.9	35.3	61.5	43.2	45.4	48.7
13 to 24 months ago	25.0	26.5	23.1	20.5	20.9	38.5
more than 24 months ago	19.4	23.5	15.4	20.5	22.1	10.3
Online/Distance Education						
n / a	21.9	17.7	7.7	18.6	32.6	10.3
past 12 months	41.4	35.3	61.5	41.9	39.5	43.6
13 to 24 months ago	15.8	23.5	15.4	16.3	9.3	23.1
more than 24 months ago	20.9	23.5	15.4	23.3	18.6	23.1
Enterprise architecture						
n / a	12.3	12.1	7.7	22.7	10.8	5.3
past 12 months	40.8	39.4	38.5	29.6	47.0	42.1
13 to 24 months ago	25.1	27.3	23.1	29.6	14.5	42.1
more than 24 months ago	21.8	21.2	30.8	18.2	27.7	10.5
Cyber security						
n / a	1.9	-	-	2.3	2.3	2.6
past 12 months	74.8	75.8	84.6	75.0	73.3	73.7
13 to 24 months ago	13.6	15.2	7.7	9.1	14.0	18.4
more than 24 months ago	9.8	9.1	7.7	13.6	10.5	5.3
Campus networks (including wireless)						
n / a	3.7	3.0	-	2.3	5.8	2.6
past 12 months	61.2	60.6	69.2	65.1	60.5	56.4
13 to 24 months ago	22.9	18.2	23.1	27.9	20.9	25.6
more than 24 months ago	12.2	18.2	7.7	4.7	12.8	15.4
High performance computing						
n / a	44.1	6.1	25.0	43.2	55.8	57.9
past 12 months	27.2	57.6	16.7	29.6	18.6	21.1
13 to 24 months ago	14.1	21.2	41.7	6.8	11.6	13.2
more than 24 months ago	14.6	15.2	16.7	20.5	14.0	7.9

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
When did your institution develop / last update the campus plan for the IT issues listed below?						
IT disaster recovery						
n / a	3.7	3.0	-	6.8	2.3	5.1
past 12 months	54.9	54.6	53.9	61.4	50.0	59.0
13 to 24 months ago	15.8	21.2	23.1	11.4	14.0	18.0
more than 24 months ago	25.6	21.2	23.1	20.5	33.7	18.0
Cloud computing						
n / a	16.9	23.5	-	18.6	16.3	15.8
past 12 months	52.6	52.9	58.3	58.1	50.0	50.0
13 to 24 months ago	23.0	17.7	33.3	20.9	23.3	26.3
more than 24 months ago	7.5	5.9	8.3	2.3	10.5	7.9
Mobile computing						
n / a	21.8	29.4	-	31.8	22.1	10.3
past 12 months	41.7	44.1	46.2	40.9	32.6	59.0
13 to 24 months ago	21.3	17.7	46.2	13.6	20.9	25.6
more than 24 months ago	15.3	8.8	7.7	13.6	24.4	5.1
Identity and access management						
n / a	8.9	6.1	-	13.6	9.3	7.9
past 12 months	51.9	54.6	69.2	52.3	48.8	50.0
13 to 24 months ago	21.0	18.2	7.7	20.5	20.9	29.0
more than 24 months ago	18.2	21.2	23.1	13.6	20.9	13.2
Emergency communications / notification system(s)						
n / a	3.7	3.0	-	6.8	3.5	2.6
past 12 months	53.0	45.5	46.2	54.6	50.0	66.7
13 to 24 months ago	21.9	36.4	30.8	20.5	17.4	18.0
more than 24 months ago	21.4	15.2	23.1	18.2	29.1	12.8
RATING THE TECHNOLOGY INFRASTRUCTURE						
Rating the institutional technology infrastructure						
(Scale: 1=poor; 7=excellent; percentages 6/7)						
Computer networks and data communication	69.6	74.3	92.9	60.0	65.2	77.3
Telecommunications and phone system	47.8	45.7	50.0	53.3	43.5	52.3
WiFi/ wireless networks	54.1	52.9	78.6	51.1	51.1	56.8
User support services	49.1	62.9	57.1	51.1	42.4	47.7
IT and digital resources to support teaching and instruction	30.4	42.9	35.7	31.1	20.7	38.6
ERP/enterprise systems	24.8	25.7	35.7	26.7	19.6	29.5
Learning Management System (LMS)	50.9	60.0	50.0	57.8	40.2	59.1
Multimedia/AV enabled classrooms	51.3	60.0	64.3	44.4	43.5	63.6
Video capture and services/delivery infrastructure	24.2	35.3	42.9	20.0	21.1	20.5
Campus web site services/student portal	24.3	51.4	50.0	15.6	14.1	25.0
