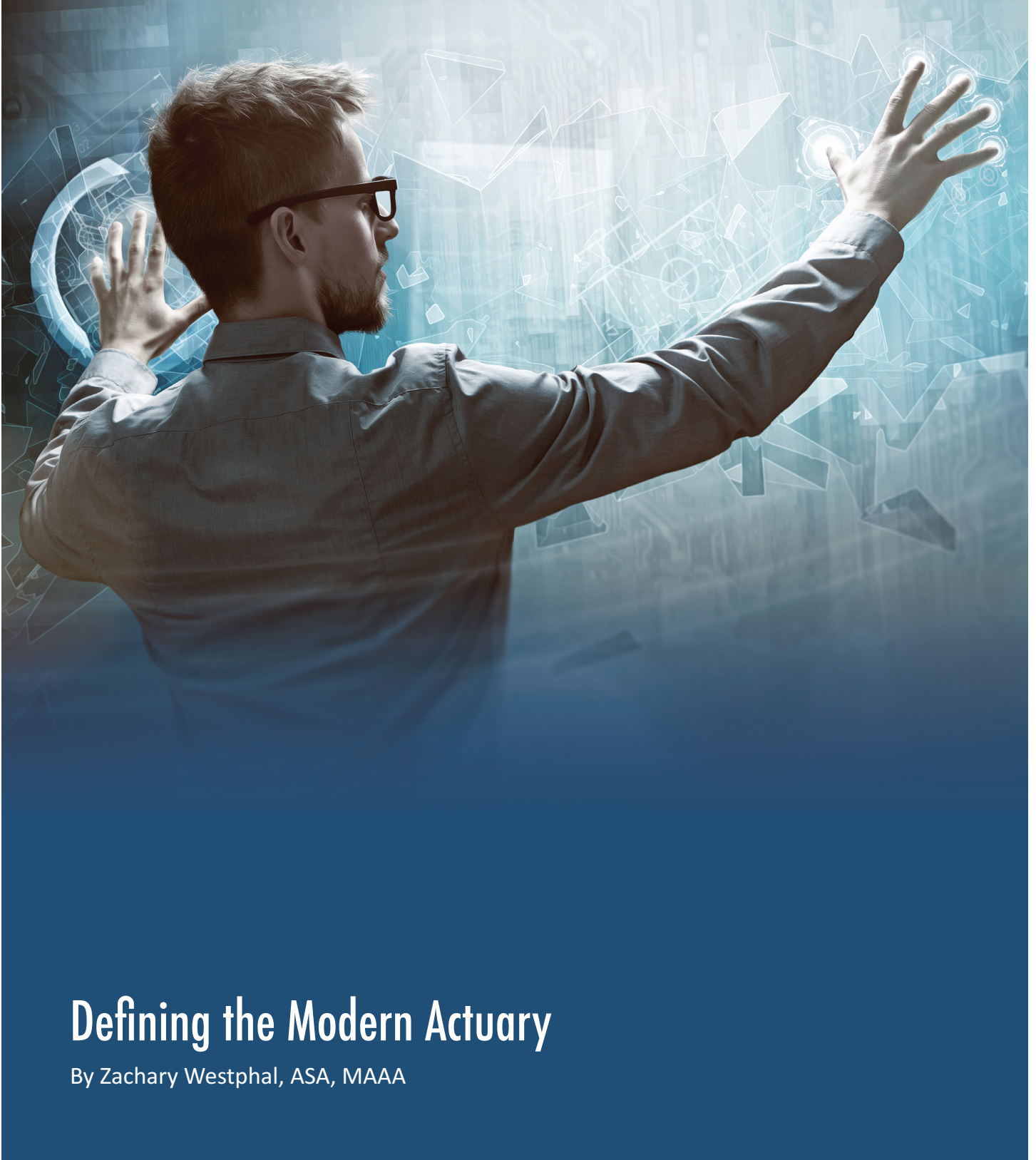




*Inspire*



# Defining the Modern Actuary

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## Introduction

When many people think of an actuary their mind immediately goes to a very nerdy introverted person. They may picture a person who sits behind a desk and crunches numbers but lacks the social and communicative skills to converse with others. An example of this is Ben Stiller in the movie *Along Came Polly* where he played a risk assessment expert, AKA an actuary. This stereotype may have been true at one point in time, however today's actuary is very different than the actuary of the past. While mathematical number crunching is an important skill for an actuary to possess, it is only one of many skills that help to make a successful and skilled actuary. Actuarial skills now include mathematical understanding, data modeling, database management and technical coding. A good understanding of financial statements and business management is very useful and in some cases required. Technical skills are important, but the ability to communicate and explain results is imperative. A successful and skilled actuary in today's world requires a more diverse skillset than most would imagine.

