Many higher education IT leaders, myself among them, have been striving for several years to mold our enterprise IT groups into more clearly structured and optimized service organizations, aligned deliberately and transparently with the institutional mission and strategic objectives. We have been moving toward this goal with an inheritance of knowledgeable and committed staff whose roles and systems often developed organically in response to particular needs sometimes as part of the research activity of the institution. These individuals and groups have frequently worked in relative isolation for many years.

By Tracy Schroeder
Why, then, even bother to transform the enterprise IT organization into a more efficient, effective service provider? If all of the services are going to be provided directly to consumers or by third parties in the cloud anyway, what's the point?

The defensive answer, often used in the marketing of IT consulting firms, is that IT leaders need to transform their groups into service organizations in order to ensure their own survival. My own motivation—and that of many of my higher education colleagues—for driving IT Service Management maturity is, I hope, more inspiring: our institutions need our guidance and support. Our colleges and universities need us to make order of the chaos that is the tidal wave of IT services available today, to manage the total IT spend of the institution, and to help mitigate risks to the enterprise and the individuals who compose it.

Further, our institutions need the IT organization's help with the major challenges and opportunities of today. This is a time of transformations, for both higher education as a whole and the IT organizations that serve it. These transformations ask for more from the IT organization, not less: for more cost-effective, yet highly reliable infrastructure and support, combined with expanded, direct contributions to the teaching, research, and service missions.

Put another way, the challenges facing higher education have prompted some faculty and staff to say to me: “I don’t want you [the IT organization] to be a service provider in this situation; I don’t even know what I want, or what is possible. I need you to create something with me.” This is not a rejection of the IT group as a service organization but, rather, an outgrowth of becoming one. Being a service organization creates trust and therefore opportunity for true partnership. In the same way that an artist learns to draw still life before moving on to abstraction, or a musician learns theory before moving on to improvisation, so IT organizations benefit from establishing the disciplines of governance, project management, and service management, thus making their core functions operate with less friction, before moving on—when institutional needs and strategy dictate—to innovation.

How Are Higher Education and Higher Education IT Organizations Being Transformed?

Higher Education

In higher education broadly, colleges and universities are attempting to grapple with what William G. Bowen has described as the “Cost Disease,” accompanied by both the promise and the threat of technology-enabled education. Public institutions that have seen years of falling state support have worked to reduce institutional costs but have also shifted emphasizing ease of use. Increasingly, the main challenge for higher education faculty, staff, and students might not be getting support from the enterprise IT organization but, rather, getting around the enterprise IT organization so that they can use the consumer apps they want.
higher education. Institutions that previously focused almost exclusively on enhancing excellence in teaching and research are now concentrating on how to best ensure the value proposition for students, and colleges and universities that are struggling to remain competitive in the most embattled fields are reducing tuition—or wishing they could.1

An increasingly consumer-focused view of higher education is developing. With an ever-growing amount of high-quality content available at low to no cost, the cost drivers of higher education are becoming not only inscrutable to students and their families but also troubling to policy-makers. The difference between the transmission of content and the process of actual learning tends to be overlooked, as is also the cost of myriad supporting administrative, co-curricular, and student life services provided by higher education institutions. Meanwhile, both the economic pressures on families and the national imperative for a better-educated workforce continue to rise.

So where is the game-changer going to come from? Certainly the highest-profile candidate is technology-enabled education, be that in the form of MOOCs, multi-institutional collaborations, corporate partnerships, shorter time-to-degree options, or other possibilities. The hype around this potential transformation has been both extensive and predictable, roughly following the first half of a Gartner “Hype Cycle”; positive hype rose to a “peak of inflated expectations” perhaps best exemplified by Tom Friedman’s January 2013 article “Revolution Hits the Universities.”2 Following this peak, detractors gradually became more vocal, and opinions slid toward a “trough of disillusionment,” especially for MOOCs, as evidenced by the Chronicle of Higher Education article “2014: The Year the Media Stopped Caring about MOOCs”?3

Institutional strategies and faculty opinions around this hype range from actively experimenting (looking to break the mold and lead with disruptive new approaches) to defending the status quo, with various positions in between. In some cases, institutional experiences indicate that technology-enabled learning may enhance the learning process and outcomes but does not reduce costs.4 At the same time, emerging models of personalized learning suggest that technology-enabled programs can allow students to complete competency-based degrees or other credentials at their own pace, at lower cost.5 Such alternative approaches are challenging to the culture and established processes at most colleges and universities, requiring extensive change, and some new costs, to support.

