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Q&A

RACING TO THE TOP

Q&A WITH MILLIMAN CONSULTANT SARAH KONRAD HINCHEY

Q: Tell us a little about your background. How did you make the decision to become an actuary?

A: Like many actuaries, I was always strong in mathematics, taking the most advanced courses my high school offered. During my junior year of high school, I attended Northwestern Mutual's one-day program, "A Day in the Life of an Actuary." The speakers presented a variety of possible career paths for actuaries, outlined the exam process and discussed the typical daily activities that could be expected for an actuary. Knowing that I wanted to pursue a career in which I could utilize my math skills, but not wanting to be a math teacher or pure mathematician, the actuarial career path seemed like a potentially good fit.

I applied for and won an actuarial science scholarship from the University of Wisconsin–Madison, where I met professor Margie Rosenberg, who mentored me throughout my four years at UW and encouraged me early on to participate in all of the Actuarial Science Club activities. I believe her personal coaching and support played a key role in helping me to graduate UW with three actuarial exams passed and two summer internships under my belt. This positioned me very well to start my career.

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Q: Would you provide some work history and how it segued into your interest in predictive analytics?

A: My first job out of college was as an actuarial analyst in Connecticut, as part of The Hartford's leadership and development actuarial training program. This exceptional program allowed me to rotate through a variety of actuarial roles and departments. It also provided extensive exam support and study time, which enabled me to earn my FSA within three years of graduating from college. In 2011 I had the opportunity to take a six-month assignment in Ireland, where I led the local actuarial team in implementing Solvency II recommendations from the European regulator. This was a pivotal point in my career in which I was challenged to step outside of my comfort zone, ultimately giving me the confidence to take on more non-traditional roles.

While in Dublin, I was recruited by the Amsterdam-based insurer ING for a variable annuity (VA) product development and pricing role. This was a dream job for me at the time, allowing me to live and work in Europe indefinitely while developing new VA products for European business units. Because VA products were very new in these markets, my expertise was needed in all stages of the product life cycle: from design, pricing and risk management, to marketing, legal and board approval. This involvement gave me high visibility throughout the company, and soon I found myself in discussions with one of the top female executives of the company, Chief Innovation Officer Mariken Tannemaat.

Tannemaat asked me to join her marketing and distribution team as the sole actuary and product expert. I started by working with our strategic marketing partner on data-driven pilot projects such as cross-sell campaigns based on propensity-to-buy models. It was very motivating to see the positive and significant business impact of these low-cost projects; for example, we saw an increase in cross-sell conversion rate of 50 percent in Romania, 90 percent in Poland and 100 percent in Turkey.

I quickly recognized the modeling techniques being used and realized there was a lot of overlap with concepts I had previously learned in my regression and loss models studies for the actuarial exams. But instead of predicting frequency and severity of claims, we were predicting likelihood of customer sales and lapses. This was a true "light-bulb" moment for me, when I realized that I had found the career path where I could apply my quantitative skill set and actuarial expertise together to drive customer-focused, front-end business impact.

Q: What skills positioned you for work in predictive analytics?

A: First, strong communication skills and an understanding of underlying profit drivers helped me to better lead multiple cross-functional projects and obtain buy-in from executive board members across different countries. By showing them how these initiatives would add value to their bottom line, they were more willing to invest time and resources in data analytics projects.

Second, the ability to understand the big picture and make the connection between the analytics and the human behavioral element helped me turn insights into actions. For example, in one of the marketing pilots we discovered that one of strongest predictors of lapse was the action of a customer contacting the call center. (We joked that in order to reduce lapses, the agents should simply not answer the phone.) The better approach was to dig deeper in order to determine specifically which types of inquiries most often led to lapse. Knowing this information, the company could proactively respond by directing similar future inquiries to more experienced call center agents who could potentially influence the customer behavior at this critical moment.

Finally, having an open mind and a willingness to learn in an unfamiliar

environment. Because this is such a new and growing field in the life insurance industry, there is no rule book for how to do things. There will always be new targets to predict and new data sources stemming from the latest technology developments. It's a lot of learning as you go.

Q: What skills do actuaries bring to analytics that other professionals may not?

A: Marketing analysts, data scientists and actuaries all bring valuable insights to the table. What sets actuaries apart is their combined understanding of the theory behind statistical models, the profit drivers, the risks, the product mechanics and the balance sheet impact. In other words, actuaries understand the big picture and see how all the moving pieces work together; they understand the content and can see more than just the numbers. This positions the actuary to design an analysis around the right questions and interpret how the results fit within the larger scope.

Q: What advice do you have for people who may be interested in predictive analytics positions?

A: Predictive analytics is a full-circle field that touches all areas of a company, so it's important to develop good relationships across departments. IT architects can help unlock the company's data sources and infrastructure. Legal can advise which data sources can and cannot be used for different purposes. Product managers and actuaries can provide insights on specific product features and profit drivers. Marketing and sales will ultimately be responsible for customer-facing campaign execution and collection of response data to complete the feedback loop. A good business case for any predictive analytics project takes all of these aspects into account.

On the technical side, the Johns Hopkins Data Science Specialization offered online through Coursera is an excellent starting point. The 10-course program will lead you through all the steps of a data analysis, from data preparation to machine learning, all while learning the R statistical programming language in an active and supportive environment.

For real-life examples, Kaggle is an online platform for predictive modeling competitions on which companies and researchers can post their data, and data scientists from all over the world compete to produce the best models for cash prizes.

Finally, join the SOA Predictive Analytics and Futurism Section in order to stay up-to-date with section-sponsored news, webcasts, meetings and research in predictive analytics.

Q: Where do you see opportunities for actuaries in the predictive analytics arena?

A: As a profession, we need to more visibly take ownership in this space before losing it to competition coming from non-actuaries. Within the life insurance industry, there are tons of opportunities for actuaries to use predictive analytics in marketing (segmentation, sales and retention efforts), distribution (optimization of customer contact strategies), underwriting (simpler processes, better risk assessments), claims (fraud detection) and pricing (assumption-setting), just to name a few.

Outside of the insurance industry, there are more career opportunities. Companies like Google, Facebook and Amazon are light-years ahead when it comes to predictive analytics. In addition to these powerhouses, there are also interesting opportunities in biotechnology (Genentech), genetics (23andMe), nonprofits (Bayes Impact) and even in fashion (Feetz)!

Q: What are some of your best professional memories/ experiences as an actuary that may inspire others to explore different actuarial paths?

A: Stepping outside of my comfort zone to take on new challenges has taken me on a rewarding path across both international and professional boundaries. I've enjoyed learning about the commercial side of the business from the "fun marketing guys," leveraging our complementary skill sets along the way. During my time in Europe, I learned a lot from advising CEOs and management teams of 13 different countries and hearing about their unique business challenges (always coupled with local cuisine and culture). Of course, I will never forget riding my bicycle to work every day like the locals in Amsterdam, in a business suit and heels, rain or shine. Lastly, I've enjoyed doing my part to bring visibility to the actuarial profession. Now that I'm back in the United States, my ambition is to continue to build the reputation of actuaries as predictive analytics leaders across the insurance industry. ■

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