How Colleges and Universities Are Driving to Digital Transformation Today

Susan Grajek and the 2019–2020 EDUCAUSE IT Issues Panel

Like the observation about the future often attributed to the science fiction writer William Gibson, digital transformation (Dx) is already here, but it’s not yet evenly distributed. EDUCAUSE research shows that 13% of colleges and universities are engaging in digital transformation today, 32% are developing a Dx strategy, and another 38% of higher education institutions are exploring Dx. With only 16% of institutions investing no time in Dx, higher education truly is driving to digital transformation. EDUCAUSE defines digital transformation as a series of deep and coordinated workforce, culture, and technology shifts that enable new educational and operating models and transform an institution’s operations, strategic directions, and value proposition.

So, what shifts in workforce, culture, and technology are under way in higher education today, and how do those shifts relate to the EDUCAUSE 2020 Top 10 IT Issues? The 2019–2020 IT Issues panelists discussed each of these shifts in the context of the Top 10 IT Issues.

#1. Information Security Strategy: Developing a risk-based security strategy that effectively detects, responds to, and prevents security threats and challenges

Workforce Shifts
The need for skilled cybersecurity leaders continues to outpace the supply in higher education. Some institutional leaders are applying more flexible solutions, such as hiring contractors. Others are recognizing that effective cybersecurity leadership requires strong change and people management skills. They are focusing on recruiting people with those soft skills and then providing cybersecurity training to help new hires acquire the needed technical skills on the job.

Culture Shifts
Institutional leaders are realizing that they share responsibility for effective security. People are more accepting of added constraints and more willing to learn and act on what they’ve learned.

Technological Shifts
Artificial intelligence (AI) is providing more effective network analysis and threat-hunting capabilities.

#2. Privacy: Safeguarding institutional constituents’ privacy rights and maintaining accountability for protecting all types of restricted data

Workforce Shifts
Colleges and universities are more likely to appoint privacy officers, a new role that was in little evidence several years ago.

Culture Shifts
New compliance requirements like the EU’s General Data Protection Regulation (GDPR), along with the burgeoning use of people’s data, have made faculty, staff, and students very aware of the privacy trade-offs of giving up information in order to gain a data-rich culture. People are bringing that consciousness to the workplace, where it is entering discussions and influencing decisions about the use of individuals’ data.

The scope of data architecture and analytics oversight has expanded beyond enterprise data to departmental and other local systems and data stores. Data owners and administrators throughout the institution are being held more accountable for the data they create and manage.

Technological Shifts
With this newfound awareness of and commitment to privacy, institutional leaders are more willing to invest in technologies to protect privacy, and end users are more willing to adopt data-protection practices that they would once have considered too onerous (e.g., tokens, centrally managed laptops).

Technologies, especially those that employ AI to identify and act on sensitive data, are getting more effective and automated.

#3. Sustainable Funding: Developing funding models that can maintain quality and accommodate both new needs and the growing use of IT services in an era of increasing budget constraints

Workforce Shifts
Two widespread workforce shifts—shared services and cloud-first strategies—are changing the way staff work, enabling a reduction in and/or more effective use of funds. When done well, shared services can consolidate resources to deliver common services at consistent,
negotiated service levels, freeing up staffing and funds to use for other needs or for savings. Cloud-first strategies can move IT staff closer to the end users as they transition from supporting technologies to supporting services and missions.

A sustainable IT funding model can and should include funding for training staff, again ensuring that staff are more relevant and productive.

**Culture Shifts**

More institutional leaders are willing to make the often difficult decisions to sunset services that are duplicative or underused. Those decisions can help defray other funding needs without eliminating important services or reducing service levels.

**Technological Shifts**

As noted above, cloud computing has significantly changed IT funding and service delivery. Although cloud infrastructure and services have brought new costs, they can make service levels and budgeting more predictable and enable institutional technology staff to focus more closely on mission-related needs.

**#4. Digital Integrations:** Ensuring system interoperability, scalability, and extensibility, as well as data integrity, security, standards, and governance, across multiple applications and platforms

**Workforce Shifts**

Skill sets are changing. IT leaders are ensuring that their technical staff receive the training and opportunities needed to be able to work within the new technical environments. For example, recognizing that the development work is shifting toward integrations, institutional leaders are moving to hiring more solution-integration developers rather than application-specific developers.

**Culture Shifts**

The institutional community sees that systems and data can no longer live in independent silos. Early data governance efforts that may have devolved into parallel, siloed data management activities are being reinitiated at campuses to achieve truly integrated data governance models. What goes for data also goes for organizations, and departmental leaders are beginning to see the necessity and the value of working collaboratively. This pertains to both business departments and distributed and central IT organizations.

Institutional procurement is partnering more closely with the IT organization to ensure that technology purchases, wherever they occur throughout the institution, are coordinated with IT staff to determine the need and potential for digital integrations before a purchase occurs.

