eBook

CONSTRUCTION + SPREADSHEETS = RISK

Why Excel is wreaking havoc on your profitability

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More than 1.2 billion people—that's one in seven people on the planet—use Microsoft Office, a bundled collection of productivity software. First released in 1983, Microsoft Office has become the standard in the workplace and schools, and of its programs, Excel is one of the most commonly used. Nearly every business dealing with any type or amount of data uses Excel as a spreadsheet, from small companies all the way up to Fortune 500 corporations.

Excel includes basic database features, allowing users to perform mathematical operations, display numbers and equations, create macros to automate tasks, and provide functions to manage data. Most employees currently in the workforce claim proficiency in Excel, and a huge portion of the world's economy is managed in this particular software.

Despite its popularity, criticism of Excel is starting to come to light. What originated with rumblings among IT professionals and tech blogs has recently expanded into major business and technology publications, such as Forbes (who suggests Excel might be "the most dangerous software on the planet"), Fortune (who accuses Excel of "ruining the world"), and ArsTechnica (who declares Excel to be "the ruiner of global economies"). Harsh words, but why the criticism and what can be done to protect you, your company, and your data against Excel's shortfalls?

1.2 BILLION PEOPLE

1 IN 7 PEOPLE

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NOT AS EASY AS IT LOOKS

If it were possible to use Excel with a zero percent error rate, the usefulness and power of the program might be hard to argue with. However, even the most experienced computer user makes mistakes, and Excel was not designed to be forgiving of errors. Audits have shown that nearly 90 percent of all large spreadsheets, (defined by the auditors as spreadsheets with more than 150 rows), contain serious errors and that users have up to a 1.79 percent chance of making an error per cell. Those statistics would suggest that when a spreadsheet gets to be tens of thousands of cells large, there are going to be a lot of mistakes...which leads to costly repercussions.

But why are user errors considered to be more plentiful for spreadsheets, compared to other types of programs? Some experts blame the interface, which is simple—deceptively simple. On the resumes of most people currently in the workforce, you'll likely find Excel listed as one of their proficiencies. And while it's true that Excel can be used by almost anyone for simple tasks, for most people, their knowledge of the program ends with basic data input. It takes time to develop competence with Excel and the learning curve can be steep, as it is an incredibly complex software. For example, each individual cell can contain any of the following: operational values, document properties, file names, sheet names, file paths, external links, formulas, hidden cells, nested IFs and macros; each workbook can contain hidden sheets and "very hidden" sheets (ones that do not appear in the Unhide dialog box, whereas hidden sheets do). For those who do venture into the more complex functions of Excel, the process can be very intimidating. And even for users who are only attempting basic data entry, it's easy to unintentionally get bogged down in formulas and equations with a mis-click of the mouse.

Using Excel is a lot like cooking—the average person can throw some ingredients together and end up with a (mostly) edible meal. But true culinary artistry involves training in food science and technology, and there is a noticeable difference in the output of an occasional weekend cook versus a trained chef.

90%

OF ALL LARGE SPREADSHEETS CONTAIN SERIOUS ERRORS

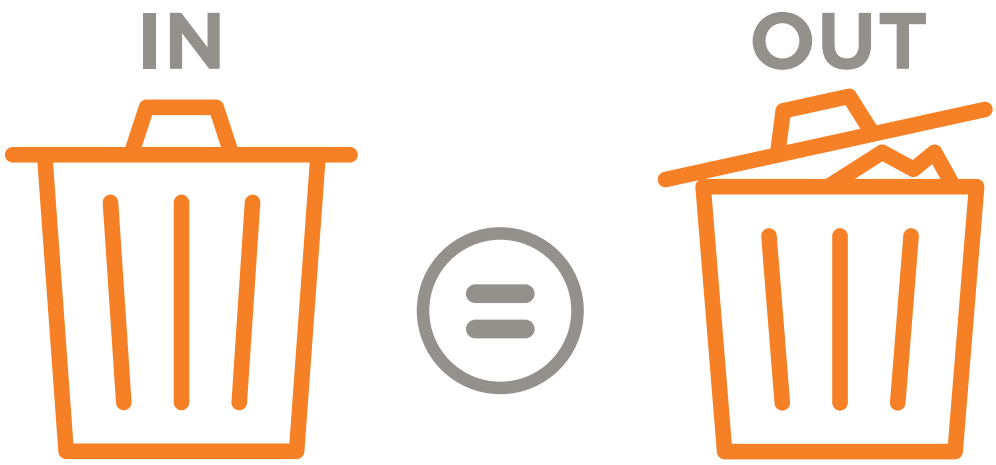
GARBAGE IN, GARBAGE OUT

Compounding the issue is the lack of an automated self-checking process in Excel. Users must create their own tests to check for errors in their spreadsheet, and while there are tutorials online to do so, it's not practical to expect every Excel user to seek them out and implement them correctly. Unfortunately, Excel does what is referred to in the industry as GIGO—"Garbage In, Garbage Out"—which means it will execute the tasks entered whether they are accurate or not.

