Why Talk About Technology?

- **FOR STUDENTS:** technology is "sticky"

- **FOR FACULTY:** technology is enabling – but also intimidating.

- **FOR INSTITUTIONS:** technology is part of the infrastructure of instruction and services

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Technology is a Metaphor for Change

Technology is also a metaphor for risk.

Technology is a means of uncertainty reduction that is made possible by the cause-effect relationships upon which the technology is based . . . . A technological innovation creates a kind of uncertainty (about its expected consequences) in the minds of potential adopters, as well as representing an opportunity for reduced uncertainty in another sense (reduced by the information base of the technology). . . . Thus, the innovation-decision process is essentially an information-seeking and information-processing activity in which the individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation.

Everett M. Rogers
The Diffusion of Innovation

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Great Expectations

Books will soon be obsolete in public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed in ten years.

Thomas Edison
July 1913

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THE FOURTH DECADE OF THE "IT REVOLUTION"
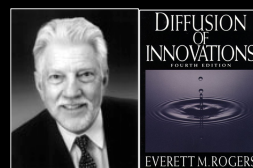**Kenneth C. Green • The Campus Computing Project**

Great Aspirations

Both the processing and the uses of information are undergoing an unprecedented technological revolution. Not only are machines now able to deal with many kinds of information at high speed and in large quantities, but it is also possible to manipulate these quantities so as to benefit from them in new ways. This is perhaps nowhere truer than in the field of education. One can predict that in a few years, millions of schoolchildren will have access to what Philip of Macedon's son Alexander enjoyed as a royal prerogative: the services of a tutor as well-informed and as responsive as Aristotle.

Patrick Suppes
Scientific American
October, 1966

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déjà vu

For better or worse, television dominates much of American life and manners….Part of [the] lackluster record of the educational uses of television is of course due to the heretofore merciless economies of the medium. But profound pedagogic mistrust of the medium also remains a fact of life. The proof of the pudding lies in the fact that on many campuses, fancy television equipment…now lies idle and often unused…. Academic indifference to this enormously powerful medium becomes doubly incomprehensible when one remembers that the present college generation is also the first television generation.

George Bonham
Television: The Unfulfilled Promise
Change, 1972

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The Context of the Campus IT Conversation

WHAT DO WE KNOW?

- The consumer experience now defines (rising) expectations about campus IT resources & services.

- There is rising pressure for higher education to provide the much promised productivity bang for all the IT bucks.

TWO KEY ISSUES

- Why don't faculty do more with IT and eLearning?

- Why don't colleges and universities make better use of IT for campus management?

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Four Key Questions

- What have we done well?

- What must we do better?

- How can/does technology aid and engage students and faculty?

- How should IT resources and services foster student engagement and advance the institutional completion agenda?

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Attention Must Be Paid
Five Key Technology Challenges

- *plus ça change:* how do we get faculty to . . .

- "MOOC Madness" and Online Education

- OER and Digital Curricular Resources

- Big Data

- The Potemkin Campus

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plus ça change
How Do We Get Faculty to…

- 1986: Use computers

- 1996: Use the Internet

- 2012: Use Digital Resources

Underlying Faculty Question

WHY SHOULD I DO THIS?

