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## The Future Is Changing: Welcome to the Future!

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# Actuary of the Future

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# The Future Is Changing: Welcome to the Future!

By Xiaochuan (Mark) Li and Dave Snell

**W**elcome to the first *Actuary of the Future (AOF)* newsletter issue of 2017. We bade farewell to the year of 2016, a year of momentous changes, during which we observed expected and unexpected changes in the world on demographics, politics, society and technology. Whether due to internal expectation or external forces, we as actuaries always need to change ourselves to be better people and better professionals. In this issue, we have articles that focus on how we can improve technical skills and soft skills.

Our chairperson, Bin Fang, gives advice on developing leadership skills in his Chairperson's Corner article. Having a big picture, mentoring others, open communication, allowing mistakes and a willingness to help are the skill sets he thinks are crucial to be a good leader.

One major event in 2016 was Brexit. People in the U.K. voted to exit from the EU. Michael Beck and Aisling Metcalfe's article, "Brexit: What Does It Mean for U.S. Insurers?" gives an overview of the event and the consequences, particularly the impacts

The role of the actuary is changing—just as the industry and the world are changing.

on U.S. insurance companies regarding insurance financial reporting, Solvency II, IFRS/IASB guidance and industry practices.

Mark Li's article, "Learning Data Science From an Actuary's Perspective," gives an introduction to learning data science as an actuary. Data science is a thriving field. With the development of technology and increasing complexity of insurance data sets in terms of types and volumes, it will be beneficial for actuaries



to know how to take advantage of these new tools. It will expand actuaries' skill sets and career potential.

Minyu Cao's article on how to find your first job will be very interesting to actuarial students and candidates. As a young actuary and a leader in her company's campus recruiting program, she has the firsthand experience from both candidate and recruiter's point of view to explain what preparations and skills will help to land the first job. Together with job-seeking advice from recruiting firms in the previous newsletter, these articles give a more complete picture of the most important characteristics and skills companies are currently seeking.

Melissa Carruthers gives us a firsthand summary of the California Actuarial Student Summit (CASS), which was held in January of this year in Santa Barbara. CASS 2017 hosted a couple dozen speakers and about 200 students from various West Coast colleges and universities. This is an exciting expansion of the support that the Society of Actuaries (SOA)—and several cooperating actuarial organizations—is providing now for

actuarial students who once lacked the networking advantages of their colleagues back east. Read all about it in her article, “Actuarial Excellence on the West Coast.”

As the second article in a three-part series, “The Competency Framework: Design Your Future,” by Richard Junker and Curtis Lee Robbins, illustrates how to gear up to design the future and achieve higher goals, especially for actuaries who have reached milestones in their careers. They give suggestions for us to find our own heroes and learn from them, improve competency of communication skills, and integrate more with the SOA.

Bill Rearden contributed the article “Actuaries in the C-Suite,” which also is appearing in two other SOA newsletters. It is a Q&A to senior managers in the insurance industry about their experiences to move from actuarial roles to corporate management roles. Their views on skills, experiences, career path and managing companies in a changing environment are invaluable to actuaries who have ambitions to take on more responsibilities.

Finally, Dave Snell has started a series on writing tips for actuaries. These are not the usual guidelines you get in most books on writing. They represent his half century of personal ideas that

worked, along with many that bombed. You can enjoy learning from his successes and you can avoid his failures.

You are the actuaries of the future. The role of the actuary is changing—just as the industry and the world are changing. We hope you enjoy this issue and embrace the changes that will help you prosper and enjoy your future! ■



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# Chairperson's Corner: On Leadership Skills

By Bin Fang

*"True leadership lies in guiding others to success—in ensuring that everyone is performing at their best, doing the work they are pledged to do and doing it well."*

—Bill Owens

When I was a young actuary myself, I learned many good lessons from other great people. At my first-year performance review my manager gave me an "outstanding" review on leadership skills and commented, "Bin was great at helping others to achieve their goals." This helped me understand what a true leadership skill really is. For young actuaries in their early career, the main objectives are mostly about learning technical skills and passing exams. There is nothing wrong with that. To be honest, those were on the top of my list in my early career. Prior to my first-year review, helping others was only something I did on the side without realizing the potential impact to the organization.

I have changed several roles since then, and was given opportunities to manage staff. Every opportunity came with different challenges and tasks. However, I always found the following skill set from my toolbox to come in handy.

1. **The big picture.** It is particularly important to give others the important perspective about their particular roles. Many times we start a job, and then settle into a certain routing that is quite similar to habit forming. If everyone does that within an organization, then it eventually becomes short-sighted in innovations. A great leader is particularly important in stepping in and inspiring others away from the comfort zone.
2. **Mentoring.** I found the greatest leaders are not necessarily the ones who do the greatest things, but the ones who get

people to do the greatest things. Always have a goal-setting session with your staff. As a leader, the most important job is to help your staff acquire new skills to succeed in their tasks.

3. **Open communication.** It's important to communicate with your staff with honesty and transparency. A great leader can establish a mutual trusted environment to promote healthy conversation. One-on-one sessions, team lunches and staff meetings are useful platforms to promote information exchanges and keep the dialogue going. I believe leadership is not meant to be overpowering others, but getting along with others.
4. **Allowing mistakes.** Admit it or not, we are humans and mistakes do happen from time to time. It's important we should never be deterred by the fear of failure and that we set egotism aside. A great quality of leadership is to look beyond the short-term losses, and use them as stepping stones for future improvement.
5. **Helping others.** A great leader will always find opportunities to add value to the organization. This is especially true in today's matrix-driven organizational chart. We are serving a direct line of superiors concurrently with related/semi-related reporting chains. Not to say they are created equal or should be treated the same, but many opportunities for improvement remain unnoticeable until someone treads the water. A great leader understands that no one can achieve great heights of success without the help of others. The best way to get friendly cooperation is to give it. When you make it a practice to encourage others and to help them advance in their careers whenever possible, most will reciprocate when you need their help. Give generously, and you will benefit in kind.

In closing, I would like to invite you to visit the Actuary of the Future Section's website at <https://www.soa.org/sections/actuary-of-future/aof-landing/>. In the pre-recorded podcast, you will find useful insights on developing soft skills. ■



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# Brexit: What Does It Mean for U.S. Insurers?

By Michael Beck and Aisling Metcalfe

2016 was a year of election results that defied the pollsters' expectations. In June, the United Kingdom electorate voted to exit the European Union (EU) in a narrow vote (52 percent to 48 percent), which signified the start of an interesting year of populist voting. In this article, the authors look back on what has happened since the Brexit referendum and explore what the future might hold, focusing on what this means for U.S. insurers in particular, on issues impacting operations, regulation and financial reporting.

## BACKGROUND

The EU grew out of the European Economic Community (EEC) founded by France, West Germany, Italy, Belgium, Netherlands and Luxembourg in 1957. From the start the U.K. had a somewhat strained relationship with the EU; the U.K.'s initial membership application was vetoed by France under Charles de Gaulle, and the U.K. did not join until 1973. The EU grew rapidly after the fall of the Iron Curtain, with 13 of the current 28 member countries joining after 2002.

A handful of European countries are not members of the EU; the two largest are Switzerland and Norway. Switzerland and Norway are part of the European single market, which includes allowing the free movement of people, as well as contributing to the EU budget. Since reducing immigration was a key part of the U.K. referendum campaign, it is not clear how this, or a similar, type of arrangement would work for the U.K.

Switzerland, which has a substantial financial services sector, is a particularly interesting parallel for the U.K. Switzerland's relationship with the EU is governed by a series of bilateral agreements. One important difference is that Switzerland's banks do not have "passporting" rights (as explained later); it is expected that U.K. banks would lobby hard to retain these.

## THE REFERENDUM

In the June 2016 referendum, the U.K. voted to leave the EU. The referendum is not legally binding on the U.K. government, and there are recent examples of governments ignoring referendums.

The process for a country to leave the EU is governed by Article 50 of the Lisbon treaty. The country informs the EU that it intends to leave and begins exit negotiations, with a maximum period for negotiations of two years. The only country to leave previously was Greenland in 1985 so there is little precedent.

The British government has made it clear that it intends to act upon the referendum result and has pressed forward with leaving the EU. Following legal challenges and a ruling by the Supreme Court on Jan. 24, 2017, the government was prevented from enacting Article 50 without the permission of Parliament. Subsequently, the government brought The European Union (Notification of Withdrawal) Act 2017<sup>1</sup> to the house to allow them to enact Article 50. On Feb. 1, 2017, the bill passed the lower house of Parliament (the Commons) by a large margin. At the time of writing, in early February, the bill still has to pass the upper house (the Lords) where it might face a stiffer challenge, delaying or even stopping the government's plans of enacting Article 50 by March 31, 2017.

In the seven months since the referendum, there has been significant discussion on what the terms of separation will be. An oft-quoted sound bite from the prime minister is "Brexit means Brexit"; what this means is that it looks likely that the U.K. will leave the EU by way of a "hard Brexit" and retain none of the structures of the EU. A large challenge in determining how the



The majority of the rules in Britain's financial sector have been written by the EU.

terms of separation will ultimately look is the stance of the EU Parliament, which will not engage in any discussions prior to Article 50 being triggered. In addition to Brexit, when the negotiations are taking place the EU will have in mind the message it is sending to other states and regions who want to leave the union; if they give too much then the EU itself might collapse.