Several large corporations learned the hard way that using a spreadsheet program that doesn't check itself can bring catastrophic results. In 2012, JP Morgan Chase suffered a $6.2 billion trading loss that was eventually traced to a quantitative analyst in London who was manually copying and pasting data from one Excel spreadsheet to another. The second spreadsheet, a VaR (Value at Risk) model that was intended to help JP Morgan Chase determine risks and rewards of trading, had a user error in it that led risk officers at the bank to believe that credit derivative bets were half as risky as they actually were. This debacle, known as the "London Whale," cost the bank billions of dollars and embarrassed them on an international stage.

JP Morgan Chase's experience highlights another weakness of Excel: the lack of automatic data transfer across datasets. Excel requires a lot of manual data entry, which encourages users to cut and paste information. This opens the door not only for mistakes to occur, but to compound and spiral out of control. Excel's dependency upon user-created formulas and formatting also creates many opportunities for errors.

It's worrying to think of a simple user error causing such chaos, and it happens frequently on all levels of business in virtually every industry. For example, Excel is relied upon in the construction industry for job costing, estimating, accounting, and other tasks that have a profound impact upon a business's bottom line.

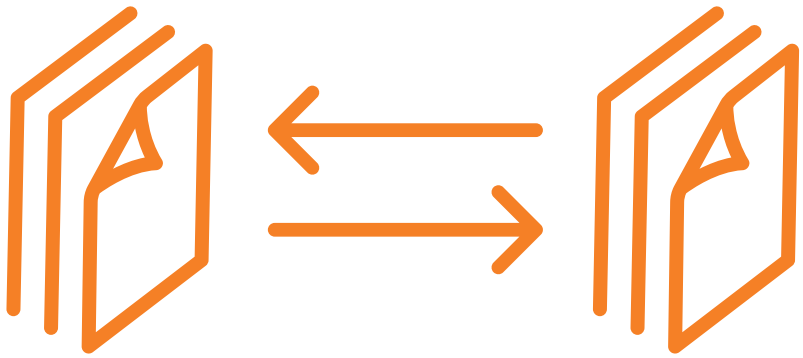


SPREADSHEETS IN THE ERA OF COLLABORATION

Spreadsheets are often collaborative efforts made across teams, and without an ability to track changes in Excel, users may inadvertently insert duplicate or erroneous data without other users knowing. It is so common an issue that the tech industry has coined the term "dueling spreadsheets" to refer to multiple mismatched versions of the same spreadsheet. Additionally, the lack of an audit trail makes it alarmingly easy to type over a cell by mistake and never realize it.

Though it looks like a database, Excel does not function the same way and cannot handle large amounts of information as effectively as a database or a dedicated project management platform due to its size limit and design; Excel tends to slow down drastically when overburdened with data. Also, the strict limit to the number of cells you can create in an Excel spreadsheet can result in lost data when trying to input more than the document can handle.

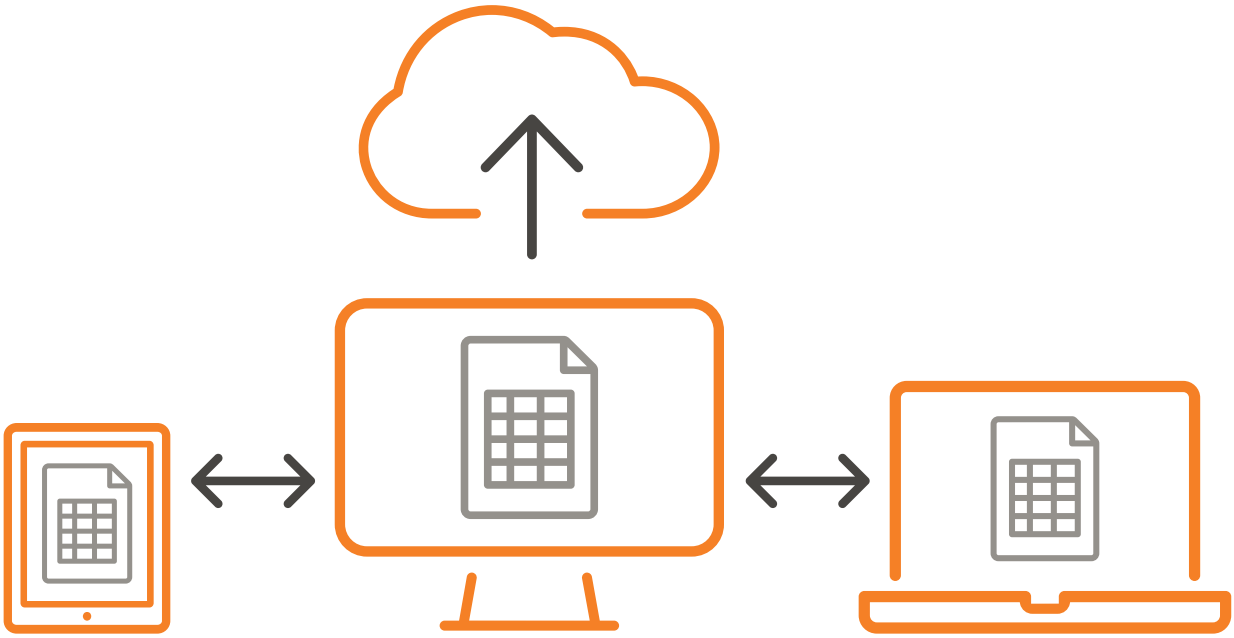
A lack of security is another black mark against Excel, which opens its data to the possibility of fraud due to an inherent lack of controls over who can edit cells as well as the ease of stealthily altering formulas, values, or dependencies without being detected. Like any software, Excel is occasionally released with weaknesses that go unnoticed until they have already been exploited by hackers. As recently as December 2014, a vulnerability in Excel allowed attackers to gain the same user rights as the person using the spreadsheet at the time; if that person was logged on with administrative user rights, a hacker could then install programs; view, change, or delete data; or create new accounts with full user rights. While Microsoft does its best to patch these vulnerabilities, the damage to an individual or company might already be done.



