Technology in Higher Education: Shaping the Future IT Workforce
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Introduction

In 2014, EDUCAUSE and Jisc convened a working group of ten IT leaders working in higher education (HE) in the US and the UK. We wanted to define the characteristics of higher education technology leaders and the skills they need to fulfil their many job roles. This group developed a leadership model and we shared it in the March 2015 report Technology in Higher Education: Defining the Strategic Leader.

Then in 2015 we partnered again to explore a further question: how should we prepare the next generation to lead? You can read our thoughts in the February 2016 paper Technology in Higher Education: Guiding Aspiring Leaders.

During 2018 we built on this earlier work to ask:

How do we shape the future higher education IT workforce?

Technology has become much more than a commodity that IT provides to the organization. As technology has become not only ubiquitous but also a key asset that provides value and helps the institution meet business goals, there has been a shift to IT as a service. The advent of cloud, Internet of Things (IoT), big data, and the like has impacted how we interact with technology, as well as the roles that IT staff perform, and has driven greater integration of technology across university and college departments. At the same time, HE itself has evolved, and institutions must adopt new business models to focus on outcomes, cost-effectiveness, and responsiveness to stay competitive. This digital transformation (Dx) is changing the way IT staff support business goals across the institution, requiring the IT workforce to implement and develop a new range of skills and attributes. Alongside traditional technological skills, staff also need professional skills such as effective communication, relationship management, and business analysis capabilities.

As these fundamental changes take effect, it is crucial that IT leaders take time to strategize how to shape an IT function that can attract, prepare, and retain high-caliber staff with the broad range of skills needed
as we move into the future and prepare them to become tomorrow’s leaders. However, it can be hard to take time out from grappling with today’s priorities to focus on what might be needed in the future.

This report is intended to help chief information officers (CIOs) and heads of IT focus on workforce issues and to start a conversation both within IT departments and with their human resources colleagues. At EDUCAUSE and Jisc, we’re continuing to work on these issues, and we’d welcome your experiences and insights.

To focus on future IT workforce needs, the working group explored a number of questions about the IT workforce, including:

1. How can we adapt to the wider changes in higher education and technology?
2. How can we spark culture change and shape an adaptive, resilient workforce?
3. How can we improve diversity, equity, and inclusion in HE’s IT workforce?
4. How can we attract talent in a highly competitive environment?
5. How can we improve workforce and skills development programs?
6. How can we influence the wider institutional management to support the changes we need to make to reshape the IT workforce?
Digital Technologies Are Transforming Learning, Teaching, and Research

Digital technologies are developing fast, and students, teachers and researchers are working differently as a result. Their institutions must be able to adapt to how things are changing and to prepare for major developments that are already on the horizon.

For example, there’s industry 4.0, the coming fourth industrial revolution in which smart, autonomous machines will transform manufacturing. It’s predicted to usher in more new technologies and new job roles and to speed up what Klaus Schwab, executive chairman of the World Economic Forum, says is a shift from the “digital age” to a new one in which technologies are connecting up the physical, digital, and biological worlds.

The effects of this will be felt in HE, and Jisc has coined the term education 4.0 to describe ways that institutions will exploit technological advances using big data, artificial intelligence (AI), machine learning, and IoT to deliver better student experiences and ensure institutions can work more efficiently. Similarly, EDUCAUSE is highlighting the “urgent need to adjust and adapt” to digital transformation (Dx)—the cultural, workforce, and technological shift being driven by AI, the cloud, mobile technologies, social networks, etc.

Against this constantly changing backdrop, universities and colleges face specific challenges and will need IT teams to work differently. Our working group discussed a number of key issues:

**Challenges to the current HE model** include the decline in the perceived value of a degree, rising student debt, and renewed focus on student success and satisfaction. One solution being tried is the availability of shorter and more flexible courses and enrolment, and this will require a fast response from IT.
In addition, an increased focus on student success and providing value means that there is greater need to focus on business goals, technology integrations, and data analytics. This will necessitate a shift in the kinds of work that IT staff do and how they work with stakeholders across the institution.

**Diversity, Equity, and Inclusion (DEI)** is also a high-priority challenge. Successive studies, including the [2018 EDUCAUSE taskforce DEI report](#), show that diversity in the workplace improves outcomes and makes the organization stronger, more resilient, and more creative. It can, however, be difficult to diversify the workforce. For example, far from being an improving picture, there’s been a decline in the numbers of women in leadership roles on both sides of the Atlantic, as reported by Cranfield University in July 2018.