#### IMMEDIATE IMPACT

The initial market response to the referendum result was highly negative. Sterling fell to the lowest level against the dollar in 30 years and the FTSE 100 index fell 3.15 percent on June 24, 2016. This market reaction was mirrored by the Dow Jones (-3.04 percent) and Nikkei 225 (-8.46 percent). The markets recovered somewhat over the following days, with the FTSE 100 recovering all lost value as of close of business June 29, 2016.

There was also considerable political upheaval and uncertainty in the U.K. The major political parties had all campaigned to remain in the EU. Prime Minister David Cameron resigned, and the new leader of the ruling Conservative party, Theresa May, became prime minister.

#### LONG-TERM ECONOMIC IMPACT

Over the next two years the U.K. government will be negotiating with the EU on how the relationship will operate in the future: what rules will still apply to the U.K.; how much funding they will be required to contribute; and what voice they will continue to have. Until these discussions are concluded and the market has settled post-separation, it is hard to tell what the ultimate impacts will be. The following issues are certain to be those that influence future choices and decisions of U.S. insurers with U.K. and European exposure.

#### Passporting

Under current rules, U.K. companies can sell business across the EU. This is referred to as “passporting” and means that a financial institution with a base in one EU country can do business in all of them. Passporting has contributed to London being a world financial center. If this is revoked, U.S. companies that operate across Europe with a main base in the U.K. will need to consider where they are geographically located; for example, they may feel it is better to move to Frankfurt, Paris or Dublin

than to stay in London. There may be a major departure of financial firms from the U.K. if the terms are substantially better to remain located within the EU. Also, companies may feel that it is easier to sell off blocks of business, which will in turn provide an opportunity for well-capitalized insurers.

#### Investment Markets

The outcome of the referendum caused a large shock to global stock markets, driving investors to the security of U.K. Gilts and U.S. Treasuries, which in turn pushed down their yields. Since June the exchange rate has remained at historical lows; this has in turn led to an influx of foreign capital to the U.K. and pushed the FTSE beyond 7,100 at the end of the year, up 19 percent since the shock to the market. The U.K. has adopted further quantitative easing and bond prices continue to be offered at very low rates. The low interest rate environment is likely to be the continued norm in the U.K. for the foreseeable future, despite the rises in U.S. interest rates in late 2016.

#### IMPACT ON INSURANCE FINANCIAL REPORTING

The majority of the rules in Britain's financial sector have been written by the EU and the country will now have to negotiate new trading terms with the remainder of the bloc. In principal these could be cancelled as the U.K. leaves the EU, and Britain could adopt completely different practices to the rest of Europe. However, the global trend in recent years has been toward harmonization of standards, so it seems likely that the U.K. would retain many of the current standards. The Financial Conduct Authority (one of the U.K. regulatory bodies) recently stated, “Much financial regulation currently applicable in the U.K. derives from EU legislation. This regulation will remain applicable until any changes are made, which will be a matter for government and parliament.”<sup>2</sup> This should give comfort that there will be no immediate changes in financial or insurance regulations following separation from the EU.

#### Solvency II

Solvency II (SII) was introduced by the European Insurance and Occupational Pensions Authority (EIOPA) and implemented in 2016 after many years of delays. It requires all companies<sup>3</sup> operating within the EU to calculate their technical provisions on a best-estimate basis and add to this a risk capital amount based on a 1-in-200-year stress. Along with the technical calculations there are onerous reporting requirements.

Looking forward there are a number of possible options for the U.K. regulatory body, the Prudential Regulation Authority (PRA):

- Continue with the SII standard without any modifications and without any future input over changes to the standard

- Revert to Solvency I
- Create a new standard

Given the level of effort that has gone into SII over the past seven years, it seems very unlikely that companies would have the appetite for a change in regulations. Broadly, the approach to SII is considered to be a sensible one and for this reason it is unlikely that the PRA would want to implement a major change to reserving and reporting requirements. Gold plating (i.e., adding extra regulations) of SII is explicitly prohibited by EIOPA; however, the PRA might look to do this as previous U.K. regulators did with the Individual Capital Assessment under Solvency I. The creation of an “SII plus” would likely not diverge greatly from the SII standards to ensure that equivalency was maintained to ease consolidation of reporting across Europe.

For U.S. insurance companies with U.K. operations, from a liability reporting point of view, there would be little change required if SII persists. The continued use of SII should not cause any issues in itself as it will be a well-embedded process by the time separation occurs.

### IFRS/IASB guidance

The International Accounting Standards Board (IASB) is currently drafting a new insurance contracts standard (IFRS 17) that is expected to be finalized in the first half of 2017, and under the current regime the U.K. would comply with IFRS 17. It seems likely that the U.K. will apply the new standard when issued, given that this is not explicitly related to EU membership. Britain is unlikely to want to differ markedly from standards applied by the rest of the world, and the industry has already invested a good deal of work in preparing for the new standard.

In 2014, the U.S. Financial Accounting Standards Board (FASB) decided to move away from the IASB convergence project and pursue its own “targeted changes” to U.S. GAAP for insurance contracts. It is possible that once outside of the EU, the U.K. would also choose to move away from the IASB standard. However, the U.K. is starting in a different place from the United States in terms of current standards, and in terms of the size of its internal market; subsequently it seems less likely that the U.K. would choose to go its own way.

### CFO Forum

The CFO Forum is an industry coalition that aims to “influence the development of financial reporting, value-based reporting, and related regulatory developments for insurance enterprises on behalf of its members, who represent a significant part of the European insurance industry.”<sup>4</sup> The CFO Forum is made up of the CFOs of major European insurance companies and is not an EU body. As such Brexit will have no direct impact on its membership, although Brexit will of course be a major topic that they

discuss. One of the significant outputs from the CFO Forum has been the guidelines for European embedded value (EEV) and market-consistent embedded value (MCEV). There is likely to be no impact on these guidelines as they are principle-based and not specific to countries being within the EU. Only a few U.S. insurers calculate an embedded value for internal or public reporting purposes, and there will be little or no impact on how these are determined as a result of Brexit.

### Auditor Rotation

On June 17, 2016, EU regulation came into effect that mandated the rotation of auditors for public interest entities (PIEs)<sup>5</sup> whereby firms are required to replace their auditors every 10 years (with the potential to extend under certain circumstances). As with SII, this European law has been adopted into U.K. law, making it more difficult to repeal. Added to this, prior to the EU law, the Competition and Markets Authority (a U.K. government department whose role is to make markets work well for consumers) had already introduced proposals for the mandatory tender and rotation of audits. These two facts make it highly likely that the U.K. will retain the auditor rotation requirements.

### Gender-neutral Pricing

Since Dec. 21, 2012, insurance companies in the EU have had to price products on a gender-neutral basis. For example, car insurance premiums are the same for male and female drivers, even though female drivers are involved in fewer accidents than males. Life insurance costs the same regardless of gender, even though mortality rates are different for men and women. Reserves continue to be gender-specific. When the law





was introduced, the insurance industry had concerns about its implementation, especially for products with a significant difference between male and female experience. Gender-neutral pricing is an EU requirement, so once Britain leaves the EU the government would be free to remove the requirement for gender-neutral pricing and permit a return to gender-specific pricing. The insurance industry may lobby for the removal of gender-neutral pricing after Brexit, but it is unclear whether the government would want to revoke the gender-neutral pricing law. In addition, the public might not accept different prices for men and women, now that they have become accustomed to paying the same price.

### FURTHER POSSIBILITIES

At this stage there is much speculation about the possible ramifications of Brexit. There is talk of the breakup of the U.K. While the discussions of a second referendum have died down, with the imminent triggering of Article 50 this is likely to come back to the fore. There is also speculation about the possibility of further breakup of the EU, with nationalist parties in France and Italy, among others, seeing the British vote to leave as encouragement for their own anti-EU policies. The impact of further political upheaval is unclear; however, it would almost certainly produce greater uncertainty in the marketplace, which could infect U.S. markets.

Discussion of possible doomsday scenarios is fun for the media (and for the quintessentially British activity of discussion over a

pint in the pub). However, given the increase in global connect- edness it seems unlikely at this point that the U.K. will impose different regulations on insurers compared to the rest of the world. ■



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### ENDNOTES

- 1 <https://www.publications.parliament.uk/pa/bills/cbill/2016-2017/0132/17132.pdf>.
- 2 <https://www.fca.org.uk/news/european-union-referendum-result-statement>.
- 3 Small company exemptions do exist for the smallest insurance companies where the gross premium income is less than €5 million or gross technical provisions are less than €25 million.
- 4 <http://www.cfoforum.nl/index.html>.
- 5 <https://www.kpmg.com/BE/en/IssuesAndInsights/ArticlesPublications/Documents/EU-Audit-Reform-Fact-Sheet-MFR.pdf>.

# Learning Data Science From an Actuary's Perspective

By Xiaochuan (Mark) Li

**W**hy do actuaries need to know data science? Insurance is always a data business. Historical experiences are studied extensively by insurance companies to understand risks for pricing and valuation. Actuaries are also well-known for good math skills and meticulous analytical work. Using data is not new to actuaries, who are trained to be good analysts. However, the boom in big data and advanced analytics is driving fundamental change.

We are in an era where the volume of data doubles every three years as information pours in from digital platforms, mobile phones and wireless sensors. Data are also more and more linked to each other. Purchasing history, credit score, driving record and medical information are used to paint the profile picture of an individual, which can be used by companies to provide personalized products and services.

