



Spreadsheets

the Sorcerors Apprentice

Based on the stories of Lucian and Goethe (“Der Zauberlehling”) and popularised by the music of Paul Dukas and by that mouse in the film “Fantasia”, the story of the Sorcerer’s Apprentice is a cautionary tale which entertainingly illustrates the moral of “don’t meddle with things you don’t understand” and particularly “don’t start what you can’t finish”.

Modern spreadsheets are similarly a powerful and useful tool, but do we understand them and can we control them?

“End users are putting their companies at risk by setting up spreadsheets without realising that this demands the discipline of traditional programming”.

“Our findings are disturbing...as 78% of models (i.e. spreadsheets) had no formal quality assurance to ensure they were built to specified requirements and were fit for the purpose.” Kavanagh: Shoddy Business Models Breed Financial Disaster, Computer Weekly (19 June 1997).

Spreadsheets contain data and computer code (formulae) and important ones should be treated as software rather than just as a “document with numbers”. This means treating the development, maintenance and operational use of spreadsheets as if they were any other sort of software. It means

specifying and formally designing them, testing them, change controlling them and above all documenting them. How often does this happen in your experience?

There is plenty of anecdotal evidence of the impact of relying on spreadsheets with errors in them. For example:

- Colleagues in the GAO reported on a US\$644 million misstatement in NASA’s fiscal year 1999 financial statements. This error resulted because NASA’s systems could not produce the budgetary data required by federal accounting standards. Instead, the agency was relying on an ad hoc, year-end data call from its 10 reporting units and the aggregation of data using a computer spreadsheet.
- In mid 2003, TransAlta Corp. a Canadian power generator took a US\$24 million charge to earnings after it bid for more U.S. power transmission hedging contracts than it bargained for, at higher prices than it wanted to pay.

The company’s computer spreadsheet contained mismatched bids for the contracts.

“It was literally a cut-and-paste error in an Excel spreadsheet that we did not detect when we did our final sorting and ranking bids prior to submission,” TransAlta chief executive Steve Snyder said.

There are plenty of statistics on spreadsheet error rates culled from various exercises, academic and live field work. All of these concluded that there were worrying levels of error in spreadsheets. However there was no agreement about figures, various studies showed that errors were found in between 10% and 90% of spreadsheets examined. This reflected the variety of definitions of error and the selection process which was rarely random.

Interestingly there was no correlation between the confidence that users had in a spreadsheet and the number of errors found. In other words, people are not the best judge of the accuracy of their own spreadsheets. By contrast there was a correlation between size (and hence complexity) of a spreadsheet and the confidence people had in its accuracy. But it was counter intuitive - users trust large spreadsheets more than small ones!

At the end of the Sorcerer’s Apprentice the Sorcerer himself returns and corrects everything with a wave of his wand. Unfortunately he doesn’t seem to work for my clients!

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Useful links

<http://www.eusprig.org>

European Spreadsheet Risks

Interest Group. An interest group of academia and industry promoting research regarding the extent and nature of spreadsheet risks, methods of prevention and detection of errors and methods of limiting damage.

<http://panko.cba.hawaii.edu/ssr/>

Spreadsheet Research – a large repository of information, papers and further links held by Ray Panko of the University of Hawaii.