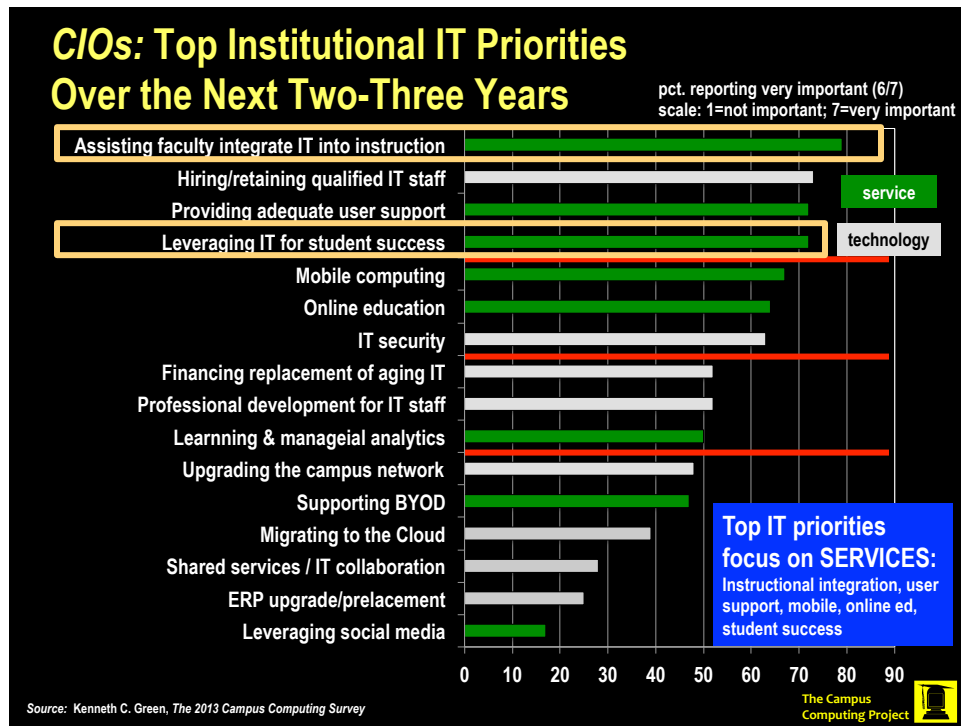Changing (evolving!) questions but common underlying issues:

- Training
- User support
- Infrastructure
- Recognition & Reward
- Evidence of Benefit

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CIOs: Top Institutional IT Priorities Over the Next Two-Three Years

pct. reporting very important (6/7)
scale: 1=not important; 7=very important

Priority	
Assisting faculty integrate IT into instruction	service
Hiring/retaining qualified IT staff	technology
Providing adequate user support	
Leveraging IT for student success	
Mobile computing	
Online education	
IT security	
Financing replacement of aging IT	
Professional development for IT staff	
Learnning & manageial analytics	
Upgrading the campus network	
Supporting BYOD	
Migrating to the Cloud	
Shared services / IT collaboration	
ERP upgrade/prelacement	
Leveraging social media	

Top IT priorities focus on SERVICES:
Instructional integration, user support, mobile, online ed, student success

0 10 20 30 40 50 60 70 80 90

Source: Kenneth C. Green, *The 2013 Campus Computing Survey*

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Visualization

Underlying Issues

Can I do this?   Why should I do this?

Evidence of benefit?

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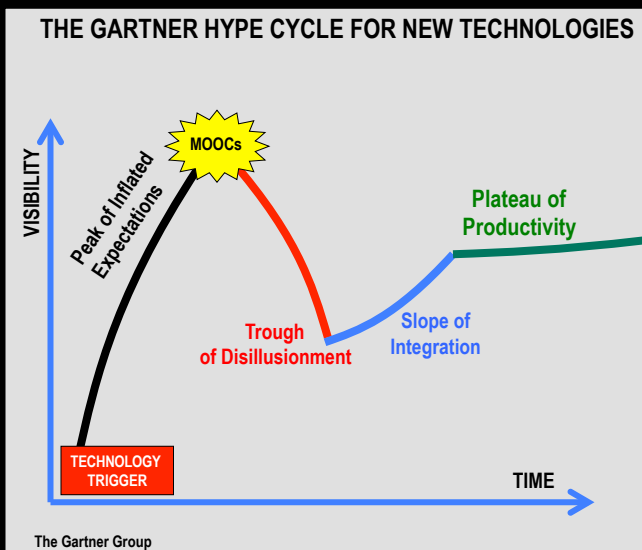
MOOCs

What Do We Know?

coursera edX UDACITY

The conversation about MOOCs is really a discussion about online education.

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MOOC Madness?

