SPREADSHEET-BASED PLANNING:
ROUGH ROAD AHEAD

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RELYING ON THE UNRELIABLE

Companies spend countless hours each year developing business plans, forecasts, reports, and analyses to drive strategic decision-making and performance management. It is critical that this information is accurate and timely, and can be easily updated as business conditions change. However, to deliver the plans and analyses they depend on, most organizations rely on the spreadsheet. Though a useful personal productivity tool, the spreadsheet is poorly suited for accurate, efficient enterprise planning and performance management.

Spreadsheet error or even the potential for spreadsheet error can be problematic. Corporate executives and finance managers frequently:

• distrust spreadsheet models' ability to answer vital business questions

• fail to comprehend exactly how (and how well) a spreadsheet model is working

• find that flawed spreadsheet models inhibit critical decision making

• question the accuracy of spreadsheet financial models and reports

• see insufficient return on the time and effort spent in complex modeling, data collection, and consolidation

Further, planning models tend to grow in size and complexity as available computing power increases; and as models grow in size and complexity, the errors created within them increase in both number and severity.

THE ERROR-RIDDLED ENTERPRISE

Error in spreadsheet-based planning can severely compromise corporate performance. According to Rajalingham, Chadwick & Knight (2000), a study of spreadsheet use in enterprise planning conducted by PwC found that 90 percent of the spreadsheets analyzed contained significant error, the consequence of which was startling. PwC discovered, for example, that spreadsheet error caused: one company to undercharge a client by millions of dollars; another company to falsely inflate its estimated net present value by 54 percent; and yet another company to compute pre-tax profits 32 percent lower than the actual figure. Rajalingham, Chadwick & Knight also cite a study by KPMG, which reveals a 92 percent error rate in spreadsheet-based planning across the organizations participating. Given the increased regulatory scrutiny and extreme pressure-to-perform currently faced by most companies, it is hardly alarmist to suggest that even a simple spreadsheet error can result in considerable damage to corporate credibility and—quite likely—to investor confidence and share value as well.

Spreadsheet Error Rates

100%	
80%	90% 92%
60%	
40%	
20%	
0%	
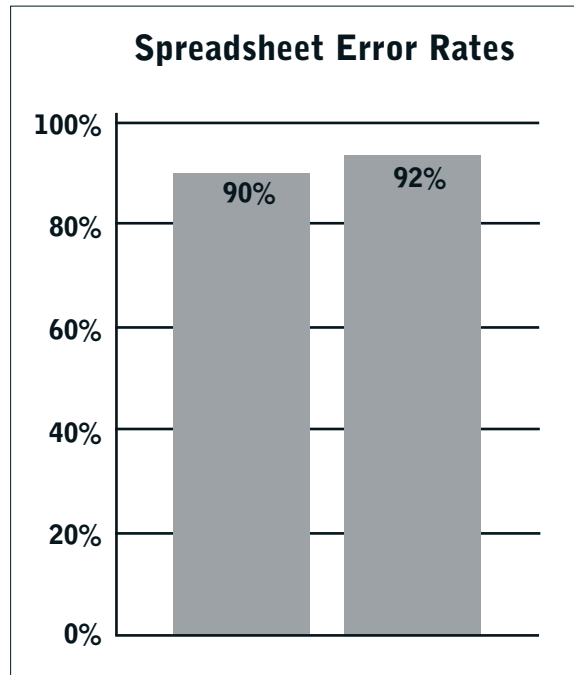
A LOOK AT SPREADSHEET ERROR

Three types of error typically occur in spreadsheet model modification, according to Panko & Halverson (1996), who have extensively researched spreadsheet effectiveness. The first is *mechanical error*, which arises from flawed typing, pointing, or other simple miscue. While a mechanical error may appear but minimally significant, its consequence can be severe: Incorrectly entered data can affect the integrity of an entire model. Further, if an item is inserted without updating the rest of the model, calculations throughout will be flawed; and with each added item, the likelihood of mechanical error increases.

A second type of error is *logic error*, where an inappropriate algorithm is chosen or where inappropriate formulas are created to implement the chosen algorithm. The resultant flawed calculations will affect not only the worksheet where the error appears, but the entire model as well.

The third and most likely type of error, according to Panko and Halverson, is *omission error*, where critical components are left out of a model entirely. As a user labors through worksheets in a complex plan, the likelihood is great that a critical item will simply not be inserted.

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 ineffective budget, plan, or forecast.

SPREADSHEET FLEXIBILITY—SORT OF

Spreadsheets offer flexibility, but without structure. Though they can, for example, model a reasonable range of business scenarios, modeling represents only a small portion of the flexibility required for successful planning and performance management. As market conditions change, goals are revised, and products are added or deleted, plans and reports must be modified quickly—in real-time. 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.

