# U-I CONNECTOR CAREER PATHS: CROSSING SECTORS, CREATING IMPACT

## Stories from partnering professionals sharing university, industry, and government sector perspectives

UIDP

Strengthening University-Industry Partnerships





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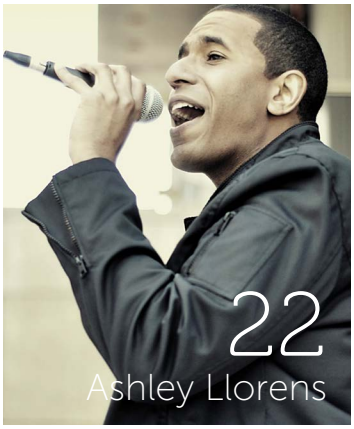
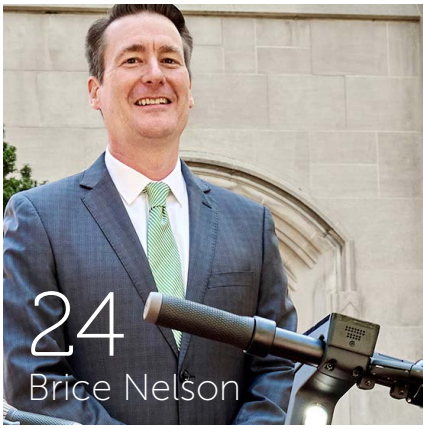












# Reimagine the Possible – How agile thinkers move between sectors

## An interview with Mindy Cohen, President, Higher Talent Executive Search

### UIDP: What are some factors to consider when transitioning between academic and industry sectors?

COHEN: There is no one-size-fits-all list, but some common issues include cultural differences and the speed at which things get done. Industry has different metrics--KPIs—than universities have. In industry, you will find a focus on digital transformation and customer-centricity coupled with an emphasis on earning money rather than raising money.

While moving between sectors can be exhilarating, it can also be daunting. It would help if you considered whether you are well suited and positioned to make the culture shift and are open to engaging in personal change management and upskilling.

### UIDP: How should someone prepare before looking for an opportunity outside of their current sector?

COHEN: This is a journey that begins with due diligence and a hard look in the mirror. You must reposition your personal brand and think about what is pushing you toward this change. From there, tease out and evaluate your attributes, professional experience, core competencies, and interests; in essence, you will need to recraft your narrative for a new audience. This will help as you start to look for intersections between university and industry that may mirror your skillset or highlight voids to be filled. There are several functions that cut across university and industry, such as contract administration, technology transfer, and corporate/academic relations. Research backgrounds can also be leveraged across sectors such as cybersecurity, AI, and data science, to name a few.

### UIDP: How do you get started job searching in a new sector?

COHEN: After doing the assessment described above, begin to network with your contacts, participate in relevant conferences, and get the word out that you're contemplating this change. Do some research and find others who have already made the transition. Everybody's situation is different, but you can certainly learn from other's perspectives and experiences. If you have the opportunity, participate in industry/university projects and volunteer to be on a committee or join a relevant association such as UIDP. Those looking to transition from academia to industry should attend industry seminars, understand the space, read global trends, investors' reports (if public), and start to build an industry mindset.

Honing a new personal story to showcase your agility to leverage your experience in this new sector is paramount. Identify organizations with a culture that supports new ideas. Don't focus on job titles, as they will shift from organization to organization. Instead, learn about the skills needed to be successful in this new sector and how performance is measured.

Concurrently, identify search firms that have helped others make this transition, get to know the search consultants, share your background and interests, and sign up for alerts about new searches.

Use social media; LinkedIn will become your best friend. Use keywords and other parameters to broaden your network. Follow groups and organizations that are of interest and sign up for relevant job postings to come straight to your inbox.

Now more than ever, there is increasing collaboration between universities and industry. This has created job fluidity, making now an excellent time to consider moving between sectors. Before going down that path, a series of considerations must be examined, including personal reflection about what is important, honest self-assessment and peer review of skillsets, and willingness to learn new ones.

**UIDP: Can you provide an example of someone who has made this transition?**

COHEN: I'll share two stories. One involves the move from industry to university. The second is a reverse migration.

Our industry person studied technical writing, communications, and earned an MBA. Then he joined a large technology company where he ran applied research, data analysis, product development, and training operations. He rose through the ranks to manage large-scale technical advisory services and had established a new data analytics business for a large software firm.

After more than 20 years, he was ready to do something different. Careful assessment revealed his strengths and interests were in relationship building, technology, and connecting stakeholders. It also became clear that many of his clients lacked employees with the right skillsets. That opened the potential for a move to a different sector, higher education. He could leverage these attributes and contribute to the changing landscape for technology and workforce development. He began to network and consult with universities looking to build centers for entrepreneurship and innovation.

During one of his consulting projects, his client, a major research university, asked if he would take the lead role in establishing a data analytics institute. Over the next three years, he developed and implemented a strategic plan. He engaged with faculty across the institution, initiated the development of a new bachelor's degree program, and created a physical hub for data science at the university.

After this success, he was recruited to another major research university and has continued to sharpen his skills in data science and cybersecurity while focusing on interdisciplinary studies, workforce development, and solving large-scale global issues.

The second story is about a scientist who moved from academia to the pharmaceutical industry. Her first change was to relegate her lists of publications and presentations to the back of her resume and focus on teamwork, accomplishments, and metrics. While the academy values individual achievements, in corporate research, success depends on collaboration.

She also started her transition as a consultant. This allowed her to get her foot in the door and strengthen her talents in communication and management.

These examples highlight action to seek volunteer opportunities on a committee or a project. Many scientists in academia consult on industry collaborations or as a side gig.

Careers, like life, are journeys. They have more twists and turns today because of the speed of change and the corresponding demand for new skills. This is a challenge and an opportunity: between sectors can be challenging, but it is also an opportunity for those who are willing to leverage old skills in new environments as well as learn new ones.

# CAREER TRANSITIONS FOR PROFESSIONALS IN PARTNERSHIP ROLES

The career path for those working at the intersection of university-industry-government research partnerships is not well defined. Whatever the role—researcher, program leader, corporate/ academic relations, tech scout or manager, or workforce and talent development—understanding the goals and priorities across sectors is a net gain for career advancement. But for those who want to make the leap across sectors—university, industry, or government—the terrain is largely uncharted.

UIDP sought to better understand the career journey through a two-pronged effort. We began with a survey of UIDP member representatives to both learn about the experiences of those who had crossed between sectors over the course of their careers and to also gather top-of-mind perceptions about working in industry, academia, and government.

We also spent time with veterans of career transitions to uncover common threads based on first-hand experience. Through interviews, we asked a standard battery of questions to capture their challenges, what they learned, and what advice they can offer to others considering a move. These first-person interviews include rich perspectives and provide astute guidance. Each interview summary identifies the career path by sector and highlights key insight for the reader. UIDP is indebted to our baker's dozen interview subjects for the time and thoughtful preparation they contributed to this effort. These stories often touch on key findings from the broader survey and offer valuable context and a real-world anchor for the data.

One overriding takeaway from this effort is the *primacy of curiosity over cash* (see **Ashley Llorens's** story illustrating this theme). For most interviewees, the main reason behind a career transition is the drive to understand the role from the other side of the table, to take on a distinctly new challenge, or to make a bigger impact in a different sector (this last point is overwhelmingly the case among those who spend time in the government sector). None of the interviewees emphasized financial gain as a primary reason to make a career change, although the opportunity for career advancement and to take on more responsible roles is often the pathway to significantly higher pay or richer benefits down the road.

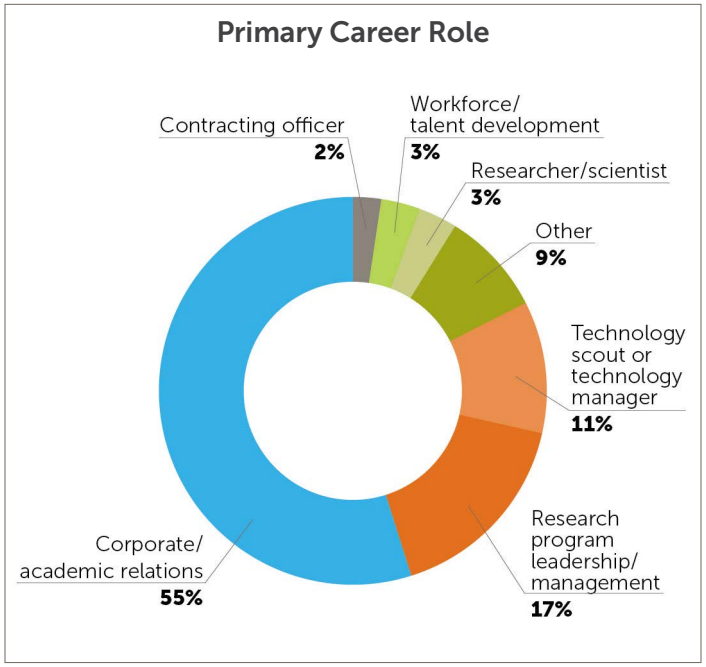
## Key Learnings

Despite the unique nature of career journeys, the survey and interviews produced several key learnings.

- Crossing sectors broadens perspective and enhances understanding of any role.
- Transferrable skills vary across roles, but business acumen, scientific credentials, and soft skills are valuable in every sector.
- Pace and priorities may differ across sectors, so it's essential to understand expectations. Establish relationships with mentors or peers in the new environment to avoid missteps.
- Maintain and continually nourish your professional network. New opportunities for career advancement come most often from those who know you and your strengths.

## Career Transitions Survey Results

UIDP fielded the survey, "Career Paths and Transitions for Professionals in Cross-Sector Partnership Roles," in January 2021. Of the 124 respondents, 93% said they had personally changed their career sector. Just over half of total respondents (55%) said they work primarily in corporate/academic relations roles, while the next highest proportion (17%) are in research program leadership or management. Although the majority (83%) of respondents work in an academic setting, the preponderance of survey participants who have worked in multiple sectors resulted in similar responses for most closed-answer questions.



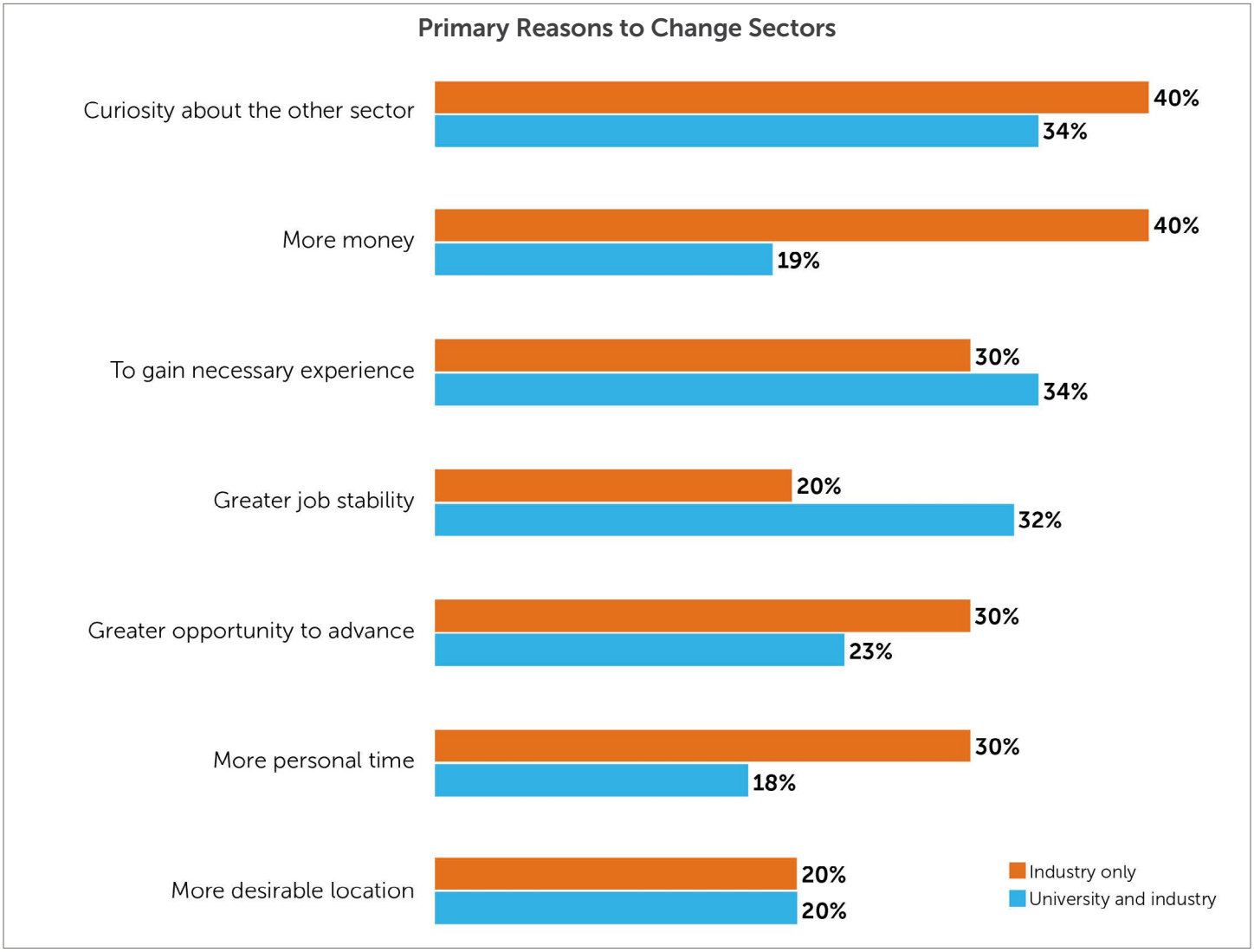

## Insights from career transition veterans

The survey asked a series of questions to those who said they had personally made a career transition across sectors. The majority (61%) made the jump at mid-career, but a large minority (42%) switched early in their careers. Less than one in five made their sector change late in their career (for insight into the challenges and benefits of a late career transition, see **Dennis Fortner's** story).

