The Future of the IT Profession and the Fourth Industrial Revolution

This issue of EDUCAUSE Review is focusing on “The Future of the IT Profession.” My reaction? There has never been a better time to be an IT leader, and I’ve been in and around information technology for almost forty years now, across a wide range of sectors. Over all that time, we IT leaders have been hungry for information technology to be a key topic of discussion at the board level. Today it is. More than that, its impact is being overtly discussed, at least here in the United Kingdom, by government ministers, by policy wonks, and even by those in the media, who are asking questions about the profound changes we are all experiencing in almost every aspect of our lives.

Some of these changes have an intense depth. Are cell phones in college and university classrooms reducing teaching quality? How do we retrain the swathes of white-collar workers who will likely be made redundant by machine learning? What are the moral and ethical implications of research conducted by “thinking machines”? And of course, what about the opportunities for nation-states to impact and fundamentally change each other via cyber-warfare? These are the dark sides of the Fourth Industrial Revolution. But I believe that this revolution is ultimately a force for good and will transform our world for the better. Once we learn how to tame the technologies, the Fourth Industrial Revolution will take us humans to new levels of productivity, artistry, creativity, and discovery—almost a new renaissance. We will be unleashed from our drudgery and allowed to reconnect with those aspects that define us as a species. This revolution is also a real democratizing force.

So what does this mean for the future of the IT profession? We are the tapers. We understand technology better than others and have the insights into how to exploit it. In my experience, geeks (of which I count myself one) have great social consciences and will hunger to find the best in our technology. As I write this in June 2018, employees from the world’s largest IT organizations are lobbying their bosses for the fruit of their labors to be used for good instead of military purposes. Yet we are far more than the tapers; we are members of the profession that enables the world.

I used to work in the banking field. We always joked that if we ever shut down the bank, the last person to leave would be the data center operator who switched the lights out. Extrapolate this into the future. We will be the engine room operators for the world. I speak to operations staff who are worried that the cloud is making most data centers obsolete—and to an extent it is. In the United Kingdom, we are on a trajectory toward the end of almost all on-premises data centers, of any size. I would be surprised to see this significantly reversed when the pendulum swings back a bit, as it always does. The best IT workers will be able to get jobs with the cloud providers and to play with “train sets” on a scale most of us have never seen. For the rest of us, becoming amazing at managing our virtual data centers spread across the world and optimizing our institutions’ use of them will be harder, but it also will be more rewarding and will constitute a highly sustainable engineering profession.

I started as a developer all those years ago. When I look at what our developers do now, their work has not fundamentally changed as a profession, but what they do today would have blown the young Paul’s mind. I remember developing exciting graphics systems that are now basic features in Microsoft PowerPoint. The level of graphics development taught in standard university-level video game courses today was science fiction in my day—there wasn’t a machine able to process at that level. As part of my PhD work, I used the “revolutionary” Lisa (the Mac predecessor), which was less capable than the cheapest tablet available currently. Yet even with machines at some point able to program machines, I still believe there is an insatiable need for more people to tame these machines—that is, to make what the machines produce valuable for the human race and, more prosaically, for businesspeople, lecturers, researchers, students, and consumers.

The even better opportunity is for us, as leaders, to lead our colleagues to exploit these opportunities. Almost since the dawn of information technology in business, and certainly in all my time, IT folk have been concerned with how to get their voice heard at the board level—how to bring all their influence and knowledge into helping to guide and direct the institution, not just run it. Pity my poor CIO today at Jisc. As an ex-CIO/CTO, I have to stop myself from trying to do his job. However, I do bring all my depth of understanding of information technology into being a CEO, especially helpful for a technology organization like Jisc. Jisc is a bit like Internet2, the
U.S. state networks, part of ARL, CLIR, EDUCAUSE, and a software/technology house all wrapped up into one.) There aren’t many of us former CIOs/CTOs leading organizations just yet, but there is every reason to aspire for more IT leaders to join boards and to become CEOs. I arrogantly believe that we have a clear vision of the difference that IT will make to our organizations and, more importantly for us, to our members: the universities, colleges, and research institutions.

IT professionals, especially IT leaders, must develop credible, stretching, and ambitious visions for their organizations—for how their work will change pedagogy, transform the student experience, and revolutionize research. And they must sell this to their senior leaders. Once they have succeeded there, they of course need the courage, fortitude, and political skills to turn their vision into reality! They also must become more confident in leading, even owning, the discussions on their institutions’ digital strategy, especially the far-reaching impact of “industry 4.0.” I watch with amusement, and often bemusement, when nontechnical British commentators opine on the way technology will change the world. Credible medical advice calls on leading medics; credible economic predictions arise from economists; yet very few opinion formers in the use of information technology to change the world come from the IT profession.

Today and in the future, the IT profession has a key role to play in taming the technologies of the Fourth Industrial Revolution. Those of us in the profession are the idea wranglers who can ensure that pragmatism and achievability reign while we drive our colleagues to new heights of ambition, thus allowing the positive benefits of this revolution to shine through.

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