Information Technology in Higher Education:
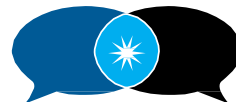
2011 Survey of Chief Information Officers

Executive Summary
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Introduction

The Leadership Board for CIO's in Higher Education (LBCIO) survey is a project of LBCIO which was started by Dr. Michael Zastrocky and The Chronicle of Higher Education in 2009. The first LBCIO survey was administered by The Chronicle of Higher Education and LBCIO in 2010. This survey was developed as a global survey to provide CIO's with key metrics to help them do the work of managing and planning IT for their institutions.

To get a complete picture of information technology on campuses today, the Leadership Board for ClO's surveyed a broad range of colleges and universities in May of 2011 to collect strategic and tactical information on major issues that face chief information officers in higher education globally. Survey questions included financial and budget information for IT, organizational and governance questions, personnel and staffing questions, infrastructure and networking questions (including security issues), and questions about consumerization, administrative computing plans, strategic planning for IT, academic uses of information technologies, and plans for new and emerging technology. Dr. Michael Zastrocky, Executive Director of LBCIO was assisted by LBCIO board member, Jerome P. DeSanto, CIO at the University of Scranton and doctoral candidate at the University of Pennsylvania in the creation and analysis of this year's survey.

The 2011 LBCIO survey added a few questions to look at several issues that were listed high on the LBCIO list of top issues facing CIO's in higher-education in 2010. One of the most daunting issues that CIO's must grapple with is consumerization. CIO's are expected to provide infrastructure and support for any and all technologies that faculty, staff, students and others bring to campus or use to connect to the network. Another area for attention this year focused attention on IT organization and governance.

What we found is that while budgets are still tight and CIO's are concerned about the future, they are cautiously optimistic and their planning reflects both optimism and concern. While the issues of consumerization are large and real, CIO's are planning and adjusting their organizations to deal with the issues surrounding support for devices students, faculty, staff and others bring which are varied and new to IT. CIO's are concerned about their organization and work is continuing on how best to build a governance model. Security remains an issue that is not isolated but tied to consumerization, cloud computing and future technologies being considered.

This executive summary is provided only to those institutions that completed the survey. Additional information and cross-tabbed results are available to all LBCIO Members. If you have any questions concerning the survey or wish to inquire about membership in LBCIO, please contact Dr. Michael Zastrocky, LBCIO Executive Director at mzastrocky@lbcio.org or go to the LBCIO web site at www.lbcio.org for an application.

Financial and Budget Planning

Overall Institutional Budgets

Institutional budgets for 2011 were somewhat better than what was reported in 2010. A greater number of institutions reported increases and fewer reported decreases. Though the budget situation is uncertain, most CIO's are cautiously optimistic about the future.

- While almost twenty-nine percent of institutions reported they had lower overall budgets in 2011, this is considerably better than the forty-three percent of the institutions who reported they had lower overall operating budgets 2010.

- More than forty percent reported increases in 2011 compared with thirty-one percent reporting increases in the overall institutional budgets in 2010.

- The remaining thirty-one percent of institutions reported that their overall budgets remained the same compared with twenty-six percent in 2010.

- Cautious optimism still reigns at many institutions as almost two thirds of institutions expect budgets to either grow (38%) or stay the same (25%) next year.

Budgets for Information Technology

IT spending continues to follow closely overall institutional spending patterns with some exceptions.

In 2011, 24.6% of institutions reported their IT budgets decreased compared with overall budget decreases reported at 29%. This compares favorably over 2010 when 43 percent of the colleges and universities experienced decreases in IT budgets. Thirty-four percent reported IT budget growth for 2011 and 41.5% reported IT budgets stayed the same as the prior budget year

- Two-year institutions were most likely to report growth in IT budgets for 2011, 45.5% compared with 26% for 4-year institutions, 41.7% for 4-year with master's degree programs, 24.1% for doctoral granting institutions and 30.2% for research universities.

- Research universities were most likely to report decreased budgets for 2011 with 32.1% reporting budget decreases, compared with 27.6% of doctoral granting institutions, 20.8% of 4-year with masters degree programs, 15.8% of 4-year institutions and 18.2% of two-year institutions.

For those colleges and universities that reported cuts in their IT budget from the previous year, the cuts came in the following areas:

- Delayed maintenance or replacements: 60.7% compared with 80% in 2010
- Personnel: 58.7% compared to 61% in 2010
- Services: 49% compared to 53% in 2010
- Software licenses: 24% compared to 27% in 2010
- other: 13.3% compared to 18% in 2010

The positive movement away from delayed maintenance is a good sign but still leaves a great number of institutions needing to recover from that delay over the past few years at some point in the future.

Respondents who said they were planning for no growth or a decrease in their IT operating budgets said they would be likely to follow these strategies:

- Renegotiating contracts with vendors: 60% same as 2010
- Cutbacks in services and support: 63.3% up from 57% in 2010
- Non-replacement of staff leaving the institution: 45.8% compared to 49% in 2010
- Elimination of staff positions: 29.2% compared to 25% in 2010
- Increased use of chargeback for services and support: 22.5% compared to 20% in 2010
- Increased student fees: 25% compared with 18% in 2010

Capital expenditures are most often included in the IT budget (56.4% compared with 16.9% who indicated that capital expenditures are not included in the IT budget). Another twenty-six percent indicated some capital expenditures are included in the IT budget while other capital expenditures are not included.

The overall picture for budgets appears to be somewhat better than in 2010, but not much better and more than half indicate there are no new funding sources in sight.
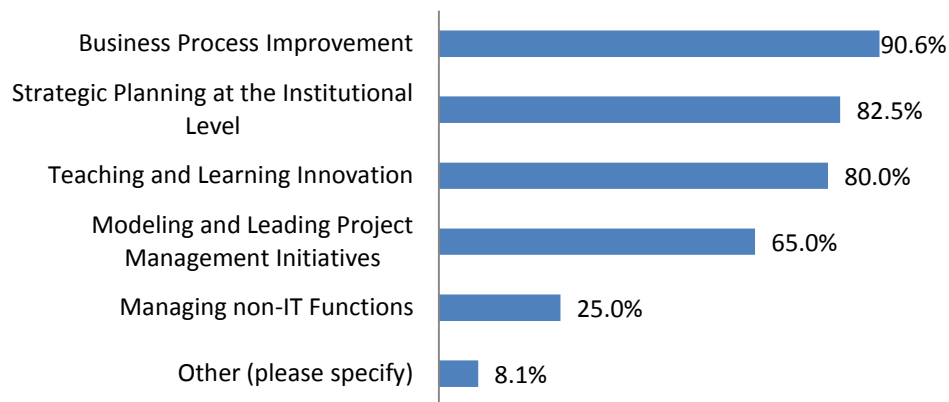
IT Organization and Governance