> "Demonstrate your ability to be flexible and what insights from the prior sector will aid you in the new sector, and, specifically, how they will help."

We asked respondents to select up to three reasons they made the switch. The top three reasons were curiosity about the other sector, a desire to gain experience, and interest in greater job stability (see the stories from **Karina Montilla Edmonds** and **Brice Nelson** about the role of curiosity in making a career change). Career advancement also ranked high. Although better benefits and more money ranked lower across the pool of all respondents, those who identified as currently in the industry sector ranked more money and curiosity about the other sector as their top two reasons (a tie at 40% of respondents).

Most respondents identified new potential career opportunities through their personal professional network (77%), while 38% were recruited by the new organization and 34% checked career website. This finding is consistent across social media and executive search firms play a smaller role. The importance




of cultivating a professional network to identify new career opportunities is reflected in many of the first-person interviews as well (see the stories from **Christopher Austin, Gaylene Anderson,** and **Daniel Reed**).

We asked respondents to offer their most important piece of advice based on their experience in transitioning careers across sectors. The responses ranged broadly and sometimes conflicted (some recommended making strategic, long-term plans while others advised taking risks and trusting your gut). But the overriding theme that emerged was that culture matters (see stories from **Jacqueline Serviss** and **Chris Ramming** for expansion on this theme). Respondents advised others to take the time to appreciate the nuances of a sector, and to realize that behaviors are driven by underlying factors that it may take time to learn and understand. As one respondent noted, "Be prepared for culture shock. Demonstrate your ability to be flexible and what insights from the prior sector will aid you in the new sector, and, specifically, how they will help."

The next question explored the skills considered to be most transferrable across sectors. Strong themes that emerged were networking and collaboration, as well as business skills that translate globally (e.g., time management, meeting management, and strategic planning). Science and technical skills are also highly valued across sectors (see **Peter Ireland's** story as an example), as well as communication and business development and dealmaking skills (**Wendi Yajnik's** story aptly illustrates this theme). What are often termed "soft skills," such as writing, teamwork, and persistence, were commonly cited as well.

Survey respondents shared common concerns about switching sectors. Understanding and thriving in a different culture was the top concern shared (see **Richard Cowburn's** interview). Nuances of this theme ranged from the need to build new professional networks in a totally different sector to adjusting to different priorities and pace. As one noted, "I knew I could do the work, having been on the other side of the table, the only real question was whether I would be a good fit in a university environment."

## Broad perceptions about the sectors

The survey asked all respondents about their perceptions about the benefits of working in industry, academic, and government sectors—whether or not they had personally worked in them. The responses shed important light on perceived advantages of each and contribute to the complexity of making a career transition early on, mid-career, or later. These open-ended responses were analyzed and sorted into commonly cited themes.

Among the top responses about the benefits of working in industry, financial considerations took the lead with 27% of responses. Closely following were personal satisfaction (15%), a clear goal or purpose (15%), the fast-paced environment (14%), and opportunities for career advancement (14%).

> "I knew I could do the work, having been on the other side of the table, the only real question was whether I would be a good fit in a university environment."

In academia, there was a wide range of benefits suggested. The most common theme was around academic freedom, flexibility, and creative control (25%). Job security was the next most common theme (11%). Other commonly cited benefits included positive work/life balance, a cooperative team culture, and the ability to access technology and do research.

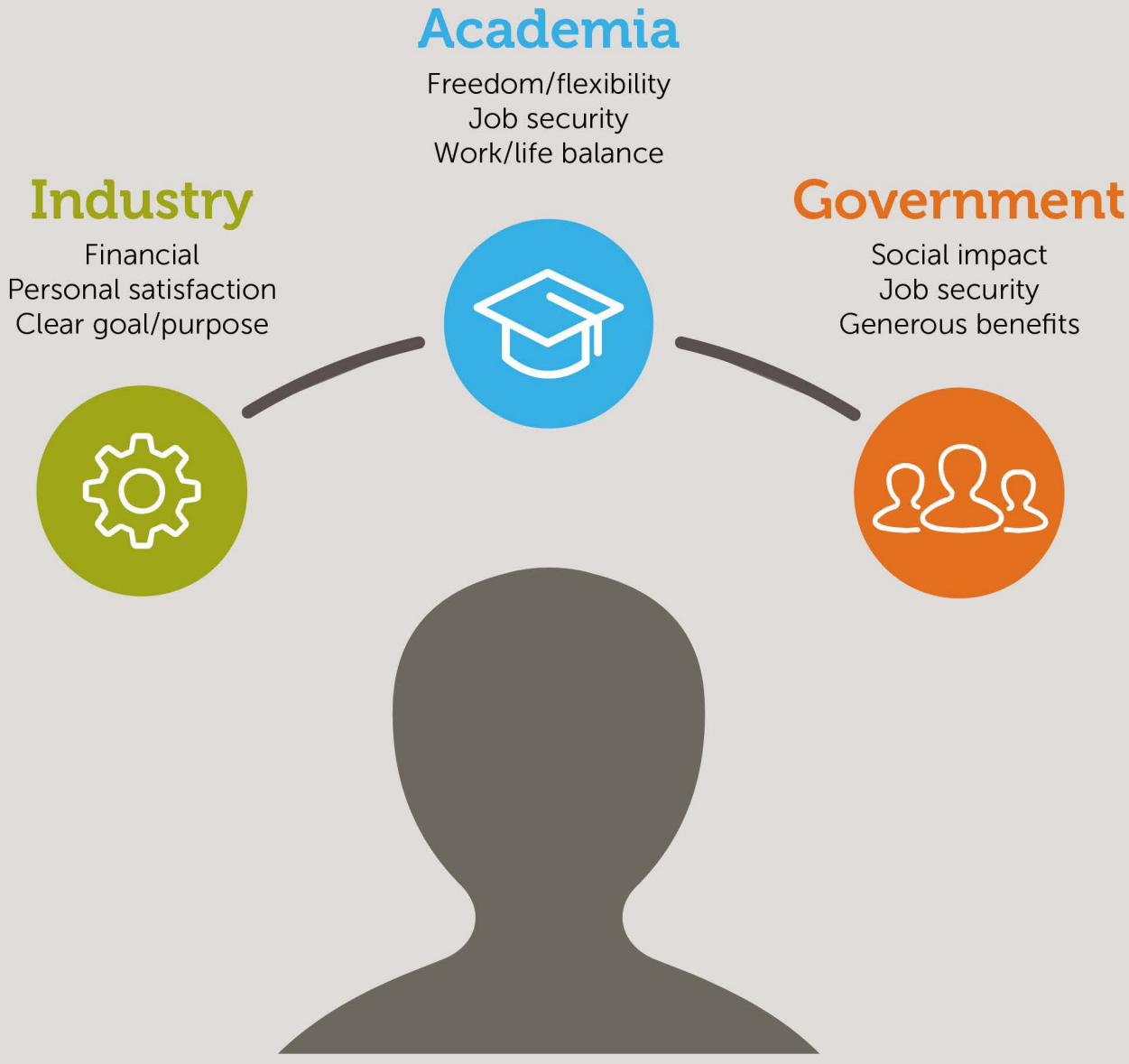
Perceptions around the benefits of working in government produced fewer themes than the other sectors. The most frequently cited themes were the potential for societal impact through public service, and job security (both receiving 28% of responses). Generous benefits (e.g., health and retirement) followed, with 17% of responses.

The final question in the survey asked all participants to offer a word of advice to early career professionals working in their own role. The most commonly offered response was advice to gain broad experience. As one respondent said, "I would encourage them to explore all sectors and to be open to new opportunities." The interview with Grace Wang, who has experience across all three sectors, echoes this theme. Moving from industry to government offered an unmatched opportunity to broaden her career focus while boosting her creativity and innovation capabilities—and paved the way for a leadership position in academia.

Networking and building professional relationships, as well as a willingness to take risks, were also common threads.

"I would encourage them to explore all sectors and to be open to new opportunities."

## Benefits of Working in a Sector



**Gaylene Anderson**

Director, Global Transactions & Contracts Management

Boehringer Ingelheim Pharmaceuticals, Inc.

## When opportunity (literally) knocks, answer the door

Gaylene Anderson's successful career in technology transfer began with a knock on her front door.

As a young mother living in Hawaii, Anderson was exploring full-time career options that leveraged her biology degree, graduate school in public health, and experience in medical marketing, sales, and business development. She just happened to live next door to the Director of the Tech Transfer Office at the University of Hawaii, who stepped up to mentor her in a new licensing career.

"He said to me, 'you'd be great. You have the right background, and I'll teach you everything you need to know,'" says Anderson. "And the rest is history."

After seven years with increasingly more responsibility, Anderson wanted to expand her licensing knowledge at another institution with strong agricultural programs (rounding out her life science experience). The University of Idaho offered an opportunity to grow in the plant licensing field and manage a unique alliance program between Idaho, Oregon, and Washington. At this time, the agriculture business was like the Wild West; new licensing programs were being developed for novel seed varieties, and growers all over the country were being introduced to new ways of doing business. "It was here that I really honed my negotiation skills and had to work fast doing a lot of deals," says Anderson. "I had a great time developing relationships with pioneers in the potato, wheat, sugar beet, and beef industry." She also picked up an MBA along the way.

Four years later her mentor called again. Now at the University of Notre Dame and director of the technology transfer office, he was creating a first-of-its-kind alliance and commercialization program connecting an academic institution with a big hospital unrelated to the university—the Cleveland Clinic. This new program combined Anderson's current licensing experience with her previous business development role at a large hospital. Anderson visited, was "wowed and impressed," and made the move. As the senior innovations officer for the program, she traveled between the two institutions, helping startup companies while looking for traditional licensing deals and high-level research opportunities.

One of the deals she struck was with pharmaceutical developer Boehringer Ingelheim (BI). She stayed in touch with them "because you always hope you're going to do more deals with a good partner," she explains. But when BI asked her to come work for them, she didn't immediately believe she was the right match; her background was in biology, not chemistry. The recruiter persisted. "We have 50,000 people with that background. I need somebody who knows what you know about universities and how to get deals done."

At the time, Anderson was the only member of BI's business development and licensing team who came from a background in academia; the others began as scientists or worked for other pharmaceutical companies. However, her diverse

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background has proven useful at BI. "It's helpful to talk to academic colleagues around the world and give them advice on how they should think about industry-academic contracts or relationships," she says.

The idea that industry "works you to death," is a myth, asserts Anderson. She enjoys the team culture at BI and access to legal expertise to support her work. She also enjoys gaining a deep knowledge of one industry and learning the business of drug development. Her paid time off is comparable to the academic world, and there is a lot of flexibility in how she works. Even before the pandemic, Anderson was free to work from home. "The attitude is, 'we don't care how you get your job done, you just have to get it done,'" she says.

