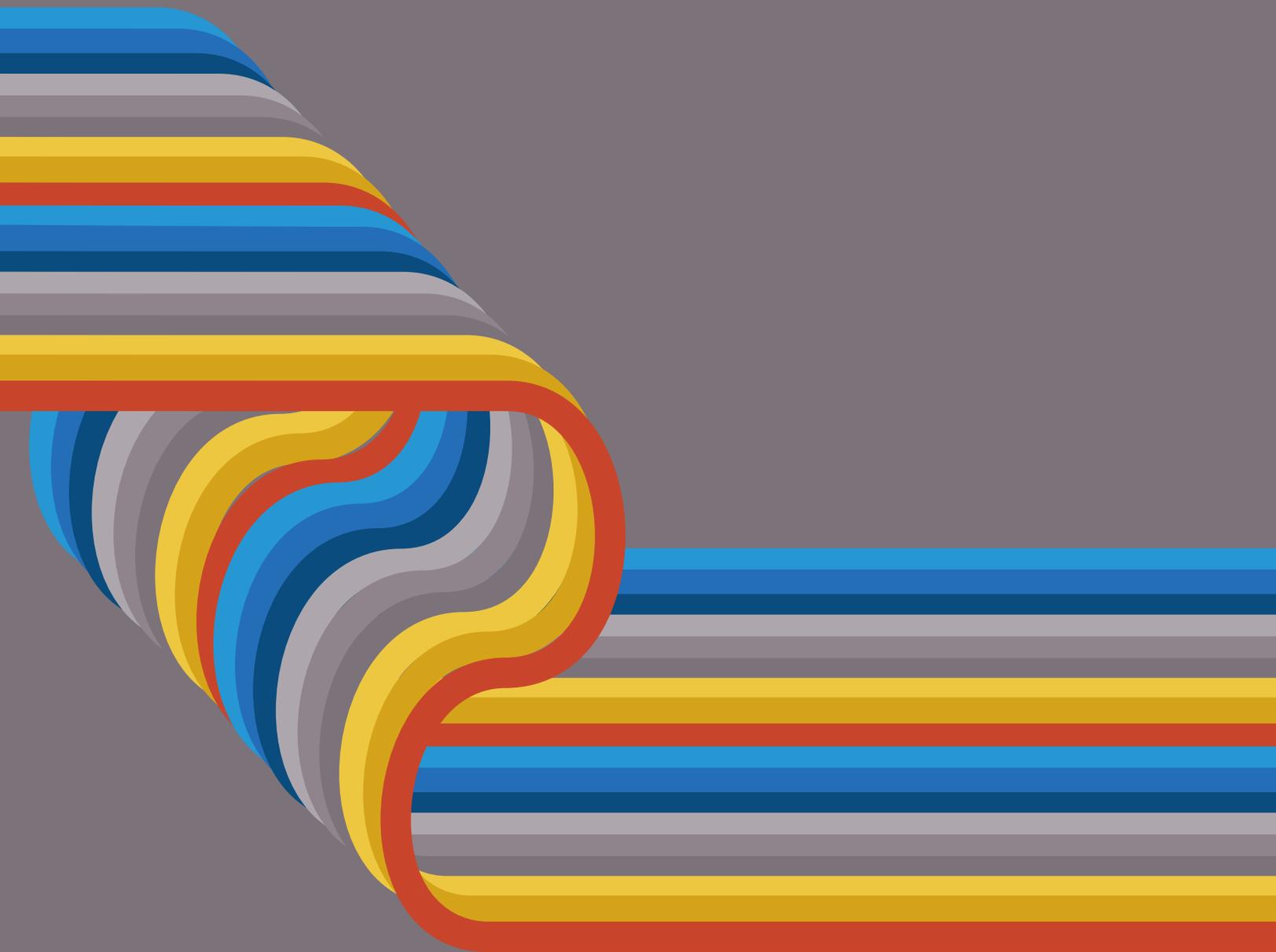


IT Service Delivery in Higher Education: Current Methods and Future Directions



Contents

Overview	3
Key Findings	4
Introduction	5
The Future of IT Service Delivery	8
Cloud Services	14
Outsourcing of Noncloud Services	18
Shared Services	19
Decisions about Moving to the Cloud, Outsourcing, and Sharing Services	21
Purchasing Consortia	23
Conclusions	25
Recommendations	26
Methodology	27
Appendix: Size-Related Differences in the Importance of Decision-Making Factors for Cloud, Outsourcing, and Shared Services	28
Acknowledgments	31

Author

Jacqueline Bichsel, Senior Research Analyst, EDUCAUSE

Citation

Bichsel, Jacqueline. *IT Service Delivery in Higher Education: Current Methods and Future Directions*. Research report. Louisville, CO: ECAR, April 2015. Available from <http://www.educause.edu/ecar>.

©2015 EDUCAUSE. [CC by-nc-nd](https://creativecommons.org/licenses/by-nc-nd/4.0/).



EDUCAUSE

EDUCAUSE is a nonprofit association and the foremost community of IT leaders and professionals committed to advancing higher education. EDUCAUSE programs and services are focused on analysis, advocacy, community building, professional development, and knowledge creation because IT plays a transformative role in higher education. EDUCAUSE supports those who lead, manage, and use information technology through a comprehensive range of resources and activities. For more information, visit educause.edu.

Overview

IT service delivery is in a transitional stage; it is undergoing a shift from the management of technologies to the management of services. This 2015 ECAR study reports on the current state of IT service delivery in the context of this shift. “IT service delivery,” as we have defined it, is the set of technologies, tools, and resources that IT provides in support of the institution’s mission, as well as the manner in which those services are provided.

Cloud computing—the use of a shared pool of configurable networks, servers, platforms, or applications to store, manage, or process data—is not only trending but is also booming, and this report relates how higher education institutions are participating in the cloud. In particular, we distinguish the various models used for cloud service delivery (SaaS, PaaS, and IaaS), as well as the prevalence of their use in higher education.

The modes of service delivery that are the focus of this report take advantage of the concept known as “economies of scale.” These are the cost advantages that institutions receive due to the size or scale of the service involved, as fixed costs are spread over more deliverables or consumers. Institutions are seeing the value in collaboration for service delivery: to pool innovative efforts, to streamline services, and to realize cost savings. We report on the current state of participation in three options for collaboration: outsourcing (contracting out a business process to another party), shared services (the provision of services across institutions), and purchasing consortia (associations of institutions that meet mutual goals by expanding their purchasing power through collaboration).

Various factors can affect decisions about service delivery, including the institution’s size; its mission; the reliability, scalability, and adaptability of the service in question; and the costs involved. We report here on the relative priority of some of these factors, and we differentiate among service delivery methods according to institution size, which we found to be one of the most important differentiators of service delivery.

This report is the first in a series of ECAR publications on service delivery. Additional areas of interest to ECAR include, but are not limited to, the changing faces of IT service delivery, IT service delivery optimization, and institutional growth and transformation through IT service delivery. Related materials will be curated on the [ECAR Service Delivery Research Hub](#).

Key Findings

- **CIOs believe the next decade will bring a shift in their management focus** from primarily managing infrastructure and technical resources to primarily managing vendors, services, and outsourced contracts.
- **Reliability, quality of user service/support, total cost, and alignment with institutional goals are the most important factors in making decisions about various modes of service delivery:** whether to move services to the cloud, whether to outsource noncloud services, and whether to share services.
- **More than four in five institutions have moved at least one service to the cloud.** CIOs project that cloud-based services will continue to expand widely over the next 10 years.
- **Nearly half of institutions have outsourced at least one noncloud service.** However, spending on outsourcing is only a small part of the overall IT budget.
- **About one-third of institutions share services.** Larger institutions and institutions that are part of systems are more likely to share services. Institutions that share services tend to share more than one.
- **Eighty percent of institutions are part of at least one purchasing consortium.** Top benefits of purchasing consortia include the streamlining of purchasing requirements, lower prices, and prearranged terms and conditions.

