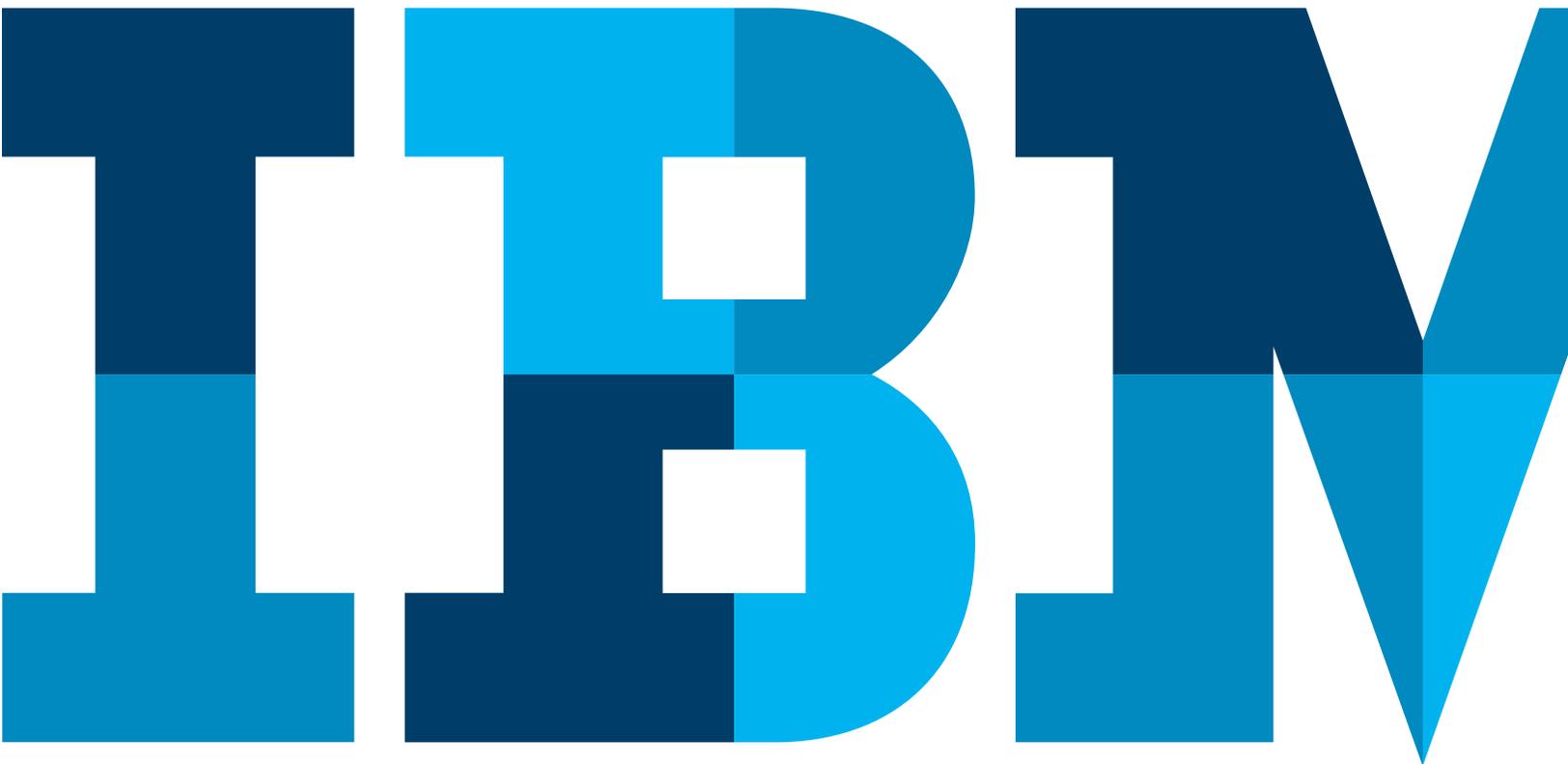




Spreadsheets for planning? A popular tool needs help.

*Mitigating the hazards while maximizing the value of your
Microsoft Excel spreadsheets*



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Overview

Companies large and small spend countless hours each year developing detailed business plans, forecasts and reports to drive their strategic decision-making and performance management processes. It’s critical that the information be timely and accurate, and that it can be easily updated as business conditions change. However, to deliver these plans and reports, most organizations rely on the spreadsheet. Though a useful and popular personal productivity tool, the spreadsheet is poorly suited for enterprise-wide planning and performance management. Errors are common. And the larger the spreadsheet, the greater the chance for a small error to be magnified, exposing the organization to significant levels of risk.