Industry, says Anderson, has more respect for academia than many people realize; 35 to 50% of BI's R&D pipeline is anchored in external engagement, so successful partnerships are valued. "I was surprised when I first came to pharma, sitting in meetings and listening to the scientists and the attorneys talk about academia. It was with so much respect and care because they wanted to make sure that their partners were happy, and everything was going okay."

### Anderson's advice to academics considering a future move to industry:

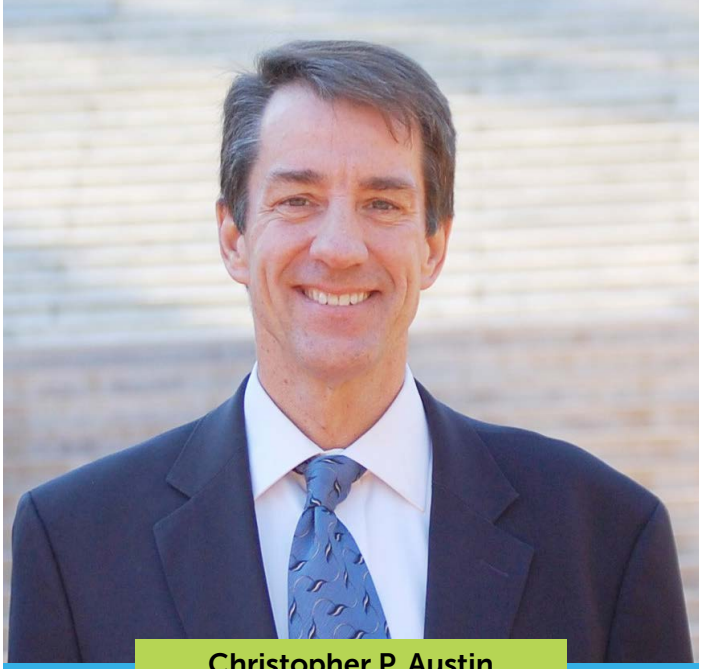
- **Network, network, network**. Attend conferences, get to know people, and be ready to give something back. "When you do a good job, things circle back," says Anderson.
- **Treat every professional interaction like a job interview**. "You never know; the person on the other side of the table might want to hire you later, or you might want to hire them someday."
- **Fill in experience gaps**. A candidate with a PhD, MBA, and experience at NIH might not qualify for Anderson's position. They would also need to a strong deal sheet to show actual negotiation skills. Be strategic and get the experience you need.

Even after seven years at the University of Hawaii and her progress to senior technology licensing officer, Anderson says she would not have been ready for the job she has now. "It took me five years to realize how much I didn't know," she says.

"Sometimes people want to rush this, but it's hard stuff. You can't overstep the experience in growing your network, building a deal, seeing different scenarios, and getting to work on different types of teams and different types of technologies."

As a happy turnabout, Anderson recently helped hire her mentor to work with her at BI. He was ready for a change, has family lived near BI's U.S. headquarters, and he heard Anderson speak highly about the company. "Four years ago when I left the Cleveland Clinic, my mentor said, 'next time, I'll come work for you.' The business of licensing and executing technology collaborations is all about relationships. My 20-year story proves it."

Anderson with the life-size Wonder Woman cut-out in her office.



**Christopher P. Austin**

Director, National Center for Advancing Translational Sciences

National Institutes of Health

## When you climb Everest, get a guide

When Christopher Austin arrived at Merck with a Harvard medical degree in hand, he thought he knew everything. He soon learned there were hundreds of people there working in a new research field as yet unknown to him.

Years later, when he arrived at the National Institutes of Health, he again discovered that "I didn't know what I didn't know" about this vast agency with incredible reach and scientific impact.

Austin, a neuropsychiatric specialist, began working at Merck in 2002 in its new human genetics department. The race was on to identify genes that could be targets for new drug development. But the secrets of the genome would not be revealed quickly enough. –

"We thought the scales would fall from our eyes and we would understand all there was to know about treating diseases as soon as we had this book of life in our hands," he recalls. But the task was more difficult. "Merck was a wonderful, preeminent drug development company, but it could not invest in the long-term understanding of the genome I thought was necessary to catalyze that knowledge to improve human health."

As he was considering career alternatives, Austin attended NIH's National Human Genome Research Institute (NHGRI) conference. Francis Collins, then head of the institute and now director of NIH, told Austin that the 300 genes he was focusing on at Merck were only a fraction of the entire genome. Collins asked Austin if he would like to come to NIH to "help us figure out what to do with the genome—that literally was his job offer. I still remember that because I thought, 'that is either the silliest thing I've ever heard or it's the greatest job offer in the history of science.' I've always been attracted to big problems, and this is only going to happen once in human history."

Austin learned the influence of NIH was tremendous. "I underestimated the impact, the convening ability, the fact that when NIH speaks, people listen," says Austin. "I wish I had appreciated how big the opportunity was when I first got here. NIH is a pretty magical place, and it took me a while to figure that out."

"When you make a move," he advises," assume you don't know how the new organization works. Get a buddy. Don't try climbing Everest without a guide, because you will run into grief."

Austin was initially hired to infuse industry and academic culture into NIH, deemed essential for understanding the vast amount of data from the Human Genome Project. As that project reached completion, he became the first director of NIH's National Center for Advancing Translational Sciences (NCATS). The job required him to devise a better discovery-to-product translation process, unencumbered by the different constraints of academia or the pharmaceutical industry.

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"I thought if I could develop this process, it would have an enormous impact on everybody because it would make clinical translation more efficient and effective and logical and innovative—like going from what sometimes feels like astrology or a Ouija board to engineering," he says.

Austin incorporated team-, deliverable-, therapeutic-, and impact-on-people-based models. "What we've been able to

do at NCATS is merge the creativity of academia and the deliverable-based culture of industry. It's dynamite, and it's unusual."

"Did I worry about job security when I came here? No, I didn't."

Austin's experience in both sectors provided the perfect background for the job. "When you make a cross-sector move, what the sector wants is your unique experience that's different from what they have now," he says.

### Austin's advice:

- **Spend time in industry**, especially academics who want to understand drug discovery. He similarly advises those from academia or industry to spend some time working in government to learn how regulators think.
- **Become multiskilled**. That's in opposition to the narrowly-focused way medical and doctoral students are trained to think. "If you view that (advanced degree training) as a learning opportunity for how to think, that's great," says Austin. "If you think that's all you have to know for your career to flourish, you are mistaken."
- **Mid-career, take a break**. Austin cautions that science is like a subway train: if you're standing on the platform, it will pass you by. He advises a sabbatical to go somewhere totally different. "Do it because it will keep you fresh."

While job security is an attractive aspect of government jobs, a surprising proportion of federal workers are on limited timeframe contracts. At NCATS, only about half the staff are General Schedule (GS) employees. All institute directors, including Austin, are term employees.

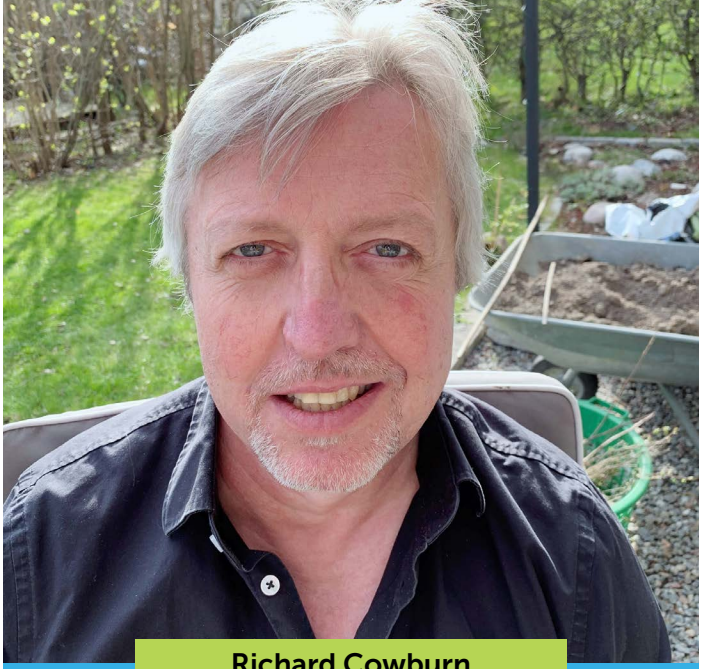
"Did I worry about job security when I came here? No, I didn't." Austin says most of the people working at NIH NCATS are highly trained scientists and clinicians with a focus on impact and bringing value to their country. With that perspective, job security takes care of itself. "You can blow the doors off of the field if you have a whole organization made of people like that."

Austin tells people to think big about their career aspirations. Austin had to build his own program with no employees or budget. "And here I am, 18 years later, running an almost billion-dollar organization, doing what I came here to do," he says.

"The places I had been before NIH were wonderful places. Harvard is a wonderful place, and it thought it was the center of the universe. Merck also thought it was the center of the pharmaceutical and science universe. And in a lot of ways, it is. But neither of them is: NIH is. The view that you have from the top and the ability to influence is enormous. And that's been unbelievably gratifying."

"It's the Crystal Palace. It's where the Wizard of Oz lives."

*Editor's note: Since this interview was conducted, Christopher Austin has made another move across sectors. He is now CEO-partner at Flagship Pioneering, a life science platforms company in Cambridge, MA.*



**Richard Cowburn**

Responsible Corporate Partnering,
Head of External Engagement Office

Karolinska Institutet

## Jumping ship creates more opportunities

Sometimes, leaving a job is a planned, proactive decision. But for Richard Cowburn, the decision lay beneath the surface for a long time before seeming to burst forth spontaneously.

After 17 years with his own Alzheimer's disease research lab at Karolinska Institutet (KI), one of the world's foremost medical universities, Cowburn took the plunge. He left KI to help develop AstraZeneca's strategy for Alzheimer's disease and build early research programs.

One reason Cowburn became disenchanted with his role at KI was the gap between his aspirations for research and his desire to influence its translation into tangible solutions. "You come to some stage where you realize you create knowledge and contribute to a knowledge base, but you have little true insight as to how that knowledge gets used and implemented to create something concrete."

Nevertheless, Cowburn did hesitate the first two or three times that AstraZeneca asked him to make a jump to industry. He liked his academic freedom, but he also felt that he had achieved a lot of what he wanted to complete as an academic. He enjoyed mentoring students and graduate students, but the idea of moving to industry to gain in-depth knowledge about the drug discovery process held great appeal. When Cowburn was finally asked by AstraZeneca to refer an academic who would move to the company to develop their strategy for Alzheimer's disease, his spontaneous response was, "You're speaking to that person."

"It was the best proactive decision I've made in my career," says Cowburn. "If I wanted to create more opportunities for myself and understand what I'd been doing all those years, then the only way I could do that would be by jumping ship."

When Cowburn moved to AstraZeneca, he brought in-depth knowledge of Alzheimer's disease mechanisms. He maintained an adjunct professorship at KI and he well understood where the field was going, where the "hot" science was, and who the key players were.

At AstraZeneca, Cowburn gained valuable knowledge and skills around structuring a drug discovery and development process and criteria for starting and progressing projects. In retrospect, Cowburn says that "it was a huge challenge to understand drug discovery, and even after six years, I didn't really understand it completely or know if anybody really does."

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Cowburn found the work culture at AstraZeneca to be stimulating, particularly the range of bright people he encountered working in a multi-discipline, team-based environment. He grew to like industry's milestone-focused structure, some of which applies now in academia. He gained valuable project management and line manager skills that could be applied in any setting. "It put me in good stead for being able to pursue a career in any branch."

Cowburn also appreciated the decision-making process at AstraZeneca. In academia, he notes, "it can sometimes be very unclear how decisions are made and why, which is quite different from industry."

In 2012, AstraZeneca ended all its R&D activities in neuroscience. "There was still an awful lot that I could have

learned," says Cowburn. "I would have appreciated a few more years of working in industry."

Cowburn wanted his next job to also be in Sweden's life sciences ecosystem. He landed back at KI, leading corporate partnering efforts as a non-faculty member of the central administration.

> "...think much more broadly about what you could potentially do."

The decision to return to KI was straightforward: The day after he learned AstraZeneca was closing down its Alzheimer's research, he looked on the KI home page and found a job announcement for the position he now holds. The work is similar to what he was doing at AstraZeneca, except that he is no longer an active researcher.