Introduction

Technology makes the connected age possible. Cloud networking allows us to connect to data, applications, or services regardless of location. The implications of the cloud go well beyond where the bits are going (or coming from). Ownership of an asset becomes less important than access. Technology enables pervasive and continuous access, not only to information and ideas but also to resources, tools, people, and communities.¹

The role of IT units in the connected age is amplified, and IT departments are still being asked to do more with less. Despite improvements in the economy, most states are still funding higher education below prerecession levels,² and many continue to cut their higher education budgets.³ These budget cuts have affected private as well as public institutions.⁴ IT units, though, have experienced at least somewhat of a recovery from recession-era budget cuts. Although institutional spending overall has merely stabilized in the wake of the recession,⁵ higher education IT spending has increased by 16% over the past four years (figure 1), with an average annual increase of 5%. However, the EDUCAUSE Core Data Service (CDS) indicates that IT budgets are only now catching up to where they would have been had there been no recession or budget cuts.⁶

In addition, IT units are being asked to provide more services and to expand their reach into more areas:

- IT continues to integrate with business intelligence and business processes.⁷
- IT units are making increased contributions to student success initiatives with such efforts as analytics dashboards and integrated planning and advising services (IPAS) technologies.⁸
- IT's collaborative efforts with library services have expanded.⁹
- The growth of e-learning means that IT is more involved than ever in student learning.¹⁰
- Administrative efficiency continues to increase through IT involvement in systems and automation.¹¹
- Ongoing compliance requirements and an increasing interest in risk management are heavily intertwined with IT.¹²
- Growing information security needs are pervasive throughout the institution.¹³
- Research computing, digital humanities, and the transformation of science and scholarship all depend on major new investments through IT.
- IT is involved in customer relationship management (CRM) to support, for example, admissions and alumni relations, as well as institutional advancement.
- The demands of mobile computing require constant retooling of infrastructure, support, and websites.
- Unified communications and collaboration tools are becoming increasingly important.¹⁴

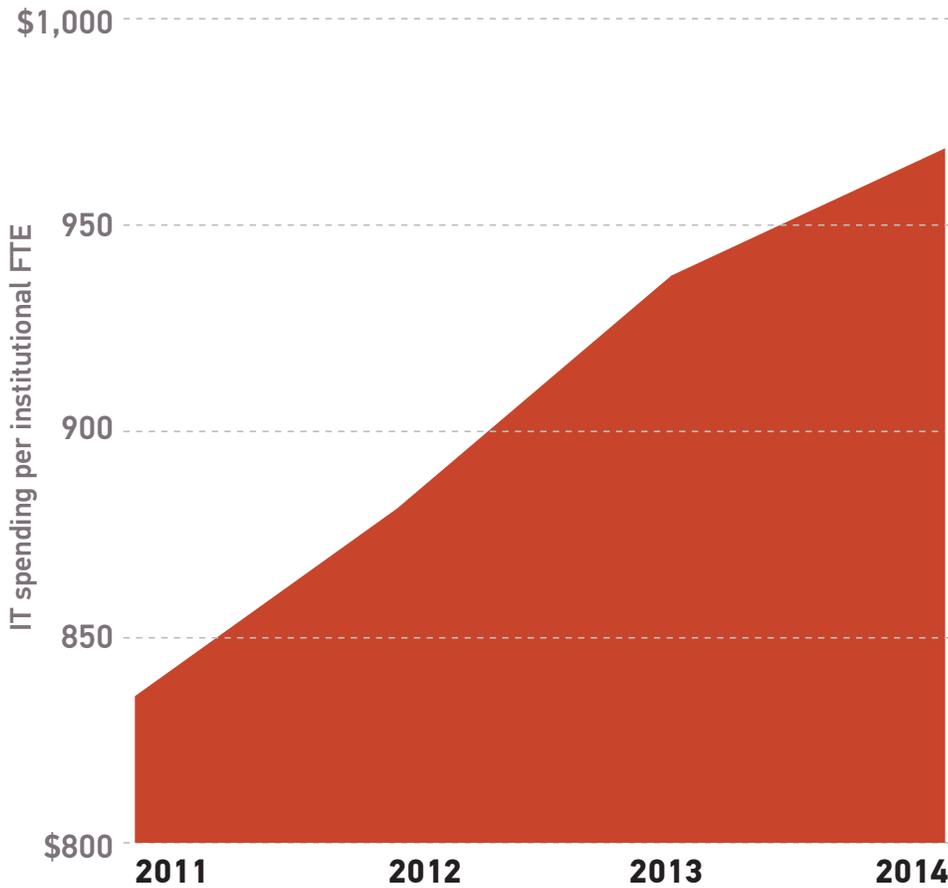


Figure 1. Higher education IT spending in the past four years¹⁵

This expanded reach has transformed the concept of service delivery in the past decade. The consumerization of IT, mobile everywhere, and the bring-your-own-everything (BYOE) era mean that instead of IT being the sole provider of technology to members of the institutional community, they are bringing their own technology, requiring a more flexible infrastructure and support mechanisms. IT staff at all levels recognize the importance of developing communication and interpersonal skills because of increased interaction with users, customers, and stakeholders.¹⁶ New roles have been introduced to support service, process, risk, vendor, and project management. Service delivery has become more rigorous with frameworks such as ITIL and the use of metrics and key performance indicators. Given the growth in compliance regulations and the consequences of data breaches, security is now a top priority not just in IT but throughout administration.¹⁷

The number and complexity of services IT now delivers call for a sharper focus on the management of those services. Even before the big shift from managing infrastructure and resources to managing vendors, services, and contracts (described

later in this report), there was a reconceptualization of IT work to focus on the service being provided to the stakeholder rather than on the technology itself. Therefore, a customer service mentality might have been a necessary precursor to the shift from the provision of technologies to the delivery of services. Adopting a customer service orientation has changed the way IT leaders think about what they provide to the institution.

Institutions are also recognizing the value of economies of scale through collaboration for developing cost-effective and innovative approaches to delivering IT services. This report describes current participation in shared services, purchasing consortia, cloud services, and outsourcing of noncloud services. It also describes the decision making behind participation in these collaborative efforts, as well as how institutions differ in their approaches.

The Current Study

The data in this report come primarily from two sources. A survey on specific aspects of service delivery was sent to EDUCAUSE primary representatives in late 2014; there were 230 respondents.¹⁸ We also report on data collected by CDS in 2014.¹⁹ In addition, we posed an open-ended question to CIOs, asking them for their thoughts on the future of IT service delivery.²⁰ Quotes in response to this question appear throughout this report.

An institution's size affects many of the modes and motivations for service delivery. Therefore, throughout this report, we have broken down the reported data according to institution size. For the purpose of this report, institutions designated as small have a student FTE of less than 3,000. Medium-sized institutions have an FTE between 3,000 and 9,999, and large institutions have an FTE of 10,000 or greater. These size designations provide the best way to conceptualize and report on differences in service delivery as we have measured them. Other institutional distinctions (Carnegie class and public versus private control) were also analyzed for all items surveyed. For the most part, there were no differences attributable to these distinctions. Any exceptions are noted in the report.

The Future of IT Service Delivery

Number 1 on the EDUCAUSE Top 10 IT Issues list for 2015 is “Hiring and retaining qualified staff, and updating the knowledge and skills of existing technology staff.”²¹ The way IT conducts business—indeed, the increasing integration of IT with business intelligence—is changing, and so are the skills needed to conduct the business of IT. The 2014 ECAR workforce study found that the skills rated most important for success—by CIOs, managers, and staff alike—were the ability to communicate effectively and engage in strategic thinking and planning.²² The data collected as part of the service delivery survey indicate that these skills will continue to be important for all staff and that the continued shift in management emphasis will impact the entire IT organization.

We asked CIOs where their organization falls in terms of its management focus. Their responses appear in figure 2, where 0 indicates that CIOs primarily manage infrastructure and technical resources and 100 indicates that they primarily manage vendors, services, and outsourced contracts. Respondents could select any number on the scale to indicate their current balance of management, what they project will be the case in 5 years, and what they project in 10 years. Figure 2 shows mean ratings for all three time periods. Currently, CIOs generally think their focus is weighted toward managing infrastructure and technical resources. However, they project that in five years, this balance will shift toward the middle, with a more equal focus on managing vendors, services, and outsourced contracts. CIOs anticipate that in 10 years their focus will be primarily on managing vendors, services, and outsourced contracts. This shift is predicted to occur across higher education as a whole, as these mean ratings do not differ with an institution’s size.²³

“The move to more hosted and cloud-based services that augment or replace traditional ERP systems changes the role of IT from that of designer, builder, and maintainer of systems to one of systems integration, solutions vetting, and contract management. This means a change in the skills needed, but it also means that our organizations are increasingly dependent on IT to manage the technical and contractual aspects of these relationships for the institution.”

—Curtis White, Vice President of
Information Technology and Library
Services, St. Mary’s University (TX)

