

The image shows three business professionals in an office setting. In the foreground, a woman with short, curly hair is looking towards the left. Behind her, a man with glasses and a beard is also looking left. In the background, another woman is visible, looking down. They are all dressed in professional attire. The background is a plain, light-colored wall.

infor

BEST PRACTICE GUIDE

Five ways modern analytics reduce spreadsheet risk and inefficiency

The business case for retiring spreadsheets

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When business leaders want to leverage data for better and more strategic decision-making, it is common for analysts to bypass IT and reach for their favorite spreadsheet. Spreadsheets are often the tool of choice to store, manage, analyze, arrange, and present information for financial planning, data analysis, compliance, and more. Ironically, for many business processes that involve managing data, spreadsheets create the exact opposite effect—inefficiency. And because spreadsheets can store organizational data in a readily sharable way, there is a high risk of exposing confidential information.

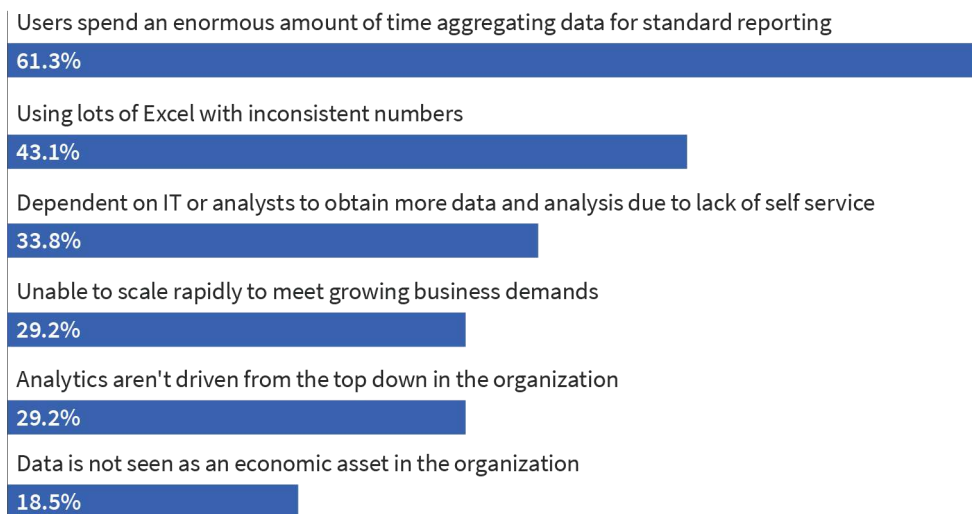
Many organizations manage multiple cloud and legacy back-office systems, making spreadsheets the lowest common denominator for executing on cross-functional data, analytics, and performance management requirements across heterogeneous systems. Excel's perceived flexibility and ease of use make it the go-to solution for these custom workflows. Many small-to-medium businesses (SMBs) start off with spreadsheets to manually manage financial, compliance, and analytic workflows. However, these spreadsheet-driven processes are not sustainable as organizations expand and grow. To gain a better insight into the challenges surrounding the use of spreadsheets for data and analytics use cases, Infor® surveyed 150 organizations of all sizes and industries on the challenges associated with data-driven decision-making. The poll showed that 43% of users were in spreadsheet misery, and 61% of users waste time aggregating data in tools like Excel.¹

We continue to read stories of common spreadsheet errors. Just recently, in October 2020 during the second wave of COVID-19 in Europe, an Excel spreadsheet blunder under-reported 16,000 COVID-19 cases in England.² Any organization's goal must be to minimize these risks by integrating spreadsheets into governed processes or automating them completely. Unfortunately, business users are not motivated to mitigate those risks without an alternative solution that offers the same control, flexibility, ease of use, innovation, and ROI. After all, spreadsheets are ubiquitous.

While spreadsheet use associated with enterprise performance management (EPM) may still be common, there are still numerous concerns about employing this method.

