Why IT Matters to Higher Education

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SPECIAL REPORT

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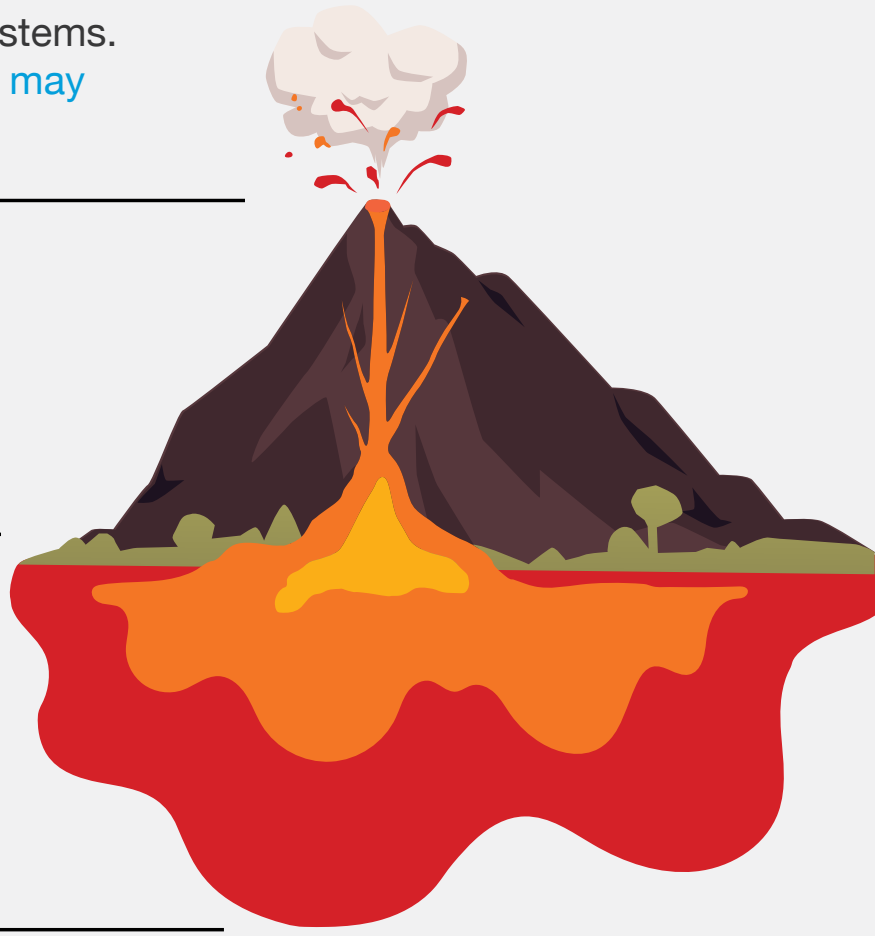

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Introduction: Digital Transformation and the Future CIO

By John O'Brien and Betsy Reinitz

As colleges and universities made pivot after pivot during the COVID-19 pandemic, they were also building the kinds of institutional competencies necessary for digital transformation (Dx). The pandemic required institutional leaders to respond to students' quickly shifting needs with agility and flexibility, to use strategic leadership to guide their institutions through disruptive changes, and to prioritize tight resources by focusing more closely than ever on advancing their institutional strategies. These pandemic outcomes of greater responsiveness, stronger strategic leadership, and increased alignment with institutional strategy happen to closely match the competencies that contribute to a successful digital transformation. The CIO can play a critical role in future Dx efforts by taking advantage of these newfound characteristics.

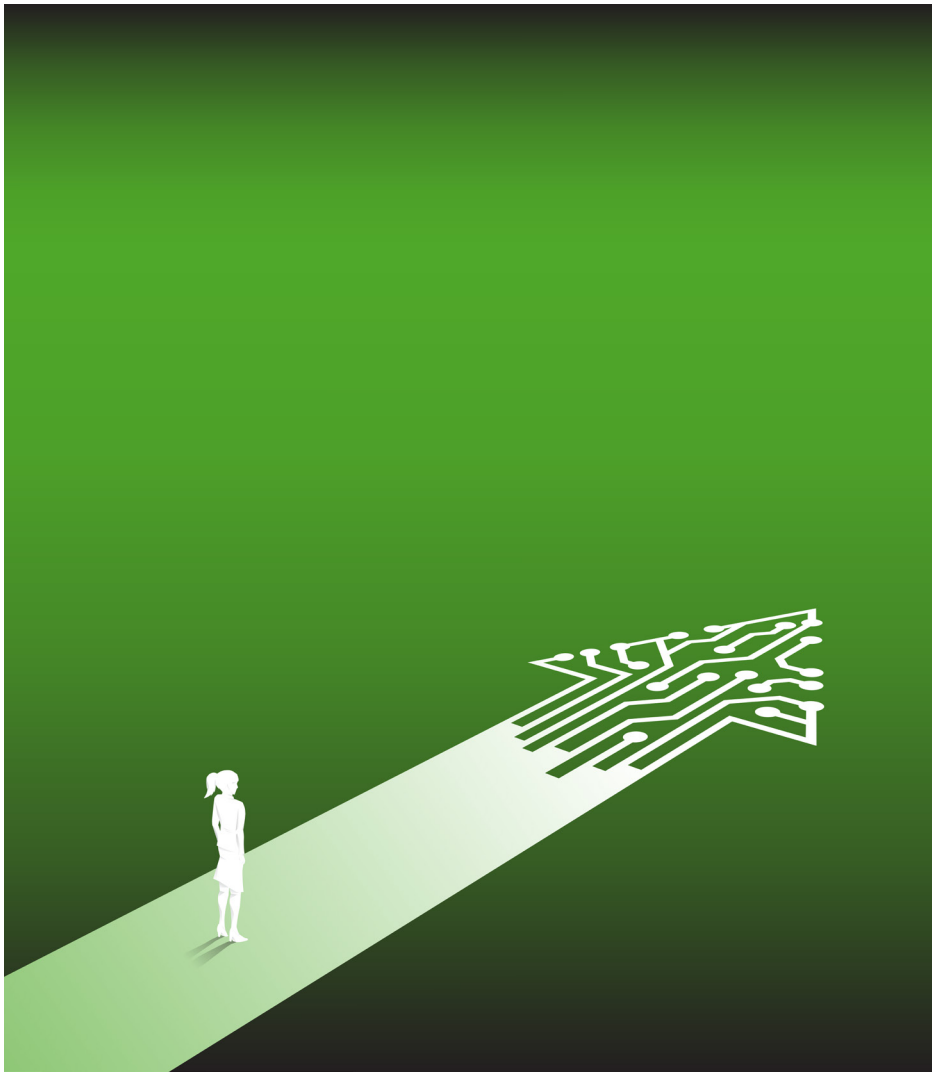
EDUCAUSE defines *digital transformation* as "the process of optimizing and transforming the institution's operations, strategic directions, and value proposition through deep and coordinated shifts in culture, workforce, and technology."[1] This definition suggests an intentionality of effort requiring both strategic leadership from CIOs and an enterprise-wide commitment to institutional change. Strategic IT leaders understand the grand challenges that institutions are facing. They know what keeps other campus leaders up at night, and they proactively bring solutions to the table. They build collaborative relationships across the campus. They enhance campus decision-making by bringing data to key conversations. They understand the non-IT enterprise, and they help IT staff connect the dots in a bigger picture that goes beyond their traditional sphere of influence.

The strategic CIO who is also a champion for **digital transformation sets the stage for the rest of the IT organization to become more innovative.**

Changes in institutional strategic direction are difficult to pull off, however, and the leadership challenges involved in guiding colleges and universities through these changes are daunting. A Dx strategy can help, especially one that offers the CIO a roadmap by outlining institutional changes through the accompanying shifts in culture, workforce, and technology. Of those three shifts, the culture change is often the hardest. CIOs have an opportunity to act as strategic partners at their institutions by focusing on the types of culture shifts that foster digital transformation: cross-institutional alignment on goals, the use of data and analytics for strategic decision-making, flexibility in response to evolving needs, and increased change management competencies.

The strategic CIO who is also a champion for digital transformation sets the stage for the rest of the IT organization to become more innovative. As the institution develops a Dx-oriented culture and advances its Dx initiatives, IT leaders and staff need to support movement into new areas and evolve areas such as information security, enterprise architecture, IT governance, and IT service management.

The strategic CIO also understands the importance of aligning these IT priorities with the institutional mission. Digital transformation elevates that importance even higher. The CIO and the



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IT organization need not only to align with the mission but also to actively engage beyond the boundaries of their traditional roles, develop a broad understanding of higher education trends, and support the Dx-driven future of the institution. ■

Note

1. Susan Grajek and D. Christopher Brooks, "A Grand Strategy for Grand Challenges: A New Approach through Digital Transformation," *EDUCAUSE Review,* August 10, 2020.

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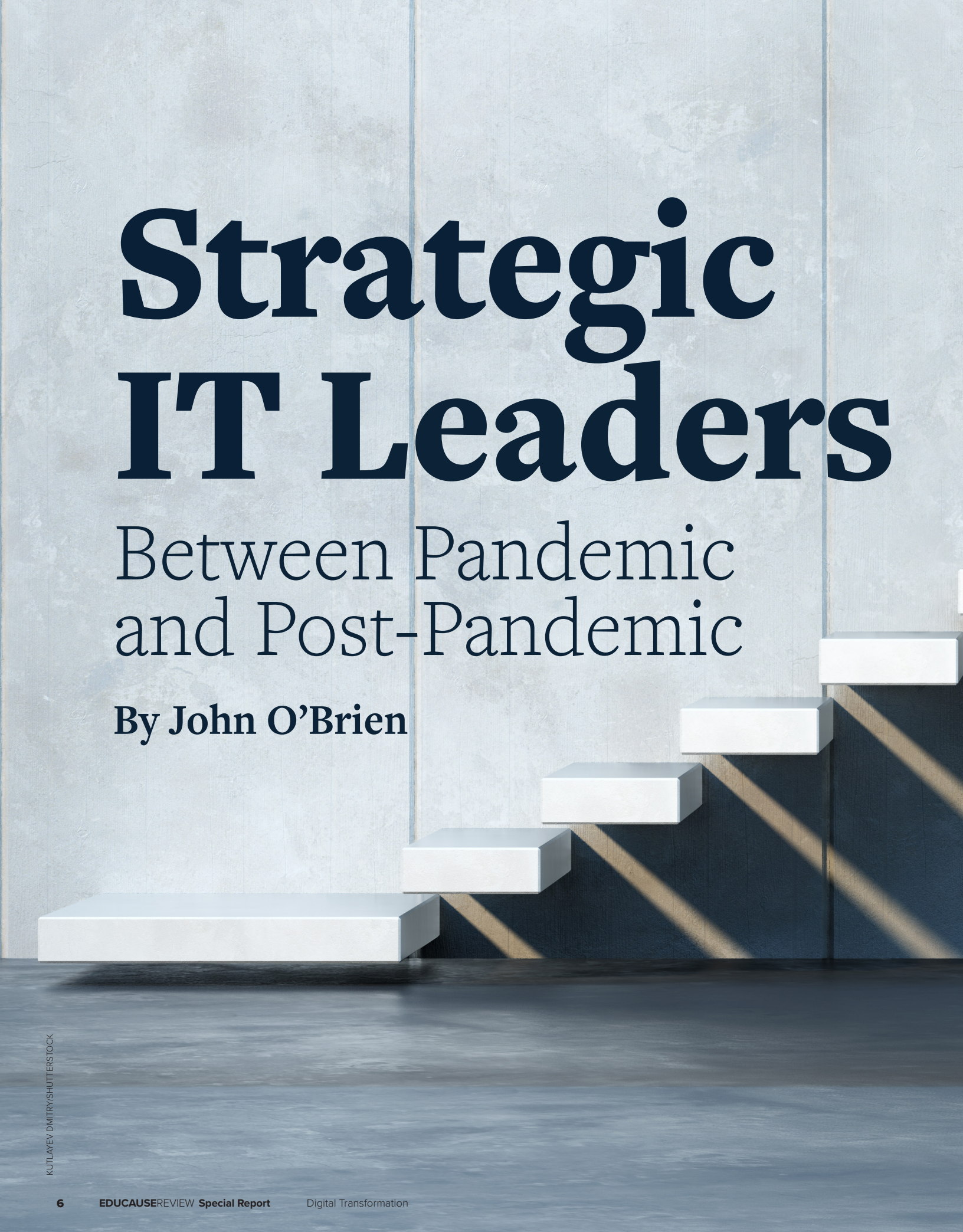
Strategic IT Leaders

Between Pandemic and Post-Pandemic

By John O'Brien



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IT leaders and IT staff are running on fumes—but still running, and running hard.

Yet the adrenaline rush will undoubtedly fade, and our collective heart rate will slow in the months ahead. Eventually, we will find ourselves talking about this 100-year pandemic in the past tense. In the meantime, however, IT leaders are presented with a unique opportunity to build on all that they accomplished in the mad rush to create "online everything."

As proposed by the EDUCAUSE Top IT Issues analysis for 2021,[1] we could simply *restore* things to the way they were in February 2020. Or we could *evolve* and adapt to the next normal. But for many, the chance to do so much more—to *transform* our institutions—is most compelling. Between pandemic and post-pandemic, IT leaders need to take some deliberate steps to make "strategic IT" an irreversible feature on the higher education landscape.

Events from the time of the COVID-19 Great Pivot and onward have dramatically elevated the strategic value of technology and technology innovation. When American Council on Education President Ted Mitchell spoke at the EDUCAUSE annual conference a year and a half before the pandemic, he noted that only 12% of surveyed college and university presidents viewed information technology as an important area of strategic development.[2] In 2021, the tables are turning. An EDUCAUSE QuickPoll in October 2020 clearly demonstrated the elevation of both operational IT and strategic IT. Two-thirds of respondents saw operational influence of IT "increase or increase greatly," while 56% saw strategic influence similarly elevated. Comments in this QuickPoll referred more than once to the genie being "out of the bottle," and over 80% of respondents said they are either moderately or very confident that this influence will persist after the pandemic.[3]

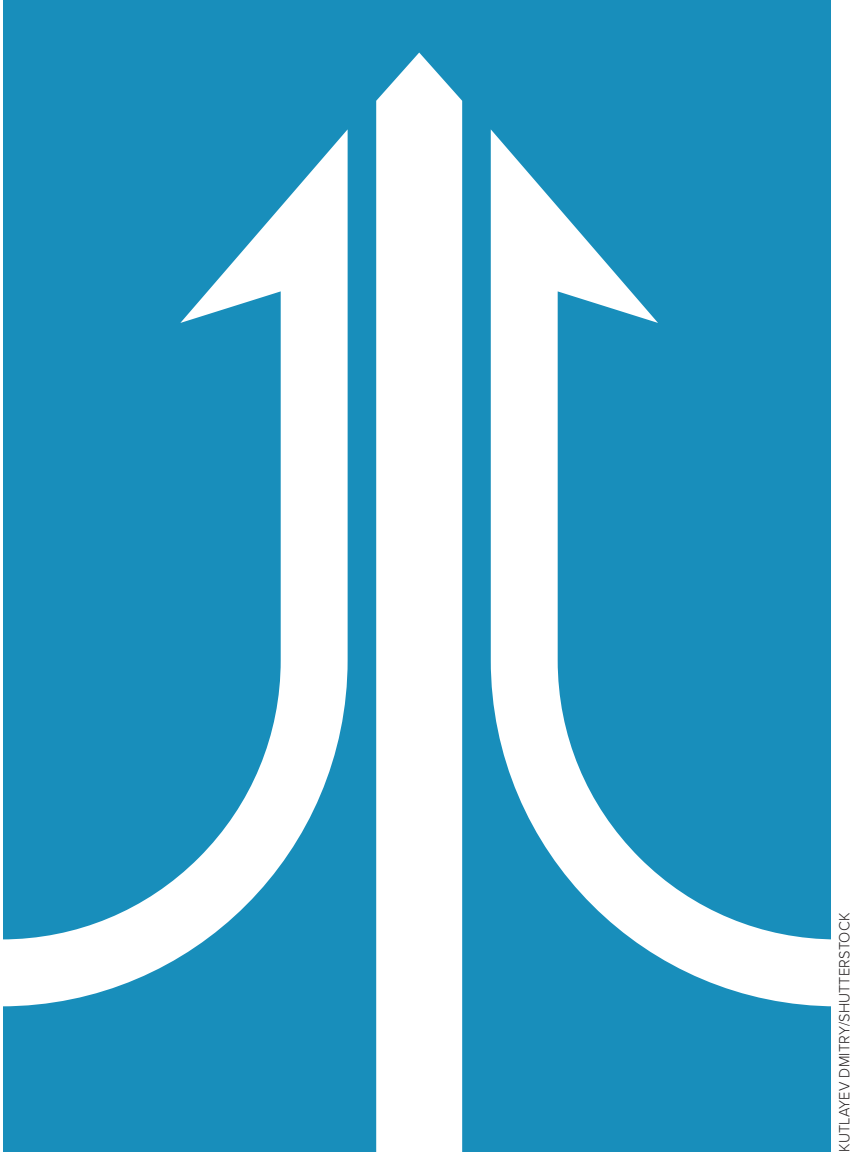
EDUCAUSE will continue to advocate for strategic IT among presidents and other senior leaders, and we are encouraging campus IT leaders to build on the hard-fought influence they have earned during the crisis. Below I offer three ways they can do so.

Become Strategically Indispensable

Because technology has created a lifeline for remote learners and workers, few would question that it is indispensable. But IT leaders never tire of saying "It's not about the technology, it's about the people," and this maxim remains true. The technologies in the years ahead will come and go, but technology leadership is critical. Strategic IT leaders are talking not just about the technologies but about the Grand Challenges that campuses face now and will face post-pandemic.[4] These leaders know what keeps presidents awake at night, and they bring technology solutions to the table proactively, whether the challenge is enrollment, marketing, student success, research, or the "student experience" more generally. These IT leaders are building on the relationships forged or deepened in fire-fighting mode and are determined to continue the conversations with senior leaders and C-suite colleagues. They are not silently waiting for something to break or for someone to use the word *technology* so they can spring into action. They are bringing metrics and data to campus conversations and are connecting the dots in a bigger picture than their traditional domain. They are working hard to better understand the non-IT enterprise, and at the same time they are building empathy and understanding about the exigencies of technology innovation and execution. The effective IT leaders who made strong impressions on me when I was a president or provost were those who actively listened to non-IT discussions, asked clarifying questions, and—either in the moment or as a follow-up communication—suggested solutions without waiting to be asked. Whether we agreed on any

given technology solution wasn't the point; what mattered was that these leaders offered strategic counsel and understood how strategic IT fit into the puzzle of the Grand Challenges we faced.

At institutions where the role of the IT leader is not seen as strategic, IT leaders may be tempted to revert to past practices. These IT leaders may not be on the cabinet or may not even enjoy regular, strong connections with presidents and other senior leaders. As a result, their focused interactions with C-suite leaders may be reserved for making funding pitches or whittling away at IT-differed maintenance. Unfortunately, that role will always be perceived as more transactional than strategic—and largely unwelcome, given the eternal realities of limited funding. This is particularly true when the pitch is fear-based (e.g., "If I don't get funding for X, the sky will fall in the following ways"). This time-tested approach is enticing because it has worked in the past. But this "Chicken Little" approach is not strategic, and now is the time to find another model, one in which IT projects don't just plug holes but, instead, contribute to solving Grand Challenges. As I have stressed repeatedly, "what got us here won't get us there."[5]



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Strengthen Collaborative Skills

In past EDUCAUSE research, IT leaders have acknowledged that being a collaborative, "integrative" leader—one embedded in the work of those areas supported by IT—is crucial. IT leaders have also admitted that they have room to improve their collaborative skills, as do non-CIO managers and non-managers.[6] The massive disruption of the pandemic (e.g., median 10% IT budget cuts)[7] presents an opportunity to reimagine IT departments to become *built for collaboration*. "Utility IT" requires brilliant tacticians to work brilliantly behind the scenes, but strategic IT departments rely on more than tactical genius and technical skills. Post-pandemic strategic IT needs to be connected to other departments and be more proactively aware of the departments' challenges and needs. These IT organizations are embedded in departments, to varying degrees, so that they learn about technology dreams or concerns before it is too late to make a difference. These strategically collaborative IT departments know, through regularly benchmarked survey data, how they are perceived. They ask students, faculty, and other staff where they may have hit or missed the mark. They measure their effectiveness with the stakeholders they serve, and they hold themselves accountable for making and sustaining the connections needed.

IT leaders have a chance to change how they think about their strategic role and the strategic assets they bring to the table. And there is reason

Figure 1. Visual from the EDUCAUSE Dx Journey Map

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to think that others on campus are ready for this sea change to come about. IT leaders should be resolutely focused on building, across their organizations, the kind of collaborative service approach that has been the source of the elevated influence of IT over the last year.

Tell the Story of Digital Transformation

Perhaps one of the more compelling ways IT leaders are accomplishing a strategic focus is by starting, amplifying, and/or accelerating conversations with other senior leaders about digital transformation (Dx). To help these efforts, EDUCAUSE has created an interactive *Dx Journey Map* (see figure 1). It offers an elegant, visual way of telling the story of digital transformation to non-IT campus leaders. Some IT leaders, lacking senior leadership support, may hesitate to launch a conversation about Dx on their campus. But digital transformation is more than just a trendy phrase: there may be no better way to highlight strategic IT than to put it in this broader institutional context and thereby build the needed support. IT leaders can "walk the talk" of Dx by demonstrating how—with culture, workforce, and technology changes happening in lockstep—institutional transformation is truly possible.

As Southern New Hampshire University President Paul LeBlanc has written so compellingly, technology can allow us to do what we have been doing—but do it better. Technology can allow us to do what we've been doing—but do it less expensively. And with creative and collaborative leadership and a culture that expects innovation, technology can allow us to reinvent—that is, *transform*—what we do.[8] With the opportunity to reinvent IT leadership as well, the golden moment before us becomes both illuminating and exhilarating. ■

Notes

1. Susan Grajek and the 2020–2021 EDUCAUSE IT Issues Panel, "Top IT Issues, 2021: Emerging from the Pandemic," *EDUCAUSE Review,* November 2, 2020.
2. His featured session was published as Ted Mitchell, "Changing Demographics and Digital Transformation," *EDUCAUSE Review,* 54, no. 1 (Winter 2019).
3. D. Christopher Brooks, "EDUCAUSE QuickPoll Results: Senior IT Leadership," *EDUCAUSE Review,* October 9, 2020.
4. Susan Grajek and D. Christopher Brooks, "A Grand Strategy for Grand Challenges: A New Approach through Digital Transformation," *EDUCAUSE Review* 55, no. 3 (2020).
5. John O'Brien, "Strategic IT: What Got Us Here Won't Get Us There," *EDUCAUSE Review,* 53, no. 6 (November/December 2018).
6. Ibid., Figure 4. See also Malcolm Brown, "Integrative Leadership: A Necessary Ingredient for Dx," *EDUCAUSE Review,* September 1, 2020.
7. Susan Grajek, "EDUCAUSE QuickPoll Results: IT Budgets, 2020–21," *EDUCAUSE Review,* October 2, 2020.
8. Paul LeBlanc, "When IT No Longer Remains Anonymous—For All the Right Reasons," *EDUCAUSE Review* 50, no. 6 (November/December 2015).

