A Shift in Focus: Preparing for a Service-Centric Future

Report from the EDUCAUSE/NACUBO 2016 Enterprise IT Summit
Contents

Summary 3
Introduction 4
Align with the Institutional Mission 6
Focus on Teamwork 8
Build Good Governance and Change Management Practices 10
Develop and Support a Sustainable Business Model 12
Develop Strategies for Effective Sourcing 14
Understand the Cloud’s Role in a Service-Centric Future 16
Closing 20
Sessions and Speakers 21
Further Reading 23

Enterprise IT Summit Resources

Resources from the meeting, including slide presentations, can be found online.

Author

Betsy Tippens Reinitz, Director, Enterprise IT Program, EDUCAUSE

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Summary

Higher education leaders from information technology (IT), business, and finance met in New Orleans in May 2016 to discuss the changing nature of higher education IT, the forces behind the changes, and how they can collaborate to prepare their colleges and universities for a future more focused on the provision of services than on the technology and applications behind those services. Six key recommendations emerged as important considerations for IT and business leaders in this effort:

- Align with the institutional mission
- Focus on teamwork
- Build good governance and change management practices
- Develop and support a sustainable business model
- Develop strategies for effective sourcing
- Understand the cloud’s role in a service-centric future
Introduction

The future of IT is not as a stand-alone organization. Especially in the current dynamic environment, the fates of CFOs and CIOs are increasingly interconnected. Working together is part of human DNA, part of who we are, because I think we all fundamentally recognize that we can accomplish more together than we can alone. Learning to work together is the most important transformation in higher education today.

—John O’Brien, President and CEO, EDUCAUSE

Higher education IT is transitioning away from its roots. Instead of operating in relative isolation from the rest of the institution, IT is developing a greater focus on cross-enterprise communication and collaboration, an increased need for good governance and change management that can help an institution navigate decision making in a complex technology environment, and a tighter connection to institutional mission and goals. This transformation is under way, and the destination is becoming increasingly clear. A recent ECAR study found that CIOs foresee a future in which less of their time will be taken up with managing technologies and infrastructure and more of their time will be spent managing services. This shift in IT work requires a focus on contract management, relationship management, and vendor management, as well as a better understanding of other units’ goals and a closer tie to institutional mission. Participants and presenters at the EDUCAUSE/NACUBO Enterprise IT Summit considered the impact of this service-centric focus and how higher education leaders can help guide their institutions through the transition.

One of the drivers of this shifting focus toward service management is the increasing availability and adoption of cloud technologies and services. This echoes findings from a recent EDUCAUSE study indicating that the most influential higher education IT trends in 2015 were cloud transitions and the increasing complexity of IT. Summit participants used the challenges and opportunities of the cloud as a lens for examining the impact of a service-centric future. As John O’Brien, president and CEO of EDUCAUSE, said in the opening session, the cloud changes everything—the way we work, the services we offer, and how we offer them. It is part of why IT’s relationship with the rest of the institution is changing. As IT’s role evolves, a clear understanding of the needs of the institution is necessary to provide the kind of value-driven, user-oriented services that institutions need.
The Summit focused on the challenges brought about by this shift and the opportunities for CIOs and CFOs to work together to address them. Summit participants acknowledged that there is not a straight path through the complexity. In a session on leading transformational change, Susan Grajek, vice president for data, research, and analytics at EDUCAUSE, said that if you think the path from here to transformation is a direct route, then you won’t get there.

