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Small Talk

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Addressing Actuarial System Risk at a Small Insurance Company

By Mark Rowley

We all have system risk. As an actuary I define this simply: It is the risk that I messed up and made an error that led to bad pricing, bad financial reporting, or some other error that led to a flawed decision.

There are more and more meetings and articles these days about controls, model governance, and other similar topics. This is good and helpful, but oftentimes the ideas work best for a large company.

In this article I share what a small actuarial team has been able to do to improve controls over the last several years. I am the only credentialed actuary at my company, and I have two full-time team members plus an intern from nearby Drake University. This means I am a generalist and know enough about many things to be dangerous!

With my small team the thought often goes through my mind that we do not have the resources to add controls to our processes. However, I think more often that we can't afford to not add controls. Reducing errors is critical if the actuarial team is going to make a difference in the success of the company.

We have improved the frequency over the years of having two sets of eyes look at a work product before it goes out. This simply means we have one person do the work and a second person check it. This is challenging with a small team, but it is important.

When we document and automate, inevitably we end up with better controls and productivity.

WHAT WE ACCOMPLISHED WITH EXCEL SPREADSHEETS

A few years ago we had a quarterly valuation process that needed help. We decided to create an Excel spreadsheet named "Step-by-Step." It organizes our financial reporting by:

- Providing excruciatingly detailed instructions for each financial reporting task
- Assigning target dates
- Ensuring there are two sets of eyes (a "doer" and a "validator")

Our first attempts to create such a spreadsheet were lacking. We focused on improving the spreadsheet each quarter for years. Finally, in 2015, we have a stable spreadsheet. The result is a quarterly financial reporting process that takes a lot less time, is much less error-prone, and provides a lot more time for analysis.

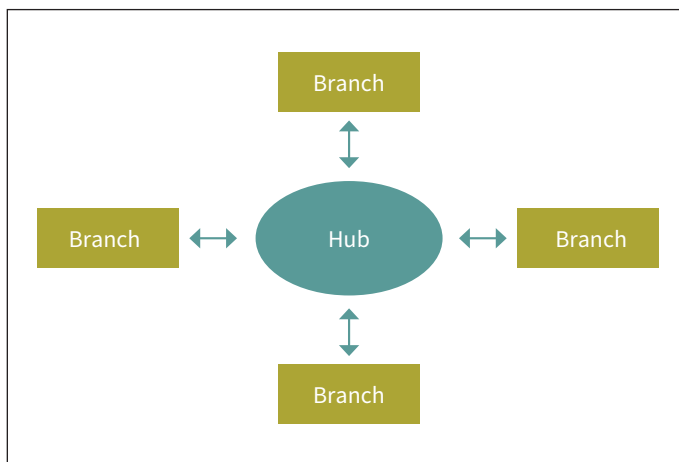
Part of this process was to re-engineer our many spreadsheets, which was time-consuming. These were the things we focused on related to spreadsheets:

- Limit access to actuarial files.
- Back up files every night.
- Use version controls.
- Keep track of changes.
- Identify source of data input.
- Identify when data changes.
- Color code—formulas vs. inputs.
- Put totals at top.
- Don't use Excel functions that are not "controlled," such as "Indirect," "Lookup" or "Offset."

WHAT WE ACCOMPLISHED WITH ACCESS DATABASES

Another part of the process was to re-engineer our databases. We currently use Microsoft Access, but are in the middle of migrating to SQL. We re-engineered our Microsoft Access databases into a hub-to-branch structure (Figure 1).

Figure 1



The hub is the central database that stores time-sensitive data. In it we closely monitor whether data gets updated, since we have had problems inadvertently using data from the wrong

quarter. The branch databases are linked to the hub, and each database is dedicated to a single task.

We use macros to automate tasks. We are migrating to SQL since it has better capacity to handle the large amount of data we use. Getting to SQL will be another great improvement.

WHAT WE HAVE DONE WITH FINANCIAL MODELS

We use GGY AXIS as our software for financial models. We employ our financial model for all financial projections, internal and external, including asset adequacy analysis.

In 2015 we initiated a model governance procedure. A key tenet in model governance is to have two sets of eyes review changes. It is interesting to me that when I attend a Society of Actuaries (SOA) session on model governance, the presentation is about all the different actuarial departments involved. They describe a great way for all the different people to play a particular role. Since we have two AXIS users, all of these roles get mapped to either me or one member of my team.

We are in the midst of a huge effort to add controls to our model. We are:

- Doing an inventory of all inputs into our model
- Auditing the tables in the model vs. our administrative system
- Documenting in 2016 why we chose each assumption.

Through this process we inevitably find errors, and we use our model governance procedure to fix the errors, to make sure the impact of fixing the error is as expected.

TEAM MEMBERS

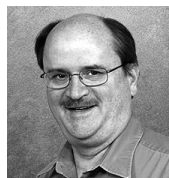
When I hire team members I look for strong computer skills. My team members have done the great bulk of the work and deserve the credit for the progress that has been made. Interns are, of course, inexpensive, and I have had no trouble finding interns with strong computer skills. Since the goal is to improve controls, the makeup of my team works very well.

PROGRESS

Quarterly financial reporting is much more of a smooth, routine task at this point. Productivity has increased. However, what I like the best is that our error rate is down. We are not messing up as much!

Our most stable step-by-step spreadsheet is, as I said, for quarterly valuation. We have made great strides this year with our spreadsheet for financial projections, but it needs to be tested quarter by quarter and improved. In 2016 we are planning to add step-by-step spreadsheets for other processes such as pricing.

When I make a list of additional controls that could be added, it is endless! We need to keep moving forward or we will fall back. Doing this is critical to having an actuarial team that is making a difference in the company's success. ■



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