Industry experience as a platform for academic careers

The contemplative question of whether to pursue a vocation in academia or industry has changed as career paths become more fluid and lines between sectors begin to blur. Scientists and engineers who have spent time in private and public companies are finding professional opportunities open to them in academia. Their value in higher education is varied and appreciated, as they can provide unique perspective and skills, access to new networks, and knowledge concerning how to craft win-win partnerships between universities and companies. For researchers ready to leave the halls of industry, the Ivory Tower can be an accessible and welcoming career avenue. By Alaina G. Levine

Industry or academia—which to choose for a career? Although the answer to this query might have only been one or the other in the past, today there are many academics who join a university after finding triumph in industry. One such professional avenue is the classic tenure-track position, which Kentaro Toyama pursued. A Ph.D. computer scientist, Toyama spent 12 years at Microsoft Research where he conducted tasks very similar to those found at a university, such as publishing and teaching. “More than anything, I was doing research in the same way someone in academia would have been,” he says. His scholarly contributions were known throughout the field and led directly to his appointment in 2015 as the W. K. Kellogg Associate Professor of Community Information at the University of Michigan School of Information.

Other scientists have found their way in (or back) to academia via administrative positions. Gordon Smith, professor and head of the Department of Grain Science and Industry and director of the International Grains Program Institute at Kansas State University (K-State), believed he “could add value in academia after a successful industry career,” he says. While studying synthetic organic chemistry for his Master’s, he met a food scientist who told him about how cherished chemists are in the food industry, where “you can work on products that people can feel, see, and touch,” he recounts. Smith switched his Ph.D. to food science and launched his career with Sara Lee, where he remained for 14 years, rising to the rank of senior director of R&D. He then joined ConAgra Foods as a vice president of R&D. Among his responsibilities were industry-university relations, for which he liaised with academia for student recruitment, continuing education for employees, and research partnerships. When his department was shuttered by the company, he found out about the job at K-State through networking. “It’s not like it was a move I hadn’t considered,” he says. “I was always interested in academia, and I had met all my industry goals.”

Another route to serving in academia is as a “professor of practice.” Jay Goldberg spent 13 years in industry as a biomedical engineer and engineering manager before deciding to pursue a Doctorate in biomaterials. While writing his thesis, he joined a start-up as director of technology and quality assurance, but within a year, Marquette University hired him to lead a new professional Master’s degree program. Today he is the director of Marquette’s Healthcare Technologies Management program in the Department of Biomedical Engineering and also serves as a clinical professor. “Many schools are hiring professors of practice who focus on preparing students for the ‘real world’ of engineering,” says Goldberg. “These faculty are typically not on the tenure track and focus on teaching, not on research. Having significant industry experience as an engineer allows these faculty to fill a niche in their college that might have been ignored due to the lack of faculty with such experience.”

There are also opportunities to join a university later in life. Hans Schmitthenner worked in industrial research for 27 years for AstraZeneca, Kodak, and Carestream Molecular Imaging. When his division disbanded in 2010, the Ph.D. chemist reached out to a former colleague, the chair of the School of Chemistry and Materials Science at Rochester Institute of Technology (RIT), and secured a position as adjunct professor. His knowledge of molecular imaging—a new field that he had learned in his corporate experience—proved to be extremely valuable to his new institution. He was given an opportunity to start a research lab and teach students novel techniques in this discipline. Ultimately two units, the Chester F. Carlson Center for Imaging Science and the School of Chemistry and Materials Science, created a new job just for him, to leverage his knowledge and aid the expansion of an undergraduate research program. He is now an associate research professor at RIT.

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Negotiation and a creative mind can enable an industrial scientist to orchestrate even the most unusual employment arrangements, as physicist Michael Steel learned. He was able to craft a deal with his employer (an optics firm) and the University of Sydney to allow him to work three days a week for the firm and two days a week at the university. He was given the title of “honorary associate” and provided space at the university to conduct research and mentor graduate students and postdocs. He did this for four years until he was approached by the photonics group at Macquarie University in Sydney, which was looking to expand, where he joined as an associate professor.

Notably, in certain regions around the world, industry experience is not only highly coveted but is a requirement for academic jobs. In Germany, for example, universities of applied sciences (Fachhochschule or Hochschule für angewandte Wissenschaften in German) require professors to have at least three years of employment in industry, notes Klemens Gintner, a professor of mechanical engineering and mechatronics at the Karlsruhe University of Applied Sciences. Similar obligations exist in the higher education systems of other European nations.

Providing unique value
Since most science faculty have spent the majority of their careers in academia, those who have worked outside the Ivory Tower find they have a variety of experiences to offer their new employers. In particular, “pharma and biotech executives bring experience in managing multidisciplinary projects and individuals with different skill sets,” says Jared Kaleck, senior director for discovery at search firm Klein Hersh International. “My experience in organizational, budgeting, and personnel management has made me a more effective leader of a research group,” echoes Jacquelyn S. Fetrow, provost and vice president of academic affairs at the University of Richmond. She started her career as a biology professor at State University of New York (SUNY) Albany before leaving to co-launch a biotech software company for which she served as chief scientific officer. Smith knew the importance of collaborating with professionals beyond the world of science, and there he connected with individuals in marketing and external relations to accelerate his department’s growth efforts.