Data produced by customers are already used in other areas of insurance, such as auto insurance, where telematics that monitor driving style help to differentiate safe drivers from aggressive drivers. The development of internet of things (IoT) technology will bring internet connections to nearly every type of consumer device. IoT will have huge implications for the insurance industry. For example, some health care insurers are giving customers free fitness trackers and offering lower premiums or other benefits for meeting daily activity levels.

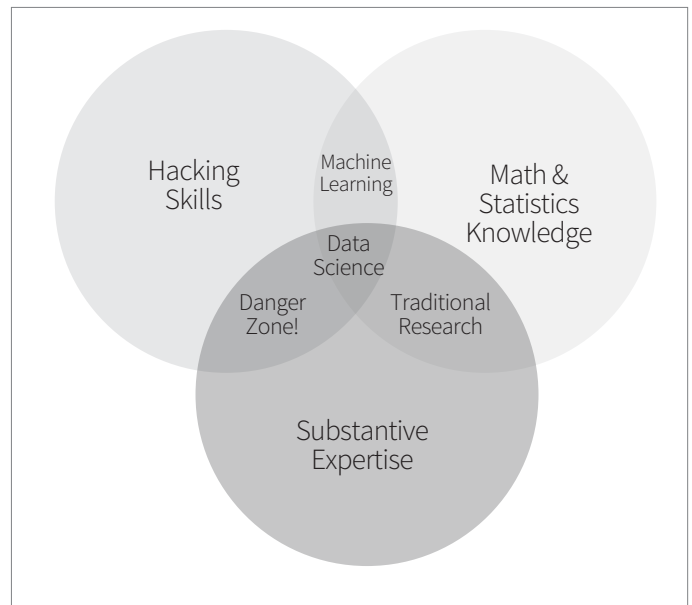
Insurance companies that are concerned with disruption and innovation are investing heavily in technology. Actuaries need to prepare for the trend as well, as the quantity and types of data will be very different in the future: Variables could be in the thousands or more; data size could be in terabytes or petabytes; data format could be in text, image and video. Unprecedented computing power and more sophisticated algorithms are also available. Actuaries need to understand and to utilize them.

The definition of data science is, however, quite arbitrary. People sometimes use data science, predictive modeling and statistics interchangeably. Some people think of data science as a sexy

term for statistics. Wikipedia says it is “an interdisciplinary field about scientific methods, processes and systems to extract knowledge or insights from data in various forms.” Although how it is used may not be that important to practitioners, one way to understand the concepts is predictive modeling is a subset of data science, which includes description statistics, optimization, data visualization, data engineering and more. Traditional statistics is one discipline within the several subjects that would have to be used to perform data science.

Figure 1 shows Drew Conway's data science Venn diagram. Since he posted the plot in 2010, people have modified and added more content to it. However, it still covers the major content of the subject. Statistical thinking, programming skills and subject knowledge are still the three main requirements to be a good data scientist.

Figure 1  
Data Science



Reprinted by permission of Drew Conway.

## MAIN AREAS OF DATA SCIENCE

The following three categories are the main areas of data science, although the divisions may not always be very clear. It is not the complete list, but most activities in data science can fall into these categories.

### Statistical Analysis

This refers to traditional statistical methods for prediction, inference and causal modeling of relationships. Causal inference is

usually the result of this kind of study. Focus is on understanding the data and relationships. It is usually involved with a hypothesis before proceeding with building a model. For example, linear regression has certain assumptions, like independent, Gaussian distribution, and homoscedasticity of data. The model is not valid if the assumptions are not fulfilled.

Statistical analysis generally can give transparent and explainable results. The downside is that it has conditions and may not achieve the best result.

### Machine Learning

Although many machine learning (ML) algorithms are based on statistical theorems, its goal is to make prediction as accurate as possible and allow the data to speak instead of directing it to a specific path with the initial assumption. For example, a decision tree/random forest of the ML algorithm assumes no hypotheses of the data. It learns data, returns the important features, and makes predictions without preconditions.

Sophisticated algorithms can work on large data sets efficiently and can get better results than statistical methods. ML uses data to compute hypotheses that approximate the target. The result may be a black box, and may not be transparent to humans. ML may improve the programs' own understanding, but may not improve human comprehension.

### Deep Learning

Deep learning is a branch of machine learning based on neural networks that attempts to model high-level abstractions in data. Neural networks “use a cascade of many layers of nonlinear processing units for feature extraction and transformation. Each successive layer uses the output from the previous layer as input.”<sup>1</sup> The nonlinear processing units are usually called neurons, inspired by biological neurons, which can transmit an electrical signal from one end to the other from dendrites along the axons to the terminals if the signal power reaches a threshold.

Deep learning allows computers to build complex concepts from simpler concepts. For example, in image recognition, some neurons represent shapes; some neurons represent colors; and some neurons represent edges. The whole network can combine these concepts represented by individual neurons to represent the concept of an image. In the past few years deep learning has achieved huge successes in computer vision, natural language processing and artificial intelligence. A Japanese life insurance company has begun to use IBM Watson, which is based on deep learning, to process claims.

### BIG DATA TECHNOLOGY

Actuaries are good with Structured Query Language (SQL) to manipulate data in relational databases. However, this type of



database has disadvantages: It is mostly for structured data; and it can be very slow to process large amounts of data.

Apache Hadoop is an open-source software framework used for distributed storage and processing of very large data sets and processing using the MapReduce programming mode. It can store structured and unstructured data. It is more scalable and much faster than a traditional database. Apache Spark is another new technology that enables distributed in-memory computing. It can work on the top of a database or Hadoop to provide very fast computing performance. These technologies have already been adopted by many insurance companies.

### LEARNING VENUE

Traditional actuarial education focuses on actuarial mathematics and insurance risk. Students are often trained to learn how to use Excel spreadsheets or SAS. Although they are also used in data science, data science additionally requires more advanced levels of linear algebra, statistical theorems and computer programming languages. R and Python are two of the most common programming languages used in data science.

If you are still in college, you may sign up for courses on these subjects offered in computer science and statistics de-

partments. If you don't have access to these classes at school, there are tons of free or affordable resources on the internet. Major massive open online course (MOOC) websites such as Coursera, edX, and Udacity are offering courses in statistics, machine learning and programming languages. Most courses are at the introductory or intermediate levels. They are often taught by professors from the best universities in the world. For example, many people entered the data science field by taking Andrew Ng's machine learning class on Coursera. Khan Academy is also offering classes at a more introductory level to help students learn fundamental theorems in statistics and linear algebra.

Universities also have their online programs, and many of them are free. For example, Stanford Online offers advanced levels of deep learning classes on computer vision and natural language processing.

YouTube has many channels and videos that focus on the data sciences. Conferences on Python and R, like PyCon and Rconference, are posting presentations there. It is good to learn from experts in different industries on how to use these tools.

Data science is a fast-developing field. New methods, algorithms and tools are coming out. Social media is the best place to stay current with new developments. To get updates, you can subscribe to relevant blogs and tweets. R-bloggers, Data Science Central and KDnuggets are popular websites that have valuable materials.

Quora is a question-and-answer (Q&A) website. It is also a good resource to ask a question and learn from others' answers. People tend to answer complex questions in layman's terms.

## PLAYING FIELD

Data science is a very hands-on subject, and the quickest way to learn it is by practicing it. Kaggle is a website dedicated to data analytics competitions. It draws many data scientists from all around the world to compete to produce the best models. It provides problems, data and prize money. Most of the data are

cleaned real-world data. You can get a flavor of different types of data in different industries. It also promotes collaboration and learning by encouraging people to share models and programs and discussions, which is probably the best resource for beginners. Companies also find participation attractive. Many big companies, including insurance companies, are sponsoring the competitions and even treat them as a recruiting opportunity to hire the brightest data scientists.

## CONCLUSION

For actuaries, learning data science does not necessarily require becoming a data scientist to implement algorithms from scratch (great if you can!). There are tools and frameworks of data science available that provide easy-to-use interfaces to sophisticated algorithms without reinventing the wheel. This knowledge is more likely to help actuaries have a better assessment of problems and solutions. Nowadays lines between different subjects are becoming blurry. It is always good to be open-minded and stay curious.

Good data scientists need subject expertise. Actuaries are in a unique position to embrace data science, rather than consider it as a field that is in competition with the actuarial profession. Data science can push the profession and the industry forward to face new technology and a changing world. It will enable actuaries to grasp more tools to analyze data, and it will definitely boost career potential and opportunities. ■



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## ENDNOTE

- 1 [https://en.wikipedia.org/wiki/Deep\\_learning](https://en.wikipedia.org/wiki/Deep_learning).

# How to Get Your First Job: Insights From a Young Actuary and Recruiter

By Minyu Cao

**F**or actuarial students and candidates, the entry-level job market is more competitive than ever. As a leader of RGA's campus recruiting program, I have a front-row seat to entry-level recruiting. We receive hundreds of applications every time a new position is open. I would like to share with you some insights and advice on job searches and recruiting based on my experience as a student, an actuary and a campus recruiter.

## BUILD YOUR SKILLS

While navigating through applications, there are certain things we look for in candidates. Building these basic skills is crucial for your job search.