Spreadsheet-based planning: A “rough road” still plagued with potholes

At IBM, we’ve been talking about problems with spreadsheets for over a decade now. Back in 2003, a white paper titled *Spreadsheet Planning: Rough Road Ahead* outlined some of the causes and consequences of spreadsheet errors. And while spreadsheet software has improved over the years, serious problems persist, especially for those who rely primarily on spreadsheets for large-scale planning or analysis.

That 2003 white paper highlighted examples of the serious results of spreadsheet error. Sad to say, the list of newsworthy episodes continues to grow. Three recent examples in the news illustrate the ongoing hazards of reliance on spreadsheets.

- In October, 2014, a spreadsheet error misstated the number of outstanding shares of TIBCO Software, a company that was the subject of an acquisition. The error caused the value of the company to be overstated by \$100 million, and TIBCO shareholders received that much less when the transaction was completed. Litigation followed.¹
- At the 2012 London Olympics, a swimming event was oversold “when a member of staff made a single keystroke mistake and entered ‘20,000’ into a spreadsheet rather than the correct figure of 10,000 remaining tickets.” The 10,000 unhappy ticketholders were offered tickets to different events.²
- In 2013, spreadsheet errors made international headlines in what one Stanford University economist called “L’affaire Excel.” Authors of an influential study on the relationship between fiscal austerity and GDP were found to have “accidentally excluded some data in one case, and used some wrong data in another.” When the error was discovered, it seriously undermined the conclusions of the study, as well as the public positions of many pundits and politicians in the European Union and around the world.³

When used for enterprise planning, spreadsheets and their attendant errors can cast serious doubt on the integrity of strategic plans. They make plans and reports difficult to maintain, and often inhibit—rather than facilitate—a collaborative, enterprise-wide planning process. And as business plans and analyses become larger and more complex, the inadequacy of spreadsheet-based systems is only magnified.

A quick look at spreadsheet error

Just how common are spreadsheet errors? Studies conducted over decades have found that an alarming 88 percent of spreadsheets suffer from some type of error.⁴ According to experts and academics who have researched spreadsheet effectiveness, three primary types of error typically occur in spreadsheet models.

1. The first is mechanical error, which arises from mistakes in typing, cutting and pasting, or other simple manual operations. While a mechanical error may at first appear minor, incorrectly entered data can affect the integrity of an entire model. Furthermore, planning models tend to grow in size and complexity as available computing power increases. As the models grow, the errors created within them increase in both number and severity.
2. The second type of error is logic error, where an inappropriate algorithm is chosen or inappropriate formulas are created to implement the algorithm. The resulting flawed calculations affect not only the worksheet where the error appears, but the entire model as well.
3. The third, and one of the most common types of error, is the error of omission, where critical components are left out of a model entirely. Errors of omission, of course, are hard to spot. As a user labors through worksheets in a complex plan, the likelihood is great that a critical item will simply not be inserted and its absence will not be noticed.

It's important to note that spreadsheet errors persist even among users who are well trained and that “power users” are not immune. In fact, one study compared “undergraduate business students, MBA students with little spreadsheet developing experience, and MBA students with more than 250 hours of spreadsheet development experience. Their CERs [cell error rates] were very similar.”⁵ Researchers realized that spreadsheet error is not the fault of user carelessness—it's simply a fact of life with any manual activity.

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Whether a given error is one of mechanics, logic or omission, the result will be the same: a flawed model and inaccurate calculations, hence an inaccurate or ineffective plan, forecast or report. While many large corporate finance departments have adopted dedicated enterprise planning solutions, at the department or line-of-business level, where many of the most important decisions are made on a daily basis, the spreadsheet is still the default planning tool.

Five common drawbacks to spreadsheets as planning tools

Aside from specific problems related to errors, spreadsheets present other limitations and drawbacks when organizations try to use them in large-scale performance management processes. Here are five of the most serious issues with using the spreadsheet as a planning tool.

1. No standardization in the planning process

Spreadsheets, by design, are ad-hoc and individual. Email substitutes for any systematic workflow. And without a guided, standard process, time is often wasted in “reinventing the wheel” and waiting for others to contribute and review.

