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Technology: How to Excel

By Jon Lim

My good friend and colleague approached me for my thoughts on developing technological skills to further advance one's career. And while it was not presented as the most intriguing topic initially, I'm continually reminded that the technological landscape of the insurance industry is evolving. Granted, one might argue that a working knowledge of Excel would suffice for most on-the-job requirements these days. However, in the long run, a continual investment into developing technological skills is crucial to avoid getting left in the dust.

As a relatively new entrant to the actuarial profession, I consider myself privileged to be able to simultaneously experience the technological revolution of the insurance industry, and indulge in the stories of actuaries past. For those of you out there who are or have struggled with the Life Contingencies exam, I'm fairly certain that you've at least once bemoaned the ridiculous number of formulas. I've once retorted: "Don't we have spreadsheets to figure out the nuisance calculations for us?"

Once upon a time, actuaries had to perform their life reserve calculations on paper. By hand. With a calculator. Oh yeah, and this was just 20 years ago. Two decades later, spreadsheets are now widespread among actuaries. As most of you are also aware, "Excel skills" are ubiquitous to actuarial job postings. What this means for anyone who wants to get or stay in the actuarial industry today, is that technological skills have become a prerequisite.

Specifically, insurance companies tend to look for the following technological skills in their actuaries:

- The Microsoft Office suite of products, including Excel, PowerPoint and Word;
- The Visual Basic (VB) language and the creation of VB macros;
- The SQL language and its associated MS Access user interface;

- Other advanced data processing software such as R, MATLAB and SAS.

Life actuaries might encounter GGY's AXIS software during the course of their career, while P&C actuaries may be more familiar with Aon's ReMetrica. Both AXIS and ReMetrica provide insurance companies with a one-stop solution to all their insurance needs. Pricing/ratemaking functions, as well as reserving/valuation methodologies, are self-contained within the program, and actuaries involved in the capital modeling process will be pleased with the stochastic modeling capabilities of both software sets. Additionally, both AXIS and ReMetrica allow the end user to extend the functionality based on individual requirements through C++ and/or VBA.

Common to all actuaries is the use of VB macros in the course of daily actuarial work. Apart from the convenience they offer by automating repetitive tasks, macros also grant actuaries the ability to create dynamic spreadsheets. Regardless of the actuarial track chosen, it's immediately clear that technological skills are necessary for career advancement.

If you're an actuarial student with the fortune of still being a university student, get online and take those Excel and SQL lessons now. Literally right now. Come back and finish reading the rest of this article later.

But what major technological paradigm shift can we expect in the next two decades? And more importantly, how can we prepare for it? When I hear stories about how actuaries performed calculations manually in the past, I can't help but wonder how many of those surviving actuaries (no pun intended) expected that fully automated spreadsheets would be realized within their lifetimes. This exponential explosion of technological advancement is even more pronounced for us actuaries of the future.

Start by putting your ear to the ground and stay aware of the latest actuarial trends. Have you read about the



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auto insurance industry's gravitation toward usage-based insurance (UBI) lately? Or what about the push toward a uniform global standard of capital solvency? Each of these trends presents a unique technological challenge that if developed upon, might become commonplace in the future. In this case, UBI calls for actuaries with large database manipulation skills, as well as familiarity with advanced statistical software capable of handling terabytes of data.

The next step would be to examine the proposed technological solutions that accompany these actuarial

trends, and invest some time to immerse yourself in it. This is not always straightforward because of proprietary technology, but when there's a will, there's a way. As earlier mentioned, big data management has garnered some media attention recently, and looks set to become a novel technological standard in the near future. A prudent actuary might decide to prepare for this transition.

As actuaries, we are painfully aware of the statistical limitations that accompany our estimates, especially when it comes to predicting the future. However, it would be foolish to adopt a reactive approach to the evolution of technology. Rather, by recognizing that today's fringe technological methods will become tomorrow's de facto standard, we can invest our time wisely to develop our technological skills.

Or not. Perhaps in 20 years, we'll have solved the limitation of mortality and life actuaries will be out of jobs. ☆



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