Cowburn's prior work with drug discovery at AstraZeneca bolsters his current conversations with KI academics. "I can ask them the relevant questions and help them build that understanding so that when they start interacting with industry, they understand where industry is coming from, and the kind of questions industry will be asking them," he says. "And that creates understanding to bridge between what the academics want, where they think they're going with their research, their understanding of what the industry is looking for, and the criteria they apply to bring a program on board. That is a knowledge set that I would not have gained just by staying in academia."

Cowburn misses the annual bonus he got at AstraZeneca. He also notes that the pension schemes in industry are better. But he explains that in Sweden, at his level, the wages for working in industry and academia are not "astronomically" different. Also, job security in Sweden's public sector is "not to be sniffed at."

## Cowburn encourages young scientists to

- **Develop a diverse skill set**. "A lot of young people in academia get caught up in being too focused, thinking this is the way academic pathways go."
- **Move among life science's different components**. "Whether it be between classic life science and IT or engineering branches, think much more broadly about what you could potentially do," advises Cowburn.
- **Consider timing**. Cowburn cautions against leaving academia too soon. Junior-level positions offer limited chances to advance, while more significant career development opportunities go to those who arrived as established scientists. "I saw many people in industry who were frustrated about not being able to climb the career ladder within the company," he says.

Cowburn's ultimate advice for those who might want to move between academia and industry is first to understand their career motivation. Then, create the work and skills that match such motivation. Cowburn's motivation was to understand the relevance of academic research, and each career move brought him closer to this objective. Thus, he has come full circle since his initial time at KI and can now help KI faculty understand their work's relevance. He regards integrating his experience as the key benefit of having returned to KI.

"Translating my own experience in a way that makes sense for the university and our researchers is the most rewarding thing," says Cowburn.

The Stefan Zimmerman Biomedicum on the KI campus symbolizes the bridge between the university and hospital and the combined efforts to create implementable health care solutions.

**Karina Montilla Edmonds**

Global Senior Vice President, Head of Academies and University Alliances

SAP

## Continually seek the path for greatest growth

Karina Montilla Edmonds has moved from industry to academia, to government, and then back to academia and industry—and every job has been the best job she's ever had. With each move, she sought the optimal path for growth.

Her first job after graduating as an aeronautical engineer was at Northrop Grumman. She then spent five years at NASA's Jet Propulsion Laboratory (JPL), which Caltech managed, as director of technology transfer.

Montilla Edmonds was "perfectly happy" at JPL when a recruiter from the U.S. Department of Energy (DOE) tapped her for a technology transfer coordinator position. She was almost overlooked for the position because a well-meaning colleague told the recruiter she would not want to move with her three young children across the country. But the recruiter saw Montilla Edmonds 's potential and put the question to her directly. She seized the opportunity.

The position to work under the Obama administration was an opportunity for rapid professional growth. Montilla Edmonds worked for Secretary Steven Chu, who she describes as "a scientist who recognized the value of moving technologies to the marketplace, both as an inventor and entrepreneur." Also, she notes, "we had a historic administration, which for me was quite appealing and an experience I wanted to share with my family. And as a naturalized citizen, I feel this country has given so much to me. This (job) was my opportunity to serve in a small way. For all those reasons, I took the job."

Montilla Edmonds did encounter challenges at DOE. There was a negative perception of technology transfer, which some at DOE regarded as "corporate welfare." Furthermore, there was a much different relationship among the DOE labs than what JPL enjoyed with NASA. "There were people within DOE that didn't feel like the labs were part of DOE because they were contractor managed," says Edmonds. "NASA loves JPL as part of their lab system, so this was very different than my previous experience."

Funding was also a challenge; her budget wasn't as large as expected. She chose not to renew after the first three appointments. "I had done as much as I could with the resources I'd been given, and so it was time to move on," she says.

Despite the challenges, Montilla Edmonds regards her move to DOE as the most significant growth point in her career. "Going from academia into government, into this very highly visible role, was a pretty big leap," she says.

From DOE, Montilla Edmonds returned to Caltech as executive director for corporate partnerships. After several years, she recognized the environment was no longer a perfect fit. While interviewing for a position at a different academic institution, she was contacted by Google, connected by a colleague she worked with in Google's university relations division. The potential for professional growth was again the key to taking on the new role.

"GOING FROM ACADEMIA INTO GOVERNMENT, INTO THIS VERY HIGHLY VISIBLE ROLE, WAS A PRETTY BIG LEAP."

After three years as Google's university lead for Google Cloud, a new opportunity appeared on the horizon. SAP, one of the largest software companies in the world, engaged Montilla Edmonds as its senior vice president and global head of academies and university alliances, reporting directly to the CEO, Christian Klein.

SAP's mission of helping the world run better was a strong appeal. Montilla Edmonds  says she helps improve people's

lives while influencing the company's direction as a member of its corporate and social responsibility board. "The growth opportunity is significantly bigger than my opportunities at Google were at that time," she says.

In industry, Montilla Edmonds notes, there is more focus on return on investment than in academia or government. And industry is focused on outcomes and ROI. "Industry moves much faster. Programs get killed if they're not working properly, and we change direction at a much faster pace. Government

> "It's in the place of discomfort where we grow the most."

programs last a lot longer and have the potential for greatest impact. Ultimately Industry tends to be a little more agile."

Montilla Edmonds says she is pleasantly surprised by how much industry wants to work with academia to ensure a diverse talent pipeline. She says that SAP is very interested in working with universities that have a diverse student body. "I don't think that has generally been the case in industry."

Building relationships and networking have always been her most transferrable skills. "I think the underlying thread is creating and building trust. When I joined JPL, the trust was broken between management and the researchers." Her empathetic leadership style leads with inclusivity and team building to solve problems.

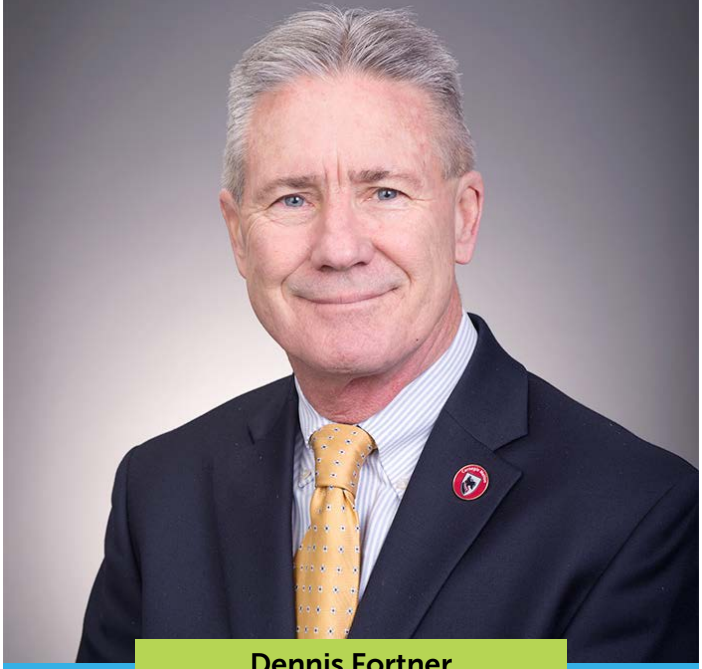
That style crystalized at Google. The team there discovered through research that a high level of emotional security—psychological safety—is needed for creativity to thrive. "That's when it really hit me," says Montilla Edmonds . "You have a more effective team when you build trust."

## Her career advice:

- **Develop your network**. Montilla-Edmonds can trace each opportunity on her career path to professional colleagues who recommended her. Build social capital wherever you are.
- **Take risks and stay curious**. "Do not be afraid to do something different... whether it's going to a different city or going to a different university or company." [There is no such thing as failure, you either win or you learn. The lesson learned often provides a greater growth experience.]
- **Weigh the value of your knowledge and what you bring to the table**. "You want to be at a place where you can bring your full self because (otherwise) you can't bring your 'A' game." (quote attributed to Prof. Sylvester James Gates, Jr.)
- **Learn to be comfortable in uncomfortable situations**. "It's in the place of discomfort where we grow the most."

Montilla Edmonds continues to have a special tie to the academic community. "Part of the reason I got my PhD was because I wanted to be a faculty member. I've always enjoyed working with faculty and researchers, and I enjoy being able to do that from the industry side," she says. "That's what enables me to have good relationships with faculty, because I have a deep understanding of their objectives and know what's meaningful for them, what is helpful, and most importantly how to get out of their way."


After more than a year of working from home, Karina finally met some of her team in person at SAP's new, state-of-the-art, Engineering Academy in San Ramon, CA.



**Dennis Fortner**

Director of Business Engagement

Carnegie Mellon University

## Benefits outweigh risks of late-career move

One might think that stability would be a top priority for someone who considers himself at the tail end of a successful 30-year career. But Dennis Fortner went the opposite route, pulling up stakes after 15 years at Northrop Grumman to begin a new role as director of business engagement for Carnegie Mellon University (CMU).

The move was influenced by Fortner's relationship with Mark Nolan, who worked at the University of Illinois Urbana-Champaign and collaborated with him on Northrop-Illinois research partnerships. After Nolan took a position as CMU's associate vice president in business engagement and strategy, Northrop Grumman stepped up research activities with the university and the partnership deepened. About six months into his tenure, Nolan wanted to recruit new staff from industry, and he invited Fortner to apply to join the CMU team.

The offer resonated. Fortner originally began his career as an engineer in R&D. He earned a master's degree in technology management and progressively moved to roles in market and business development, intellectual property, and sponsored research. "Having the background of working with universities and extensive experience in corporate R&D and business development laid a good foundation for a position in corporate relations at CMU."

Fortner considered the potential risks of making a late-career move to academia. First and foremost, he had to move from his New York home of 27 years to Pittsburgh and convince his wife that starting a new career in a different sector with a different culture would ultimately be a good move. He would leave a formal, structured work environment and enter an informal, unstructured environment, led by a vice president of advancement.

He notes that university research vice presidents are more influencers than managers. The principal investigators hold much power at the university to decide the direction and development of their research.

"In the corporate R&D world, as long as the boss and the boss's boss are happy, things are good," he says. "But in the university world, you've got to please and build rapport with each PI individually. You try to work with a lot of different people who have different focuses in different fields."

The move to CMU also held financial implications. He would lose his annual bonus, but the lower income tax in Pennsylvania resulted in unrealized gains to his retained income. And the university offered attractive benefits, such as generous paid time off and a shorter work week. His retirement plan at the university was even more generous than his corporate plan.

Fortner says the benefits of working in higher education outweighed his initial concerns. A natural networker, his active membership in UIDP and other organizations proved professionally valuable. And on campus, networking also proved key to a smooth transition.

"THE MENTORING NETWORK HELPED BECAUSE I HAD PEOPLE TO GO TO AND CONTRIBUTE TO THEIR TASKS, AND MANY WERE QUITE WILLING TO HELP ME ACCLIMATE TO THIS NEW UNIVERSITY ENVIRONMENT."

"When I joined CMU, I realized that not only my position coming from a company standpoint was helpful, but it helped me to enable, engage, and develop a mentor network within the university. The mentoring network helped because I had people to go to and contribute to their tasks, and many were quite willing to help me acclimate to this new university environment."

"I found a lot of people at CMU who also came out of the corporate world," adds Fortner. "To me, that was monumental because I was able to liaise with people who understood that world. Once I figured out who they were and what their backgrounds were, we became our own little network." His mentors served him well: he faced no challenge too great for his network to help resolve.

> "The goal is to meet more people and to get different their perspectives on a continual basis."

To gain the trust of PIs, Fortner had to prove his past business experience and acumen. He often participates in discussions between CMU and the aerospace and defense industry. He has also connected the university with associations to help his colleagues better understand industry. "This has led to opening up new doors, connections, and avenues to work with CMU across multiple industry sectors," he says.

### Fortner's advice for professionals considering a job transition:

- **Join professional organizations and strive to be recognized**. Within professional organizations, he welcomes the opportunity to speak when these arise, and he actively engages in many. "The goal is to meet more people and to get different their perspectives on a continual basis," he says.
- **Seek mentors**. That should include people you can rely on for advice about potential career moves as well as cultivating new mentors within your own organization.
- **Maintain a great network**. "If the move (to CMU) didn't work out, I felt I could always have gone back," says Fortner , whose network still includes colleagues at Northrop Grumman, Lockheed Martin, and Raytheon.
- **Take calculated risks**. He further advises that one should have clarity about the benefit of any job change. "Each step has to make logical sense," he says. "Think it through, talk to a lot of people, and make sure it makes sense from a career standpoint."

