The Elephant in Your Office – Spreadsheet Risk

These days, risk management is a hot topic of interest. ERM, risk appetite, LAGIC, ICAAP… they're all about managing risk. Insurance risk, market risk, credit risk, operational risk, reputational risk… the list is endless. Identify it, measure it, report on it, mitigate it, manage it – enough work to keep many of us busy for the rest of our working lives.

However, for most of us, there is a huge elephant lurking in our risk management room – an obvious source of risk that we encounter every day, possibly without realising it; a risk we probably don't identify or report or manage, because we're too busy living with it. In fact, when we do report and manage our other risks, we probably use this source of risk to report and manage it for us!

I am talking about the humble Excel spreadsheet.

SOME SCARY SPREADSHEET STATISTICS

In July / August, I did an Insights session called *Spreadsheets: Blessing or curse?* The session examined the pros and cons of spreadsheet usage. Building on from that base, I want to examine in this article just one aspect of the 'spreadsheet problem' – the huge risks spreadsheets pose to our business enterprises, and what we need to do to manage that risk.

Firstly, let's identify the problem by mentioning some very scary facts (all sourced from http://mba.tuck. dartmouth.edu/spreadsheet/product_pubs.html, an extensive survey of spreadsheet practice carried out by researchers):

1. The average technical worker generates nine new spreadsheets per week. If just 1% of those spreadsheets can be considered "major" developments, that adds up to five new major spreadsheet per technical employee p.a.
2. For such 'major' spreadsheets, the average size is more than 1000 cells.
3. Spreadsheet audits show that, for those spreadsheets presented for external review, 94% contain errors, and between 5% and 7% of individual cells contain errors.

That adds up to a lot of spreadsheet errors waiting to impact your bottom line. True, most errors are non-material… but not all of them. Recent history shows us that, even in the most well-regulated offices, major errors can creep through:

- Two of Australia's top four banks have suffered significant (and very public) reputational damage as a result of spreadsheet errors. In one case, the bank had to suspend trading and report a $2.8 billion security breach; in the other, the error triggered a 13% drop in share value in a single day.
- In 2010, MI5 bugged over 1000 totally innocent phone subscribers because of a spreadsheet error. (Thank goodness the mistake wasn't in their 007 division!)
- Fraud is a risk we don't often contemplate, but a single rogue trader at Allied Irish Bank in the early 2000s manipulated external links in the bank's reporting spreadsheets to falsify his personal trading position. Neither internal review nor external audit picked up the deceit until he had defrauded them of $700 million.

There are many, many more examples of this sort of thing – you can look them up for yourself at http://www.eusprig. org/stories.htm. It is sobering to read.

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WHAT CAN WE DO ABOUT IT?

In almost every financial institution, the statutory accounts, the actuarial liabilities, the capital position, the profitability of new products and the valuation of investment assets are all heavily influenced by spreadsheet processes, so this is obviously a source of risk that actuaries need to care about.

But what can we **do** about this huge elephant in our risk management room?

We cannot **eliminate** the risk – spreadsheets are too endemic in our world, and there are powerful and compelling reasons why that is so – so we need to learn to **mitigate** it.

One obvious solution is to check all spreadsheets thoroughly. This, of course, is an essential part of those spreadsheets that are used for major reporting or external purposes. However, as a general solution, it has major drawbacks. Firstly, it is time-consuming and expensive. Secondly, it is incredibly hard to do well (have you ever tried to thoroughly check someone else's spreadsheet?). Thirdly (and most importantly), it does not allow for the fact that spreadsheets are dynamic tools – that is one reason they are both popular and powerful. Some of the most significant spreadsheet errors creep in *after* they have been thoroughly tested, when someone makes a seemingly insignificant change that introduces some not-so-insignificant corruption to the logic.

The next obvious solution is to develop spreadsheet standards. However, in my experience (and this is backed up by the same surveys referred to earlier), such an approach **on its own** does not work. There are just too many spreadsheets out there to be controlled effectively by anyone apart from the developers themselves. The only spreadsheet standards that can possibly work are those that are 'owned' by the technical staff themselves; the only practical discipline that stands any chance of being successful is self-discipline. And such self-discipline does not occur naturally.

THE MISSING INGREDIENT

I believe the missing ingredient is simply this: **training** for all your technical staff. But not the sort of training you normally get – advanced functionality logic, all the technical stuff that most of us already know, or can pick up from a colleague – but training in

how to design and build spreadsheets that minimise long-term risk. I call this **training in reliability**.

Reliability is more than just getting the right **answer** to the current problem. It is also about having a right **process**, so that you, and the people that rely on your work, can prove your answer to be right. It is about being easy to debug, user-friendly, safe to use and modify, and flexible and transparent.

You can tell within 10 minutes of opening it for the first time whether a spreadsheet you have been given is reliable or not. Why is that? Because if a spreadsheet is reliable, you can tell straight away:

1. What the spreadsheet is doing (and where to look for the calculations);
2. What inputs it is using (and where they come from); and
3. What each worksheet is there for (and how it fits into the big picture).

In other words, 10 minutes after opening a reliable spreadsheet, you are ready to focus on checking and reviewing the calculations – not trying to find them!

THE LOST ART OF RELIABLE SPREADSHEETING

It continually surprises me that reliability in spreadsheeting does not receive more prominence than it does. Reliable spreadsheeting is not rocket science. It is not even as difficult as *actuarial* science. So why is it so rare among otherwise highly intelligent technical workers?

The simple answer is that it requires skills that most technical workers are not naturally good at. It is as much **art** as it is **science**. It involves thinking about inputs, calculations and outputs – the things your users are interested in – rather than just the calculations.

The bad news is that these skills do not come naturally. The good news is that they can be taught – and quite easily taught, too. You can teach yourself from first principles – many have done so in the past, and will continue to do so in the future – but this is a very piecemeal approach to a major business problem. Alternatively, my business (for one) runs an all-day training course called *Reliable Spreadsheeting* where these skills are taught, and, in my experience, technical people respond extremely positively to any training they receive in this area. And it's not that hard to see why – if you teach people to build spreadsheets that

are easy to use, they are the beneficiaries as much as anyone else.

IT ALL STARTS WITH RELIABILITY...

If you start with reliability training, the rest of the process of risk mitigation falls into place neatly.

1. If you train your technical workers the principles of reliability, and discipline them to apply these principles in even the most trivial spreadsheets, they will quickly become second nature.
2. This means that, when they develop those few major spreadsheets where all the risk is concentrated, they will already be engaged in risk mitigation before they start!
3. Layered on top of this, you are now in a position to develop spreadsheeting standards that can apply to those major spreadsheets, but the difference now is *that those standards will be owned by the workers who need to use them.* They will even start to police each other in applying the principles of reliability.

The result will be a quantum improvement in the quality of your technical spreadsheets – for very little extra cost, too! This means risk mitigation – far fewer errors – but it also means much lower ongoing costs. The same surveys referred to earlier report that less than 20% of major spreadsheet developments last more than two years – but reliable spreadsheets can last up to 20 years without major re-design. Do the maths! **A**

(For information on the Reliable Spreadsheeting training course, please contact the author on the above email address and he will be happy to oblige you).