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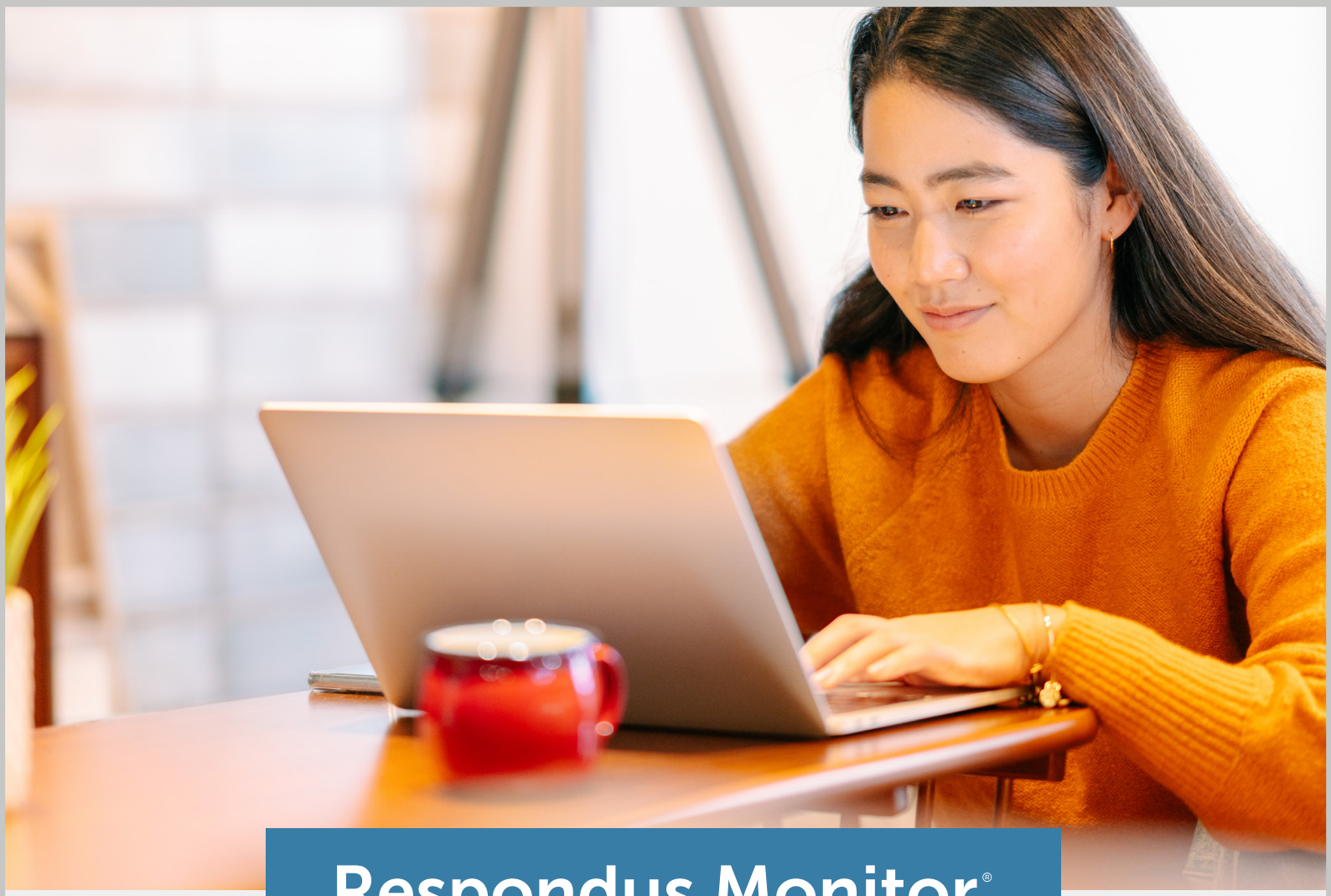

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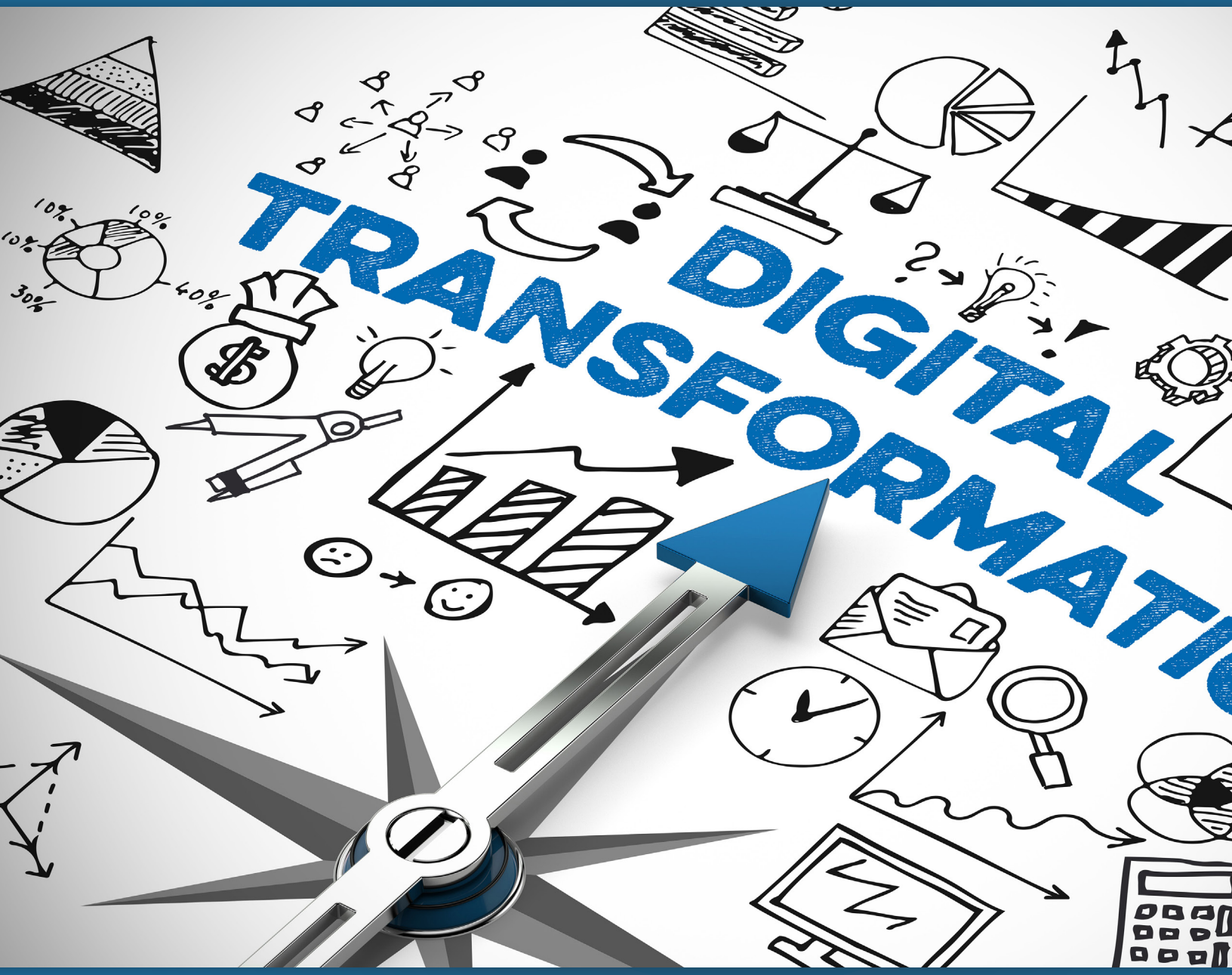

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GETTING READY FOR DIGITAL TRANSFORMATION

Change Your Culture, Workforce, and Technology

By Susan Grajek and Betsy Reinitz

In the context of sweeping social, economic, technological, and demographic changes, digital transformation (Dx) is the use of digital resources and technologies to optimize and transform the institution's operations, strategic directions, and value proposition. Going beyond tactical or ad hoc innovation, successful Dx entails a series of deep and coordinated culture, workforce, and technology shifts.

Dx is being driven by technology trends and changes that are enabling a new approach to everything from how digital architectures are being incorporated to how campus leaders interact with the IT organization, all targeting improved student outcomes, more effective teaching and learning methods, new research capabilities, and an evolution in business models. Dx requires agile and flexible leaders at all levels who can enable the college or university to rapidly and efficiently achieve its strategic aims.

JACKIE NIAM/SHUTTERSTOCK

Many of the changes associated with Dx not only are having an inexorable impact on the day-to-day ***work of IT professionals but also are creating the need for new skills and competencies across the institutional community.***

Culture Shifts

Dx requires a new approach to how campus leaders interact with each other—an approach that entails a laser focus on progress toward institutional goals, a broad emphasis on change management, and an increase in institutional agility and flexibility to meet rapidly changing needs. A higher education Dx culture requires campus leaders to form new and re-imagined partnerships across the institution in order to identify and work collaboratively to meet business needs, make informed decisions quickly, balance risks and rewards, and introduce innovations and improvements widely and rapidly. This culture is also focused on the end-to-end experience of students, researchers, educators, staff, and all those who touch the institution.

Expect the following culture shifts as part of a successful digital transformation strategy:

Leadership and Collaboration

- Leadership support and involvement at the highest levels will be necessary, enabling alignment across campus between institutional mission/goals and departmental efforts. This high-level support will be especially needed when departments across the institution are working on increased student success and a seamless student experience. For the campus to achieve this level of student UX and overall success, unprecedented levels of cross-organizational collaboration will be needed.
- There will be a greater emphasis on coordination, collaboration, and shared goals. Consensus-based decision-making and the ability of strong voices to veto decisions will impede progress. Leaders and their campus partners will need to develop a culture of trust that is corroborated by accountability and data.
- Information technology and IT leadership will become embedded into institution-wide strategic planning, and procurement at all levels (from leadership to projects to services). Accordingly, the IT organization must be charged and staffed with the means to discover and invent new digital strategies, architectures, and technologies to enable the institution to meet its many challenges.

Strategy and Process

- Leaders will develop a sharper focus on institutional and student outcomes.
- New, creative strategic directions, made possible in part by new technologies and

greater use of data, will lead to institutional differentiation, requiring alternative business and funding models.
- As change will continue unabated, institutional priorities and investments in technology, human resources, and other core institutional functions and business processes will need to be flexible and agile in order not only to shift in response to changes but to anticipate future changes.

Data and Analytics

- A reliance on data and analytics for making decisions, tracking progress on goals, and adjusting the institutional course will increase.
- Business models will evolve to reflect a data-informed and continuous-improvement approach to management and decisions.
- Institutional leaders will need to emphasize and support institution-wide data governance, prioritizing institutional benefits over departmental or individual benefits.
- Rich data and interface platforms, equipped with improving AI components, will drive automation and pattern recognition in areas such as student well-being, student achievement, and administrative tasks.

How to support these shifts:

- Leaders will need to practice strategic innovation focused on key institutional goals and ambitions.
- Decision-makers will need to become adept at change management and risk management, with a shift away from risk aversion.
- Institutional leaders and boards will need to consider new strategic directions to meet 21st-century challenges and opportunities.
- Leaders will need to define transformation goals and then set up matrixed response teams to execute on the transformations.

Workforce Shifts

Many of the changes associated with Dx—such as the increased role of data and analytics; the advent of AI, the cloud, and mobile technologies; increasingly complex digital architectures; and the growth in personalization and user-level control, social network use, and storage capacities—not only are having an inexorable impact on the day-to-day work of IT professionals but also are creating the need for new skills and competencies across the institutional community. The result is lost jobs and new jobs, not just within the IT field but across the entire higher education workforce. In addition, socio-political changes are introducing new expectations of the current and entering workforce at the same time that they are bringing their own shifting expectations of the workplace. All these changes are creating new opportunities and threats and demanding a reinvention of human resource management.

Expect the following workforce shifts as part of a successful digital transformation strategy:

New Roles and Jobs

- Institutional reliance on data-related competencies, vendor relationship management, enterprise architecture, and professional skills such as communication, critical thinking, and teamwork will increase. The entire workforce will need technology and data skills. The IT workforce will need to fully understand business unit functions and goals in order to serve the institution.
- New leadership roles will be required in areas such as student success, innovation and transformation, data and analytics, and enterprise architecture.
- Faculty roles will change to include an emphasis on advising and student success and a need to re-create and continuously adapt teaching and mentoring practices to reach changing demographics, use new techniques and tools, and make data- and evidence-based pedagogical decisions.
- Researchers will need to learn new research techniques, adopt a research approach that includes students as collaborators and contributors, and collaborate more frequently and deeply with other faculty and with other professionals. There will be a blurring and re-forming of academic disciplines.
- Researchers and scholars will apply digital methods such as computation, analysis, and visualization more comprehensively to their work. Institution-level research services (including research data management) will be more integrated, at point of need, and available across the research life cycle and across fields.

New Skills and Competencies

- Leaders will make a new commitment to the integrated provision of customer-centric quality services. Continuous improvement,

service management, change management, agility, and flexibility across all roles will by key. User-centered and customer experience design will become critical to delivering the hyper-personalized experience.
- The need for data literacy, management, and analysis skills across all areas of the institution will increase as data becomes the currency for institutional decision-making and for automation.

How to support these shifts:

- Institutional leaders will need to learn how to reskill and restructure their workforce often and rapidly, requiring institutional-level coordination and strategy. Leaving this work to individual managers or departments will result in chronic recruiting and retention challenges and staffing inefficiencies.
- Technical and business functions will continuously evolve; incumbents as well as new hires must be ready to adapt to a shifting landscape that requires regularly learning new skills and rapidly adjusting job descriptions, roles, and jobs throughout their career.
- Technical and business functions will continuously evolve; incumbents as well as new hires must be ready to adapt to a shifting landscape that requires regularly learning new skills and rapidly adjusting job descriptions, roles, and jobs throughout their career.
- An institutional commitment to advancing diversity, equity, and inclusion will become the norm, in order to take advantage of the value that a diverse workforce brings, to provide an optimal work environment, and to attract quality staff with the diverse skills and perspectives needed to fuel strategic transformation.
- Supporting work-life balance with flexible schedules and work locations while offering professional development, training, and career growth will be viewed as good management and a way to attract and retain the best talent. Remote work will extend the geographic pool from which institutions can draw and will become a mitigation against weather-related disruptions and disasters.
- Institutional leaders will need to cultivate the talent pipeline to retain promising staff members early in their careers.

Technology Shifts

Technology will continue to change, with astonishing speed and with consequences that are difficult to predict, much less prepare for. These changes include the way technology is managed, what technologies are available, the power and speed of technology, and how technology is applied. IT leaders must adopt innovative practices and create digital environments that provide unprecedented agility and flexibility. At the same time, they must also manage a complex and ever-changing technology ecosystem in a way that enables the institution and its academic and business units to rapidly and efficiently achieve its strategic aims. New technologies do not by themselves bring about Dx. Institutional Dx initiatives can succeed only through the *strategic application* of a changing set of technologies in support of the institutional missions.

Expect the following technology shifts as part of a successful digital transformation strategy:

Sourcing and Scaling

- The sourcing and control of technologies will shift and consolidate as infrastructure and services move to the cloud, as platforms merge, and as new services emerge.
- An increased exploration of and movement to shared and consolidated services and standards, including shared services models that span institutions, will reduce the cost of commodity services and increase affordable interoperability.

Technology Management

- Enterprise architecture will play a major role in aligning services to institutional needs, designing services to enable business outcomes, managing data to enable decision-making and future opportunities, streamlining business processes, and balancing trade-offs in solutions (e.g., functionality, life-cycle costs, risk).
- Methods and processes for managing technology will continue to evolve with an increase in service and product management efforts and project management offices.
- The challenges of information security will continue to expand and become more complex as threats become more sophisticated and increase in both frequency and severity. Meanwhile, the available tools will also grow, requiring an increasingly technologically sophisticated approach to information security.

Personalization and Individuation

- Individuals on campus will have the ability to make increasingly consequential technology investments. IT leaders will work more closely with faculty, researchers, and staff to help them make decisions with a full awareness of security requirements and other technology investments across the institution.
- All stakeholders will expect greater and more relevant personalization.

Emerging Technologies

- The use of emerging technologies—such as extended reality (XR), robotics, blockchain, and internet of things (IoT) technologies—will rapidly expand across the spectrum of institutional missions and will do so seemingly overnight.
- Digital technologies will open new opportunities for higher education's missions and priorities (e.g., via ever-greater computation capacities and XR simulations).
- New architectures will provide greater degrees of digital agility, enabling the institution's digital resources to keep pace with the degree and rapidity of strategic change.

How to support these changes:

- IT leaders will need to work with institutional leaders to clearly define the goals of transformation efforts so that effective plans and roadmaps can be developed. Developing a partnership with the institution's IR professionals can be an effective starting point.
- IT leaders will need to focus their efforts on enabling the kind of digital agility and flexibility that will be required for new and emerging opportunities.
- Institutional leaders will need to improve their IT governance efforts to support effective institutional decision-making about investments and initiatives.
- Data is becoming the new currency as higher education evolves. Institutional leaders will need to harness the full power of data, analytics, AI, and machine learning and must be ready to consider and adopt other emerging technologies.

Taking Action

The digital transformation of higher education is at hand. Even if institutional leaders take no action, Dx will remake colleges and universities from the ground up through inexorable external changes. The challenge for those leaders is to become agents who guide this transformation by proactively defining new strategic directions and value propositions. Leaders must prepare their institutions now to take advantage of the coming shifts in culture, workforce, and technology. ■

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EDUCAUSE Digital Transformation Task Force

This article was inspired by the initial Dx definition that the EDUCAUSE Digital Transformation Task Force developed. The members of this task force greatly improved early drafts and have been our partners in envisioning and shaping the EDUCAUSE Dx initiative:

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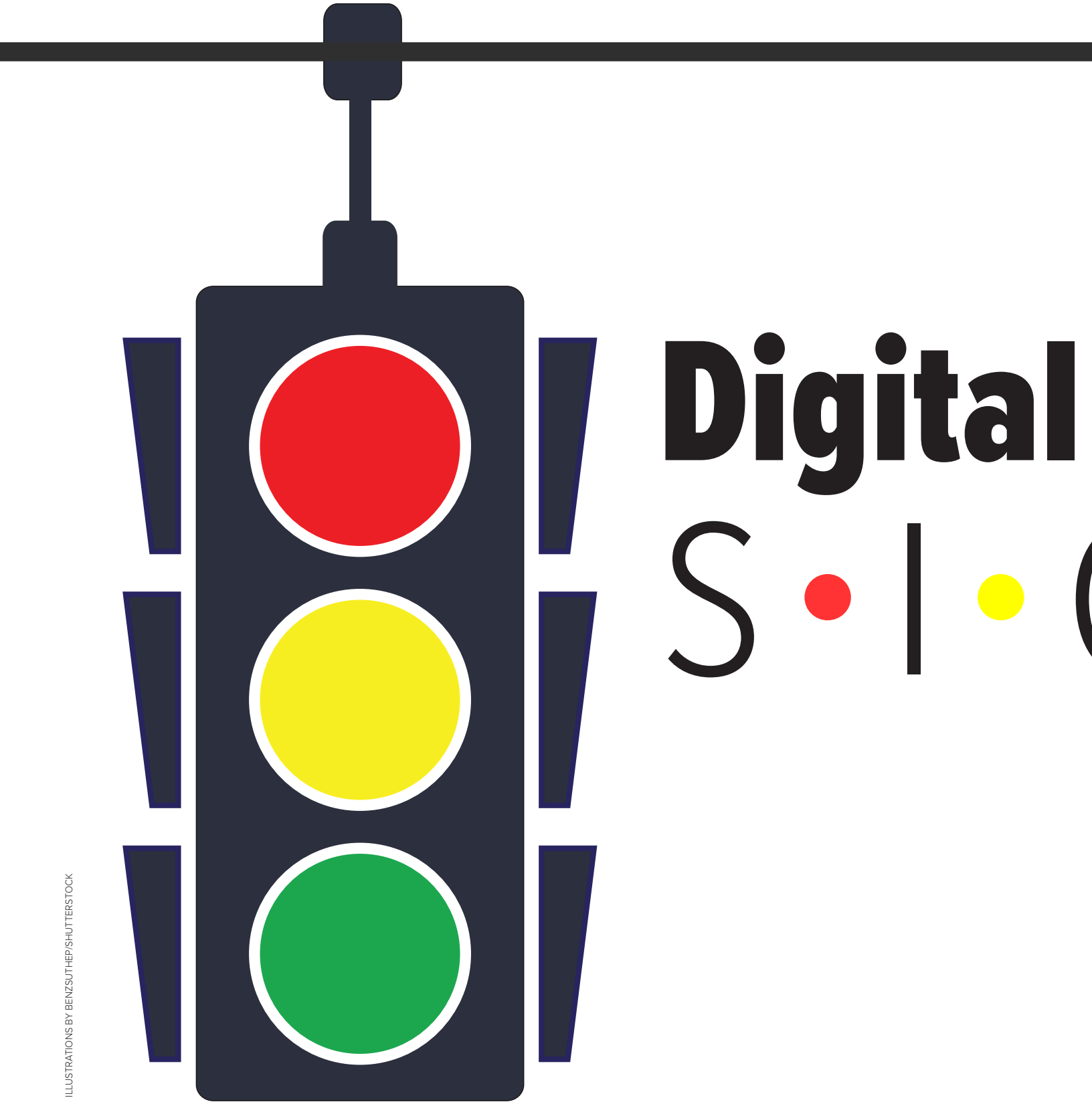

Digital

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Transformation

G•N•A•L•S

A Checklist

Digital transformation (Dx) is a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution's business model, strategic directions, and value proposition. Dx can make institutions more resilient, flexible, and relevant as they face an array of increasingly difficult challenges.

But what does that look like in practice? How do you know where your institution stands? This list is intended as a way for you to get a sense of your institution's progress on that journey and to learn about how you can move forward.

Are You on Your Journey?

Are you working toward transformation related to...

- ☐ One of your institution's major challenges, such as student success, financial health, reputation and relevant, or external competition
- ☐ Institutional value proposition
- ☐ Change in business model
- ☐ Institutional or departmental strategic direction

Will the outcome...

- ☐ Be substantial
- ☐ Have a profound impact
- ☐ Result in tangible and fundamental change

Are you working toward deep and coordinated change?
These elements might not be necessary for initial Dx efforts, but should be present as Dx initiatives expand. Is there evidence of...

- ☐ Visible commitment from senior leadership such as presidents, provosts, and boards
- ☐ Broad C-suite involvement and collaboration in defining Dx objectives and coordinating Dx efforts
- ☐ Explicit Dx plans or roadmaps
- ☐ Dedicated leadership for Dx
- ☐ Funding for Dx viewed as an investment toward a strategic outcome

Culture Shifts

Dx requires a new approach to how campus leaders interact with each other—an approach that entails a laser focus on progress toward institutional goals, a broad emphasis on change management, and an increase in institutional agility and flexibility to meet rapidly changing needs.

Is there evidence of these shifts in culture?

- ☐ Focus toward institutional goals and away from siloed goals
- ☐ Focus on institutional differentiation Innovation is strategic, sustainable, and driven by institutional ambitions
- ☐ Innovation is strategic, sustainable, and driven by institutional ambitions
- ☐ Leaders are willing to adopt new strategic directions
- ☐ Reliance on data and analytics and other forms of evidence to inform and adjust institutional course
- ☐ Shift from risk aversion to risk management
- ☐ Leadership rapidly makes decisions and adjusts strategy in response to changing circumstances and new opportunities
- ☐ IT investments and initiatives fully align with institutional priorities through governance
- ☐ Adept at change management
- ☐ Institutional flexibility and agility regarding business processes
- ☐ Emergence of new levels of cross-organizational alignment and collaboration
- ☐ Culture of trust, supported by accountability and data
- ☐ Procurement coordinated at the institutional level and responsive to marketplace changes
- ☐ Active institutional commitment to diversity, equity, and inclusion (DEI)
- ☐ An IT organization charged with identifying new digital strategies in direct support of the institution's transformational goals
- ☐ Academic curriculum redefined to better serve student needs
- ☐ New incubators for exploring and piloting innovative approaches and new sources of revenue
- ☐ Investments and technology implementations specific to Dx projects are informed by user experience
- ☐ Increased use of data and analytics to inform and guide the Dx process

Workforce Shifts

Changes related to Dx not only are having an inexorable impact on the day-to-day work of higher education professionals but also are creating a need for new skills and competencies across the institutional community. These changes are creating new opportunities and threats and demanding a reinvention of human resource management.