Spreadsheets cannot track the progress of data contributors—or even whether contributors have begun work at all. It is a laborious task for managers to check on the status of individual contributions to ensure they are submitted in a timely manner. And an increase in participation will increase the difficulty of tracking that progress. The end result is a process that is limited by the pace of the slowest participant.

2. Lack of data integrity and transparency

Anyone who has been involved in a spreadsheet-based planning process has experienced conversations that begin with, “How did you get this number? Where did it come from? Why is it different from mine?” Disconnected spreadsheets offer little in the way of data security or an audit trail to identify when, where and why changes were made, all of which leads to multiple versions of the truth. The source of the discrepancy often remains a mystery and consequently, confidence in the numbers is undermined.

Spreadsheet-based approaches to planning are notorious for poor version control—that is, difficulty in knowing whether planning participants are using the most recent version of a given plan. Poor version control can result in a consolidated plan based upon inaccurate data or—owing to a mismatch of model structures—the inability to consolidate at all.

3. Lack of collaboration

The brain power of many is greater than the power of one and lack of collaboration is one of the most serious shortcomings of a spreadsheet-based process. It's often impossible to know if users are receiving timely, valuable input from the right people or receiving timely responses to their questions.

Successful enterprise planning depends to a large extent on high levels of collaboration and employee participation. The greater the cross-enterprise input, the greater the accuracy and insight the plan will deliver. But spreadsheets tend to inhibit collaboration and participation. Due to error frequency and deployment difficulties, spreadsheet-based planning engenders a constrained, centralized process that represents only a small part of the organization. In addition, spreadsheets are typically created and propagated by finance departments, who—not surprisingly—tend to use concepts and terms that are familiar to themselves, but quite unfamiliar to those at the department or line-of-business level. Consequently, collaboration and participation are further inhibited.

4. Speed is not a spreadsheet's strong suit

The world around us is moving fast. And to drive fast decision-making in this competitive environment we often need to access and analyze large volumes of data and get answers quickly. But when a spreadsheet's single data file is too large, it can make the program run very slowly. Spreadsheets are simply poor at dealing with large data volumes and merging multiple files. So users can end up spending more time on data collection and verification than they do on analysis.

A spreadsheet-based planning and analysis process does not permit companies to alter plans, reforecast, or modify budgets in real time. As market conditions change, goals are revised and products are added or removed, so plans and reports must be modified quickly. But making such changes in a large, complex spreadsheet requires both an inordinate amount of time and great care, since it isn't always clear what change may be needed—or where. The effort required to consolidate hundreds (or thousands) of spreadsheets can inhibit quick reaction to changes in the economy, market conditions, or actions of competitors.

Consider the modest addition of an expense item to a typical business plan. Two options present themselves, both of which are time-consuming and prone to error. The first option is to manually navigate through the entire plan with its numerous workbooks, worksheets, rows and columns, then insert a new row or column, and finally enter the desired data or calculation. The second option is to write a macro. But macro creation requires programming skills not often found outside IT departments. After a macro is written, tested, de-bugged, and run, the entire model must be reviewed manually to ensure that the macro has achieved the desired result. If it hasn't, tedious reworking is required. The time needed to create, test and debug the macro and then proof the model can be even greater than the time needed to insert the item manually in the first place. So, when conditions demand rapid reaction, but real-time information is lacking, decision-makers may be forced to rely on educated guesswork or a “gut-level” hunch.

5. Aggregation and application maintenance

Spreadsheets are good when initially created, but they can be painful to maintain. People find ways to insert rows or columns, change a formula or delete a field. Users can accidentally modify calculations, which results in either errors when consolidating worksheets (which takes time to correct) or the results are wrong and no one recognizes the error.

Even if individual spreadsheets are error-free, the process of aggregating inputs from multiple users is a tremendous undertaking that can lumber on for weeks. A single person or task group has to collect the numerous spreadsheets and consolidate them into a single version, trying to maintain files that may be “linked” together. If submitted models are not identical, the data will not consolidate correctly. And, of course, aggregation difficulties increase with the number of spreadsheet contributors across the enterprise.

The two-dimensional, row-and-column format of spreadsheets highlights a further shortcoming, which is the near impossibility of using spreadsheets for multidimensional analysis. For example, when business users want to analyze profitability by product, customer, geography, sales channel or other variable, even linked spreadsheets and the most sophisticated macros are rarely up to the task. When one figure changes, you typically don’t know whether that change has accurately percolated through the spreadsheet model.