A welcoming and engaging environment is key to a diverse and inclusive workplace and it’s vital to find ways to extend outreach and make sure hiring processes aren’t biased.

**Cheryl Washington, Chief Information Security Officer, University of California, Davis**

In the security field, we have a significant problem attracting and retaining subject-matter experts. There is a shortage of qualified professionals, and the competition for those in the field is fierce. Some of us, who are responsible for managing security programs, have had to get creative. We are reshaping our job descriptions to attract a larger and more diverse pool of applicants and increasing our training budgets to support the professional development of individuals who have little or no experience in the security field. Yet, there is more work that we must do to attract individuals into the security field. As a woman of color, I’ve tried to serve as a mentor and role model to help diversify the field. There are not a lot of people who look like me serving as chief information security officers. I want others to know, you too can be a CISO.

**IT has become far more complex.** Gone are the days when universities and colleges had lots of individual IT solutions that could be managed independently. The simplicity of the end users’ experiences today belies the sheer complexity involved in delivering the services and applications.

Increasingly, faculty and institutional staff, rather than IT, are the ones who are working directly with vendors. They are often both the decision makers and purchasers of solutions, sometimes overlooking the potential problems that a piecemeal approach to procurement and implementation can bring. This is a
practical problem but there’s also one of perception; in this new scenario, the IT team—as it strives to maintain and protect existing systems—can be seen as slowing things down.

**James Smith, Director of IT, Birkbeck, University of London**

When I look at the strategic technologies, we need to share in their adoption, support, and integration wherever they are located in the organization. The danger is if we don’t, the central IT function will end up managing IT infrastructure that’s outdated, dwindling in value, and increasingly burdensome. Rather than enabling and driving change, we could be seen as blocking it.

This shift to more diversified procurement brings some new imperatives. It has become vitally important to include basic IT literacy when hiring staff anywhere across the HE institution because all staff are effectively working within the IT organization. All staff need to develop a new mutual understanding and new ways of working in partnership with IT.
How Will IT Teams Need to Evolve?

For one thing, the CIO’s role will change. CIOs will need to keep one eye firmly on the future and to consider some key questions:

- Which emerging trends are worth investing in?
- How can we get institutional staff ready for continuous change?
- Will new technologies work with established systems and processes?
- Do we need to recruit new skills—and if so, how can we compete with technology companies with deep pockets?

In addition, CIOs will need to begin thinking strategically about their workforce planning—from recruitment and retention strategies that bring in a diverse, adaptable, and innovative staff, to identifying what skills will be needed of the workforce and how to ensure that current and future staff have those capabilities, to providing a flexible and welcoming workplace that provides regular career growth and focuses on staff needs.

What’s more, the IT function needs to take a place at the management table. They may once have been “backroom staff,” but IT teams are now a strategic asset with a key role to play in developing institutional strategy. Undoubtedly, this is an opportunity for IT staff, but it also means that staff will need to make a directed and concerted effort to work more closely with and partner with other departments in order to understand departmental needs and business goals (and to be understood in return). These relationships will rely on trust and shared vision in order to succeed.

“I’ve worked for nearly 32 years in higher education IT; as I’ve developed as a leader, I’ve shifted from being more of a technical nerd to engaging a lot in the HR/people side of things.”

— Kirk Kelly, Associate Vice President and CIO, Portland State University

Kathy McCabe, Director of Information Services, Heriot-Watt University

I’ve been in higher education IT for 28 years, and I’ve seen huge change in that time. The specialist areas have become broader, more generic. I want to look at the strategic role of IT and how we can influence the direction of our institutions. We need to be at the top table and tell the IT story in a very compelling way.
How Can Institutions Shape the Workforces They Need?

Constant technological change means **IT teams must become agile, flexible, and responsive**. They’ll need individuals who can have relationship-building, communication, and strategic-thinking skills in addition to the more traditional and emerging IT expertise to work well with colleagues across their organization. A member of the working group told how they asked colleagues from non-IT departments what they appreciate from IT staff—none of the attributes they listed were technical skills. Perhaps they saw those skills as a given, but they said want IT colleagues to be:

- Open to feedback
- A team player (collaborative)
- Dependable
- Empathetic (emotionally intelligent)
- Proactive
- A good communicator (clear language, no jargon)
- Solution focused

“*I’ve always hired on attitude not technical ability.*”

—Kathy McCabe, Director of Information Services, Heriot-Watt University

IT leaders should help IT staff who already have these qualities to use them in their current roles, look for these attributes when hiring new staff, and provide opportunities for current staff who may be lacking in these to help develop them. Some already do.