Is there evidence of these shifts in workforce?

- ☐ New jobs and roles, e.g., chief data officer, chief innovation officer, student success officer, enterprise architect, and roles related to vendor management, user experience, and business relationship management
- ☐ IT staff have deep familiarity with the "business" of higher education
- ☐ Increased pace of change and scope in IT liaison roles to align with expanding role of data and digital technologies in research, administration, and teaching and learning
- ☐ Increased blurring and reforming of academic disciplines
- ☐ Ongoing focus on new and shifting professional competencies that require continuous role agility
- ☐ Increasing importance of skills such as teamwork, collaboration, and communication
- ☐ Greater institutional accountability for career growth and talent management to supplement and support department and individual efforts
- ☐ Increased emphasis on work/life balance, flexible schedules and work locations, and new benefits to increase bring and retention success
- ☐ Focus on literacy around DEI across the institution
- ☐ Data fluency is a core competency across the workforce
- ☐ Expectation of continuous improvement and service management competencies for the workforce
- ☐ Institutional agility and flexibility in restructuring the workforce to adapt to rapid, ongoing changes

Technology Shifts

IT leaders must adopt innovative practices and create digital environments that provide unprecedented agility and flexibility. At the same time, they must also manage a complex and ever-changing technology ecosystem in a way that enables the institution and its academic and business units to rapidly and efficiently achieve its strategic aims. New technologies do not by themselves bring about Dx. Institutional Dx initiatives can succeed only through the strategic application of a changing set of technologies in support of new institutional directions.

Is there evidence of these shifts in technology?

- ☐ Shift toward sourcing and managing technology infrastructure centrally or outside the institution
- ☐ Technology, business, and enterprise architecture with agility and flexibility as key priorities
- ☐ IT initiatives and services directly tied to institutional outcomes
- ☐ Growing sophistication of cybersecurity strategy to respond to new risks and solutions stemming from digital transformation
- ☐ Applications of emerging technologies to education, research, and other priorities viewed as potential institutional differentiators
- ☐ Defined data and analytics strategy that guides institutional decision making
- ☐ Increased focus on data privacy and ethics
- ☐ Support for DEI in the development, selection, and deployment of new technologies
- ☐ Business and funding models that acknowledge the continually evolving nature of technology

Is Your Institution Ready?

This list of signals can give you a good idea of whether your institution is ready for the Dx journey. You might find that you're already well on your way, even if your institution doesn't call the effort digital transformation. Or you might realize that you need to learn more before you can take the first steps on the journey. EDUCAUSE is creating new resources to help IT leaders find out more about the importance of digital transformation to higher education. ■

Adapted from Malcolm Brown, Betsy Reinitz, and Karen Wetzel, "Digital Transformation Signals: Is Your Institution on the Journey?," *EDUCAUSE Review,* May 12, 2020.

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Putting All Three Components of Digital Transformation to Work on Campus

By David Weil

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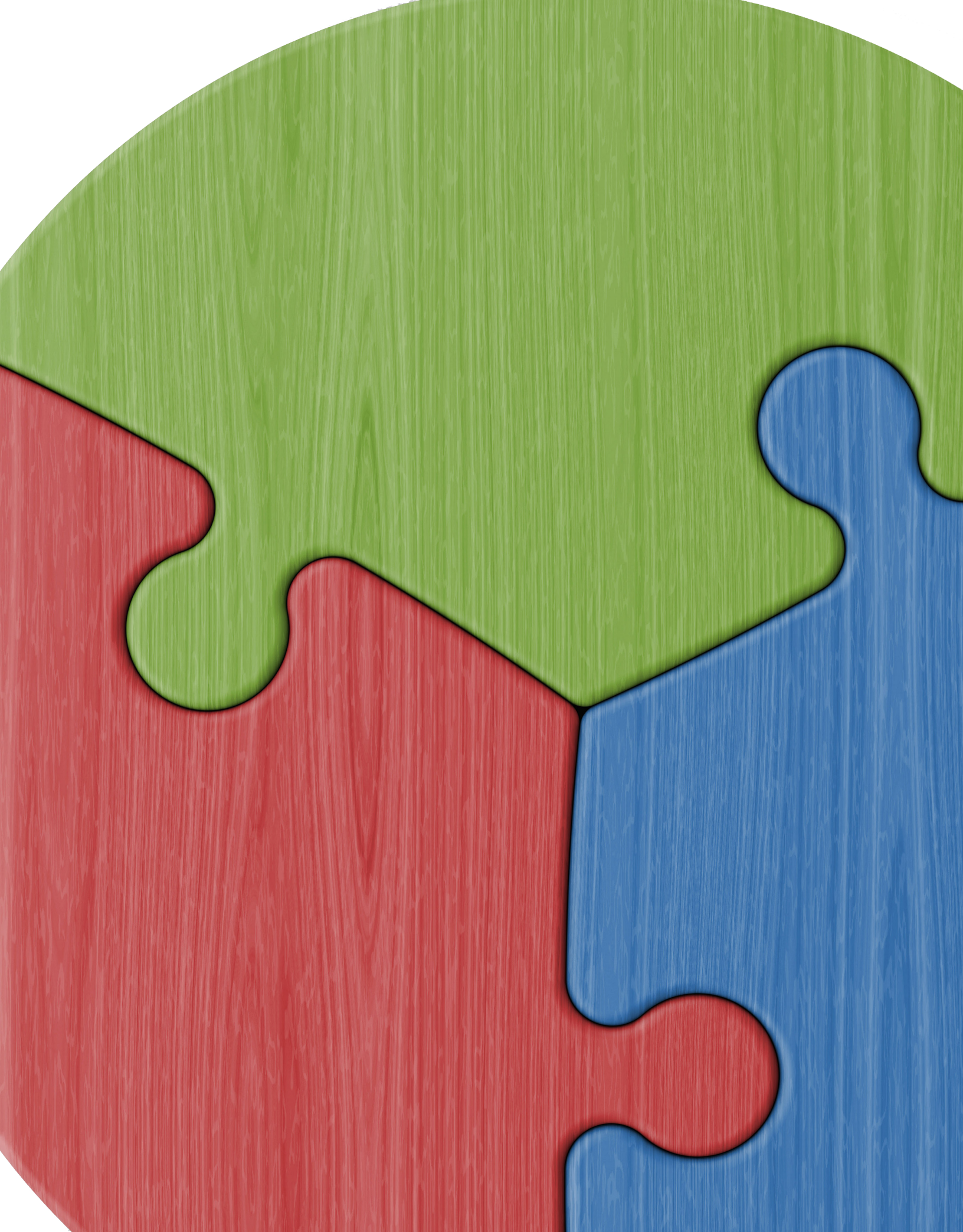
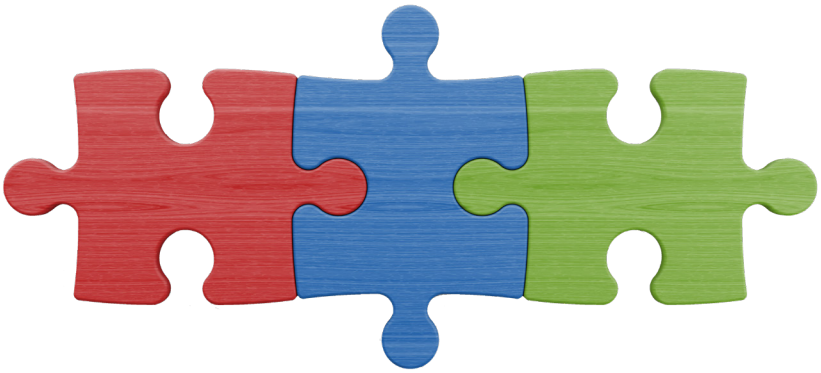


For some people, the term "digital transformation" conjures visions of a large, complex project driven by the IT organization that relies on a massive technology solution to change the way we do business. Others hear the term and think it involves purchasing a shiny new device or some slick new software that will solve a thorny problem. And yet others simply tune it out as just another fad or techno buzzword—something that only a few people really understand and that, in the end, probably won't make a difference for how their college or university functions.



Digital transformation actually describes the new value proposition that results from coordinated culture, workforce, and technology shifts that, when taken together, provide the catalyst for a lasting transformation that fundamentally changes how an institution provides a service or addresses a need of its students, faculty, or staff.[1] It is called digital transformation because technology plays a key role, whether as the implementation of a new technology solution or the possibilities that advances in technology enable (e.g., big data, 5G cellular). However, just implementing technology without intentionally focusing significant attention on culture and workforce won't achieve the transformation that institutions desire or need.

Sometimes the most effective way to achieve digital transformation is not to mention digital transformation at all and instead quietly focus on achieving the underlying shifts that are necessary to obtain the institutional transformations you seek.

Frequently Overlooked: Culture and Workforce Shifts

Shifts in technology are easy—someone identifies a technology solution, and it gets implemented. Well, maybe "easy" isn't the right word. Technology implementations never actually end up being easy, despite what a vendor may say. But such projects typically entail a known pathway and process that we follow on a regular basis. Shifting culture and workforce is more amorphous, something that we do but that many of us don't often think about or approach with the level of intentionality required for digital transformation to occur.

Culture

Achieving and sustaining shifts in culture—the behaviors and approaches that people take to solving problems or providing services, and the shared values and ideals that guide those decisions and interactions—takes time, intentional focus, and effort. Many tools can help guide shifts in culture. IT leaders must think purposefully about using those tools in concert to gradually create the foundations for change. Some examples include establishing formal or informal guiding coalitions—such as governance or steering committees, task forces, focus groups, and/or advisory councils—to provide forums for discussions and stakeholder involvement from across the institution.

Conducting pilot programs and enlisting early adopters or pioneers from outside IT creates a cadre of supporters who can help evangelize the change and become peer influencers to ease concerns about the changes, demonstrate the benefits, and provide feedback to shape the effort. Polls, town-hall meetings, and partnering with stakeholders on a roadshow (attending established meetings in key departments or with key stakeholder and governance groups) put a face on the effort and provide an opportunity to explain the changes, the rationale behind them, and the benefits of the new approach.

Throughout this process, using consistent language is important to establish a concise way to explain the value that these changes provide (the new value proposition) and tie the work to key goals or mission. Repeating the messages at every opportunity also helps shift culture. Finally, find small groups within the institution to adopt the new methods—doing things the new way and leveraging the new tools and ways of approaching things. Others will follow if they see it is effective and provides value.

Workforce

Achieving shifts in the workforce requires another kind of intentional effort, focusing on the skills and duties of those tasked with carrying out and supporting the new ways of working. Focusing on shifts required of people both inside and outside IT is vital. Consider a move to a new LMS. To achieve the new value proposition for students, faculty might need to learn different technical skills and understand new learning methodologies and techniques to be able to leverage the changed tools and instructional models. Institutions will need to provide resources to help faculty obtain these competencies, possibly requiring shifts in staffing and/or core skill sets among staff.

Another important part of facilitating workforce shifts is to consider both in-house and supplemental resources. Revising job descriptions, providing training, reorganizing teams and departments, and in some cases bringing in staff who support the new vision might be needed. This process also includes ensuring that the staff involved are committed to the new ways of doing business and are supportive of the new culture being created. To be successful, institutions need to have the right people, with the right skills, in the right roles, doing the right things—and this won't happen without being intentional.

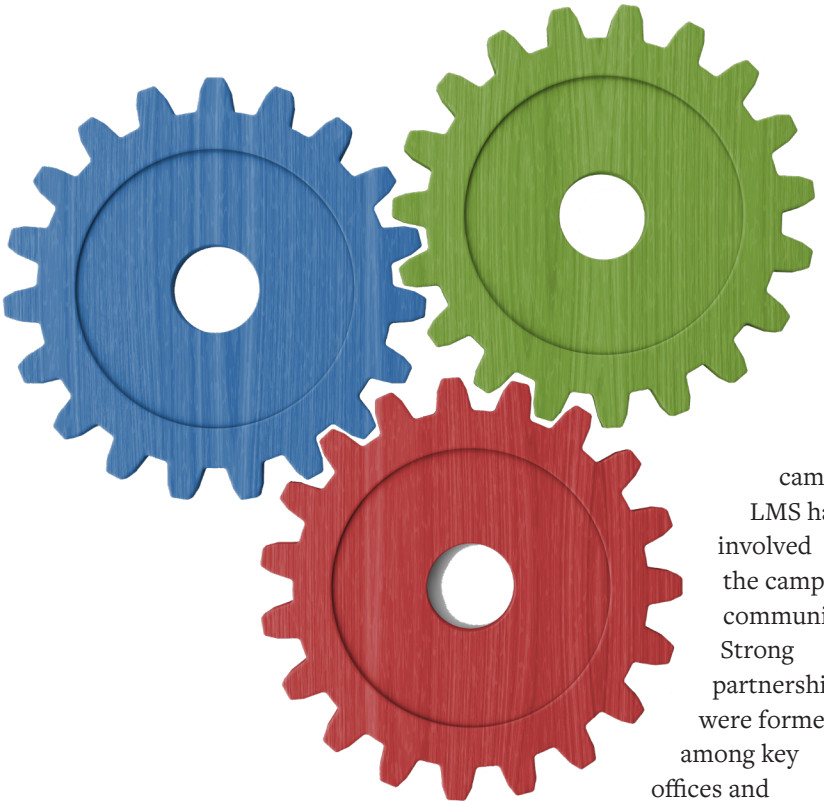
Sometimes the most effective way to achieve digital transformation is not to mention digital transformation at all and instead quietly focus on achieving the underlying shifts that are necessary to obtain the institutional transformations you seek.

A Tale of Two Projects

At Ithaca College, we learned the hard way that ignoring shifts in culture and workforce result in an incomplete transformation and a project that falls short of its goals. Several years ago we failed to focus enough attention on the changes in culture and workforce needed to nurture and realize the full potential of a homegrown campus web portal and online community we had developed.

In partnership with a couple of other offices on campus, IT built an innovative, customizable web portal and elaborate online community and launched it with great fanfare. We seeded it with content and pushed our incoming students to it. But we failed to fully engage the campus community to leverage it as a primary location for content and discussions. We didn't build the support systems (staff, governance, workflow processes) that were needed to sustain and grow it over the long term. In the end, it failed to transform the ways we interacted with our students or provide the single point of communication, which had been the drivers for the project. The technology was sound, but a lack of intentional focus on campus culture and on needed changes with skills and positions in our workforce kept the portal from achieving the desired transformation and ultimately led to the slow abandonment of the solution.

Contrast that with the approach we are currently taking to transform the experiences that students and faculty have with our LMS. From the start, our project to reimagine the



campus LMS has involved the campus community. Strong partnerships were formed among key offices and stakeholders. Governance structures were put in place before the project moved forward. Numerous opportunities for engagement from all aspects of the campus were established. Core IT provided the technical and project management expertise. Learning technologists partnered with colleagues from academic affairs, the center for faculty excellence, student accessibility services, the library, the office of extended studies, faculty, and students to examine existing practices and desired changes. Workshops have been developed to reimagine how the LMS can be leveraged to support improved teaching and learning. Staff positions are being redefined to address the new roles and skill sets needed for a different support paradigm. All this is happening in concert with the technology implementation. The result should be a new value proposition, providing a reimagined learning environment that will allow us to explore new course delivery options and better experiences for faculty and students. Faculty will have improved tools and will spend less time on routine tasks. Students will have better access to their course materials regardless of time or place.

By focusing on shifts in culture, workforce, and technology, we will achieve the benefits of digital transformation while never actually mentioning that term and therefore avoiding any preconceived notions or concerns that may be associated with it. For the faculty and students, it's not the label that matters; it's the transformed experiences and opportunities that come from the shifts that we will have achieved.

Making Digital Transformation Work

A successful digital transformation project enables new ways of doing things, unlocks new capabilities and insights, and advances the overall goals and services of an institution. It changes the way an institution sees a problem and provides a comprehensive solution that often involves new pathways and approaches for dealing with a critical issue. At its heart, digital transformation requires intentional shifts in culture, workforce, and technology, and it is the marriage of these shifts in culture, workforce, and technology that provides the mechanism for achieving and sustaining the transformation.

Colleges and universities often focus their resources on identifying a new technology or application as the solution to a problem they are trying to solve. We lead with the technology as the solution—for example, we think we can improve retention by purchasing an academic early-warning system or can communicate more effectively with students if we deploy a smartphone app. The technology becomes the focus and the savior. The implementation focuses almost exclusively on technical pieces, and it becomes an IT project. But the technology is just one piece, and without focusing on impacts and changes to culture and workforce, institutions will not achieve true transformation. ■

Note

1. D. Christopher Brooks and Mark McCormack, *Driving Digital Transformation in Higher Education,* research report (Louisville, CO: EDUCAUSE, June 2020).

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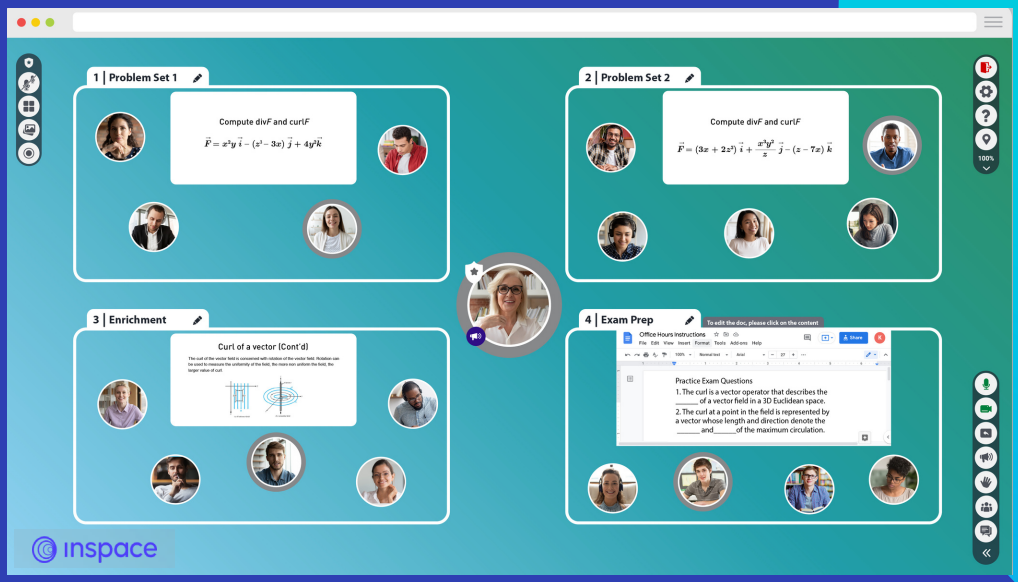

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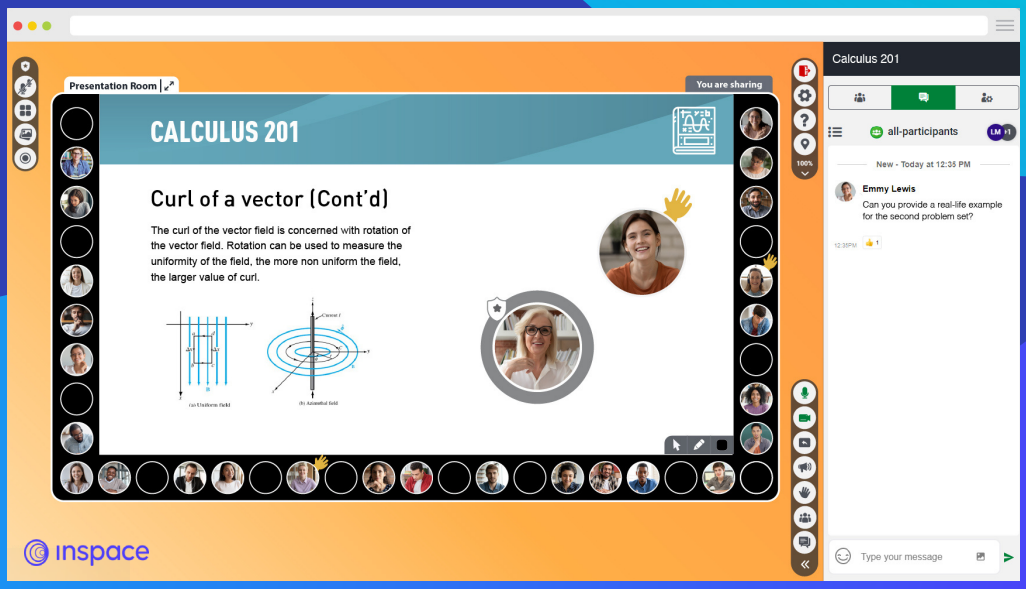