Elevate Excel with IBM Performance Management

All these problems notwithstanding, the spreadsheet remains a ubiquitous—and widely popular—software tool. Fortunately, the IBM Performance Management solution offers a way to overcome the limitations and bring the benefits of modern enterprise performance management to your Microsoft Excel spreadsheets while allowing business users, both inside and outside of finance, to stay in their comfort zone.

The solution enables not just finance teams, but business analysts, line-of-business managers and users on the front lines to pull data from a variety of sources and perform analysis in the familiar Excel environment. Available for on-premise or on-cloud deployment, this solution represents domain expertise in every aspect of the performance management process—planning, budgeting, forecasting, modeling, analytics, and reporting—applicable to companies in virtually every industry as well as public sector institutions.

With the IBM Performance Management solution to supplement your Excel spreadsheets, you can:

- Define, guide, optimize, automate and document your planning process, ensuring that the right things are done at the right time, by the right people.
- Provide planning participants with a centrally managed, accessible repository where data is shared, changes are tracked, and business logic is protected, ensuring the “single version of the truth” that is so essential for confident decision making.
- Harness the power of collaboration—built right into the solution—using managed workflow to get information to the right people, with the right knowledge, in a timely fashion.

- Enhance your existing spreadsheets by providing industry leading, speed-of-thought data aggregation and calculations, which allow you to review and analyze the results and details from hundreds of thousands of data points in real time.
- Store key business logic and calculations in a secure application, where changes are made only by designated administrators and are immediately replicated to all participants, eliminating mistakes and confusion.

IBM Performance Management solutions ... bring the benefits of modern enterprise performance management to your Microsoft Excel spreadsheets while allowing business users, both inside and outside finance, to stay in their comfort zone.

Conclusion

In fairness, it must be said that spreadsheets have proved a very useful personal productivity tool for many years now. But they still lack controls and auditability, and depend on individual users to enter data and generate complex formulas and macros, making them less than optimal for enterprise planning.

That's why the IBM approach is ideal for overcoming the limitations of spreadsheet-only business processes. With the IBM solution, users can explore data, perform flexible analysis and collaborate to solve business problems using familiar Excel tools and techniques. Whether an on-premise or on-cloud solution is right for your organization, the IBM Performance Management solution is the right way to leverage the software and the skills you already have, and enable your processes to enter the world of modern enterprise planning.

About IBM Business Analytics

IBM Business Analytics software delivers data-driven insights that help organizations work smarter and outperform their peers. This comprehensive portfolio includes solutions for business intelligence, predictive analytics and decision management, performance management, and risk management.

Business Analytics solutions enable companies to identify and visualize trends and patterns in areas, such as customer analytics, that can have a profound effect on business performance. They can compare scenarios, anticipate potential threats and opportunities, better plan, budget and forecast resources, balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organizations can align tactical and strategic decision-making to achieve business goals. For further information please visit ibm.com/business-analytics

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Route 100
Somers, NY 10589

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- 1 Gillian Tan, “Spreadsheet Mistake Costs Tibco Shareholders \$100 Million,” *The Wall Street Journal*, October 16, 2014, <http://blogs.wsj.com/moneybeat/2014/10/16/spreadsheet-mistake-costs-tibco-shareholders-100-million/>
- 2 Paul Kelso, “London 2012 Olympics: lucky few to get 100m final tickets after synchronised swimming was overbooked by 10,000,” *The Telegraph*, January 4, 2012 <http://www.telegraph.co.uk/sport/olympics/8992490/London-2012-Olympics-lucky-few-to-get-100m-final-tickets-after-synchronised-swimming-was-overbooked-by-10000.html>
- 3 Matthew O’Brien, “Who Is Defending Austerity Now? The Excel error heard ‘round the world has deficit-cutters backpedaling” *The Atlantic*, April 22, 2013 <http://www.theatlantic.com/business/archive/2013/04/who-is-defending-austerity-now/275200/>
- 4 Jeremy Olshan, “88% of spreadsheets have errors” *Marketwatch*, April 20, 2013 <http://www.marketwatch.com/story/88-of-spreadsheets-have-errors-2013-04-17>
- 5 Professor Raymond R. Panko, University of Hawaii Shidler College of Business, “What We Know About Spreadsheet Errors,” *Journal of End User Computing* Volume 10, No 2. Spring 1998, Revised May 2008 <http://panko.shidler.hawaii.edu/ssr/Mypapers/whatknow.htm>



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