Controlling the Subversive Spreadsheet

By Ray Butler, CISA, FIRM & by M. E. Kabay, PhD, CISSP-ISSMP

The British public relations firm Eskenzi PR & Marketing< http://www.eskenzipr.com/ > has been sending me consistently interesting articles and fully cooperating with suggested changes that I make in the submissions. Today we have a contribution written by Ray Butler, with thanks to Eskenzi's James Jackson for forwarding the work. Everything that follows is Mr Butler's own material with minor edits.

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Spreadsheets are the ubiquitous Swiss Army knife of corporate computing. Since VisiCalc< http://www.bricklin.com/visicalc.htm > put the Apple II< http://apple2history.org/ > on corporate desks in the early 1980s, and Lotus 1-2-3< http://dssresources.com/history/sshistory.html > did the same for the IBM PC, it has become impossible to imagine a corporate IT network without a spreadsheet. Indeed it's almost impossible to buy a PC that doesn't ship with spreadsheet software of some sort.

Spreadsheets fuelled the PC revolution by freeing business people from what many saw as the inability of IT departments to deliver flexible solutions to business problems. End-users found that they could download huge volumes of corporate data and analyse it in all sorts of ways to solve their problems and plan their forecasts. Spreadsheets are used for anything from an individual's personal expenses and time records, by way of use in medicine to calculate doses of drugs and radiation, engineering in structural strength and design, through to complex financial calculations and reports. As Mel Glass, David Ford and Sebastian Dewhurst wrote in "Reducing the Risk of Spreadsheet Usage – a Case Study"< http://arxiv.org/abs/0908.1584 >, "...spreadsheets will always fill the void between what a business needs today and the formal installed systems...."

Trouble was (and still is), that for important applications and models the IT department's restrictions and controls actually delivered checks and balances to prevent errors and ensure that solutions in use were reliable. Even so, tales of large errors in spreadsheets soon began to circulate. Many of them are documented by the European Spreadsheet Risks Interest Group< http://www.eusprig.org >.

Recent foul-ups include:

- A cut-and-paste error that cost a US power company US$ 24million
- Errors in excess of US$ 1 billion in the published financial reports of a financial entity
- Double-counting of assets by a UK local authority to the tune of UK£21 million

One of the UK financial regulators, Grenville Croll, writes that a material error in a spreadsheet "…could compromise a government, a regulator, a financial market, or other significant public entity and cause a breach of the law and/or individual or collective fiduciary duty".< http://aps.arxiv.org/ftp/arxiv/papers/0709/0709.4063.pdf >

So how can professionals improve spreadsheet quality and reduce spreadsheet risks?

These five steps are a good start:

- **Inventory spreadsheets.**
  Find out what is actually on the corporate network or in the document management system.
- **Evaluate the use and complexity of spreadsheets.**
  What are they being used for? How much damage to finance, reputation, delivery or regulatory compliance would a material error cause? How complex are they? Tthe inherent risk of error increases with complexity.
- **Determine the necessary level of controls.**
  Once the important spreadsheets are identified, and the impact of material errors is understood, decide what controls need to be in place to reduce the risk of errors.
- **Evaluate existing "as is" controls.**
  For each important spreadsheet, identify the gaps between necessary and actual controls.
- **Remediate control deficiencies.**
  Close the gaps!

So far so good—but how? First, consider the need to engage some expert support. There are a good number of consultants in the market and most large accountancy and consultancy firms have spreadsheet assurance practices.

Inventory – A number of software tools are available that will identify every spreadsheet on a network (or part thereof) and report back on their location, age, last use and complexity, typically in terms of numbers of worksheets, formulas, distinct formulas ('families' of formulas that are logically identical) and internal and external links. Users are often taken aback by the huge number of differently named and subtly different versions of spreadsheets that they find, which itself poses a risk (imagine – different members of a team believing that *their* copy is the one version of the truth).

Use and Complexity--the reports from the inventory will (along with some research and face-to-face fieldwork with users) direct users to the most important spreadsheets in the organisation. This will allow resources to be directed at the highest risks.

Necessary Level of Controls - In other words, what needs to be in place to ensure that:

- The spreadsheet is designed to address the right business issue. It's surprising how often developers miss or misunderstand important assumptions or business rules.
- The "on the ground" spreadsheet actually delivers the intended calculations. Again, errors in formulas can propagate very easily and corrupt the end result
- The spreadsheet is protected against unauthorised changes and unauthorised access.
- The numbers that are uploaded to or typed into the spreadsheet are complete and accurate.
- A user other than the person who built the spreadsheet can operate it correctly.

- The spreadsheet is maintainable and comprehensible.

Evaluate the 'As Is' controls

This can be done by examining:

- Standards and policies for spreadsheet use and development in the organisation
- The maturity/quality of the specification, design, documentation and testing of the original spreadsheet and updates to it (It is horrifying to consider the number of important spreadsheets that show no evidence of intelligent design)
- The spreadsheet itself – Again, software tools are available that will cut out a lot of the repetitive and tedious parts of this (for example by identifying all the logically identical formulas so that testing of the copies can be limited to ensuring that they are used appropriately), but there is no substitute for checking by a knowledgeable auditor.
- Security, backup and version control

Remediating control gaps

Steps Include:

- Correct the errors in spreadsheets you detected in the evaluation phase
- Take action to stop the errors creeping back in:
    - Introduce and enforce appropriate end-user computing development and use policies
    - Protect the spreadsheets against unauthorised access and changes
    - Get, and keep, a grip on the proliferation of different 'versions of the truth'
    - Consider using a document management system or a secure storage monitoring tool that can prevent and detect erroneous changes.

You will find links to all the resources and tools at EUSPRIG< http://www.eusprig.org > and on the spreadsheet best practices site of Systems Modelling< http://www.sysmod.com/spreads.htm >. Another good resource is Raymond Panko's essay "Controlling Spreadsheets."< http://www.isaca.org/Journal/Past-Issues/2007/Volume-1/Documents//jopdf0606-controlling-spread.pdf >

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Ray Butler< ray.butler@virgin.net > has just retired as head of Information Policy and Security at the Highways Agency in the United Kingdom and is now an independent information risk and governance consultant. He has recently co-presented a one-day workshop on Auditing Spreadsheet Risk & Quality at ISACA's EuroCACS conference, 20-23 March 2011, Manchester, UK < http://www.isaca.org/eurocacs >.

M. E. Kabay,< mailto:mekabay@gmail.com > PhD, CISSP-ISSMP, specializes in security and operations management consulting services and teaching. He is Chief Technical Officer of Adaptive Cyber Security Instruments, Inc.< http://acsi-cybersa.com/ > and Associate

Professor of Information Assurance< http://norwich.edu/academics/business/infoAssurance/index.html > in the School of Business and Management< http://norwich.edu/academics/business/faculty.html > at Norwich University.< http://www.norwich.edu > Visit his Website for white papers and course materials.< http://www.mekabay.com/ >