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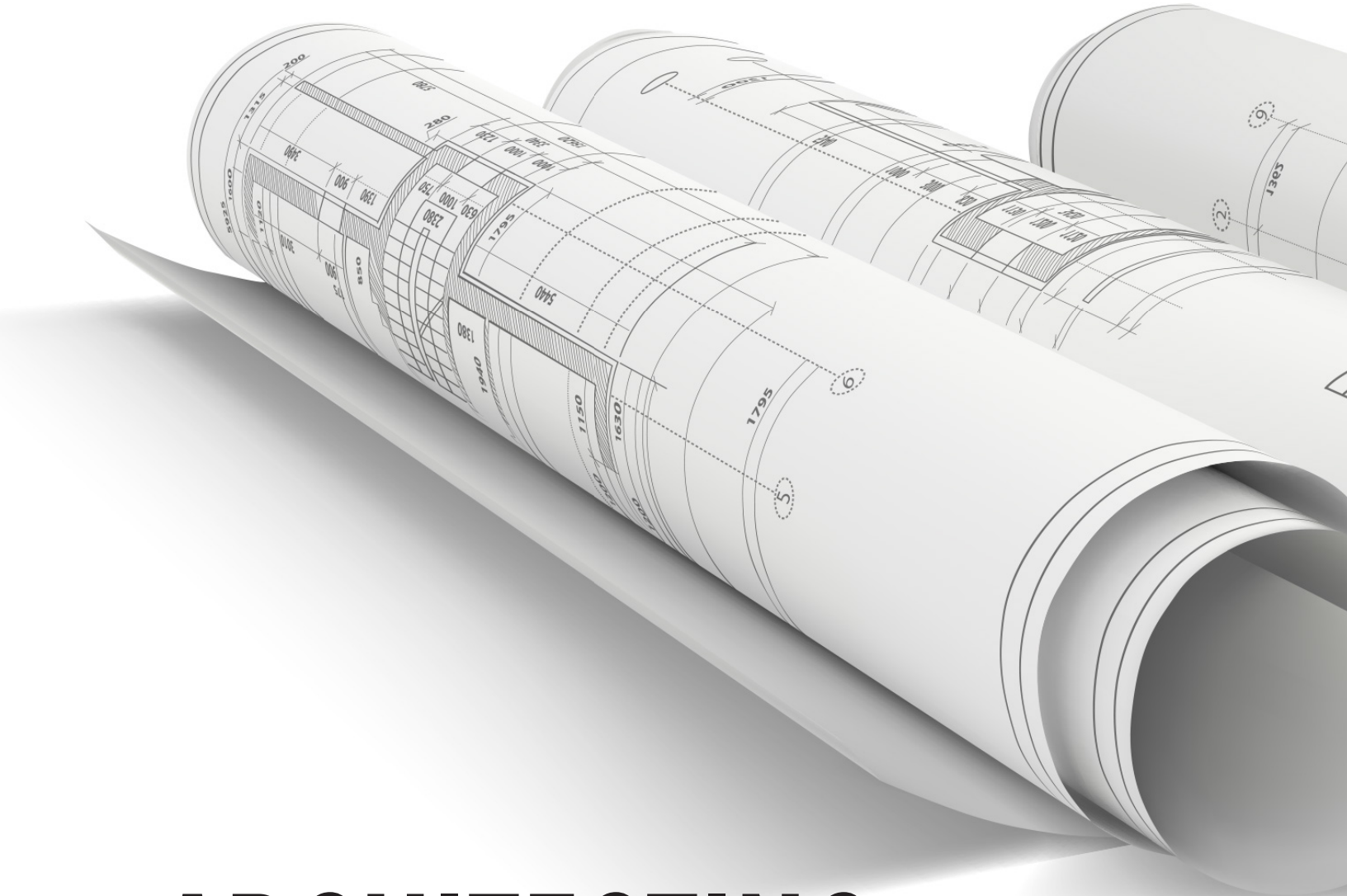
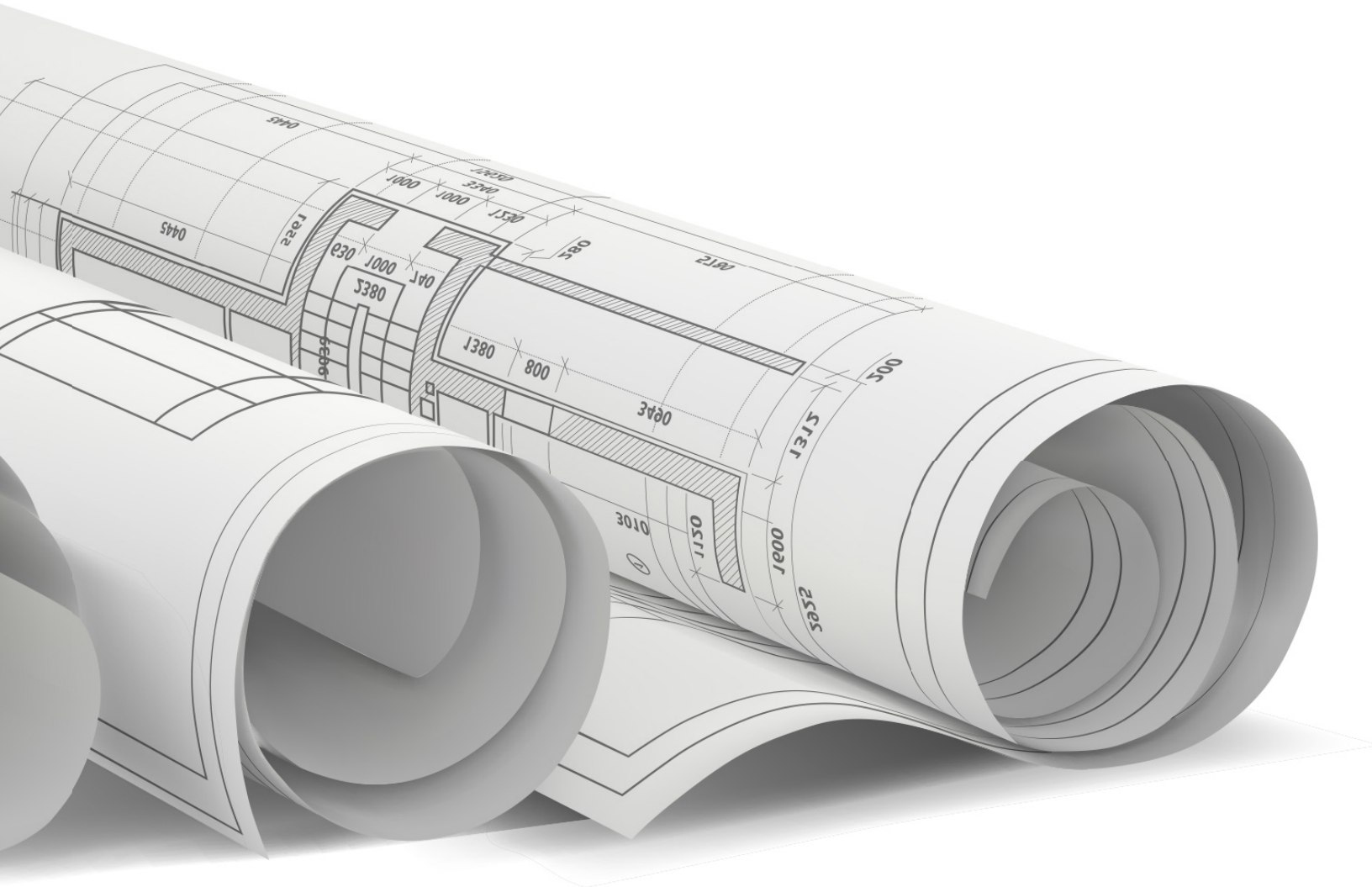


ARCHITECTING THE IT ORGANIZATION

By Debbie Carraway, Piet Niederhausen, and Beth Schaefer



Clarifying the Contributions of Enterprise Architecture, IT Governance, and ITSM to the IT Value Chain

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Digital transformation (Dx) is more than a buzzword. New technologies from artificial intelligence and machine learning to mobile and cloud are changing the way society approaches problems and creating demand for new services at a rapid pace. But Dx is not about technology alone—it is a series of "cultural, workforce, and technological shifts"[1] informed by customer-centric design. Higher education institutions are at the crossroads of Dx, both leading the charge through research and innovation and experiencing the resulting shifts in application and expectations. The IT organization is in the challenging position of supporting the institution as it takes advantage of myriad new possibilities while ensuring that the enterprise is sufficiently prepared to manage those possibilities. Given this, it is critical that the services IT provides are aligned with the goals of the institution. Melding the necessary agility and stability requires attention to the fundamental practices of information technology.

To help their institutions adapt, IT organizations are pursuing growth in three fundamental practice areas: enterprise architecture (EA), IT governance, and IT service management (ITSM). These practice areas enable the institution's administration, academic leaders, and IT management to direct the development and delivery of IT services that maximize value to the institution and ensure alignment with its goals. These distinct, related, and possibly overlapping practice areas have gained traction, as evidenced by the existence of engaged EDUCAUSE Community Groups: IT Governance, Risk, and Compliance (IT-GRC); Information Technology Service Management (ITSM); and ITANA—Enterprise, Business, and Technical Architecture (EA). Members of these three communities came together in recognition of a need to better understand the connections between these areas.

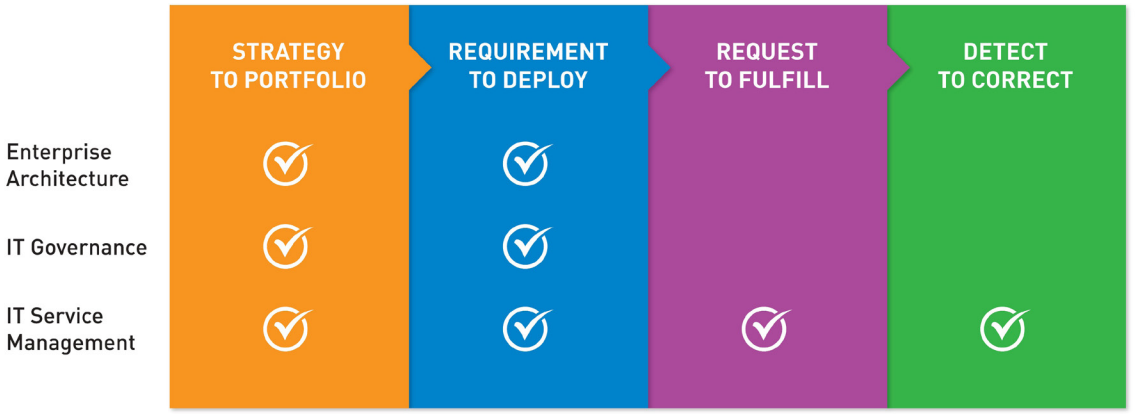
Since each institution is unique, these practice areas often develop independently and organically, starting in different departments, and positioned within different organizational structures. As a result, the processes in these areas are frequently at different levels of maturity, and the relationships between them may be absent, poorly defined, or awkwardly managed. The diversity of these practice areas across higher education and within the complex organizational structure of each institution is generating considerable confusion in many institutions.

As these practice areas grow at their own pace in your organization, they are likely to eventually overlap in scope, resulting in redundancy or even conflict. In addition, over the past fifteen years the goals of each practice area have evolved in higher education. The background and framework in here will help

1. senior leaders overseeing multiple practice areas consider how to set goals and scope of their practice areas (for your particular organization) and avoid redundancy or conflict;
2. leaders potentially adding one of these practice areas to their organization consider how to set it up for success in context with other practices; and
3. practitioners understand potential overlap with other practice areas and consider how to work together.

In this time of change, we felt a need to convey how institutions are re-architecting their IT management approach. As a starting point, that understanding requires some foundational work to better explain each area on its own, to learn where connections are and should be made, what steps to take, and what a future state might look like.

Figure 1. EA, IT Governance, and ITSM Contributions to the IT Value Chain



A Value Chain Perspective on IT

To compare the contributions of EA, IT governance, and ITSM, it helps to have a shared context to place them in. The Open Group's IT4IT Reference Architecture[2] represents how an IT organization creates value, proposing a value chain with four value streams:[3]

- **Strategy to Portfolio:** Assess strategic demands and decide what IT will offer in its portfolio.
- **Requirement to Deploy:** Design and implement offerings in the IT portfolio.
- **Request to Fulfill:** Enable customers to use offerings in the IT portfolio.
- **Detect to Correct:** Operate, monitor, support, and manage IT resources on an ongoing basis.

Within this model, EA, IT governance, and ITSM are practice areas that enable the IT organization to deliver value. They do so alongside other supporting activities such as management of finances, vendors, human resources, and compliance.

EA, IT governance, and ITSM all have potential to contribute to several parts of the IT value chain. Fully fledged EA, IT governance, and ITSM all seek to help an IT organization engage stakeholders and make the best IT portfolio decisions based on strategy (Strategy to Portfolio). And they all seek to guide the design of IT products and services (Requirement to Deploy). Of the three, ITSM is the broadest, also seeking to help the IT organization manage fulfillment and operation of services (Request to Fulfill and Detect to Correct). Figure 1 summarizes where EA, IT governance, and ITSM potentially contribute to the IT value chain.

Given this potential, it is incumbent on each IT organization to clarify the current and intended scope of EA, IT governance, and ITSM, as discussed below.

The IT organization is in the challenging position of supporting the institution as it takes advantage of myriad new possibilities while ensuring that the enterprise is sufficiently prepared to manage those possibilities.

The Scopes of EA, IT Governance, and ITSM Are Variable

The current scopes of EA, IT governance, and ITSM vary significantly by institution. Each practice area has a broad potential scope based on industry definitions, and those definitions have changed over time. Within each institution, practitioners adapt to local needs. Table 1 shows our general observations of these scopes at higher education institutions.

Table 1. Defining and Scoping EA, IT Governance, and ITSM

PRACTICE AREA	RANGE OF SCOPE
Enterprise Architecture seeks to put in place processes and reference architectures to ensure that IT efforts maximize long-term architectural value to the institution.	The scope of IT efforts that EA works on can be limited to architecting technology solutions or can extend to IT's strategies, projects, services, and internal processes (as well as those of business units in the institution).
IT Governance seeks to put in place processes to prioritize and decide among possible IT investments, aligning investments with a range of goals including business outcomes, compliance, and risk management.	The scope of IT investments that IT governance works on can be limited to reviewing individual IT projects or can extend to IT's goals, strategies, roadmaps, and portfolios of projects and services.
IT Service Management seeks to put in place processes by which information technology plans, manages, and operates services to maximize value to customers.	The scope of IT processes that ITSM works on can range from operational drivers, such as improving support, problem resolution, and change control, to processes that define strategy, prioritize investments, and ensure good service design.

EA, IT Governance, and ITSM Evolve in Each Organization

As each practice area grows in an organization over time, its scope can change to support more parts of the IT value chain. Over time, the IT organization also often goes from initially adopting some concepts from each practice area to formalizing a dedicated team around one or more practice areas. Often all these changes take place without an encompassing long-term roadmap. For example, in a large central IT organization, the evolving "story" of EA, IT governance, and ITSM in relation to the IT value chain might look something like figure 2.

Examples at Three Institutions

Enterprise Architecture

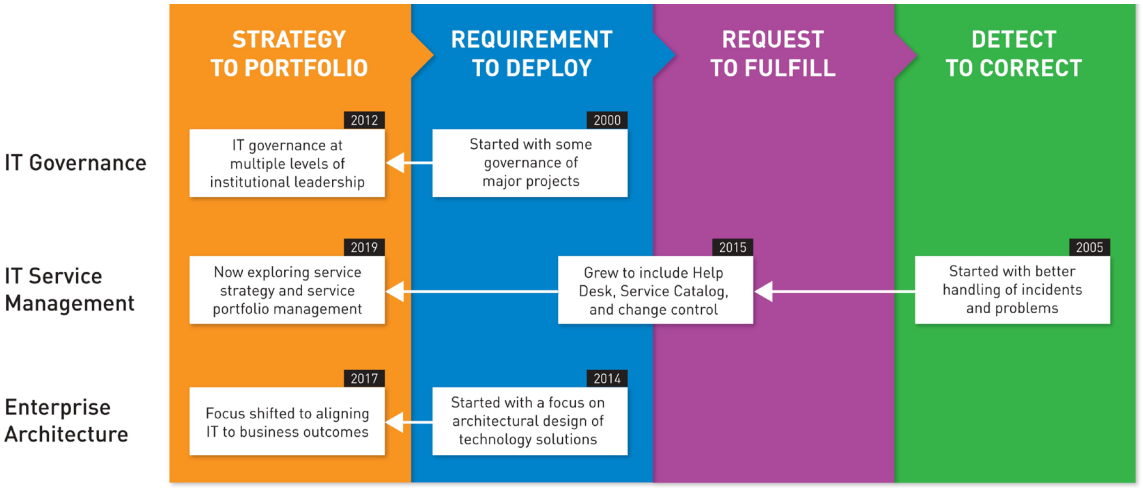
Enterprise architecture at the University of Washington is a program in central IT, charged by the CIO to help stakeholders maximize the architectural value of their services, solutions, data, processes, and organizations on behalf of the UW. A team of four architects provides consulting services, promulgates architecture principles and reference architectures, offers architecture education and outreach, and supports IT management. The EA team primarily works within central IT, coupled with some outreach across the UW's three campuses.

- *In relation to ITSM,* the EA team helps IT managers and teams define service strategies, design service models, and perform architectural analysis and design in projects to establish services. Members of the EA team lead or staff the IT organization's ITIL[4] processes for service strategy, portfolio management, and service design coordination, in partnership with the organization's Service Management Office.
- *In relation to IT governance,* the EA team both enables and is a decision maker in governance processes. The director of EA is a member of the IT organization's Portfolio Review Board reviewing IT projects. The EA team also facilitates the IT organization's strategy process and its Service Management Board, one of several forums for IT governance by non-IT stakeholders. Finally, the EA team is part of projects to improve governance processes and provides decision-making guidance such as architecture principles and scorecards.

IT Governance

At North Carolina State University, strategic IT decisions are considered by IT governance. The scope of IT governance spans the major functions of the university and IT: teaching and learning; research, creativity, and scholarship; user experience; and enterprise applications, as well as overall IT policy and strategy. IT governance advises the CIO and is composed of non-IT stakeholders and leaders across the university. IT governance participants are expected to bring forward the needs of their constituencies and to help create forward-looking strategic plans and recommendations.

Figure 2. An Example History of EA, IT Governance, and ITSM in an IT Organization



- *In relation to ITSM,* IT governance has input into service strategy and may make recommendations regarding financial management. The primary interaction with ITSM is the interaction with service portfolio management, where IT governance makes recommendations for new services, service changes, or the discontinuation of existing services.
- *In relation to EA,* NC State is in the early stages of developing enterprise architecture functions. IT governance provides a structure that can contribute to enterprise-wide IT strategic planning and supports the development of effective organizational processes through stakeholder collaboration.

IT Service Management

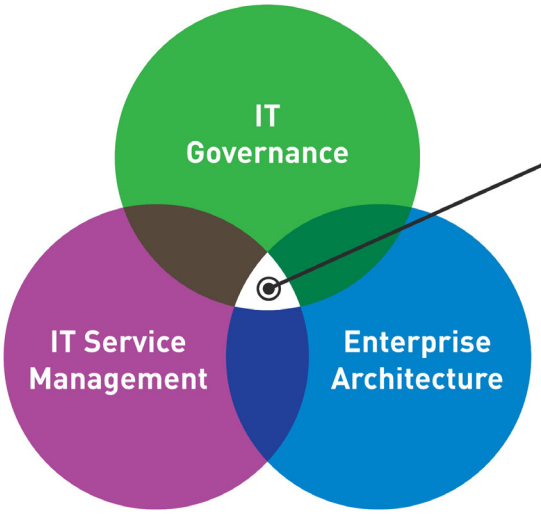
University IT Services at the University of Wisconsin–Milwaukee decided to adopt the ITIL best practices framework for IT service management to improve service delivery and, in turn, increase customer satisfaction. Working together, the processes and functions defined within ITIL focus on the entire life cycle of a service, including service strategy, design, transition to operation, ongoing support, continual service improvement, and decommissioning when the service is no longer needed. These processes are designed to ensure that IT services align with the needs of customers; improve availability and stability of service; improve communication within IT and with customers; set appropriate expectations for IT services; and improve efficiency of internal processes.

- *In relation to IT governance,* IT service management has provided the development of service and project portfolios that aid in project intake, which feeds into the campus senior administrative IT governance council and the faculty IT governance committee. The process allows feedback and informed decisions to become a part of a project supporting the strategic goals of the campus in a transparent way, meeting fiscal, business, IT, and compliance requirements.
- *In relation to EA,* UW–Milwaukee is exploring the feasibility of the development of an enterprise architecture environment. This is occurring through an assessment of the current state of the ITSM and IT governance practices to discover gaps that may exist for further definition and benefits that an enterprise architecture practice will provide.

Clear Scopes and Responsibilities Enable the IT Value Chain

As the examples above illustrate, EA, IT governance, and ITSM can contribute most effectively when their scope is well defined and understood. As these practice areas grow together in an organization, their scope should be discussed and aligned. Otherwise, these practices may inadvertently develop competing visions that can disrupt the IT value chain.

Figure 3. Typical Intersections of EA, IT Governance, and ITSM



TYPICAL INTERSECTIONS:

- IT strategy
- IT portfolio management (of projects and/or services)
- Engagement with non-IT stakeholders
- Guiding the design of IT products, services, and processes

As digital transformation and related changes influence the mission of enterprise IT, managers have the opportunity to reflect on the capabilities that enable the IT value chain and architect the IT organization for the future, including its practices in EA, IT governance, and ITSM.

Without coordination, practitioners in EA, IT governance, and ITSM in your organization could *all* reasonably believe that *they* hold primary responsibility for enabling key parts of the IT value chain. A reasonable perspective from each practice area could be:

- **Enterprise Architecture:** "We work with teams and managers at all levels to increase alignment of IT with institutional needs. We proposed the current IT governance structure, operate it, and are key to the IT organization's relationships with non-IT stakeholders. We help the organization mature all its internal processes, of which ITSM processes are one important part."
- **IT Governance:** "We align IT to institutional goals, define IT strategy, and identify institutional outcomes for IT. We prioritize not only what services ITSM should work on but also the resources allocated to service management itself. Regarding EA, we direct its strategic priorities like any other IT service."
- **IT Service Management:** "We lead IT's long-term roadmap for how to manage and grow itself as an organization—all of its services, products, processes, resources, and assets. IT governance and EA are both functions that contribute within the overall ITSM approach."

As these statements suggest, EA, IT governance, and IT service management have the potential to intersect in their contributions to the IT value chain in IT strategy and portfolio management, in engagement with non-IT stakeholders, and in guiding the design of IT products, services, and processes (figure 3).

An IT organization's capabilities at these intersections directly affect its ability to react to changes, including digital transformation and all its impacts on the institution. These capabilities represent the IT organization's ability to integrate the strategic vision of the institution and respond with effective service delivery. To support discussion in your IT organization, typical activities in each capability are shown in table 2. You should feel free to add activities that are important to your organization.

Table 2. Capabilities and Typical Activities

CAPABILITY	TYPICAL ACTIVITIES
IT Strategy	• Review institutional strategies to identify drivers for IT. • Assess industry trends in higher education IT to identify drivers for IT. • Propose and gain agreement on IT strategies, including drivers, goals, initiatives, and measures of success. • Work with IT teams to develop their specific strategies in greater detail.
IT Portfolio Management	• Based on agreed-upon strategies, prioritize investment in IT services and projects. • Review current IT services relative to demand. • Propose, review, and prioritize new or changing IT services. • Propose roadmaps of IT projects. • Review and prioritize proposed IT projects. • Resolve escalated issues as projects are executed.
Engagement with Non-IT Stakeholders	• Assess demand for and satisfaction with IT products and services. • Work with non-IT stakeholders to define measures of value for IT. • Engage non-IT stakeholders in productive relationships with IT at multiple levels. • Ensure that non-IT stakeholders and institutional needs are represented in decision-making about, and within, IT projects and services.
Guiding the Design of IT Products, Services, and Processes	• Translate from strategy, investment, and portfolio decisions to high-level design for specific products, services, and processes. • Define decision-making about and delegation of accountability for design of products, services, and processes. • Establish architectural guidelines or standards for the design of products, services, and processes. • Establish processes by which guidelines or standards are applied and design decisions are reviewed as needed. • Ensure that the designs are based on thorough understanding of actual needs.

Table 3. Sample Questions for Joint Conversation, Based on State

STATE	SAMPLE QUESTIONS
Current State	• What is the current scope of EA, IT governance, and ITSM practices in our organization? • How are the capabilities described in table 2 met today? • Which activities in each capability are most important to us? • In which activities do we currently experience bottlenecks, competing approaches, or other issues?
Future State	• Based on our organizational strategy, do we intend to carry out these capabilities centrally, delegate responsibility for them, or some of both? • What are our priorities and goals for improvement in these capabilities? • Based on the needs of the organization and the readiness of each practice area, who should lead, manage, or contribute to recurring work and continuous improvement in each capability? • Are our EA, IT governance, or ITSM practice areas well situated to contribute, or should other actors in the IT organization take this responsibility? • Do we have a long-term need to formalize EA, IT governance, or ITSM as programs (if they are not today)?
Planning	• Whoever is designated to contribute to each capability, further consider: • Are they aware of their role and its intended scope? • Are they empowered to carry it out? • What are the organization's expectations for success? • Do they have what they need now? What more will they need over time? • How will senior management sponsor, guide, and evaluate the activity?

Next Steps in Your Organization

To clarify the mission of EA, IT governance, and ITSM as they grow, we suggest a joint management conversation about your IT organization's future needs for the capabilities these practice areas can provide, especially where they typically intersect. This conversation can also benefit from including non-IT stakeholders. Table 3 shows sample topics for discussion.

Conclusion

As digital transformation and related changes influence the mission of enterprise IT, managers have the opportunity to reflect on the capabilities that enable the IT value chain and architect the IT organization for the future, including its practices in EA, IT governance, and ITSM. These three practice areas intersect in helping the IT organization integrate the strategic vision of the institution and respond with effective service delivery.

Since each institution is unique, these practice areas will continue to develop organically, with different scopes, missions, and organizational structures. However, IT organizations can benefit from using the starting points provided here to clearly define the capabilities they need, the scope of each practice area, and how they will be supported and aligned.