Institutions that value nontechnical skills in staff development and recruitment will be in good company. The *World Economic Forum Future jobs report* predicts that “human skills such as creativity, originality and initiative, critical thinking, persuasion and negotiation will retain and increase their value, as will attention to detail, resilience, flexibility and complex problem-solving.” Conversely, technical skills will change in ways we can’t foresee. Scott Lever, global practice leader at consulting firm Gartner, has said the skills and knowledge that organizations will need in ten years will have little resemblance to the skills and knowledge they have today.
How Can Institutions Prepare for the Future Workforce?

The institution can:

- Keep pace with student and staff expectations of technology and education.
- Create an agile working culture and be willing to embrace change. The young generations who will be the majority of future IT recruits are inherently agile in a way that HE historically is not.

Senior members of the IT team can work to change institutional perceptions of IT:

- Step outside current structures to build closer working relationships with other institutional leaders and play a larger strategic part in developing overarching institutional plans. Work toward gaining senior management buy-in to IT’s longer term goals and ambitions.
- Review the IT organizational structure for ways to encourage greater interdepartmental engagement at all levels.
- Be prepared to try new approaches that might foster a deeper, institution-wide understanding of the role that the IT team can play.

The HR function can help by:

- Adopting DEI-friendly practices on at how best to recruit and retain IT staff in HE.
- Working more closely with IT to think longer term about tomorrow’s workforce as well as today’s—it may be necessary to hire people now with the skills we’ll need in future, while they’re still available and affordable.
- Adopting more agile hiring approaches and less rigid reward and performance structures so that universities and colleges can compete for high-caliber staff in the fourth industrial revolution. They could, for example, focus less on technical qualifications and more on practical experience.
- Improving succession planning and talent development processes to reassure IT staff that there will be continuing opportunities to grow their careers within the institution, without needing to move to a technology company for the next step in their career.
How Can Institutions Attract and Keep Talent?

Typically, HE can’t compete with the private sector on pay. However, recruitment and retention are not simply pay issues. It’s important to understand what motivates the people you’re looking for—and the ones you already have and want to keep.

Many candidates, especially younger ones, are now interested in a more personalized career that gives them:

- A sense of purpose
- Opportunities to add value
- Flexible working environment
- Compressed hours
- Work/life balance
- Options to “jump jobs” and advance
- Chances to create and experiment
- Freedom to try new things, and permission to make mistakes
- Varied opportunities
- Diverse and challenging work

These opportunities already exist within HE, often in ways that the private sector would struggle to match. Occasionally, this is a double-edged sword as people value them so highly that they’re reluctant to move on. But, in the main, this is a huge positive for HE institutions, and the benefits should be promoted effectively during the recruitment process.
Kirk Kelly, Associate Vice President and CIO, Portland State University

Six years ago, we decided to put more effort into our recruitment process. One thing we realized we needed to do was to change our internal culture and reputation. After a few years of work, we started seeing significant improvements and also started nominating ourselves for things like the Computerworld 100 Best Places to Work in IT—for which we are now in alongside companies like Google, Workday, etc. This has really made a difference, not only for our recruitment but also for our current employees’ pride. I had a younger employee admit that they expected working at a university would be a “stop over” until something better came along, but it’s been so much better than they expected.

Highly paid jobs in the private sector may offer lower levels of personal satisfaction, and employers often expect 24/7 availability in return for big salaries. By offering a different environment than this, HE institutions can claim an advantage.
How Can Institutions Improve Their Recruitment Practices?

Secure HR’s buy-in to refreshing hiring practices

With HR’s help, your IT team can attract a diverse applicant pool by focusing on how the jobs are described and where they are posted—placing the ads in a variety of outlets, such as ones that will catch the attention of women returners, for example. Rewriting job ads using plain English (no tech-speak or education-related jargon) is a start, but even with the best intentions, bias can creep in. Working to make sure that ads appeal to a diverse audience, without gender, racial, or other biases, will help make sure that you are attracting the best talent for your organization. Tools like Textio can help ensure ad copy is genuinely inclusive. Use it to monitor success over time.