THE GARTNER HYPE CYCLE FOR NEW TECHNOLOGIES

VISIBILITY

Peak of Inflated Expectations

MOOCs

Plateau of Productivity

Trough of Disillusionment

Slope of Integration

TECHNOLOGY TRIGGER

TIME

The Gartner Group

- *Big numbers, big media coverage, big expectations*

- Big dollars?

- Growing trustee and state interest in MOOCs as a way to grow revenue and/or reduce costs

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MOOC Madness?

Mission,
MOOCs,
& Money

Trusteeship,
Jan/Feb 2013

- Flash point on the current landscape of online education

- *MODELS & METAPHORS:* PBS? Oprah's Book Club?

- Current catalog focuses on upper-division and graduate level courses

- Catalyst for a new conversation about teaching faculty about teaching

- Significant investment in research about learning
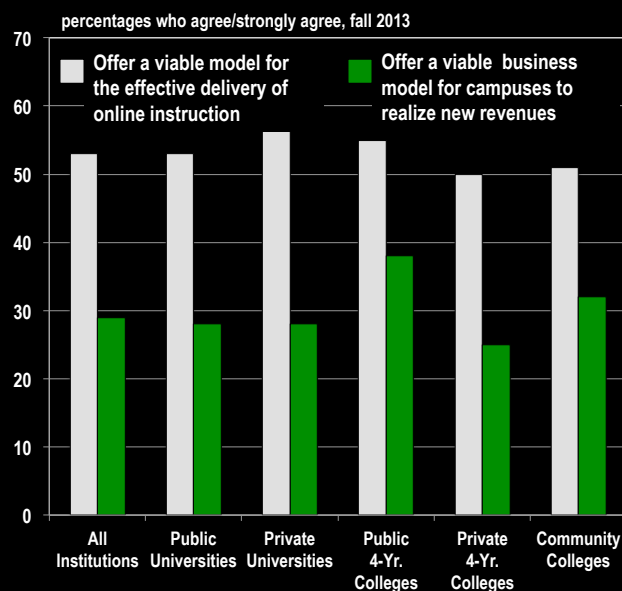
- Emerging MOOC "clones"

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(Too) Much Ado About MOOCs?

percentages who agree/strongly agree, fall 2013

Legend:
- Offer a viable model for the effective delivery of online instruction
- Offer a viable business model for campuses to realize new revenues

- **A bare majority of CIOs see MOOCs as viable model for online instruction**

- **More than two-thirds of CIOs are uncertain about the revenue mode**

- **Incremental gains over 2012**

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What Do We Know About MOOCS?

Big numbers dominate much of the discussion, but:

- Open enrollment: no pre-reqs, no commitment & no "skin in the game"

- No course fees (no revenue!)

- Big enrollment drops in the first weeks: content, schedule, preparation, student support

- *Ad hoc* student support infrastructure

- Cost accounting for course development and instructional support?

7.5%
Mean completion rate, as reported by 103 MOOC instructors

March 2013 *Chronicle of Higher Education* Survey of 103 MOOC Instructors

80%
of US MOOC students already have at least one college degree

2013 University of Pennsylvania Survey of 35,000 MOOC participants

Open Educational Resources (OER) and Digital Education Curricula

"Everyone" hates the textbook -- yet it survives

- The rising pressures on costs

- The emergence of Open Educational Resources

- The arrival of digital texts

- The evolution of adaptive learning technologies

- The future of learning analytics
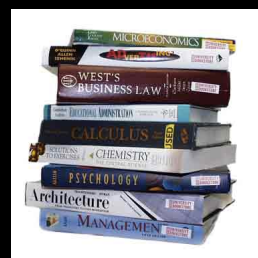
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Casting a Shadow
The Kibby Challenge

The publishing industry needs to do all it can to ensure that within 36 months, higher education in the US will be completely digital…. I'm talking about the total transition from a reliance on print textbooks to a full embrace of digital content and learning systems.