The Role of the CIO

When asked if the role of the CIO has become more or less strategic in recent years 67.7% said more strategic while 12.4% said the role was more operational and 19.9% said there was no change in the role.
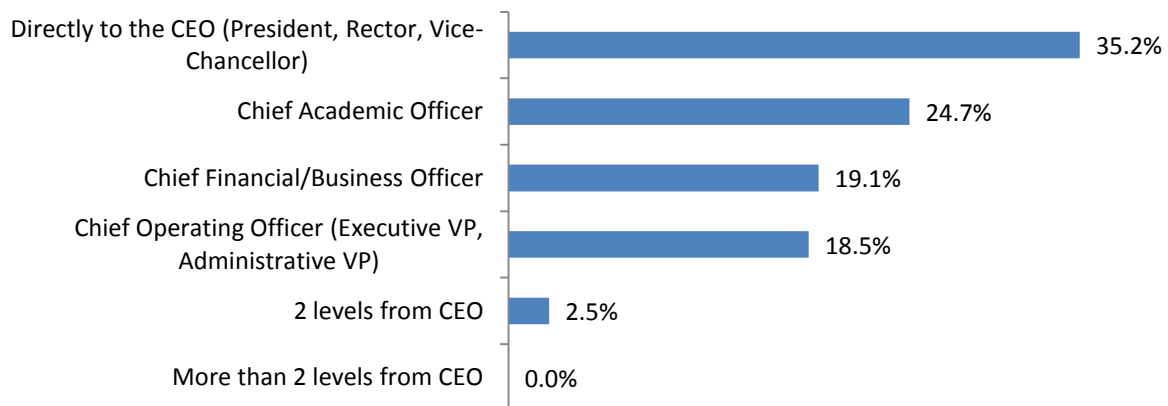
When asked where the CIO adds value to the institution the following responses were provided:

In which of the following areas does the CIO add value to the institution? (check all that apply)
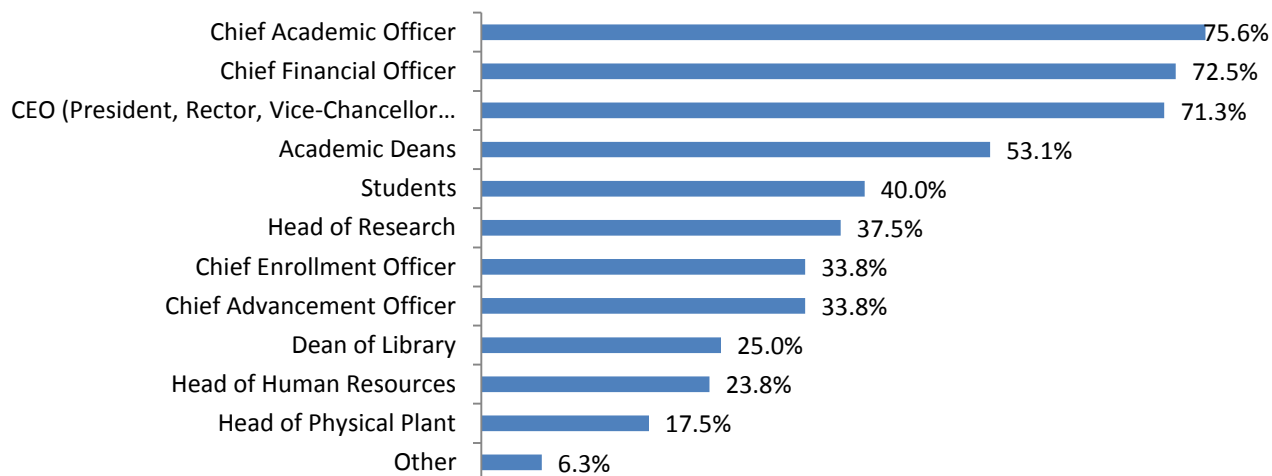
Area	Percentage
Business Process Improvement	90.6%
Strategic Planning at the Institutional Level	82.5%
Teaching and Learning Innovation	80.0%
Modeling and Leading Project Management Initiatives	65.0%
Managing non-IT Functions	25.0%
Other (please specify)	8.1%

The question "Where the CIO reports" continues to show that the CIO most often reports to the CEO and the percentage is rising from previous surveys.

Where does the CIO report?

Reports to	Percentage
Directly to the CEO (President, Rector, Vice-Chancellor)	35.2%
Chief Academic Officer	24.7%
Chief Financial/Business Officer	19.1%
Chief Operating Officer (Executive VP, Administrative VP)	18.5%
2 levels from CEO	2.5%
More than 2 levels from CEO	0.0%

When asked what relationships need to be nurtured, the following table indicates that most CIO's are concerned about improving relationships with peers and others in leadership. Note that some relationships seem to have a high comfort level while others need more nurturing.

Reflecting on your prospects for continuing success as a higher education CIO, what key institutional relationships do you need to nurture more intensely? (Check all that apply

Relationship	Percentage
Chief Academic Officer	75.6%
Chief Financial Officer	72.5%
CEO (President, Rector, Vice-Chancellor…	71.3%
Academic Deans	53.1%
Students	40.0%
Head of Research	37.5%
Chief Enrollment Officer	33.8%
Chief Advancement Officer	33.8%
Dean of Library	25.0%
Head of Human Resources	23.8%
Head of Physical Plant	17.5%
Other	6.3%

IT Governance

IT Governance is important for most CIO's and improvement of the governance model is on the agenda of many CIO's in higher education as indicated by the following questions:

How important is IT governance to you as CIO?

Very Important	65.4%
Somewhat Important	27.2%
Of Minimal Importance	6.2%
Not Used	1.2%

How do you view the relative importance of assessing and improving IT governance at your institution?

Very high priority	24.8%
Moderately high priority	47.8%
Moderately low priority	14.3%
Low priority	13%

The following chart indicates that most CIO's rate their governance model as somewhat less than "very effective".

Our IT governance model is:
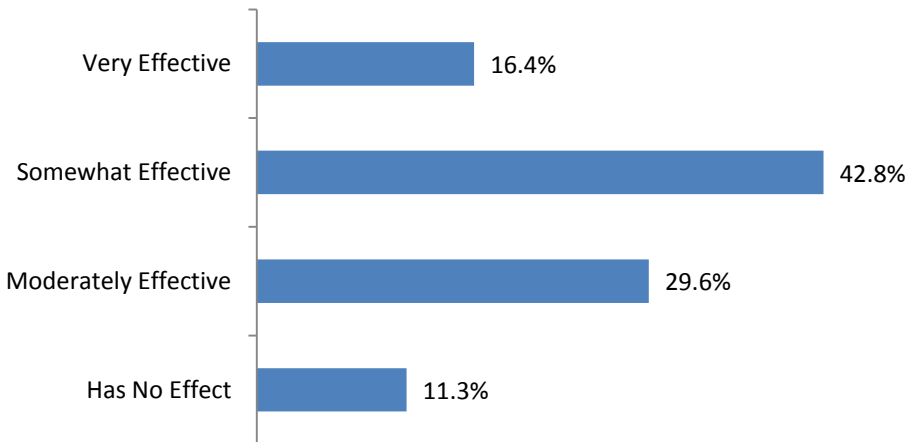
IT Staff Size and Personnel Issues

IT staff size is beginning to show some gains as the percentage of institutions reporting IT staff increases went from 16% in 2010 to 30.9% in 2011. Correspondingly, 43.2% indicated their staff size stayed the same compared with 56 percent in 2010 and 25.9 percent indicated their IT staff size decreased compared to 28% in 2010.