The following themes emerged from presentations and discussions as imperatives when preparing for a service-centric future:

- Align with the institutional mission
- Focus on teamwork
- Build good governance and change management practices
- Develop and support a sustainable business model
- Develop strategies for effective sourcing
- Understand the cloud’s role in a service-centric future

This summary of the Summit describes each of these areas and outlines related recommendations that resulted from presentations and discussions.
Align with the Institutional Mission

Technology has become an important component of almost every aspect of institutional work. As we move into a service-centric future, a clear connection between IT goals and institutional mission and strategy is becoming even more critical to IT relevance. Many higher education challenges require that institutions have in place both a good technology foundation and a forward-focused strategy for putting technology to work to solve emerging problems. IT faces the challenge of maintaining a secure, dependable, reliable set of technology services while also finding the time and resources to be innovative and help the institution further its goals. When IT work is firmly grounded in institutional goals, it is easier to make decisions about resource investments and to communicate about IT efforts with the rest of the institution. As Tracy Schroeder, vice president for information services and technology at Boston University, described it, you need to know and understand the institution’s goals and how your organization is contributing to the institution’s transformation.

Recommendations

- **Build an understanding of the institution’s strategic plan and initiatives**, how IT goals fit into them, and how everyday work contributes to their success. Michael Gower, executive vice president for finance and administration at Rutgers University, suggested asking yourself questions about your institution’s strategy: What are we doing to improve student success? What are the research needs at our institution? Can we enable every department to better meet its goals? It’s easy to get caught up in completing today’s project. Take the time to consider questions like these to maintain a clearer understanding of how the work being done impacts the institution’s mission.

- **Make sure IT staff understand their personal connection to the strategic plan.** Larry Isaak, president of Midwestern Higher Education Compact, noted that when people see their work as contributing to the mission, they feel a sense of working for the greater good. This sharper focus on mission may lead to better outcomes as well as better job satisfaction.
- **Develop a better understanding of other units’ goals.** O’Brien described a concept he called “flipped IT,” saying that IT needs to reach out to business units to understand their needs instead of waiting for business units to initiate that conversation. This outward focus leads to the emerging role of the IT liaison who understands other units’ goals and can communicate well with both IT and non-IT departments.

- **Highlight communication skills in IT training and hiring.** Schroeder noted the importance of developing communication skills within the IT staff so that departmental contacts feel IT understands them and adds value, with or without the presence of dedicated IT liaisons.

- **Communicate clearly with institutional leadership about investment in IT services.** Joanna Grama, director of cybersecurity and IT GRC programs at EDUCAUSE, suggested using this communication to showcase the connection between that investment and progress on institutional goals and initiatives.
Focus on Teamwork

Working together, the CIO and CFO can be a powerful force in guiding their institution through change. Teamwork has become a critical element of work in higher education, not only as part of IT’s engagement with the institution but also as a catalyst for getting the institution through challenging times. In his opening remarks, John Walda, president and CEO of NACUBO, said that institutional stakeholders need to work together to address higher education business model challenges. O’Brien agreed, saying that IT’s relationship with business and finance is critical and that the fates of the CFO and CIO are interconnected. As the CIO’s role evolves to include a sharper focus on working across the enterprise, development of teamwork-related competencies is becoming necessary for IT success.

Expertise in technology is moving into the background of the CIO skill set, while an emphasis on collaboration, communication, and other soft skills emerges. Several presenters focused on the importance of soft skills as a critical piece of the future CIO role. Charlie Moran, senior partner and CEO of Moran Technology Consulting, likened the evolving CIO role to that of a business manager focused on the importance of relationship management. Joseph Sergi, executive vice president of finance and administration and CFO for Southern New Hampshire University, compared it to the role of a conductor directing an orchestra in which many moving pieces doing different and seemingly unconnected things come together to create a harmonious whole. Bill Dillon, executive vice president of NACUBO, talked about the importance of developing skills in persuasion and negotiation in a way that fosters smoother communications. And Robert Solis, vice president and CIO of the University of Massachusetts Central Office, agreed that a mutual appreciation of the other side’s viewpoint leads to a better understanding of how each enables the institution to achieve its goals.

Reflecting the importance of those soft skills, a recent ECAR study showed that the abilities to manage relations, influence others, and negotiate successfully were rated as important by almost all CIOs surveyed. However, there is a gap between understanding the importance of these competencies and being proficient in them (figure 1).
Recommendations

- **Develop your people skills.** Start by listening. Try to understand others’ perspectives and then ground your reply in that world, not your own. Dillon argued that the objective in negotiation should not be simply to win but to elevate the relationship while achieving the immediate objective. By elevating the relationship, you are smoothing the way for easier handling of potentially difficult conversations in a future situation.