Inside Higher Ed, August 2012

Brian Kibby
President
McGraw-Hill Education

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What's the Price of My Econ Book

Prices as of 7 Jan 2014	
PRINT/NEW: Suggested List PRICE (retail/print)	$ 216.33
Amazon: hardcover & paperback	80.48 / 138.98
Bookrenter	123.91
Chegg	112.49
RENTAL: Amazon : CA and NY vs UT	26.46 – 57.50
Bookrenter (125 days)	26.46
Chegg (CA & VA vs UT)	27.99 / 40.49
USED: Amazon (paperback)	86.39
Half.com	80.00 – 120.00
DIGITAL: Amazon/ Kindle: rent / purchase	39.62 / 75.37
Chegg (3 months / 6 months)	73.00 / 108.00
CourseSmart: rental (3 months / 6 months)	77.88 / 116.82
Kno: 6 mo. rental / purchase	93.02 / 118.98

Source: Kenneth C. Green, Campus Computing

Principles of
MICROECONOMICS
Robert H. Frank   Ben S. Bernanke
5e
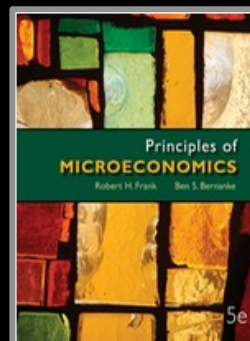
**Principles of
Microeconomics 5e**
Frank and Bernanke

**Best Net Use
Option < $16.00 ??**
**Buy a used text and
sell it back to Amazon
for up to $71.00**

The Campus
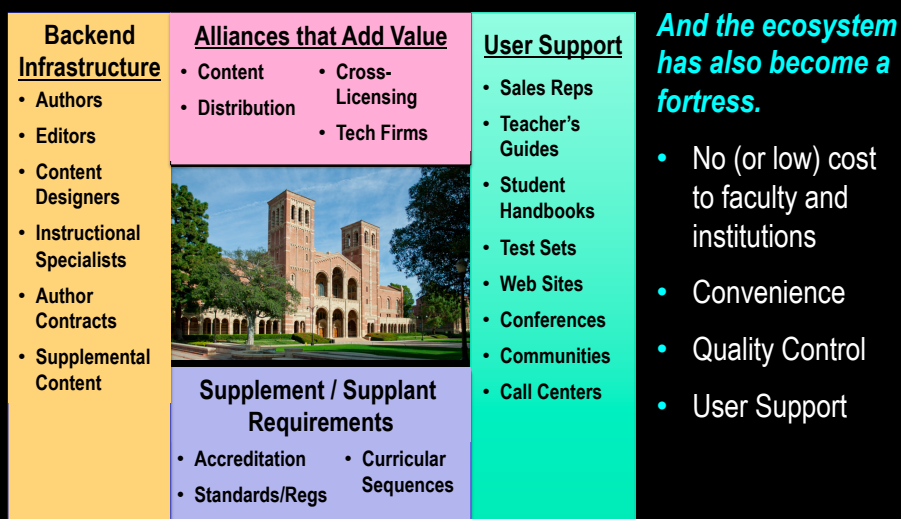Computing Project

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Faculty Issues

- Instructional infrastructure

- Cost issues

- Faculty prerogative to select course materials

- Supporting materials for students and faculty

- *A compelling, competitive alternative that offers added value at lower cost*

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Textbooks Are an Ecosystem

Backend Infrastructure	Alliances that Add Value		User Support
• Authors	• Content	• Cross-Licensing	• Sales Reps
• Editors	• Distribution	• Tech Firms	• Teacher's Guides
• Content Designers			• Student Handbooks
• Instructional Specialists			• Test Sets
• Author Contracts			• Web Sites
• Supplemental Content			• Conferences
			• Communities
	Supplement / Supplant Requirements		• Call Centers
	• Accreditation	• Curricular Sequences	
	• Standards/Regs		

And the ecosystem has also become a fortress.

- No (or low) cost to faculty and institutions

- Convenience

- Quality Control

- User Support

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The Coming of "Big Data"

Why doesn't higher ed make effective use of IT for management and operations?

