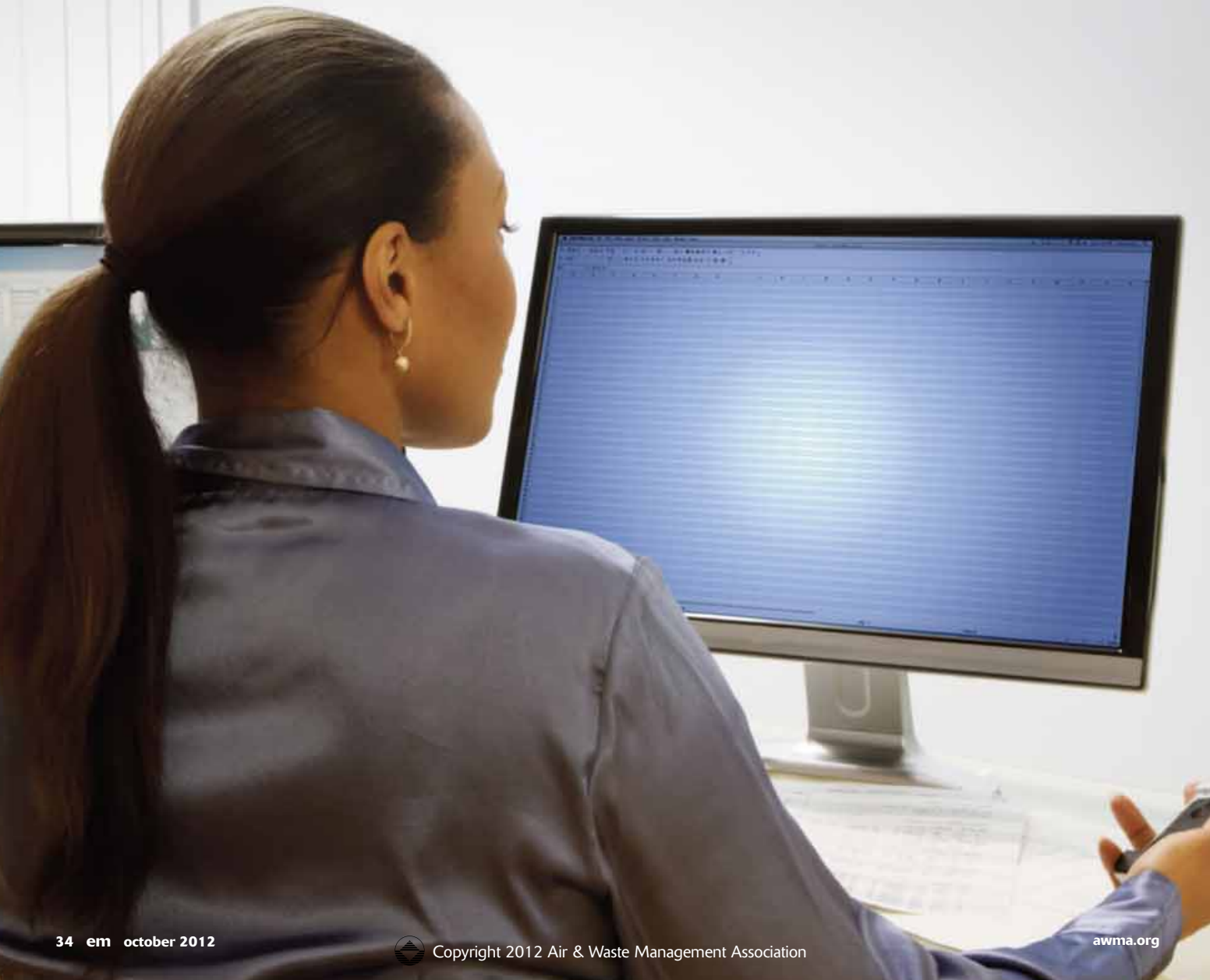# Managing Spreadsheet Risk

by Jill Gilbert

Jill Barson Gilbert, QEP, is president of Lexicon Systems, LLC. E-mail: jbgilbert@lexicon-systems.com.

As managers, engineers, and scientists, we often spend the majority of our time—up to 80%[1]—gathering data, and minimal time acting on it. We find it hard to get the information we need from disparate, unintegrated data sources, much of it locked within spreadsheets. While many of us now use commercial or homegrown enterprise environment, health, and safety (EH&S) software packages as data repositories, some users still opt to download certain information into spreadsheets. More than 30 years after their introduction, electronic spreadsheets are pervasive. The unrelenting use of spreadsheets creates risk when, unconstrained, they feed data and decisions into critical business processes and we rely upon them for compliance reporting.

Spreadsheet Risk

Spreadsheet risk is a type of operational risk principally linked to the actions (or inaction) of individuals. Individuals can derive a materially incorrect value from a spreadsheet application and use it to make a related, usually numerically-based, decision. The risk may arise from erroneous or fraudulent data input, from mistakes (or incorrect changes) within the spreadsheet logic, or omission of relevant updates. Some single-instance errors in the financial world have exceeded US$1 billion.[2]

Users want easy access to data, while businesses want to manage risk that can result in errors, poor decision-making, and fraud. In the EH&S world, as in the financial world, a key objective is transparency, a clear audit trail from summary figures to the underlying data. No matter how robust an organization's central, shared software applications, spreadsheets are the weak link in the information chain. They are rarely tested, are prone to manual errors, and typically operate outside central IT infrastructure and standards.

Why Spreadsheets Persist

Spreadsheets have several advantages. They often fill the gap between EH&S business needs and the capabilities of centralized software applications. Spreadsheets allow "what if" analysis, trending, charting, and graphing capabilities beyond those of many enterprise software applications.