- **Grades and exams.** Focus on your academic achievements and exams in college. A 3.0 GPA is usually the threshold, but aim to have at least a 3.5 GPA. The threshold may vary with the school (some grade more leniently than others); some courses of study are more difficult than others; and some students may have more responsibilities than others. If you took relevant math, computer science or communication courses, or if you were awarded academic scholarships, list them on your resume. For entry-level positions, having at least two exams passed is ideal. Be ready to answer questions such as: When were the exams taken? Did you pass on the first attempt? Why is there a lag between exams? What are your plans for future sittings?
- **Computer skills.** Having knowledge of some computer programs along with the ability to learn new ones is important in this ever-changing industry. Demonstrate your ability by highlighting some technical skills with which you have experience, such as Excel, SQL and Access.
- **Extracurricular activities.** Employers seek leaders. Proven leadership qualities in college clubs or volunteer groups in your spare time are a good indicator for future leadership

development. We like to see candidates who are involved in clubs, organizations and their community and who hold positions of leadership. These experiences tell us who you are and what you care about. They show us that you are versatile and go above and beyond because you are not satisfied doing just schoolwork. They prove that you have good time management skills and are able to balance all these aspects of your life.

- **Communication skills.** Keep building your communication skills, including written skills for email communication and report writing, as well as interpersonal skills. Take advantage of the opportunities to speak in front of a group of people while in school or join a Toastmasters group.

## NETWORK

Many view career fairs as the one and only chance they have to share their resume while networking with industry professionals, but there are a lot of other events and opportunities to network.

- **Professors and upperclassmen.** Utilize your existing resources such as your professors and upperclassmen in the program. Guess what? Employers often ask for student recommendations from program directors when soliciting resumes. First, be a good student and keep your professors apprised about your exam status and your summer plans, and let them know that you are interested in any opportunities that might come up. When we have a pile of resumes to go through, a good word from your professors can really help you make the cut. Upperclassmen? Most of them have already had an internship. You can talk to them to learn about their internship experience. What did they do? What skills do they feel were essential for the job? When and where does that company recruit, and who is the key contact person responsible for job opportunities?
- **Companies.** Company representatives may go to your university, or schools in your local area, to give a presentation about their business and their actuarial program. Attend these events to learn about the company and meet the employees. This might be an extreme case, but I've heard of companies tracking the attendance at their company presentations and validating it against the people they talked to at the career fair to find out who is actually interested in the company.
- **Professional meetings.** The Society of Actuaries (SOA) now holds networking events for candidates. Candidate Connect events<sup>1</sup> take place at least six times a year in various locations throughout the United States. You will get face-to-face time with several actuaries. Don't miss these opportunities! You will learn so much more from someone currently in the field, and it's a perfect chance to market yourself. Ask some



meaningful questions, ask about employment opportunities, and follow up with an email. It's helpful to follow up again after passing another exam or otherwise making progress in your journey. Valuable relationships can be built this way.

- **Actuarial community and other tools.** In addition to these in-person events, there are also other resources to help you get connected with the actuarial community. The SOA Actuary of the Future section<sup>2</sup> is a community for candidates and actuaries who are early in their career. You can also use the SOA Explorer Tool,<sup>3</sup> an interactive map to find SOA members and employers and reach out to them. That might be the beginning of your connection to the profession.

I cannot tell you how many times the candidates we ended up hiring were the ones who were able to keep in touch with our recruiters. It's simple: When opportunities arise, the first person we think about for a position is the one we know the most about or the one we spoke with most recently.

## INTERVIEWS

You have built the skills needed and made some connections to the industry. Now it's time for the real-world challenge: job applications and interviews!

- **The power of your resume.** Have a few people peer review your resume. Your resume is a piece of work from you. A good resume shows your writing skills, work ethic
- **Tell your story.** Prepare some talking points. You should be able to talk about everything listed on your resume. Be ready for some conventional questions, such as "Why do you want

and attention to detail. I personally wouldn't go this far, but there are recruiters who won't give you a chance if they see any typos on your resume. Make sure you understand the key strengths different companies are looking for in a candidate, and customize your resume to highlight those items. A resume for an insurance company should look different from one for a consulting company.

- **Prepare for the interview.** Once you pass the resume screen and get an interview opportunity, research the company and the interview team. You should have a high-level understanding of the company's main line of products and source of income. Anecdotally, I work for a life and health reinsurance company and once had a candidate ask me about my views on the implications of autonomous cars in the auto insurance industry. That was an indication of his lack of understanding of my company and definitely not a plus. You will usually get a schedule a few days before your interview with information on the interview team. Find them on LinkedIn and understand what their professional experience has been. It will help you put some faces to the names, answer questions in a more applicable way and ask more insightful questions.

to become an actuary?” Think about some interesting stories about yourself—essentially, the interviewers want to know what type of person you are, if they would enjoy working with you and if your personality would fit in well within their team. Do you like challenges? How would you solve a problem? Are you more proactive or reactive when facing challenges? You can think of some examples first and those stories can be fit into different types of questions.

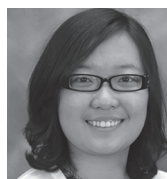
- **Attitude.** Remember, it’s not only about how you answer interview questions, but also about the presence you bring into the interview. Employers want to see a motivated, energetic and optimistic candidate. Make sure you ask questions at the end of the interview, which is the time for you to shine and turn the table around. Ask insightful questions. Hiring managers are probably tired of questions like “What is the most challenging part of your work?” and “What is a typical day like?” Alternatively, you can bring up the key initiatives from your research on the company website or something that is relevant to the interview team and that shows the preparation work you’ve done.

On the other hand, interviews also give you an opportunity to assess whether the company is a good fit for you. Through the conversation, you will get a sense about the culture and work environment of the company. I always tell candidates that interviews are bi-directional—you are interviewing a potential workplace for

yourself as well as being interviewed. Imagine yourself working there and assess if it’s an environment where you could thrive.

Finally, you will want to follow up with a thank-you note or email. Even a short note simply thanking the interviewers for their time is a kind gesture and good business etiquette.

Not too long ago, I was in your shoes as an actuarial student. Now being an actuary myself, I find the career challenging and rewarding, and so is the journey leading up to your first job. Just like the actuarial exams, landing your dream job is never easy, but with dedication and preparation, you will get there. Good luck! ■



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#### ENDNOTES

- 1 See <http://www.soa.org/future-actuarial/events-and-networking/> for more information.
- 2 <https://www.soa.org/sections/actuary-of-future/aof-landing/>.
- 3 For more information, go to <http://soa.org/resources/soa-explorer/>.

# Actuarial Excellence on the West Coast

By Melissa Carruthers

**B**ecoming an actuary can be a long and strenuous journey even under the most supportive actuarial program. As a University of Waterloo alumna, starting in my first year I was surrounded by endless actuarial resources with regular on-campus employer info sessions, a co-op program allowing you to enter the workforce with up to two full years of relevant actuarial experience, and an expectation of passing four to five preliminary exams before graduation. I didn't realize how privileged I was, having been groomed to enter the actuarial workforce like a varsity athlete entering an intramural league. I had access to an established actuarial science club offering exam study preparation sessions, ongoing opportunities to gain career advice, and overall general knowledge sharing of what an actuary is, the different roles available and the key industry players.

It wasn't until after I attained my FSA and was on the opposite side of the table at recruiting events that I suddenly realized not all students have that level of support available to them on campus. I now see how big of a struggle it is to attend a university without an established actuarial program and then attempt to compete in the actuarial job market. It makes me think our profession has to be missing out on some untapped actuarial talent that is being overlooked due to sheer lack of awareness.

I recently had the opportunity to attend the California Actuarial Student Summit (CASS) at the University of California, Santa Barbara (UCSB), whose goal is to tackle just this problem. I, like any mid-winter Torontonians, jumped at the first chance to get down to sunny California and volunteered as a guest speaker on behalf of the Actuary of the Future (AOF) Section. I was asked to speak to the actuarial students of California on the topic of "How to Be an Actuary," which is a feat I think anyone would struggle to summarize into a 40-minute PowerPoint deck. So I talked about the ups and downs of my actuarial journey (for example, failing my first actuarial exam, twice), calling out some of the lessons I learned along the way and advice I found useful, with the ultimate goal of answering the more commonly asked questions that students tend to have during the recruiting process. It was exciting to see so many students interested in pursuing careers as actuaries as well as the lengths that schools are

going to in order to establish the resources that students need throughout the early stages of their actuarial careers.

## ACTUARIAL EXCELLENCE

Choosing the right university/college is critical to getting the support and foundation you need to pursue a career as an actuary. To assist with this, the Society of Actuaries (SOA) offers a list of Universities and Colleges with Actuarial Programs (UCAP) all over the world. Additionally, the SOA further recognizes the schools that have developed outstanding actuarial programs by awarding them with the Center of Actuarial Excellence (CAE) designation. The successful schools must meet eight specific requirements related to degree, curriculum, graduate count, faculty composition, graduate quality, appropriate integration, connection to industry and research/scholarship.

The purpose of the CAE program is to help

- Strengthen the position of the academic branch of the profession
- Enhance actuarial research and intellectual capital development
- Encourage universities to play an integral role in advancing actuarial knowledge
- Build connections between the profession, top-tier actuarial programs and faculty

In January 2015, UCSB became the 16th campus in the United States to be designated by the SOA as a CAE, the first and still only such school on the West Coast of the United States and one of 30 worldwide.

To both celebrate this amazing achievement, as well as share their experience with students and other schools on the West Coast, the UCSB Department of Statistics and Applied Probability and the UCSB Actuarial Association decided to plan the first-ever CASS in April 2015.