- Opinion and epiphany
- Quest for consensus
- No (or not good/timely) data

"Big Data" tech resources from the consumer and corporate markets are coming to campus: data warehousing, data mining, and business analytics.

We're really just getting underway. But the march of quantification, made possible by enormous new sources of data, will sweep through academia, business. and government. There is no area that is going to be untouched.

Gary King
Director, Harvard's Institute for Quantitative Social Science
NY Times • 12 Feb 2012

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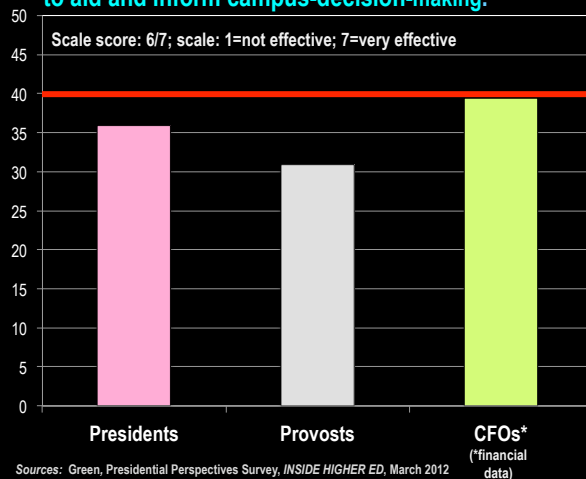## Campus Management and the IT Conundrum

We have lots of information technology.
We just have too little information.

© CartoonBank, 2002

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Academe Does Not Make Effective Use of Data for Decisions

My campus does very effective job of "using data to aid and inform campus-decision-making."

Scale score: 6/7; scale: 1=not effective; 7=very effective

Presidents   Provosts   CFOs* (*financial data)

Sources: Green, Presidential Perspectives Survey, *INSIDE HIGHER ED,* March 2012
Green, CAO Survey, *INSIDE HIGHER ED,* Jan 2012
Green, CFO Survey, INSIDE HIGHER ED, July, 2011

- Although senior campus officials say they want and value data, the majority do not believe that their institutions do a very effective job of using data for decision-making

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Which Campus Units Make the Best Use of Data?

- **Admissions**
- **Alumni / Development**
- **Athletics**
- **Physical Plant**
- **Food Service**

WHY?

- Clear outcomes
- Semi-autonomous
- Independent resources
- Short decision cycles
- Dependent on data

Change the Culture of Data

- *OLD:* **What did YOU do wrong?**
- *NEW:* **How do WE do better!**

DATA AS A RESOURCE, NOT A WEAPON!

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The (Digital) Potemkin Campus

Grigory Potemkin   **Catherine The Great**

- Rising expectations for the role and availability of IT resources to support instruction and operations/mgmt.

- Infrastructure is critical to the effective use of IT.

- *INSTRUCTION:* On-campus and online, the instructional infrastructure is not keeping pace with the demand for resources and services.

- *OPERATIONS:* Higher ed is years behind efforts in the consumer market to leverage the value of data.

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The Key Campus Technology Challenges are No Longer about IT

- IT is the "easy part" of technology on campus

- **THE CHALLENGES:** People, planning, policy, programs, priorities, silos, egos, and IT entitlements

- Providing much-needed support, recognition, and reward for faculty

- Addressing the rising level of digital demand in the midst of reduced financial resources for IT (and other key programs & services)

- Communicating about the effectiveness of and need for IT resources – to on- and off-campus audiences

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Rules for Machiavellian Change Agents

- Concentrate your efforts
- Pick issues carefully; know when to fight
- Know the history
- Build coalitions
- Set modest – realistic – goals
- Leverage the value of data
- Anticipate personnel turnover
- Set deadlines for decisions
- Anticipate change

Niccolò Machiavelli

Source: J. Victor Baldridge, *Rules for a Machiavellian Change Agent, 1983*

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Kenneth C. 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. Campus Computing is widely cited as a definitive source for data information, and insight about IT planning and policy issues affecting higher education. Green also serves as the senior research consultant to *Inside Higher Ed* and developed *Inside Higher Ed's* surveys of college presidents, provosts, and other senior campus officials.

