The Tech Talent Wars and #WomenInTech

By Joanna Young

The war for IT talent rages on in higher education, and the battlefields range from the classroom to the boardroom. To win this war and attract top IT talent, college and university leaders need a strategy for coming out ahead in one key battle: the paucity of women earning degrees in technology and pursuing related careers.

This issue of women in technology cannot be looked at in isolation. It is an outcome of education access and affordability challenges and of ongoing gender gaps in all ranks and types of technology professions. If we can address those challenges and gaps, we could positively impact the number of women working in higher education information technology.
Let’s break it down. About a third of college and university presidents, who are the CEOs of their organizations—organizations accountable for the education of millions of people—are concerned about financial viability. In a recent Inside Higher Ed survey of 647 presidents, 30 percent disagreed or strongly disagreed that they were confident in the sustainability of their institution’s financial model over the next ten years. Another 31 percent were neutral. Presidents at public institutions expressed the least confidence: 35 percent disagreed or strongly disagreed.1

This sustainability outlook for higher education and research institutions is not a positive indicator for access and affordability. Just pause and think about that. Feeling a little queasy? Good. Let’s keep going.

The higher education and research institution industry is in a time of unprecedented change. Cost pressures from state and federal governments, shrinking research dollars, competition for philanthropic donations, and the (r)evolution in information and telecommunications is happening much more quickly and, arguably, in waves of increasing impact. Work- ers no longer have one job for the entirety of their career; they typically have many jobs and possibly multiple careers. So in addition to a gender gap, there is a skills gap and a constant skills gap. Workers need lifelong and constant learning, built on competencies such as critical thinking and technology skills. These competencies need to be acquired via a strong primary and higher education foundation, with more specific skills (e.g., programming languages) acquired in iterations.

Given this situation, accessibility to and affordability of education become paramount, since they can serve as a cornerstone for increasing the number of IT professionals and reskilling existing workers—both female and male. Yet as noted above, a large number of higher education chief executives are anxious about their financial model. Ironically, these same executives are looking to technology to assist in both cost containment and revenue generation, and they need excellent IT professionals to get that done.

Let’s be real for a moment. Higher education institutions tend to lag in leveraging enterprise resource planning (ERP) and commodity information technology to positively impact their cost structure and increase innovation; the culture tends to favor decentralization and be resistant to change. As part of addressing financial sustainability concerns, executives at all institutions need to take a long look in the mirror and ask the hard question: “Are we doing enough to get value out of information technology?” It’s not uncommon for a college or university to have dozens of e-mail solutions, small datacenters sprouting like weeds, varied networking arrangements, highly customized ERP systems, multiple learning systems, a myriad of “shadow” systems of all shapes and sizes, and the ubiquitous “server under the desk.” Along with this mélange of technology usually come inefficient business processes, ranging from onboarding employees to buying pens, further exacerbating financial sustainability.
In such environments, the smallest change can require significant effort to build momentum, which then delays the intended value of the change. I'm the first one to understand that there are logical, business-based exceptions to using central or commodity solutions, and I will advocate accordingly. I'm also the first to know that central and commodity solutions need to be of sufficient quality and efficacy or else units won't opt in. Further, I know units may require dedicated technology professionals to handle unique needs and innovations. But I'm the last one to understand why anyone, in 2015 in the higher education industry, would not want to seek the advantages of obvious IT-enabled savings. The less money we spend on non-value-added overhead such as distributed physical servers, the management of multiple contracts to support varied networking solutions, and spaghetti integrations of “do it yourself” ERP, the more money we will have for value-added items such as faculty support and student financial aid. To be blunt: the day of debating the obvious centralization opportunities (yes, I've said the dreaded “e” word) of information technology should be long over.

In addition, higher education needs contemporary, innovative technology to remain relevant and successful. Customer relationship management for student- and alumnifacing interactions, sophisticated analytics for student success, contemporary educational technology in physical and virtual classrooms to support new pedagogy, digital signage, mobile-first student advising applications, ubiquitous strong Wi-Fi throughout campus—these are not leading-edge. They are the new normal. If we are spending valuable dollars on creaky, disparate technology, it follows that there will be a struggle to fund innovation.

Examples of CIOs and their counterparts making headway are increasing, and every day I speak with faculty and staff members who are eager and willing to do what is necessary to participate in logical centralization so as to free up resources for important work. The leadership capital required from presidents, provosts, deans, and other executives cannot be underestimated. The most valuable asset that CIOs have is relationships, especially with their executive colleagues. Making technology valuable is a team sport. The CIO is the technology coach, but he/she needs the rest of the C-suite to be playing great offense and defense.