**Technological Shifts**

Integration tools are evolving considerably and rapidly to make digital integrations easier and more powerful. End users’ needs are starting to move IT staff to adopt better processes and technologies. For example, end users are pressing for technologies, such as multifactor authentication, to better and more seamlessly manage and protect their digital identities.

**#5. Student-Centric Higher Education:** Creating a student-services ecosystem to support the entire student life cycle, from prospecting to enrollment, learning, job placement, alumni engagement, and continuing education

**Workforce Shifts**

Institutional leaders are looking at ways to deliver lifelong learning at scale. Colleges and universities are offering flexible degrees and continuing education and are partnering with companies and organizations that can connect students directly to the workforce.

**Culture Shifts**

Applications and services are being redesigned with the student experience in mind. More information and services for students are available via mobile apps. Institutions are creating integrated services to help students connect with their classes through the learning management system, find and enroll in classes, and pay their tuition bills.

**Technological Shifts**

Institutions have better customer relationship management tools to help tailor the student experience from high school through graduation. These tools provide additional functions to track and assist students. Technologies and services are being reengineered to enable a consistent experience that onboards, educates, and connects students and that offers lifelong learning.

**#6. Student Retention and Completion:** Developing the capabilities and systems to incorporate artificial intelligence into student services to provide personalized, timely support

**Workforce Shifts**

Student success initiatives are changing roles and responsibilities of faculty and staff alike. The need for business intelligence and analytics competencies is growing across roles. For example, faculty are spending more time advising students and contributing information about their work with students to student success efforts. All staff supporting students are learning how to respond to early alerts and warnings.

**Culture Shifts**

Higher education institutions are building student success and retention cultures that hold all stakeholders accountable. For many colleges and universities, managing and measuring engagement is the starting point. This forces the institution to define engagement in measurable terms—for example, library visits, attendance at athletic or social events, time spent in dorms or cafeterias, or the...
colleagues with whom students are most likely to work in classes. Institutions are focused on becoming more responsive and nimble in understanding and meeting students’ needs, viewing students as customers.

**Technological Shifts**
Institutional leaders are building real-time, comprehensive data warehouses to support the data needs of student success initiatives. They are also investing in analytics and AI technologies to move into predictive analytics and geo-technologies to give students information based on the time, their location, and their interests and needs.

**#7. Improved Enrollment:** Using technology, data, and analytics to develop an inclusive and financially sustainable enrollment strategy to serve more and new learners by personalizing recruitment, enrollment, and learning experiences

**Workforce Shifts**
Enrollment and student success initiatives are leading to new roles, expectations, and organizational structures. Institutions are centralizing more services, including advising. Student workers are valued not just for what they do but also for their ability to understand and advocate for students’ needs.

IT professionals are more deeply involved with the business of enrollment than previously because they can provide analytics and AI solutions. Enrollment leaders are relying on technology professionals to help them develop, interpret, improve, and apply data models.

**Culture Shifts**
Enrollment, recruitment, and student retention and success are becoming everyone’s responsibility in higher education. Faculty and staff are encouraged to connect with and support disaffected or struggling students. IT staff have jobs and skills that students may desire; a conversation with an IT professional can thus help students get excited about their future and better understand the relevance of their education to attaining that future.

Institutional leaders are also encouraging staff to question both the status quo and the rationale for new initiatives. The result—whether it is a staff member’s deeper understanding and acceptance or an organization’s recognition that change is needed—is beneficial and empowering.

**Technological Shifts**
Greater and more sophisticated applications of analytics and AI technologies are the primary technological shifts that institutions are making. Internet of things (IoT) technologies are among the sources of new data to help model student retention and apply that model to predict successful enrollment. Institutions are also meeting students where they are, by using social and mobile technologies to recruit and communicate with students.

**#8. Higher Education Affordability:** Aligning IT organizations, priorities, and resources with institutional priorities and resources to achieve a sustainable future

**Workforce Shifts**
Affordability management is becoming a new competency. Leaders and supervisors are being asked to use initiative and creativity within their areas to reduce waste, increase value, and make higher education more affordable.

Faculty are no exception. Faculty are becoming co-owners of affordability and are being asked to prioritize it in their choices about educational materials. Some institutional leaders are taking a default approach to adopting open educational resources (OER) by advocating for their use whenever possible. When degree programs require specific equipment, such as iPads instead of textbooks, the equipment must be used in enough courses to offset the device cost by demonstrating the elimination of at least the equivalent expense in previously required textbooks. When faculty recognize such guidelines as strategies to increase affordability for students, rather than as strictures to reduce their pedagogical autonomy, they are motivated to change.

**Culture Shifts**
Institutions are using two persuasive levers to change hearts and minds. When presidents personally address costs as a top priority, especially by using positive language (e.g., “Let’s see how we can make our school an affordable school”), they help everyone in the institution to view the challenge not only as reducing costs but also as addressing many of the root causes of affordability (e.g., food and housing insecurities).