## THE CONFERENCE

The purpose of the conference was to bring together California students of all levels—from bright-eyed first-year math students to those in fourth-year actuarial programs—to learn about the various aspects of becoming an actuary, such as the exam process, relevant courses and how to get a job. An additional benefit was the opportunity for students to network with and gain valuable one-on-one career advice from qualified industry actuaries.

In order to promote the conference to students across the West Coast, the UCSB Statistics and Applied Probability Department reached out to the mathematics, statistics and actuarial science



departments at schools throughout California as well as their contacts within the leading actuarial associations (SOA and Casualty Actuarial Society (CAS)). Within UCSB, the Actuarial Association advertised at actuarial club events, distributed email invites to all actuarial science majors, and published the event on social media.

Throughout the primary planning stages, the UCSB Actuarial Association officers helped the Department of Statistics and Applied Probability in determining details such as the presentation topics students would be interested in learning about, content appropriate for varying experience levels, break-out sessions, venues and possible sponsors.

To secure funding and industry guest speakers, professor Raya Feldman, co-director of the UCSB Actuarial Program, said a big thanks goes to Michael Adams, ASA, MAAA, and UCSB graduate of class 2012, who connected UCSB with the AOF Section Council. The AOF Section was happy to connect with the actuarial students of California and provided UCSB with their first volunteer speaker, Ben Keslowitz, FSA, MAAA, prior chair of the AOF Section. UCSB then contacted the SOA and CAS university liaisons, who generously provided them with financial support in addition to connecting them with additional guest speakers.

Through generous donations from the SOA and CAS, and funding from the UCSB Associated Students and UCSB Actuarial Fund, UCSB was able to offer the event at no cost to students.

### CASS 2017

On Jan. 14, 2017, UCSB hosted its second CASS. Gaining in size and eminence, this year's CASS hosted 24 guest speakers, 20 UCSB alumni and approximately 200 students from at least 20 West Coast universities/colleges.

The one-day summit included presentations and panels from guest speakers and alumni who are active in the actuarial field on relevant topics such as the ever-changing exam process, study tips, and advice on entering the workforce. Students had opportunities to network with the guest speakers and mentors during both the "speed networking" lunch and end-of-day reception.

This time, in addition to the SOA, CAS and AOF Section, UCSB gained support from The Infinite Actuary, Coaching Actuaries, ACTEX and Ezra Penland Actuarial Recruitment. Additional funding came from the UCSB College of Letters and Science Conference and the Associated Students Organization.

### THE IMPACT

Feldman said the feedback received from the students was unanimously positive, with a particular emphasis on the great

networking atmosphere that the CASS provided. Comments included: "Incredible networking and informational meeting. Truly worth my time." "Great networking opportunity with participants from many other schools and mentors working in the field."

Stephanie Lee, a third-year senior at UCSB and current president of the UCSB Actuarial Association, played a large role in organizing this year's CASS. When asked what she thought was the primary takeaway for students from the CASS, she said, "We hope students left inspired by the one-on-one advice gained from working professionals, emboldened by the knowledge that it is possible to be a successful actuary and knowing the steps to do so, had all their questions answered, and connected with peers who are working toward the same goal from other parts of California."

The biggest takeaway for me from the CASS was how genuinely interested and appreciative the students were to have their actuarial questions answered. The sense of community that comes with being a part of the SOA or CAS is most apparent to me at conferences such as these. To this day I still heavily rely on advice from actuarial mentors, and I am always happy to pass on the same to any student interested in pursuing what I consider to be an extremely rewarding career path.

UCSB hopes future CASS attendance will continue to increase and plans to actively reach out to more students and schools and publicize at major actuarial events, actuarial recruiter information sessions, SOA Candidate Connect and CAS Student Central.

Big thanks go out to the UCSB Actuarial Association, UCSB Department of Statistics and Applied Probability, the CAS, SOA, sponsors, and all guest speakers and alumni who volunteered their time to invest in the next generation of actuaries and who made the CASS a success. It's our hope that schools in other areas will be motivated by and learn from the CASS, inevitably spreading interest in the actuarial career. ■



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# The Competency Framework: Design Your Future (Part 2)

By Richard Junker and Curtis Lee Robbins

*Editor's note: This is the second article in a series of three covering the Society of Actuaries (SOA) Competency Framework. The first article appeared in the November 2016 issue.<sup>1</sup> The final article will appear in the next issue of the Actuary of the Future newsletter.*

In the first article, we addressed:

- What is the Competency Framework?
- Why did the SOA design the Competency Framework?
- Where are actuaries today?
- Where will *you* be in five years?

In this article, we will address gearing up for designing your future. Using the SOA Competency Framework for Actuaries and the complementary Self-Assessment Tool can help you create a plan to design your professional, continuing education and volunteer experience to achieve success in your career and personal development. Consider your personal experience and inspirations as you build your plan.

## SETTING YOUR PERSONAL GOALS

Actuaries are always comparing themselves to others. We wonder at early career, mid-career, late career, “Can I cut the mustard? Am I **competent**?” (Precept 1, Code of Conduct)

In 1934, the supernova star of the Detroit Tigers was Schoolboy Rowe, 23 years old, and the winner of 24 games that year—16 in a row. He was on the Rudy Vallee radio show in late September, being interviewed before a nationwide audience. Midway into the interview, he called out “How ‘m I doin’, Edna?” Now, Edna was his high school sweetheart. They married after the World Series that year. All the female baseball fans loved Schoolboy for his handsome mug and charm, but especially for his head-over-heels rapture for his sweetheart, Edna. But opponents razed him for years after, every time he got into a pitching jam. “How ‘m I doin’, Edna?”

We actuaries are the same as Schoolboy. (Except I can’t pitch.) We ask our spouse, “How ‘m I doin’?” We ask our parents



“How ‘m I doin’? Aren’t you proud of me? Don’t you just love me?” Puddles, we are.

It’s tempting to compare ourselves to our peers. For example, the salary surveys say an actuary of 20 years’ standing is earning on average \$200,000 a year. We well know that any average is skewed. In this case, the number is skewed by some actuaries who are now C-suite residents, earning upward of \$1 million a year. So we consider our \$150,000 salary, and fret that we are a full standard deviation below the mean. Yet we are still earning more than most state governors!

Wherever you stand in the actuarial firmament today, to remove this troubling source of psychic pain, you need to define your own personal standards of competence and excellence. This is where the SOA Competency Framework comes in. You set your personal and business goals and measure yourself against them, just as an athlete does as he trains to be the best he can be. A pole vaulter may go to a meet, only clear 17 feet, and finish in fifth place. But it’s a personal record for the athlete, and his coach is delighted. If you are to be a good coach unto yourself, cut yourself some slack and forget about the world beaters, the C-suite denizens—focus on your own growth. Focus on your personal development plan.

## FIND YOUR NOBLE PURPOSE

Now that we have established that measuring our progress is an internally directed endeavor, we next face the enthusiasm hurdle. Yes, the Society of Actuaries Competency Framework tools are ingeniously conceived, but the worksheets can be a bit tedious. Where shall we find our noble purpose, the passion, the stamina, to design our future?

We cleared the foremost hurdle to becoming credentialed actuaries by the admirable trait of doggedness. Yes, we can credit ourselves with strong elements of talent, brains and curiosity as well, but mostly it takes doggedness to clear the bar to Associateship, then to Fellowship. The hurdles we cleared during several years were well-defined. Continuing education is far less clearly defined. “What shall I do next?” is the question that will face us from now on. First, of course, we encounter another less-than-exhilarating ongoing requirement: professionalism training; then attestation; then recording our continuing education, so that we may be reasonably inoculated against a visitation from the Actuarial Board for Counseling and Discipline (ABCD).

Now you are urged on to a new exercise in career gratification, to “Design Your Future,” to complete the Competency Framework exercise. Before you can do justice to creating your five-year plan of personal development, you will need to first ramp up your imagination and your capacity to dream.

#### REFINE YOUR DREAMS BY CONSIDERING YOUR HEROES

Looking deeply to the past, we all drew our passion from an early love of mathematics. For me, it was the joy in first grade of endlessly writing the numbers from 1 to 100 in my Big Chief lined pad. Then it was on to second grade, where I had the fortune to own a pencil box with a roller to dial the multiplication table to 10 x 10. I had them memorized before we were introduced to carry addition. Then in fourth grade it was my first database: a pack of 20 baseball cards loaded with numbers to memorize.

For many future actuaries, the math by itself was enough to excite us. Yet all through elementary school, middle school, high school and college, no teachers ever introduced us to the heroes of math. Why did they invent these math concepts? Who were these guys—Chebyshev, Riemann, Stieltjes, Lipschitz, Gauss? What problems did they solve? Did they have wives, kids? Who paid them to invent math?

By now, you have acquired your own heroes. Exploring their lives, we learn how they found the passion that drove them to extraordinary accomplishment, to overcoming intimidating hurdles. They found their personal noble purposes and their fonts of courage. (I invite you to learn more about four of my heroes—my inspirations—for their intellect, vision, artistry, interpersonal versatility and courage: Johannes Kepler, Alexander von Humboldt, Ada Lovelace and William Shakespeare.)

What will you gain from reading biographies of famous people and the Classics? You will learn how they put their ideas across to mobilize audiences, to be fully equipped to make moral and

ethical judgments, and to master the primary tool, our majestic English tongue.

Yes, courage comes in here somewhere if you are to reach your own heroic potential. Consider the competency of Communication. If you are to leverage your talent, you need to be comfortable in speaking to large audiences. The people who do the talking get a disproportionate share of life’s rewards.

