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Transitioning From Academia to Entrepreneurship

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As the authors' experiences and interviews with three academics-turned-innovators show, academia can provide the preparation needed to launch a business.

Entrepreneurs are typically depicted as wealthy college dropouts who boldly leap into their venture fulltime. In this article, we would like to offer a different archetype: an entrepreneur who uses terminal and advanced degrees to acquire domain expertise and then applies those skills to launch a successful startup. It's based on our own experiences as academics turned business owners, and on interviews with three innovators who also made that leap.

One of us (Alexis) co-founded Good Fibes after completing her Ph.D. in Biomedical Engineering at Johns Hopkins University. Good Fibes is developing bio-based performance textiles. At the time of this article, Good Fibes had received nearly $700,000 in non-dilutive funding to advance its protein-based elastic textile technology. Mel (Dira) recently finished her Ph.D. in Engineering Education at the Ohio State University. She also serves as an Operations Lead for a deep-technology incubator and teaches the National Science Foundation Innovation-Corps. With her expertise in balancing multiple acts, Mel launched an independent consulting business to coach undergraduate and graduate students in project management and professional development.

During our individual entrepreneurship journeys, we've acknowledged the importance of supporting others, ourselves, and our collective humanity. Together, we have facilitated workshops on entrepreneurship and innovation for research institutions, non-profits, and professional engineering societies. We began our entrepreneurial transitions during our academic training by participating in sponsored "customer discovery" courses to identify unmet needs and market trends in our respective industries. In what follows, we offer practical advice for academics who are considering making the transition to entrepreneurship. This could include graduate students as well as those who have earned advanced degrees and are currently working in academic roles. This article highlights how an academic environment can help entrepreneurs cultivate vision and achieve success by leveraging their formal training and translating them to other sectors.

Below are highlights from interviews with three innovators: JoAdel, Julie, and Joe. Each innovator offers a unique perspective and uses different funding mechanisms to move their business ventures forward.

Leveraging Government Contracts for Growth and Compliance

JoAdel Adeola is CEO of Fathom, a startup focused on workforce innovation that connects talent to the world of work. He says getting exposure was key to learning about funding opportunities. Fathom has had success with government contracts and first became aware of the opportunity by attending a products workshop at The Wond'ry, Vanderbilt University's Center for Innovation. Government contracts for businesses are agreements in which the company provides goods or services to government agencies. Throughout their technology roadmap, Fathom has provided services to the government both as a subcontractor and through securing government contracts directly.

What's more, government contracts supported the company as it transitioned from providing services to building a product. Being commissioned by the government to provide services strengthened JoAdel's position as a subject matter expert on workforce development, and Fathom learned a lot from the contracts. The defined scope of the work in government

contracts supported the company's progress. The stringent requirements and compliance mandates fueled the company's standards, built compliance into their technology, and became part of their business model.

Harnessing Federal Grants for Innovation and Growth

Julie Ming Liang, CSO of Opera Bioscience, a startup enabling biotech partners to produce high purity proteins and antibodies for therapeutic use, leveraged federal grants for advancing research and development. Opera Bioscience successfully secured National Science Foundation and National Institutes of Health Small Business Innovation Research (SBIR) Phase I Awards, and Julie is an Activate Anywhere fellow. Activate transforms scientists into high-impact entrepreneurs through the Activate Fellowship, a two-year extensive experience that provides funding and cultivates resources, knowledge, networks, investors, and partnerships for successful ventures. Julie's Ph.D. advisor first made her aware of the small business awards that different federal agencies provide several times a year.

The SBIR and Small Business Technology Transfer programs are powered by the U.S. Small Business Administration. These programs fund a diverse portfolio of startups and small businesses across technology areas and markets to support technological innovation, meet Federal research and development (R&D) needs, and transform the commercialization of technologies into impact. Julie noted that Opera Bioscience's success in securing non-dilutive funding has been through collaboration and building relationships with program managers. Like the benefits JoAdel's team experienced with the conditions of government contracts, the federal grants provide structure as well as the time needed to understand industry and customer needs. The SBIR program embraces pivots and changes to the direction of the research.

Securing Humanitarian Funding for Impact and Validation

Joe Bradley is CFO of Sun Buckets and Clinical Assistant Professor at University of Illinois at Urbana-Champaign Grainger College of Engineering in the Bioengineering department. He notes that Sun Buckets got its start through the support of humanitarian organizations. Their technology provides refugee camps with solar-powered stoves that can be used to cook day or night, indoors or outside.

Sun Buckets initially wanted to pursue SBIR funding. Then, after winning an energy-focused competition, they learned about humanitarian grand challenge opportunities. After visiting a refugee camp to get a better sense of how the technology may be positioned, Sun Buckets successfully secured an award from a humanitarian organization. For Sun Buckets, it is important for the company to receive awards that have a mission that aligns with their company. The humanitarian funding helped Sun Buckets build relationships with the refugee camps to develop cooking stations and facilities.

The awards also enabled validation. The funding required stringent monitoring and controlled data to understand who is being served by the technology. This information is vital for storytelling and sharing Sun Buckets' vision. These data requirements have stimulated the work in Professor Bradley's research program. Graduate students have had the opportunity to publish outcomes from these studies as well. Sun Buckets has a clear understanding of their customer persona and can disseminate this information confidently to partners and collaborators, in part thanks to the humanitarian funding.

Tips for Making the Leap

Aspiring innovators may consider the following for transitioning from academia to entrepreneurship.

- Leverage terminal and advanced degrees to become thought leaders and subject matter experts. This expertise can be positioned to develop unique solutions in the marketplace only made possible through cutting-edge technology.
- Incubate your ideas in academic innovation centers and research centers. These institutions offer several benefits for performing research and developing technologies. The pace and milestone expectations can be different from venture capital-backed technology development timelines. The academic setting can provide an opportunity to explore various potential avenues, while businesses prioritize validating commercialization potential. Academic settings also make it easier to take on higher-risk projects.
- Take advantage of tailored cohort-based entrepreneurship programming to supplement

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technical background, including accelerator programs, entrepreneurship certificate programs, or other cohort-based learning environments to gain exposure. Some examples of these programs are described in this article (https://eiexchange.com/content/321-Stem-students-and-faculty-can-gain-entrepreneuri) .

- Be flexible and open to non-dilutive funding opportunities from federal, state, and local governments, and non-profit or philanthropic organizations. Funding that is non-dilutive (e.g., SBIR grants) does not take equity in your venture. Innovators should ensure alignment with the issuing organization's mission and goals.
- Create an ecosystem of support and research funding requirements. The first step to securing funding is to know which opportunities exist. Understand the cycles for funding opportunity announcements, eligibility requirements, and deadlines. Several organizations offer assistance programs for first-time applicants and some state and local programs offer grant writing support, matching, and cost-share commitments.

Academic institutions and organizations are ripe with innovation and can be a wonderful launchpad into entrepreneurship. Innovators can jumpstart commercialization through actionable steps, technical prowess, operations management, educational development, and keeping the customer persona in mind.

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