This best practice guide will describe how five common spreadsheet-driven business processes can be replaced or integrated with a modern data and analytics architecture. Through automating best practice processes, application workflows can be delivered out-of-the-box and configurable to match business requirements, as well as how users do their jobs and make decisions. Organizations can not only gain a deeper trust in their data through a centralized, governed, and collaborative approach, but they can also discover additional value with integrated machine learning, artificial intelligence, and other innovative services.

Asked to name one or more of the biggest challenges to data-driven decision making at their respective organizations, respondents replied:



Source: Infor, internal research

Why spreadsheets are so popular

At the most basic level, spreadsheets provide a great deal of user control—right down to the single-cell level. For example, spreadsheets have become a finance professional's go-to application because of their ease of use, and because spreadsheets give the user a sense of control and ownership. When few people are involved, a user can easily collaborate through a simple email send without worrying about the receiver not having the tools, skills, or training to consume the information.

For these reasons, spreadsheets are here to stay with many software tools seamlessly connecting to Excel in various ways that keep users happy. To minimize spreadsheet risk, however, a modern data and analytics architecture must provide the foundation for data integrity and efficiency, while offering the flexibility for spreadsheets to be an optional front-end interface to trusted data. Users benefit from having the option to continue to use a spreadsheet interface without moving the data and creating data silos and inconsistencies.

Ten reasons why users love spreadsheets

- Free for end-users
- User control
- Easy to access
- Easy to use
- Easy to share
- Easy to edit
- Flexible
- User-defined formulas
- Range of utilities to manage and process data
- Programmable

Why spreadsheets hurt organizations

Hidden within spreadsheets is an inherent risk and cost—formulas not repopulating correctly, “copy and paste” and merging records not done correctly, information hidden behind formatting, coworkers using different versions of a saved spreadsheet, and other actions that create errors, wasted time and low data quality. Business decisions based on inaccurate data could negatively impact productivity, revenue, reputation, compliance, and brand.

Common spreadsheet dangers

	A	B	C
1	Errors	Poor governance	Data silos
2	Poor data quality	Not centralized	No collaboration
3	Cascading cell errors	No audit trails	Static and stale
4	Time-consuming	Inadequate security	Poor version control
5	Data volume limitations	Not secure	Labor-intensive

For example, when you're handling money in a spreadsheet, a simple error can cost thousands, if not millions, of dollars. A misplaced decimal point, typing the wrong number, adding an extra zero—these errors have wide-reaching effects and are, unfortunately, extremely common.

The situation is made worse since it's impossible to securely encrypt confidential information in a spreadsheet, leaving critical financial information in danger and untraceable. Even password-protected spreadsheets can be hacked in a matter of minutes. On top of that, storing information on employee computers means that you might lose data if the computer crashes.

We can look at the process for auditing and compliance as a good example of the dangers of spreadsheets, and why some audits fail due to spreadsheet workflows. On initial view, spreadsheets are used here because they seem simple to use, with the ability to link data across different documents and automate basic tasks. However, current audit regulations require many more attributes and details about internal control, causing spreadsheet-driven audits to lack any semblance of speed, efficiency, and consistency. In the landmark report *Sarbanes-Oxley: What About all the Spreadsheets?*, the report's writers noted that serious errors were found in 94% of all real-world audits.³

Here are key risks related to using spreadsheets for your auditing and compliance programs:

- Version control—an out-of-date download
- Partial or incomplete download
- Miss key of information by a user or deleted data
- Analysis of an inconsistent or incomplete data set
- Process owners left in the dark by hidden rules

Five common spreadsheet-driven processes that a modern cloud solution can replace

As part of their digital transformation efforts, organizations should capture the value of replacing spreadsheet-driven processes with a modern data and analytics architecture. Adopting modern applications with automation improves access to information in real-time. When applied to financial processes such as accounting, budgeting, and forecasting, organizations can be more confident that information is accurate, up to date, and consistent.

CFOs are recommended to take the lead when it comes to embracing digital transformation and automation. They can present a business case requiring real-time visibility into financial data and why spreadsheets cannot be trusted. CFOs are often trusted advisors to other departments, making it even more crucial to have a digital strategy that enables everyone to seamlessly and securely share information and make connected, data-driven decisions.