The higher education IT community continues to develop these practice areas in the EDUCAUSE Community Groups: IT Governance, Risk, and Compliance (IT-GRC); Information Technology Service Management (ITSM); and ITANA-Enterprise, Business, and Technical Architecture (EA). We encourage you to join the conversation and shape best practices and the connections between these areas. ■

Notes

1. EDUCAUSE, "Report from the 2018 EDUCAUSE Task Force on Digital Transformation," November 2018.
2. Open Group, IT4IT Reference Architecture, version 2.1.
3. Although the IT4IT framework builds on service management concepts, we consider these concepts to be helpful regardless of whether ITSM is established in your IT organization.
4. Like many institutions, the University of Washington has adopted the Information Technology Infrastructure Library (ITIL) as its starting point for ITSM.

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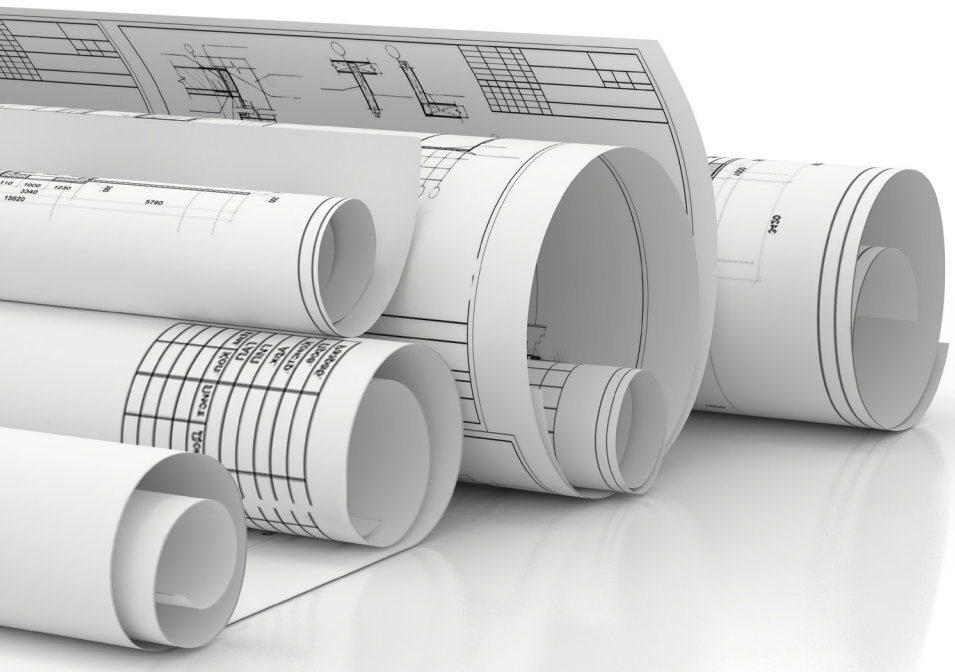

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Integrative Leadership

A Necessary Ingredient for Dx

By Malcolm Brown

Higher education in the United States is all in a heap, navigating a severe crisis, perhaps the most severe in its history. Two obvious reasons for this are the pandemic and the racial tensions, but even these are not the full story. Prior to the emergence of these developments, higher education was already beset with other major challenges, such as declining enrollments, declining funding, and declining affordability. The pandemic has accelerated these crises, meaning that higher education leaders must move with extraordinary rapidity. To call the situation challenging is to powerfully understate it. If there was ever a time to address digital transformation at the institutional level, this is it. And if there was ever a time to consider the necessary leadership for digital transformation, this is it.

For some, the phrase *digital transformation,* like the term *disruptive innovation* before it, is on the verge of becoming "tired" due to overwork and misuse. Nevertheless, given the scope of the challenges, as well as the responses they require, this is very likely the best term we have to characterize what is needed in the present situation.

So, what *is* digital transformation (Dx)? EDUCAUSE has been engaging with the community on the concept of Dx for the past two years. On the basis of that exchange, we've arrived at a working definition: Dx is "a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution's business model, strategic directions, and value proposition."[1] This definition is important as it helps to distinguish Dx from other kinds of change.

There are, then, two sides of the Dx "coin": (1) the deep and coordinated changes that are undertaken to enable (2) significant institutional transformation. To have such a coin, both are necessary. Changes that are local—that is, limited to an individual campus organization—are important but, by themselves, fall short of being Dx in its truest sense. Such local shifts may provide stepping stones to Dx, or they may be a kind of triggering event that initiates Dx. But to have a coin, you need both sides.

Integrative leadership emphasizes cross-organizational reach, a collaborative approach, and even the distribution of leadership across units and teams. In the place of local optimization, integrative leadership builds connections and bridges to achieve institutional impacts.

Dx is challenging, and because of this, taking shortcuts may be a tempting option. Examples are digitization and digitalization. *Digitization* is the process of shifting analog or physical content to digital form, and *digitalization* is the use of digital technologies and information to move the institution's processes from analog to digital channels.[2] These two "Ds" most often produce new efficiencies pertaining to what an institution is already doing. They are important and may lay the groundwork for and help to enable Dx, but neither constitutes Dx.

Another area of concern is marketing hype. The term *digital transformation* can pose a danger of sorts, especially since the term is increasingly co-opted in marketing discourse to indicate outcomes that are really digitization and digitalization. In the end, the better term might be *institutional digital transformation,* since transformation at the institutional level is the true target of Dx. One needs to be on guard against snake-oil statements such as "Just do/buy this, and Dx will result." The most perfect procurement process cannot produce Dx, and an

institution cannot buy a product that will make the need for Dx go away.

There is no question that a digital infrastructure that is fast, reliable, secure, data-rich, and "in the cloud" is important and valuable. But even such an infrastructure is, by itself, not a sufficient condition for Dx. The question is, What is to be done with the resources that are at hand? What is the connection between the marshaling of such resources and the institutional change required by the institution?

Perhaps the key characteristic of Dx is integration. No single unit, not even the president's office, can accomplish Dx by itself. That is why the Dx definition calls for "deep and *coordinated* shifts." Coordination implies integration. Integration begins with and is propelled by leadership, especially leadership that sets aside turf battles and instead forms collaborative, cross-institutional partnerships to achieve Dx goals. In short, Dx requires *integrative leadership.*[3]

Over the past twenty-five years, a good amount of literature has developed around the idea of integrative leadership. Barbara Crosby and John Bryson define such leadership as "bringing diverse groups and organizations together in semi-permanent ways—and typically across sector boundaries—to remedy complex public problems and achieve the common good."[4] This concept moves the focus away from the individual and especially away from the notion of the "savior leader," the strong individual who courageously saves the day when everything is against her/him or who singlehandedly turns her/his unit into a high-performing operation. Awaiting such a savior is probably much like waiting for Godot.

Integrative leadership emphasizes cross-organizational reach, a collaborative approach, and even the distribution of leadership across units and teams. In the place of local optimization, integrative leadership builds connections and bridges to achieve institutional impacts. Crosby and Bryson offer two dozen propositions describing this kind of leadership, whose key characteristic is enabling cross-sector collaborations. For example, in proposition 1 they write that "cross-sector collaborations are more likely to form in turbulent environments," and in proposition 8 they note that such collaborations "are more likely to succeed if leaders use resources and tactics to help equalize power, to avoid imposed solutions, and to manage conflict effectively."[5]

Without such leadership, Dx is unlikely to occur, at least not in any substantial way. Integrative leadership is of such high importance that it should be considered a necessary ingredient in the Dx "recipe." Overcoming the inertia of institutional culture is perhaps the hardest of the three "deep and coordinated shifts" needed for digital transformation. Explicit emphasis on Dx by senior leadership is crucial, but so too is the promotion of new models of leadership, ones that seek integration on many levels.[6] Digital transformation can help higher education face increasingly severe challenges, but not without integrative leadership. ■

Notes

1. Malcolm Brown, Betsy Reinitz, and Karen Wetzel, "Digital Transformation Signals: Is Your Institution on the Journey?" *Enterprise Connections* (blog), *EDUCAUSE Review,* May 12, 2020.
2. Betsy Reinitz, "Consider the Three Ds When Talking About Digital Transformation," *Enterprise Connections* (blog), *EDUCAUSE Review,* June 1, 2020.
3. Issue #4, *Digital Integrations,* and Issue #10, *The Integrative CIO,* in the EDUCAUSE 2020 Top 10 IT Issues list explicitly underscore the importance of integration. See Susan Grajek and the 2019–2020 EDUCAUSE IT Issues Panel, "Top 10 IT Issues, 2020: The Drive to Digital Transformation Begins," *EDUCAUSE Review* Special Report, January 27, 2020.
4. Barbara C. Crosby and John M. Bryson, "Integrative Leadership and the Creation and Maintenance of Cross-Sector Collaborations," *Leadership Quarterly* 21, no. 2 (April 2010).
5. Ibid.
6. See Jim Fisher, *The Thoughtful Leader: A Model of Integrative Leadership* (Toronto: University of Toronto Press, 2016).

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EAMESBOT/SHUTTERSTOCK

The CIO as Quantum Leader

By Steve Burrell

The past year has been challenging, even for the most seasoned higher education CIOs.

Many of us were called upon to lead our institutions spontaneously through digital transformation (Dx). Institutional leaders face new hurdles as we emerge from the COVID-19 pandemic and traverse the altered higher education landscape. Many institutions are on a slippery slope of demographic changes, an increasingly competitive market for students and faculty, a climate of political instability and civil unrest, and a time of fiscal uncertainty amid growing public doubt concerning the value of higher education.

In this environment, CIOs will confront increasing technological complexity, digital equity and transformation initiatives, and operational imperatives to ensure the efficiency and effectiveness of the institutions they serve. CIOs, along with other institutional leaders, will be drawn more often into rapidly evolving and fluid scenarios that require broad-based, authentic engagement, courageous and diverse thinking, and sensitivity to socio-techno environment changes. The pandemic was a catalyst for reevaluating our institutions, and CIOs will certainly contribute to both technological and organizational changes.

Because of our broad engagement around technology applications within our universities and colleges, CIOs know that higher education institutions are complex organizations that function as living, nonlinear, dynamic systems. Today, higher education professionals no longer see themselves as simply obedient agents of a hierarchical organization. Instead, they seek to be part of a diverse, interconnected, interactive team with a unified mission or purpose. Effective CIOs must be fully engaged in clarifying digital strategies to everyone—from executives to individual contributors. They must be adept at fostering technological change and transforming culture to achieve sustainable digital transformation while promoting inclusion and diversity in service delivery, building dynamic cross-functional teams, and creating institutional agility in the new higher education landscape.

The range of challenges that CIOs face today requires us to employ new dimensions of leadership. Such frameworks should address a rapidly changing, complex, and often chaotic climate while intrinsically connecting individual contributors and teams to greater purposes, a dynamic mission, and meaningful work.

Traditional leadership frameworks are founded on linear thinking, hierarchical structures, rigid top-down controls, imposed plans and solutions, and an over-obsession with efficiency. As a result, CIOs and other institutional leaders cannot just iterate, recalibrate, reconfigure, or reorganize their way to prosperity. Higher education requires new thinking, metaphors, assumptions, and values to lead during dynamic and chaotic times. Leaders must introduce new strategies for increasing engagement and motivation and developing emotional and spiritual intelligence so that all members of the institution are empowered to think and act in ways that transcend themselves and their institutions. Simply put, the leadership methods that got us here won't get us there.

Quantum leadership (QL) introduces new leadership dimensions that involve holistic and dynamic management aspects of our institutions. Max Planck introduced the quantum theory of modern physics in the early 1900s. A century later, Danah Zohar introduced QL thinking, borrowing heavily from quantum physics concepts and evoking the wisdom of ancient philosophical teachings such as those of Lao Tzu. Zohar, a physicist by training, extrapolates

that most contemporary leadership philosophies resemble physical science rules espoused by Isaac Newton and Industrial Revolution principles that emphasize certainty, predictability, and control.[1]

Newtonian leadership thinking assumes that organizations and markets, like machines, are predictable, stable, and controllable. Newtonian organizations are structured into separate areas of expertise, with distinct divisions that are often in competition. Newtonian leaders hold that organizations are best managed by establishing control, eliminating risk, and avoiding outliers to ensure equilibrium of thought. Zohar suggested that Newtonian leaders establish control over organizations by planning meticulously; establishing hierarchical role systems; articulating specific, measurable, achievable, realistic, and timely (SMART) goals; quantifying productivity expectations, performance appraisals, and incentives to induce compliance with organizational goals; and deriving efficiencies and effectiveness through hierarchical decisions.[2]

The attributes of organizations influenced by QL differ significantly from the attributes of those following the Newtonian model. Quantum organizations are holistic, flexible, self-organizing, diverse, naturally inquisitive, deeply networked, vision-centered, value-driven, and conscientious. Such organizations thrive at the edge of chaos. Quantum organizations operate on the principle that human beings are, by their very nature, internally motivated. Because quantum organizations are holistic rather than fragmented, work processes and individuals are deeply connected. While it may be challenging to find a pure quantum organization today, QL is increasingly evident in many institutions. In the wake of the pandemic, some organizations are adopting quantum thinking principles and evolving their ethos toward a more conscientious organization.[3]

Understanding QL can be challenging because it is radically different from traditional Newtonian methods and theories (see Table 1). QL is based on "whole-brain" thinking, encompassing three concurrent states: cognitive intelligence (IQ), emotional intelligence (EQ), and spiritual intelligence (SQ).[4] Quantum leaders build on a familiar foundation of linear, first-order Newtonian thinking that gives us our IQ. Robert Sternberg defined cognitive intelligence as combining verbal, numerical, and spatial abilities, including visualization, memory, word fluency, verbal relations, perceptual speed, induction, and deduction.[5] Zohar referred to this first-order thinking as serial thinking. Serial thinking does not promote subtle nuances or ambiguity and strives to resolve things clearly and logically. It is based on the assumption that institutions can be manipulated successfully through rules, strategies, and five-year plans because their behaviors are predictable—just as fixed laws of nature govern the Newtonian universe.[6]

Leaders must introduce new strategies for increasing engagement and motivation and developing emotional and spiritual intelligence so that all members of the institution are empowered to think and act in ways that transcend themselves and their institutions.

Quantum leaders must also possess the ability to understand and manage relationships, including their emotional dimensions. This second level of thinking, referred to as EQ, describes the "ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of one's self, of others, and of groups."[7] Unfortunately, EQ has not been a common attribute in boardroom discussions where control and execution dominate conversations.

However, EQ is emerging as a competitive advantage for those who lead with empathy and is a critical predictor of success for any Dx project. For example, leaders must emphasize improvements around human and technology interactions to ensure the technology is readily

Table 1. Comparison of Quantum and Newtonian Leadership Characteristics

QUANTUM LEADERSHIP	NEWTONIAN LEADERSHIP
Facilitates relationships between work and workers in all areas and at every organizational level.	Manages individual activities, functions, and work/job obligations.
Takes a panoramic view of intersections, relationships, and evolving themes.	Employs myopic, narrow, singular, and linear thinking.
Builds intrinsic motivations.	Manages extrinsic motivations.
Facilitates the decision-making process.	Is concerned only about the outcomes of decision-making.
Understands the thematic trajectory of change and embraces complexity and chaos as integral aspects of change in the context of an anticipated future state.	Plans to the greatest detail, and controls execution to elicit planned outcomes.
Describes change with language that connects workers to the value and meaningfulness of their efforts.	Invokes change to create itemized plans and steps that are independent of individual contributors.
Understands that all human dynamics, transformation, change, and sustainability are intrinsically intertwined.	Emphasizes rational and operational science skills and functions at the expense of insight, intuition, and feeling.
Thinks about teams as intrinsically motivated individuals with a shared purpose to a meaningful outcome.	Thinks about humans as resources to execute a determined process and as a means to an end.
Understands that too much structure is an enemy of work and effectiveness.	Is over-dependent on organization, rules, and structures to control work and effectiveness.
Knows the limits of data/information and incorporates intuition and SQ to make decisions.	Is over-dependent on information to make decisions.
Formulates many scenarios for what the future might hold, encourages questions and experiments, and embraces appropriate risk.	Formulates against a known future scenario or presumed outcome, seeks data that supports the current view, and avoids risk.
Embraces legitimate risk to expand the boundaries of agreement and understanding.	Mitigates risk and keeps within existing boundaries.
Recognizes the power of informal networks of people and uses them in conjunction with other formal constructs.	Relies exclusively on formal networks and organizational constructs as sources of information and action.

adopted at speed and scale.[8] The quantum leaders who exhibit EQ can simultaneously think about issues, have feelings, and acknowledge others' feelings. They can also be present physically and mentally, attend to conversations with authenticity, and listen to and ask team members questions with sensitivity to their emotions. Thus, quantum leaders replace traditional leadership methods with humble and appreciative inquiry, authentic relationship building, coaching and mentoring, and patient education and facilitation.

Quantum leaders also draw on their SQ to nurture a higher quantum intelligence. SQ is rooted in meaning, vision, and value. It allows leaders to use their whole selves in their leadership. SQ is exemplified by quantum leaders who exhibit a strong sense of self-awareness, know what they believe in and value, understand what profoundly motivates them, embrace their vulnerabilities and limitations, and are conscious of their strengths. QL is also compassionate and demonstrates caring for others and a deep desire to alleviate human struggle and suffering. Quantum leaders utilize their SQ to create new dimensions of interconnectedness and a shared collective purpose, which becomes the foundation for acting, a source of motivation, and a sense of responsibility to the greater good.

The principles of quantum science, chaos, and complexity theory warn that failure to incorporate these behaviors into the operations of an organization reduces leaders' effectiveness, viability, and sensitivity to their environment. Too much rational, hard-driving, and objectified behavior can alienate people and distance them from the work process, reducing their energy, creativity, and commitment to the organization, as well as their ability to perform their jobs effectively.

11 Dimensions of Quantum Thinking

The following eleven dimensions further characterize specific aspects of quantum thinking in the context of QL.

Recognize that the Whole Is Greater Than the Sum of the Parts

Quantum leaders believe that collective wisdom is most likely to emerge when all members are treated as internally motivated contributors acting in the best interests of the organization. QL practitioners also understand that thriving individuals create a synergistic cooperative that produces new energy to bind and drive the organization around a shared ethos. Hence, quantum leaders evolve their practice from the inside out through the balanced application of IQ, EQ, and SQ. Quantum leaders tap into broader thinking and sources of information by fostering diverse engagement and bringing their whole selves to their leadership roles.

Move beyond Servant Leadership

Quantum leaders extend the Newtonian servant-leader mindset toward a much deeper sense of the interconnectedness of life, engagement, and responsibility. A sense of service is based on humility, love, and a deep, abiding passion for and commitment to service. Quantum CIOs in higher education feel called upon to serve a greater purpose: to improve humanity through education, performance, and discovery as a means of creating prosperity for all living things. They work to instill others in the organization with this same sense of intrinsic alignment and passion.

Develop Multidimensional Vision

Quantum leaders cast a vision based on values that are appreciated and felt spiritually, intellectually, and emotionally. They evoke human potential by directing all individuals to shared goals. Quantum leaders connect a sense of purpose and passion to their vision and introduce intuitive practices that can provide the opportunity to build a more engaged and innovative workforce both internally and in partnership with external stakeholders.

Build Leadership at All Levels

A cornerstone of quantum physics is a theory known as wave-particle duality. This theory suggests that light energy exists simultaneously as both a wave and a particle. Quantum leaders recognize that individuals behave as part of the wave-particle duality, manifesting as both a leader and a follower at any given moment. The characteristics of an organization are also dynamic and can be perceived differently by the observer. Quantum leaders strive to develop the leadership and followership skills among organizational members at all levels, thereby enhancing diversity, inclusiveness, engagement, decision-making, collaboration, resilience, and agility, among other transformative organizational characteristics.

Create Multidimensional Engagement

QL is based on communication, dialogue, and interaction, which produce the invisible energy that binds the organization in unpredictable and powerful ways through shared knowledge, empathy, and spiritual bonds. There is a direct correlation between sharing these principles and accelerating organizational success. Quantum leaders strive for fully informed decisions by extending data collection and synthesizing knowledge by listening to and empowering team members.

Seek Opportunity in Chaos

Quantum leaders thrive at the edge of chaos and embrace the potential outcomes of uncertainty. They understand that increasing complexity and rapid transformation are related to dynamic and unstable processes. Creative disorder brings out valuable opportunities for improving performance, learning, adapting, and innovating. Quantum leaders cultivate agility and the ability to adjust quickly to changing situations, push the edges of boundaries, and reinvent the rules.

Anticipate Change

Quantum leaders must be creative and strategic, possess curiosity and open-mindedness, lead and manage change proactively, stay ahead of the market, and compete. QL requires the ability to carry out insightful analyses to anticipate change, develop innovative strategies and business models, and be capable of strategic integration to execute those strategies. Quantum leaders must be proactive and capable of driving strategic thinking while remaining prudent. They also need to have a "hands-on" frontline presence.

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Value the Journey

In QL, processes are indeterministic. Answers only qualify the ways to reach reality. The real meaning and value of QL are in the search for answers, rather than just finding answers. The journey itself is a meaningful outcome.

Help Others Embrace Change

Quantum leaders inspire others to not only survive but thrive during periods of great change and uncertainty. They help organizations to deal effectively with disruptive change and cultivate the ability to recognize and adapt to it in ways that create positive economic, social, and environmental value. They facilitate education that increases intellectual energy and encourages experimentation, fostering the courage to fail. Personal growth through learning and courage allows teams to build across organizational boundaries and consider alternate realities.

Embrace the Power of Diversity

Complex adaptive systems in nature thrive on diversity, and quantum leaders are adept at unleashing the power of diversity. Recent research has revealed that bringing together people with cognitive and identity diversity can lead to better performance on complex tasks or difficult problems.[9] In the context of QL, diversity builds on cognitive and identity diversity to consider many other dimensions. Quantum leaders celebrate differences illuminated through diversity interactions that broaden their situational awareness, challenge assumptions, and embrace humility. They learn to appreciate that diversity results in a rich chorus of inner voices, intuition, creativity, and growth. In nature, homogeneous systems are very stable but slow to adapt. Quantum leaders poised at the edge of chaos hold homogeneity and diversity in a critical balance.

Foster a Culture of Connectedness

The principles of duality lead quantum leaders to focus on relationships among individuals in the broader organization, taking steps to ensure opportunities for interaction and collaboration and being less concerned with organizational hierarchies and role definitions. QL builds an organizational culture that values connectedness as part of the "way of doing things" at an institution. At its most fundamental level, this requires quantum leaders to see the world from a broad, relational, and compassionate perspective. They pay attention to facilitating ways the organization can be successful while preserving and guarding individual members' personal interests, and their leadership is an extension of the human goodness that is part of the fabric of the universe.

Summary

CIOs are increasingly challenged to lead Dx efforts in their institutions. While the pandemic

introduced chaos, it also introduced CIOs and institutional leaders to new ways of thinking and acting that helped institutions to transform quickly around digitally enabled strategies. Indeed, the pandemic triggered a "quantum leap" to new paradigms, worldviews, and dimensions of reality. The evolving new normal in higher education requires CIOs to reconsider mechanistic and reductionist Newtonian leadership models in favor of multidimensional QL.

QL is particularly applicable to situations that arise during turbulent times. There are intense pressures on institutions to change when events seem chaotic, objectives have become ambiguous, and order seems to emerge of its own accord and in its own time.[10] These concepts are becoming more familiar to those higher education leaders, particularly CIOs, who attempt to navigate the growing technological complexities and leadership paradoxes confronting them today.

Making the leap to QL is a natural evolution to new ways of leading higher education institutions. By introducing holistic thinking, avoiding bias, and embracing uncertainty, QL provides a more profound and diverse basis for modern leadership.[11] It incorporates the whole self—IQ, EQ, and SQ—to elicit an organization based on intrinsic motivations and a collective sense of purpose.