- **Focus on the relationship between CIO and CBO/CFO.** Sergi described the partnership between himself as CFO and the institution’s CIO as one that enables the rapid technology change that his institution has seen. Working together, the CFO and CIO can review the roadmap, understand change, and get things off their plates quickly to free up resources.

- **Look for and act on existing opportunities for partnerships.** Jack Suess, vice president of IT and CIO for University of Maryland, Baltimore County, suggested that understanding the institutional budget is a place to start. By understanding the budget model, you might be able to find ways to share costs through partnerships.
Build Good Governance and Change Management Practices

Change—accepting it, adapting to it, leading it, managing it—is an unavoidable and necessary part of moving into a service-centric future, and several Summit presenters noted the important connection between governance and change. As Solis said, “Wanting change is great, but if we can’t align priorities, politics, people, and perseverance, we won’t know what we are up against, and we won’t know how to achieve change.” That alignment can be identified and augmented through good governance practices. In her workshop based on the EDUCAUSE Benchmarking Service, Catherine Watt, senior analyst for analytics services at EDUCAUSE, noted that institutions with formal IT governance bodies are more likely to involve others in decision making, make better investment decisions, and have more support from leadership, faculty, and other stakeholders. Solis noted that IT governance is not just about managing technology. It is concerned with the goals of the institution and how technology will help the institution be successful. Good IT governance also evolves along with the institution. Schroeder described the importance of being tuned in to institutional leadership and the broader governance structure to take advantage of opportunities to evolve IT governance with broad structural and institutional needs.

Overall, IT governance maturity is fairly low across higher education (figure 2). O’Brien reported that only 32% of EDUCAUSE Core Data Service (CDS) survey respondents reported strong or developing IT governance maturity at their institutions. Nearly 70% rated their institution’s maturity in this area as weak or emerging. Clearly there is work to be done for institutions to ready themselves for the IT governance required to take full advantage of a service-centric future.

Figure 2. Overall IT governance maturity

Only 32% say IT governance is strong or developing

Source: 2014 Core Data Survey
Recommendations

- **Assess IT governance maturity** and look at what other institutions are doing with regard to IT governance as a way to develop and mature your own. The IT governance maturity index within the EDUCAUSE Benchmarking Service is a good place to start. That tool provides benchmarking information about an institution’s IT governance process, IT investment in governance, strategic alignment and influence, and communication about and participation in IT decision making.

- **Focus IT governance on the goals of the institution** and how IT helps the institution succeed. Use governance to help you understand business and academic unit priorities and to help those units understand IT better.

- **Examine and try to address the obstacles** on your campus that keep you from moving forward with IT governance.

- **Develop formal change management strategies** and connect them with IT governance processes. Sergi noted the importance of having a stated objective, clear roles, a vision of expected change, and a statement of proposed outcomes and benefits when working to foster change.

- **Learn to manage the inevitable pockets of resistance to change.** Solis said to start by trying to understand what motivates the naysayers and what drives their concerns. Sergi agreed and added that once you understand their concerns, ask for their help. People generally like to help others, and asking for help can be a very powerful way of gaining an ally. In the process, be sure to properly address their concerns.
Develop and Support a Sustainable Business Model

Institutions across higher education are focused on developing and maintaining sustainable business models, and this effort is an important driver for IT’s move into a service-centric future. Institutional stakeholders need to work beyond their departmental borders to address higher education business model challenges, requiring a shift in focus for both IT and business leaders. Similar to the evolving role of the CIO, there is a growing importance for business officers to work and communicate across the enterprise. Walda noted that in the past, business officers worked on their own to take care of economic issues, pay bills, and meet the payroll, not bothering the president or other stakeholders with the details. Today students, parents, and donors all want to know about fiscal sustainability. State and federal governments want to know more about institutional operations and expenses. Rating agencies and sponsors have their interests, too. Walda argued that institutions need to create a sustainable business model to provide the kind of value required for a strong institutional future. Figure 3 shows some of the questions that drive this effort. Understanding this driving need and aligning services with it is a critical feature of the service-centric future.