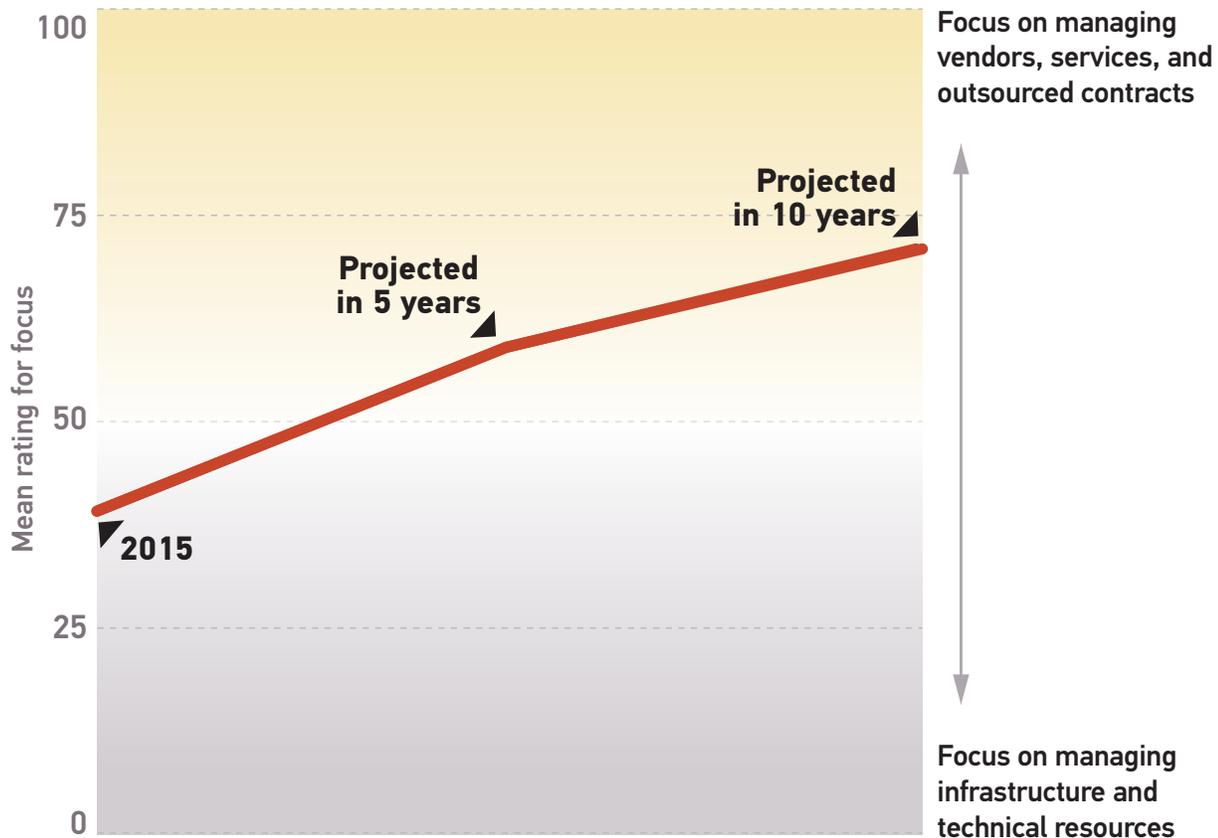


Figure 2. Ratings for management focus of the CIO now, in 5 years, and in 10 years

This shift—from managing IT as stacks of hardware and software components to managing the delivery of customer-facing support and services—places IT more squarely in the position of aligning services to meet the strategic needs and goals of the institution. It also creates greater need in four areas:

- **Communication and soft skills.** IT professionals are already recognizing the importance of having good communication skills.²⁴ An increased focus on the management of vendors, services, and contracts, as well as the need to communicate how IT services benefit the institutional mission, mean that the cultivation, development, and maintenance of these skills will become even more important.
- **Legal expertise.** Managing more contracts for services and overseeing data management in a variety of cloud environments will require an understanding of risk management, policy, security, compliance, and regulatory requirements.²⁵ CIOs or other IT managers²⁶ will increasingly need legal expertise to navigate these contract and cloud domains.²⁷ (See the sidebar on page 17 for more information on the legal issues surrounding cloud and outsourced contracts.)

- **Service management frameworks and tools.** Although frameworks and tools are already used extensively in the corporate sector, such resources tailored specifically for higher education IT are in greater need. A good framework with supporting tools would make service delivery and management more efficient by, for example, guiding the development of a service catalog,²⁸ facilitating decision making for services such as cloud,²⁹ providing the means to manage multiple vendors and contracts, and helping identify sourcing strategies that are tailored to the institution's size, budget, and culture.³⁰
- **Service management specialist positions to assist the CIO.** If the CIO's primary focus will be the management of vendors, services, and contracts, some of those responsibilities are bound to trickle down to associate and assistant management positions. Thus, there will likely be an increased need for IT service management specialists, change management specialists, vendor managers, and ITIL specialists. Indeed, such positions are already being advertised and filled (see sidebar on page 11). As other examples, the University of Washington has an Assistant Vice President for IT Services and Strategic Sourcing, and the University of Notre Dame has a Senior Director for IT Service Delivery.

IT Service Management Specialist (Emory University)¹

- Bachelor's degree in IT or equivalent
- Minimum of three years of information technology experience and two additional years of service management and process architecture experience
- Experience working in a higher education environment
- ITIL v3 Expert Certification or ITIL v2 equivalent
- Service management tools knowledge (preferably ServiceNow)
- Advanced IT report development tools skills
- IT applications and infrastructure knowledge
- ITSM industry best practices knowledge
- Intermediate project management knowledge (including agile-SCRUM)
- Process architecture, design, and development skills
- Group facilitation and presentation skills

Implements, manages, and improves processes within the Information Technology Infrastructure Library (ITIL) v3 life cycle and serves as the process manager for two or more processes and owns one or more processes in the area of their expertise. Extends a view across all life cycles and leads the IT service management (ITSM) strategy, design, transition, operations, and Continual Service Improvement (CSI) to promote operational efficiency across the enterprise. Demonstrates understanding of the life cycle and linkages between the various life cycles and utilizes ITSM best practices frameworks to create, implement, and improve multiple processes. Oversees compliance with process procedures, data models, policies, and technologies to ensure quality standards are met. Develops and disseminates strategic documentation of processes within a life cycle, including interfaces to other processes. Manages process design and process improvement to define policies and to ensure accountability for efficiency and effectiveness. Ensures processes align with business and industry best practices to ensure proper fit and to promote adherence. Facilitates meetings with UTS resources and customers to collaborate on key business requirements, goals, and objectives. Interacts with enterprise-wide departments to solicit and analyze business needs and review project requests. Plans and coordinates activities to perform, monitor, and report on processes. Identifies process deviations to ensure effective remediation. Analyzes and proactively mines data to prevent future exceptions and service outages. Oversees process implementation for compliance with ITSM best practices and to develop and issue reports. Establishes continuous process improvement cycles to review and enhance activities, roles, responsibilities, policies, procedures, and supporting technology. Provides ITSM leadership, guidance, and consulting for project teams to increase skills and to develop and advance new processes.

¹ Position advertisement reprinted with permission from Emory University. Advertisement edited for brevity.

Service Catalogs

The shift to service delivery and management means that many IT units have developed—or are considering developing—a service catalog. A service catalog provides “a common framework and approach for delivering services across the institution.”³¹ It contains all available IT services, regardless of who provides or supports them. Establishing a service catalog can be a complex and time-consuming process, but merely starting one can put IT services on the path to greater accountability and efficiency.³²

CDS data show that about two in five institutions (41%) have developed a service catalog.³³ This percentage has increased in the past few years, from 30% in 2012 (figure 3).³⁴

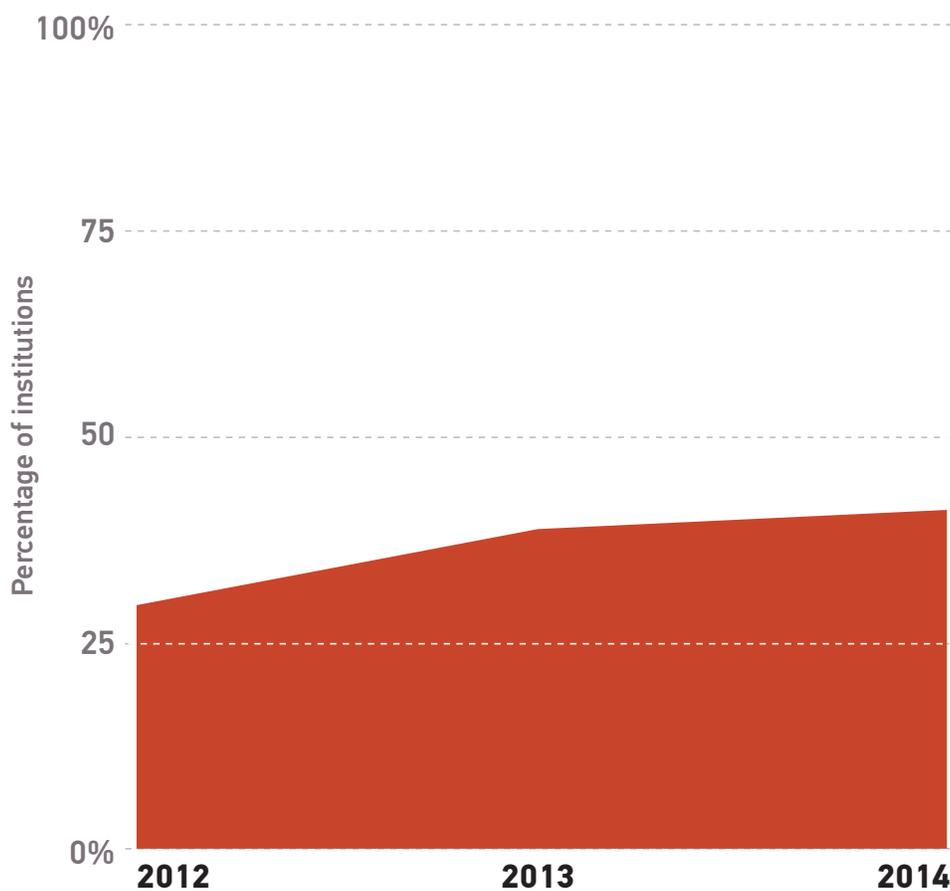


Figure 3. Increase in service catalogs in the past three years³⁵

Components of the IT Service Catalog

The ECAR IT Service Catalog Working Group recently published a research bulletin on the higher education IT service catalog.¹ It provides a framework for designing an IT service catalog hierarchically, from designating service categories (logical groupings of services: administrative and business, communication and collaboration, end-point computing, infrastructure, IT professional services, research, security, and teaching and learning) to defining services (value deliverables), service offerings (technology-focused activities or products used to deliver services), and service attributes (key information about individual services or service offerings). It also covers the importance of tailoring service catalog views to various audiences and provides a means for benchmarking service catalogs across peer institutions.