In addition, research funding levels have been flat or falling, yielding an increasingly competitive environment for research institutions.6 Emerging, data-intensive forms of research are driving new infrastructure, data management, and security requirements that all come at a cost, often not directly supported by grants. Thus, institutions must be strategic in their investments around research support and connect with new collaborators.

All of these pressures are driving higher education institutions to find economies of scale, not only in new models for teaching and research but also, perhaps especially, in administrative services. The ability to achieve this scale and produce efficiencies that allow

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**What Is IT Service Management?**

Service Management (ITSM) is an IT services management approach that focuses on design, delivery, and continuous improvement of services, rather than on technical components. Services are provided according to the needs of an organization (generally referred to as “the business”) and are aligned with the organization’s strategy, key risks, and available resources.

ITSM is based on the IT Infrastructure Library (ITIL), first developed in the 1980s in the United Kingdom. The current version of ITIL is a set of five books that describe the service lifecycle: Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement. These stages in the service lifecycle comprise twenty-seven processes and four supporting functions (IT Operations Management, Service Desk, Technical Management, and Applications Management).

Implementing ITSM based on ITIL is a journey, not a destination, and does not require undertaking all twenty-seven processes. The first step is often the definition of the service catalog, which aims to describe IT services in terms that are relevant to the users and the organization as a whole, rather than from a technical perspective. Other widely implemented processes include incident management (restoring service as quickly as possible when service is disrupted), change management (introducing changes into the IT service environment), problem management (identifying the root causes of multiple incidents to prevent their recurrence), and service-level management (defining, documenting, and agreeing on key characteristics of a service).

ITIL is a framework that supports the development of a quality IT service organization. It is not, however, all-encompassing and should be combined with portfolio and project management best practices such as PMI (Project Management Institute, http://www.pmi.org/) or PRINCE2 (Projects IN Controlled Environments, http://www.prince-officialsite.com/), audit standards such as COBIT (http://www.isaca.org/cobit), and IT governance. More than anything else, ITSM is a culture of quality through process—a culture focused on the needs of the institution that the IT organization serves.

significant reallocation of resources from administrative to academic activity has thus far been elusive, but pressure is building for a breakthrough.

Higher Education IT Organizations
The post-enterprise concept introduced above is transforming higher education IT organizations at the same time that it is threatening to disrupt higher education more broadly. Consumerization has brought to students and faculty the capability to connect, collaborate, and compute at a level of quality and intensity that has rendered some campus-based services obsolete and often overwhelmed campus networks. College and university information services not replaced by consumer services are increasingly unsatisfying to campus communities, since these services fail to keep pace with rising expectations for ease of use and device compatibility. Campus IT organizations are scrambling internally and exhorting their vendors to renovate major applications while they bolster their networks to handle the increased density and bandwidth demands of devices owned by students and faculty.

At the same time, IT organizations are turning to the providers of commodity infrastructure, platforms, and services to help reduce the cost of information technology, while potentially increasing quality.

The potential exists for even further cost and quality rewards when that work is done, but significant obstacles remain, ranging from funding models to campus business processes and culture. Leading institutions, and groups of institutions such as Internet2’s Net+ program, are moving aggressively down this path.

This transition to the cloud may enable IT organizations to better respond to the data-intensive trend with effective, repeatable processes to ensure quality is essential to delivering reliable, cost-effective utility services, whether they are provided by campus IT staff, third-party service providers, or a combination of the two. The language of ITSM—What is a service-level agreement? capacity management? continuity management?—also brings a common foundation and level of rigor to discussion and debate, both internally and with third parties, regarding service expectations, realities, and corresponding costs.