Has your Full Time IT staff
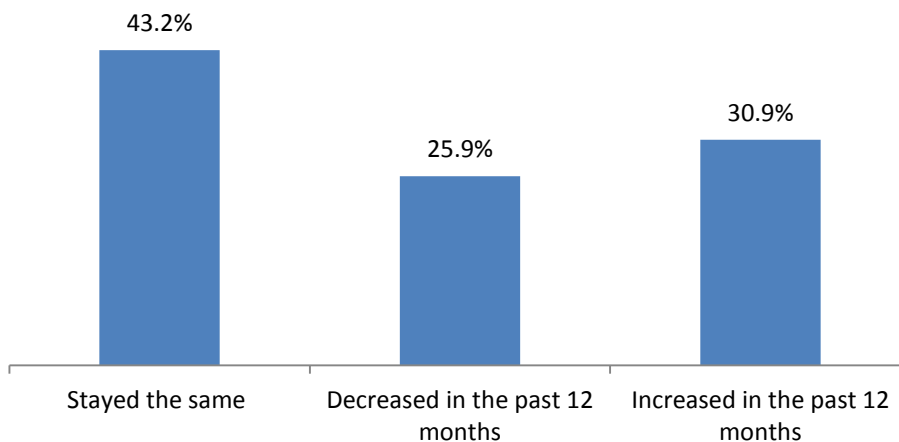
Expectations for 2012 showed little optimism with only 29 percent expecting the size of the IT staff to grow and 55% indicating the size would stay the same. The smallest proportion —16 percent — expected a decrease.

Outsourcing

One area where many CIO's expect to see growth is in outsourcing. More than two-thirds of CIO's surveyed (67.5%) expect to see outsourcing grow in the next two years while only 3.1% expect to see outsourcing arrangements decreased. Currently 76.5% of institutions utilize outsourcing while 23.5% indicated no use of outsourcing in IT.

Overall, most CIO's are pleased with current outsourcing agreements. For those that are using outsourcing services, 76.5% said that services met expectations while 14.7% indicated that outsourcing services were less than expected. Almost 9% indicated that outsourcing services actually exceeded expectations.

For those institutions that brought back outsourcing services. The following reasons were given:

If you have brought back service/support that was previously outsourced, what reasons were used to bring the service back inhouse? (please check all that apply)
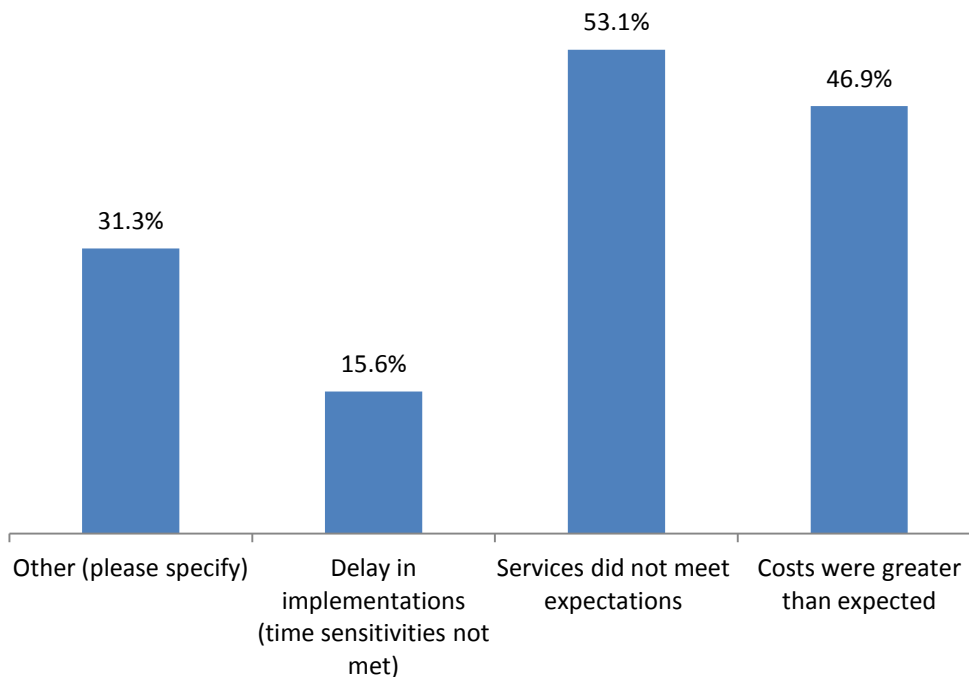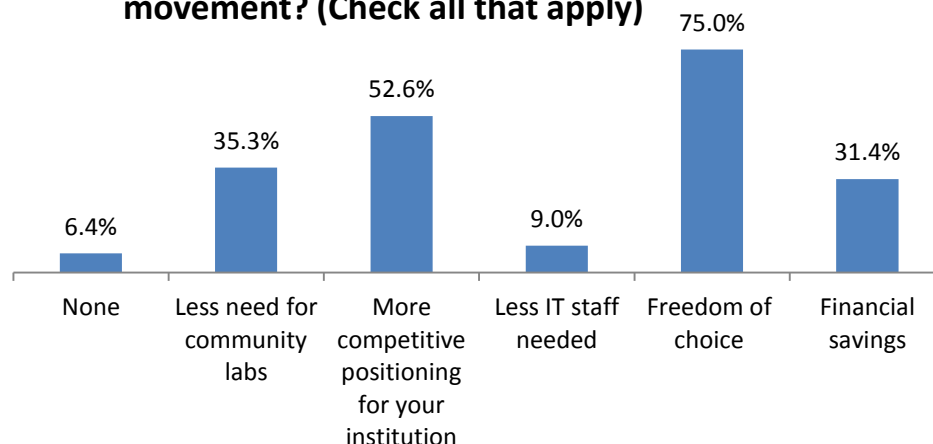
Consumerization of IT

The consumerization of Information Technology (IT) in higher education, defined as the rapid introduction of a plethora of mostly mobile, consumer grade technologies onto the college campus, is significantly impacting the continually evolving role of the higher education Chief Information Officer (CIO). Consumer technologies such as smart phones and tablets are beginning to redefine teaching, learning, and recreation. They are also beginning to creep into the administrative functions of the college enterprise. Secondarily, but a very critical component of this movement is the user familiarity and knowledge development that accompanies these devices and solutions. No longer are such devices considered "black boxes", foreign to everyone but IT professionals. The users of these technologies have become quite sophisticated in a relatively brief period of time, and the learning curve is shortening.

How is the consumerization of IT impacting your campus?

