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Ensuring Spreadsheet Accuracy in the Sarbanes-Oxley Era

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> **With the prevalence of spreadsheets in the workplace, internal auditors can help organizations identify the controls available in spreadsheet applications to facilitate data accuracy and compliance with Sarbanes-Oxley's Section 404.**

As corporations meet Section 404 compliance deadlines of the U.S. Sarbanes-Oxley Act of 2002, internal auditors are paying close attention to the internal controls used in accounting and financial reporting systems. One area that is beginning to receive more scrutiny is the reliance on spreadsheets for data entry, support, and analysis in corporate financial reports. Organizations have used spreadsheets for decades, because they are user-friendly and accessible. Unfortunately, unethical individuals often manipulate spreadsheet data to commit fraud, and many organizations don't take advantage of controls included in spreadsheet applications that help reduce data errors. Because of the spreadsheet's impact on corporate reports, auditors must monitor whether or not organizations are using adequate internal controls to ensure only correct and up-to-date spreadsheet data is included in financial statements. By doing this, auditors will help organizations create accurate and reliable accounting reports that comply with Section 404 requirements.

USES AND CONCERNS

Organizations use spreadsheets for many reasons:

- Spreadsheets are easy to use and do not require extensive training.
- Information found in spreadsheets can be changed easily and quickly.
- Extremely flexible, spreadsheets provide excellent formatting capabilities and do not require development or maintenance support from systems administrators.
- Because spreadsheet applications are installed in almost all desktops and laptops, they can be created by anyone as long as users have the proper software installed, such as Microsoft Excel, Quattro Pro, KSpread, and StarOffice.

Although people all over the world use spreadsheets — thanks to the proliferation of software applications — they are often misused, intentionally and unintentionally, causing errors that affect businesses adversely. The European Spreadsheet Risks Interest Group, a group of scholars and industry professionals who promote research about spreadsheet risk, cites more than 60 stories of spreadsheet errors on its Web site that have impacted corporations and government agencies negatively and significantly. How much can a spreadsheet error cost? Here are a couple examples:

- In 2003, TransAlta Corp., Canada's top investor-owned power generator, submitted an erroneous bid to New York Independent System Operator for transmission congestion contracts. The accepted bid resulted in US $24 million in additional charges after TransAlta obtained more power transmissions at a higher price than it bargained for. According to the story published by Reuters on June 3, 2003, the mismatched bid was a cut-and-paste error in an Excel spreadsheet that went undetected by TransAlta during the final bidding process.
- A trader at Allied Irish Banks/Allfirst was charged with covering US $691 million of trading losses, so he could boost his own earnings by manipulating data entered into a spreadsheet used to measure his performance. The spreadsheet contained cells with foreign exchange prices linked to a database on his own computer rather than a database feed from Reuters.

As these examples show, companies can become overconfident about the accuracy of spreadsheet information. Typical errors found in spreadsheets can be categorized in three main types:

- Mechanical errors, such as mistyping a number or pointing to an incorrect cell (e.g. transposing a digit).
- Logical errors, such as entering a wrong formula due to reasoning mistakes (e.g. including a subtotal in a grand total formula).
- Omission errors, such as leaving something out entirely (e.g. failing to include data from a particular cost center prior to performing calculations).

Omission errors can be the hardest to detect, followed by logical errors. In addition to these errors, other spreadsheet concerns include their lack of security, such as password-protected access and protection from unauthorized changes. Many organizations also lack procedures to ensure spreadsheet information is not misused or inaccurate. These procedures include, but are not limited to, internal controls that ensure changes are tested and documented before spreadsheets are distributed; controls to ensure the latest spreadsheet software version is used; and controls that require consistent standards for spreadsheet development and testing.

ENSURING SPREADSHEET ACCURACY

Although spreadsheets cannot be abandoned or replaced entirely, effective steps need to be taken to improve their control and reliability. Like any other part of an organization's systems and controls, spreadsheets need to be catalogued according to their use and complexity and documented based on their relationships to specific organizational risks. For example, if a company has identified financial risks concerning trade transactions that are monitored through a spreadsheet, auditors need to pay special attention to the spreadsheet's documentation and testing. In addition, users should employ a combination of password, cell protection, and data validation controls to manage spreadsheet access and change.

Some spreadsheet applications, such as Microsoft Excel, have built-in tools auditors can use to make sure data and the formulas created to calculate data are accurate and logical. For example, data validation is one of the most powerful, but least used features in Excel. By using data validation — menu options **Data → Validation** — users can restrict data input to include decimal values, whole numbers, and other value ranges. Excel's formula auditing toolbar — menu options **View → Toolbars → Formula Auditing** — allows users to review invalid data and display relationships to determine a formula's source and dependence on a cell's value. Relationships are displayed with lines and dots that show either the cells used in a formula's calculations or the dependent cells that refer to the selected cell. Other techniques in Excel are used to control totals, including Excel's "countif" function, which counts the number of positive values in a formula. Auditors who wish to have additional audit capabilities can purchase add-in software products to help audit spreadsheets.