Industry experience helps educational programs expand in imaginative ways. “Industry contacts can be used to develop collaborations between the college and companies, and recruit sponsors for student design projects and guest speakers for courses,” says Goldberg. Moreover, “sharing industry experience allows one to demonstrate the relevance of topics covered in courses.”

Melody Baglione, associate professor of mechanical engineering at The Cooper Union for the Advancement of Science and Art, agrees. “What engineering education is lacking is a connection between knowledge and real-world problems,” she notes. In her classes she incorporates case studies that she worked on as an engineer for Chrysler. The result is an innovative learning experience in which she “creates project-based learning opportunities that simulate the industry environment.”

Faculty with company expertise also provide much-needed career guidance. “Engineers...who have been involved in the design and development of new technologies and products have a lot to share with engineering students contemplating a similar career path,” says Goldberg. Furthermore, professors can tap their networks to aid students in finding employment.

Those industry contacts are indispensable for other purposes too, including research partnerships and financial investment. “Academic institutions are attracted to professionals who can bring funding with them to the university,” says Kaleck. When Zhiqiang An joined The University of Texas Health Science Center at Houston (UTHealth) Medical School as professor of molecular medicine, Robert A. Welch Distinguished University Chair in Chemistry, and director of the Texas Therapeutics Institute, he had spent 11 years at Merck as a director and had authored two books. And yet, because of his lack of an established research program, “I knew I wasn’t able to compete for typical research funding, such as from the National Institutes of Health [NIH],” says An. “So instead of spending all my time applying for NIH grants, I reached out to industry. I knew big pharma was looking for academics for collaborative research.” He netted $5–6 million in his first five years thanks to his network.

Changing environments
With any new environment comes a taste of culture shock and new challenges. In industry, “engineers work on teams with a sense of urgency to bring new products to market,” observes Baglione, while in academia, professors are “expected to simultaneously teach, build a funded research program, publish, and prepare students for their futures.” Moreover, Toyama acknowledges how different decision making is. “At a university, it’s very difficult for decisions to be made without ten faculty agreeing,” he says. “But in a company, you don’t need the approval of everyone.”

Furthermore, “in a company, it can take anywhere from 3–5 years and sometimes as little as a year or less to move a product out,” says Steel. “But in academia, outcomes may come in 10–15 years. The impact at the university is important, but unless you’re in an area close to commercialization, it’s far down the track. Whereas in... continued>
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– Hans Schmitthenner

For example, seek out the opportunity to mentor interns, says Toyama, and treat them in the same way you would treat research protégés at a university. At Microsoft, “I managed junior researchers, similar to Ph.D. students,” he says. “I helped them become better researchers themselves.” Schmitthenner mentored co-op students from RIT in his lab at both AstraZeneca and Kodak. “Get involved with the internship program at your company,” he advises, “so you can understand the student mindset.”

And think innovatively about how to carry out your transition. If you launch academic collaborations while you are still working for a company, notes Smith, the enterprise might allow you to make a soft transition, in which you work part time for both. “Propose the idea to your boss...that you are eager to find a way that’s win-win,” such as an arrangement in which the company has access to university researchers and facilities, he suggests. But “reassure your employer that you know the bounds of confidentiality.”

Creating your own job might be the eventual way to go. “Look for the sweet spot where your background can fit,” says Jim Hess, a statistician who spent over 30 years in statistical consulting positions in multinational corporations such as DuPont. When he retired, he approached his alma mater, Southern Methodist University (SMU), about helping to grow its statistical consulting center. Now, as a visiting research professor, he is expanding the center’s commercial side to allow SMU students to work on projects provided by industry clients.

Of course, no sector transition is a walk in the park. “If your career in industry was not research-related, you’ll have to work to forge a research path,” admits Baglione. Additionally, industry activities may not translate well to search committees. “I knew that not all people in the academic world would understand what a chief scientific officer was or how that experience would help me as a faculty member,” says Fetrow. So as she tailored her curriculum vita, “I made parallels between my work in industry and academia. I very clearly articulated in my research plan what expertise I would bring from my industry experience.”

Advice for the jump
As you consider this life change, look for opportunities to demonstrate “the things that academia values: research, teaching, writing,” says Toyama. Since teaching is a big part of the academy, it is important to showcase your pedagogical expertise. Consider teaching courses at local universities, but in the absence of formal classroom experience, there are other ways to affirm “your ability to improve the skill set and knowledge of the people around you,” says Steel.

DOI: 10.1126/science.opms.r1500159

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