An invited speaker at some two dozen academic and professional conferences each year, Green is 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. His *DigitalTweed* blog, recently cited by *EdTech* Magazine as one of the "50 must read higher ed IT blogs," 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.

The 2013 National Survey of Computing and Information Technology in US Higher Education

Campus IT Officers Affirm the Instructional Integration of IT as Their Top Priority, Offer Mixed Reviews on IT Effectiveness and Outsourcing for Online Education

New data from fall 2013 Campus Computing Survey reveal that CIOs and senior campus IT officers view instructional support and IT service issues as their top technology priorities over the next two-three years. The survey participants also offer a mixed view about the effectiveness of campus IT investments. And as a group, campus IT officers are not sanguine about MOOCs or outsourcing campus efforts to expand online programs as viable instructional strategies or as effective revenue strategies for their institutions.

Campus IT Priorities

Four-fifths (79 percent) of the CIOs and senior campus IT officers who participated in the fall 2013 survey report that "assisting faculty with the instructional integration of information technology" is a very important institutional IT priority over the next two-three years. Three-fourths (73 percent) also identify "providing adequate user support" and "leveraging IT resources to advance the student success/student completion agenda of my campus" as top priorities.

**Top Institutional IT Priorities Over the Next Two-Three Years, Fall 2013**
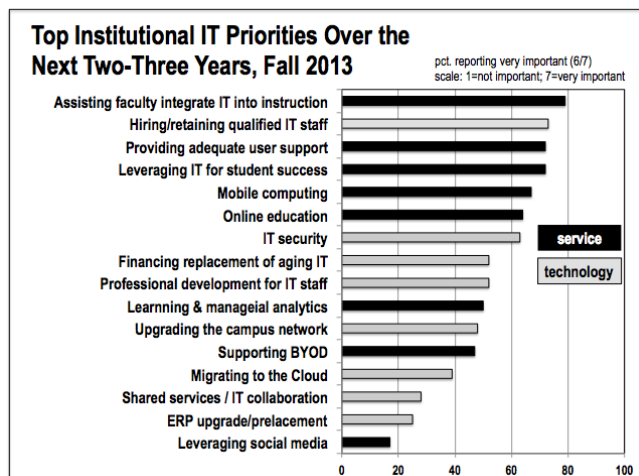
"Viewed in aggregate, five of the seven issues identified by 60 percent or more of the survey participants as 'very important' IT priorities focus on technology based services, rather than pure technology issues," says Kenneth C. Green, founding director of The Campus Computing Project. "The instructional integration of IT, user support, mobile computing, online education, and leveraging IT for student success are all service issues that support larger institutional goals and priorities." Green notes that across sectors, the ranking of IT priorities are also fairly consistent. "Although the numbers may vary by sector, there is a clear message in the new survey data that the top campus IT issues are really about enhancing and expanding IT services."

Assessing the Effectiveness of Campus IT Investments

The focus on IT services becomes even more interesting when viewed in the context of how campus IT officers assess the effectiveness of campus investments in information technology. Two-thirds (67 percent) view the campus IT investment to support library resources and services as "very effective," followed by administrative information systems (64 percent), on-campus teaching and instruction (62 percent), student services (54 percent), and academic support services (51 percent). In contrast, just a fourth (25 percent) cite the IT investment to support analytics as very effective, followed by alumni activities (27 percent), development efforts (31 percent), and online courses (42 percent). The numbers regarding the effectiveness of IT investments to support research and scholarship understandably vary by sector, highest in universities (almost 50 percent) and lowest in private four-year colleges (30 percent).