Sensible leveraging of information technology must be done in higher education, because like the house that Jack (or Jill) built, addressing costs helps with affordability, which helps with access, which helps with increased capacity for students, which helps with enabling more people, including women, in technology degree programs. For example, the National Center for Women and Information Technology (https://www.ncwit.org/) reported that in 2014, only 26 percent of professional computing jobs in the United States were held by women. The percentage of women awarded computer science degrees has actually decreased, from 37 percent in 1985 to 18 percent in 2013. Further, over 50 percent of women in technology positions leave their employers midcareer.

A 19 percent drop in women being awarded computer science degrees is simply unacceptable. Cue more queasiness. Yes, the numbers overall have grown, but fewer females than males are entering these degree programs. And according to one study, the numbers are even lower at top research institutes.

When we delve deeper into the workplace, the statistics don't get much better. At top tech employers, the percentage of women overall is about 30 percent, but the percentage in leadership roles averages 22.5 percent. In 2014, only about 18 percent of CIOs in the United States were women—a number that has remained unchanged for a decade, according to Gartner. This isn't about quotas or fairness. It's about supporting a movement toward a broader, deeper talent pool—one that we clearly need.

So what can we do about the shortage of tech talent and women in information technology?

- K–12 leaders: Pay continued attention to IT-related education at all ages. Coding should become a new requirement, along with courses on mobile application development, user interface design, robotics, networking, security, and social media etiquette. Don't just show students technology; show them how it works. How about dissecting wireless routers and mobile phones as well as frogs?
- Higher education leaders: While dealing with the critical issue of financial sustainability, focus on getting and keeping women in computer science and related majors. Create networking events and mentoring opportunities.
Highlight recent alums with awesome tech jobs. Create pathways to success in relevant majors, instead of fostering exclusivity.

**Corporations:** Support information technology in primary and higher education with your wallets and presence. Chalk is cheap. Laptops and software aren't. Get out and see what schools, particularly public schools in less affluent communities, are dealing with. Making investments in helping schools today will supply you with talent down the road.

**Employers:** Be aware that the “bro-grammer” perception is a reality, and consciously work to be more inclusive. Women often don't feel welcome or comfortable. I know very well how it feels to always be in the minority at both the technology and the executive table. One of my pet peeves earlier in my career was that the dominant off-hours networking experience was golfing. When I said “I don't golf, but I could drive the cart,” I was offered a “spa day” instead. Yeah, I wanted to be off getting a pedicure while all the guys were bonding on the links.

**The Entertainment Sector:** Stop perpetuating the geek boys club. What Olivia Benson (the Law & Order: SVU character, not the cat) is to cop shows, female characters need to be to geek shows. Hollywood, come hang out in my world for a few days. I'll show you the reality of technology.

**Government:** Partner with private and public industry and higher education to support programs ranging from Code.org to the myriad of technology camp opportunities for boys and girls. Examples include the University of New Hampshire “Engineeristas” program and Michigan State University’s “Miss Media Michigan.” These nonprofit programs could be serving more young people with more funding.

**Men:** Treat everyone how you would like to be treated, with fairness and respect, every day. Be a giver and a collaborator, not a taker. I have been fortunate to have had a number of positive male colleagues throughout my career. The best mentor and manager I had in my early career was a man who was instrumental in helping me to attain the skills and confidence that led to my first executive role.

Good advice for new leaders—both women and men—in technology may be hard to come by. As a new executive, I was told that in order to get ahead, I had to “pick arguments and win” in key meetings. What sort of advice is that? I remember being stressed before meetings, trying to think of how I could beat my colleagues in a debate. Fortunately, I gained the confidence to realize that I didn’t have to argue in order to succeed. I could form my own leadership style, one based on influencing and on enabling constructive engagement. Even in conflict and tension, there are ways to debate and engage without verbal brawling or public derision.

For women in particular, the C-suite and boards in particular should be listening to the advice of current female IT leaders in higher education. They have important messages for the profession. For example, Melissa Woo, chief information officer at the University of Oregon, talks about the many stages at which we can lose women who are pursuing computer science and other technology careers. “In addition to ensuring that young women’s interest in STEM careers is nurtured at an early stage, we need to make sure that they are supported throughout their career lifecycles. Higher education is a critical stage in that cycle.”

Five years ago, Chris Nemets would have said “not in a million years” if asked to consider a technology role. Now Nemets is the director of Clinical Informatics at Sparrow Health System in Michigan and was key in its electronic medical records implementation. “Since that great accomplishment for Sparrow, the opportunity to grow in this field has been tremendous. Technology in health care is an expanding business and constantly evoking change in how we deliver quality health care to our community. Professional women in information technology are leading the charge.”

Nemets’s colleague Kathy Smith, executive director of IT Applications and Project Management at Sparrow, says that young women can enter the field through a variety of pathways; entrance doesn't have to be via a computer science degree. “When I talk to young women about health IT, they don't realize that IT is broader than sitting in a room programming. We need to proactively reach those young women who are analytical and give them insight into the possibilities of an IT career.”
generation of technology leaders is clearly one of the most strategic tasks for CEOs today. The declining number of women who aspire to technology leadership and the CIO role is a serious concern. Boards and CEOs of all organizations must do more to mentor, groom, and develop our future technology leaders, and especially female technology leaders, to successfully meet the challenges of today’s and tomorrow’s workplace.