*“What I’ve dared, I’ve willed, and what I’ve willed, I’ll do.”*

—Captain Ahab in Herman Melville’s *Moby Dick*

Fear of speaking ranks higher than fear of death in day-to-day living. Given the choice, many will prefer to be in the coffin over giving the eulogy. If speaking is holding you back, go immediately to a Toastmasters meeting. In six weeks, your fear will be substantially assuaged. Contact Nathan Worrell, FSA, MAAA, and a Toastmaster. Connect with him via LinkedIn. Toastmasters transformed his life.

First cousin in merit to the Toastmasters program is the Dale Carnegie course(s). A now very-senior actuary and good friend recounted his transformation through Dale Carnegie:

Cliff had always adored mathematics. To this day, he can recite 100 digits of  $\pi$ . By age 25, he had already completed the Fellowship exams, and was rewarded with his first management position. A year later, he received his first performance review. His manager told him, presumably with more tact: “Cliff, your management skills are grievously lacking. You need to improve your interpersonal skills in a hurry.”

Licking the wound, he recalled a conversation from childhood with his grandmother, “When your grandfather was starting his sales career after college, after the war, he was struggling terribly. His sales manager advised him to take the Dale Carnegie course. His sales and his career took off immediately from there, and today he has long been the anchor of our big family, the patriarch of the clan.”

Cliff approached his manager, appealing, “Boss, I agree I need to improve my skills, so I propose that you approve me to attend a Dale Carnegie course.” Mind you, the course costs about \$2,000 these days. It was not cheap back then, either. His manager’s reaction was, “Ah, that’s soft stuff with no substance. No, I cannot approve you to go to Dale Carnegie. Go to a pricing seminar.” Cliff proposed an alternative, “How about if I pay for the course myself, then you judge afterward whether it has improved my human relations skills?”

His manager reluctantly agreed, with nothing more committed.

A few months later, Cliff returned to his manager, certificate in hand. “Boss, I’ve completed the course. Will you reimburse me please?” His manager replied, “I’ve thought about it some more, but I still think that Dale Carnegie has no lasting value, it’s just play time, piffle.” Cliff probed, “Tell me why you feel that way.” His manager replied, “OK, tell me where to sign.” Obviously, Cliff had learned at Dale Carnegie an essential interpersonal skill—how to overcome objections.

Before moving along to the mechanics of how to use the SOA Competency Framework tool to create your personal development plan, yet one more hero deserves tribute: The Actuary Volunteer—to be specific, my former manager, Steven A. Smith.

Back in the mid ’80s, cash-flow testing was first introduced with a 25-page National Association of Insurance Commissioners (NAIC) regulation that deeply challenged the entire profession: how to implement it; what software to use; what hardware to buy. Smith was for eight years the chair of the Valuation Actuary Symposium. He was mother hen to every session, constant interlocutor at the Ask the Experts sessions at the closing of each year’s meeting. He absorbed every best practice and ported it back to his company. Even more valuable to his organization, he knew all the talented actuaries in the country. His own technical prowess was impressive, but his company grew mighty from all the actuarial talents he identified and reeled in. Leverage. You have to put yourself out there to reap the full benefit of being an SOA member.

And now, with the groundwork prepared ...

In our final installment, we will discuss how to implement your Self-Assessment results and personal development plan. In the interim, we welcome your feedback. Our goal is to have this series address your questions and needs and to help all actuaries of the future to design a future they will find meaningful and rewarding.

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## ENDNOTE

- <https://www.soa.org/news-and-publications/newsletters/actuary-of-the-future/pub-actuary-of-the-future-newsletter-details.aspx>



## Certified Actuarial Analyst



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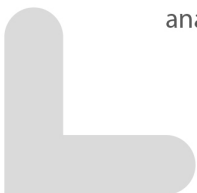
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# Actuaries in the C-Suite

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**A**t the 2016 Society of Actuaries (SOA) Life & Annuity Symposium in Nashville, the Entrepreneurial & Innovation, Actuary of the Future, International and Leadership & Development sections co-sponsored the “Actuaries in the C-Suite” interactive forum session, which I had the honor to moderate. A guest panel of actuarial leaders presented the challenges and opportunities associated with managing a company in today’s global marketplace.

In order to move into corporate management roles, actuaries must bridge the gap between day-to-day firm activities to take an overarching view of the corporation. This session included discussion on balancing the needs of internal vs. external stakeholders, as well as responsibilities such as setting company goals, formulating appropriate strategies, and understanding the organization’s presence internationally. Following are highlights from the session.

Think through what skills you can take from one field, and look at their analogy or application in another field.

## PANELISTS

- **Jason Alleyne, FSA, FCIA, FIA:** Co-founder and COO, Besurance Corporation
- **Laura Bennett, FSA, CFA:** Co-founder and CEO, Embrace Pet Insurance
- **Michael Smith, FSA, CFA, MAAA:** CFO, Voya Financial

## MODERATOR

**Kelly Hennigan, FSA, CFA,** 2015–2016 SOA Leadership & Development Chairperson. She can be reached at [kellymhennigan@aol.com](mailto:kellymhennigan@aol.com).

## COORDINATOR

**Bill Rearden, ASA:** Co-founder and strategy consultant at Ironbound Consulting Group. He can be reached at [bill@ironbcg.com](mailto:bill@ironbcg.com).

## ACTUARIAL ROLES

**Q: What are the obvious C-suite roles for actuaries? What are the less obvious but still possible roles?**

Michael: The obvious roles, many of which actuaries have held, are chief risk officer and chief financial officer. However, I don’t view the actuarial designation as what drives where you might have the potential to go in the C-suite. I think it’s more about what you aspire to achieve. It starts with how you build on your skills as an actuary, and then grow from there.

**Q: How frequently do you see actuaries in board and C-suite positions?**

Laura: This is the Life & Annuity Symposium and this insurance area is definitely dominated by actuaries in senior positions. In other insurance areas, like property/casualty, there are far fewer actuaries in the C-suite. It’s not, “you’re an actuary; therefore, you can think of yourself as being entitled.” Culture is important and what you bring to the role.

**Q: If you have an interest in being on a board, or ultimately getting on a track to be on a board, are there any tips as to how to go about doing so?**

Michael: I’d suggest starting with ways you can begin to build the experience of what it’s like to be on a board. There are many opportunities to get that experience, such as a condominium association or a nonprofit board. Many boards are looking for people with experience and skills that can add value to the organization. Think about how and what you can bring to add that value to the board, whether it be your understanding of finance, insurance or other professional skills. From those initial board memberships, you can look for industry and professional opportunities. Not unlike networking to advance your career, think about ways you can leverage your network to learn about and pursue board opportunities. It’s harder to get onto one if you’re just a name on a piece of paper, because there are a hundred names on a list, so networking is really important.

## SKILLS AND EXPERIENCES

**Q: How do you get leadership experience, especially working in a technical role while going through the exam process?**

Jason: Think through what skills you can take from one field, and look at their analogy or application in another field. A lot of leadership training is looking outside of oneself and looking



at lessons learned in other areas. What you'll find is that leaders have a vision of how their team wins.

**Q: Do you think the days of being a technical actuary are numbered?**

Laura: Gone are the days of the technical person who knows nothing about broader business. I do think that even if someone is very technical, they must have a broader understanding and provide the best work in context.

**Q: Are there any additional designations or qualifications that you think make actuaries more attractive?**

Jason: Whatever journey you are on, the journey will define what you need to learn. I did a lot of traveling; I have worked in Barbados, Jamaica, Canada, U.S., U.K., and stints in Scotland. The journey is whatever it is. Even if you don't get the designation, but all you did was read the materials and started to speak the language of the communities you were in, that is going to advance how people perceive you. I worked in all these countries that speak English, but they speak English differently, and use technical terms differently. They speak with their own colloquial perspectives. Learning is very community-focused.

**Q: During the first decade of your career, where do you draw the line between diversification and specialization in a career?**

Laura: I'm a big believer of gathering experiences, which is why I strongly urge people to go international for a bit. There's nothing better than that kind of experience to open your eyes. You learn a lot, but also your reputation is enhanced. At some point you have to decide what direction you are going, and what it is you really want to do. It could be general, such as "I would like to run a company," "I want to be in the C-suite," or "I prefer to leave and work at a consulting firm." Whatever it is, you can take what you have done and start to hone it more directly to what you want to do.

Michael: What Laura says is really true. Figure out what you want to be. What has driven me is the desire to learn new things, so that has led me to a fairly diverse background. I didn't set out to be what I am doing today; I set out to learn new things, and it led me here. The other thing I would say is: Be patient. It doesn't happen overnight. I was in mostly technical roles for the first 12 years of my career, and then I found myself taking on broader leadership roles.

**Q: Beyond technical skills, what advice or insights can you share in transitioning from a very technical actuarial role to a more high-level position?**

Michael: Everybody's "how" is different. I think people with a technical background reach a plateau and think the only way to make more money or get more responsibility is to become a manager. If you want to be a good manager, then you have to



take the time to invest in it. You'll need to be focused on making sure your people are in the right jobs, that they are growing and developing, and that you are creating a team. Recognize that as you move into a leadership role, all the technical stuff—to a certain extent—kind of goes away. It gave you a strong foundation and will serve you well in the future, but it will no longer be the only thing you are going to be able to rely on as you advance in your career.