CIOs Rate the Effectiveness of Campus Investments in Information Technology
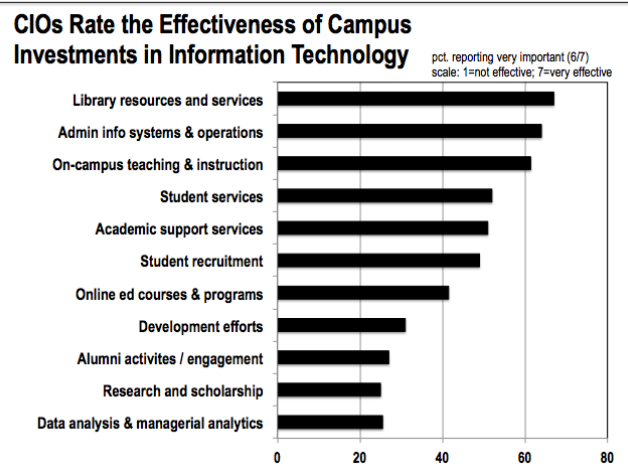
"These data suggest that CIOs and senior campus IT officers assess the effectiveness of IT investments at their institutions as 'okay to good,' but not great," says Green. He acknowledges that across almost all campuses there have long been great expectations for the role of technology in instruction and campus management, and that both technology providers as well as campus technology advocates and evangelists may have contributed to unrealistic expectations about how quickly an investment in IT could deliver expected gains in instructional outcomes or institutional performance and productivity. "A key challenge for IT leadership is to communicate the effectiveness of IT investments, both to senior campus officials and also to faculty," says Green.

MOOCs and Online Education

CIOs and senior campus IT officers are not overly optimistic about MOOCs – massive, open, online, courses – as a viable strategy for instruction or for revenue. Just over half (53 percent) agree that MOOCs "offer an effective academic model for the effective delivery of online education" while less than a third (29 percent) view MOOCs as offering "a viable business model" for campuses to secure new revenue from online courses.

Yet even as senior IT officers are not sanguine about MOOCS, which may be offered by a consortia elite institutions (edX, created by Harvard and MIT) or for-profit firms (such as Coursera and

Udacity), the 2013 data reveal that a small but significant number of campuses are contracting with third party providers for various services (recruitment, curricular development, student services) to help develop or expand their online programs.

Outsourcing Instructional Services for Online Programs?
percentage who agree/strongly agree, fall 2013
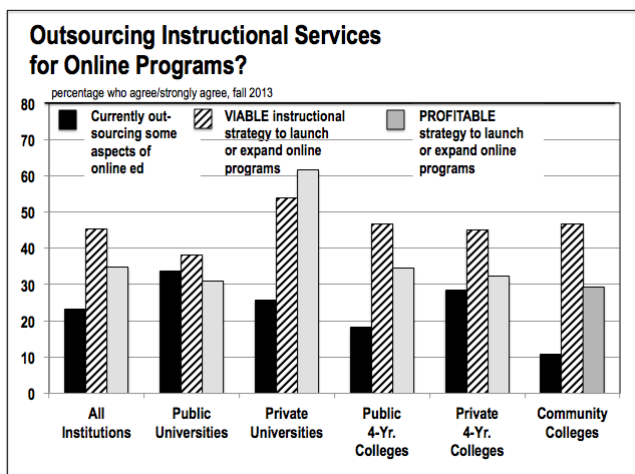
In aggregate just under a fourth (23 percent) of the campuses that participated in the 2013 survey report some sort of outsourcing for their online programs, ranging from 34 percent in public universities to 11 percent in community colleges. However, here as with MOOCs, senior campus IT officers are not upbeat about outsourcing: less than half (45 percent) agree that outsourcing offers a viable instructional strategy for their institution's online efforts while just a third believe that outsourcing provides a viable revenue strategy for their institution's online activities. The clear exception to these numbers is among IT officers in private universities: more than half (54 percent) view outsourcing some aspects of online education as a viable instructional strategy, while three-fifths (62 percent) view it as an effective revenue strategy.