Quantum leaders drive leadership as far down into the organization as possible and rely on trust-based relationships, connectedness, diversity, and spontaneous team building to solve complex problems. Those who pursue QL find greater purpose and meaning by seeking positive social impact.[12] The quantum CIO acts as an institutional strategist and avoids delving into the details of the future actions of an organization and instead analyzes the relationship between the organization-as-a-system and its external environment. QL also means determining the institution's ability to respond and adapt sustainably and demonstrating how relationships and aptitudes are meaningful to the community members who do the organization's work. Translating the strategic and tactical signposts of the institution into understandable and inspiring language is more critical than almost any other strategic task of the quantum leader.

While the work of CIOs as technology leaders is very personal, many of us in higher education naturally embrace quantum thinking. We share a deep, intrinsic connectedness to our work and strive to achieve a higher purpose to realize a greater good. QL underscores and ensures that technology enhances our humanity. While moving to QL may be a giant leap or only a small personal step out of our comfort zone, doing so is nevertheless a significant evolution and a new way of transforming ourselves, our teams, our institutions, and our world—for the betterment of all. ■

Notes

1. Danah Zohar, *The Quantum Leader: A Revolution in Business Thinking and Practice* (New York: Prometheus Books, 2016).
2. Ibid.
3. Gemma D'Auria, Aaron De Smet, Chris Gagnon, Julie Goran, Dana Maor, and Richard Steele, "Reimagining the Post-Pandemic Organization," *McKinsey Quarterly,* May 2020.
4. Zohar, *The Quantum Leader.*
5. Robert J. Sternberg, "Styles of Thinking," in *Interactive Minds: Life-span Perspectives on the Social Foundation of Cognition,* ed. Paul B. Baltes and Ursula Staudinger (Cambridge, UK: Cambridge University Press, 1996), 347–365.
6. Zohar, *The Quantum Leader.*
7. Olivier Serrat, "Understanding and Developing Emotional Intelligence," in *Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance,* (Singapore: Springer, 2019), 329–339.
8. Jesus Mantas and Rafael Sweary, "Digital Transformation: 4 Ways to Build Empathy into Your Processes," *The Enterprise Project,* February 22, 2021.
9. Scott E. Page, *The Diversity Bonus: How Great Teams Pay Off in the Knowledge Economy,* ed. Earl Lewis and Nancy Cantor (Princeton: Princeton University Press, 2017).
10. Leah Curtin, "Quantum Leadership: Upside Down," *American Nurse Journal,* March 11, 2013.
11. Kashyap Vyas, "Decoding Quantum Thinking: What It Feels Like to Think Free," *Interesting Engineering,* July 20, 2019.
12. Chris Laszlo, "The Quantum Leadership Project: Accelerating Globally Responsible Business," *Global Responsibility: The GRLI Partner Magazine,* no. 15 (2016): 21–23.

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How Higher Education Can Overcome Barriers to Digital Transformation

By Kim Fahey

As key contributors to society, colleges and universities must evolve how they operate to achieve their missions. This includes implementing technological advancements to be more accessible, flexible, and affordable. Understandably, many institutions have struggled in their attempts to digitally transform and, as a result, have invested considerable time and money without achieving the desired outcomes.

This is partly because digital transformation is misperceived as being only about technology. Technology is the enabler that fosters innovation and improves the business processes needed to meet the changing demands of students and faculty. By reframing digital transformation instead as a journey that aligns information technology and business processes, institutions can create differentiated experiences for their students, improve operational performance, and ultimately further their mission.

Digital Transformation: No Longer Optional

Higher education is no longer immune from students' high expectations and preferences for digital service. Most other industries interact with consumers digitally, and students now bring those expectations of simplicity, personalization, self-service, automation, and customer service with them to their educational experience. To meet amplified consumer and environmental pressures, higher education institutions must embrace and accelerate the process of digital transformation to optimize operations and lower operating costs, improve student experiences, and enhance their brand.

Unfortunately, most organizational digital transformation efforts lag or fail. According to one estimate, only 30 percent of digital transformations meet or exceed objectives and result in sustainable change.[1] To successfully transform business operations and strategically leverage technology, college and university leaders must understand the barriers they face, then methodically plan their step-by-step path to digital transformation.

Four Digital Transformation Barriers

For many higher education institutions, true digital transformation remains elusive. Below are four key barriers preventing colleges and universities from achieving value from their various digital transformation initiatives:

1. **Antiquated, siloed technology ecosystem:** Many institutions use outdated, legacy systems that are not properly secured or integrated together to support the interoperability needed to improve business processes and enhance the end-user experience.[2]
2. **Lack of technology governance:** Many colleges and universities struggle moving toward digital transformation because they lack formalized IT governance—a structure that ensures information technology is deployed effectively and efficiently in support of organizational objectives.[3] Without proper governance, implementing the highest-priority technology needs and the most appropriate solutions is very difficult to do—and to do so on time and on budget.
3. **Lack of necessary skills:** Another barrier is attracting and retaining the talent needed to implement and support the technologies required to transform an institution. Typical higher education IT departments tend to be understaffed and underfunded, resulting in those limited resources being forced to focus on "keeping the lights on" rather than moving the institution forward.[4]
4. **Change management difficulties:** Institutions often can't take advantage of the preconfigured self-service and integration capabilities provided by new software because they have overly customized their processes. In addition, these unique processes require costly maintenance and support. Critical to success is the institution's commitment to change management and recognition of the importance of adapting processes to best leverage technology and focus on the student experience.

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Four Stages on the Path to Digital Transformation

To overcome the common barriers to digital transformation and achieve its benefits, college and university leaders must first assess their technology and processes and move through these four key stages:

1. **Stabilization:** This stage is about steadying "core" institutional systems and functions. It includes upgrading systems to current releases, enhancing the network, increasing bandwidth, addressing security gaps and risks, and shoring up end-user support. Without stabilization, institutions can't take advantage of their system's latest features and will be more prone to outages and expensive, time-consuming maintenance.
2. **Standardization:** At this stage, institutions need to take a now-stabilized core technology infrastructure and find new opportunities for efficiencies and costs savings. This stage includes eliminating redundant systems, implementing governance to ensure that priorities are aligned, reducing customization, and migrating to standard cloud technologies. Standardization requires a willingness to adapt, a commitment to change management, and an agreement on intended outcomes focused on the student experience.
3. **Optimization:** This is the stage at which technology can be implemented to streamline tedious manual tasks, maximize resources, and deliver on the automation and efficiencies that technologies often promise—ultimately allowing faculty and staff to create quicker, more predictable, and more personalized experiences for students. It is not unusual for institutions to attempt to begin their journey at this stage. However, without first achieving stabilization and standardization, institutions will be challenged to achieve optimization success.
4. **Transformation:** Once the technology ecosystem is optimized, institutions can begin to implement transformative technologies that allow them to leverage their connected data to drive decisions through predictive analytics, introduce innovations in teaching and learning, personalize the student journey, and build technology-enabled student-retention strategies.

Taking the Next Step toward Sustainable Digital Transformation

Effective digital transformation offers exciting possibilities and opportunities for institutions to improve their teaching and learning and also their ability to effectively manage the institution. Despite this, many colleges and universities still aren't digitizing, or are falling short in their attempts, which is causing their technology spending to rise, with little return on their investments.

By overcoming the barriers and moving intentionally through the four stages to effective digital transformation, institutions can improve their productivity and their students' experiences, as well as create new growth opportunities and enable innovation.■

Notes

1. Boston Consulting Group, "Companies Can Flip the Odds of Success in Digital Transformations from 30% to 80%," press release, October 29, 2020.
2. Elise Povejsil, "Level Up Your Student Information System (SIS): Moving Processes from Manual to Automated," Collegis Education (website), February 10, 2021.
3. Christine Skopec, "Why IT Governance in Higher Education Institutions Is So Essential," Collegis Education (website), December 16, 2020.
4. Elise Povejsil, "Top 4 Risks of Underfunding Your College's IT Department," Collegis Education (website), April 28, 2021.

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Information Security Transformation Aligned to Digital Transformation Goals

By Sandy Silk

"Digital transformation" (Dx) as a buzzword may be approaching the end of its life, but the fundamental concept—continuously improving the use of technology and data to provide value to customers—is real and critical to the survival of businesses. If information security teams don't evolve to deliver the same Dx value and benefits to our organizations, then we risk losing our "customers" to intentional circumvention or preference for shadow IT systems.

Make sure your information security organization provides the core Dx attributes:

- Convenience
- Personalization
- Outstanding customer experience
- Agility
- Cost savings

Does your information security organization leverage the tools, data, and communication channels used by your customers to ensure that information security is considered during the early stages of a project rather than being a last-minute hurdle that needs to be cleared just prior to production? For example, consider hooking into your Institutional Review Board's administrative system so the board's coordinators can pull you into the security review cycle seamlessly when they are first reviewing research protocols. Coordinate with your procurement group's vendor-management system so you can share reports and the status of vendor reviews in one central location. Provide easy-to-read guides that indicate "which data where" for pre-approved platforms your end users can leverage according to data sensitivity and desired functionality. Make it easy to initiate a discussion with your information security office via a monitored departmental email account or Slack channel, or post a calendar where people can schedule appointments with you.

Providing a personalized and tailored risk assessment yields an exceptional customer experience that can help your information security department maintain a positive brand with internal stakeholders. The following are two of my favorite questions to ask when assessing the possible security risks of a new initiative:

1. What are you doing today versus what you're proposing?
2. What's the risk if we don't move forward with this?

The answers to these questions provide perspective into potential losses associated with missed business opportunities and set a baseline for improved security controls. Helping your business partners to think about anticipated "normal" business patterns and potential anomalies will also improve their business controls and threshold monitoring, both of which add business value. These are discussions you should conduct face-to-face, on the phone, or via video chat, but not back and forth through email. Tailor your security recommendations to the project goals and offer a brief summary of your report to address potential areas of confusion or concern.

Gain agility by standardizing or automating repeatable processes and positioning them where your partners can use them. Find ways to fast-track and reward the use of preferred paths and tools. For example, if you're migrating on premise to cloud-based services, provide your DevOps teams with security APIs for automated code review and configuration checks within those environments. Enable self-service wherever possible, and facilitate straight-through processing of standard requests and account provisioning, such as for common research platforms or managed payment card industry (PCI) storefront accounts. Leverage scripting to parse and analyze user-reported phishing messages received in your central mailbox, and alert your team when certain thresholds or characteristics that require quick attention are met.

Ensure that information security is considered during the early stages of a project rather than being a last-minute hurdle that needs to be cleared just prior to production.

Finally, save yourself the costs of team burnout and project delays by right-sizing your information security team's involvement within projects. If the risk level doesn't rise to a defined threshold—based on categorized data sensitivity or functionality—then make sure projects move forward with predetermined security controls rather than delaying them for an unwarranted security review.■

Note

1. For more guidance on bringing cybersecurity into closer alignment with Dx goals, read Sandy Silk, "How Cybersecurity Can Better Support Digital Transformation Business Goals," ISACA Now (blog), ISACA, n.d.

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How Disability Services Departments Are Embracing Digital Transformation

By Dave Tucker and Luke Garbutt

Imagine this . . . You're an administrator in the disability services department of a public college or university. The job attracted you because of your genuine interest in educational equity. Working in this department allows you to address the barriers that students are facing in the classroom and helps you to know that you're making a difference in learners' development.

But there's a problem. One key area of your work—the provision of note-taking services—is swallowing up more and more of your time. The analog system you have in place, in which student volunteers supply their own class notes to eligible peers, is showing cracks. It's a legacy system you inherited when you started the job. And it causes all manner of headaches.

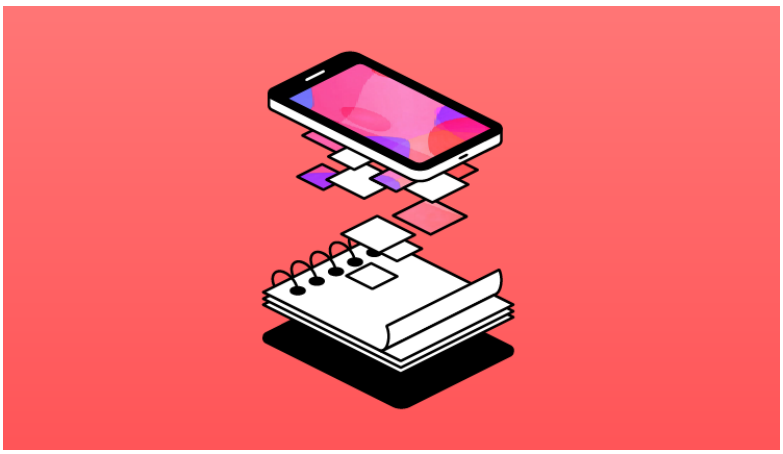
You need to recruit more students to take these notes for their peers, but volunteers are limited. Those who are already signed up often return illegible or patchy notes (if they return them at all), which you must correct, scan, and email to the relevant students.

It's a flawed system, with plenty of elements that can disrupt your work, but it's the way things have always been done.

From Macro to Micro

Discussions about digital transformation often address the topic on the macro level. Huge Dx projects are under way on campuses across North America to fundamentally upgrade learning infrastructures, pedagogies, and administration. Naturally, sweeping changes grab the headlines.

But as we can see from the case above, there's huge potential for positive change on the micro level too. The daily frustrations that staff and students experience with an analog system such as note-taking services make a powerful case for grassroots digital transformation.



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Dx in Disability Services

We surveyed professionals from 95 higher education institutions, aiming to learn how disability services departments have been affected by the pandemic and how institutions are preparing to meet the challenges of the future.[1] We discovered that the disability services community is taking the initiative. One survey respondent, a director of disability services, commented: "The most urgent thing we can do to improve student experience is streamline processes and procedures to make it easy for students to access accommodations and other services on campus." Another respondent noted: "Our main priority is to *bring the office into the digital age.*"

Just as an August 2021 EDUCAUSE QuickPoll found that 44% of higher education institutions surveyed are now engaged in Dx, up from 13% in 2019,[2] our survey found a similar pattern within disability services departments:

- 58% of our respondents believe that digital transformation is a key priority for their institution.
- 67% want to increase their use of inclusive technology over the next five years, with many expressing a desire to move away from peer notes systems altogether.
- 43% want to reduce their use of peer notes systems.
- 44% believe that peer notes have been harder to administer during blended learning.
- 65% are already using inclusive technology as their primary note-taking accommodation.

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Why the Change?

Administrative burden is just one reason the disability services community is seeking new digital solutions.

While a functioning peer notes system meets a student's immediate need for notes, it fails to build learning independence and does little to remove barriers in the classroom. Driving the movement toward digital transformation is the broader aim of making learning accessible *by design*.

Universal Design for Learning (UDL) aims to do just that, which is why it's gaining momentum within the disability services community.[3] UDL advocates argue that barriers within the classroom—such as note-taking—can be remedied by introducing more options for how students receive, interact with, and express learning.

By embracing UDL principles, institutions can ensure that classrooms lower barriers to learning, allowing disability services departments to offer more holistic support to students. And technology provides the best route to this future.

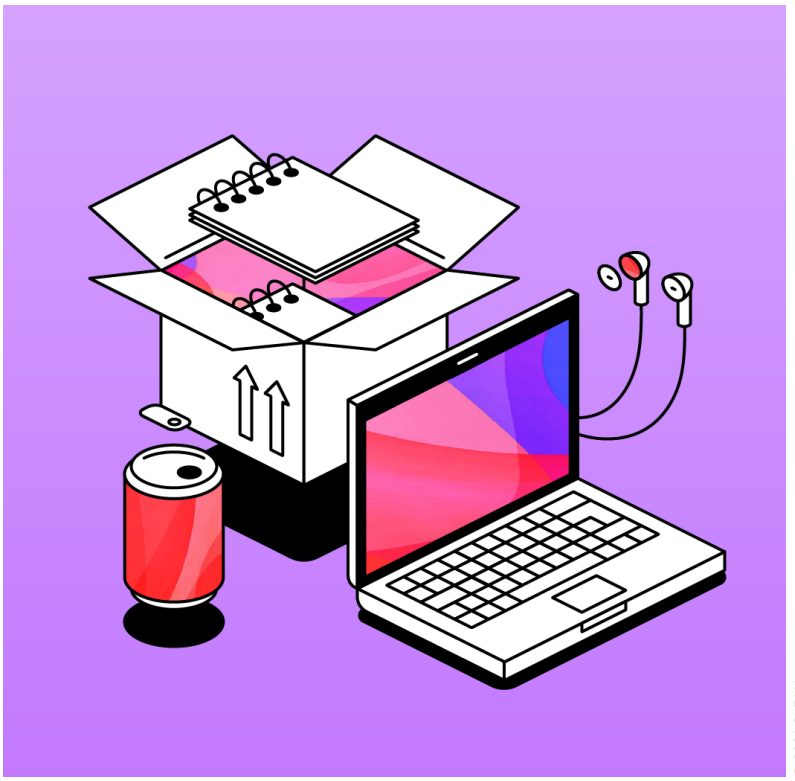
Inclusion through Technology

Inclusive learning technologies help departments meet the needs of their students while scaffolding the skills needed for classroom independence. But digital tools also allow staff to track usage and effectiveness of the accommodation, helping institutions understand the impact achieved for their investment.

By employing digital technology on UDL principles, disability services departments are leading the line in transforming experiences. It's Dx in action.

Note-taking is just one small example. But it's a case study in how Dx can both solve immediate practical problems and deliver greater experiences for learners.

Dx is an opportunity for a post-pandemic renewal of the offer made to learners by higher education. Let's use digital transformation to deliver greater equity and widen access for all.■



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Notes

Discover more about equitable Dx from edtech experts and educators at Glean's webinar series.

1. Glean, "COVID, Blended Learning, and Digital Transformation," white paper, accessed September 10, 2021.
2. Mark McCormack, "EDUCAUSE QuickPoll Results: Institutional Engagement in Digital Transformation," *EDUCAUSE Review,* August 6, 2021.
3. "UDL and Modern Learning," *Learning & Notetaking* (Glean blog), July 2, 2021.

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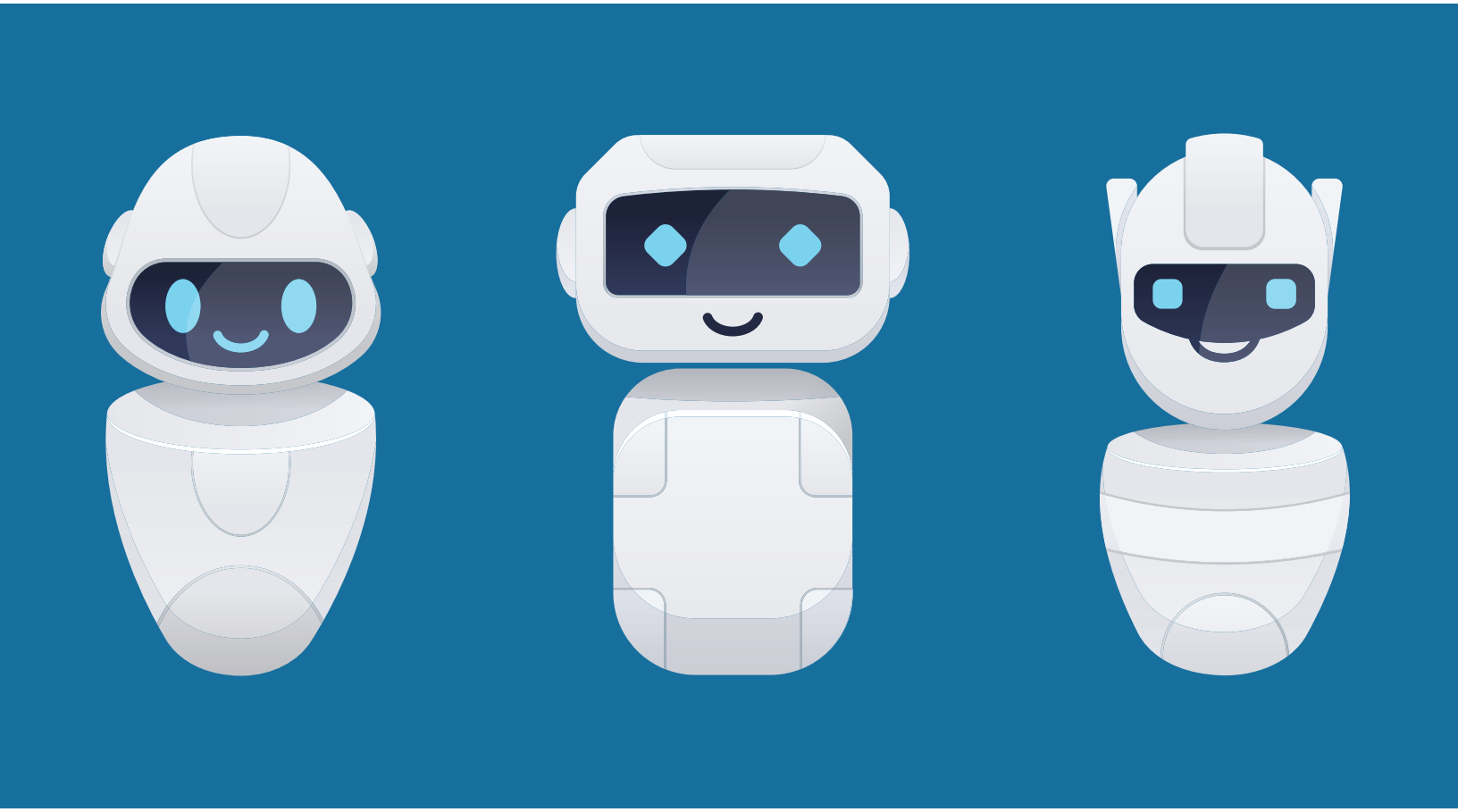

Case Study: Promoting the Process of Digital Transformation at the University of Memphis

By Robert M. Johnson, Jr.

This case study is drawn from experimentation over the past twelve months at the University of Memphis, a public Research II institution founded in 1912 and currently serving more than 20,000 students.

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In 2018, University of Memphis CIO Robert Jackson set out to test various approaches for transforming the university's digital landscape. Although the university was eager for digital transformation, identifying the best combination of cultural and organizational principles required experimentation.

To Go Fast, Start Slow

In designing a strategy for digital transformation (Dx), CIO Robert Jackson framed the challenge as a lean startup. His goal was not primarily to complete a technological adoption but rather to experiment with ways to cultivate a creative culture. He maintained this perspective throughout the project but did so without didactically announcing his intentions.

Choosing a Minimum Viable Product

To kick-start this innovative activity, Jackson looked for an unobtrusive project that was not tied to a specific problem but that could generate new perspectives on problems and possible solutions. For this experiment, he chose the implementation of a new AI chatbot. Given the CIO's organizational goals, the chatbot is the least important element of this case—it was a project small enough to test a Dx-related tactic without triggering cultural opposition.

Building the Team

Jackson assigned leadership of the project to a member of the Web and Mobile Services staff and charged him with assembling a group of people from multiple service areas—ranging from Student Affairs to the Enrollment Services One-Stop Shop—and facilitating their experimentation with the chatbot.

The group's members were unaccustomed to working with each other on a shared support project. They had no preconceived notions about who among them might be a leader at any given point. The qualification for being involved was curiosity, and the expectation for participation was the willingness to conduct experiments with a self-service, chatbot tool.

Experimenting with the MVP

Consistent with a lean startup approach, the project began with a minimum viable product (MVP). The chatbot was limited in its interface, web location, knowledge base, and application or audience. Over the course of the year, the team explored the results of changing each of those elements, testing the effects of linking to the chatbot from various pages, adding a floating element, changing the icon, adding items to the knowledge base, and reprioritizing information domains.

Because the target population shifted constantly in its composition, profile, and interests based on the time of year, the group recognized that any commitment to assumptions about customer behavior and the user experience might be premature. During experimentation, the decision to persevere or pivot arose repeatedly, and the project resulted in a series of pivots that the vendor, the team, and the CIO would not have foreseen. Nonetheless, the lean startup Dx vision persisted, even as the direction of the project adjusted to new discoveries and surprises.