Fortner's final two words of advice are "call me." He assured the interviewer that he would be happy to speak with anyone contemplating a similar move from industry to academia.

If Fortner could go back and redo his decision to leave industry, he would still make the move as he now knows that higher education values his skill set. If he were to change anything in doing so, he noted it would only be to have considered such a move a bit earlier in his career.

**Peter Ireland**

Head of Oxford
Thermofluids Institute

University of Oxford

## Enjoy *all* the flavors

Some people move between industry and academic research settings to be able to have their cake and eat it, too. At certain times, they want the sharp focus required in an industry setting. At other times, they want the creative liberty to explore exciting ideas. In Peter Ireland's case, his career has allowed him to enjoy all the flavors.

Peter Ireland was an academic researcher at the University of Oxford, engaged most of the time in Rolls-Royce applied aerospace research. When changes in his department spurred him to look for new opportunities, he asked colleagues at other universities and at Rolls-Royce for job leads. He heard about a few academic jobs, applied for them, and received offers. But then his contact at Rolls-Royce told him about an opening for a research specialist.

He applied and joined the fellowship program at Rolls-Royce. "It was one of the best things I ever did, because it gave me experience in industry that I would not have seen as an academic," says Ireland.

Rolls-Royce offers a fellowship track for those with a technical background to progress in their career. That was appealing. But the key benefit of working at Rolls-Royce was the intense focus—a level that's hard to replicate in academia. "It's sometimes more difficult in academia to see that you're working toward a single goal," he says.

Ireland also appreciated the sheer number of technical experts in his field who worked at Rolls-Royce. While it is also possible to talk with experts at Oxford, there were many more of them at Rolls-Royce. "Just to experience the scientific focus with which a company like Rolls-Royce engages in its activities is exciting," he says.

Ireland found the intellectual activity at Rolls-Royce comparable to academia. "The work in industry is different from the academic work at Oxford, but the technical problems are just as difficult," says Ireland. The aerospace engineering culture is equally open in both settings. "One of the great strengths of this well-known aerospace company is that they encourage debate all the time because that's how you get a bunch of engineers to design something very, very difficult and make it safe," he says.

After he had been at Rolls-Royce for about four years, Ireland received a call from a senior colleague at Oxford about an opportunity to lead the Oxford Thermofluids Institute. The position would lead a renowned, world-class group that works with Rolls-Royce. It was too good an opportunity to ignore. "I probably would never have considered leaving Rolls-Royce except to go to the job that I eventually got," he says.

Lessons learned at Rolls-Royce bolstered his new position at Oxford. "Having worked with Rolls-Royce and having understood a little bit about how the aerospace sector is wired, and having a good network within Rolls-Royce, was important," he says. He now had intimate knowledge of the company's research practices and how it worked with the government and the aerospace sector.

Ireland observes significant differences between academic and industry cultures but sees advantages on both sides. "The advantage of industry without any doubt is its focus," he says.

"IT WAS ONE OF THE BEST THINGS I EVER DID, BECAUSE IT GAVE ME EXPERIENCE IN INDUSTRY THAT I WOULD NOT HAVE SEEN AS AN ACADEMIC."

"You understand what the (company) is trying to do." Academic work is less tangible. "The top objective of the university would be to make excellent contributions in research and teaching, and we all fully understand those goals," he explains. But university research leaves faculty with more freedom to define their ambitions and think creatively.

> "There are good people that will help you without any malice or agenda."

Ireland incorporates the positive aspects of both cultures into the Oxford Thermofluids Institute. A Trent 1000 jet engine from the Boeing 787 Dreamline hangs from the ceiling of his laboratory. The artifact is a reminder that everything he does in his lab is about delivering those engines' solutions. "Sometimes it's nice to focus and deliver specific things," he says. "That has all sorts of advantages and is a lot of fun.

But, he adds, sometimes it's nice to say, "you know what, if we did this, this, and this, then that might work. Let's have a go at it. And there's much more chance to do that as an academic."

Job security has never been a concern, but Ireland notes that the aerospace industry today is laying off workers due to the pandemic's economic impact. Losing a faculty position because it is no longer needed "doesn't happen so often in the UK," he says, "so there's a perception that (academia) is safer than industry." Nor was compensation much of an issue for him because salary levels are comparable. But for those who progress to the highest levels in industry, it is more common to have a higher salary than in academia.

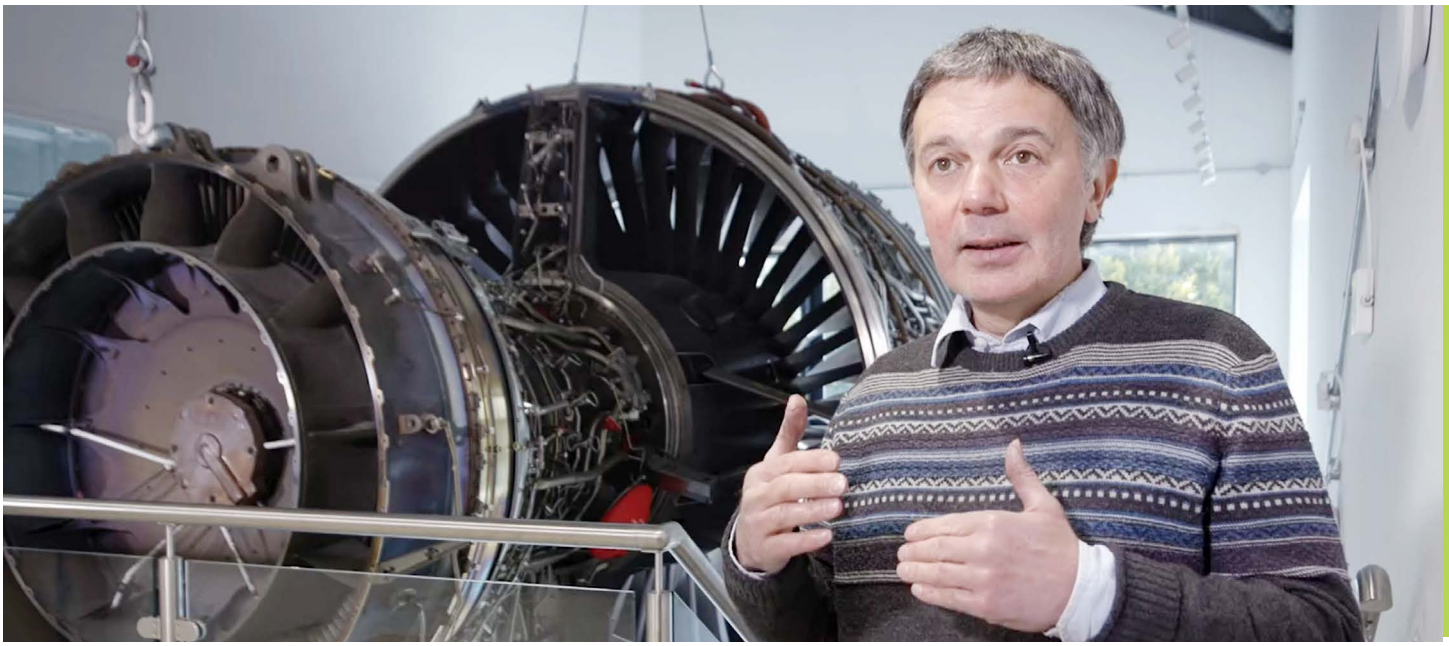
### Ireland's advice to young professionals:

- **Consider how your CV is building and your readiness** to apply for a promotion or move to another institution.
- **Have conversations with experienced colleagues** "who have no agenda other than to just tell you how they did it and how things are different."
- **Don't be afraid to work hard**—to solve a problem or do something that's really difficult.

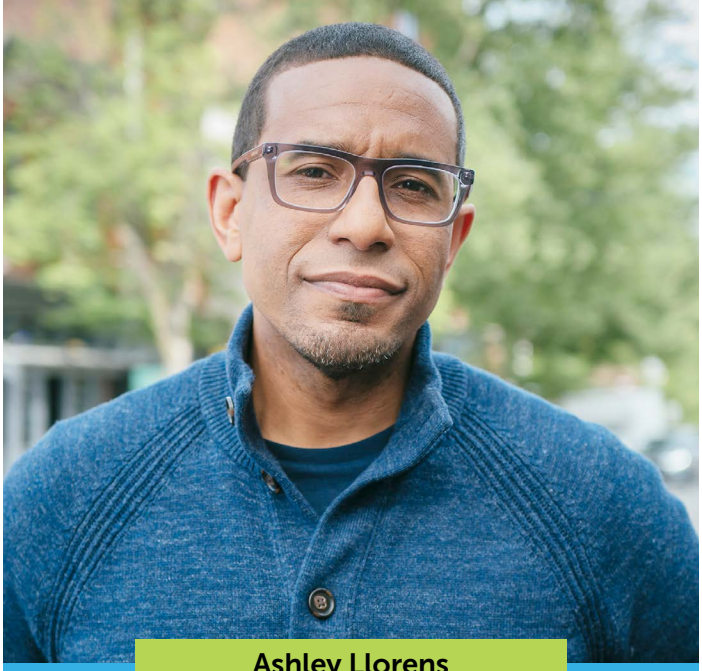
For mid-career professionals, his advice is to follow your heart.

"In the end, you just have to decide to do it," he says. Along the way, don't underestimate the power of your networks. "There are good people that will help you without any malice or agenda," he says.

Colleagues at the highest levels at both Rolls-Royce and Oxford welcomed the experience Ireland gained from both institutions; in fact, Rolls-Royce gifted the retired Trent 1000 engine to the Oxford Thermofluids Institute lab. "It's very much to the credit of Rolls-Royce and Oxford that they took risks, employing me from a slightly strange, creative trajectory," he says.



Peter Ireland and a Rolls Royce jet engine.



**Ashley Llorens**

Vice President and Distinguished Scientist, Managing Director

Microsoft Research Outreach

## Explore deeply, then move when it feels right

Engineering was supposed to be the day job for Ashley Llorens. After grad school, the plan was for an engineering gig to finance his aspiring career as a hip-hop artist until he established his own record label. At heart, Llorens is still a creative soul who likes to live life on his own terms with a hefty dose of autonomy.

But science and technology provided enough fascination to finish the degree and, much to his surprise, Llorens discovered that he liked the day job quite a lot. He entered the workforce at the Johns Hopkins Applied Physics Laboratory (APL), a nonprofit professional science and engineering organization. "APL is an amazing, mission-focused institution," he says. Llorens "immediately fell in love with" artificial intelligence research and the application of machine learning to real-world systems

Every day, Llorens brought his "full self" to work, and his career took off. Over time, he took on technology management roles. He became the founding chief of the Intelligent Systems Center, a 100-person lab that focuses on artificial intelligence (AI), robotics, and neuroscience. Then, he led the development and execution of the first AI strategy for the organization. "I became fascinated not only with the technologies that we were developing but also with the idea of technical thought leadership–creating shared identity and purpose as a way of driving technology strategy across a large, decentralized research organization," says Llorens. "During my time with Johns Hopkins APL, I had an incredible breadth of experiences. I've tried to take calculated risks along the way, to follow directions where I can have the greatest impact, and in turn, to grow personally and professionally."

As he approached his 20th anniversary in late 2020, an executive recruiter contacted Llorens about an opportunity at Microsoft Research. At first, he was skeptical. But as he learned more about the role, he realized that it offered a unique opportunity to explore technology management in a different kind of organization. "It struck me as a fascinating opportunity to have an impact and to again be in a position to drive shared identity and strategy in a large, decentralized research organization," he says. "What motivated my move was the opportunity to take the skill set I had developed and use it in a different way while having an exciting new experience."

Llorens began his tenure at Microsoft Research during a pandemic, but onboarding and meeting his team has in some ways been less difficult because everyone is working remotely and sharing the same challenges. He is still fairly new on the job, but says that although Microsoft is a for-profit company, it is a mission-driven organization. "The mission of Microsoft is to empower every person and every organization on the planet to achieve more. I'm the kind of person that cares deeply about the mission of the company I work for and whether it aligns with my personal values, mission, and goals. And there's a strong alignment there."

Of course, research must provide a value proposition for the company. "But I also think there is a strong desire and an intent that the company positions itself so that adding value for the company is aligned with adding value for people and for society," he says. "That was an exciting proposition to me. That's what made me feel comfortable taking this leap."