When reviewing applications, it’s important to look at CVs and other application materials blindly to ensure that selection bias doesn’t eliminate viable candidates. Having a hiring team that is also diverse and engages multiple interviewers will help ensure that a single person’s ideas don’t have too much impact on the final outcome. During interviews, having established questions that will be asked of each candidate helps ensure consistency, and providing candidates with the questions prior to the start of the interview (even just 15 minutes) will help make sure that the interview isn’t weighted for people who are comfortable with, or more accustomed to, replying without forethought. For more ideas on recruitment practices, see EDUCAUSE’s The IT Workforce in Higher Education, 2019 research.

Recruiting from a more diverse pool is one of the quickest ways to change organizational culture and help bring about the changes you want; however, you should still expect culture change to be a gradual process—it can take between five and fifteen years. However, it is also important to make sure that all staff value DEI and that it is not incumbent on these new hires to change the culture on their own. In fact, without a welcoming, inclusive environment, these hires might not stay. You may want to consider
identifying “buddies” for new hires from current staff to help with onboarding; pulling from people outside their immediate area of work will help provide additional insight into the IT organization.

**Develop a pipeline of talented young people joining the workforce**

Universities and colleges turn out a steady stream of potential recruits, and it’s possible to attract more of them into the HE workforce simply by making their pathway easier—for example, waiving the need for additional work experience. However, it’s a good idea to take a multipronged approach to this issue to ensure that you don’t unintentionally decrease diversity. You could explore alternative ways to attract young people from a broad variety of backgrounds—via apprenticeships, for example.

Louisa Dale, Director of Insight, Jisc

At Jisc, we’re looking at shaping new career paths for those who are more technically minded, less management interested, looking at shaping ways to ensure the work is purposeful.
How Can Institutions Improve Retention and Grow Staff Careers?

Retaining the staff you want is a no-brainer. It’s cheaper and less disruptive than hiring new people. **Employee engagement** is therefore key. Real engagement is more than just “happiness,” especially if a person’s happiness is vested in simply doing what they always have. It’s about bringing people along willingly on the change journey, through professional and skills development and offering opportunities to meet new challenges through creative thinking and new working methods. Engaging staff in this way is likely to take time and commitment; it may even be necessary to put some tasks on the back burner or to hire contractors to handle the day-to-day tasks while you work on this.

**Well thought-out induction processes** can play a part. Asking candidates at the interview stage about what they want from their career and what excites them signals that the job is fulfilling and offers opportunities beyond the job specification. It’s worth continuing to revisit these questions when staff are appointed and beyond so they can shape their careers, develop their potential, and stay engaged with their organization.

**Encourage staff to take responsibility for their own lifelong learning** and develop new skills and insights that garner credentials such as digital badges or certificates.

"More than half (54%) of the workforce will need reskilling in the next five years."

— **World Economic Forum**,  
**The Future of Jobs Report 2018**
Tina Pappas, Assistant Director, School of Communication and Information, Rutgers, The State University of New Jersey

We’re investing in the development (not just training) of staff even with the possibility that younger generations may choose not to remain in the position or organization. We frame it in a way where more-seasoned leaders can reconcile the idea of investing (not just dollars) in "shorter life span" employees by looking at it as investment toward the higher education community.

Mentor candidates with high potential to improve diversity in leadership and management roles. Some employees may not be outspoken and could be overlooked, despite having talent that would, with nurturing, provide them and your organization increased value.

Being flexible even in small ways can pay dividends in keeping staff engaged and motivated. Small adjustments such as flexible start and finish times or the possibility of sometimes working from home can have a real impact.

Basem El-Haddadeh, Director of IT Services, Leeds Beckett University

Leeds is the main [UK] hub for IT outside of London, so there’s a lot of competition for resources and it’s difficult to recruit staff. So, we want to make sure that what we have we can retain, and we also want to make sure that what we have stands out in comparison to the competition. We’ve looked at annual leave (38 days), development opportunities… and currently bring in young students (second year) for early placement (one year), and we have managed to keep some of them after graduation. We’re currently looking at introducing a graduate scheme (recent graduates for up to two years) to develop and nurse that talent.