¹ ECAR, *The Higher Education IT Service Catalog: A Working Model for Comparison and Collaboration*, working group paper (Louisville, CO: ECAR, April 14, 2015).

Having a service catalog is related to an institution's size (figure 4). Whereas nearly three-fourths (72%) of large institutions have a service catalog, only one-fifth (20%) of small institutions do. Because the quantity and complexity of services delivered generally increase with the size of the institution, large institutions may have a greater need to streamline their services and make them more user friendly. Therefore, the appeal of service catalogs for large institutions is understandable. However, given that small institutions also see themselves trending toward the management of more vendors, services, and outsourced contracts over the next decade (figure 2), they might also derive a benefit from the increased efficiency a service catalog can deliver.

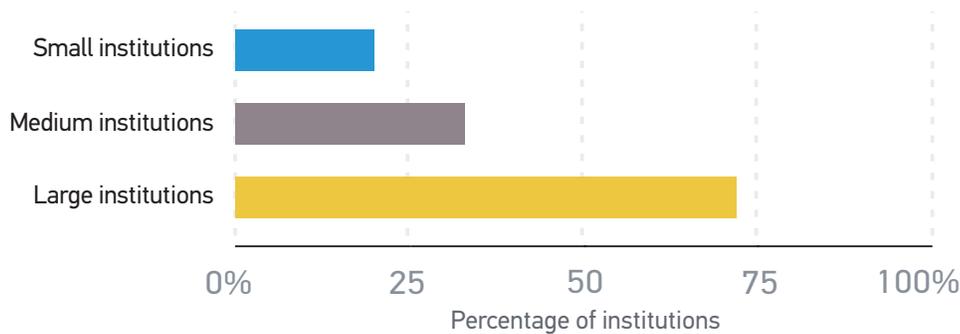


Figure 4. Percentage of institutions that have a service catalog, by institution size³⁶

Cloud Services

High-speed networks and advanced browser capabilities have enabled the virtualization of many types of services, including those classified under cloud computing. ECAR's latest strategic trends report reveals that moving to the cloud is one of the most influential trends in higher education IT. More than 90% of institutions report that this trend has had at least a minor influence on IT strategy, regardless of whether an institution tends to adopt technology early, late, or with the mainstream.³⁷ In addition, when we asked CIOs about their projections and thoughts as to how IT service delivery will change over the next decade,³⁸ a common response was that cloud computing would become a mainstream service solution. The vast majority (85%) of institutions have moved at least one service to the cloud, and this percentage does not vary much by institution size (figure 5).

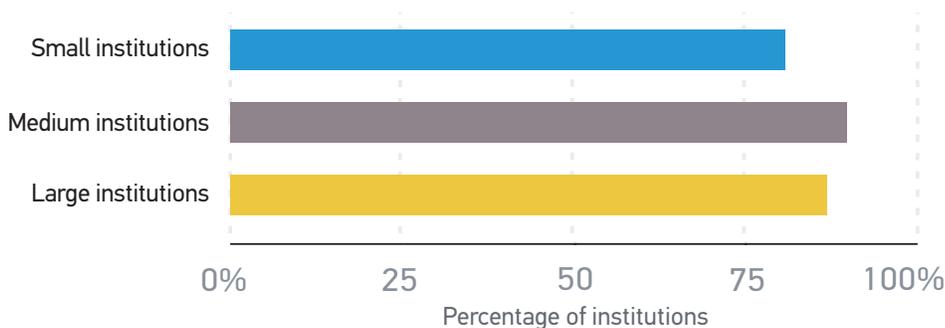


Figure 5. Percentage of institutions that have moved at least one service to the cloud

Cloud computing is not monolithic, and cloud services are available via several different models. One of the fundamental distinctions in these models is whether the cloud service is classified as software as a service (SaaS), infrastructure as a service (IaaS), or platform as a service (PaaS). The choice may depend on many factors, including cost, needs, and the number and skill sets of staff in place. SaaS, IaaS, and PaaS may best be understood as services along a spectrum (figure 6). SaaS is aimed at end users, and SaaS applications tend to be easier to implement; however, control over the software environment is lower, since the provider/vendor furnishes and manages the entire product. IaaS is at the other end of the spectrum. The vendor provides the equipment, and the institution controls what software is installed on it. This of course requires greater technical skills, and the amount of effort and staff resources needed for implementation is generally higher. PaaS falls somewhere between the other two. It is neither the finished product that SaaS is nor the blank slate that IaaS is. PaaS provides software/application developers with tools they can use to build or enhance platforms.³⁹

“We will continue to see additional high-quality, cost-effective alternatives to many of our traditional systems emerge. Our challenge will be one of design and architecture, to balance resources from the public cloud, from private clouds we develop, and from a still-present but smaller core of on-premises applications.”

—Jim Kulich, Vice
President and CIO,
Elmhurst College

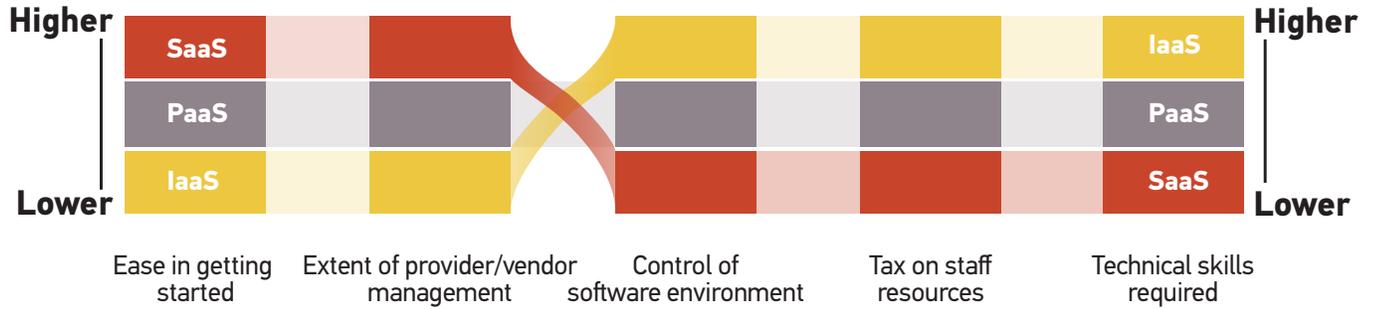


Figure 6. Conceptual differences between SaaS, PaaS, and IaaS

Those who had moved at least one service to the cloud were asked whether they had implemented SaaS, PaaS, and/or IaaS cloud solutions. By far, the most common response (76%) was SaaS. Data from CDS reveal that the most common vendor-managed SaaS cloud solutions are student e-mail (55% of institutions use SaaS for student e-mail), customer relationship management (CRM, 36%), and the learning management system (LMS, 31%). The next most common response was IaaS (38%). According to CDS, the most common vendor-hosted IaaS cloud solutions are student e-mail (13% of institutions), the LMS (8%), CRM (7%), faculty/staff e-mail (7%), and web content management (7%). Only 16% of respondents used PaaS cloud solutions, and the most common vendor-hosted PaaS cloud solutions are student e-mail (5% of institutions), web content management (4%), and information management systems (IMSS, 4%).⁴⁰

Figure 7 shows the different types of cloud services implemented, by institution size. There is a slight tendency for small institutions to use SaaS over large institutions, for medium institutions to use PaaS over large and small institutions, and for large institutions to use IaaS over small institutions. However, none of these differences is significant.

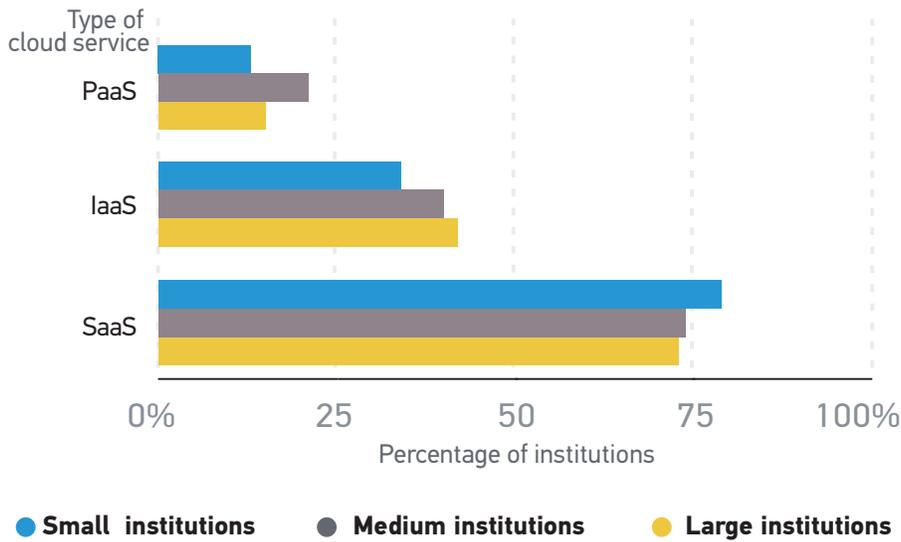


Figure 7. Cloud service implementation using SaaS, PaaS, and IaaS, by institution size