These services, from network connectivity to collaboration tools, are even more critical in the post-enterprise context, where they are assumed by myriad consumer devices and cloud services. Without ensuring a base level of quality and efficiency in utility services, the IT organization will be precluded from contributing in any of the other areas identified below. But this level of maturity is not easily achieved.

Utility Services
The area with the most potential for disruption by the post-enterprise context of consumerization and cloud services is utility services, but ITSM can help IT organizations deliver in this area. A clear, consolidated service model

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needs from IT Organizations Today?
In the post-enterprise world, the enterprise IT organization still has a lot to do. The following are four major areas in which significant change or growth is needed: high-quality, cost-effective utility services; a next-generation security infrastructure that enables institutions to more efficiently share resources and protect data; value-added process reengineering and data analysis capabilities; and innovative visions for the future of teaching, learning, and research.

Next-Generation Security Infrastructure
The post-enterprise world requires scale. In higher education, scale requires collaboration, and collaboration requires interoperability. Colleges and universities need to share services, and in order to share efficiently, they need to have a standard, widely deployed
In the space between the consumer and the cloud, the post-enterprise IT organization can make key contributions, channeling technical possibilities in service to the institutional mission.

To work together and is currently a critical pain point within many colleges and universities. This effort should build on a shared understanding of ITSM concepts to clearly define what the IAM management around Identity and Access Management. IAM won't grab headlines, but it is a basic underpinning for institutions to work together and is currently a critical pain point within many colleges and universities. This effort should build on a shared understanding of ITSM concepts to clearly define what the IAM organization often lacks the credibility to provide process analysis and reengineering services.

One of the ways that higher education may be able to reduce or at least slow the growth of costs is through focused reengineering of administrative processes for efficiency. Many campus processes and associated policies are organic or historical in nature and could be consolidated and streamlined. This process analysis and optimization function is either absent or without a clear home in many institutions. The IT organization could move into this realm and make a significant contribution.

In the realm of data analytics, most IT organizations see themselves as being responsible for the supporting infrastructure and tool-set, but they often need extensive guidance to develop analytical deliverables for the institution. Sometimes IT organizations are not tasked with this function at all but, rather, enable it to be carried out by offices of institutional research or other administrative and academic offices. The demands of increased data volume, complexity, and importance suggest that a significantly higher degree of collaboration across these functions is needed. In short, IT professionals who understand not only how the technology works but also what the business questions are, and what the data means, are extremely valuable. Higher education needs more of them contributing to both institutional and research analytics.

Innovative Visions

Finally, colleges and universities need innovative visions for how information technology can enable new forms of teaching, learning, and research. The work of curing the cost disease, appealing to the student-consumer, forging new collaborations, and creating new business models, all while improving learning outcomes, is both exciting and daunting. Institutional leaders need help in identifying the possibilities that exist today and in charting the technology trends that might be leveraged to create and disseminate knowledge in the future.

No one position has a monopoly on—or a clear crystal ball for—technology vision today. Colleges and universities that have created Chief Digital Officers or other new leadership positions for digital learning are acknowledging the scope, complexity, and urgency of the transformation challenges, as well as the reality that at many institutions, the CIO is too occupied with managing current IT services to focus on creating the next generation of higher education. However, the CIO is one of the best-positioned institutional leaders to be aware of current technological
capabilities and emerging possibilities, and the CIO should provide substantial input in forward-looking discussions. This lends all the more importance to efforts to drive the maturity of current IT service functions, so that the CIO and supporting IT leaders can give more meaningful time and attention to trend-spotting, thought leadership, and advocacy for new institutional opportunities.

**What Will the IT Organization of the Future Look Like?**

Meeting the needs of colleges and universities in the post-enterprise world will require an evolution in the capabilities of IT organizations. They will need to expand and develop new capabilities in ITSM, cloud services architecture and supporting infrastructure, IAM, process analysis and reengineering, institutional and big data analytics, and leading innovation—just to touch on the areas discussed above. Given the requirement to control or even reduce costs, IT organizations will also need to identify areas where they can streamline. In many cases, staff will need to shift roles from one area to another, gaining new skills and responsibilities.