Finally, conducting exit interviews when people do leave is valuable because it offers a chance to uncover the real reasons behind the departure. They may cite, for instance, a better salary, but this often proves not to be the main—or at least only—factor in the decision to look elsewhere.
Conclusion

This brief overview of a series of discussions, taking place between August 2018 and January 2019, highlights the workforce issues that are facing IT leaders in HE. It’s our hope that it will kickstart conversations within IT departments and at senior levels across HE institutions so that steady, sure-footed steps can be taken to ensure that the IT workforce has the skills and the level of influence with other departments that will be necessary to meet the challenges facing the HE sector.

It raises many questions, and we’re not claiming to have all the answers. But it’s already clear that agility will be the key. Institutions will need agile workers and an agile working environment that’s ready to welcome and support the workforce of the future.
Working Group Profiles

**Angela Beswick, Associate Director IT Operations, University of Bradford**

Angela has been working in IT for the past 25 years. Starting on a Service Desk (or Help Desk, as they were called then), working up through a variety of technical roles. She has worked in Head of Function roles for the past 10 years. Her career has been in Financial Services and Legal with a move into HE in the last 18 months. Angela has a particular interest in IT Risk, Security and Governance. She is highly experienced in taking teams through large-scale change agendas.

**Dr. Basem El-Haddadeh, Director of IT Services, Leeds Beckett University**

Dr. Basem El-Haddadeh joined Leeds Beckett University in June 2013 as Director of Information Technology Services (IT Services). Basem is the lead IT strategic advisor to the University Executive Team, responsible for creating and implementing the Information Technology Strategy. The Information Technology Strategy underpins the university’s organizational objectives and ensures the right agile systems and technology are in place that are fit for the purpose, now and in the future.

**Dr. Mark Ferrar, Chief Information Officer, Newcastle University**

Dr. Mark Ferrar joined Newcastle University in March 2018 in the newly created role of CIO. Mark will lead Newcastle’s IT Services (known as NUIT), as well as being the lead strategic advisor to University’s Executive Board, with responsibility for creating and implementing the technology strategy. With over 30 years’ experience in enterprise IT, Mark joined Newcastle after three years at the University of Cambridge, where he held the role of Chief Architect, University Information Services, and was responsible for building the IT architecture function from scratch, leading the newly formed UIS through its first root-and-branch services review and driving the creation of a comprehensive Information Services Strategy.
Bret Ingerman, Vice President for Information Technology, Tallahassee Community College

As Vice President for Information Technology at Tallahassee Community College (TCC), Bret serves as the chief information officer and as a member of TCC’s executive team. In this role, he is responsible for setting the vision and strategic direction for technology at the college. Information technology supports all aspects of technology at TCC, including computing, telecommunications, networking (both data and voice), and audiovisual, and supports all members of the TCC community in the use of technology to support and enhance teaching, learning, and administrative functions. Prior to coming to TCC, Bret was Vice President for Computing and Information Services at Vassar College. He has taught graduate courses, served as an academic advisor, and is a published author.

Kirk Kelly, Chief Information Officer, Portland State University

Kirk oversees a comprehensive IT department with campus-wide responsibilities covering data systems, networking, classroom AV, event support, the technology helpdesk, academic and research computing, enterprise software, and phone systems. During 30+ years in higher education IT, Kirk has worked at institutions performing roles in academic computing, instructional technology, systems and networking, and as CIO at two institutions over the past 14 years. In addition to numerous EDUCAUSE activities, Kirk is active in the Northwest Academic Computing Consortium, where he currently serves as Chair of the Board. Kirk also speaks about various technology topics at conferences, participates in professional organizations, and is a member of nonprofit boards.

Kathy McCabe, Director of Information Services, Heriot-Watt University

Kathy took up her current leadership role at Heriot-Watt University in September 2017, with responsibility for Global Information Services, incorporating library, IT, business systems, digital learning, and learning spaces at five campuses in the UK, Dubai, and Malaysia. With over 28 years’ experience in higher education, Kathy spent most of her career at the University of Stirling, where she began as a project specialist, designing and building the university’s first HR system, progressing through a number of project and program management roles to implement major business systems and culminating in being appointed to the Director of Information Services there in 2014.
Tina Pappas, Assistant Director, School of Communication and Information, Rutgers, The State University of New Jersey

Tina is an information technology professional with a master’s degree in organizational communication and a master’s of business administration in leadership & strategy and marketing. She has 14 years of management experience in a complex higher education environment. Tina is actively involved in the EDUCAUSE community, including serving as chair of the Young Professionals Advisory Committee and co-chair of the Young Professionals Constituent Group. She is the self-designated “CCO” (chief culture officer) for the Rutgers University technology community, particularly invested in increasing collegiality, communications, and collective engagement among IT staff throughout the Rutgers University system’s four campuses. Some of Tina’s professional initiatives at Rutgers include developing an onboarding program for IT professionals, developing processes and frameworks for IT Governance, assisting in the enhancement of IT communications, and assisting in the development of an “opportunistic cloud” strategy.