4 in 5 institutions have implemented **SaaS** cloud solutions

2 in 5 institutions have implemented **IaaS** cloud solutions

<1 in 5 institutions have implemented **PaaS** cloud solutions

Institutional Data and Cloud/Outsourced Services

by Joanna L. Grama

As institutions consider cloud services and outsourcing solutions for IT service delivery, new information security challenges may arise. Many of these challenges stem from a loss of control over any institutional data that may be used by the cloud service or outsourced solution (and a subsequent perceived loss of the security and privacy of that data). Other challenges may also include:

- Concerns over the ownership and use of institutional data and the commingling of institutional data with data from other organizations
- Dependency on a vendor for information security, privacy, critical infrastructure, and data-handling processes and regulatory compliance
- No control over any additional parties that a cloud/outsourcing vendor might contract with for the provision of services to the institution
- The inability to specify where cloud or outsourced infrastructure and data are geographically located
- Loss of institutional competency in managing IT infrastructure and data (which is crucial if an institution ever decides to in-source an IT function or process that was previously outsourced or located in the cloud)¹

Cloud services and outsourced solutions rely on contracts to define the relationship between the service provider and an institution. Crucial data-related terms to address during contract negotiations include data ownership specifications, how the vendor may access and use institutional data, how the vendor will protect institutional data, and how the contracting parties intend to meet their legal and regulatory compliance requirements with respect to institutional data. Institutions will also want to ensure that contracts with cloud and outsourced services vendors include appropriate data-protection requirements (e.g., encryption and data transmission requirements), breach-notification terms, and the right for the institution to audit information security and privacy practices.

¹ Joanna Lyn Grama, *Legal Issues in Information Security*, 2nd ed. (Sudbury, MA: Jones and Bartlett Learning, 2014).

Outsourcing of Noncloud Services

As CIOs shift their management emphasis from technologies to services, they may begin to think about all of their sourcing options, as they no longer need to develop or run all their services on-site. Outsourcing may be more economically feasible and efficient for certain services. For example, services for online learning,⁴¹ transactional services (e.g., the help desk),⁴² and residential network services⁴³ may be more efficiently outsourced than developed on-site.

Our data show that just under half (44%) of institutions overall have outsourced at least one noncloud service, and outsourcing varies little by institution size (figure 8). The term “outsourcing” often raises the fear that jobs and control over services will be lost incrementally, given the perception that outsourcing is a slippery slope.⁴⁴ However, CDS data show that central IT outsourcing spending (as a percentage of total central IT spending) is only 2% for institutions that outsource.⁴⁵ Also, CIOs as well as managers are split as to whether they anticipate job losses in the near future due to outsourcing.⁴⁶ In addition, it is difficult to find articles or guides on the outsourcing of higher education IT services (other than cloud services) that are less than three years old.⁴⁷ Therefore, it does not appear to be the case, at least at present, that IT service delivery is in danger of being largely outsourced.

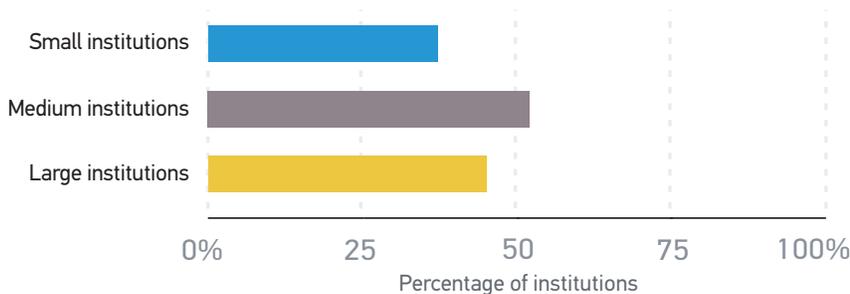


Figure 8. Percentage of institutions that outsource at least one noncloud service, by institution size

Most commonly outsourced services*

Analytics **44%**

E-learning **43%**

Content design and web-based publication of enterprise services **42%**

* For institutions that outsource (based on CDS data)

Shared Services

The financial constraints of recent years have prompted many higher education institutions to consolidate—or share—certain services.⁴⁸ Shared services can help streamline selected IT services formerly managed by multiple units, placing them under the authority of one unit. Although services may be shared within a single institution or across multiple institutions, our interest was in cross-institutional sharing.

About one-third (35%) of institutions overall share at least one service across institutions.⁴⁹ No institutions reported sharing nearly all of their services. There are significant differences in these percentages by institution size (figure 9).⁵⁰ Large institutions (three in five) are much more likely than small institutions (one in five) to share at least one service. In addition, institutions that are part of a system (73%) are significantly more likely than those that are not part of a system (17%) to share services.⁵¹

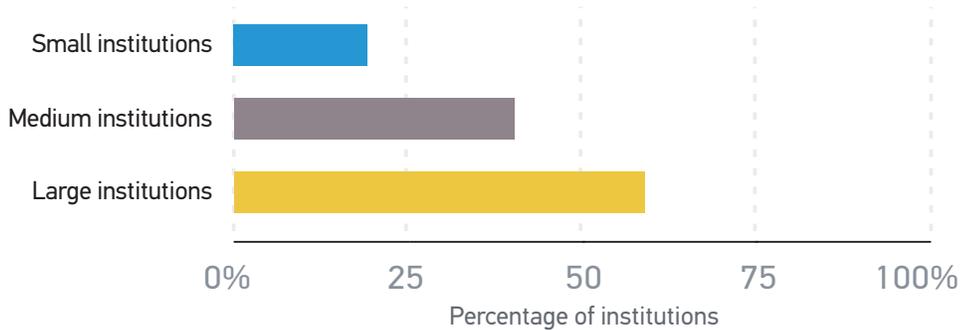


Figure 9. Percentage of institutions that share at least one service, by institution size

Of the institutions that do share services, we asked how many of their major IT services are delivered as shared services. The extent of sharing does not differ much by institution size (figure 10). Small institutions are somewhat more likely than large and medium-sized institutions to share just one service and less likely to share many services. Overall, institutions that share services tend to share more than one service, but not many.

“There will be an overall performance split between those institutions that adopt common best practices as a community and those that continue to do things in relative isolation. IT leaders’ ability to scale services and to lead a highly complex mix of providers and partners will be essential.”

—Mark Askren,
CIO, University of
Nebraska–Lincoln

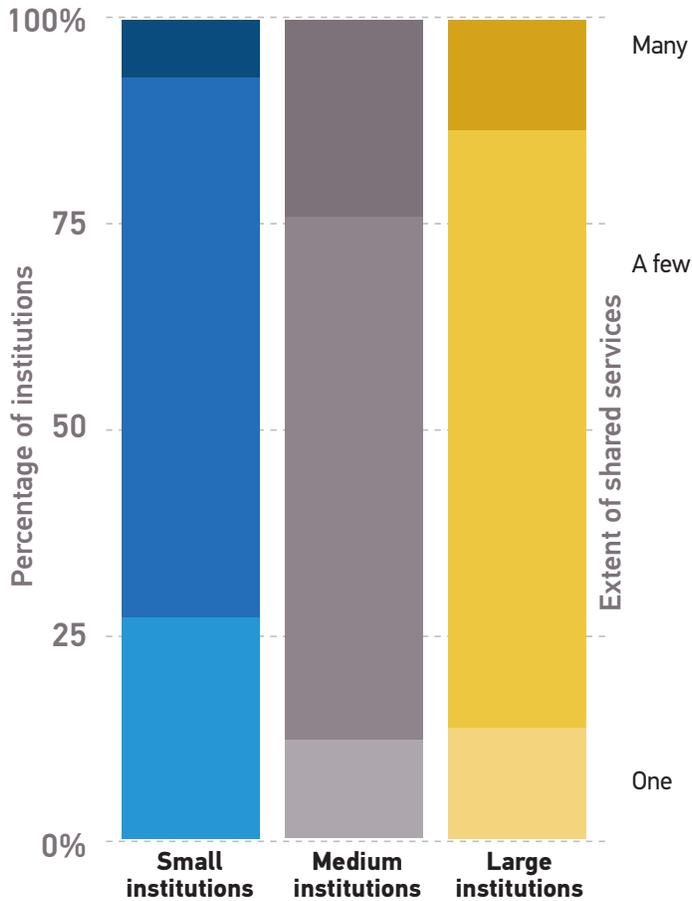


Figure 10. Extent of shared major IT services, by institution size

We asked respondents what services they would advise delivering as shared services.⁵² The top 5 answers are in table 1. What these services appear to have in common is that they are enterprise related; they consist of integrated applications, and most do not require much individual tailoring at the unit level. They are also common services offered by nearly all institutions that have relatively high fixed costs and so may benefit from economies of scale.⁵³ These suggested services do not differ by institution size or by whether an institution is currently sharing services.