"WHAT MOTIVATED MY MOVE WAS THE OPPORTUNITY TO TAKE THE SKILL SET I HAD DEVELOPED AND USE IT IN A DIFFERENT WAY WHILE HAVING AN EXCITING NEW EXPERIENCE."

Llorens is vice president within Microsoft Research and managing director for outreach, an organization responsible for research engagement with outside partners. "I'm excited to bring technical depth and my particular brand of technical leadership to this role. Perhaps even more exciting is the opportunity to empower other technical leaders in our organization to carry the mission forward."

"You know, obviously, you're thinking deeply about it. But after a while, it just felt like the right move."

Llorens did not spend much time entertaining concerns about his move to Microsoft. "The more conversations I had with folks about it, from trusted contacts to the hiring supervisor for this role, it began to feel right. And I trusted that. You know, obviously, you're thinking deeply about it. But after a while, it just felt like the right move."

He says job security feels similar at Microsoft as it did at APL. While his previous role benefitted from the stability of the aerospace and defense sector, the role of the outreach organization at Microsoft Research is well established, and Microsoft is certainly a well-established company.

### Llorens' advice for those considering their own career path:

- **Have personal and professional goals and a mission statement of your own**. This serves as a lens through which to evaluate professional opportunities.
- **Trust your instincts**, especially if you are a mid-career professional who has done significant self-introspection and has substantial experience. Take calculated risks to align with pathways towards personal and professional growth.
- **Avoid making decisions based purely on financial advancement**. The ideal choice is the opportunity to increase your impact in a way that's unique to your background and skill set; financial success will follow.

"The opportunity to experience a new organization with a different culture, a different set of folks, and to be challenged in a new way after taking a leap of faith—that's been extremely satisfying. And to discover that on the other side of that—as hard as it was to leave all the great colleagues that I had at my previous organization—there are amazing people in this organization who I'm meeting and getting an opportunity to have an impact with."

Llorens never left his music career behind. He created Wandering Soul Records in 2003 and has produced records of his own and helped other artists build their careers. Llorens's music is featured in film and TV. He has performed all over the world and is a voting member for the Grammys. He notes a connection between his work at APL and Microsoft and the enduring passion for music. "There are many points of interconnection, (such as) the ability to communicate clearly and to articulate a vision. That's just as important in science and technology as it is in a creative field like music."

Llorens never left his music career behind.

**Brice Nelson**

Director of
Corporate Partnerships

Michigan State University

## Grab the chance to do groundbreaking work

Every moment of every day, the focus in industry is on the bottom line. But for Brice Nelson, director of corporate partnerships at Michigan State University, the broad scope of research experienced in an academic setting continually expands the possibility for impact.

Early in his career, Nelson was a technology licensing specialist at the University of Michigan. Curiosity about the experience from the other side of the table inspired him to switch gears and take a similar position with Toyota Motor Engineering and Manufacturing.

"It was a major company that was doing exciting things," says Nelson. The move also appealed to his sense of adventure. "I wanted to make sure I wasn't missing out on anything."

Nelson immediately noticed more specificity in what he had to accomplish and how he would go about doing so. And circumstances changed quickly. "I was completely comfortable with it," says Nelson. "But there was a bit of a cultural change."

Toyota initially wanted to increase its technology licensing, which was Nelson's specialty area. But the company soon changed focus to establishing research collaborations with universities. Managing these partnerships became Nelson's job.

Nelson was content in the corporate world, but developments on the Michigan State University (MSU) campus caught his eye. MSU was forming a business engagement center, one of the first in the United States. He first took a close look to discover what industry could expect from the center. But the more he learned, the more he was convinced that helping lead the center was a huge opportunity to define a new space—and that he was the perfect person to do it. He pursued and won the position.

Nelson was prepared for the new role with transferrable skills he developed at Toyota, where he added university-industry partnerships to his licensing skills. He also added expertise in negotiation; while at Toyota, the company grew from 10 academic collaborative partners to 100 a year. He learned to focus on the pain points of a deal to streamline negotiations and to manage outside legal counsel efficiently. There is enormous value in all these skills, notes Nelson, because "organizations don't know how to work with each other. When people like me can help guide that relationship, there is always going to be value."

Nelson went to MSU with "eyes wide open" about the move's impact on his future career advancement. "At Toyota, I knew that if I wanted to change my role, I could do that—cross-functionality is something corporations encourage," he says. "I knew once I got to a university, I was going to be in a very specialized role. The only position that I could aspire to would be the one my boss holds."

"I KNEW ONCE I GOT TO A UNIVERSITY, I WAS GOING TO BE IN A VERY SPECIALIZED ROLE. THE ONLY POSITION THAT I COULD ASPIRE TO WOULD BE THE ONE MY BOSS HOLDS."

The biggest adjustment in moving from industry to university was the decision-making process. In higher education, decisions often involve input from more stakeholders. "If one group doesn't want to go forward, you have to convince them. And it's not always easy because if you have the power to veto, then you don't need to compromise." In contrast, departments and decisionmakers are clearly defined in an industry decision. If there are disputes, stakeholders can appeal to higher management to make the final call.

Organizational goals also operate differently in higher education. At Toyota, says Nelson, "I could always tie in exactly what I was doing to how it fit the bigger company mission." In academia, Nelson's goals are to increase corporate interactions, but someone else's goals might be to improve student satisfaction.

Compensation is also different at the university. Nelson has a base salary and matched retirement contributions, plus tuition remission for himself and his family. Toyota provided a base salary, allowance on a company car, discounts on Toyota purchases, stocks, matched retirement contributions, and annual bonuses.

> "I could always tie in exactly what I was doing to how it fit the bigger company mission."

Job security is strong in higher education, although Nelson concedes that the pandemic could affect university finances. But "no matter what sector you're in, if you can demonstrate your benefit to your organization," your job will be secure.

### Nelson's advice to early-career university professionals who want to jump to industry:

- **Understand what industry jobs are parallel to yours**. What can your experience add to a career from the industry perspective?
- **Become active in professional organizations** like UIDP that have members from different sectors so you can network and learn from peers.

### For mid-career university professionals who want to jump to higher education, Nelson advises:

- **Check the university's financial health**. Some offices expand or contract, depending on economic realities.
- **Understand the options (or lack thereof) for advancement**. Universities may not offer as many options as industry to move up.
- **Ensure you like the people you'll be working with**. "In higher education, people don't rotate in and out as much as they do in industry," he says.

Nelson is enjoying the diversity of research at MSU. While at Toyota, he focused on the "nuts and bolts" of mobility. At MSU, he is branching out into areas like smart cities and smart health. He is also exploring the social aspects of technology, which may be even more critical to industry than technology. "I'm discovering those sorts of resources at MSU, and I'm bringing those to companies. "And I'm seeing a lot of excitement in that. We've focused for so long on the nuts and bolts that we haven't thought about the social aspects. MSU has a lot of strength there, and companies want to want to talk more about that."

The "cool things" in higher education continue to evolve, even after more than a decade at MSU. "We produce research results that make it into products that that affect people's lives. It's one of the things that's really excites me about working at MSU."


Nelson on campus with two corporate partners.

**Chris Ramming**

Senior Director of Research and Innovation, VMware

FY2021 UIDP Board Chair

# Powerful ideas shape a career

Sometimes, an idea is powerful enough to inspire a person's career. For Chris Ramming, who came to computer science via philosophy, that idea was the Sapir-Whorf hypothesis, which states that language shapes how people think.

Ramming realized that Sapir-Whorf helped explain his own experience in computer programming. His first computer science class, taught by his undergraduate advisor Alan Perlis at Yale, exposed Ramming to a spectrum of languages including APL, Pascal, and a dialect of Scheme named T. He found that different programming languages led him to take different approaches to problems. He later became interested in designing programming languages to help computer users find more natural solutions to problems. Ramming then spent much of the first decade of his career at Bell Labs developing and implementing "domain specific languages" to concretely leverage the Sapir-Whorf hypothesis.

One day Ramming got an eye-opening phone call from Eric Sumner, a former manager, suggesting that he consider getting involved with the Defense Advanced Research Projects Agency (DARPA). Ron Brachman, another former manager who had gone to DARPA, suggested that Ramming come work in DARPA's Information Processing Technology Office.

Ramming realized that being so involved with Bell Labs and AT&T Research, he had overlooked DARPA's accomplishments, what he calls "another amazing research organization that had an enormous impact on the world." He found the thought of going there "daunting, but irresistibly exciting." A move to DARPA meant that he could create research programs on a national scale.

Ramming went to DARPA as a program manager where he led projects that explored the future of wireless networking, with leading researchers from academia, industry, and national labs. It was a chance to become steeped in a new body of organizational knowledge about research best practices. It also gave him a new perspective on the challenges of transitioning research results into practice—a challenge that had become a significant focus for Ramming late in his AT&T role and has since become one of his central missions.

"There was a pattern of practitioners working with researchers," notes Ramming. "And often, the researchers were from universities." Ramming recognized these partnerships as a critical component for project effectiveness and for technology transfer. That insight sparked his interest in seeking opportunities to work at the industry-university boundary.

From his first day at DARPA, Ramming's days were numbered. "When you walk in the door, you have a badge, and it has the date of your exit," explains Ramming. "And that helps keep people focused on getting something done during their tenure. DARPA is very proud of the 25% turnover."

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When his time to leave arrived, Ramming considered work in the venture capital community. But Arno Penzias, physics Nobel prizewinner and Bell Labs researcher, offered a crucial piece of wisdom: VCs would not pay for his type of skills and "get for free" the insight he might be able to offer. Instead, Ramming

decided to focus on companies with a research component and with a bridge to practice.

The opportunity that appealed most was at Intel. The company's guiding principle was Moore's Law, which predicts that the number of transistors in a microchip will double every few years. "Intel was an influential part of the computing industry," says Ramming. "I was lucky to be able to go from a Bell Labs (later branching into AT&T Research), to DARPA, to Intel, three of the strongest research organizations in the world."

Ramming created the Intel Labs External Research Office, reformulating Intel's approach for midsized academic research alliances. "I was able to bring some ideas from DARPA to that effort," he says. He later became director of Intel's University Collaborations Office and led Intel's large-scale interdisciplinary research centers.

Meanwhile, others in Ramming's circle were making moves. David Tennenhouse, who had been in leadership roles at DARPA and Intel, moved to VMware as its chief research officer in 2014. Ramming eventually joined him to help implement and streamline an approach to systematic organic innovation.

Ramming became the lead for VMware's academic program (VMAP) and an internal incubator (VRTX) that strives to build new products and services from cutting-edge research ideas. The role placed him at the intersection of research and practice while increasing his scope.

"Driving these two interconnected programs at VMware has been a great experience," he says. "Earlier in my career, I had narrower responsibilities and could influence the broader innovation pipeline, but here I have direct responsibility at multiple stages in the lifespan of an idea. And it's wonderful to help create a new state-of-the-art industry research lab."

When Ramming moved from DARPA back to industry, there were some challenges. "You have to learn the culture," he says. "You have to build relationships with new colleagues." That can be difficult; it takes years to build trust with people, he notes, but knowing people in the computing community helped. "Researchers have careers spanning many years, and they move around, but it's a community where you get to know people over decades. And that makes it a bit easier to try new things."

### Ramming's primary career advice:

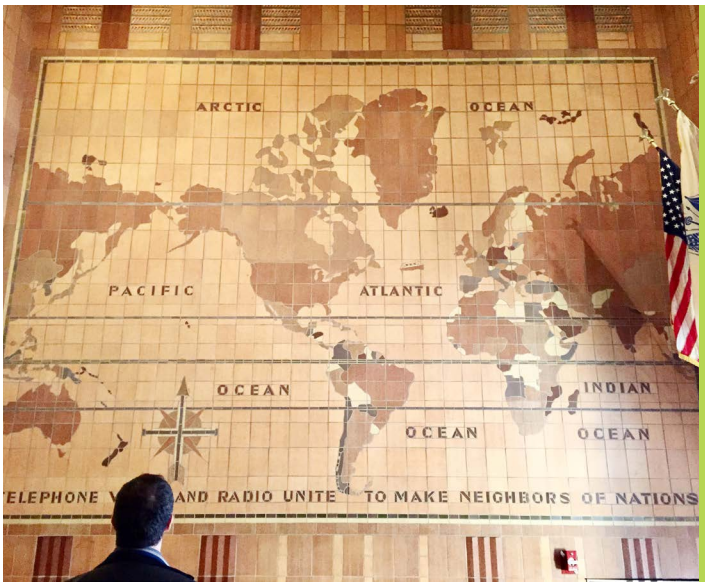
- **Follow your passion**. "There's nothing wrong with moving between sectors," he says. "It helps to learn about a couple of different (environments). I've stayed in most of my roles a long time by Silicon Valley standards, but long enough to grow some knowledge and experience and to put me in a position to take on the next challenge."
- **Understand the culture**. "Every organization develops its notion of best practices, and they will often specialize in what they're trying to accomplish," he says. "And those ideas of what they're doing help shape the way they work."