James Smith, Director of IT, Birkbeck, University of London

James Smith is Director of IT at Birkbeck, University of London and is responsible for the delivery of IT and communications infrastructure and services to enable the effective and efficient operation of Teaching and Research in a unique institution. Founded in 1823 to provide higher education opportunities to London’s working populate, Birkbeck is approaching its 200th anniversary with the same mission: most classes are taught from 6:00–9:00 p.m. on weekday evenings to enable the majority of students to combine their study towards University of London Bachelors and Masters degrees with “the day job.”

Carl Sorensen, Senior Associate Vice President, Human Resources, University of Richmond

Carl Sorensen has been senior associate vice president for human resources at University of Richmond since 2006. He formerly served as director of human resources at Davidson College in Davidson, N.C., where he helped diversify the employee population and implement a new performance management process. Carl graduated from Wheaton College in 1980 and earned an M.B.A. from Thunderbird University’s School of International Management. Prior to Davidson, he worked for the US Peace Corps, Save the Children Federation, and the North Carolina Arboretum.
Cheryl Washington, Chief Information Security Officer, University of California, Davis

Cheryl Washington is the Chief Information Security Officer for the University of California at Davis. She has more than 20 years of experience developing and managing IT and information security programs in higher education. Currently, Cheryl leads the development and implementation of a comprehensive information security program that supports the UC-Davis academic, research, and public service mission. Cheryl has held various security related positions within California’s large public education systems. She served as the Chief Information Security Officer for the California State University (CSU) system and Chief Information Security and Privacy Officer at the University of California Office of the President. Additionally, Cheryl contributes to the higher education community by serving on several working groups sponsored by EDUCAUSE.
Project Team Profiles

**Louisa Dale, Director, Jisc Group Sector Intelligence, Jisc**

Louisa is currently shaping a new function to help Jisc develop a deep and sustained understanding of customer need. Her portfolio includes customer advocacy, customer research, and strategic relations. Working in a variety of communications and relationship management roles for Jisc since 2003, Louisa has worked closely with Jisc’s leadership team to develop highly successful collaborations. From inception in 2004–2013, Louisa was Jisc partner representative in Knowledge Exchange, an influential initiative of European partners, which seeks to inform European Commission and other funder investments and policy directions, specifically in the use of digital and information technologies for higher education and research. Louisa’s early career experience was gained in Mercer Consulting, KPMG, and Royal Mail; prior to this she earned an MA and a BA in Philosophy from University of Leeds.

**Richard French, International Coordinator, Jisc**

Richard joined Jisc as International Coordinator in April 2014. He is responsible for managing the developing network of international relationships across Jisc and acting as an organizational focus to bring together those activities taking place on an international level. Prior to Jisc, Richard worked for the BBC on a variety of radio productions, where he planned and arranged logistics on live broadcasts, undertook research activities, and helped manage delivery of programs. Previously, he managed and coordinated large-scale education projects and events for the British Council and taught English at a university in Beijing, China.

**Karen A. Wetzel, Director, Community and Working Groups, EDUCAUSE**

Karen has worked in higher education for over 20 years and joined EDUCAUSE in 2011. Karen collaborates with members and EDUCAUSE colleagues to ensure that current issues, emerging trends, and opportunities of special interest are identified,
supported, and communicated. In working groups, these efforts result in white papers, guides, toolkits, and other products that serve as leading practices for the higher education community. The EDUCAUSE Community Groups program, comprising over 60 groups with 50,000 subscribers, provides communities for discussion and engagement around specific topics, institution types, roles, and other areas of interest. Prior to joining EDUCAUSE, Karen served as Standards Program Manager for the National Information Standards Organization (NISO). Karen holds a BA from the University of California, Los Angeles, an MA from Boston College, and an MLS from the Catholic University of America.