**Fundamental Questions About the Business Models**

- **Is the Revenue Model Sustainable?**
  - State Appropriations
  - Net Tuition
  - Endowment Support
  - Federal Support

- **Will Enrollment Grow?**
  - Student Demographics
  - Price Sensitivity

- **What is the Impact of Public Attitude and Policy?**

- **What are the Key Challenges to Making Changes?**

**Figure 3. Fundamental questions about the business models**
Recommendations

- Develop an understanding of the complex institutional budget model in order to be able to communicate about it both within IT and across the enterprise.

- Look for opportunities to share costs and partner across the institution.

- Help the institution focus on innovative solutions. Walda suggested looking for efficiencies that can be gained through solutions such as centralized or shared services, better space utilization, consolidations of departments, and expense flexibility.

- Closely connect IT goals with institutional strategy related to fiscal sustainability.
Develop Strategies for Effective Sourcing

A focus on services requires an examination of the value those services provide and allows closer alignment with institutional strategy and goals in an effort to increase that value. The shift in thinking—away from managing applications and technologies and toward managing services—opens the door for alternative sourcing approaches. IT leaders should consider why they provide a service and what value the service delivers and then make sourcing decisions with those considerations in mind. Increasing the service’s value can then become the goal, rather than a technology-focused concern such as replacing aging equipment or upgrading an application. Presenters and attendees agreed that progress toward a service-centric future requires the development of a sourcing strategy featuring the cloud, since cloud services and technologies offer opportunities for value-adding features such as scalability, flexibility, reliability, and uptime that are hard to provide on premises. Besides, Schroeder noted, the community should not care where the services are hosted—in the cloud or on premises—as long as the services are available and functional. Ed Mahon, vice president and CIO for information services at Kent State University, agreed: “No one cares where your resources are located as long as you can give them what they want and the systems are reliable.” More details about cloud-specific Summit discussions follow this section.

Recommendations

- **Start with a review of the IT service portfolio.** Go through the services and technologies that have been put together over time and think about the best sourcing strategy for each one. As Schroeder said, you need to “unwind all this spaghetti that we built.”

- **Keep an eye on the institutional goal.** Work backward from the goal to determine what tools and processes are required to reach that goal, as well as what investments are required.

- **Consider centralization versus decentralization issues** as you develop sourcing strategies. In determining which services to provide centrally and which to move out to departments, Suess said that the decision at his institution is made according to whether the service is specific largely to one department or whether it is a broader university service. If it is unique or not scalable, it should be a department service. If it is something with wider demand, then central IT should provide it. Gower agreed and added that the important questions concern which model (centralized or decentralized) is most efficient and effective for the institution.
Consider consortia and cooperatives. Although a common benefit of consortia is lower costs, they can also foster cooperation, collaboration, and resource sharing among institutions. Isaak argued that the driving motivation for joining a consortium should not be price but rather knowledge transfer between the consortium members. Explaining the benefits of consortia, Keith Fowlkes, CIO at Centre College, said that institutions gain a better, larger voice and a better connection to vendors when they work together in this way. Having a single point of contact for multiple institutions and vendors streamlines negotiations and contracts. Gary Link, senior vice president for contracts and support services at E&I Cooperative Services, agreed and suggested reallocating resources saved by consortial relationships to other initiatives that might be more closely aligned with institutional mission.8

Don’t expect to find immediate cost savings through cloud migrations. An initial move to the cloud may actually cost more while saving the institution resources in the future, or it may open up possibilities for resource shifts that allow for closer alignment with institutional mission.
Understand the Cloud’s Role in a Service-Centric Future

The increasing adoption of cloud technologies and services is a major force driving higher education IT into the service-centric future, creating an environment that fosters the ability for institutions to focus on the value provided by enterprise services instead of focusing on technology upgrades and migrations. A service focus also encourages IT leaders to reach out across the enterprise to better understand needs and consider sourcing strategies that can both meet those needs and offer value for the institution.  