Knowledge workers of all types and many managers most likely have used spreadsheets at some time during their career. Spreadsheets are popular because they can be light, versatile, and fast; individuals can quickly customize and reuse templates for a given purpose; and most individuals have a copy of Excel on their computer.[3]

Limitations of Spreadsheets

Spreadsheets have several disadvantages. They are static, not dynamic, not user-friendly and are high-maintenance.[4] Alpha-numeric cell addresses make it hard to compare different spreadsheet versions. When multiple people edit a spreadsheet, chaos ensues, especially when rows or columns are added or deleted—this affects downstream data that rely on the spreadsheet.

Spreadsheets are susceptible to accidental or intentional introduction of errors. Manual data entry and the use of cell-by-cell formulas make spreadsheets susceptible to errors, although the use of named data ranges and variables and array formulas can mitigate this problem. A 2011 Cluster-Seven study of 1,500 people in the UK found that 57% of spreadsheet users have never received formal training on the spreadsheet package they use, while 72% said that no internal department checks their spreadsheets for accuracy.[5] Spreadsheet cells generally are not subject to auditing or revision control. Roughly 94% of spreadsheets contain errors, and 5.2% of cells in unaudited spreadsheets contain errors.[6]

Organizations can mitigate data input errors by implementing features built in to the software such as data validation checks, data entry controls, and explanatory notes.[7] While built-in and third-party tools address some of the shortcomings of spreadsheets, awareness and use of these tools is not widespread.

▶ Seven Best Practices for Moving Beyond Spreadsheets

① Evaluate the amount of data created in spreadsheets, how critical it is, how accurately recorded it is, and what controls can be put in place.[11]

② Select the right tool (software) to meet your organization's needs.

③ Optimize workflows across the enterprise and configure the software to use your workflows.

④ Scale back on the data collected and focus on that needed to support key performance indicators.

⑤ Leverage IT frameworks and integrate data that your organization already captures in other systems.

⑥ Retire hundreds of standalone spreadsheets and small databases in favor of an enterprise database with a "single source of truth."

⑦ Over time, build stakeholder confidence that the data they need are in the system, and are correct.

Managing Spreadsheet Risk

Managing spreadsheet risk entails understanding risk—what is the risk, where is it, how significant is it, and who is currently dealing with it—and managing it to an acceptable level.[8]

Organizations typically have four options for managing spreadsheet risk:

1. Implement commercial spreadsheet management software
2. Implement business analytics software
3. Implement enterprise software that incorporates analytics
4. Do nothing

Spreadsheet management solutions include spreadsheet management/control, spreadsheet search/discovery, and spreadsheet auditing tools.[9] Such software can address data integrity, information chain, and revision control issues, but it does not solve the underlying problems of spreadsheet proliferation and lack of integration with key business systems.

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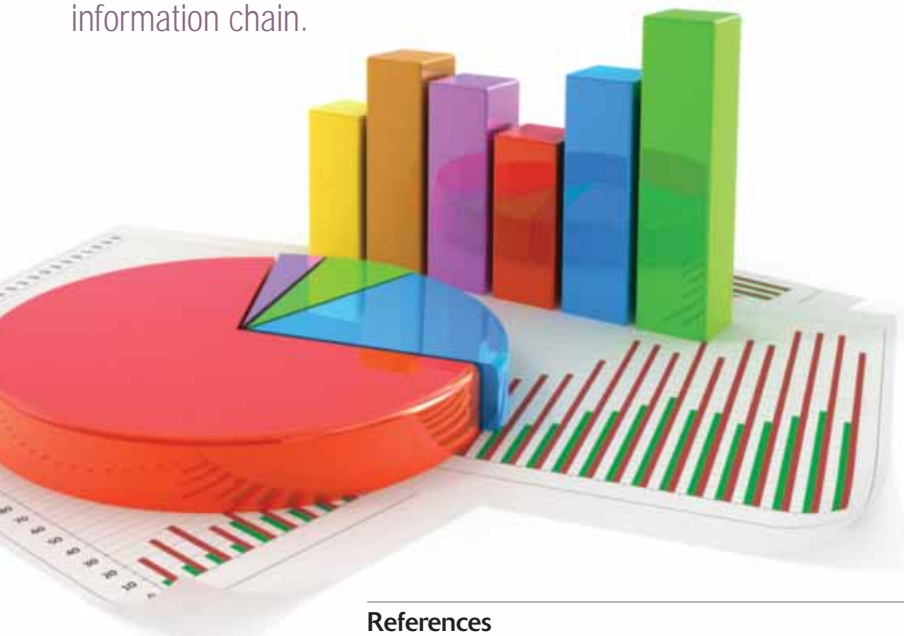
Business analytics software allows organizations to consolidate relevant performance data and then compare against key performance indicators. Business analytics allows stakeholders to look beyond daily static reports to view prior periods and look for trends.

Enterprise software with business analytics embedded can be powerful, especially for EH&S data that comes from many sources throughout the business.

"Do nothing" (i.e., maintaining the status quo) is not viable in the long term.

Moving Beyond Spreadsheets

Applying technology beyond spreadsheets can bring about efficiencies, including

- reduced operating and capital expenses;
- increased productivity—up to 30% cost reduction for data entry and reporting processes;[10]
- enhanced brand and image;
- enhanced compliance; and
- integration with data along the supply chain, including suppliers and customers.

Electronic spreadsheets have served us well for more than 30 years. As knowledge workers, we are comfortable with spreadsheets and willing to overlook their limitations. Trying to manage a large volume of spreadsheets without proper security and audit trails, data entry error and revision control is a risk that few organizations can afford to assume. It's time to acknowledge spreadsheet risk and take action. **em**

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