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AWIS Spotlight on Women Leaders in STEM
Deborah Kilpatrick, PhD

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STEM domains often intersect and synergize with other sectors, such as health, education, and communication, which creates broader opportunities for professional development and success for both women and minorities in the STEM community. Over the years, AWIS has and continues to have a strong focus on promoting and championing female and minority leadership in STEM. One of AWIS' longtime goals is to continue to support and increase both the percentage and visibility of women in STEM leadership roles.

Here we highlight and celebrate long-time AWIS member and entrepreneur, Deborah (Deb) Kilpatrick. Deb currently serves as Chief Executive Officer of Evidation Health, a health technology company focused on quantifying real-world patient outcomes in the digital era of medicine, and Co-Founder of MedtechWomen, a California-based nonprofit organization dedicated to highlighting women leaders in the medical technology industry.

\[AWIS Magazine\] had the opportunity and privilege to personally interview Deb to learn more about her personal path to leadership, and to also garner her perspectives on how women and minorities can leverage their strengths to become successful STEM innovators and entrepreneurs. As she noted: “Our national competitiveness in STEM, and the role of women and minorities in that, has never been more important. I am a longtime AWIS member because of their commitment and effort to working on these issues, day in and day out. We all have to walk the talk here, and AWIS does.”

You received your PhD from the Georgia Institute of Technology (Georgia Tech) in Mechanical Engineering with a Bioengineering focus. Can you describe the classroom atmosphere during that time in terms of female representation and collegiate support?

I studied at Georgia Tech for my undergrad in 1985-89, and I recall the male/female ratio being around 8 or 9:1 at that time. When I was in graduate school there in the 1990s, I was often the only female in many of my advanced classes, such as continuum mechanics. When I received my PhD in 1996, I was still among the first 15 women to ever get a PhD in mechanical engineering from Georgia Tech. This is notable since Georgia Tech confers the largest number of engineering degrees overall in the country and also confers the largest number of engineering degrees to both women and minorities. I now have the honor of being the first woman to chair the advisory board of Georgia Tech's College of Engineering and am proud of our track record building national competitiveness in STEM education, in part, through a commitment to diversity.

In terms of the classroom atmosphere I experienced for over a decade at Georgia Tech, I was certainly the "only girl in class" more than once, especially during graduate school. To be honest, I don’t recall thinking about it at the time, but I am sure I was quite aware of it. I credit that whole experience with making me very comfortable being different in terms of the way I look, think, or approach problems.

How did you arrive at becoming CEO of Evidation?

Rowan Chapman (now the Head of J&J Innovation-California) was on the new business creation team at GE Ventures in 2014, and she was thinking about starting a new company in the digital health space. The high level idea was built around the market need to define outcomes and evidence in the digital era of medicine. I had known some of the leadership at GE Ventures for a number of years, as several of us spent time in the genomic medicine/molecular diagnostic space in our prior lives. So when I was thinking about my next challenge after leaving my previous operating role at CardioDx in 2014, several planets aligned, and now here we are.

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The other part of the story is that I had the opportunity to meet our Evidation Health co-founder and President, Christine Lemke, along the way. Christine comes from the technology world and brings a very different set of ideas, skillsets, and experiences to the table versus my own. I have always looked for roles where I can collaborate on something new with people from entirely different backgrounds than mine. Long-story-short, Christine and I agreed to build Evidation Health together by combining radically different skillsets from consumer technology, machine learning, pharma/biotech, and med-tech.

**How do you foresee or envision the ecosystem for entrepreneurs in the next decade and in comparison to today?**

In no particular order, here are my thoughts on what will be important for entrepreneurs in 2027:

- **Make partnerships a priority:** this is probably the most dramatic change I’ve observed in startup “behaviors” over the last decade, and I don’t see it changing. The complexities and interactions of technology across domain boundaries mean that partnerships are required to tackle the really big problems.
- **Plan for a “technocentric” population:** don’t assume that your new technology or product is only for everyone under a certain age. I believe that when companies don’t plan for a connected population across generations, those companies forego opportunity and impact, period—especially in healthcare.
- **Think about data as a raw material:** if you have not read Industries of the Future by Alec Ross, read it now. Whether you are starting a company in renewable energy, transportation infrastructure, biomaterials, or agriculture, your data strategy is indeed part of your strategy.
- **Watch for emerging sources of capital:** we’ve seen the rise of corporate venture funds significantly change fundraising landscapes across the last decade. We’ve just begun to see the impact of global sources of venture capital on startup dynamics within the US. You can create competitive advantage by understanding these moving parts within the ecosystem.

**Based on your experience, what are the barriers to accessing venture capital, angel funds and early stage funding?**

My full answer is a much longer story—but it’s a really complex set of factors that relate to company profile, business models, market dynamics, relationships and network access, and internal assumptions about what turns good ideas into great companies. We have some complicated diversity challenges in Silicon Valley that have been openly discussed in recent years, and these factors can certainly impact company creation and capital access. My view is that you must learn how to use your differences to your advantage in fundraising. If you don’t learn how to leverage your differences, you risk them working against you. One important thing, however, that has changed over the last decade is that people have an easier time accessing networks and growing relationships thanks to the social reach of technology. I think that women and minority entrepreneurs can benefit significantly from this.