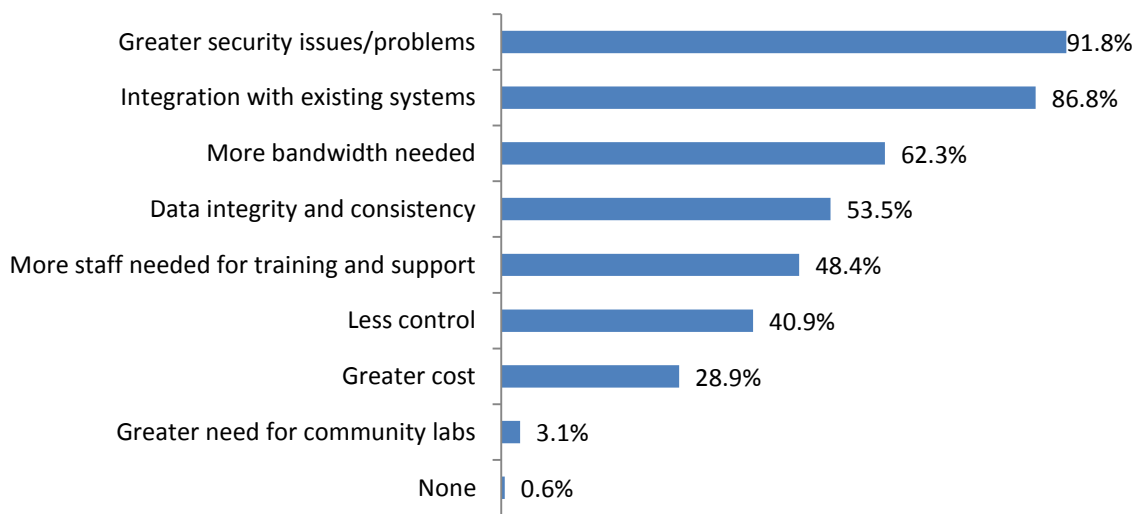| Not At All	Moderately	Significantly
5.1%	57.0%	38.0%
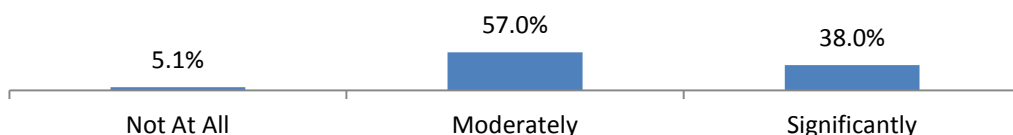
As we drill down into the perspectives of the CIO's about this phenomenon you begin to see how CIO's are beginning to develop their strategies about leveraging this unstoppable movement. The table below assesses the CIOs' views on the potential benefits of IT consumerization, which are numerous. Although the top two benefits listed (freedom of choice, and more competitive positioning for the institution) are difficult to tangibly measure, the next three benefits (less need for community labs, financial savings, and less IT staff needed) get to very tangible and measurable benefits.

What are the potential benefits of the consumerization movement? (Check all that apply)

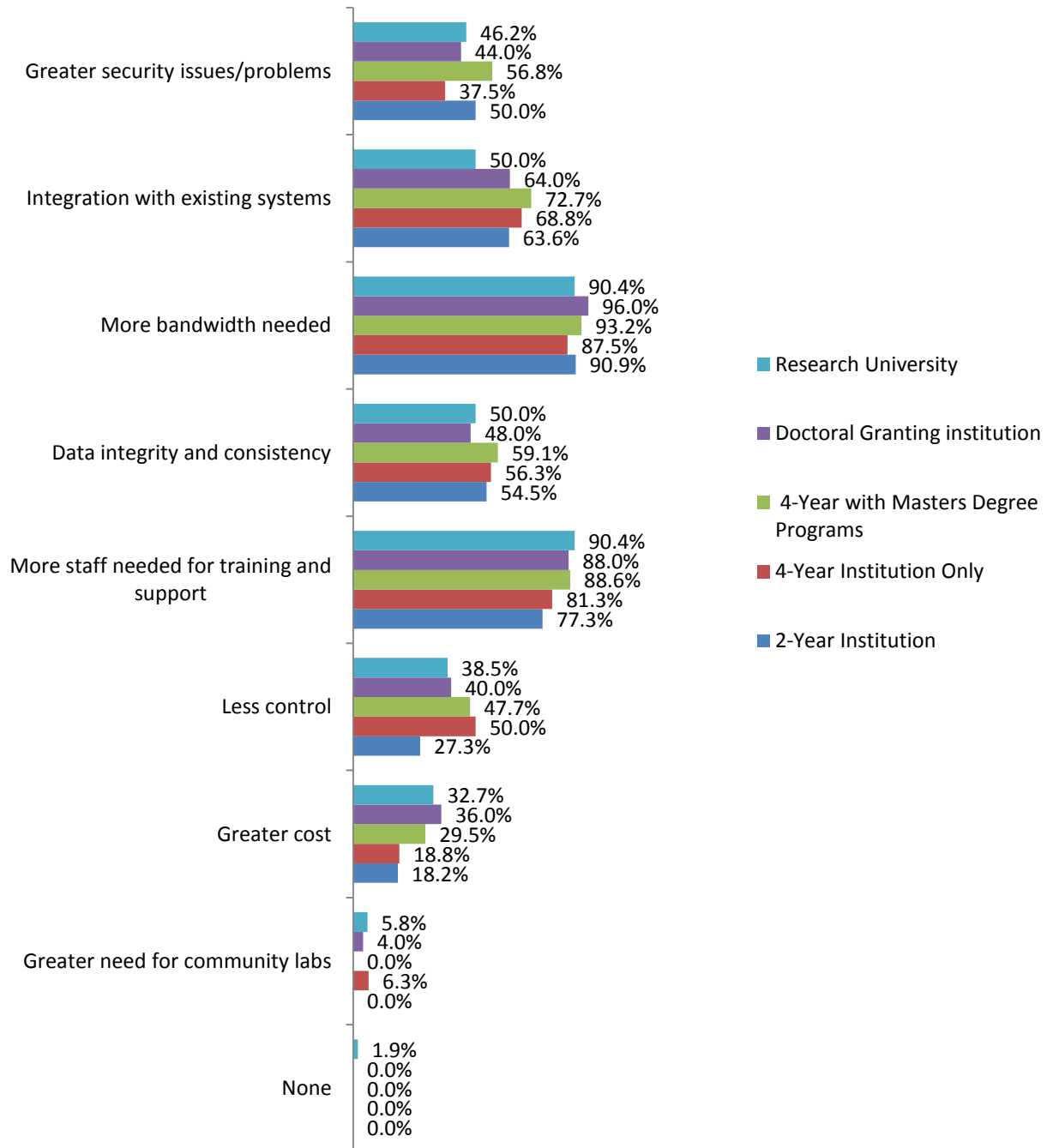| None	Less need for community labs	More competitive positioning for your institution	Less IT staff needed	Freedom of choice	Financial savings
6.4%	35.3%	52.6%	9.0%	75.0%	31.4%

However, CIO's are very quick to delineate their opinions about the potential pitfalls associated with the IT consumerization movement. Chief among these concerns is the ever-present IT security issue at 91.8%. This worry mainly centers around the prospect of lost or stolen devices that may have confidential information stored on them. This problem is closely followed by integration issues at 86.8% and bandwidth concerns at 62.3%. The former issue deals with the diversity of devices appearing on the scene lacking interoperability because of the wide variety of vendors and standards. The latter matter regards the amount of network resource required to support untold number of WiFi enabled devices on campus. It's difficult to predict how much network bandwidth will be enough to meet demand when it's impossible to know how many devices need to be supported and the extent of usage by these devices.