As James Willey, vice president of product management–technology at Ellucian, said, “The cloud is here already, and it is all around us.” In a 2015 survey about trends in higher education IT, EDUCAUSE found that the two most influential trends were cloud transitions and the increasing complexity of IT. Obviously the cloud includes many things. There is the range of service models from IaaS to SaaS. There are public clouds, private clouds, and hybrid clouds. And there are the evolving needs and demands of each institution. Having an understanding of and vision for your own institution’s cloud ecosystem and evolution is important, as is developing policies and processes for cloud use that work for your institution’s culture, expertise, and resources.

Given the central role that the cloud plays in the service-centric future, the Summit took a deeper look at the cloud, how it fits into that future, and what institutions need to be paying attention to as they build their sourcing strategies. During presentations and discussions, recommendations in the following areas emerged:

- Implementation strategies
- Staffing and talent management
- Contract management
- Risk and security
- Migrations and implementations

Implementation Strategies

- **Align the cloud strategy with institutional goals** to show value and to help guide campus leadership toward a shared cloud vision.

- **Foster a cloud-first philosophy.** When a new need arises, evaluate cloud possibilities as a first choice. According to Mahon, a born-in-the-cloud policy should drive decision making.
Use the service portfolio review mentioned earlier as a starting point. 
Solis recommended identifying commodity services and moving them to 
the cloud first. Schroeder added that it is important to divest the institution 
éarly of older, sometimes homegrown, customized services.

Develop a clear picture of requirements and match it with a vendor 
solution that fits. Once you have scoped your requirements, you are in a 
better position to negotiate and will have a clearer idea of the solution you need.

Match the speed of cloud implementation to your institution’s culture 
and resources. As Moran said, you can either jump into the deep end or 
take your time. If you plan to jump, be sure to clearly understand your 
contracts; call other schools that have made major transitions in order to 
learn from them. If instead you take it a piece at a time, then learn from 
each experience as you move to the next.

Understand the impact on finances. Mahon noted the importance of 
identifying the source of cloud transition funds and understanding from 
the start that they will be nontrivial.

Staffing and Talent Management

Develop or hire IT staff to meet shifting needs. Different competencies 
may be required, such as data integration, enterprise architecture, contract 
negotiation, and vendor management. Determine the skill sets you need 
and consider them when hiring new staff, or work to develop competencies 
in existing staff members.

Consider the possibility of reorganizing staff to allow time for innovation. 
Moran noted that current IT staff are often disproportionally allocated to 
infrastructure, which can hinder innovation.

Think creatively about the staff talent available to you. Suess described 
his success with leveraging existing talent in the university—for example, 
buying faculty member time to help with analytics or creating graduate 
study assistantships.

Keep in mind that IT staff might find the shifting IT focus threatening. 
Willey suggested training for staff to keep their skills current. It may also be 
possible to reassign staff whose jobs become obsolete to other areas of the 
analysis.
Contract Management

- **Be prepared.** Mahon recommended creating a standard service-level agreement (SLA) template for use with all cloud providers that details criteria important to the particular institution.

- **Read every contract completely and carefully.** Thomas Trappler, senior IT commodity manager for the University of California Office of the President, stressed this as one of the most important and often overlooked success factors in moving to the cloud. Read the entire contract to fully understand the agreement and its implications. Contracts may occasionally contain something completely unexpected. Trappler noted an example of an unusual contract clause taken from actual Amazon Web Services service terms (see “Allowing for Every Contingency”).

### Allowing for Every Contingency

A careful reading of contracts is important and may even provide a chuckle.