Considering the drivers discussed above, we can reasonably forecast several changes over the next three to five years. Figure 1 shows the 2013 median number of central IT staff in each of ten functional areas per 1,000 institutional FTEs across Association of American University (AAU) institutions, as reported by the EDUCAUSE Core Data Service (http://www.educause.edu/coredata).

In addition, Figure 1 shows shifts I have forecasted in both how we categorize and where we allocate staff resources:

- **Modest expansion of Administration and Management of IT** to bolster service, project, and portfolio management capabilities. As part of service management capabilities, financial and vendor management capabilities will need to be expanded to better manage external service providers, especially cloud services.
- **Creation of a new category for Data Management & Analytics.** This grouping would include storage and curation of research, learning, and administrative data, as well as expanded analytics capabilities from conventional reports to delivery of real-time analytics and self-service capabilities.
- **Consolidation of Communications Infrastructure Services, Data Centers, and Enterprise and Infrastructure Services into one Infrastructure Services category** (organizational structures may vary). As technologies converge, the boundaries between these technical teams and corresponding service providers are blurring and will continue to do so. This is an area where efficiencies must be realized through consolidation and leveraging of commodity services.
- **Expansion of Educational Technology Services.** This area is clearly a strategic priority and will be a challenge to resource sufficiently.
- **Expansion of Identity Management.** This area must become a core competency of IT organizations, including significant cross-institutional collaboration.
- **Expansion of Information Security.** Risk, regulation, and corresponding complexity are on the rise.
- **Streamlining of Information Systems & Applications and significant transition from development to configuration.** This is another area where real efficiencies must be realized, and a shift must be made from the development of one-off applications that align with an institution’s particular processes to multi-institutional solutions that are based on best-practice process engineering and are then configured to meet the specific institutional context and needs. These changes may take the longest of any suggested here, potentially beyond five years.
- **Increased efficiency in IT Support Services.** As ITSM capabilities improve and as institutional silos are broken down, resources can be shifted from...
providing fragmented general IT support to focusing on the more strategic areas identified here for expansion. As consumer information technology continues to permeate higher education institutions, campus faculty, staff, and students may become increasingly self-sufficient.

■ Expansion of Research Computing Services. Computational thinking and the corresponding need for computational resources, as well as the increased leveraging of digital resources in the humanities, combine to create a significant need for resources in this area.

As suggested above, these potential changes represent opportunities for campus IT staff, as well as enhanced support for the core missions of—colleges and universities today.

Conclusion

We live and work in the midst of significant transformations in higher education and the IT organizations that support it. These transformations are being driven by the forces of consumerization, the escalating cost of higher education, new possibilities presented by cloud computing at scale, and dramatic expansions in the quantity and diversity of relevant data—as well as our capacity to analyze that data. Higher education IT teams will need to evolve into more mature service organizations, skilled in governance, project, and service management and able to deliver reliable and cost-effective utility services, next-generation security infrastructure, process reengineering and data analysis, and innovative visions. The need to provide enhanced capabilities in these areas will require efficiencies in infrastructure, administrative systems, and technology support, reshaping the IT organization.

In the space between the consumer and the cloud, the post-enterprise IT organization can make key contributions, channeling technical possibilities in service to the institutional mission. Even though the ubiquity of technology ironically makes the work of the IT organization less visible, this work is more critical than ever today.

Notes

1. “The basic idea is simple: in labor-intensive industries such as the performing arts and education, there is less opportunity than in other sectors to increase productivity by, for example, substituting capital for labor. Yet, over time, markets dictate that wages for comparably qualified individuals have to increase at roughly the same rate in all industries. As a result, unit labor costs must be expected to rise relatively faster in the performing arts and education than in the economy overall.” William G. Bowen, “The ‘Cost Disease’ in Higher Education: Is Technology the Answer?” The Tanner Lectures, Stanford University, October 10–11, 2012, http://www.ithaka.org/sites/default/files/files/ITHAKA-TheCostDiseaseinHigherEducation .pdf.


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