Laura: I would just add—with any role—whatever your next step is, to just start doing it so that people see you that way. You have to be perceived as a leader before you can be one.

Michael: I would really echo that. As someone who tries to evaluate talent now and assess who is going to be able to take on new roles, that is a big part of it. If I look at someone and can't see them standing in front of a room of 400 people leading

them through a business situation, then I'm not going to promote them. If leading large teams is something you aspire to achieve, look for the opportunity to build that experience and seize the opportunity when it comes, because it isn't going to be just given to you.

Jason: Just to pick up on some of that, I like the idea that you start at the beginning, start small, start where people are willing to give you a bit of a forum. Accept that things are not black and white, and bring insight. The personal journey is what makes the insight.

**Q: Are there any particular experiences you would recommend actuaries seek out?**

Laura: We [actuaries] are very strong in what we know, and not so strong in the things we don't know. But I don't know if we know what we don't know. You have to stretch yourself. I think that is one of the best things you can do, and then you realize what you don't know. Taking an international posting is a bit more of an extreme version of that, but it keeps you on your toes; you have to think about things differently.

Michael: Learn to distinguish the general, nice feedback from real, genuine feedback, and cultivate the latter. Take it to heart. It is hard to get people to give honest, direct feedback. Find people who will give you that, find companies that cultivate a culture like that, and use it to better yourself. That is really important as you go forward.

Laura: When I qualified as an actuary, I was petrified of speaking in public. You wouldn't think it now, but I really was. I had no experience at it and avoided it like the plague. So I ended up taking a class at a local high school, actually in Ireland, where no one would know me. Public speaking will help you in speaking to anyone who causes you nerves and anxiety. Whether it be presenting to the senior management or in front of a board, just being able to speak is very helpful, and I would do it sooner than later.

## NETWORKING

**Q: In smaller companies, certain roles and responsibilities may come faster than in larger organizations. How does one balance level of responsibility vs. years of experience?**

Jason: You have to reach out to your network. When I took this role three years ago, I literally met as many CEOs as I could. You need to look to other people and look for those other people—the experts who are going to help you be a better you.

Laura: Find a variety of people, because each one will have their own value. Just ask. People are very generous when you say, "This is what I'm trying to do, and I would love to take you for coffee and talk about it."



**Q: Laura mentioned people are willing to network and volunteer their time to talk to others. How does one best prepare for those conversations?**

Jason: Michael made a good point earlier—first start with what you want, a vision of the next five years, or even the next three years first and then the next five years. I prepared my map by writing and reading, then I started to ask people in my own network, “I want to speak to someone like this. Do you know this type of person?” or “Would this type of person be willing to speak to me?” What I found, to Laura’s point, when you put those feelers out, people actually respond. I met with at least five CEOs in a short period of time just by asking them.

#### CAREER PATH

**Q: We have talked here about developing skills when taking on new roles. To what extent have you needed to de-emphasize your actuarial credential?**

Jason: As you work through different communities, whether leadership communities or executive boards, or whatever management team that you are in, there is a language of that group. It is not about de-emphasizing; it is more about speaking the language of the community.

Michael: I happen to have an actuarial background, but my professional path has taken me to a different place. So I agree completely with Jason: Don’t worry about it as de-emphasizing or avoiding. You are the culmination of everything you have done up to that point. Take advantage of what you have.

**Q: Can you share with us a difficult challenge or choice that you made?**

Laura: Starting a company from scratch while raising a family; I can’t think of anything more challenging. I think as actuaries our skills are very well-suited to new ventures: You have to work with very little information.

Michael: Careers take any number of paths and are influenced by not hundreds but thousands of things. My degrees are in Russian studies and economics, and the path I took was certainly not linear, but it began by pursuing what I was passionate about and what I liked to do. Learn what makes you tick, then make your career a part of that. If being in the C-suite is something that makes you tick, great, but think about it as a journey.

#### INDUSTRY

**Q: How do you stay on top of your competitors? How do you keep track of current news and current events?**

Jason: Whenever we see a new startup, or a new competitor, or even an incumbent, we map ourselves against them as a differentiator, being very clear on how our vision and execution connect. That is what we think and talk about a lot every day.

Laura: We came into our industry when there were seven other companies doing pet insurance, even though it was not very well-known. We designed our product and service to be valuable, where people have an amazing experience, and a very personal and not transactional relationship. We have these conversations as a company, because everybody at every level of our organization is hearing the comments about what competitors are doing and what their products are.

**Q: Any thoughts or comments on technology, social media and external forces, and how they impact your business view? How do you adapt to them?**

Michael: Technology has unquestionably impacted our industry. Some may find this disruption uncomfortable, but it can add value to the work we do and to the customers we serve. We are here to help people navigate through really difficult situations. Technology gives us an opportunity to expand how we think about the consumer of insurance, the person helping that customer and what would make their experiences better. If we continue to view technology as something that can enable how, where and when we help our customers, then we can take advantage of the disruption.

Laura: Technology in general has just changed the world so much, even just the ease of doing business. People want things to be very easy, to control their experience, the products they buy, and to personalize it. That changes everything. People are much more likely to believe a review site than anything a company has to say, whether or not it is an actual portrayal. So, we spend a lot of time managing our online presence.

The Entrepreneurial & Innovation, Actuary of the Future, International and Leadership & Development sections thank Jason, Laura and Michael for joining us at the 2016 SOA Life & Annuity Symposium for the “Actuaries in the C-Suite” session. We look forward to sponsoring similar future sessions at SOA meetings in 2017 and beyond. ■

# An Unorthodox Guide to Actuarial Communication (Part 1)

By Dave Snell

**W**riting this article took me a few hours ... and 50 years. I'll start with a disclaimer. I have no degrees or certifications in writing. For much of my life I was a terrible speller ... still not great. However, I write a lot and I enjoy it.

This article is going to seem a lot like it is oriented toward speaking rather than just writing. That's because I believe the two are highly correlated. If you force yourself to write short speeches, you will build the skills to write short reports, short proposals, short summaries, and so on, and you will have the opportunity to practice with all of your friends, who probably won't be as willing to read your memos as they might be to listen to your ideas.

In this article, I will not be reiterating all the standard rules you will get in a book on writing. There is a plethora of books on grammar and on writing. You are actuaries. You know how to read and study books. *Elements of Style*, by William Strunk Jr. and E.B. White, is a wonderful reference, and you can get it at very low cost. In fact, a Kindle version is currently *free*!

If you search Amazon for books, or Google for websites, you will find more material on the basics of writing than you can ever read. My intent is to skim on anything readily available from other sources and give you a different perspective on writing—one that I have found useful in an actuarial environment.

## WRITE, WRITE, WRITE!

First, though, I have to repeat a common theme in books on good writing. If you wish to get a comfort level with writing, then you have to practice writing. I want to emphasize it: Practice does not always make perfect; but avoidance almost always results in inferior or mediocre work when you actually have to do it.

When my wife was starting a graduate program in English, the professor in the first class asked each student why they were taking the class. The student just before her said he was in the English doctoral program, and he was in it because he wanted to be a famous popular writer. The professor said that if he wanted to

become a famous popular writer, he should get out of the classes and start writing, because no famous writer other than J.R.R. Tolkien had a doctorate in English. The formalism of a doctoral program in English generally ruins whatever creative writing ability one might have.

My point here is that reading about writing is useful, but not nearly as useful as writing ... and writing ... and writing.

I have been writing for a long time. Prior to my actuarial career, I was editor, publisher and owner of a weekly magazine, and later an engineer and technical writer who wrote a 3,000-page manual describing how to overhaul a military jet engine (which I no longer have the security clearance to read). I have authored or co-authored several chapters of Life Underwriter Training Council (LUTC) textbooks. When I was in the brokerage business, I was editor of the Redwood Empire Association of Life Underwriters (REALU) newsletter, which won the best in state award (California) for two consecutive years. I wrote the bulk of the boring patent wording for a process I co-invented involving predictive analytics and machine learning for underwriting (U.S. patent 8775218); but my preference is to write for readability.

## CONSIDER YOUR AUDIENCE

In order for writing (or speaking) to be effective, it must be read (or heard), so the reader (or listener) is an important part of the communication process. I'll continue about writing; but assume the same logic applies to speaking.

The more you know about your readers, the better you can write effectively to them. Many management folks are going to be turned off by overly mathematical proposals and reports. On the other hand, a very technical actuary will not want to read pages of poetry instead of meaningful graphs, charts, tables and equations. If in doubt, try to find out the preferences of the intended readers and customize your message accordingly.

Consider your audience of intended readers:

- Technical background
- Personality
- Hierarchical position
- Cultural background
- Tolerance for “edutainment” (educational entertainment)

Additionally, always have an awareness of the unintended readers.

Reading about writing is useful,  
but not nearly as useful as  
writing ... and writing ... and  
writing.