Table 1. Top 5 services recommended for delivery as shared services

Service	Number of respondents*
Accounting/payroll/finance	42
Networks	42
Learning management system	35
Enterprise resource planning	30
Help desk	30

* Out of the 69 respondents (30% of all respondents) who answered this question.

Decisions about Moving to the Cloud, Outsourcing, and Sharing Services

Respondents were asked what factors influenced their decisions to move services to the cloud, to outsource services, and to share services. They rated the importance of these factors on a scale from 0 (not at all important) to 100 (very important). Figure 11 shows the percentage of institutions that rated each given factor as “very important,” interpreted as a rating of 80 or higher.

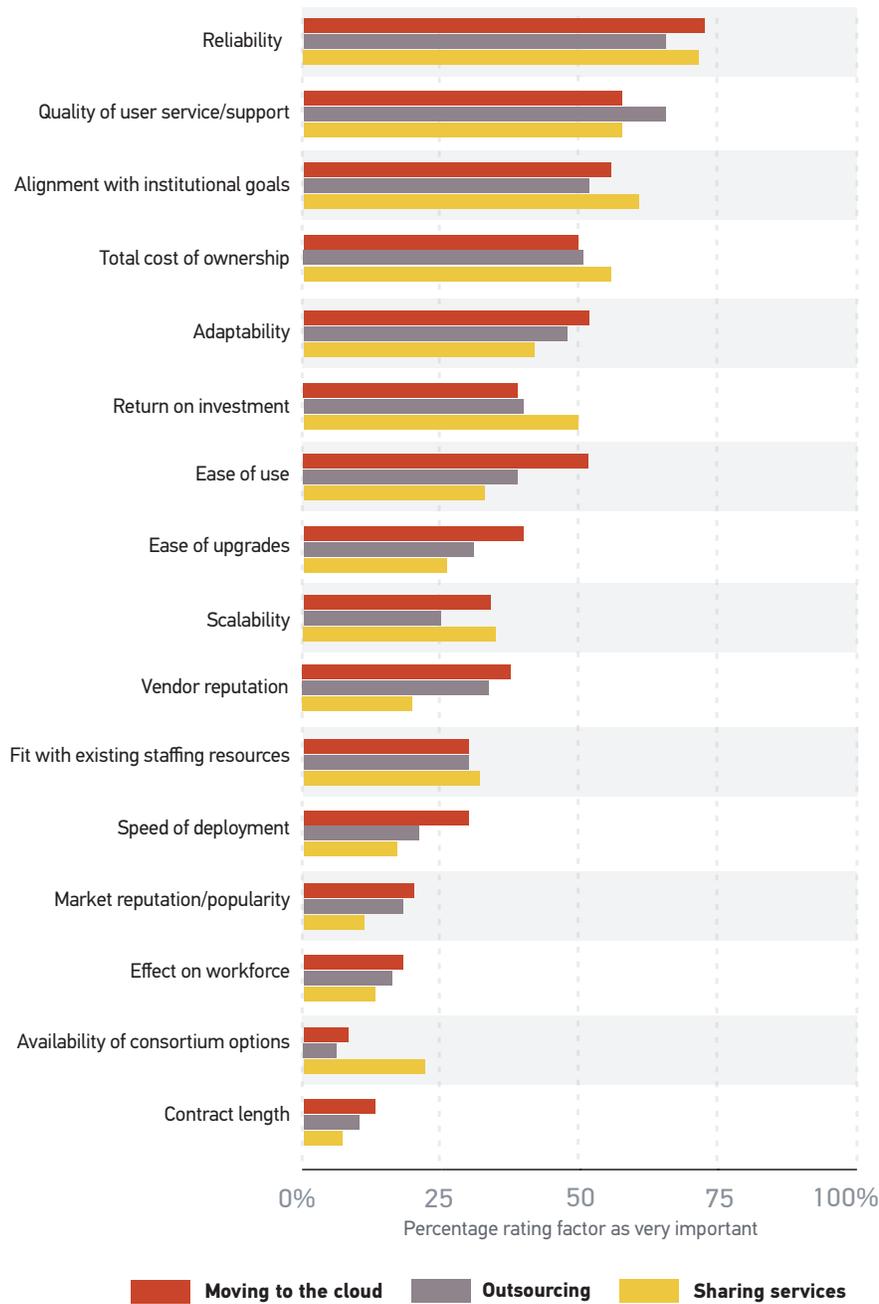


Figure 11. Percentage of institutions rating various factors as “very important” in decisions to move services to the cloud, to outsource services, or to share services

Responses were remarkably consistent for all three sourcing strategies: moving to the cloud, outsourcing, and sharing services. Reliability was most often rated very important for all three, followed closely by the quality of user support and alignment with institutional goals. Despite the attention paid to the costs of IT, total cost of ownership ranked fourth on our list of important sourcing factors. Contract length was rated as the least important factor in deciding about sourcing strategy; few respondents considered it “very important.” There were some minor differences; for example, ROI and total cost of ownership were more important for shared services than for cloud or outsourcing. Institution size did not significantly impact these ratings, but it did make a difference in the relative importance of these factors. These differences are reported in the appendix.

Purchasing Consortia

The strategic importance of procurement strategies has increased as higher education has moved through the economic recession. One way that institutions can do more with less is by participating in a purchasing consortium, an association of institutions that meet mutual goals by expanding their purchasing power through collaboration. Purchasing consortia can be used to deliver a variety of services, such as data centers,⁵⁴ library services, networks, and online learning services. They have the potential to add significant value to the institution by reducing the costs associated with service delivery.⁵⁵

Four out of five institutions (80%) are part of at least one purchasing consortium. Institution size is not related to consortium participation.⁵⁶ However, public institutions (87%) are significantly more likely than private institutions (75%) to be part of a consortium. The difference may be due to the fact that the most common purchasing consortia reported are system- and state-related, which would typically make them more accessible to public institutions. When respondents were asked which purchasing consortia they were participating in, the most common response was as part of a system network of institutions that can make purchases as a bloc (70% of consortium-participating institutions). The next most common response was state-based consortia (28% of consortium-participating institutions).⁵⁷

We asked those who are part of a purchasing consortium what they perceived to be the benefits. Public and private institutions differed somewhat in their perception of the primary benefit (figure 12). For public institutions, the streamlining of purchasing requirements was the top benefit. For private institutions, lower cost was the top benefit, followed closely by prearranged terms and conditions. In fact, the top 4 benefits—mentioned by more than half of all institutions—were common ones dealing with streamlining and pricing. Benefits of purchasing consortia do not appear to extend to the quality or range of services made available, as relatively few institutions listed these as benefits.

“All but the largest institutions will be out of the business of hosting and will have most—if not all—of their systems hosted somewhere else. That could mean commercial providers, but it could also mean hosting provided via a central service or consortia.”

—Kyle Johnson,
Dean of Information
Technology,
Chaminade University
of Honolulu

The top benefits of purchasing consortia involve streamlining and pricing.



Figure 12. Benefits of purchasing consortia, from the perspectives of private and public institutions (check all that apply)

Conclusions

The shift from managing technologies to managing services has already begun for many institutions, and CIOs predict that the trend to move from the management of infrastructure and technical resources to the management of vendors, services, and outsourced contracts will be on an upward trajectory for the next decade. The coinciding of this shift with a decrease in resources (the “do more with less” paradigm) has resulted in a new way of thinking about service delivery that includes more sourcing options.

Cloud computing has become increasingly important in the corporate sector, and it is predicted to become even more important in the future, possibly even supplanting the personal computer.⁵⁸ Higher education institutions have followed suit, with 85% having moved at least one service to the cloud. Moving to the cloud has many reported benefits, including increased flexibility, streamlining, integration, and scalability.⁵⁹ However, those looking to the cloud to immediately or automatically reduce costs may want to do their research as to whether this move will actually result in cost savings and when those savings will be realized.⁶⁰ They may also want to strategize about the best time to move a service to the cloud.⁶¹ Government CIOs and business leaders are finding that making rapid, impulsive moves to the cloud results in less cost savings than anticipated, impedes decision making for future service moves, and diminishes institutional support for the cloud in general.⁶² This is not, however, a reason to dismiss cloud-based solutions outright; those who do so may miss out on the benefits reported above. According to Gartner, cloud solutions should be a first consideration for any new project or service being delivered.⁶³

The “do more with less” paradigm also means that institutions are taking advantage of opportunities for collaboration. The most popular of these is purchasing consortia, with four in five institutions participating in at least one purchasing consortium. In addition, nearly half of institutions outsource at least one service, and one-third engage in shared services across institutions. The decision to participate in these collaborative efforts can depend on the size of the institution, alignment of the collaborative service with the institution’s mission, the costs (or cost savings) involved, the reliability of the service being considered, and the quality of user service and support. Institutions need to consider these factors when deciding on the mode of service delivery, and they need more tools to enable them to do so.

The move to a more service-focused approach in IT is influenced by more than the increased availability of cloud solutions and more opportunities for collaboration. Technology is now, more than ever, a foundational part of higher education. The core mission and goals of higher education cannot be achieved without technology. The focus of IT has shifted from that of simply maintaining systems to one of playing a much stronger role in helping customers understand how technology can help them.