As at most institutions, the University of Memphis needed a way to break the temptation of viewing success in terms of outputs and instead understand success in terms of process.

By investigating the process and improving it, the organization suspended the pursuit of short-term goals, which helped us become more adept at digital transformation. With the freedom to explore, fail early and often, and adjust, the university developed greater aptitude for digital transformation.

Lessons Learned

Over the course of this year-long experiment, our team learned various lessons.

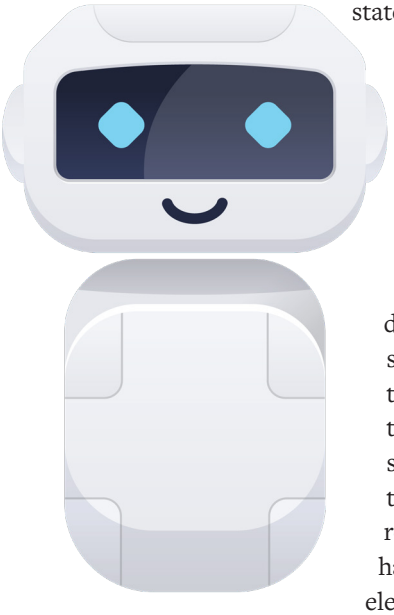
1. A Minimum Viable Product Requires a Minimum Viable Plan

Highly structured, long-term plans can create inflexibility. According to Eric Ries, author of *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses:*

> *Unfortunately, too many startup business plans look more like they are planning to launch a rocket ship than drive a car. They prescribe the steps to take and the results to expect in excruciating detail, and as in planning to launch a rocket, they are set up in such a way that even tiny errors in assumptions can lead to catastrophic outcomes.*[1]

Leaving the destination open lets the team test assumptions and hypotheses and, if indicated, pivot. Remember: When adopting this approach, failure is the source of learning, not evidence of poor planning. As Ries stated, "If you cannot fail, you cannot learn."[2]

Transformations inevitably involve mess, **even loss, before they deliver results.**



The initiative gave our large institution the opportunity to behave in an agile and flexible manner more akin to that of a lean startup. The project proceeded not as a linear, deductive exercise but rather as a series of conjectures, inductively transforming the culture and the organization. The project spawned creativity and openness to ideas and perspectives without reference to strategy, which would have slowed it down—and possibly elevated its development to a higher level of the organizational hierarchy.

2. To Learn Quickly, Avoid "Success Theater"

Ries not only extols the virtue of failing fast but also highlights the danger of turning everything into success as a form of theater.

> *When good results are not forthcoming, business leaders assume that any discrepancy between what was planned and what was built is the cause and try to specify the next iteration in greater detail. As the specifications get more detailed, the planning process slows down, batch size increases, and feedback is delayed.*[3]

Our team was able to resist this impulse toward "success theater" because the CIO's charge did not define success in terms of vanity metrics, such as number of engagements.[4] Also, because our commitment to the project did not entail commitment to a predetermined definition of success, the team was able to engage in the process of discovery and validated learning, which is the goal of the lean startup:

> *Validated learning is not after-the-fact rationalization or a good story designed to hide failure. It is a rigorous method for demonstrating progress when one is embedded in the soil of extreme uncertainty....*[5]

It is also important to be wary of pronouncing an experiment a failure before it is complete. As Rosabeth Moss Kanter declared:

> *Everything looks like a failure in the middle. Everyone loves inspiring beginnings and happy endings; it is just the middles that involve hard work.*[6]

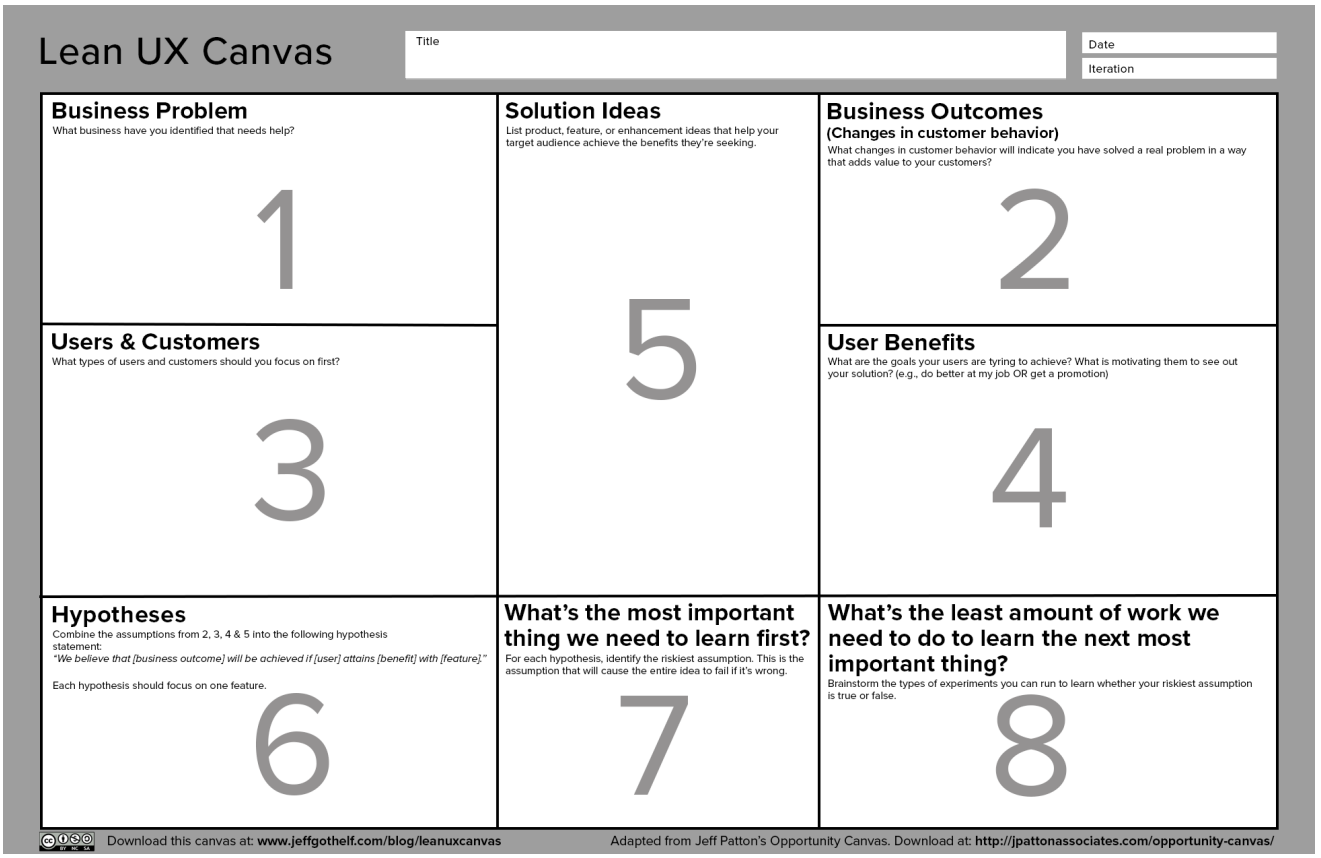
Transformations inevitably involve mess, even loss, before they deliver results.

3. When Culture Is at Stake, Leadership Is Everything

In our case, the most important resource required to conduct cultural experiments was having an executive champion for the process. The CIO was the engine behind the project; he assumed the financial risks and gave us permission to fail quickly and pivot rather than persevere futilely and endlessly. As Ries noted, "Leadership requires creating conditions that enable employees to do the kinds of experimentation that entrepreneurship requires."[7]

A recent *Harvard Business Review* article characterized this approach as bringing the

Figure 1. Gothelf's Lean UX Canvas



Silicon Valley startup mentality into the organization. In our case, the process created lean intrapreneurs who tried to make the biggest impact with the fewest actions, develop and test hypotheses, and fail as quickly as possible to learn as rapidly as possible.

4. Use Lean Startup Principles as a Guide

To accelerate culture change, we found it helpful to behave like an entrepreneur, begin with the customer, and keep in mind the following principles:

- *Solid value and growth hypotheses.* Ries defines the *value hypothesis* as testing "whether a product or service really delivers value to customers once they are using it," and the *growth hypothesis* as testing "how new customers will discover a product or service."[8] That is, value is determined by the person or interests served. Customers are unlikely to change their behavior if they perceive no value in doing so.
- *Small batches.* Find quick wins or quick failures; the point is to do it quickly. As OODA Loop creator John Boyd noted, the key to victory is to make appropriate decisions faster than the opponent.
- *Minimum viable product.* Ries notes that the MVP helps entrepreneurs start the process of learning as quickly as possible: "It is simply the fastest way to get through the Build-Measure-Learn feedback loop with the minimum amount of effort."[9] He says the goal of the MVP is "to begin the process of learning, not end it" and to test fundamental business hypotheses.
- *Pivots.* "A pivot is not just an exhortation to change. Remember, it is a special kind of structured change designed to test a new hypothesis about the product, business model, and engine of growth. It is the

Where to Learn More

In addition to his blog for entrepreneurs, Steve Blank has published several key articles on lean startups, including: "Why the Lean Start-Up Changes Everything," and (with Bob Dorf) "The Customer Development Manifesto." Blank has also published two books:

- *Four Steps to the Epiphany: Successful Strategies for Products that Win* (Palo Alto: K&S Ranch, 2013)
- *The Startup Owner's Manual: The Step by Step Guide for Building a Great Company* (Palo Alto: K&S Ranch, 2012)

Other excellent resources on this topic include

- Alexander Osterwalder and Yves Pigneur, *Business Model Generation: A Handbook for Visionaries* (Hoboken: Wiley, 2010)
- Alexander Osterwalder and Yves Pigneur, *Value Proposition Design: How to Create Products and Services Customers Want* (Hoboken: Wiley, 2014)
- Chet Richards, *Certain to Win: The Strategy of John Boyd, Applied to Business* (Bloomington: Xlibris, 2004)
- Behnam Tabrizi, Ed Lam, Kirk Gerard, and Vernon Irvin, "Digital Transformation Is Not about Technology," *Harvard Business Review* (March 13, 2019)

Dx does not drive UX; Dx follows UX and responds to it. If you think you know your customer, design a hypothesis **to test your assumptions. If you are right, move on to the next hypothesis. If you are wrong, pivot.**

> heart of the Lean Startup method."[10] Avoid the traps of the sunk-cost fallacy, endowment bias, and confirmation bias. Persevering too long is costly.

The lean approach can be applied to the user experience (UX). As figure 1 shows, Jeff Gothelf's Lean UX Canvas ties the lean startup principles together in a coherent template.

Following the order of Gothelf's template illustrates a key point: *Dx does not drive UX; Dx follows UX and responds to it.* If you think you know your customer, design a hypothesis to test your assumptions. If you are right, move on to the next hypothesis. If you are wrong, pivot. This is the heart of the lean startup, and it is the key to digital transformation.■

Notes

1. Eric Ries, *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses* (New York: Random House, 2011), 21.
2. Ibid., 56.
3. Ibid., 126.
4. Ibid., 53.
5. Ibid., 38.
6. Rosabeth Moss Kanter, "Change Is Hardest in the Middle," *Harvard Business Review,* (August 12, 2009).
7. Ries, *The Lean Startup,* 34.
8. Ibid., 60
9. Ibid., 93.
10. Ibid., 177.

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How Digital Transformation Can Enable the Contactless Campus

By Adam McDonald

Universities and colleges everywhere have been modernizing their campus technology to keep up with the digital transformation occurring in classrooms, across campus services, and beyond. In many cases, the work already done in this space laid the foundation for the tremendous flexibility and creativity we've seen over the past year and a half in response to the COVID-19 pandemic. From remote learning to student services to campus commerce and credentials, no aspect of the campus experience remained unaffected. The result has been the most rapid adoption of new technology this industry has ever seen and has taken digital transformation in the higher ed space to a new level.

The technology now in place has enabled institutions to move toward a contactless campus, meaning that—as much as possible—interactions across campus are done without person-to-person contact. According to recent research, consumers are trending this way as well: 59 percent now prefer contactless payments, up from 52 percent before the pandemic.[1]

Additionally, students have indicated that they want, and are comfortable with using, mobile apps and payment methods. In a recent student study conducted by TouchNet, the most important features of an app were managing payments (69 percent), getting refunds (68 percent), and using a virtual ID (64 percent).

Creating a Contactless Campus

The goal of creating a contactless campus is to develop an environment in which technology helps promote health, safety, and security without sacrificing the social nature of higher education. People still crave in-person interactions, and one way to create a safer environment is to maximize contactless in-person transactions.

Step 1: Enable NFC Technologies. Near Field Communication (NFC) is a communications technology that enables frictionless or contactless transactions including payments, access, and more. The technology has existed for over a decade, but recent trends in consumer behavior further accelerated by the pandemic have brought it to the forefront. It makes the tap-to-pay or tap-to-access feature available with physical cards and mobile devices.

Step 2: Embrace Mobile. With NFC in place, colleges and universities can transition everything from campus-wide payments, building access, and campus IDs to mobile devices. Today's students expect the portability and on-demand aspects of mobile apps, and these solutions are inherently more secure thanks to tokenization, the process that substitutes unique, randomly generated numbers for real account numbers.

Step 3: Move to Cloud-Based Administration. The flexibility of web-based systems lends itself to remote administration. This allows institutions to manage campus shutdowns, issue student refunds, help students access on-campus dining, manage events, and more.

Whether your institution is completely reopening campus or is moving forward with a hybrid solution of online and in-person classes, a cloud-based solution can help you provide great student experiences, data security and PCI (payment card industry) compliance, and above all a secure and safe environment in which students can focus on learning.

A Platform Approach to Success

Much of the current digital transformation is focused on creating a contactless campus, but digital transformation requires more than that to truly maximize institutional leaders' ability to complete their mission of educating and graduating students. With the rapid technological upgrades occurring on campuses, it's abundantly clear that a stopgap isn't going to fix some of the issues we're seeing.

Campuses remain largely siloed. Historically, many departments and campus offices end up managing their specific needs on their own without being integrated with campus systems. This can cause fragmented data and create risk exposure, putting them out of compliance while also creating information silos that make guiding and helping students a challenging and scattered process. Rather, campuses should implement solutions that allow administrators to view the "whole student," moving staff from a transactional role to more of an advising role.

To do so, campuses and their technology partners need to adopt a platform approach, which builds an ecosystem of fully integrated, cloud-based software. By adopting a platform that can be used across campus by every department, administrators can reduce silos and support better student outcomes. A platform approach to technology focuses on four pillars that are vital to a healthy campus: *experience, connections, security and compliance,* and *insights.*

Experience

First, the experience for students and administrators should be considered at every step of the way. Our expectations as humans

have dramatically shifted from where we were two years ago. Mobile-first is now the expectation, not the exception.

Students expect the same experience on campus as they have in the world at large. They expect the technology on campus to be seamless. They want to be able to complete everything they need to do from a single place—primarily, their mobile phones. Not unlike students, administrators also crave a smooth experience with their on-campus technology. The systems should be easy to use, add value, save time, and be able to be managed remotely.

A huge component of creating an excellent campus experience is minimizing the number of items that each person needs to complete in their everyday routine. Using single sign-on for online portals and services and using the campus ID for all campus transactions are just a couple examples. For this to be possible, all campus connections need to be in one integrated platform.

Connections

The campus ecosystem is vast and specialized. Basically a self-contained city, a campus provides nearly every product or service that is available in the broader economy but specializes these products and services to students, faculty, and staff. Because of this, the sheer number of technical systems on campus can be overwhelming.

With a platform approach, connections are front and center to delivering a premier campus experience for students, faculty, staff, and visitors. While no single solution natively handles every single aspect on campus, a well-structured platform should seamlessly integrate with every connection point on campus. From student information systems to payments and credentials and more, all campus services should be connected and should be centered on the student.

Security and Compliance

Taking advantage of the connectivity of a platform approach ensures security and compliance in multiple ways. With fewer integrations, the risk of a security breach is lowered. From a credentialing perspective, access and physical security are managed at an institutional level, making the opening or shutting down of campus areas during an emergency more efficient.

From a payments and data perspective, having one platform that secures all transactions alleviates the huge resource strain that PCI compliance can bring if an institution has to manage this activity across multiple systems.

Insights

The experience, connections, and security and compliance aspects all add up to more visibility of the "whole student." Campus ecosystems are a treasure trove of data from various interactions (e.g., payments, access, dining). And while precautions must be taken to ensure that data is responsibly maintained and secured, there are opportunities to use data to uncover insights and trends that can aid both students and administrators. With a unified platform, data reporting is easier to maintain.

And last but not least, models of student engagement can be created. Administrators can build personas that demonstrate how successful students develop healthy habits, learn key steps in financial literacy, and obtain life lessons. This can assist in creating action plans to help bolster student outcomes among at-risk populations.

The Evolving Role of IT Departments

One thing is clear: embracing new technologies is a game-changer for higher education. And the IT department plays a vital role in the digital transformation on campus. IT leaders and staff consult, advise, and educate people across campus on how to maximize technology as well as ensure security and compliance.

IT leaders and staff work with teams to reduce redundant systems and create repeatable automated processes. By doing so, they spend less time troubleshooting and maintaining mundane systems and more time on strategic decision-making. All of this allows administrators to feel confident in their work and enables them to do more with the technology they have. A platform approach empowers IT leaders to create a smoother, more flexible, and easier-to-navigate campus experience.■

Note

1. Jackie Lorch, "The Growth of Contactless Payments During the COVID-19 Pandemic," Dynata (website), accessed September 15, 2021.

Adam McDonald is President of TouchNet.

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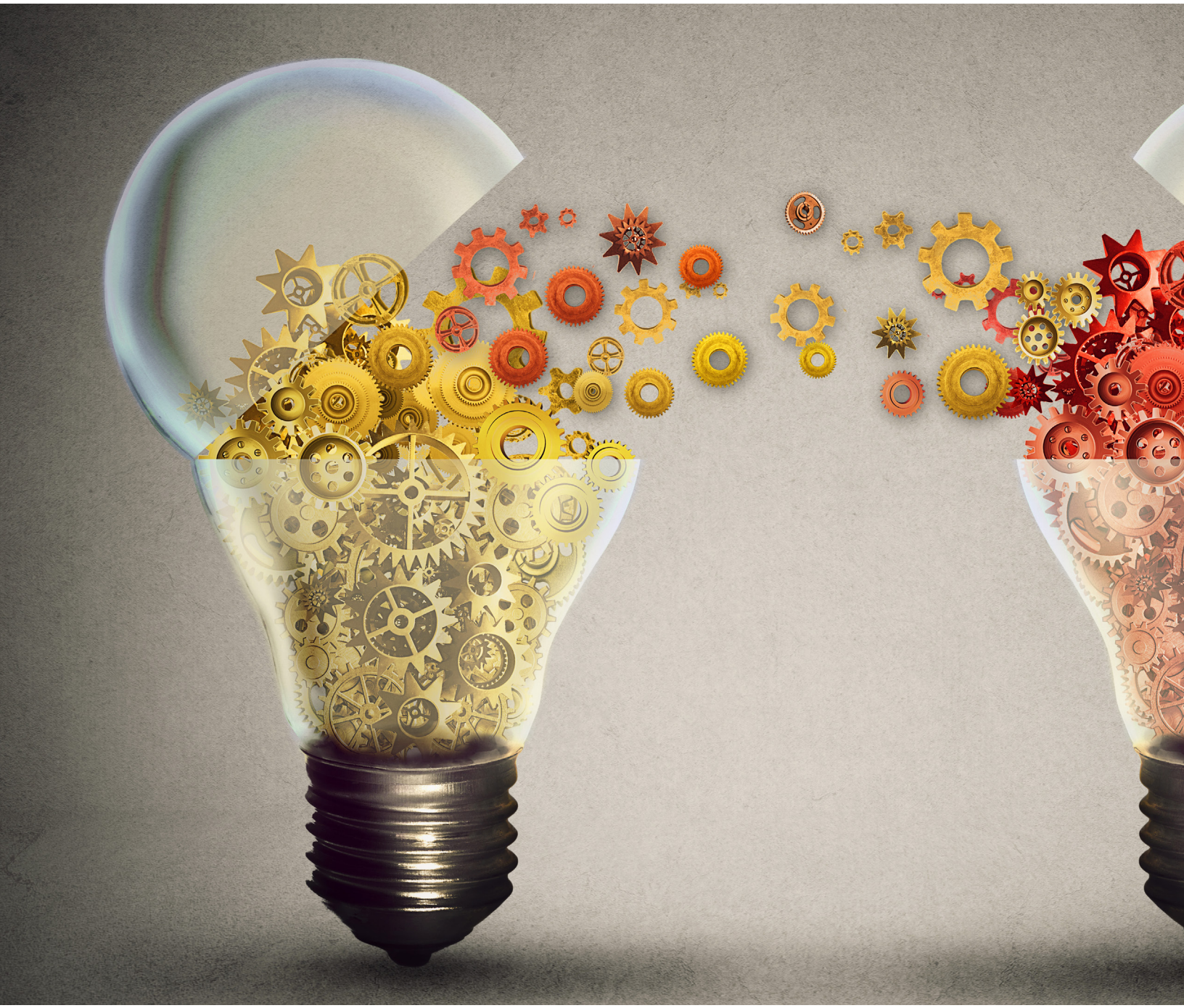
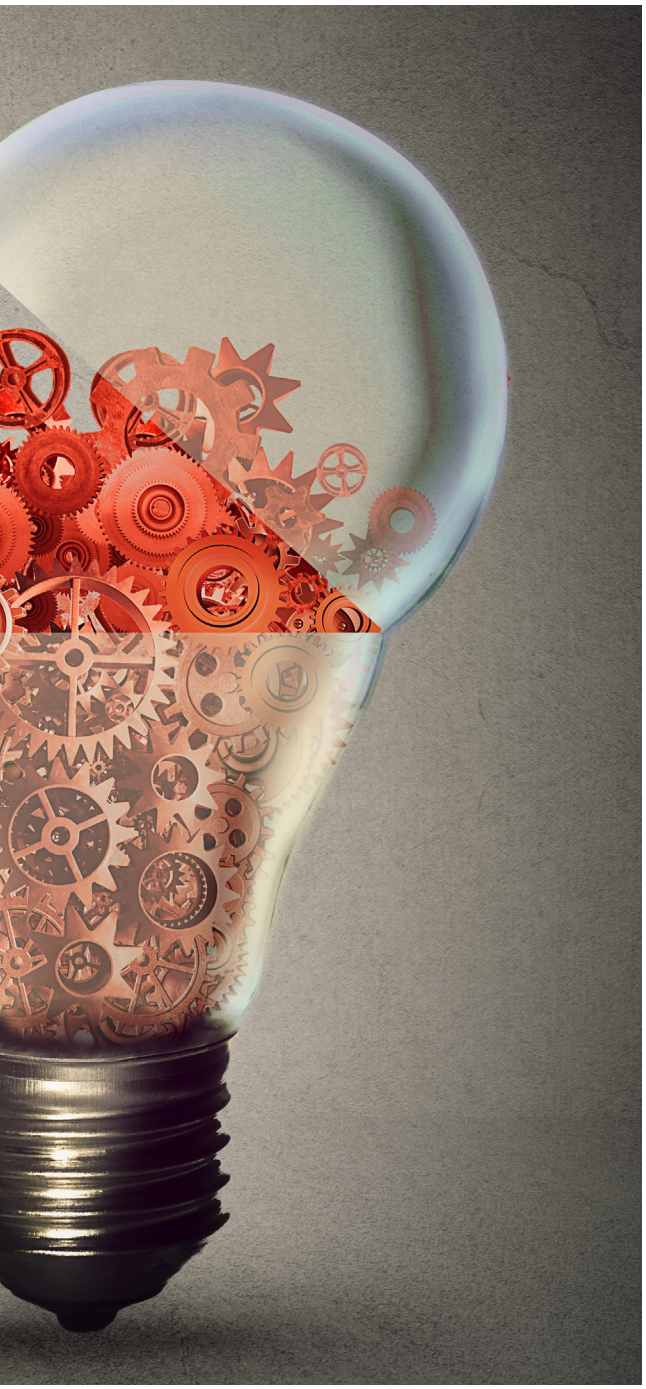


Case Study: Redesigning IT Governance for Digital Transformation at North Carolina State University

By Debbie Carraway and Marc Hoit



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North Carolina State University (NC State) is a public land grant university in the University of North Carolina System. NC State is a doctoral institution with very high research activity. Located in Raleigh, NC State has more than 34,000 students and over 9,000 faculty and staff members. The university has ten academic colleges reporting to the provost, along with six major units in the chancellor's cabinet: external affairs, partnerships and development, finance and administration, general counsel, information technology, research and innovation, and university advancement.