What are the potential problems that come from the consumerization movement? (Check all that apply)

|	
Greater security issues/problems	91.8%
Integration with existing systems	86.8%
More bandwidth needed	62.3%
Data integrity and consistency	53.5%
More staff needed for training and support	48.4%
Less control	40.9%
Greater cost	28.9%
Greater need for community labs	3.1%
None	0.6%

Further drilling down into CIO concerns about IT consumerization a stratification by institution type reveals some interesting results. CIO's from research universities have the greatest concerns about consumerization and these concerns center around security and integration issues. This would appear to reflect on greater decentralization and diminishment of CIO control in larger, more complex institutions. Smaller institution CIO's seem to have less concerns about consumerization which may be a result of their greater control over all institutional IT expenditures and policies. Interestingly, bandwidth issues are most evident among 4-year institutions with masters programs. These schools likely feel the financial and overall resource squeeze most acutely and therefore express concerns that consumerization will drive up their need for bandwidth, which will increase their costs. The table below illustrates some of the discrepencies between types of institutions.

What are the potential problems that come from the consumerization movement? (Check all that apply)

Greater security issues/problems
- 46.2%
- 44.0%
- 56.8%
- 37.5%
- 50.0%

Integration with existing systems
- 50.0%
- 64.0%
- 72.7%
- 68.8%
- 63.6%

More bandwidth needed
- 90.4%
- 96.0%
- 93.2%
- 87.5%
- 90.9%

Data integrity and consistency
- 50.0%
- 48.0%
- 59.1%
- 56.3%
- 54.5%

More staff needed for training and support
- 90.4%
- 88.0%
- 88.6%
- 81.3%
- 77.3%

Less control
- 38.5%
- 40.0%
- 47.7%
- 50.0%
- 27.3%

Greater cost
- 32.7%
- 36.0%
- 29.5%
- 18.8%
- 18.2%

Greater need for community labs
- 5.8%
- 4.0%
- 0.0%
- 6.3%
- 0.0%

None
- 1.9%
- 0.0%
- 0.0%
- 0.0%
- 0.0%

Legend:
- Research University
- Doctoral Granting institution
- 4-Year with Masters Degree Programs
- 4-Year Institution Only
- 2-Year Institution

The next table is the most telling of the charts about the IT consumerization movement and its impact on the CIO. With almost 90% of the CIO's saying that IT consumerization is either moderately or significantly impacting the planning of the CIO's, there is little doubt that the movement is having an impact on many CIO's and their ability to plan for the future.

To what degree is consumerization impacting your current IT planning?
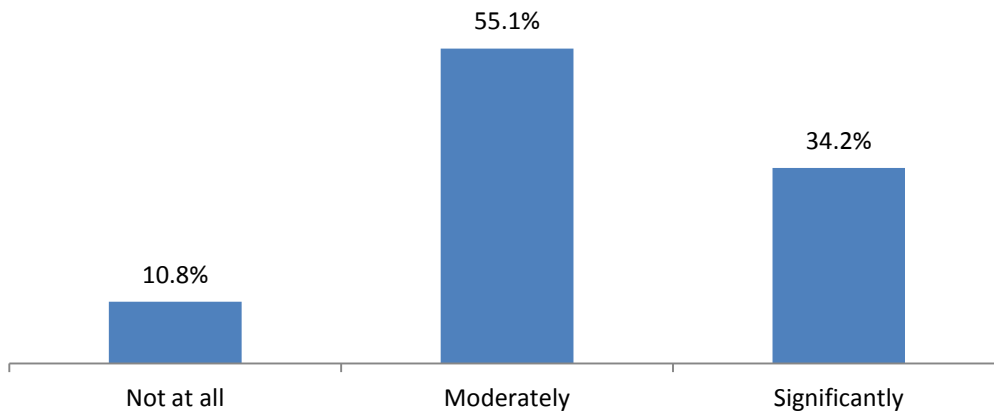
When looking that data broken out by type of institution, we see some significant differences:

To what degree is consumerization impacting your current IT planning?
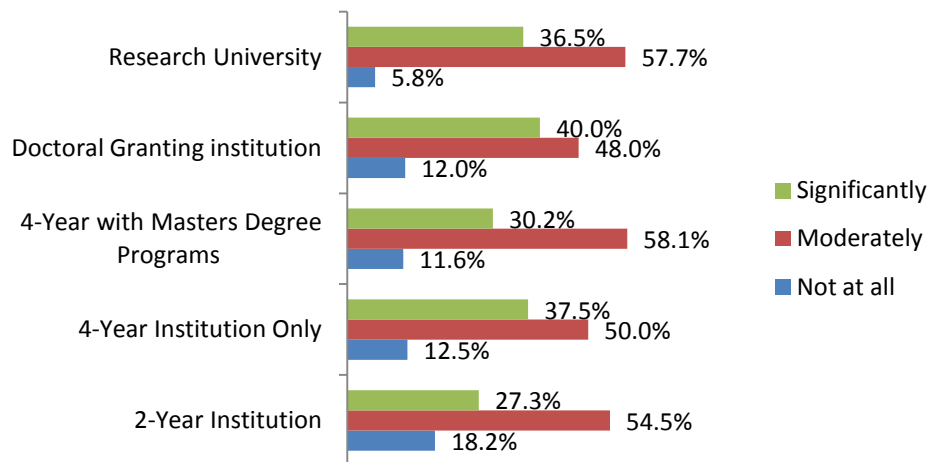
Administrative Computing

Institutions reported that software for administrative applications overwhelmingly comes from enterprise-resource planning vendors (ERP). While Open Source is touted by many CIO's at conferences and journal articles, the evidence is that when it comes to administrative applications, the move to Open Source is not a rapid move.

Please check which best applies to the particular modules

	ERP/vendor	Open source	Homegrown	Outsourced
Financials (GL,AP, AR…)	93.5%	1.3%	3.2%	1.9%
Student Registration, grading, transcripting	86.4%	0.0%	11.0%	2.6%
Financial Aid	91.9%	0.0%	6.7%	1.3%
Human Resources	90.2%	1.3%	4.6%	3.9%
Payroll	89.6%	0.6%	3.9%	5.8%

Data warehousing still seems to be a goal at many institutions as the data indicates when asked if you have data warehousing in place, 56% indicated they had data warehousing in place, 14.5% indicated they didn't have it in place, 27% are planning on doing something in the future and 2.6% have no plans for data warehousing.

