



SOCIETY OF ACTUARIES

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Integrate New Ideas—Make a Difference!

By Dave Snell

The function e^x (e to the power x) walks into a party for functions, looking glum. The bartender asks why he is so unhappy, and e^x says he is lonely. The bartender, trying to help, urges him to go among the other functions and integrate. His reaction is “No, if I integrate, nothing changes. It just doesn’t make any difference.”

That joke probably won’t seem funny to your friends who have never studied calculus. However, for actuaries—especially members of the Actuary of the Future (AOF) Section—it is more than just a joke. Some members feel that they are the “newbies” of the actuarial profession, and that it is unrealistic for them to assume they can make a difference. They think they should try to look and think the same as those around them.

I disagree!

The world is changing at an accelerating rate. Google calculates that humans produced 5 exabytes of data from the dawn of civilization through to 2003. We now produce 5 exabytes of data every two days!¹ This means we can’t assume that the proven methods and ideas of yesterday are going to be applicable tomorrow.

The marketplace for insurance is changing rapidly. Consumers are less likely to buy from an insurance agent and more likely to choose their insurance based on the advice of a friend—often a virtual friend via Facebook, Twitter, LinkedIn or some other social media. Our models of mortality may be impacted wildly in one direction by the increased danger of pandemics that can spread across the globe with the speed of an ordinary commercial

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Source: <http://visual.ly/big-data-explosion>.



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airline flight; or in another direction by medical advances that could employ advanced genetics to reconstruct aging cells and extend lifetimes way beyond our current expectations.

Experience is still valuable; but so are creativity and adaptability. The mind that contains the knowledge of classical actuarial modeling and risk management must not close after those exams have been passed.

In a mere half-decade, my world has expanded with a heightened appreciation for genetic algorithms, neural networks, deterministic chaos, cellular automata, complex adaptive agents, network theory, behavioral economics and several other ideas, tools and techniques that were foreign terms to me for most of my actuarial career. When I was an actuarial student, back when dirt was still young, it was critical for an actuary to master commutation functions. Today, they are obsolete—of more interest perhaps for archeologists than for actuaries. They could treat them as the cave paintings of an earlier era. In order to use a computer, you first had to prepare

punch cards with appropriate holes for the various arcane instructions you wanted the compiler to read. The development of a new life insurance product normally took at least a year or more; that was OK, because nobody expected it to be any faster.

Much has been written about the rapid advance in computer capabilities, but, frankly, the capability curve is surpassed by the user expectation curve. Old development schedules are not acceptable in today's more time-competitive environment. The standard risks concerning mortality, morbidity, investment rates, and expenses are now accompanied by tail risks (such as reputational risk, currency fluctuations, etc.) and other risks far more difficult to model. I once worked at a \$30 billion life insurance company that went into receivership because one rating service downgraded its rating by only one point. The result was that there was "a run on the bank" and the company was unable to liquidate 20 percent of its assets in seven days to meet the capital demands. How many of your risk models incorporate the agency ratings?

You are the actuaries of the future. You can make a difference! But it won't be all that easy. You have to embrace the ideas and technologies that lie ahead. Otherwise, you may find yourself feeling like e^x while the party moves on into the future. ☆