## Mathematical Understanding

Understanding the underlying complex mathematics is an important skill for actuaries. On the surface, this appears to be a very stereotypical actuarial skill. If an actuary is unable to grasp calculus, statistics, or probability it will be unlikely that they are able to quantify risk or the financial implications of their produced results. In addition to the understanding of complex mathematics it is also important an actuary be able to properly and readily produce basic arithmetic as well. Actuaries are often asked to produce quick estimates and summaries of results. If an actuary is unable to perform basic arithmetic they are at risk of incorrectly producing these estimates and summaries.



**Technical skills are important, but the ability to communicate and explain result is imperative.”**

While understanding complex mathematics is very important, actuaries also need to understand the process to which the math is used to solve problems. The ability to anticipate, identify and clearly define a problem is also learned through the process of understanding complex mathematics. This is not always viewed as a stereotypical actuarial skill but it is equally important to know how the math works. One senior level actuary told me, “I am a big fan of curiosity or being a curious actuary. Digging in and trying to figure it out. Insatiable curiosity separates people.”

## Modeling and Technical Skills

Actuaries are often asked to create and maintain models. To create a model, an actuary will need to have analytical, problem solving and computer skills. Often when developing a model, the actuary will be working with big data sets that will require analysis to develop summaries and identify patterns found in the data. The actuary will need to troubleshoot any data and analytical problems during development while also understanding why they exist. Modeling and analysis will take place in the actuaries preferred data analysis software (i.e. Microsoft Excel, Access, R, etc.). Using data modeling software requires the actuary to not only understand the functions of the software, but also be tech savvy enough to build and maintain a model that is understandable to the user. An actuary will need the ability to use models as a tool to help figure things out. It should be remembered models alone are not the answer, it is the actuarial understanding of the model that is important.

Prior to developing any actuarial models an actuary first needs to be able to access large data sets. This will require additional technical skills and is often done by reviewing databases. Large datasets can be accessed by querying (coding) within a database and reviewing the results. Querying databases can be done in various coding languages (SQL, SAS, R, Python, etc.). It is important an actuary first understand the logical process of coding and then focus on specific languages. For larger datasets, the actuary will need to use more robust querying skill to summarize data to a size a model will be able to handle. An actuary will need to be able to not only review and understand old data queries but also write new queries to pull data for projects. Computer and coding skills are often overlooked as an actuarial skill but are necessary to be a well-rounded actuary.

## **Financial and Business Understanding**

A key part of understanding a business often overlooked is the concept of risk. Limiting exposure to financial risk is a key component of an actuary's job. The idea of enterprise risk management is often viewed as new, however it has always been a major part of an actuary's day to day job. Actuaries find themselves employed by businesses and insurance companies, and often are working on financial results for companies where they will need the ability to connect the results found in the data to how a business functions. An actuary needs to understand the financial implications of any task or project completed. It is important these financial implications fit within the overall business process. Understanding financial concepts and how they affect a business portfolio is key to an actuary's final recommendation and explanation. An understanding of the business as a whole helps the actuary quantify their findings and how they would affect the bottom line.

## **Communication and Project Management**

In addition to the mathematical, analytic, technical, and financial skills an actuary requires, it is equally important for an actuary to have strong communication skills. Much of the work an actuary performs is very complex but needs to be understood by non-actuarial business units. An actuary should be able to give both verbal and written explanations of results that are easily understandable. Once an actuary has finished a project they are often required to summarize their findings in an actuarial memorandum or present a detailed report. The ability to write to an audience and help them understand complex topics in a simple manner is key to an actuary's success. Many actuaries are required to present final results at meetings to all levels of employees which requires strong oral presentation skills. The balance of presenting results based on intense mathematical calculations to an audience that only needs a high-level understanding is crucial to a successful career as an actuary. As much as the details of the calculations seem important, the output/results are what really matters in the end. It has been said that a good consulting actuary is able to take high level calculus and make it understandable to a third-grader.

A successful actuary should consider themselves a business partner to the other leaders in an enterprise. Actuaries will often lead teams to complete projects. These teams will consist of both actuaries and non-actuaries. Being able to communicate and work with people of all backgrounds and skill levels while ensuring projects are done in a timely manner is important. Communicating among various business units requires a strong understanding of the enterprise's value proposition, business model, financial statements, and marketing.

## Conclusion

It is often thought the mathematical side of the brain is not creative at all. This is a misconception as finding unique answers to complex questions is at the heart of what we do. Creativity combined with mathematical, programming, financial, and communication skills will set apart any actuary. Actuaries do not need to always function inside the box. The business environment is always changing and being creative is the only way the actuarial profession will be able to keep up with the market and be able to change and guide in the future.

Once upon a time actuaries were considered introverted number crunchers that were never asked to be creative or communicate with others. Over time the skills required of an actuary have evolved into what makes a modern-day actuary great. The stereotypical actuary of the past is now just a distant memory, as the truly great actuaries of today have skills well beyond bean counting. The broader an actuary's skillset, the more impact they will have in the end. The sky is the limit for an actuary that is creatively well rounded and ready to break out of the mold once considered normal.

## About the Author:

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