Ramming's career has taught him that research has an immense impact on industry. "On a national scale, we are moving industries forward, hopefully in positive ways," he says. "The actions of an individual (researcher) can make a difference. It might take 20 years, but I've seen, again and again, that ideas

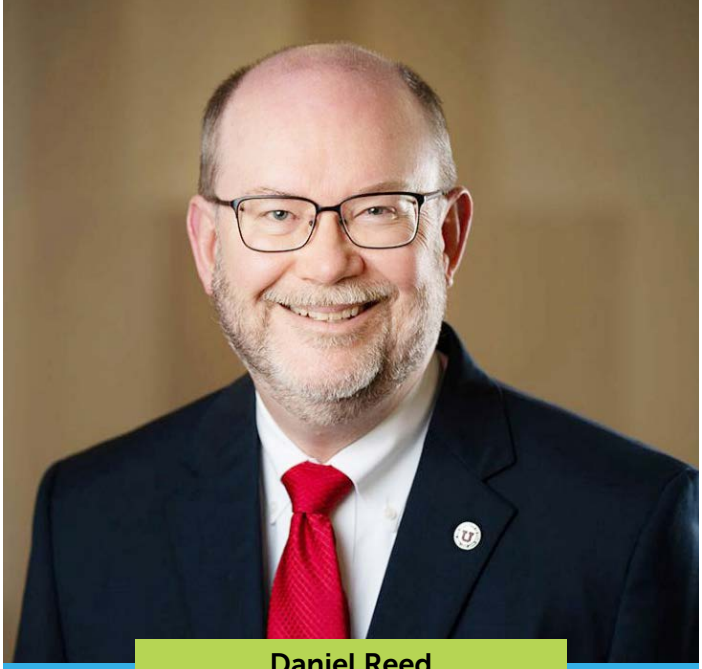
> "You have to learn the culture, … You have to build relationships with new colleagues."

become important themes in industry. It's what you hope for, and it's nice to see that it happens." He is still inspired by the 1932 mural in the lobby of the AT&T Long Distance Building in Manhattan, which depicts a map of the world and the phrase "Telephone wires and radio unite to make neighbors of nations."

Much of what Ramming has accomplished in his career grew out of the Sapir-Whorf hypothesis, the idea that inspired him from the start. "I grew and thought about different aspects of an idea and eventually grew in my career by going from one idea to the next logical progression of that idea," he says. "That has led to a very satisfying career for me. And (even though) it sounds trite, this 'follow your passion' idea has been working out for me."




The AT&T Long Distance Building Lobby Map (*courtesy of ShareAlike 4.0 International*)



**Daniel Reed**

Senior Vice President for Academic Affairs

University of Utah

## Answer the call for high-profile work

You might expect Bill Gates to make a convincing case while recruiting a desirable new employee. But in Daniel Reed's case, it took more than just recruitment by the company's chief technology officer and an interview with the founder to seal the deal.

Reed's reluctance to take the Microsoft job offer was complicated. He had recently moved to another state to launch a new institute and for the sake of his wife's career, and he was reluctant to make another change. Beyond that, he had spent his entire career in academia. A tenured professor, he wondered if he would fit in at Microsoft. He also wondered if he would lose touch with his academic colleagues and narrow his options for returning to academia.

In the end, Reed accepted a position leading R&D strategy for next-generation mega-data centers at Microsoft. He couldn't resist the chance to see his ideas translated into a product, at a scale that was simply not possible in an academic environment.

"They made a pitch similar to the one that Steve Jobs made when recruiting: 'Come here and you can change the world.' That's a pretty strong argument."

There were aspects of the corporate culture very different from academia. Reed notes in particular the value of time-as-money. "In academia, we tend to have a surplus of labor—lots of people with ideas. But capital is hard to come by. Certainly in large companies, capital is widely available, but people are really expensive—don't waste people's time."

Another difference: Industry invests in near-term research, while the end goal of most academic research is a published paper. The perception of how much time research should take was also dramatically different. While university research can occur within a 10-year horizon, "It's a rare problem that (industry) can afford to work on for 10 years," says Reed.

Reed found that Microsoft's focus on talent development far exceeds academia's. "The talent of a company is what it rests on," notes Reed. "Its financial success depends on keeping and expanding the capabilities of its talent."

He was also struck by how industry's compensation structure is markedly different. For senior staff, company stock is a more significant part of compensation than is straight salary. And corporations evaluate employees annually, whereas academia evaluates employees for accomplishments achieved over several years.

"It was a huge learning experience, seeing how a large company worked and how its decision processes transpired, and where there were opportunities and friction," says Reed. "What makes companies succeed is vision, passion, commitment, and talent that can drive ideas from conception to implementation."

"THEY MADE A PITCH SIMILAR TO THE ONE THAT STEVE JOBS MADE WHEN RECRUITING: 'COME HERE AND YOU CAN CHANGE THE WORLD.' THAT'S A PRETTY STRONG ARGUMENT."

Reed returned to academia after five years. He missed participating in higher education's mission of empowering people to realize their talent and potential. "To me, that's one of the most important things that one can do," he says. He took a position as vice president for research at the University of Iowa. In the transition, he brought ideas for facilitating research that he learned from his Microsoft years—a key benefit of working in industry and then returning to academia.

His next career move was to the University of Utah to serve as senior vice president for academic affairs. He sees "The U" an institution on the rise, with a major health care center co-

> The individuals who can best sell and market their ideas are the ones who get traction."

located on the campus. He is energized by the interdisciplinary approach to solving complex problems with a 360-degree perspective. "You really need teams of people who can bring disparate perspectives to bear on complex issues, because they're rarely amenable to very specific solutions," he says.

At each step of his career, Reed transferred skills to his new position. Before moving to Microsoft, Reed had worked with companies on technology transfer and deployment. His computing background led to his initial role at Microsoft. When he later led international technology policy for the company, he drew upon his experience on the President's Council of Advisors on Science and Technology.

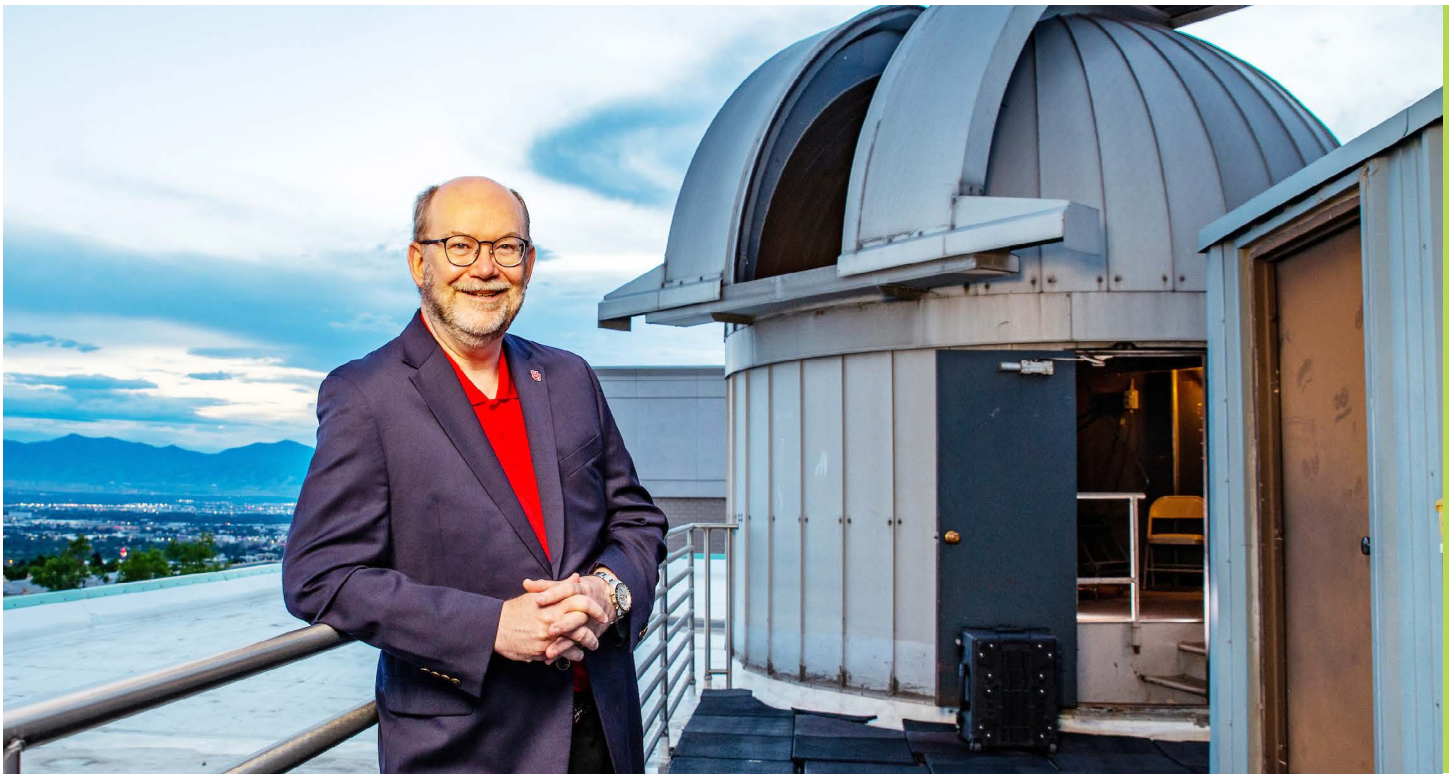
### Key transferrable skills Reed identified:

- **The ability to communicate and persuade**. "The ability to sell your ideas and be persuasive about them is often a bigger determinant of which ideas get uptake than the inherent quality. The individuals who can best sell and market their ideas are the ones who get traction."
- **Networking and relationship building**. Keeping one foot in both camps—by maintaining relationships and doing relevant work—is important for those who want to shift sectors with an eye on returning, he said.

Reed also offers advice for postdocs and faculty who want to experience industry while keeping their academic options open: "If you have an opportunity to do high-profile research, then you will be mobile."

Reed was, and is, a fierce proponent of the value of higher education. He never sought out industry, but when the offer was too good to turn down, he ultimately made the move.

"Being at Microsoft was one of the most wonderful experiences of my life. I am absolutely glad I did it--it's a great thing to do. And that's true of every academic job I've had, too. Each one has been a blast in different kinds of ways."



Dan Reed at the University of Utah's South Observatory, which offers an expansive view of both the main campus and the health sciences campus.

**Jacqueline Serviss**

Industrial Development Lead,
RMS Canada

Lockheed Martin

## When transitioning, culture alignment is key

Jacqueline "Jackie" Serviss loved her job at the University of Waterloo. But in 2019, she wanted nothing more than to change jobs so she could move to Ottawa. Her husband had taken a position and moved there, and she was tired of managing a long-distance marriage.

Serviss had a history of working in the defense industry and in partnership development, so she kept her job search broad by considering defense-related or university-industry partnership positions in higher education. She is a networker by nature, and let colleagues know she wanted to relocate. Soon she started getting tips on open positions.

When her main industry contact at Lockheed Martin was retiring and sent her the description for his job, it opened the perfect door. Right away, she knew it was for her. "When you partner with an organization, you can get a feel for what it's really like to work there by talking to the people. Lockheed Martin was the best company I worked with," she says. And the culture was right. "They're an innovative company and partnership is a big part of the corporate culture. I knew that from partnering with them."

Still, Serviss had some concerns about taking the plunge into industry. "There's always a concern that you're not going to be able to keep up with the pace," she says. "The university lives at a slower pace with a shorter workday." At Lockheed, she went from working 35 hours a week to working nine intense hours a day. "But," she says, "I've stepped into it pretty well."