There are at least five identified business processes that a modern data and analytics architecture automates and delivers more value compared with spreadsheet-driven processes:

1. Budgeting and planning
2. Financial consolidation
3. Business intelligence and analytics
4. Customer and supplier communication
5. Auditing and controls

"Enterprise performance management is an essential part of success in the digital economy. Enterprises need to have full visibility into the state of the business to plan strategically and operationalize those plans, and that is where EPM tools are needed," said Chandana Gopal, research director, Business Analytics, at IDC. "However, EPM tools have to maintain the look and feel of working with spreadsheets and be easy and intuitive to be owned and managed by the line of business as they don't want to be dependent on IT for use and administration."⁵

Characteristics of a modern data and analytics architecture

- **Ease of use:** Modern UI that is easy to learn, navigate, and collaborate
- **Self-service:** Limited IT involvement, designed for the business user
- **Flexible and open:** Customizable and extensible to match requirements of the business
- **Lower costs:** Automated data integration processes, saving time and resources
- **Less risk:** Centralized and trusted data with controls
- **Simple to deploy:** Single multi-tenant provisioning for all services

1. Budgeting and planning

Running a budgeting and planning process using spreadsheets is fraught with danger. Imagine if each person wants to make modifications or combine data from other spreadsheets. This immediately creates chaos and loss of control over the budgeting process. Additionally, managing the correct version of a file becomes a problem since there is no way to track changes and reconcile. You cannot find out what has changed, and you don't know whether the formulas and the logic you put in the original spreadsheet are still the same.

Now apply these issues to an organization that is doing budgeting and planning across various departments, multiple locations, and geographies for many products. Multiply these together, and you could potentially have thousands of errors resulting in the finance department having to spend hours checking for data consistency and errors. Another consideration is the security risk associated with maintaining a single spreadsheet file for budgeting across the entire company. Do you send a single file to all departments because some collaboration and oversight is needed? Or, is the information sensitive and you must split the file into smaller units to prevent misuse of information? In either scenario, you still run the risk of information in the spreadsheet being changed and untraceable and impossible to reconcile.

We know that managing data in spreadsheets can be tedious and time-consuming. Behind an expense line, some departments, such as HR, may want to provide a rollup, but details such as individual salaries should not be shared with other departments. This is when the integration of a modern data and analytics architecture and spreadsheets can add value. The department budget owners manage the plan details in spreadsheets where they remain private, but summaries can then be linked to a centralized hub populated with trusted data.

Modern data and analytics applications offer out-of-the-box budgeting, planning, and forecasting software to improve visibility into the financial process by connecting to an organization's core enterprise resource planning (ERP) system to bring information together to generate an overview of the budgets, plans, and actuals in just a few clicks. Data across other departments is also automatically collected and centralized, enabling the system to address a broader set of performance management use cases in addition to financial processes. These include sales and operational planning, supply demand planning, workforce planning, and more.

These modern application workflows are implemented based on industry best practices and accessed through a modern, consumer-grade user interface. Authorized power users access sophisticated yet user-friendly modeling and what-if scenario planning, while other teams access the system through tasks assigned to them. These capabilities allow you to accelerate the speed of the budgeting process, while also improving the accuracy of information.

At the same time, this modern solution seamlessly integrates with spreadsheets as an interface, enabling users to enter their own formulas and local data without corrupting the single source of truth. For larger enterprises, workflow management, multiple currencies, conversion rates, and basic or complex allocations are all supported.

A leading European manufacturer of trucks used to spend at least four days checking every single cell and formula in a monthly budget. That translates to 32 hours every month for work that is now automated with modern data and analytics.⁴

■ **According to Gartner, finance departments can save their teams 25,000 hours of avoidable rework caused by human errors by deploying robotic process automation (RPA) in their financial reporting processes.⁵**

2. Financial consolidation

The financial consolidation, close, and reporting process is one that most organizations continue to struggle with using spreadsheets. When an organization is small, it's usually straightforward to manage books' closure for the accounting cycle, collect financial data, and generate financial statements for internal management and external reporting. As the business grows and expands, when acquiring other entities, consolidated financial statements are required by a parent company to show the true view of their current financial position by combining all entities' financial information.