Amazon Web Services Service Terms

Amazon Web Services 57.10 Contract clause for Amazon Lumberyard Engine:

“57.10 Acceptable Use; Safety-Critical Systems. Your use of the Lumberyard Materials must comply with the AWS Acceptable Use Policy. The Lumberyard Materials are not intended for use with life-critical or safety-critical systems, such as use in operation of medical equipment, automated transportation systems, autonomous vehicles, aircraft or air traffic control, nuclear facilities, manned spacecraft, or military use in connection with live combat. However, this restriction will not apply in the event of the occurrence (certified by the United States Centers for Disease Control or successor body) of a widespread viral infection transmitted via bites or contact with bodily fluids that causes human corpses to reanimate and seek to consume living human flesh, blood, brain or nerve tissue and is likely to result in the fall of organized civilization.”

- **Understand your exit strategy.** Work with your cloud providers and talk about an exit strategy with them before you sign the contract. Moran stressed the importance of understanding the cloud providers’ obligations to help you get out of the contract if the need arises.

- **Keep in mind that the contract process is part of building the partnership** between the institution and the vendor. Willey suggested that a good way to start this partnership is to define requirements and operational steps as part of the contract work so that both sides can be clear about needs.
Focus on vendor management. Moran said that the cloud creates another new job in the IT organization—vendor relationship manager—resulting in the need for someone who communicates with vendors and monitors the relationship and the contract.

Be clear about the risks you are taking on when you sign the contract. Patrick Feehan, information security and privacy director at Montgomery College, noted that it isn’t possible to “contract away” all of the risk.

Risk and Security

Protect your data. In moving to a more service-centric future, institutional data are among the most important assets to protect. Scrutinize contracts to manage data protection and legal risk.

Analyze your risk management strategy and adapt it to accommodate changes in ERP environments associated with increased use of cloud services. As Feehan described it, a movement away from the monolithic ERP means that resources and data may be more scattered across the institution’s technology environment, requiring a risk management strategy that takes this increasing complexity into consideration.

Adjust your network security strategy to adapt to the evolving attack vectors. Network security attacks have become more complex and require an evolving security strategy to match.

Consider the state of the institution’s decentralized cloud environment as well. Mahon recommended the development of strategies that balance the risk and security elements of decentralized services with campus needs for those services.

Keep in mind that information is an asset that needs to be protected regardless of whether the data are in the cloud or on premises.

Migrations and Implementations

Start with an easy win if possible. According to Mahon, ERP systems are not often the best choice for a first cloud migration because their transitions are disruptive and expensive.

Identify a clear end date to all cloud transitions. The longer the transition lasts, Mahon argued, the higher the cost of running two environments at the same time.

Invest in enterprise-wide management tools to help you keep track of services both in the cloud and on premises.
Closing

The service-centric future is not some dim glow on the horizon but rather a clear destination that can be reached successfully only through careful thought and planning. The imperative for IT and business leaders is to develop transition strategies that guide their institutions on the journey.

O’Brien summed it up well, saying that the challenges facing higher education require institutions to think differently by adapting funding and budget strategies, evolving CIO capabilities, developing the IT workforce to meet demands for new skills, and broadening the conversation to position IT as a partner in institutional strategy. Summit participants and presenters recommended accomplishing this by collaborating across the enterprise to connect IT’s work with the institutional mission, maturing IT governance and change management processes, and developing a sourcing strategy that features cloud technologies and services while showing a clear connection between those services and the institutional mission.
Sessions and Speakers

Beyond the Technology: The Broader Context of Enterprise IT

- John O’Brien, President and CEO, EDUCAUSE
- John Walda, President and CEO, NACUBO

Leading Transformational Change

- Tracy Schroeder, Vice President, Information Services and Technology, Boston University
- Susan Grajek, Vice President, Data, Research, and Analytics, EDUCAUSE
- Joseph A. Sergi, Executive Vice President, Finance and Administration, and CFO, Southern New Hampshire University
- Robert Solis, Vice President and CIO, University of Massachusetts Central Office

Corporate Future Focus

- James Willey, VP of Product Management–Technology, Ellucian
- Charlie Moran, Senior Partner and CEO, Moran Technology Consulting
- Walid Omar, Head of Enterprise Services, Dropbox for Education
- Paul Kofoid, Senior Cloud Solutions Architect, Juniper Networks

IT Governance—How Do You Measure Up?

