Spreadsheets under the spotlight

Management science of black art? Ian Herbert, Glynn Lowth and Eliot Buckner explore some of the risks...

Spreadsheets are starting to look a little transparent. For example, JP Morgan Chase (JPM) found a formula error in a spreadsheet that had unrealized risk by a factor of 50% contributing to a total trading loss of $6.2 billion back in 2012. The problem turned out to be quite simple but resulted in the dissolution of traders. Top executives were hauled in front of Congress and investigations launched by several regulatory bodies, including the SEC. In short, the spreadsheet-based model used to monitor the traders’ risk levels was essentially a manual process involving copying and pasting data from one spreadsheet to another. “One key measure was added when it should have been averaged.” (Gandel, 2013) This meant that “…risk officers at JPMorgan believed the credit derivatives bets were half as risky as they actually were.” (Gandel, 2013) The spreadsheets were owned and operated by individuals for such critical activities appears to be a stark contrast with the $2 billion JPM spent on corporate IT systems in 2012. (King, 2013)

Harvard professors Kenneth Rogoff and Carmen Reinhart’s Growth in Time of Debt: 1870-2010 is a warning about the universality of austerity measures of various Western governments in response to the financial crisis. According to their research findings, countries with more than 90% debt to GDP are unlikely to be able to pay their creditors, and thus governments should seek to reduce public debt through austerity measures. Two countries for the model had excluded five of the countries in the overall data set that did not support that conclusion. The coding error was found by student Thomas Herndon of the University of Massachusetts Amherst. This was not only very embarrassing for the researchers but also had serious implications for the economic policies of several countries.

British Nuclear Fuels Limited operates in one of the most controlled environments in the world. However, in 2001 the Sellafield plant was set up to create Mixed Oxide fuel pellets (MOX). These are used to make nuclear fuel rods which help to power commercial plants. The plant was going to export significant quantities of MOX to global clients creating income and jobs for the local area. However, before the plant had begun full production controllers found that engineers had falsified safety records about the size of the MOX. The engineers had copied and pasted one set of results into several spreadsheets. They used this single set of results to falsify the results of other tests. Incorrectly sized rods can cause a nuclear meltdown similar to that at Fukushima Daiichi in 2011. The safety records were falsified so that the plant was going to export MOX. The engineer who falsified the data set that did not support the spreadsheet-generated information about what would have happened if these fuel rods had ever made it to a reactor. If these companies can make these sorts of errors, what problems are spreadsheets hiding from other businesses?

Desk-top revolution? These spreadsheet errors are just some of the more infamous problems which have been encountered over time. There are countless other examples of spreadsheet errors creating serious and embarrassing problems for businesses. The key question is whether the spreadsheet culture is very willing to discuss their mistakes. The visibility and are difficult to reproduce on individual desktop applications.

Too big, too complex and difficult to audit Many spreadsheets have long outlived their original rationale and now should be a part of standard central information processing routines. The problem lies in determining where the tipping point is between appropriate and inappropriate use.

Owner continuity Without the discipline that comes naturally to specialist IT workers, documentation and version updates are likely to be fraught. This causes problems not only when spreadsheet owners are absent but drive up the cost of external audit.

Inefficient use of time - the spreadsheet culture It makes little sense to have highly qualified business professionals sitting at computers playing about with spreadsheets simply because they like doing it. In any case, the chances are that someone somewhere else is already doing something similar.

Change drivers Several managers we interviewed mentioned reducing risk and improving process control as key reasons for increasing the management focus on spreadsheets in their businesses, either Sarbanes-Oxley act as a catalyst. Spreadsheets are notoriously hard to control and go against the need for ‘one-source of the truth’. The technology is available to position many spreadsheet processes within central information systems and although cost is an issue, recriminalisation is becoming increasingly lower risk.

‘Every other day I’ve probably heard someone say ‘Oh that number’s wrong’. And then if you have these errors that go undetected, they could be life threatening to the organisation’. (Department manager).

As companies look to drive down costs, outsourcing elements of departments or using shared service centres (SSC) is becoming more popular. With similar activities being pooled in the same place the SSC is able to gain an overview of all the spreadsheets in operation. This can make it easier to identify duplication

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of spreadsheet activities. As a company director put it: “It’s too easy to create digital cottage industries where everyone is doing the same thing.”

Best practices
• Training
Our research has shown that managers and subordinates often think they are following spreadsheet best practice when in fact they are not. Also numerous spreadsheet experts claim to be self-taught meaning they may be passing on incorrect practices to other members of staff.
• Control
Several of the companies we spoke to discussed how they used an audit to identify all the spreadsheets within their information system and what they do. As a result they got a better picture of the spreadsheet-based information system as a whole and could understand where the risks lay.
• Improved information systems
The managers we interviewed all agreed that the current trend is to move away from spreadsheets toward improved central information systems. Big spending on information systems may not be popular but, if done correctly, is likely to save considerable amounts of money in the long run.

About the authors
Ian Herbert is Deputy Director – Centre for Global Sourcing and Services and Glynn Lowth is a Visiting Fellow, at the School of Business and Economics, Loughborough University. Elliot Buckner is studying Management Sciences at Loughborough University School of Business and Economics. Thanks to Chris Warner, Kathleen McCoughlin and Keshav Champawat.

The research team at Loughborough University is keen to hear your stories about spreadsheets. Visit the project website at www.shared-services-research.com and tell us your experiences at ssc-research-team@lboro.ac.uk and ask for our latest report on spreadsheets.

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References and further reading

Other references