When you begin the process of closing out using spreadsheets, data must be collected, processed, and presented manually to provide an accurate view of the parent company and its entities. When several entities are involved, this can be very complex, error-prone, and labor-intensive as each entity may have a different ERP or database system managing the data.

For example, during the data collection process, complex mapping may be required between the chart of each entity's accounts to the parent holding company's global chart of account. Because systems are dynamic and change, you need to check all the mapping tables, data connections, formats and understand how you want to move it to the spreadsheets every month.

These are the key areas that typically pose challenges when using spreadsheets for financial consolidation:

- Data collection from multiple source systems
- Multi-currency data
- Inter-company transactions
- Complex ownership structures
- Top-level consolidation adjustments
- Multiple reporting requirements
- Disconnected audit trail of data

Modern data and analytics offer out-of-the-box financial consolidation software to simplify the process of collecting, consolidating, and reporting accurately from operating units worldwide, while quickly delivering financial results to senior internal management and external stakeholders. Because this modern software integrates with multiple general ledgers and other data sources, you get built-in support for complexities such as currency translation, intercompany eliminations, and reporting under numerous accounting guidelines, such as US GAAP or IFRS. Organizations can improve data accuracy, comply with regulations, and close books more quickly and confidently.

These modern application workflows leverage a common data and analytics architecture where flexible, self-service reporting tools allow finance users to easily create and produce a wide variety of financial and management reports, with little or no IT support. To keep financial teams happy, users can connect to information using a spreadsheet interface while maintaining data governance and integrity.

A leading nationwide operator of retail travel centers dedicated 12 hours for the end of month financial reporting. That translates to 144 hours a year that is now automated with modern data and analytics.⁶

“ Effective analytic applications provide some type of workflow to guide the business user in using the application. The workflow not only makes it easier to learn, but also guides the user with recommendations on a decision. The visualizations hide the complexity and provide just the relevant analytics and data needed by the business user. [...] Some analytic applications also have out-of-the-box integration with operational systems used by the LOB function, eliminating the need for users to learn a new application.”

GARTNER, [When to Choose a Line-of-Business Analytic Application](#)⁷

The dangers of spreadsheets

An analysis of multiple studies found that close to 90% of spreadsheets have errors. "We know that people make errors in approximately 2% of all unique formula cells even with careful development," notes Ray Panko, a professor of IT management at the University of Hawaii and author of this analysis. "We know, as a consequence, that all large spreadsheets will contain many errors after careful development."³

A casual search of the internet will reveal thousands of examples of spreadsheets having a significant impact on organizations:

- A spreadsheet error with **NHS Test and Trace contact tracing** led to a backlog of thousands of positive cases, while a separate spreadsheet user error in Brazil **leaked COVID-19 patient health and personal information**.
- BlackRock, the world's largest asset manager, accidentally **posted spreadsheets with confidential information** on its website compromising the privacy of thousands of its financial advisor clients.
- The private data for 36,000 Boeing employees was compromised **when a spreadsheet was emailed outside the company**. The data, which was in "hidden" columns included social security numbers and dates of birth.
- Hiding cells instead of deleting them **cost Barclays bank millions** during the 2008 financial crisis.
- A cut and paste error cost **TransAlta \$24 million**, while a similar cut and paste error also cost **JP Morgan \$6 billion**.

3. Business intelligence and analytics

Organizations that rely heavily on IT for reporting and analysis often find themselves riddled with spreadsheets due to end-user demand for self-service reporting and analysis. With legacy business intelligence (BI) and reporting tools, it is very common for data to be locked away in source systems because IT controls how data is extracted, processed, and analyzed. As a result, IT ends up delivering information to the business that is out-of-date, incomplete, or not relevant to the business.