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 fairly sophisticated programming skill 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 the macro has achieved its desired result; if it hasn't, tedious re-working 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. Clearly, neither option contributes to efficient enterprise planning.

COLLABORATION

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 a plan will deliver. But spreadsheet use only inhibits collaboration and participation. Due to error frequency and deployment difficulties, spreadsheet-based planning demands a constrained, centralized process that—by its very nature—can represent only a small part of a given organization. In addition, spreadsheets are typically created and propagated by finance departments, who—not surprisingly—tend to use concepts and terms quite familiar to themselves, but quite unfamiliar to other organizational units. Consequently, collaboration and participation are further inhibited.

It is possible, of course, to plan across the enterprise using drivers that reflect the way functional units actually operate by creating spreadsheet formulas to translate headcount, units produced, miles shipped, raw materials consumed, and so on, into financial terms. But the propagation of such formulas typically leads to increasingly convoluted spreadsheet models that rapidly become unmaintainable.

WORKFLOW MANAGEMENT

Another challenge to successful enterprise planning is the spreadsheet's inability to effectively manage planning process workflow. Spreadsheets cannot track data contributor progress—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 it goes without saying that an increase in participation will ensure greater difficulty in tracking contributor progress, given the increased volume of spreadsheet contributions. The end result then, is a process that can only move forward at the pace of the slowest participant.

VERSION CONTROL

Spreadsheet-based approaches to planning are characterized by poor version control—that is, the difficulty in knowing whether everyone is using the most recent version of a given plan. Further, when a plan is revised and passed on to contributors, there is no assurance that all have actually disposed of previous versions and are working on the most current one. Poor version control will result in a consolidated plan based upon inaccurate data or—owing to a mismatch of model structures—the inability to consolidate at all.

AGGREGATION

The process of aggregating inputs from multiple users and spreadsheets also inhibits planning effectiveness. A single person or task group has to collect the numerous spreadsheets and consolidate them into a single version. Even if individual spreadsheets are error-free, consolidation is a tremendous undertaking that can lumber on for weeks. Further, model mismatches can arise from an item inappropriately added to a submitted model update. If submitted models are not identical, data will not consolidate correctly. And of course, aggregation difficulties increase with the number of spreadsheet contributors across the enterprise.

SPREADSHEET PLANNING IN REAL TIME? IMPOSSIBLE!

The error-prone, narrowly focused, cumbersome spreadsheet planning and analysis process simply does not permit companies to alter plans, reforecast, or modify budgets in real time. According to META Group analysts Van Decker, Alarcon, Boyle, Brand, Handler, Folger, et al. (2002) the effort required to consolidate hundreds (or thousands) of spreadsheets inhibits quick reaction to changes in the economy, market conditions, or competitive conditions. For example, because the spreadsheet-based planning process moves so slowly, timely gathering of cross-enterprise information to allocate funds for accelerating research and product creation typicaly proves a near-impossibility, at great loss of competitive advantage. Furthermore, when conditions demand rapid reaction, but real-time information is lacking, executives may be forced to rely on educated guesswork or worse still, a "gut-level" hunch.

RELEVANCE AND CREDIBILITY

The spreadsheet-based planning process is so flawed that, according to Van Decker, Alarcon, Boyle, Brand, Handler, Folger, et al., operational-level managers often regard the entire planning and performance management process as irrelevant. The plans, budgets, and forecasts they submit are changed by corporate planning overlays, but the changes are not communicated to line management. As a result, managers take the process with a grain of salt, and pay scant attention to corporate goals or vision statements in day-to-day operations, because such "artifacts" from headquarters are wholly out-of-touch with the realities managers regularly face.

CONCLUSION

In fairness, it must be said that spreadsheets have proved a useful personal productivity tool across most areas of human endeavor—but not for enterprise planning. Spreadsheets can manipulate numbers, it's true, but spreadsheets are greatly limited because they depend on fallible human users to generate complex formulas and macro routines. And since spreadsheets work poorly in collaborative environments, they are unable to access and aggregate data from disparate sources, and can hardly be considered an enterprise solution.

Further, the use of spreadsheets for enterprise planning can result in significant error at a cost of millions, and can occasion serious doubt on the integrity of strategic plans overall. Spreadsheets make plans and reports difficult to maintain, and 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 true enterprise planning solution is available, however: Cognos Enterprise Planning Series, the undisputed leader in planning applications. The Cognos solution represents unrivaled domain expertise in every aspect of the planning process—budgeting, forecasting, modeling, analytics, reporting, performance management—across virtually every industry. For information, please visit www.cognos.com.

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