When asked when the institution would likely upgrade administrative applications, there is an expectation that upgrades or replacements are in process or on the near horizon (less than 6 years) for almost two-thirds of institutions as shown in the table below:

When will you likely replace or make a major upgrade to the following:

| Application	In Process	Next 2-3 years	4-6 years	More than 6
Financials (GL, AP, AR…)	18.6%	25.5%	19.3%	36.6%
Student Registration, Grading, Transcripting	15.3%	28.5%	20.8%	35.4%
Financial Aid	15.9%	28.3%	19.6%	36.2%
Human Resources	18.2%	26.6%	21.0%	34.3%
Payroll	14.4%	27.3%	21.6%	36.7%
Advancement	16.5%	31.6%	20.3%	31.6%
Grants Management	17.1%	34.1%	18.7%	30.1%

Academic Computing

Vendors supply 61 percent of the current course- management systems on the campuses in the survey but that is significantly lower than the 70% indicated in last year's survey. Open-source solutions continue to make inroads, accounting for 25.3 percent of the systems compared with 21% in 201. Over 9 percent of the campuses outsource their course- management systems in 2011 compared to 6% in 2010, and 3. 2 percent have developed their own systems compared to 2% in 2010.

A smaller number of campuses—30 percent of the respondents—are currently considering replacements for their course-management systems compared with 39% in 2010. An additional 22 percent say they will consider a replacement within two to five years which is the same as for 2010, and 18 percent report they will likely consider replacement in more than three years. The remaining 31 percent said they did not know when they would consider a new system compared with 20% in 2010.

Instructional design, course design and the management of on-line learning more often reports either to an academic area (Provost or Chief Academic Officer 34.4% of the time and Dean level 11.3% of the time than to the CIO) where it reports 33.1% of the time. A separate unit for on-line education is responsible for instructional and course design 18% of the time. On the other hand, the responsibility for the maintenance and infrastructure for course management resides with central IT 66.7% of the time, academic computing 5.2% of the time, a separate unit for on-line education 7.8% of the time and is outsourced 17% of the time.

One area that seems to hold promise for some institutions is in the area of shared services. In our survey for 2011 the following responses were given to the question asking if the institution was considering the use of a shared services model for support of their course management system:

Have you considered a shared services model for support of your course management system?

Response	Percentage
Yes	43.5%
No	40.3%
Currently using a shared services model	9.7%
Don't know	6.5%
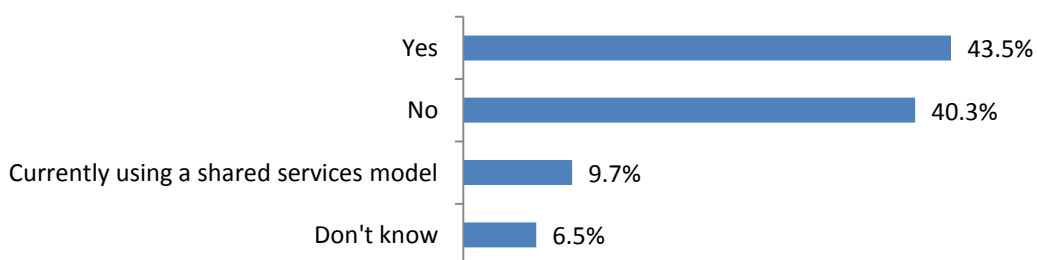
Desktop Virtualization was listed as an important area for the future in 2010 and continues to be important in our 2011 survey. Almost 70% are either currently utilizing desktop virtualizations or are in the planning stages with Citrix and VMWare the leading tools currently being utilized.
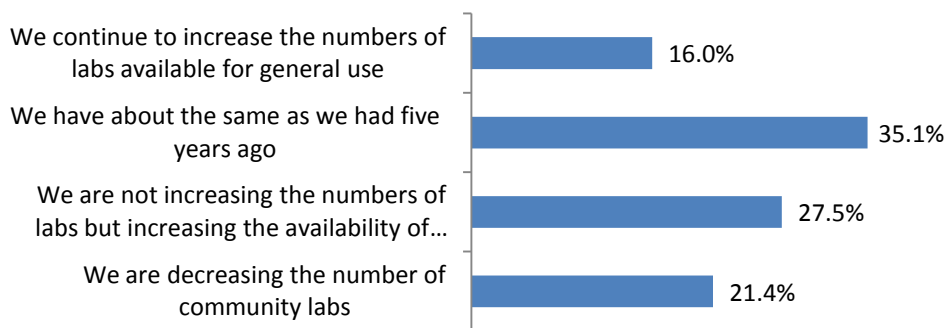
Are you currently utilizing desktop virtualization?

In the planning stages	No	Yes
37.3%	30.7%	32.0%
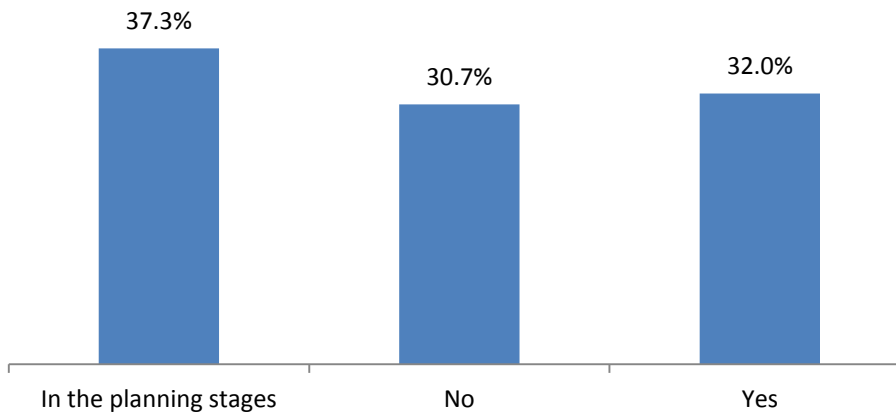
Outsourcing of email for students continues to rise up from 50% in 2010 to more than 63% in 2011. Outsourcing of email for faculty and staff grew from just over 11% in 2010 to almost 23% in 2011. This seems to indicate that some of the fear over the privacy and protection of faculty and staff email is not as great as in the past.