IT is organized in a federated model, with a central Office of Information Technology reporting to the CIO. In addition, we have independent IT units in our academic colleges and libraries, a separate distance education and learning technologies division, and IT units within various centers, institutes, departments, and administrative units.

NC State's university governance consists of the Board of Trustees; the Faculty Senate, Staff Senate, and Student Senate; and our University Council. The University Council consists of the chancellor's cabinet, deans, and student and staff representatives, and includes the vice chancellor for information technology and CIO. In addition, we have many university standing committees and administrative advisory committees covering a variety of areas.

The NC State IT Governance Redesign

In 2014, NC State developed a five-year IT strategic plan through a collaborative process involving stakeholders across the university. The stakeholder community expressed a desire for more effective IT governance. Consequently, one of our key strategic goals was to improve the design and utility of IT governance

When we began work on redesigning IT governance, our goal was to bring IT governance into alignment with the university's mission. Our existing governance process was complex and technology focused, with more than forty committees and subcommittees comprised largely of IT staff at various organizational levels. We reviewed our existing IT governance process to identify its strengths and weaknesses and found several problem areas. There was confusion about committee scope and decision-making authority, as well as deficiencies in communication among the various committees. Subcommittees were making tactical and operational decisions, and strategic issues were not consistently brought forward to governance. However, participants found value in having a forum for communicating with peers and an opportunity to share information about IT issues and initiatives.

Aligning with the Mission

Our updated design shifted from a committee structure based on major technology functions, such as infrastructure and operating systems,

to a structure aligned with the university's academic and research mission. This new IT governance model is based on the essential functions of the university and IT. It includes a top-level governance body, the Strategic IT Committee (SITC), which was conceived of as a destination for high-level policy review and discussions about large IT initiatives. Additionally, there are four subcommittees charged with addressing key domains:

- Education
- Research, scholarship, and creativity
- Enterprise business and administration
- User experience

These committees are comprised primarily of stakeholders outside IT, including faculty and decision-makers from the university's academic and business units.

An aspirational vision is not enough. We must make decisions about the role and goals of IT governance, as **well as address the practical matters of committee processes and governance management and review.**

Anticipating Digital Transformation

By including stakeholders outside IT during the design process, we gained a broader perspective into the impact of digital transformation across the university. Interestingly, these stakeholders saw IT governance as having the potential not only to transform the relationship between IT and the rest of the university but also to help prepare the university as a whole for the rapid changes occurring in technology and higher education. They anticipated the potential impacts of digital transformation based on their experiences in their domains—whether teaching, research, or administration—and advocated for a role in helping the university prepare.

We realized that it is not enough to align IT governance with the university's mission. It is necessary to go beyond this and actively engage the university community in making recommendations based on an understanding of how IT and higher education trends intersect. IT needs guidance both on issues of immediate concern and on the strategic impact of forward-looking plans. Through IT governance, we can help align IT with the future of the institution.

Broadening the Scope

To achieve this aspirational vision, we charged our Strategic IT Committee not only to provide policy guidance and review large IT initiatives but also to actively bring forward and communicate strategic issues facing the university. This group has been asked to look at higher education and IT trends and facilitate discussions about emerging opportunities and risks.

We also broadened the scope of the domain committees from our original conceptions. As we considered the strategic role of IT and research, we observed that IT affects much more than scientific computation. Visualization, artificial intelligence, big data, and other technologies impact the scholarly work of faculty members in all disciplines. Enterprise applications go beyond the ERP applications that central IT provides to include important cloud services acquired by non-IT units as well as major campus services developed by distributed IT units. Instructional IT issues encompass more than the learning management system (LMS) and multimedia in classrooms. Expanding the charges to reflect these realities allows us to build a more inclusive IT governance process that better aligns us with the university's work. By developing this wider engagement, IT is positioned to respond to emerging needs more effectively.

Separating Strategic and Operational Processes

An aspirational vision is not enough. We must make decisions about the role and goals of IT governance, as well as address the practical matters of committee processes and governance management and review. To achieve this, we assigned governance a strategic role and deliberately separated operational and tactical decision-making from the governance process.

Coincidentally, we have engaged in a project to strengthen our IT service management (ITSM) processes through improving service definition and clarifying service ownership. The timing was good for us to make changes. We took many of the original governance groups and assigned them to one of two roles:

- **Service teams:** technical staff members who are responsible for the operation of a service. They work under the direction of the service owner, who is accountable for service delivery.
- **Advisory teams:** functional stakeholders of a service who provide feedback and advice to the service owner regarding functional needs, service performance, and service direction.

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On the whole, these changes have been favorably received.

Addressing IT Security Governance and Infrastructure

Originally, we had an information security governance subcommittee that functioned as a stand-alone body and was not well integrated into other committees' work. In our new model for information security governance, we developed an information security advisory group that reviews policy and makes recommendations to the chief information security officer (CISO).

This advisory group is not formally a part of IT governance. However, the CISO is an ex officio voting member of the Strategic IT Committee, and information security staff members are included in the four domain subcommittees either as ex officio members or ad hoc participants.

The other major area that does not fit into our IT governance model is infrastructure. Originally, the infrastructure subcommittee consisted of technical staff and IT managers from various groups that provide infrastructure services, such as operating systems, directory services, storage, and networking. The group acted primarily as a means for technical staff to communicate about infrastructure changes that might affect other technology implementations.

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Because it is valuable to have those staff members communicate with each other, we are viewing this group as a meta-group that exists independently of IT governance.

Realizing the Vision

We recognize that our aspirational vision cannot be fully realized in an initial implementation. IT governance must be iteratively improved. In an age of digital transformation, it must evolve to stay relevant. We have planned an annual review cycle to assess governance performance, review membership, and plan goals. We will seek a balance between stability and responsiveness to change as we help guide our institution into the future.

Lessons Learned

In the process of improving the design and capabilities of our IT governance, we learned some key lessons that may be useful to other institutions considering similar changes.

Include a Variety of Stakeholders

When designing IT governance, it is important to include non-IT stakeholders with a broad understanding of the university's major functions. In our case, these stakeholders included leaders from our internal audit, finance and administration, and general counsel units, as well as college research administration and tenured and non-tenure-track faculty.

Further, including IT units outside central IT helped us design the process in a way that both supports collaboration and is viewed as credible by the IT community. Finally, it is important to ensure that IT governance participants are at the right organizational level to make the decisions and recommendations on matters before them.

Tap Institutional Expertise

We found a faculty member in our Poole College of Management with expertise in risk management who offered a helpful perspective on our design team. It was particularly valuable that this faculty member had an understanding of how governance processes work.

We suggest that institutions look to their business schools, public administration programs, leadership programs, industrial and organizational psychology programs, and other areas to tap institutional expertise when designing IT governance.

Faculty involvement in implementation planning is important. Our team benefited from the inclusion of teaching faculty, a research associate dean, and an assistant vice provost.

Manage the Process

IT governance requires dedicated staff resources—such as a governance officer—to take on duties beyond clerical tasks. Keeping members engaged requires the curation of meaningful agendas. In our case, we proposed that every agenda item be a question for discussion or decision in order to engage governance participants more effectively.

Further, the governance officer must engage with the chairs and the larger university community to ensure that relevant issues make it to the agendas. Other key process issues include

- ensuring effective and consistent business processes to establish credibility, and
- offering regular training for chairs and participants to set expectations and ensure a common understanding of purpose.

Keep the Mechanics Simple

The credibility of IT governance depends on transparency and consistency. Agendas must be communicated consistently in advance, and decisions must be documented and communicated on a regular schedule. It is also important to minimize the complexity of the IT governance process, from the IT governance committee's structure to the methods for publishing minutes.

Getting faculty and decision makers to the table is critical, so clerical work must be shifted to staff members. It also must be clear to all stakeholders at the institution when and how they can bring IT ideas, projects, initiatives, and policies to IT governance. In our case, we created a simple one-page scorecard to help managers decide when an idea or decision should be reviewed by governance. The scorecard asks them about the possible impacts of the idea or project for users, business processes, security, financial resources, and IT strategy.

Change the Culture

Proposals must be brought forward before final decisions have been made by IT management, which can be a major cultural shift for IT. However, this approach yields benefits for IT, including building buy-in for proposals and ensuring their alignment with the needs of stakeholders and the strategic direction of the institution.

IT governance must become socialized and communicated across the institution, not just in the IT community. Non-IT units are able to easily purchase IT services from cloud providers without IT involvement, so it is important that they know where to take these needs and plans.

Finally, creating and publicizing these channels takes effort, and widespread buy-in for utilizing IT governance does not happen overnight. Good governance is iterative: the success of IT governance depends on continuous review and regular improvement.

The credibility of IT governance depends on transparency and consistency. Agendas must be communicated **consistently in advance, and decisions must be documented and communicated on a regular schedule.**

Where to Learn More

The NC State website offers a detailed description of our IT governance redesign, as well as more information on how we integrated information security throughout our new IT governance model.

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How Technology Is Unlocking Next-Era Teaching and Learning

By Andreina Bloom Parisi-Amon and Serge Plotkin

Before the COVID-19 pandemic started in March 2020, solutions for active, social, and collaborative aspects of online learning were woefully inadequate. Existing technology attempted to add capabilities for interactivity, but these efforts often felt artificial. They also added a significant cognitive load on instructors by thrusting them into the role of the systems integrator to achieve desired engagement.

In 2020, the involuntary digital transformation was rushed and overwhelming, painfully showing that making deep connections and providing meaningful collaboration at a distance requires more than a video feed and faculty perseverance. But with these challenges came hard-fought learnings. Thanks to a positive assessment of the value and efficacy of the digital learning born from this experience, survey respondents at the majority of institutions contributing to the sixth annual report on the Changing Landscape of Higher Education (CHLOE 6) say they are reevaluating their strategic priorities relative to the role of online learning.[1]

As institutions prepare for the new academic year, there is a want to return to "normal," even though "normal" has never been optimal for a majority of students.[2] This is a once-in-a-generation chance for colleges and universities to reimagine the learning experience by implementing digital tools to enhance, enable, and enrich connections across distance and time and to make learning more accessible and equitable.

Forward-thinking institutional leaders are already embracing this vision, with three critical considerations in mind: enabling intentional digital transformation, decreasing overhead on faculty, and creating more equitable classrooms. They are doing so by enabling social, flexible, and active learning, data-driven engagement, and inclusive digital classrooms.

Social, Flexible, and Active Learning

Students learn best when actively participating in discussions with other students, directly applying their new knowledge, or teaching someone else. Unfortunately, facilitating these learning modalities is difficult in large classes and online settings.

By creating small, virtual collaborative groups, educators can support and encourage small-group dynamic interactions within larger class settings, much like study groups in a well-designed and dynamic in-person classroom. Providing various options for students to interact with course content and participate in activities will expand opportunities for engagement.

A rich and interactive post-class experience for students who miss a live session, or who want to review, is becoming the standard. Boundaries between synchronous and asynchronous learning are blurring and students are expecting added flexibility and choice to navigate their learning pathways.

Data-Driven Engagement

The wide adoption of digital tools presents an unprecedented opportunity to use analytics to improve learning, both individually and at the class level, through meaningful, noninvasive, real-time student engagement data. When a student appears to be disengaged, instructors can be automatically prompted to provide personalized support. Invisibly disengaging from a class is no longer possible with engagement analytics, enabling instructors and support staff to connect with all students to support their mastery learning.

Inclusive Digital Classrooms

Lastly, offering diverse channels of engagement allows every student's voice to be heard. Not all students have the confidence to raise their hand and speak to the entire class. Methods like establishing a safe space, welcoming questions (both direct and anonymous[3]), and offering multiple feedback channels empower students from different backgrounds to be present and learn from each other.

Technology should enable the participation of all students, regardless of their in-person or remote location, bandwidth, or hardware setup, creating an equitable, participatory experience for everyone.

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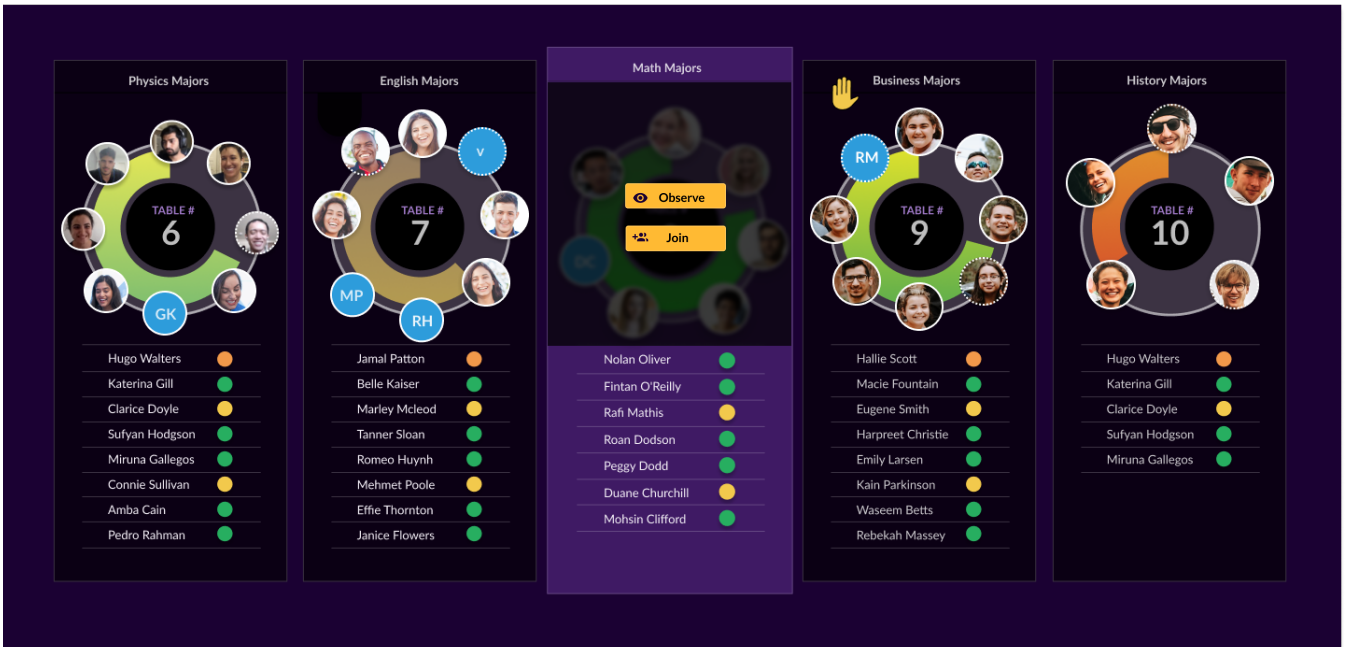

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Small collaborative groups support dynamic, frictionless interactions that coexist within a larger class setting, much like study groups in a well-designed face-to-face active learning classroom.

Browser-based online learning environments simplify access by removing the need for downloads, while well-designed cloud-based video processing and mixing systems can significantly reduce the internet bandwidth and computational power needed to participate in synchronous classes.

Summary

Ultimately, a high-quality learning experience is found at the intersection of authentic content, active engagement, and meaningful human interaction and feedback. Connecting these components is a nontrivial task, especially given the uncertain educational environment ahead. As Juan Romo, Rector of Universidad Carlos III de Madrid, commented: "To navigate this new world, we need solutions that bring students together, foster collaborative learning, and enable our faculty to deliver flexible, impactful experiences."[4]

We have the opportunity to transform higher education. Intentional selection and use of technology can remove the barriers between in-person and online, providing flexible learning environments that support every student's success.■

Notes

1. Richard Garrett, Bethany Simunich, Ron Legon, and Eric Fredericksen, *CHLOE 6: Online Learning Leaders Adapt for a Post-Pandemic World* (Quality Matters, 2021).
2. Daphne Koller, "This Is Our Chance to Create the Classroom of the Future," *THE Campus,* June 28, 2021.
3. Perry Samson, "Anonymity in Survey Courses as a Tool for More Diverse Engagement," American Geophysical Union Fall Meeting, 2017.
4. Personal communication.

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ADDITIONAL resources

Multimedia

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The Dx Journey: A Roadmap [website]

YUMMYPHOTOS/SHUTTERSTOCK

EDUCAUSE Exchange: "Pathways to Digital Transformation" [podcast], with Ed Clark, Michelle Hardwick, Benjamin Li, Ryan Spittal and Max Tsai

CARTSEN REISINGER/SHUTTERSTOCK

Community Conversations: "UVU President Astrid S. Tuminez on the Urgency of Dx" [video], with Astrid Tuminez and John O'Brien

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Community Conversations: "Ed Clark's Update on Digital Transformation" [video], with Ed Clark and John O'Brien

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CIO Minute: "Keeping Pace with Innovation" [video], with Christine Miller

CHATTANONGZEN/SHUTTERSTOCK.COM

CIO Minute: "Innovating with the Pareto Principle" [video], with Deborah Gelch

KATE ROESH

The FAQ of Dx [infographic]

CHAN2545/SHUTTERSTOCK.COM

"Institutional Change: The Key to Digital Transformation" [video], with Link Alander, Ed Clark, Nicole Engelbert, Deborah Gelch, Sukwhant Jhaj, Vince Kellen, Matthew Rascoff, and Rob Stalder

Articles

"7 Things You Should Know about Digital Transformation"

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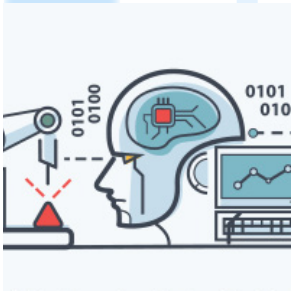
"Digital Transformation: What Is It?," by Ed Clark



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"Dx in Practice: Triggers, Impacts, and Outcomes," by Jim Phillips and Jim Williamson

DAIN SAELINGER

"Changing Demographics and Digital Transformation," by Ted Mitchell

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"Consider the Three Ds When Talking about Digital Transformation," by Betsy Reinitz

Driving Digital Transformation in Higher Education, by D. Christopher Brooks and Mark McCormack

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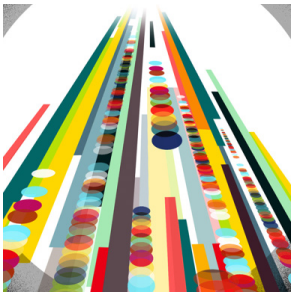
"A Grand Strategy for Grand Challenges: A New Approach through Digital Transformation," by Susan Grajek and D. Christopher Brooks



BRIAN STAUFFER

"How Colleges and Universities Are Driving to Digital Transformation Today," by Susan Grajek and the 2019–2020 EDUCAUSE IT Issues Panel

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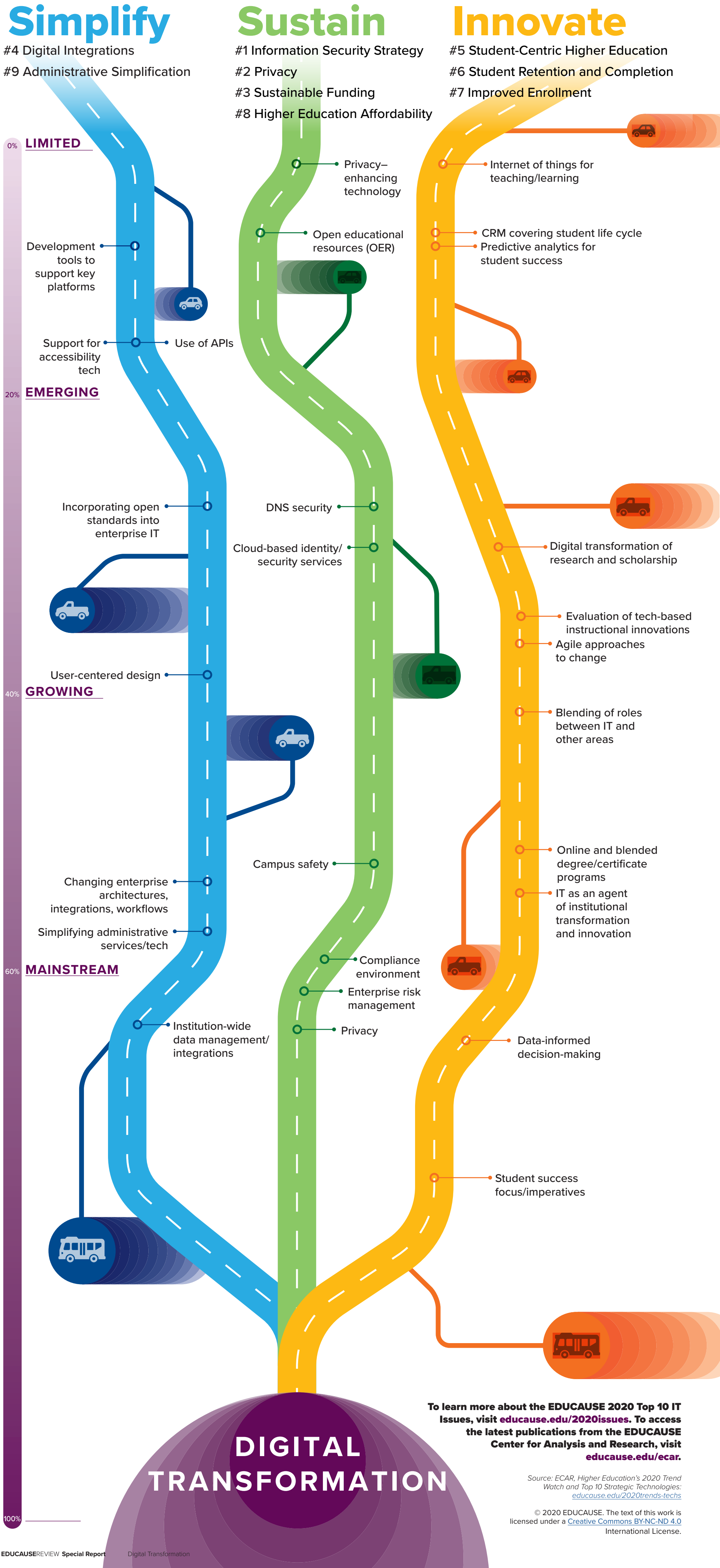
"The Adjacent Possible for Higher Education: The Digital Transformation of Faculty," by Charles Hodges and Heather McCullough

The Road to Digital Transformation (Dx)

The EDUCAUSE 2020 Top 10 IT Issues tell a story of how higher education is beginning its Dx journey. The highways and byways of digital transformation, driven by The Integrative CIO (Issue #10), have multiple stops along the way. Below, take a trip through some of those stops—and see where institutions are as they travel their varied paths.



To learn more about the EDUCAUSE 2020 Top 10 IT Issues, visit educause.edu/2020issues. To access the latest publications from the EDUCAUSE Center for Analysis and Research, visit educause.edu/ecar.

Source: ECAR, Higher Education's 2020 Trend Watch and Top 10 Strategic Technologies: educause.edu/2020trends-techs

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