IT security (network attacks, secure data bases, identity mgmt, etc)	35.4	55.9	57.1	40.0	18.5	43.2
Disaster planning	19.2	28.6	35.7	17.8	11.0	25.0
IT training for faculty	15.2	17.1	21.4	17.8	13.0	13.6
IT training for students	5.7	8.6	7.1	8.9	3.3	4.5
Mobile apps/services for students faculty & staff	12.2	26.5	7.1	15.6	5.4	13.6
IT accessibility: IT resources and services for users with disabilities	21.7	45.7	28.6	22.2	10.9	22.7
Rating the effectiveness of institution's investment in technology resources and services						
(Scale: 1=not effective; 7=very effective; percentages 6/7)						
Academic support services (including advising and retention efforts)	33.8	52.9	42.9	31.1	25.8	34.9
Alumni activities / engagement	18.8	33.3	7.7	18.6	18.2	11.1
Administrative information systems and operations	37.9	54.3	57.1	31.1	28.1	46.3
Data analysis and learning/managerial analytics	18.8	28.6	21.4	20.0	8.0	30.2
Development efforts	17.0	31.3	28.6	14.3	14.5	9.8
Faculty research and scholarship	19.0	37.1	28.6	15.9	17.1	3.3
Instructional support services for faculty	36.0	52.9	42.9	33.3	31.1	33.3
Library resources and services	46.1	64.5	42.9	47.7	40.7	42.9
On-campus teaching and instruction	48.7	45.7	64.3	46.7	49.4	46.3
Online courses and programs	34.4	45.7	50.0	26.7	24.0	47.5
Student recruitment	52.2	51.4	92.9	34.1	61.4	39.5
Student services	37.5	45.7	57.1	32.6	27.0	51.2
Student success / student completion initiatives	40.5	42.9	64.3	38.6	30.2	53.5

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
STRATEGIC, BUDGET AND PERSONNEL ISSUES						
Over the next 2-3 years, how important will various computing / information technology issues and resources be in the overall campus IT environment? *(Scale: 1=not important; 7=very important; percentages 6/7)*						
Assessing the benefits of existing investments in computing and technology resources	65.0	69.7	69.2	79.5	55.3	64.1
Providing incentives and rewards for faculty to support technology integration into the curriculum	16.9	18.8	7.7	27.3	16.5	7.7
Sharing digital resources with other campuses / institutions	21.5	21.2	23.1	25.0	15.3	30.8
Helping our IT personnel stay current with new technologies	66.4	78.8	69.2	68.2	62.4	61.5
IT governance	54.7	63.6	38.5	65.9	48.2	53.8
Surveying students and faculty about IT issues and services	47.7	42.4	69.2	52.3	41.2	53.8
Assessing the return on investment for IT spending / resources	50.0	57.6	46.2	50.0	45.9	53.8
Using Open Source tools and applications	23.8	18.2	7.7	18.2	24.7	38.5
Promoting the use of Open Education Resource (OER) course materials	29.7	18.8	23.1	27.3	23.8	56.4
Managing campus video resources (lectures, presentation, etc.)	30.0	31.3	53.8	25.0	30.6	25.6
Implementing Federated Identity Management	40.4	54.5	53.8	52.3	32.1	28.2
Operating with a single student user profile for all institutional applications	51.2	60.6	41.7	45.5	47.1	61.5
Implementing new technology tools in our continuing ed and workforce development programs	25.5	30.3	30.8	20.5	18.1	41.0
Using learning analytics to support student success initiatives	55.1	75.8	76.9	61.4	37.6	61.5
Using learning analytics to improve instructor, course, and program effectiveness	49.8	69.7	61.5	52.3	36.5	55.3
THE TECHNOLOGY BUDGET						
Average central IT services budget for 2018-19	$12,130,174	40,273,916	20,530,965	9,348,332	4,155,505	6,191,040