Serviss discovered another big difference in industry: researchers work in teams, whereas university researchers are each "like their own little company." University research support teams must tailor their services to each researcher's needs. In contrast, industry research teams members are all working toward the same company goal. There is also more continuity in the industry setting because there's no allegiance to an academic calendar.

Teams may thrive in industry, but innovation benefits from collegial conflict, too. "Naturally, people who live in different places and have different inputs are going to think a little differently, and that's going to drive a little bit of conflict. It surprised me a bit, but it's for the good of the company. The company and the culture of the company are such that they accept conflict as something that brings greater ideas to a program."

It was also surprising to learn about the high level of research conducted in industry and the advanced technology available within the industry setting to conduct both fundamental and applied research. University-based research is not the only place where leading-edge discovery happens.

> "THEY'RE AN INNOVATIVE COMPANY AND PARTNERSHIP IS A BIG PART OF THE CORPORATE CULTURE. I KNEW THAT FROM PARTNERING WITH THEM."

Serviss enjoys the global nature of Lockheed Martin. Her 13 team members working in Australia, Europe, the Middle East, and the Far East brief her every day. "Somebody knows something that's going on in parts of the world all the time," says Serviss. "We didn't have that world view at the university. We knew the research across Canada, but you wouldn't know the news in the rest of the world if you weren't reading the news. Here I get it in my job regularly. And unlike at a university, this information is shared throughout the company for everybody to apply to the company's shared goals."

She is still learning something new every day in her industry job, but at a high level, the work is not very different from what it was in higher education. In UIDP terms, her primary transferable skill

> You're going to have a more successful move if you get along with the people and culture in the company when you get there."

is engineering serendipity. She is a connector, and connectors often have to reconcile the differences between university and industry partners to help unlock the potential they have to work together. She predicts that any mid-career professional at a university can transfer skills to an industry setting.

When Serviss moved from higher education to industry, she gained a significant increase in salary. But there were tradeoffs. The university offered easy educational opportunities that are not readily available in industry. "Lockheed has a training culture, and they'll support you in any training you want," explains Serviss, "but it's not the same as being able to ask an engineering researcher if I can sit in on a class." She also lost the university's generous defined benefit pension, although Lockheed Martin matches retirement contributions to a registered retirement savings plan (RRSP).

Job security is not an issue at Lockheed Martin, says Serviss. She acknowledges that it might be easier to terminate people in industry, but says Lockheed Martin works to keep its people, even when closing offices.

Her only caveat regarding job security is that people earlier in their career might need to be more cautious about changing sectors than those closer to retirement. "If you have a young family and you're worried about losing your job, staying at the university for a little while could give you security that you might not feel if you're getting in industry."

### Serviss's advice for a move from higher education to industry:

- **Leverage your network**. The people you work with regularly know your strengths. When a geographic move is imminent, tap into the widest reach by communicating your plans.
- **Learn about the industries you target before making a move**. "You're going to have a more successful move if you get along with the people and culture in the company when you get there," she says. "And I think that applies whether you're young or old."
- **Nurture your connection skills**. No matter where connectors work, "we're still listening to potential partners," says Serviss. "We're still making decisions on which partners are going to be the best for the corporation. We're still writing a lot about these partnerships, but in different formats."

**Grace Wang**

Executive Vice President for Research, Innovation and Knowledge

The Ohio State University

## Experience real-world research impact

Grace Wang thought she was on track for a career in academic research when a fateful career seminar changed the course of her life. The session explained how technology gets from the lab to the marketplace. In what she describes as a light switch moment, Wang decided then and there that she wanted to see the world beyond academia and experience the impact of research translated into a commercial product.

Instead of heading to the halls of academia, Wang sought a position in a research lab at IBM. It was, she says, one of the "best thoughts" of her career. It enabled her to understand "the impact of research on reality."

After eight years in industry, Wang still loved her work but began to think she might be overspecializing. "I was getting deeper and deeper in a narrow area of my field," explains Wang. "I realized I needed to learn more and broaden my horizons." She wanted to explore other engineering and scientific fields. "I thought it would be fascinating to know the world more before I did more." Wang found the intellectual challenge she wanted at the National Science Foundation (NSF).

When Wang applied for her job at the engineering directorate at NSF, she didn't yet grasp the tremendous opportunity that awaited her. She later found that NSF was "a very creative, innovative, hard-working, diligent and also academic environment."

The most striking thing about NSF for Wang was its intellectual appeal. "The intellectual capacity within that organization was amazing. (It still puts) a big smile on my face to think about it. We exchanged ideas and thought about what kind of research and talent we need to empower the future of the country to be even more powerful and at the leading edge."

Wang did not plan to move to an academic institution. But when a recruiter from the State University of New York (SUNY) contacted her, she paused. She had a "terrific" job at NSF, looking at strategy at a national level and helping to shape the future. And yet, the move intrigued her.

At a large, complex academic institution, Wang would make a local difference with the faculty, staff, and students. "I thought it would be exciting, would be challenging, and would be worth exploring," says Wang. She decided to make a move.

The transition to academia proved to be smooth. Wang expected a culture difference but found it was much the same.

Wang admits that she assumed things in academia would move more slowly. As someone who likes a rapid pace, she thought this might be a challenge, but found that the pace is faster than anticipated. Although consensus-building may slow things down, the workplace, in general, is "exceedingly high-paced" and consensus building is much needed.

When she was approached about an opportunity to serve as executive vice president for research, innovation and knowledge at The Ohio State University (Ohio State), the opportunity got Wang's attention. Ohio State has one of the largest campuses and student bodies in the United States. "The size, the complexity, the scope, and the scale is amazing," says Wang. "If you want to work on something and make a difference,

"THE INTELLECTUAL CAPACITY WITHIN THAT ORGANIZATION WAS AMAZING. (IT STILL PUTS) A BIG SMILE ON MY FACE TO THINK ABOUT IT."

you want a platform like this." Overseeing the development of Ohio State's 270-acre innovation district also held strong appeal.

> "I don't think any stage of a career could be too late for us to pursue something we love."

Wang had worked with Kristina M. Johnson, president of Ohio State, when Johnson was chancellor of SUNY. Wang's familiarity with Johnson made the decision to go to Ohio State clear. "(Johnson) has been a tremendous mentor and a tremendous leader," says Wang. "When you join an institution, organization, or company, you want to make sure that you work with people who can relate to you," says Wang. "We have a bold, visionary leader, and that's what you need to transform a university into an even better future."

For Wang, a key benefit of working in academia is proximity to the faculty, students, and staff to better understand their needs, barriers, and challenges. With this perspective, Wang says she is in an excellent position to spot opportunities for "moving the needle" in academia.

Academia has opened Wang's mind to new possibilities. "When I first started at a university, I deeply appreciated the fact that research is truly highly convergent and interdisciplinary, completely beyond engineering, physical sciences, and medicine," says Wang. "But now I also have an appreciation of arts and humanities and social sciences and understand a much broader horizon of the research landscape.

"This (new appreciation) has been exciting for me," adds Wang. "I didn't think about it when I first started, but I have deeply benefited from understanding, learning, and appreciating that."

The most transferable skill from any organization to another, says Wang, is leadership. In Wang's view, the best way to be a leader is to be genuine. "If you do something you love and believe in, it shows every day," says Wang. "You can pretend for 10 minutes, but you cannot pretend for an entire career." It's also critical to work with a team that's invested in the culture of the organization. "I have been happily surprised in many organizations about the power of a team working together on leading change. It's amazing how much we can do."

## Wang's advice:

- **For early professionals: Expand your perspective**. "If you have broader horizons, you understand the possibilities, and then you know where you can make the most impact."
- **For the mid-career professionals: Follow your heart**. "I don't think any stage of a career could be too late for us to pursue something we love."

Wang hadn't anticipated beginning her career in industry. Nor did she pre-plan her moves from industry to government or from government to academia. Instead, she followed the excitement when opportunities appeared. Looking back, she says it would have been impossible for her to have pre-planned her journey.

"Throughout my whole career, I've been driven by whatever excites me," says Wang. "All along the way, it has been an interesting, exciting, fun journey."

The Ohio State University's iconic Oval.

**Wendi Yajnik**

Global Head of Academic Partnerships and External Innovation at Novartis Institutes for Biomedical Research (NIBR)

## Explore to feed curiosity

Sometimes a career gives you everything you want, year in and year out. But then, something changes. You get curious about how things work in other sectors. You start to feel wanderlust, and you thirst for new knowledge. You begin to explore beyond the periphery of your current environment.

That's what happened to Wendi Yajnik. She loved being at Brigham and Women's Hospital, bridging the gap between academic and industry scientists. But after 18 years (and after seeing her twins celebrate their 16th birthday), she realized it was time for a change. She was free to travel and learn something new while using the skills she had honed in academic research and licensing.

Yajnik began exploring large biotech and pharmaceutical companies in Boston. Word got out that she was looking for a new opportunity, and headhunters began knocking on her door.

Sanofi was looking for someone to revamp collaborations with academia. "I knew the players (at Sanofi) and liked their philosophy and the leadership," says Yajnik. While mulling over a decision to accept a position there, she considered potential drawbacks. Were they serious about their desire to change the status quo? Would she be able to "sell" her ideas to internal stakeholders? In the end, the natural fit with the position overcame her doubts.

At Sanofi, Yajnik indulged her wanderlust. She had teams in the U.S., Germany, and France. "I loved the global nature of it, of going to find science wherever the best science exists." And she discovered that when Sanofi said they wanted change, "they really meant it."

Yajnik discovered a different viewpoint about the role of technology transfer that she believes predominates in academia. "In academia, the technology licensing office provides a service to faculty to enable their individualized research program, whereas in pharma, we invest in discovery research that's really strategic and based on a robust research portfolio review. This serves to prioritize the company's scientific and business strategy," she explains. This difference was an important realization. She also notes that in academia, the action happens in early discovery/scientific exploration, while researchers in the pharmaceutical industry are focused on product development even in the early stages of research. "The cultures are different, and they have to be different," says Yajnik. "There's very good science that happens in academia, but I think the difference is scientists don't know how far away it is from a product. They're just not trained to look at drug development that way."

After more than three years at Sanofi, Yajnik took a position as global head of academic partnerships and external innovation at Novartis Institutes for BioMedical Research (NIBR). The company's president, Jay Bradner, also came from academia and was a strong proponent of bringing academic innovation into the NIBR pipeline. He created the position with the vision of hiring someone who wore both hats and Yajnik fit the bill.

It takes time to build credibility in each new position. Her advice to anyone moving into an industry position is to "get to know the players, build credibility, become a resource"—and worry less about the minutia—like how many weeks' vacation you get—later. "They're just not as important in the long stretch. "

Compensation in academia and industry "don't compare," says Yajnik. In industry, there are elements beyond the base salary

YAJNIK'S ADVICE FOR THOSE LOOKING TO JUMP FROM ACADEMIA TO INDUSTRY: LEARN TRANSACTION SKILLS.

to consider, like bonuses and long- and short-term incentives. But she advises people to focus on the potential experience more than anything else. "The experience will pay for itself long term," she says. Her first business position, after taking a leave of absence from a tenure-track assistant professor from New York University Medical School for personal reasons, was as an entry-level licensing manager at Brigham and Women's technology licensing office. "That opportunity was everything and (pay) didn't matter," she emphasizes. Job security, she points out, can be an issue anywhere, even in academia. In industry, "once you get experience, the stability might not always be there, but opportunities will be."

> "Leading change in an industry setting gave me opportunities that I would never have had in academia."

### Yajnik's advice for those looking to jump from academia to industry:

- **Learn transaction skills**. She ran transaction teams at Brigham and Women's Hospital as well as at Sanofi and says the transaction skills she gained were essential for advancing her career.
- **Hone deal-making capabilities**. Yajnik recommends getting five years of academic experience getting to the deal first, and then moving into an alliance management position in industry. "People who come out of academia are pretty good alliance managers because they not only understand the intellectual property, transactions and relational aspect of working with the principal investigator, they get to market the technology, they get to do the deal, and then they have to manage the deal," she explains.

"Each experience gives you something different," adds Yajnik. "That wealth of expertise is appreciated."

Sometimes, Yajnik wishes that she had made a move to industry sooner. "I'm enjoying it," she says. "Not that I didn't enjoy academia, but it's cool to see the technologies being developed. Moving through the research and development process is energizing."

"Leading change in an industry setting gave me opportunities that I would never have had in academia," says Yajnik. "Maybe I should have gotten out earlier to see what was going on, but I wouldn't change a thing at this point. It's been a great journey."

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