#### ALWAYS DEFINE YOUR TLAs ON THEIR FIRST USAGE ... AND YOUR TLAs, fLAs AND FLAs

TLAs are three-letter acronyms. Along with tLAs (two-letter acronyms), fLAs (four-letter acronyms) and FLAs (five-letter acronyms), they tend to be terribly overused. Never assume that your reader will automatically know them. Senior management, in particular, has its own set of acronyms and may misinterpret yours. If you want to see a vivid example of acronym ambiguity, Google SOA on a non-actuary's PC and the number of hits for "service-oriented architecture" greatly outnumber those for "Society of Actuaries."<sup>1</sup>

#### ADJUST, IF PRACTICABLE, TO THE PERSONALITY OF YOUR READER

A lot of companies have had their employees go through personality profiling. Insights is one popular service, and most of our company has participated in it. Your company may have similar initiatives. To oversimplify, in their system, each person is classified as a personality type and the personality types are assigned one of four colors. RED is a Reformer, with little patience (motto is "be brief, be bright, be gone"); GREEN is a Helper, who always wants to assure buy-in and cooperation ("show me you care"); and BLUE is the observer, who wants to assimilate a lot of facts prior to making a decision ("give me details"). Not surprisingly, most actuaries are classified as BLUE. I came out as a solid YELLOW, which is labeled an inspirer ("involve me"). My wife says it is a perfect fit for me.

I used to have a boss who was also a YELLOW, and my typical communication to him, was "Hey! I just had this idea that we could go to the moon." His answer might be "Great! But let's not limit our options like that. Why don't you also write up a plan to go to Mars and Venus? We could probably get to Jupiter by year-end."





Now, my boss is a deep BLUE. That same conversation might go like this. “The moon, you say? That sounds somewhat aggressive. Can you send me some documentation of how we might first get lift-off, airborne, altitude metrics and fuel capacity? What studies have we done to support this assertion? What fallback positions will be in place if the weather is bad?”

Now, obviously, I am overstating both conversations; and that’s part of my personality. But the point here is that with some managers, you will need to take smaller steps or suffer through rounds of requests for more documentation; and with others, you don’t want to bog them down with too many details and risk them losing interest before reading what you want to propose.

Watch and try to figure out the personality of your managers or management, and write accordingly. Since so many actuaries are BLUE, I offer the following tip if your proposal will be for something highly innovative and that will involve high risk. Ease into it over time. I used to have a BLUE manager and when I tried to cut through bureaucracy, it backfired big time. I wanted a PC in our department (back in the days when this was heresy). As a vice president, I had the authority to spend the princely sum of \$1,000 without other approvals. Back then,

a PC cost more than that, so I bought the parts separately and built it. When I tried to connect it to our mainframe, I needed the building staff to cut a hole in the floor for the connection to our network. Cutting a hole in the floor took an executive vice president (EVP) approval back then, and I was caught. Once the EVP figured out the reason for the hole, he sent me back to do about three months of cost justification for the PC.

What I learned to do with him was to give him time to get used to a new idea. In that same situation, I would come to him just before he left work and say, “Phil, I am thinking about recommending a new computer for the actuarial area but I’m still thinking it through and won’t be able to recommend anything for a few more weeks.” The following week, I’d stop by again and tell him, “I am making some progress on my recommendation for that new PC. I gathered project estimates from the pricing actuaries showing that the costs will be amortized in less than a month, and I hope to have something consolidated for you to see in another week.” By the time I actually made the recommendation, he had lots of time for background processing and it did not seem like a scary new idea any more. In fact, he was already on board and ready to sign.

## PUT IN APPROPRIATE REVIEWING TIME TO REDUCE READING TIME

*“Je n’ai fait celle-ci plus longue que parce que je n’ai pas eu le loisir de la faire plus courte.”*

(“I would have written a shorter letter, but I did not have the time.”)

—Blaise Pascal (probably around 1656)

Another aspect I have to consider when writing a report to senior management is that usually, the higher in the organization, the less time she or he has to read any particular report or proposal, so pare it down as much as you can without corrupting meaning.

The phrase “less is more” sounds a bit strange at face value; but it often is true. If you can hone your main points down to a memorable sound bite (“Every kiss begins with Kay” or “Wheaties, breakfast of champions” or even a more recent one to “Make America great again”), you have a much better chance of selling your ideas.

One of the most memorable written messages in World War II was only one word long! In the battle of Bastogne, an American army unit was surrounded by the German army. The German army commander sent to the American army commander a letter requesting the Americans to surrender. Major Anthony McAuliffe, of the American forces, replied back a one-word message: “Nuts!” The ironic part of the story is that the German army was so assured of a surrender, they had moved the heavy artillery and tanks on to the next town, which was their real objective. The Germans never did manage to capture the town. McAuliffe was promoted and given the Distinguished Service Medal for saving so many lives.

One of the most memorable written messages in World War II was only one word long!

Newspapers, TV news programs and popular internet blogs tend to realize that they have to compete for your attention. They place the most compelling information up-front, to grab your interest; and they gradually bring in the details so that if you lose interest partway through, you still get their main message.

This suggestion is especially useful if you are writing a recommendation and you need a quick approval.

## PAY ATTENTION TO SPELLING AND GRAMMAR

Don’t let a great idea get diminished by sloppy execution. Even though spelling is not my personal strength, I have a pet peeve about spelling and details on resumes that come to me. I once saw an otherwise highly qualified IT developer who was having trouble getting a job. His resume listed his extensive expertise in C+. As many of you readers know, there is no programming language named C+. I decided to interview him anyway, and when I asked him to explain how C+ differed from the actual programming languages C and C++, he discovered that the recruiting agency had thought they had corrected a typo on his part and removed the second plus sign. He was furious. The main point here is to always insist on seeing your resume that is sent by a placement firm.

Above all: Don’t forget to proofread! If possible, get someone else to proofread after you have done your own proofreading. Once, I ran one of my slide presentations by some friends in our corporate communications area and they pointed out, among other things, that I had spelled “technology evangelist” wrong on my title slide! If the document is important, try to get an independent proofreading.

## TRY TO AVOID OBSCURE WORDS WHEN SIMPLE ONES SUFFICE

One member of our board of directors attended a complex science presentation I gave at Washington University. He said he had written something on a similar enterprise risk management (ERM) position and wanted me to review it. It was 29 pages, but the language was very academic and it took me most of a weekend to understand it.

My read convinced me that his ideas were brilliant, but that they would go unheeded because he was being far too academic and it was very difficult to read. He had an extensive vocabulary in English, French, Latin and Greek, and he used it throughout the document.

I prefaced my criticisms with the fact that I had to do a quick review of my Latin, and some French; and yet some terms such as “exegesis” and “eisegesis” were still Greek to me. Then I proceeded to describe his great ideas in my words and to question his overly academic phrasing.

He replied “More than a few have commented on my paper, but none more thoughtfully,” and we have corresponded pleasantly ever since then.

Sometimes more common words can convey your ideas more clearly than academic ones. Likewise, be careful not to refer to stories that you know may confuse readers who have not read those stories.

Another incident I had with a boss from another continent happened when I wrote in one of my status reports that on this particular project, I felt like Sisyphus. He wrote back saying he did not know who Sisyphus was, and that I was too erudite for him. I wrote back with a link to the story of Sisyphus, the man destined to push a rock up a hill only to have it continually fall back. But I also admitted to him that he should not feel bad because I had to look up "erudite."

### RESPECT THE CULTURAL DIFFERENCES OF YOUR READERS

In one of my first presentations in Australia, I talked about a new product idea that was a sure "home run." It failed to get the response I expected, because cricket was more popular there than baseball, and the more appropriate phrase would have been to "hit a six." Likewise, I missed getting impact of phrases such as "when the dawn struck," which was better expressed as "when the penny dropped." Prepare for your audience by understanding some key phrases in use. We would read the Australian newspapers and be bewildered at first by articles about the Vinies (Saint Vincent De Paul Society), the Salvos (the Salvation Army), getting a rego for your car, and going to a physio for a muscle strain.

Back when I started studying Chinese characters, I was called into a negotiation for a service level agreement (SLA) between our IT department and one of our Asian offices. It seemed that no matter what the IT area offered, the office head kept coming back demanding one more feature in the agreement. This had gone on for a few months, where IT would try to figure out how to give the extra feature, then another one would be demanded before signing the SLA.

I sent the office head an email detailing the frustration of the support area and trying to impress upon him that we could not continue this procedure because the incentive compensation deadline for IT was only a week away; and if the SLA was not signed by then, it would be dropped entirely. The email fell on

deaf ears. He still wanted extra concessions. In a moment of inspiration, I sent him an email with just these four characters:

## 拔苗助长

Within 10 minutes, he sent back an email saying he understood, and he was signing the current SLA. It was the high point of my success with Chinese and I was a hero to our IT area for days.

The four characters are *Bá miáo zhù zhǎng*. The literal translation is pull sprouts, help grow. These characters refer to a story nearly everyone learns as a child in China. A farmer was impatient to see his crops grow, so one night he dreamed up a way to get an edge over all of his neighbors. He got up very early and pulled each seedling up an inch or so to give it a head start. By nightfall, he was exhausted, but very pleased with himself, and told his family they would be rich because he was so clever. The next morning, to his horror, all the seedlings had died because he had destroyed their root systems; and the short meaning is to spoil something by excessive zeal. Sometimes, if you pull too hard, you destroy that which you wanted to accomplish. Like the U.S. commander at Bastogne, I used this short message to avoid a surrender—and no IT incentive compensation lives were lost.

In the next installment of this series, I plan to give practical tips on how to write to Westerners if you are Asian; and how to write to Asians if you are from the Western world. I will also give some tips on using humor in your writings—when it can be effective; and when it can be offensive.

Until then, remember first, to write, write, write! ■



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### ENDNOTE

- 1 Service-oriented architecture refers to an architectural pattern in software design in which application components provide services to other components via a communications protocol, typically over a network. It is what millions of programmers think of when they see the TLA SOA.



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