Central IT services as percentage of total institutional computing/IT expenditures for 2018-19	79.5	62.2	79.2	69.7	86.3	71.9
Total computing/IT expenditures as a percentage of the total institutional budget for 2018-19	7.0	5.1	6.1	5.4	7.3	10.0
Percentage of campuses experiencing a budget cut for central IT services this current academic year, 2018-19	37.5	40.6	33.3	30.2	41.5	35.9
Percentage of budget that was cut	6.5	4.4	7.8	6.4	8.0	5.9
Percentage of campuses experiencing a mid-year budget cut for central IT services this past academic year, 2017-18	23.9	25.0	8.3	24.4	30.9	12.8
Average annual expenditures for software licensing and maintenance fees paid to vendors for software and services for the following ERP, administrative, and instructional applications systems for 2017-18						
Alumni / Advancement / Development	$ 82,241	265,810	104,778	61,851	68,968	21,527
Analytic applications intended to support student success initiatives	112,793	397,409	71,609	102,599	39,518	80,749
CRM	75,675	113,034	198,055	70,234	70,934	20,826
Courseware/Digital Course Supplements	75,323	451,236	83,061	32,056	14,778	15,142
Finance / Accounting	201,154	823,329	272,781	117,927	72,535	119,637
Emergency Notification Services	23,589	52,025	28,975	19,338	17,136	23,373
ePortfolio services	24,898	118,589	36,000	14,000	10,930	2,974
Grants and Research Management	39,018	187,825	60,839	20,778	2,663	2,306
Learning management systems	186,587	618,034	200,459	143,050	90,029	98,389
Lecture capture and campus video management	41,624	96,326	62,897	38,664	30,117	18,686
Library system management	61,512	224,360	75,283	43,596	34,520	36,932
Human resources (recruitment)	59,310	168,032	46,711	56,263	27,716	60,352
Human resources (HR records and payroll)	143,110	512,774	251,211	83,948	65,118	83,680
Student information system	274,465	742,053	372,497	219,455	163,842	183,835
Current replacement cycle for institutional desktop / notebook computers *(percentages)*						
Student labs						
1 year	-	-	-	-	-	-
2 years	0.5	-	8.3	-	-	-
3 years	18.1	18.8	41.7	14.6	19.8	10.3
4 years	42.0	56.3	41.7	34.2	43.2	35.9
5 years	39.5	25.0	8.3	51.2	37.0	53.9
Faculty offices						
1 year	-	-	-	-	-	-
2 years	-	-	-	-	-	-
3 years	10.1	9.4	33.3	14.3	7.3	5.1
4 years	49.8	56.3	66.7	33.3	56.1	43.6
5 years	40.1	34.4	-	52.4	36.6	51.3

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
Current replacement cycle for institutional computers *(percentages)*						
Administrative offices						
1 year	-	-	-	-	-	-
2 years	-	-	-	-	-	-
3 years	7.3	6.3	25.0	4.8	4.9	10.8
4 years	42.9	53.1	58.3	35.7	47.6	27.0
5 years	49.8	40.6	16.7	59.5	47.6	62.2
Current replacement cycle for institutionally-owned tablets *(percentages)*						
Student labs/Facilities						
1 year	0.6	3.6	-	-	-	-
2 years	1.7	3.6	18.2	-	-	-
3 years	21.1	25.0	45.5	14.7	17.4	23.7
4 years	30.0	32.1	27.3	35.3	24.6	34.2
5 years	46.7	35.7	9.1	50.0	58.0	42.1
Faculty						
1 year	-	-	-	-	-	-
2 years	1.1	-	8.3	-	1.4	-
3 years	18.3	20.7	41.7	17.7	12.5	20.5
4 years	34.4	41.4	33.3	38.2	29.2	35.9
5 years	46.2	37.9	16.7	44.1	56.9	43.6
Adminstrators						
1 year	-	-	-	-	-	-
2 years	1.6	-	16.7	-	1.4	-
3 years	16.8	17.2	33.3	8.8	14.1	23.1
4 years	34.1	48.3	33.3	41.2	26.8	30.8