For complex spreadsheets that relate to high-risk areas, users might want to convert the spreadsheets into a format that can be used in a server application environment to have more data control. This entails the spreadsheet's conversion to a server-based application system that uses Java or .Net. Some server-based systems can convert spreadsheets automatically into these two platforms.

Converting the spreadsheet to a server application format enables organizations to control data and calculations more effectively by centralizing the spreadsheet application and its management, thus eliminating the reliance on individual users to implement control functions. In addition, conversion eliminates the need to use multiple spreadsheet copies created by different users for the same purpose, which often produce different results. Although it is true that users can and should keep track of their own spreadsheet versions, they are often the ones responsible for errors and breakdowns in the control process. In situations where security and document control are important, but users do not want to convert to Java or .Net, solutions can be purchased to protect, control, and track spreadsheets.

WHAT AUDITORS CAN DO

To reduce errors and help organizations maintain control when using spreadsheets in financial reports, internal auditors can recommend the following five steps:

1. Implement a spreadsheet-user inventory process that allows spreadsheets to be located when

needed and provides their most recent version only.

2. Apply the spreadsheet application's built-in tools, protections, and password choices to prevent unauthorized or accidental changes.
3. Incorporate user controls to ensure that downloads from enterprise resource planning systems or data warehouses are complete and accurate by reconciling information with data from the original spreadsheet.
4. Incorporate testing, documentation, and spreadsheet reviews and results as part of control definitions.
5. Identify the task's complexity, conversions to other applications, and persistent control approaches before deciding to use a spreadsheet. Persistent control activities rely on add-in software and a central or security server that manages access and changes, and maintains audit trails on a server, separate from the actual spreadsheet. By using a central or security server, auditors can find:
   - Who accessed the spreadsheet and printed it.
   - When spreadsheets were retrieved.
   - Whether or not the access was successful.
   - How many times the spreadsheet was accessed and printed.
   - Where the spreadsheet was stored on the recipient's hard disk.

These and other features go beyond the built-in controls available in spreadsheets.

Another area where auditors can provide assistance is by helping organizations develop procedures that monitor a spreadsheet's effectiveness, and data reliability and validity. For example, organizations can mandate that employees review the data and functions performed by the spreadsheet or ask another employee to review its accuracy before submitting it to people outside the organization. Corporations can also maintain spreadsheet control copies — an archived copy of the latest spreadsheet version that can be compared to the production version — and use naming conventions that incorporate the version and date as a control practice. This helps ensure the appropriate spreadsheet version is used to support a financial statement.

Internal auditors also need to work with IT staff to ensure spreadsheet processing is performed by applications that are subject to IT control processes, such as:

1. Establishing a spreadsheet inventory. This creates a starting point for auditors to know which spreadsheets are in use so they can start to evaluate the effectiveness of the application's built-in controls.
2. Assessing and classifying a spreadsheet's use and complexity. This identifies the effect spreadsheets have on financial reports.
3. Documenting spreadsheet relationships to specific risks and key controls. This step is necessary to link specific spreadsheets to significant financial statements per Sarbanes-Oxley Section 404 requirements.
4. Documenting internal spreadsheet standards. This involves setting, communicating, and monitoring the spreadsheet's use policy for financial reports.
5. Using control features built into the spreadsheet software.
6. Monitoring the spreadsheet's level of internal controls. This includes reconciling the spreadsheet's transaction activities, such as spreadsheet data entries in final spreadsheets, to ensure accuracy.
7. Retaining final spreadsheet copies used in quarterly and annual financial statements for record retention requirements.

The first three steps identify the control processes that need to be evaluated for Sarbanes-Oxley compliance. The remaining steps help implement and document the controls that are in place for spreadsheets used in financial reports. Spreadsheets related to financial reporting need additional control tests in comparison to those used for operational or analytical purposes.

By applying these recommendations, organizations can control spreadsheets for accuracy and minimize data mistakes. More important, controlling spreadsheets needs to be an integral part of Section 404 compliance efforts in all public corporations when spreadsheets are used to support and create financial statements. With the prevalence of spreadsheets in the workplace, now more than ever, auditors need to help organizations identify the internal control options available in spreadsheet applications and recommend their implementation as part of the organization's audit review process. When used properly, these internal controls can help maximize spreadsheet accuracy and reliability.