Support for community labs continues to be important for most institutions and in spite of tight budgets the number of labs is not decreasing at most institutions.
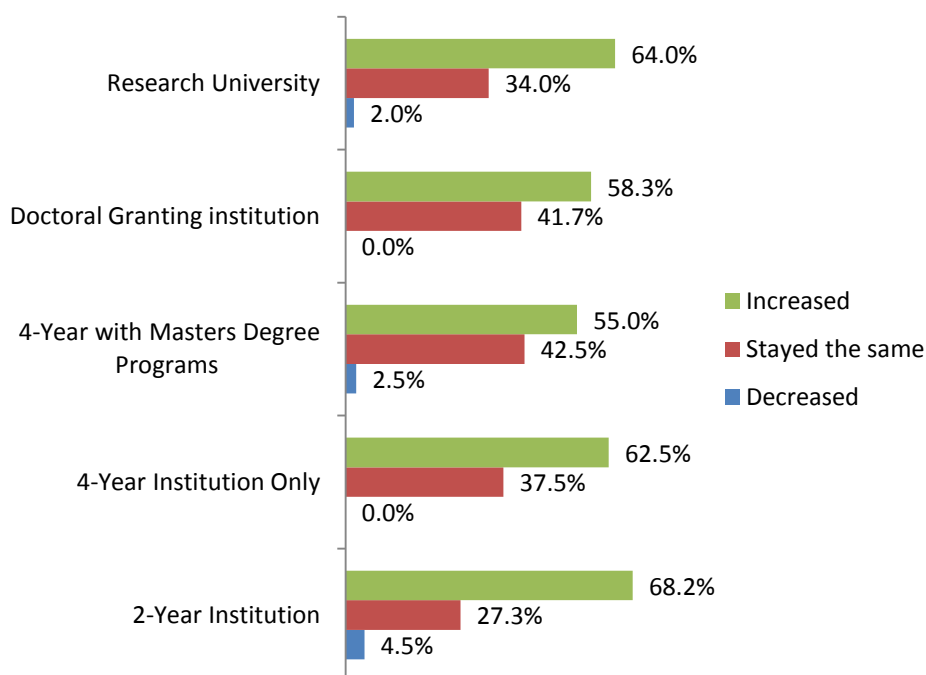
If you support community labs, which best describes your support and plans :

We continue to increase the numbers of labs available for general use	16.0%
We have about the same as we had five years ago	35.1%
We are not increasing the numbers of labs but increasing the availability of…	27.5%
We are decreasing the number of community labs	21.4%

Infrastructure and Security

IT support for security continues to be a problem that requires a lot of attention at most institutions. Most institutions are reporting an increase in support efforts over the past two years and few are reporting decreased efforts as indicated in the chart below. While two-year institutions and research universities were most likely to report increases, more than 55% of all institutions reported increased support efforts.

Has IT support for security

| Institution	Increased	Stayed the same	Decreased
Research University	64.0%	34.0%	2.0%
Doctoral Granting institution	58.3%	41.7%	0.0%
4-Year with Masters Degree Programs	55.0%	42.5%	2.5%
4-Year Institution Only	62.5%	37.5%	0.0%
2-Year Institution	68.2%	27.3%	4.5%

Institutions are also holding fast to performing security audits (75% have performed a security audit in 2011 vs. 71% in 2010). One bright spot is that in 2011 almost 44% plan on performing the security audit annually while in 2010 only 35% planned on repeating the audit annually. :

How often do you plan to do a security audit?

|	
Annually or more often	43.6%
Every two years or longer	45.0%
Don't know	11.4%

Penetration testing by an outside firm has been done at more than half the institutions:

Have you done penetration testing using an outside firm?

Yes	55.3%
No	30.3%
Considering	14.5%
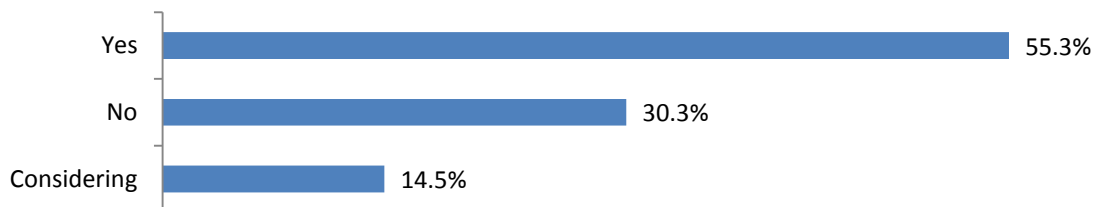
And more than half of the institutions have a formal security plan:

Do you have a formal IT Security plan?

|	
Yes	51.3%
No	28.3%
Working on one	20.4%
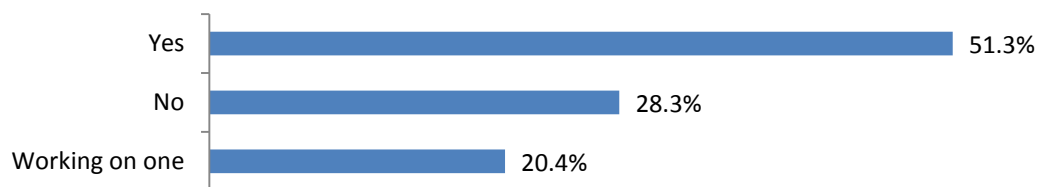
Most institutions have a plan to restore mission critical applications in case of a crisis (74% have a plan and 19% are working on a plan and only 7% don't have a plan and aren't working on one). That's the good news. The bad news is that 30% have never tested the plan and 32% have tested the plan less frequently than annually. This leaves lots of room for improvement

