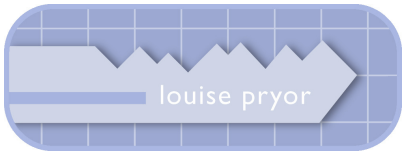

Managing spreadsheet risk

Spreadsheets are ubiquitous; it is difficult to imagine a company that operates without their use. They are used in many different ways, and are of varying degrees of complexity. They may be used for complex financial models, financial reporting, data storage and analysis, presentation of results, or simple one-off calculations. Whatever they are used for, and however complex they are, you would like to be able to rely on their results. Many people are becoming more aware of the potential problems with spreadsheets as a result of Sarbanes-Oxley and the FSA's emphasis on systems and controls.

What can go wrong?

There are, unfortunately, many things that can go wrong with spreadsheets. There a numerous stories of major problems that have been caused by malfunctioning spreadsheets; here are a few.

- In March 2005, shares of RedEnvelope Inc. lost over 25% of their value, just after their fourth quarter outlook was drastically reduced. They had been underestimating the cost of goods sold. The budgeting error was due to a number mis-recorded in one cell of a spreadsheet.
- In November 2005 Westpac was forced to halt trading on its shares and deliver its annual profit briefing a day early after it accidentally sent its results by email to research analysts. The new figures were in a template of the previous year's results. Although they had been obscured by blacking out some cells, they were apparently accessible with minor manipulation of the spreadsheet.
- In June 2003 TransAlta Corp lost $24 million after a cut and paste error in a spreadsheet led to mispriced bids for U.S. power transmission hedging contracts.
- In 2004 Mercer Finance and Risk Consulting, in Australia, reviewed the spreadsheets used in 30 project financing transactions. All the spreadsheets had errors. 9 had errors in more than 10% of the unique formulae, 4 in more than 15%, and one in more than 20% of the unique formulae. That is, more than one in five of the formulae were wrong. This model was one of the smaller ones reviewed, so it wasn't because it was more complex.
- In November 2004 natural gas prices in the USA were artificially inflated by between $200 million and $1 billion, according to the Federal Energy Regulatory Commission, because one company submitted the wrong week's gas storage figures. One explanation for the error was that the company had used the same computer file name for each week's storage balance spreadsheet report, making it easy for the wrong one to be sent.
- Spreadsheets were heavily implicated in the John Rusnak scandal at Allfirst/AIB. Rusnak doctored some of his spreadsheets, so that they were not, as they should have been, importing information from external sources.

There are many ways in which problems can arise. Formulae may be wrong because of mistyping or faulty copying and pasting. Risky techniques are often used without appropriate safeguards. Spreadsheets are rarely static: changes may be made by someone who isn't aware of all the potential knock-on effects. Users may not understand the full implications of all the inputs that they are changing. Time or other pressures can lead to inadequate documentation, review, and testing.

Preventing problems

The risk of problems arising can never be entirely eliminated, but it can be controlled through the use of appropriate systems and controls.

- Make sure that those people developing and maintaining spreadsheets have the appropriate expertise. It is important that they not only know what techniques *can* be used, but also which *should* be used, which should not, and what safeguards should be put in place.
- You should have appropriate development processes in place, covering issues such as version and change control, reviewing, and testing.
- The use of standard layouts, formatting conventions and naming conventions can significantly reduce confusion.
- Documentation is vital, both for those people changing spreadsheets and those using the results.
- An up-to-date inventory of spreadsheets allows you to see which business areas are particularly reliant on spreadsheets and where potential problems might arise.

Managing software risk has much in common with managing other types of risk. Risk management is not something that should be bolted on to existing practice as an afterthought. Instead, it should become an integral part of the way that you operate. For instance, management should be aware of the risks and encourage their teams to use the agreed processes instead of cutting corners to meet unrealistic deadlines. If people spend a large part of their time building or using spreadsheets, spreadsheet expertise should form part of their performance goals.

Using appropriate systems and controls has benefits over and above that of reducing risk. Productivity is increased: as well as producing safer and more robust spreadsheets you can do so with less effort. In addition, your spreadsheets will be easier for other people to use and understand.

Finally, although spreadsheets are often useful and sometimes vital, they are not the appropriate choice for all applications. It is often helpful to consider whether another type of software would be better suited to the problem at hand. Typically, if a task is repeated on a regular basis, with no changes, and if it forms part of a vital business process, the risks of using a spreadsheet outweigh the benefits. On the other hand, if the details change frequently, and there are often more major changes, a spreadsheet, with all the flexibility that it can provide, comes into its own.

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