Because business results must be delivered to executives promptly, business analysts in each line of business (LOB) end up bypassing IT to obtain data extracts directly from application owners to generate reports and charts in spreadsheets. This spreadsheet-driven process leads to inconsistent numbers reported in management meetings due to each analyst creating a different version of the report or calculating KPIs differently. This siloed approach is also very costly due to the time-consuming manual processes used to compile data and present it.

In organizations that rely on spreadsheets for reporting and analysis, the CEO often suffers the most significant consequences as they are presented with multiple and inconsistent “versions of the truth.” As a result, the CEO cannot make quick decisions, and opportunities are lost.

Because the reporting and analytic process can be very time consuming, especially when organizations have data spread across multiple sources with diverse reporting requirements. Modern analytics platforms leverage machine learning to automate tasks such as data preparation, visualization, and presentation. Organizations no longer must spend months on data integration and constantly building the right report for the right user in the correct format. Instead, modern data analytics deliver fast time to value, enabling the business user to make data-driven decisions. Administrators, developers, and analysts no longer waste massive amounts of resources managing a reporting factory but rather reallocate resources to serve the business with more innovative analytic projects such as predictive and prescriptive analytics.

Modern data and analytics also offer machine learning-driven insights that are relevant and consumable by every role in the organization. Front-line workers and non-technical users simply want actionable insights without having to navigate through the data to diagnose problems or uncover drivers affecting business performance.

Machine-generated insights, storytelling, embedded analytics, and in-context analytics are new workflows of presenting the business user with more interesting, relevant, and useful information that supports decision-making. Everyone is looking at the same numbers in real-time, with access to self-service capabilities such as ad hoc querying and drilling down to transactions. Without IT involvement, users can take analysis in any direction, such as blending local data or performing advanced analysis and calculations without corrupting trusted data.

A food and beverage manufacturer used to have three full-time employees dedicated to supporting excel-based reporting and analytic demands from the business. This translates to at least a \$200,000 expense for manual processes that are now automated with modern data and analytics.⁹

4. Customer and supplier communication

In almost every industry, sharing data and insights with customers and suppliers can dramatically improve relationships and revenues. Spreadsheet-based approaches to reporting and analytics may force organizations to email information outside of the company to share and collaborate on data and insights. The problem with this process is that it is very manual, time-consuming, and error-prone. The data must be separated and sent individually as each customer/partner must only see the information they were authorized to view. By the time the information reaches the customer or partner, the data may not be relevant anymore.

For example, a distribution company can generate more revenues by sharing real-time inventory information with suppliers to optimize supplier fill rates. When the supplier receives an email from a distributor with a spreadsheet-based inventory report, the data is not real-time, which means time-sensitive issues cannot be corrected. This translates into lost revenue due to not having the right products at the right place at the right time.

Spreadsheet-based approaches to reporting and analytics also prevent organizations from efficiently monetizing data, as manual processes are not scalable because each customer or partner requires customization. When you factor in that embedded analytics could be a significant competitive differentiator, spreadsheet-based approaches are just not going to work to meet customer expectations, leading to difficult selling conditions and customer churn.

Modern data and analytics also offer out-of-the-box APIs to allow developers to seamlessly and securely embed analytics into an application, services, portals, and extranets. This enables customers and partners to gain direct access to real-time, trusted information, making it easier to collaborate and make strategic decisions together and on-demand without leaving your customer support application.

Many organizations that provide embedded analytics also offer value-added services such as ad hoc analysis and drill down to transaction detail, the ability to integrate third-party data, building their own custom reports and visualizations, and offer predictive and prescriptive analytics. Empowering customers and partners with powerful analytic capabilities will create more loyalty, differentiate services, and drive growth.

A leading ticketing solutions provider that supplies data monetization and analytics to the entertainment industry used to have two full-time employees responsible for compiling data in Excel. With automation, the client has reallocated these resources to building out enhanced services for its clients to gain a competitive advantage.⁹

5. Auditing and compliance

Many organizations, especially ones that go through mergers and acquisitions, are forced to manually monitor their access and financial controls in spreadsheets due to information spread across multiple ERP solutions. As a result, audits are not conducted regularly, and inappropriate access permissions may be granted to users. A single violation of these controls can lead to losses from fraud, issues with regulatory compliance, errors in financial statements, duplicate payments to vendors, unapproved purchases, or unauthorized changes to application settings.