Recommendations

- **Take steps to help streamline IT service delivery and refine your service management approach.**
 - ▶ Determine your service delivery goals. Do you need to reduce or contain costs, source skill sets that are not readily available, improve service reliability, better manage compliance, or improve communication with your customers?
 - ▶ Develop an IT service catalog.
 - ▶ Consider adopting IT service management tools or frameworks.
 - ▶ Develop a cloud strategy, ensure that IT governance is cloud aware,⁶⁴ and use the ECAR Working Group tool for calculating cloud total cost of ownership (TCO) described in *TCO for Cloud Services: A Framework*⁶⁵ to help make decisions about when to adopt specific cloud services.
- **Define the significance for your institution of the shift in focus from primarily managing infrastructure and technical resources to primarily managing vendors, services, and outsourced contracts.** This shift in focus may mean you need to:
 - ▶ Cultivate a support team with excellent communication and soft skills.
 - ▶ Create and fill specialized IT service management positions that will assist CIOs in their transition from primarily managing technical to primarily managing nontechnical activities.
- **Evaluate gaps between strategic goals and actual accomplishments, and determine how IT can act to fill the void.** Aligning IT service delivery strategy with the institution's mission, goals, and culture is an important part of delivering and communicating value.
- **Uncover strategies to take advantage of economies of scale,** ways you can collaborate with others to reduce costs on services you have in common.
 - ▶ Consider opportunities for outsourcing, shared services, or purchasing consortia.
 - ▶ Find the balance between collaboration and the retention of your own brand, culture, and unique offerings.

Methodology

The survey data reported are based on 230 respondents to the IT Service Delivery Survey,⁶⁶ except where indicated. Some of the data in this report are from the 2014 Core Data Service (CDS) and are referenced as such.⁶⁷ Invitations to participate in the IT Service Delivery Survey were sent to all EDUCAUSE primary representatives with instructions for CIOs to complete Part A of the survey (which asked about the future of IT service delivery) and for either CIOs or qualified delegates to complete the remainder of the survey.

Table A summarizes respondents by Carnegie Classification, control (public or private), and institution size. Data collection for the IT Service Delivery Survey took place during the last quarter of 2014. The margin of error for the survey is 7%.

Table A. Survey respondents, by student FTE and Carnegie class

		Carnegie Classification							Other U.S.	Total
		AA	BA Public	BA Private	MA Public	MA Private	DR Public	DR Private		
FTE	Small (<3,000)	14	2	49	3	20	0	0	13	101
	Medium (3,000–9,999)	18	5	3	21	14	5	5	2	73
	Large (10,000+)	5	0	0	7	0	30	5	0	47
Total		37	7	52	31	34	35	10	15	221

Note: This table does not include international respondents.

Appendix: Size-Related Differences in the Importance of Decision-Making Factors for Cloud, Outsourcing, and Shared Services

Respondents were asked which factors were most important in making decisions about cloud services, outsourcing, and shared services. Institution size is not related to the importance placed on these factors in any significant way. However, the differences in the relative importance of the factors rounding out the top 5 lists are telling. The factors were rated on slider scales that were presented simultaneously, so respondents could rate factors as relatively more or less important.

Cloud

Reliability tops the list for small, medium, and large institutions (table A1). Interestingly, total cost of ownership was rated as relatively more important with increasing institutional size, ranking as the number 2 factor for large institutions. Quality of user service and support was rated as relatively less important by large institutions. Ease of use is a top 5 factor for small institutions only. Whereas adaptability rates in the top 5 for small and medium institutions, scalability is relatively more important for large institutions. Alignment with institutional mission and goals rates in the top 5 for medium and large institutions, but not for small ones.

Table A1. Top 5 factors in cloud decisions for small, medium, and large institutions

	Small	Medium	Large
1	Reliability (88.27)	Reliability (88.38)	Reliability (85.18)
2	Quality of user service and support (83.36)	Quality of user service and support (83.26)	Total cost of ownership (82.16)
3	Ease of use (81.41)	Total cost of ownership (81.73)	Scalability (80.09)
4	Adaptability (81.14)	Alignment with institutional mission and goals (80.27)	Alignment with institutional mission and goals (79.75)
5	Total cost of ownership (78.65)	Adaptability (78.86)	Quality of user service and support (78.30)

Note: Figures in parentheses are mean importance ratings, on a scale of 0 to 100.

Outsourcing

Respondents were asked which factors were most important in making decisions about outsourcing noncloud IT services. The relative importance of these factors does differ somewhat by institution size (table A2). Reliability is the top factor for small institutions, quality of user service/support is the top factor for medium-sized institutions, and total cost of ownership is the top factor for large institutions. Ease of use is a top 5 factor for small and medium institutions but not for large ones.

Table A2. Top 5 factors in outsourcing decisions for small, medium, and large institutions

	Small	Medium	Large
1	Reliability (91.23)	Quality of user service/support (84.50)	Total cost of ownership (82.19)
2	Quality of user service/support (86.52)	Reliability (82.09)	Reliability (81.63)
3	Total cost of ownership (80.87)	Total cost of ownership (77.84)	Alignment with institutional mission and goals (80.81)
4	Adaptability (79.58)	Adaptability (77.75)	Quality of user service/support (79.38)
5	Ease of use (79.29)	Ease of use (77.13)	Adaptability (75.94)

Note: Figures in parentheses are mean importance ratings, on a scale of 0 to 100.

Shared Services

Respondents were asked which factors were most important in making decisions about shared services. As with decisions for cloud-based services, reliability tops the list for small, medium, and large institutions (table A3). Also, as with cloud services, total cost of ownership was rated as relatively more important with increasing institutional size, ranking as the number 2 factor for large institutions. Quality of user service and support was rated as more important by small institutions than by medium or large institutions. Whereas adaptability rates in the top 5 for small and medium institutions, when it comes to shared services, scalability is relatively more important for large institutions. Alignment with institutional mission and goals rates in the top 5 for all institutions.

Table A3. Top 5 factors in shared services decisions for small, medium, and large institutions

	Small	Medium	Large
1	Reliability (87.20)	Reliability (81.42)	Reliability (83.10)
2	Quality of user service/support (84.00)	Alignment with institutional mission and goals (80.29)	Total cost of ownership (81.90)
3	Adaptability (82.31)	Total cost of ownership (76.55)	Alignment with institutional mission and goals (78.90)
4	Alignment with institutional mission and goals (82.13)	Adaptability (76.33)	Quality of user service/support (77.81)
5	Total cost of ownership (81.13)	Quality of user service/support (76.04)	Scalability (76.75)

Note: Figures in parentheses are mean importance ratings, on a scale of 0 to 100.

Acknowledgments

This report resulted from the contributions of several individuals. The subject matter experts for this study, **Tim Evans** (Senior Director, IT Services, The University of Iowa), **Jeff Delaney** (Deputy CIO, Board of Regents of the University System of Georgia), **Karen Gatherer** (ITS Director of Administration and Business, University of Nebraska–Lincoln), and **Joseph Vaughan** (CIO/Vice President for Computing and Information Services, Harvey Mudd College), provided thoughtful reviews of the survey and report drafts.

Our in-house EDUCAUSE team of content experts, **Betsy Reinitz** (Director of Administrative IT Programs), **Leah Lang** (Director of Analytics Services), **Joanna Grama** (Director of DRA Operations, IT GRC, and Cybersecurity Programs), **Karen Wetzel** (Program Manager, ECAR Working Groups), **Eden Dahlstrom** (Director of Research), and **Susan Grajek** (Vice President of Data, Research, and Analytics), provided much value-added content to the report.

And last but not least, our support team provided essential input and skills to ensure the content of the report was accurate, appealing, and accessible. **Gregory Dobbin** (Senior Editor) oversaw editing and production. **Kate Roesch** (Data Visualization Specialist) designed the graphics. **Jamie Reeves** (Research Assistant) contributed to the qualitative analyses. **Ben Shulman** (Statistician) double-checked the analyses and calculations for the graphics. **Lisa Gesner** (Marketing Manager) and **Ashlan Sarff** (Marketing Coordinator) promoted the report.