The student voice is the most eloquent of all. Student senators are voting to address affordability and are advocating directly to institutional leadership. Students are speaking up—and being heard—about both the traditional (e.g., tuition and expenses) and the nontraditional (e.g., transportation, childcare, planning and scheduling) drivers of affordability.

IT organizations are being viewed differently as well. Increasingly, they are being asked to help address cost issues in other departments or to partner in developing programs or implementing software services to facilitate scholarship matching or in enabling access to open digital materials. This is shifting the perception of information technology from a cost driver to a resource for affordability and cost management.

**Technological Shifts**
Technology has much to offer in the realm of cost management and reduction. Students’ suggestions can guide the choices, such as using technology to optimize scholarship distribution by auto-granting awards or matching student profiles to scholarships to ensure that all scholarships are awarded.

Many shifts entail more powerful uses of existing technologies. Online learning, of course, can be used to increase affordability, provided that is the focus rather than to increase institutional income.
Online master’s programs are particularly popular, to expand enrollment for working students who want to earn this additional credential without leaving the workforce for two years or incurring significant debt.

OERs, long advocated by libraries, are becoming key to an institutional affordability strategy. Some institutions are building zero-textbook-cost, known as “Z-degrees.”

Finally, laptop loaner programs are entering a new generation. For example, vending machines can dispense laptops to students for several hours at no cost, providing both convenience and affordability to students who can afford an inexpensive desktop more easily than a laptop.

#9. Administrative Simplification: Applying user-centered design, process improvement, and system reengineering to reduce redundant or unnecessary efforts and improve end-user experiences

Workforce Shifts
Institutions are attracting fewer young staff than in the past. As administrative simplification efforts lead to modernization, the work environment will include fewer legacy technologies and more innovative technologies that can appeal to younger workers.

Culture Shifts
Simplification changes the work, and that changes the culture. Staff are becoming more open to initiating change, streamlining work, and working within teams. Many are motivated by the lack of resources. As budgets tighten, administrative hires are less likely to be approved than academic hires. Introducing efficiencies that save staff time can be just as helpful as adding new staff.

Change begets change. As staff gain experience with change, they are more open to the ongoing change that continuous improvement brings, which increases the likelihood that administrative simplification itself will evolve from a series of initiatives to simply the way work gets done.

Technological Shifts
The dominance of the enterprise application portfolio by enterprise resource planning (ERP) systems is waning as institutions acquire and integrate new best-of-breed solutions. This diffusion of functionality across applications lends itself to adding useful special-purpose applications, provided the institution has sufficient integration resources and capabilities.

Data is more useful than ever. User-focused services that bring data to the end users, at the right time, empower both the institution and the end user. Institutions are revisiting end-user license agreements to ensure they meet today’s newfound needs.

#10. The Integrative CIO: Repositioning or reinforcing the role of IT leadership as an integral strategic partner of institutional leadership in supporting institutional missions

Workforce Shifts
Growing numbers of CIO job descriptions include the requirements and experience to serve as an integral strategic partner with institutional leadership in supporting institutional missions. Some colleges and universities are recruiting CIOs differently and are prioritizing strong business skills over IT skills. Some are hiring academic leaders, who bring an understanding of how the institution may and could work as a whole.

The IT workforce is also adapting. IT organizations are becoming more consultative, gathering requirements and needs from instructors, researchers, students, and administrators to identify “the best, brief solutions” rather than relying primarily on monolithic enterprise solutions. CIOs are asking their staff to develop business analytics and data competencies in order to grow the analytics capabilities of the IT organization.

Institutional leaders who hire integrative CIOs have started to think differently, which influences expectations of the entire institutional workforce. Everyone at the institution should have at least digital literacy, and perhaps digital fluency, to respond to the digital revolution. All institutional faculty and staff must also become comfortable with undertaking continual learning as a core component of their jobs and with adapting roles, jobs, and organizations as a core condition of the workplace.

Culture Shifts
Partnerships and cross-functional teams are becoming commonplace, and much needed, to address institutional priorities such as student retention. Where partnerships thrive, silos dissolve, and the institutional culture becomes more flexible.

Innovation isn’t possible without experimentation, involving trial and error. Continuous improvement is becoming an essential part of the culture at some higher education institutions, and many are adopting design strategy approaches and the mantra “fail faster” as shorthand for flexibility, learning, and innovation.

Technological Shifts
Technological shifts (e.g., the move to cloud computing) have made it possible for CIOs to step away from the technical weeds and build teams and personal skills to focus on business and mission value. By itself, commoditizing IT services could have marginalized the IT organization. But thanks in large part to the explosion of analytics technologies, CIOs have a new super-power: they know how to harness data, predictive analytics, and AI for such core institutional priorities as management decisions, personalized admissions and student support, and research and scholarship. They know what’s possible better than most other, or perhaps any other, institutional leaders. Analytics has helped CIOs position themselves strategically.

Note
1. Preliminary results from the forthcoming EDUCAUSE study on the digital transformation landscape.

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