More Colleges Go Mobile

The 2013 survey documents another year of solid gains in the proportion of colleges and universities that have activated mobile apps. Four-fifths (79 percent) of the campuses participating in this year's survey have activated mobile apps as of fall 2013 or will do so in the coming academic year, compared to three-fifths (60 percent) in fall 2012, 42 percent in fall 2011, and 23 percent in fall 2010. Across sectors, private universities lead the move to mobile: 95 percent will be up on mobile apps by the end of the current academic year, followed by 93 percent of public universities, 85 percent of public four-year colleges, and approximately 70 percent of both private four-year institutions and community colleges.

What explains these gains in going mobile? "Colleges and universities are clearly playing catch-up with the consumer experience. Students come to campus with their smartphones and tablets expecting to use mobile apps to navigate campus resources and use campus services," says Green. Also of note is that senior campus IT officers now report that tablets and smartphones have higher priority in their IT planning activities: 86 percent cite tablet devices and 82 percent note that smartphones will be "very important" in IT planning over the next two-three years, compared to just 62 percent who cite laptop computers. The focus on mobile devices in IT planning, says Green, "suggests that IT leaders are following the 'Gretsky rule' and are skating to where the digital puck is going."

Fewer Campuses Experience Budget Cuts

The 2013 data reveal that almost a fourth (24 percent) of the surveyed colleges and universities experienced reductions in the Central IT budget this past academic year, down from 27 percent in the 2012 and compared to a third (36 percent) in fall 2011, 44 percent in 2010, and fully half (50 percent) in fall 2009. Concurrently, almost two-fifths (37 percent) reported increases in the Central IT budget this year over last versus 33 percent in the 2012 survey.

Among public institutions, about a fifth of universities and four-year colleges suffered central IT budget cuts this past year, down from a third in the 2012 survey. This year as last, about a third of community colleges reported cuts in their central IT budget.

Private/non-profit institutions continue to fare better than their public counterparts: just 8 percent of private universities reported Central IT budget cuts this for fall, compared to 16 percent in 2012, a fourth (25 percent) in fall 2011, and 57 percent in 2009. The number for private four-year colleges was virtually unchanged (19 percent in 2013 vs. 18 percent in 2012), but still down from 25 percent in fall 2011 and 42 percent in 2009.

"Compared to the first years of the Great Recession, the survey data offer some generally good news about IT budgets, as fewer institutions experienced cuts this year than last," says Green. But he notes that IT budget cuts continue for many colleges and universities and that about a sixth (17 percent) reported mid-year cuts, about the same as in 2012. Green cites the rising demand for an array of campus IT resources and services – mobile apps, high speed wireless, IT user support services, instructional design assistance for faculty teaching online, and IT security, plus the need to refresh an aging campus IT infrastructure – as major sources of pressure on campus IT budgets, and by extension, major challenges for campus IT leaders.

Small Gains in Cloud Computing

The proportion of campuses reporting a strategic plan for Cloud computing rose to 27 percent in fall 2013, up from 24 percent in 2012, 21 percent in 2011, and 9 percent in 2009. Just 7 percent of the survey participants report that their campus has moved or is converting to Cloud Computing for ERP (administrative system) services, compared to 6 percent in 2012 and up from 4 percent in 2011 (range: from 15 percent for public four-year colleges to 4 percent for public universities.)

Although large proportions of CIOs and senior IT officials acknowledge that "Cloud computing offers a viable strategy for campus ERP applications" (63 percent), and that "Cloud computing will play an increasingly important role in our campus ERP strategy" (66 percent), the survey data suggest the longer term movement to Cloud-based ERP applications over the next five years will be very slow: just a tenth expect that their institution will be deploying Cloud-based development, financial, or student information systems by fall 2018.

The 2013 Campus Computing Survey is based on survey data provided by senior campus IT officials, typically, the CIO, CTO, or other senior campus IT officer, representing 451 two- and four-year public and private/non-profit colleges and universities across the United States. Survey respondents completed the online questionnaire from September 6 through October 9. Copies of the 2013 Campus Computing Survey will be available on December 1st from The Campus Computing Project in Encino, CA (campuscomputing.net). Price: $45, which includes shipping to US addresses.