5 years	47.6	34.5	16.7	50.0	57.8	46.2
ORGANIZATION, PLANNING AND IMPACT ISSUES						
Has your institution reorganized computing / information service units within the past two years? *(percentages)*						
Central IT services	45.1	51.6	45.5	53.5	41.3	38.5
Libraries	20.9	13.3	36.4	27.9	21.8	12.8
Telecom	27.2	23.3	18.2	47.6	23.8	17.9
Do you anticipate a reorganization of computing / information services within the next two years? *(percentages)*						
Central IT services	43.1	32.3	63.6	65.1	37.5	33.3
Libraries	19.5	16.7	27.3	30.0	21.3	5.1
Telecom	28.4	29.0	36.4	48.8	23.8	12.8
Percentage of campuses that reorganized IT units in the past two years and expect to reorganize IT units again in the next two years						
Central IT services	31.0	29.7	18.8	45.7	30.9	21.7
Libraries	52.9	48.6	62.5	69.6	46.4	50.0
Telecom	27.3	21.6	37.5	39.1	28.9	13.0
What academic and operational units report to the CIO / CTO? *(percentages)*						
Academic computing	70.2	70.3	50.0	78.3	69.1	71.7
Administrative computing	82.2	75.7	62.5	91.3	82.5	84.8
Libraries	7.0	8.1	12.5	8.7	7.2	2.2
Distance / online education programs	12.4	5.4	18.8	19.6	13.4	6.5
Institutional research / analytics	12.4	16.2	25.0	17.4	10.3	4.3
Telecommunications	81.0	81.1	68.8	89.1	78.4	82.6
Media center / services	55.8	35.1	50.0	58.7	64.9	52.2
Campus center(s) for teaching and learning (TLT center, etc)	16.1	27.0	25.0	15.2	14.4	8.7
Does your campus have a						
Chief / senior learning or instructional officer	30.9	40.5	31.3	47.8	27.8	50.0
Chief / senior IT security officer	35.1	78.4	68.8	67.4	27.8	34.8
Chief / senior data / analytics officer	26.8	40.5	12.5	41.3	21.6	41.3
Chief / senior privacy officer	17.5	37.8	37.5	28.3	15.5	8.7
Chief / senior officer for online education	23.7	40.5	31.3	34.8	18.6	32.6
Chief / senior officer for innovation	8.2	24.3	12.5	17.4	9.3	4.3
Which statement below best describes the way your campus manages the institutional presence and messaging on Facebook, Instagram, Twitter, and other social media? *(percentages)*						
Individual campus units and academic departments operate with great autonomy, as we do not have an institutional set of guidelines or policies for social media and we do not monitor the activities or individual departments or units (admissions, athletics, academic units, etc.)	29.7	27.6	9.1	41.5	32.5	18.4

	All Institutions	Universities Public	Universities Private	4-Year Colleges Public	4-Year Colleges Private	Community Colleges
Institutional strategies for managing social media (continued)						
A central office (president, provost, CIO, communications, etc.) is responsible for setting the overall policies and for monitoring the activities of individual academic departments and campus units.	41.7	44.8	27.3	29.3	41.3	57.9
A central office (president, provost, CIO, communications, etc.) monitors the activities of individual departments and units but we do not have broad institutional policies or guidelines for social media.	28.6	27.6	63.6	29.3	26.3	23.7
Which statement below best describes the way your institution manages digital accessibility issues and ADA compliance requirements for IT resources and services? *(percentages)*						
Individual campus units and academic departments are responsible, we don't have a set of institutional guidelines and don't monitor activities.	9.9	-	9.1	7.1	16.3	7.7