Many female technology leaders feel strongly about encouraging and supporting other women. Klara Jelinkova, chief information officer at Rice University, told me: “I have spent the majority of my career in IT, some of it in private industry but most of it in higher education. I feel that my education was important to my success. Beyond the obvious—excellent education—it allowed me to explore different career options and prepared me for success in diverse and increasingly global workplaces. I believe that what we can do for women now is to enable them to give themselves permission to succeed in the technology field despite cultural biases.” Jelinkova notes that the George R. Brown School of Engineering at Rice has a “faculty in practice” concept of people who have been VPs, CTOs, CIOs, or other senior leaders in major companies not only teach but also mentor and prepare students for the realities of the workforce. “It is very important for young women to see other successful women in order to encourage more of them to enter into the tech field. Colleges have, do, and will help women explore varied career paths; the challenge is for the IT field to become a place where women want to be.”

Just as we should showcase examples of successful women technology professionals in order to encourage women who are considering the IT field, we also must work to counteract the stereotype of the computer geek sitting all day in a dark cube. Women and men in IT professions are actively and visibly engaged with colleagues. A technology job involves many elements:

- Participating in interactive sessions with colleagues, ranging from accountants to faculty, to collaborate and learn together about new technology. Technology happens through teamwork.
- Becoming expert about the business—whether higher education, banking, insurance, retail, automotive, or health care. Technology professionals need to know as much about their industry as about the technology itself.
- Learning about data and how to architect and manage increasingly massive datasets so that the institution can understand and manage its business. With reports being replaced by dashboards and infographics, the skill of turning numbers and words into engaging visuals is increasingly valuable.
- Protecting the organization from the dangers of cyberattacks. Data is one of the most valuable assets an organization has, and information security professionals often work closely with law enforcement.
- Learning about the importance of power, heating, and cooling to data centers and other facilities that house equipment and about how to ensure sustainable energy practices. The world’s insatiable appetite for computing means that we need increasing amounts of purpose-built, energy-efficient facilities to house more and more equipment.
- Meeting and holding conferences with vendors such as Microsoft, salesforce, Dell, SAP, NetApp, and IBM to learn about upcoming solutions. Being able to negotiate and partner
effectively with vendors large and small is critical.

- Attending and facilitating project meetings, solving problems, and establishing next steps. Project management is a skill and career unto itself and requires excellent communication skills and mastery of complex tools.

- Developing innovative, mobile-first interfaces—applications that are engaging and intuitive. User experience and interface design form another skill and career unto itself, encompassing graphic design and accessibility.

Most important, an IT job involves the excitement of endless curiosity, because technology changes so quickly.

Recently on a beautiful summer day in Michigan, I asked a group of female technology professionals from across Michigan State University to join me for conversations and a group photograph. I asked them to share with me (and readers of this article) some of their favorite anecdotes, advice, and quotes:

- For every woman who feels a bit overpowered by men at work: “If you don’t want to be a doormat, get off the floor.”
- “The only thing standing between you and anything is yourself.”
- In your career, do things that push you out of your comfort zone. You’ll be surprised to learn what you’re made of. If you are not saying “I don’t know what I’m doing,” you’re not growing. Always be growing.
- When you feel like giving up or like you are losing yourself, remember why you started in the first place.
- Think of everything we ask students to learn and be. Now, think of their lives. It’s an incredible time to work in academic technology, providing the technology that facilitates the learner experience. That said, we also have an important responsibility to serve as models of the traits we want to see in the students we serve: innovation, agility, accountability, creativity, and empathy.

- I benefited a lot from my previous boss. She was an excellent role model for continuing to work to become the person I want to be.

- Being a leader means people are watching. So choose your actions and words to reflect your position.

- “If you are the smartest person in the room, you are in the wrong room.”

- Care more about others’ success than your own.

- “Don’t let the perfect be the enemy of the good.”

- “You can do anything you set your mind to.”
At Michigan State University (as with prior assignments at the University of New Hampshire and Liberty Mutual Group), I am privileged to work with amazing women technology professionals. They come from varied walks of life, backgrounds, cultures, and lifestyles. In education and job experience, they range from recent grads to PhDs and from employees who are only weeks into their first “real job” to thirty-year-plus IT veterans.

While talking, we enjoyed the sunshine, we congratulated each other on recent achievements, and we did the requisite sharing of war stories. One of the more seasoned professionals had been up most of the night dealing with an outage (resolved!), and we gave her a round of applause. There was no golf. There was no picking fights. There was just camaraderie among a group of women technology professionals.

Let’s make the group larger.

Notes
6. This and the remaining quotes in the article come from the author’s personal e-mail correspondence in July 2015.

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