**Last year in March, AWIS held in Chicago their national summit on innovation and entrepreneurship within the health and medical sciences technology sector. How important is R&D innovation within those sectors?**

Well, it’s arguably the most important sector for R&D innovation when it comes down to it—i.e., this is about our health and our healthcare, and we all prioritize those at key times throughout our lives. Of particular importance right now in the US are new technologies and products that can help us transform from a volume-to-value based structure across our healthcare system. Regardless of what happens with ACA, or the form it ultimately takes, this transformation is central to product innovation in all sectors of healthcare.

**Former President Obama allocated federal funding to continue support for and expand investments in basic life science research, health/biomedical research, and private sector R&D in 2017. One example is the Precision Medicine Initiative (PMI). What are your thoughts and perspectives on the continuation of this effort under the President Trump’s new Administration?**

Well, it seems hard to predict exactly how any specific initiative launched by the Obama Administration will fare under the Trump Administration, but if we look more broadly at the 21st Century Cures Act, beyond the PMI, there are some components that I certainly hope will remain as priorities. At Evidation Health, we are enthusiastic about the focus on real world evidence generation as a vehicle for innovation in therapeutics. We see enormous value in data streams reflecting “real life” patient behavior (e.g., patient-mediated data attained outside brick and mortar clinic walls) that allow us to quantify what is or is not currently working in the digital age of medicine.

The one thing we have heard from the Trump Administration is that drug pricing may undergo increased scrutiny. To me, this puts an even brighter spotlight on the importance of real
them this: Life carries risk, and but too

Do you have any advice for young entrepreneurs entering the health and medical science technology sector or other science and engineering sectors who aspire to start their own companies?

Never forget to leverage your technical backgrounds and thinking in everything you do. That kind of training makes us comfortable dealing with complexity and breaking down big problems into smaller, solvable ones. It’s your advantage to

often, in trying to avoid it, we deny ourselves the opportunity to be great.  

Dr. Lucia Mokres, DVM is Chief Medical Officer of EpiBiome. She leverages her clinical, research, and industry background to provide medical oversight and strategic direction for all clinical development activities, defines regulatory strategy, supports marketing and business development activities, and serves as the medical point of contact for external stakeholders. She has held multiple roles within the human medical device industry, most recently lending her expertise to medical safety, clinical and regulatory affairs, research & development, quality affairs, and marketing functions at a Fortune 500 company. She received a BS in Physiology and Neuroscience at UC San Diego, graduated cum laude from the Colorado State University College of Veterinary Medicine and Biomedical Sciences, and completed her postdoctoral fellowship at Stanford University School of Medicine.

available. The idea is not new: Stephan has advocated for such academic “birth control” for four decades, and Alberts and his colleagues at RBR made a case for a broad approach to reducing entrant numbers in a 2014 PNAS article (111:5773-77). But such proposals have so far proved unpopular. At a workshop following the publication of RBR’s paper, for example, “the recommendation to cut PhD programs got the strongest pushback from the audience,” says Alberts. “People argued that we don’t know who will be a great scientist, and the people who will be great scientists can’t possibly know either, so we need to cast as wide a possible net for talent.” What’s more, not all graduate programs are equal, he adds—some have higher placement rates in academia or industry than others, and it’s not clear how cutting PhD programs should take this into account.

Other suggestions include requiring students to complete a master’s program before embarking on a PhD in an attempt to select for dedicated researchers earlier; increasing the proportion of students funded by individual fellowships and training grants, rather than faculty research grants, to dissociate university admissions from the funding of specific labs or professors; and hiring more staff scientists to carry out day-to-day lab work to circumvent the need for a workforce of PhD students. But, such adjustments will take time to implement. “There’s a huge amount of inertia,” says Alberts. “To accomplish any of these changes you need to create a movement, you have to get institutions on board, scientific societies, the NIH. … We’re going to have to work with our colleagues to make these things happen. They won’t happen just because we say them.”

In the meantime, Alberts is working toward a more immediate solution to achieve the same goal: show prospective students the data. RBR advises universities to detail on their websites “the actual outcomes, as far as they can tell, for their PhD graduates,” Alberts explains, adding that five universities—Johns Hopkins, Duke, Harvard, Princeton, and UCSF—have already committed to adopting this practice. D’Ecclesis is in favor of the approach. “It would be incredibly helpful for people who are considering a program to see what it actually entails—what the pitfalls are, what the opportunities will be,” he says. “There are still a lot of people who are interested in academia who don’t understand the recent trends.”

Alberts and others hope to make a dent in the biomedical PhD’s sustainability problem by warning prospective students about the long-term risks of a small job market and by helping current students prepare for the options available to them after graduation. But just as important, notes Alberts, will be an evolution in the attitude of the academics who train these students.

In the past, professors could get away with thinking that “anyone who’s any good will get a job they want in academia or biotech,” he says. “But now we know that’s not true. Those of us that are older, who lived in an era where that was true, have to wake up and look at the data.”