- Catherine Watt, Senior Analyst for Analytics Services, EDUCAUSE

Legal Risk and Uncertainty in Managing Services, Vendors, and Contracts

- Joanna Lyn Grama, Director of Cybersecurity and IT GRC Programs, EDUCAUSE
- Patrick J. Feehan, Information Security and Privacy Director, Montgomery College
The Value of Cooperatives and Consortia

- Keith Fowlkes, Chief Information Officer, Centre College
- Gary D. Link, Senior Vice President–Contracts and Support Services, E&I Cooperative Services
- Larry Isaak, President, Midwestern Higher Education Compact
- Robert J. Shea, Jr., Senior Fellow, NACUBO

Communicate to Persuade

- Bill Dillon, Executive Vice President, NACUBO

Transitioning the Enterprise to the Cloud: A Business Approach

- Edward Mahon, Vice President and CIO, Information Services, Kent State University

Aligning Funding Models with the New Reality

- Joanna Lyn Grama, Director of Cybersecurity and IT GRC Programs, EDUCAUSE
- J. Michael Gower, Executive Vice President for Finance and Administration, Rutgers, The State University of New Jersey
- John J. Suess, Vice President of IT and CIO, University of Maryland, Baltimore County

If It's in the Cloud, Get It on Paper: Six Years Later

- Thomas Trappler, Senior IT Commodity Manager, University of California, Office of the President
Further Reading

The following is a list of resources recommended by presenters during the Enterprise IT Summit:

- EDUCAUSE’s web page on Effective Sourcing Strategies provides resources to help institutions develop strategic sourcing plans.
- Tracy Schroeder referenced Boston University’s TechQual+ metrics.
- Robert Solis recommended Mastering the Challenges of Leading Change by H. James Dallas, the former CIO of Georgia Pacific.
- The IT Governance benchmarking session was based on tools and resources found on the EDUCAUSE Benchmarking Service website.
- Ed Mahon’s presentation was based on his recently published book, Transitioning the Enterprise to the Cloud: A Business Approach.
- William Dillon recommended several resources for further information about negotiation and persuasion:
  - Rex Huppke, IJustWorkHere, Chicago Tribune.
- Thomas Trappler’s presentation was an update to an EDUCAUSE Review article, “If It’s in the Cloud, Get It on Paper: Cloud Computing Contract Issues.”
- Michael Gower shared several Rutgers resources related to his presentation:
  - Our Administrative Information Systems
  - Excellence in Research Administration
  - Archive of Previous Treasurer’s Townhall Meetings
- Jack Suess referenced these resources from University of Maryland, Baltimore County:
  - UMBC Provost Reports
Notes


4. See the EDUCAUSE Benchmarking Service for more information about the EDUCAUSE IT Governance Maturity Index, as well as benchmarking tools and reports on other topics including analytics, culture of innovation, e-learning, IT risk management, information security, research computing, and student success technologies.

5. Slide from session “Beyond the Technology: The Broader Content of Enterprise IT.”

6. EDUCAUSE Benchmarking Service.

7. Slide from session “Beyond the Technology: The Broader Context of Enterprise IT.”

8. For a more detailed treatment of the benefits of consortia in higher education, see J. Keith Fowlkes’s blog post on the *EDUCAUSE Review* Enterprise Connections column, “The Quickly Changing Landscape of Enterprise Computing in Higher Education.”

9. For more information about value and efficiency in enterprise systems and services, see the report from the EDUCAUSE/NACUBO 2014 Administrative IT Summit, *Maximizing Value in a Time of Change*.


11. Small group discussions at the Summit addressed the topic of legal risk. More information about the outcome of those discussions can be found on the *EDUCAUSE Review* Enterprise Connections blog post, “Legal Risk at the 2016 Enterprise IT Summit.”