“SOX teams that rely solely on spreadsheet and word processing applications, or legacy GRC systems, to manage their control environments spend extensive time dealing with version control issues, manually making individual control changes across dozens or so documents, and preparing status reports.”

PROVITI, [SOX compliance amid a new business equilibrium](#)¹⁰

Take, for example, the spreadsheet-driven process for segregation of duties (SOD). This process can become very lengthy and filled with errors due to the need to go through several verification iterations across teams. First, internal auditors manually collect and compile data across various application sources, then a list of users and assigned roles is compiled and then prepared into a structure that is used for analysis such as a combination of rules that can be assigned to the user that do not create any SOD risks. Next, the spreadsheet formulas and list of controls must be verified closely since the data is manually compiled and analyzed. The analysis result may well uncover violations that are also captured in a spreadsheet and linked to separate documents with tasks to mitigate. What ends up is a long list of tasks and a lot of back and forth just for SOD verification.

This entire spreadsheet-driven process can be extremely costly and risky when you are an organization that has multiple divisions or entities across different geographic locations. And because audits must typically be completed promptly; tasks may be rushed, which can result in mistakes such as not validating a particular combination or not configuring a formula correctly. Failure of audits due to inaccurate data, not meeting deadlines, or errors due to spot checks can result in fines for the business and impact on business operations.

A modern data and analytics architecture offers out-of-the-box risk and compliance software to support all types of internal and external audits, enabling finance, audit, and IT users to share a common platform to monitor controls across all of their key applications independently. These platforms analyze your user roles to proactively detect segregation of duties violations and potential issues in posted transactions and master data. Through automation, you can consistently and actively manage multiple types of risk across your business to improve operational effectiveness and efficiency.

A global diversified product manufacturer discovered users having inappropriate access due to manual processes for employee provisioning and role certifications across heterogeneous ERP systems. This translated into higher business risk and operational costs, which are now resolved through a centralized and automated system.¹¹

Conclusion

Replacing these five spreadsheet-based processes with a modern data and analytics architecture can save time and money—and reduce risk. By reallocating resources to higher-value activities, you can better align with your business priorities. Spreadsheet processes are time traps and a barrier to growth, as employees are required to perform multiple hours of fact-checking and cross-referencing each day. These tasks are necessary, but manual process tasks take time away from innovation or finding insights and acting on them.

Using modern data and analytics means that everyone in your company has access to the same information; you don't have to spend time wondering if there's a newer or better version of your spreadsheet stored on someone else's computer.

Undertaking digital transformation with a modern data and analytics architecture is the only way to really be successful, and we strongly recommend examining your processes that are currently using spreadsheets and moving them over to a modern, automated technology platform. Start with the five processes described in this best practice guide, and once replaced, no one will want to revert back to spreadsheets.

¹ Infor, internal research, 2020.

² James Vincent, "Excel spreadsheet error blamed for UK's 16,000 missing coronavirus cases," The Verge, Oct 5, 2020.

³ Raymond Panko and Nicholas Ordway, *Sarbanes-Oxley: What About all the Spreadsheets?*, 2008.

⁴ Infor, internal research, 2020.

⁵ Gartner, *Gartner Says Robotic Process Automation Can Save Finance Departments 25,000 Hours of Avoidable Work Annually*, October 2, 2019, press release.

⁶ Infor, *Pilot Flying J refuels its analytics with Birst*, case study, 2020.

⁷ Gartner, *When to Choose a Line-of-Business Analytic Application*, October 19, 2020.

⁸ Infor, internal research, 2020.

⁹ Infor, internal research, 2020.

¹⁰ Proviti, *SOX compliance amid a new business equilibrium*, 2020

¹¹ Infor, internal research, 2020.

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