IF NOT EXCEL, THEN WHAT?

If you are starting to think twice about using Excel for your business, don't worry, there are plenty of alternatives out there, and even software that is specific to the construction industry. Construction software with mobile applications are helping companies retain the benefits of spreadsheets while eliminating the problems. These new solutions offer improved collaboration and communication with unlimited storage space, best-in-class security, and role-based permission levels and version controls.

Most importantly, unlike Excel, construction software applications allow users to effectively collaborate on project documentation. With Excel, users have to make updates to the document, save them with a date or version number, and send back for the next person to do the same thing—very inefficient and error-prone. With construction project management software, all contributors have instant access to the document and when they make edits, all parties are notified in real time and able to respond accordingly. There's no need to save the latest version and redistribute—it's already in the software for all to see.



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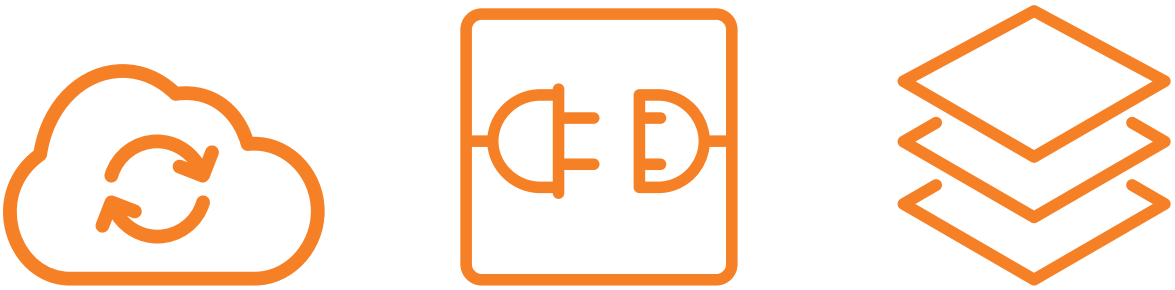
A term that has become familiar to the average computer user is Software-as-a-Service, or SaaS. Being able to buy software that is hosted in the cloud and can be used on demand has conferred big benefits on companies that were formerly challenged to procure and install physical copies of software programs. The next term that may become a part of almost everyone's vocabulary is Platform-as-a-Service, or PaaS. A computer "platform" is an underlying system that supports the running of individual applications, or programs. Like platforms in the built environment, these metaphorical platforms provide a base structure, or scaffold, onto which multiple components can attach. PaaS, then, describes a category of cloud services in which the service provider facilitates the delivery of multiple, related applications on almost any ordinary mobile device. The ultimate promise of PaaS is that all relevant data—no matter how specialized it is or how it's formatted—will flow from program to program, wherever it's needed.



Many companies are reinventing themselves to be more than software providers—they are becoming platform providers. This means, for starters, that they have paved the way for their customers' success by integrating their own programs with other commonly used programs in the industry, such as accounting software and estimating software. Some companies are even offering open source application program interfaces (APIs), allowing outside software developers to build new and useful tools around the existing program.

WHAT TO LOOK FOR IN AN ALTERNATIVE

When selecting a construction management software, look for the following features:

- Unlimited space in a program that doesn't slow down when you add a lot of data
- Collaborative features that allow multiple users to work on the same document without the risk of duplicate entries or "dueling spreadsheets"
- An auditing system that allows you to track changes
- Simple creation and exportation of reports
- Integration with other software
- Automatic syncing of data
- Security protocols, such as secure client login portals, data security, and permission levels to prevent the wrong person from editing your data and two-factor authentication

Recent technological developments take interoperability between programs to a level that was unheard of back in the days when Excel was created. Software providers are adjusting their offerings accordingly, with programs and services that help firms reduce costly mistakes, saving them both time and money. It may be time, therefore, for your company to usher in a new generation of software...and show Excel the door!

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