Notes

1. Diana Oblinger, “Higher Education in the Connected Age,” *EDUCAUSE Review* 48, number 2 (March/April 2013).
2. Michael Mitchell, Vincent Palacios, and Michael Leachman, *States Are Still Funding Higher Education Below Pre-Recession Levels*, research report (Washington, DC: Center on Budget and Policy Priorities, May 2014).
3. Center on Budget and Policy Priorities, “State-by-State Fact Sheets: Higher Education Cuts Jeopardize Students’ and States’ Economic Future” (Washington, DC: Center on Budget and Policy Priorities, March 5, 2015).
4. Ry Rivard, “Private Colleges’ Turn to Cry,” *Inside Higher Ed*, February 17, 2014; Michael Dresser and Erin Cox, “Hogan Plan Would Cut Budgets for Years to Come,” *Baltimore Sun*, January 26, 2015.
5. Donna Desrochers and Steven Hurlburt, “Trends in College Spending: 2001–2011,” American Institutes for Research, July 28, 2014.
6. Leah Lang, *2013 CDS Executive Summary Report*, research report (Louisville, CO: ECAR, February 2014).
7. Betsy Tippens Reinitz, *Maximizing Value in a Time of Change*, EDUCAUSE/NACUBO report (August 2014); see also, Susan Grajek and Betsy Tippens Reinitz, *Trend Watch 2015: Influential IT Directions in Higher Education*, research report (Louisville, CO: ECAR, March 23, 2015).
8. For more information, see the ECAR [Research Hub on IPAS](#).
9. Two presentations at the EDUCAUSE 2014 Annual Conference highlighted collaborations between IT and the university library: Lisa A. Macklin, Tim Morris, and Mary M. Walters, “Creative Partnerships: Dynamic IT and Library Collaboration to Promote Faculty Research, Create Profiles, and Enhance Workflow”; and Emily Denlinger and Zack Tucker, “Libraries Collaborating with Academic Departments to Provide Innovative Technology Support Services”; Param Bedi and Jason Snyder, “Making a Difference: Moving Your Organization from Transactional to Transformational,” *EDUCAUSE Review* 50, number 2 (March/April 2015).
10. Jacqueline Bichsel, “The State of E-Learning in Higher Education: An Eye toward Growth and Increased Access,” research report (Louisville, CO: ECAR, June 2013).
11. Reinitz, *Maximizing Value*.
12. Jacqueline Bichsel and Patrick Feehan, *Getting Your Ducks in a Row: IT Governance, Risk, and Compliance Programs in Higher Education*, research report (Louisville, CO: ECAR, June 2014).
13. EDUCAUSE, “Foundations of Information Security: Institutional Implications for Safeguarding Data,” EDUCAUSE executive brief (Louisville, CO: EDUCAUSE, August 2014).
14. ECAR, *Improving Institutional Collaboration through Unified Communications: A Study of Current Implementations*, ECAR working group paper, (Louisville, CO: ECAR, December 15, 2014).

15. Data are from the [EDUCAUSE Core Data Service \(CDS\)](#), 2014.
16. Jacqueline Bichsel, *Today's Higher Education IT Workforce*, research report (Louisville, CO: ECAR, January 2014).
17. EDUCAUSE, "Foundations of Information Security."
18. Jacqueline Bichsel, "[IT Service Delivery Models Survey, 2014](#)."
19. CDS, 2014.
20. This question was asked of CIOs on the EDUCAUSE IT Issues Panel and was also posted on the EDUCAUSE CIO discussion list. Additional quotes may appear in subsequent reports.
21. Susan Grajek and the 2014–2015 EDUCAUSE IT Issues Panel, "[Top 10 IT Issues, 2015: Inflection Point](#)," *EDUCAUSE Review* 50, no. 1 (January/February 2015).
22. Bichsel, *Today's Higher Education IT Workforce*.
23. ANOVA results for size differences in management focus ratings: For current focus, $F(2,203) = .69, p = .50$; for projected focus in 5 years, $F(2,203) = .45, p = .64$; for projected focus in 10 years, $F(2,203) = .86, p = .43$.
24. Bichsel, *Today's Higher Education IT Workforce*; see also [Technology in Higher Education: Defining the Strategic Leader](#), Jisc and EDUCAUSE, March 2015.
25. EDUCAUSE, *The Evolution of the CIO: An EDUCAUSE Issues Brief* (Louisville, CO: EDUCAUSE, October 2009); see also "[Six Ways the CIO Job Description Is Changing](#)," SearchCIO, November 8, 2012.
26. Gartner, "[Gartner Says CIOs and CDOs Must 'Digitally Remaster' Their Organizations](#)," press release, February 2, 2015.
27. Mary E. Shacklett, "[CIOs Need Legal Chops](#)," *Enterprise Efficiency*, October 20, 2011.
28. ECAR, *The Higher Education IT Service Catalog: A Working Model for Comparison and Collaboration*, ECAR working group paper (Louisville, CO: ECAR, April 14, 2015).
29. For more information, see the upcoming ECAR working group series "Preparing Your IT Organization for the Cloud." This series will provide IT organizations with a field guide for cloud computing adoption and delivery, focusing on issues of governance, migration, integration, organizational transformation, operationalism, risk management, and user management. For more information, see the [ECAR working groups website](#).
30. "Sourcing strategies" and "exostructure" (external partnerships, tools, and services) were numbers 5 and 6 in Gartner's "[Top 10 Strategic Technologies Impacting Education in 2015](#)," November 26, 2014.
31. Tamara Adizes, Mark Katsouros, Reginald Lo, Simon Pride, and Karalee Woody, "[The Unified IT Service Catalog: Your One-Stop Shop](#)," *EDUCAUSE Review Online*, August 11, 2014.
32. See Adizes et al. for more information on the challenges and beginning steps in creating an IT service catalog; for an example of an IT service catalog, see Appalachian State University's [Technology Application and Service Catalog—Administrative Services Technology Portfolio](#).

33. CDS, 2014.
34. This question was first asked on CDS in 2012.
35. CDS, 2014.
36. Based on data from CDS, 2014.
37. Grajek and Tippens Reinitz, *Trend Watch 2015*.
38. Open-ended question asked on the EDUCAUSE CIO discussion list and of the EDUCAUSE IT Issues Panel.
39. Jeff Caruso, “IaaS vs. PaaS vs. SaaS,” *Network World*, November 2, 2011.
40. The percentages for SaaS, IaaS, and PaaS roughly correspond with CDS data. CDS posed these questions in a slightly different way, asking whether they were instituted to provide data-center services; the survey contained an “other” option for this item. Most of these “other” responses (20% of the respondents checked other) were specified as some form of e-mail.
41. Susan E. Metros and Joan Getman, “Going the Distance: Outsourcing Online Learning,” in *Game Changers*, ed. Diana G. Oblinger (Louisville, CO: EDUCAUSE, 2012).
42. Timothy M. Chester, “Outsource the Transactional, Keep the Transformative,” *EDUCAUSE Review Online*, June 24, 2011.
43. J. Keith Yarbrough, “Outsourcing the ResNet for Managed Service,” *EDUCAUSE Review Online*, June 24, 2011.
44. William B. Bradshaw, “The Economy, Outsourcing Jobs, and Higher Education,” *Huffington Post Education Blog*, August 6, 2012.
45. CDS, 2014. There are only small variations in outsourcing spending by institution size, with small institutions spending 5%, medium institutions spending 2%, and large institutions spending 4%. These are median percentages, as the distribution is skewed, with a few institutions spending much more.
46. Bichsel, *Today’s Higher Education IT Workforce*.
47. These results are based on Google and EDUCAUSE library searches.
48. Gavan Gideon, “Shared Services Gaining Ground in Higher Education,” *Yale Daily News*, March 23, 2012.
49. CDS asks about sharing in a different way and in regard to data-center and research computing services. In 2014, CDS data show that half of all institutions host or participate in cross-institutional data-center services.
50. $X^2(2, N = 186) = 20.72, p < .001$.
51. $X^2(1, N = 194) = 57.83, p < .001$.
52. These were write-in responses.

53. This information is anecdotal (provided by subject-matter experts). There is currently no source of information for the exact nature of the relative fixed costs in higher education IT, as this article excogitates: Rita Kirshstein and Jane Wellman, “Technology and the Broken Higher Education Cost Model: Insights from the Delta Cost Project,” *EDUCAUSE Review* 47, no. 5 (September/October 2012).
54. Matthew S. Burfeind and Deborah Pepper, “Doing More for Less: The Benefits and Practicalities of Education,” *EDUCAUSE Review Online*, February 24, 2014.
55. Mark Askren, “Substantive Collaboration: Are We Ready to Lead?” *EDUCAUSE Review Online*, October 7, 2013.
56. Although smaller institutions were just as likely to be part of purchasing consortia as larger institutions in this study, there may be unique challenges for smaller institutions that are not state or system schools to participating in purchasing consortia. Some of these challenges are addressed in an EDUCAUSE podcast with Ellen Borkowski and Raechelle Clemmons, “Building Consortia for Smaller Colleges.”
57. The types of consortia listed were write-in responses. Other types of consortia were mentioned by a few institutions, but none of them approached the frequency with which system- and state-based consortia were mentioned.
58. Kerry Doyle, “Study Foresees Increasing Cloud Prevalence, Eventually Replacing PCs,” *infoTECH spotlight*, March 16, 2012.
59. Joe McKendrick, “5 Benefits of Cloud Computing You Aren’t Likely to See in a Sales Brochure,” *Forbes*, July 21, 2013.
60. ECAR, *TCO for Cloud Services: A Framework*, ECAR working group paper (Louisville, CO: ECAR, April 24, 2015)
61. Asbed Bedrossian et al., *Cloud Strategy for Higher Education: Building a Common Solution*, research bulletin (Louisville, CO: ECAR, November 2014).
62. Neville Cannon and Glenn Archer, *Government CIOs See Expected Cloud Cost Savings Evaporate*, Gartner report, February 20, 2015.
63. Joshua Bolkan, “Report: Few CIOs Give Cloud Solutions Appropriate Consideration,” *Campus Technology*, March 16, 2015.
64. See the upcoming ECAR working group series “Preparing the IT Organization for the Cloud.”
65. ECAR, *TCO for Cloud Services: A Framework*.
66. Bichsel, “IT Service Delivery Models Survey.”
67. CDS, 2014.