Fully redundant data centers where an institution can get their systems up and running in less than a week are still the exception and not the rule:
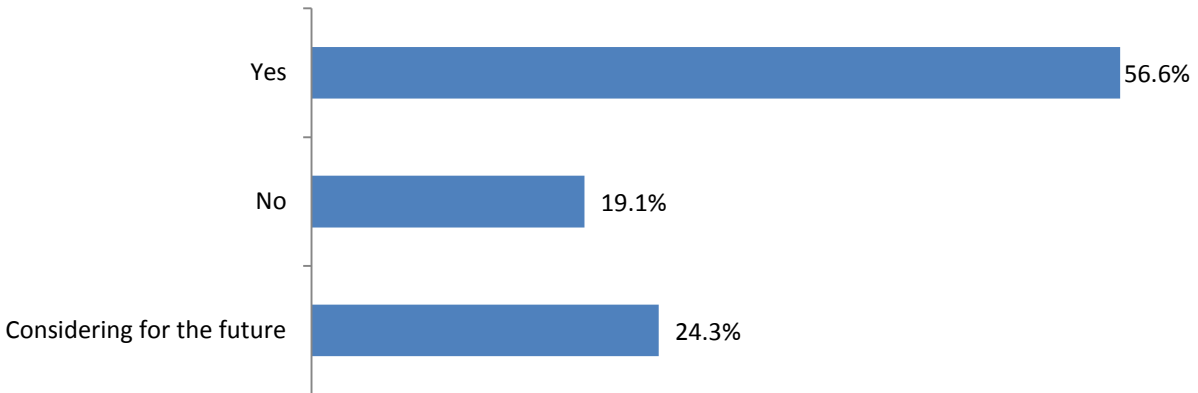
Does your institution have a fully redundant data center, where you could get all your systems up and running in less than a week?
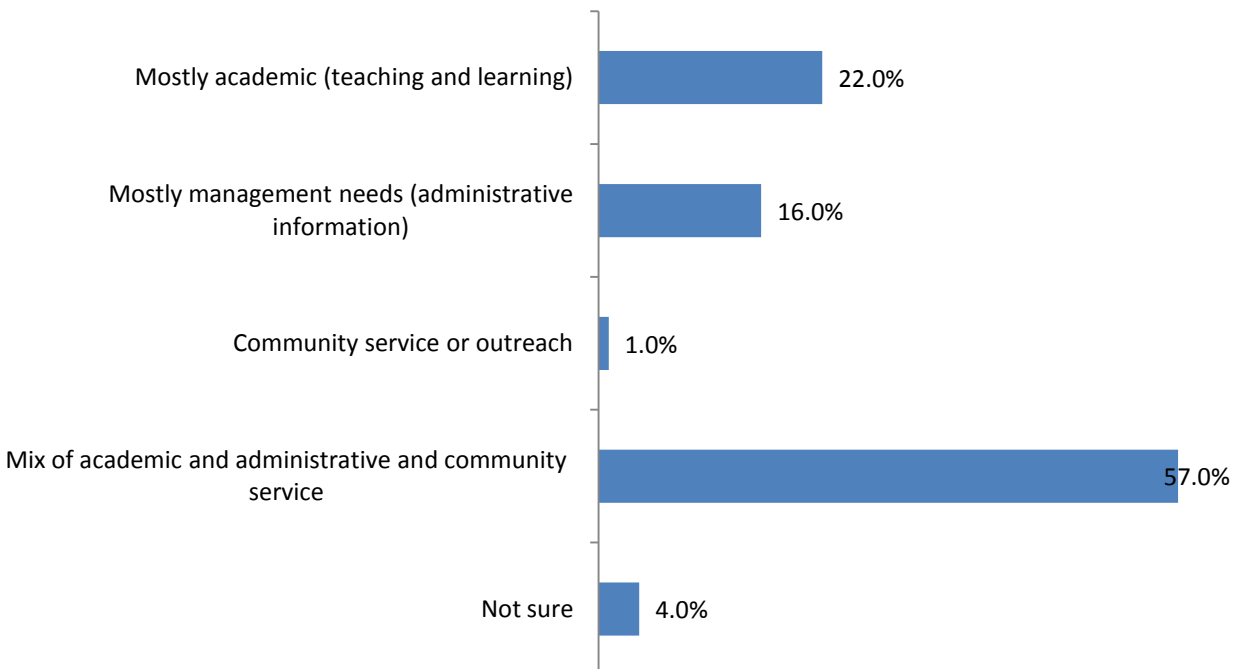
Yes	33.3%
No	47.7%
Planning stage	19.0%
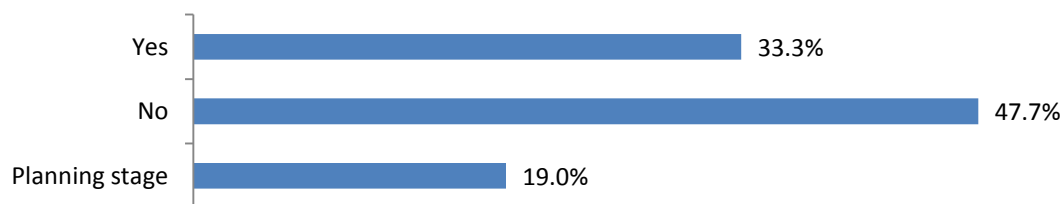
Cloud Computing

Most institutions are doing something in the cloud:

Are You Using Cloud Computing?

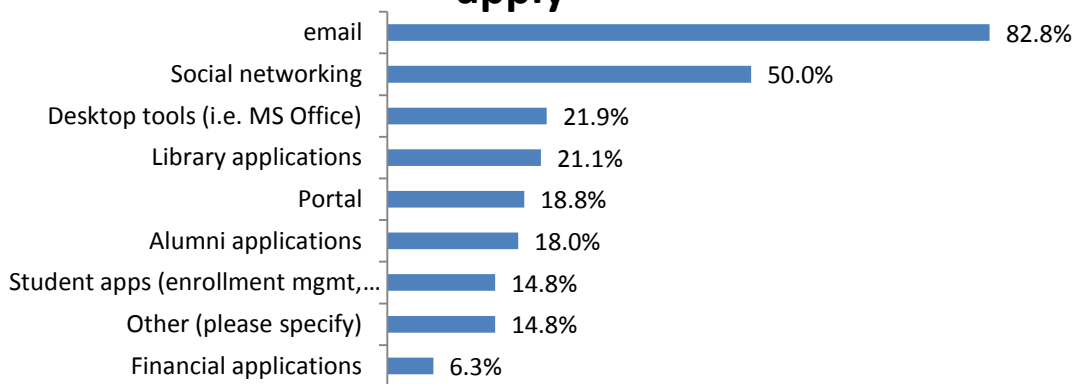| Response	Percentage
Yes	56.6%
No	19.1%
Considering for the future	24.3%

While institutions are reporting a mix of academic and administrative applications in the cloud as evidenced by the following chart:

If you are using cloud computing, which best describes the cloud computing activities?

Response	Percentage
Mostly academic (teaching and learning)	22.0%
Mostly management needs (administrative information)	16.0%
Community service or outreach	1.0%
Mix of academic and administrative and community service	57.0%
Not sure	4.0%

…the use of cloud computing for major administrative applications is still a very small portion of the activities currently taking place in the cloud:

Which of the following areas are you either currently placing in the cloud or are in the process of placing in the cloud (check all that apply

Area	Percentage
email	82.8%
Social networking	50.0%
Desktop tools (i.e. MS Office)	21.9%
Library applications	21.1%
Portal	18.8%
Alumni applications	18.0%
Student apps (enrollment mgmt,…	14.8%
Other (please specify)	14.8%
Financial applications	6.3%

Outlook for the future…

The survey asked CIO's to list the top three new and emerging technologies they are considering for the future. The responses included a wide range of comments and technologies and applications. We have clustered them together and the following represents what CIO's are concerned about and planning for the future:

Mobile technologies and applications including tablets and smart phones	30%
Cloud computing issues	20%
Virtualization/Desktop Virtualization	16%
Identity Management	5%
Lecture capture and video	3%

Summary and Methodology

The 2011 survey was sent to almost 1,000 CIO's globally and the response rate was almost 20%. The survey was sent to a diverse group of institutions globally and was conducted the last week of April, 2011 and completed the second week of May, 2011. More than 61% of respondents were from public institutions while just over 38% were from private institutions and 1% was from proprietary institutions. Research universities comprised 31.5% of respondents, 4-year with master's degree programs 28.2%, doctoral-granting institutions 17.7%, two-year institutions 12.2 %, and four-year institutions with no graduate programs 10.5%. The proportion of respondents by institution sized, based on full-time equivalent enrollment:

Fewer than 3,000 students: 19.9%
3,000 to 4,9999 students: 13.3%
5,000 to 9,999 students: 16.0%
10,000 to 24,999 students: 29.8%
More than 25,000 students: 21.0%

 While budgets are still tight and many institutions are in cutback mode, CIO's are cautiously optimistic about the future and are planning for changes in IT to ensure that the institution's IT and information needs are not only be met but are secure.

If you would like more information about the survey and/or would like more information about The Leadership Board for CIO's in Higher Education or would like to become a member of LBCIO please contact:

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