No centralized responsibility or management, but departments can request assistance on accessibility from a support center (not required).	21.2	38.7	9.1	16.7	22.5	12.8
A central office or support center is responsible for accessibility support and compliance and works with operating units and academic programs.	69.0	61.3	81.8	76.2	61.3	79.5
Looking ahead, what's the likelihood that your institution will migrate (or has already migrated) to one or more Cloud / Software as a Service (SaaS) applications five years from now, by fall 2023? *(Scale: 1=not likely; 7=very likely; percentages 6/7)*						
Alumni / Development System	59.8	48.4	41.7	73.8	67.1	42.9
Business Intelligence / Big Data analytics	42.6	45.2	33.3	60.5	34.6	39.5
Collaboration Platforms / Applications	63.8	64.5	54.5	83.3	60.3	51.4
Content Management System	55.9	54.8	58.3	61.9	53.2	55.3
Continuing Education Management Platform	36.6	50.0	50.0	41.0	19.4	50.0
CRM services	76.0	87.1	90.9	81.0	74.4	60.5
ePortfolio System	54.1	50.0	63.6	59.5	60.0	36.8
Financial System	37.3	35.5	45.5	42.9	35.4	34.2
HR System	48.5	38.7	63.6	53.7	51.9	39.5
Learning analytics	49.7	58.1	63.6	50.0	42.9	52.6
Learning Management System	84.7	93.5	83.3	88.1	79.7	84.2
Lecture Capture	56.1	71.0	75.0	52.4	54.7	44.7
Video management	51.5	58.1	63.6	52.4	52.6	39.5
Research / Grants Management System	40.6	58.1	54.5	53.7	29.2	29.7
Student Information System	42.0	32.3	63.6	50.0	38.5	42.1
Looking ahead, what's the likelihood that your institution will migrate (or has already migrated) to one or more Open Source applications five years from now, by fall 2023? *(Scale: 1=not likely; 7=very likely; percentages 6/7)*						
Alumni / Development System	2.6	-	-	2.4	2.6	5.4
Business Intelligence / Big Data analytics	3.1	3.6	-	2.4	2.6	5.4
Collaboration Platforms / Applications	5.1	3.6	9.1	4.9	3.8	7.9
Content Management System	-	-	-	-	-	-
Continuing Education Management Platform	3.1	10.7	-	2.5	-	5.3
CRM services	3.6	3.6	-	2.4	2.6	7.9
ePortfolio System	7.7	3.7	9.1	2.5	11.5	7.9
Financial System	3.6	10.7	-	4.9	-	5.3
HR System	3.6	7.1	-	2.6	2.6	5.3
Learning analytics	5.1	7.1	-	7.3	3.8	5.3
Learning Management System	19.5	10.7	27.3	19.5	27.3	7.9
Lecture Capture	4.6	3.6	-	7.5	2.6	7.9
Video management	4.1	7.7	-	2.4	2.6	7.9
Research / Grants Management System	2.6	7.1	-	2.4	1.3	2.7
Student Information System	4.1	10.7	9.1	2.4	1.3	5.4
As you think about the future role of emerging technologies, which technologies do you think will be important for your institution five years from now, by fall 2023 *(Scale: 1=not important 7=very important; percentages 6/7)*						
Artificial intelligence (AI) as a resource to improve instruction (personalization, etc.)	31.8	45.5	53.8	40.9	21.2	25.6
Artificial intelligence (AI) as a resource for analytics and decision-making/management	42.5	54.5	76.9	52.3	32.9	30.8
AR/VR applications as a resource for instruction	25.7	27.3	38.5	34.1	20.0	23.1
Internet of Things (IoT) sensors for data to inform planning and policy decisions	27.6	21.2	46.2	40.9	17.6	33.3
Wearable technologies	13.6	18.2	23.1	20.5	5.9	15.4
Blockchain	16.5	9.1	46.2	20.5	8.4	25.6

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