



Making Business  
Intelligence Easy

White Paper

Spreadsheet reporting within a BI framework

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## Overview

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Despite all of the technology advancements, excel spreadsheets are still widely used by business users to create stand alone databases that allow them to merge external and internal data for reporting and analysis purposes. There are many reasons why this occurs, however; fundamentally it is because the business user does not have a viable alternative. They use spreadsheets because they do not have a choice. Spreadsheet reporting exists because:

1. Not all decision making data is accessible, centralized or formalized
2. Business users lack alternative tools to create and share their reports
3. Business users lack IT support to access their data in a timely manner

The lack of access to a BI tool that supports spreadsheets as a data source and the lack of IT priority assigned to managing the spreadsheet data issue contribute to the continued use of spreadsheets as a reporting tool.

As a result organizations put themselves at tremendous risk when basing decisions on spreadsheets that are recognized as being prone to error and are limited in many ways. Risks include:

1. Lack of regulatory compliance
2. Lack of data governance & data quality
3. Delayed access to data for decision-making
4. Lost productivity
5. Dependency on the spreadsheet gatekeeper

In this whitepaper we explore why spreadsheet reporting is pervasive. Why is it that business users continue to rely on spreadsheets for so much of their reporting needs. In addition we will explore what the ramifications of spreadsheet reporting are, including the risks and issues that it poses to organizations and what steps can be taken to mitigate these.

Beyond that, we analyze why Business Intelligence solutions need to accommodate spreadsheet reporting. Spreadsheets do provide very real value to an organization but the cost and risks need to be minimized. This can easily be achieved with the appropriate BI tools, corporate governance and common sense. In this we will focus on the technology that has to underpin spreadsheet management within an organization, and what is involved in adopting Business Intelligence with spreadsheets as a data source.

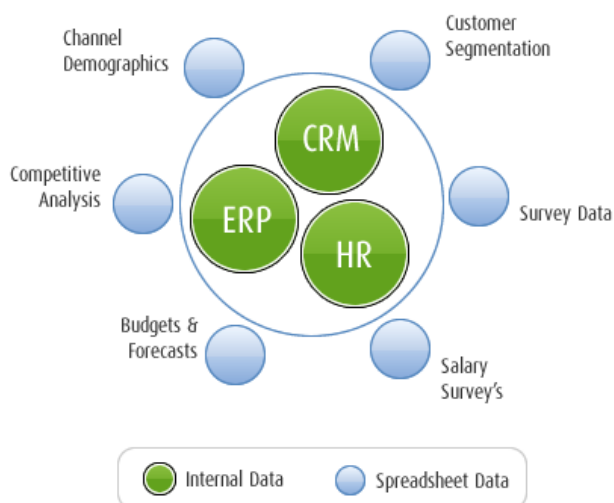
Spreadsheet reporting can be managed, and utilized to the best of its abilities. This white paper will explore these issues in further detail.

## What is spreadsheet reporting and why does it exist?

Since 1985 when Microsoft introduced Excel, spreadsheets have become pervasive and are used by people at all levels of organizations to collect and report on data. Generally spreadsheets are used as surrogate reporting databases within organizations. They are used to collect and manage data from multiple disparate data sources, to build reports and to share these reports among a user community. Are spreadsheets the ideal mechanism for undertaking these activities? No, and most organizations would agree. It is not that business users use spreadsheets by choice – they use them by necessity. This necessity is driven by that fact that:

1. Not all decision making data is accessible, centralized or formalized
2. Business users lack alternative tools to create and share their reports
3. Business users lack IT support to access their data in a timely manner

Typically 70% of organizations data assets used for decision-making consist of internal data (stored in an ERP, CRM and other formalized production systems) while the other 30% is external to these systems (such as budgeting information, external benchmark or market data etc). To make reliable business decisions, business users must be able to merge multiple internal data sets as well as their external data. Due to the complexity of engaging with IT to develop a formalized and centralized approach, the alternative for business users has been to do the opposite - extract data from internal systems and merge that with external data sets.



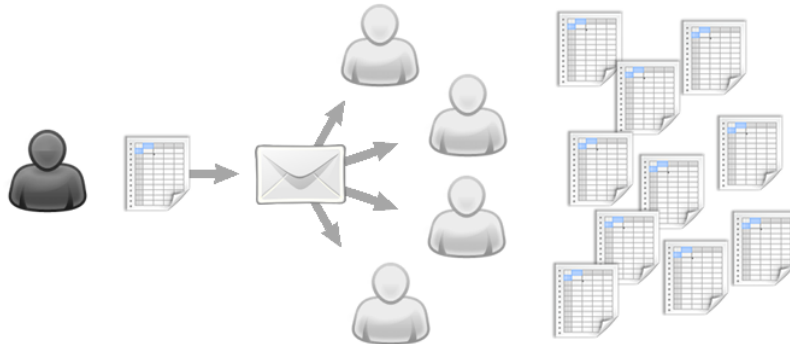
Even if all a users decision-making data was centralized most business users do not have the right tools to access and report from this data, and then to share these reports with their peers. Traditional Business Intelligence tools are typically overly complex and too expensive for mass deployment. So the business user resorts to what is available to them and within their control – the spreadsheet.

Finally, the lack of IT support for day to day Business Intelligence and reporting assistance means that business users want to be able to readily access their data when they need it. One major reason why users are unwilling to eliminate spreadsheets and embed calculations into enterprise applications is that business methodologies—such as pricing, cost allocations, hierarchies, and others—change much too quickly for IT to respond with updates. Once again the tendency is to extract and download the data to their local PC rather than working in a centralized manner. The spreadsheet database lends itself to this purpose very well since the business user is freed from requiring IT assistance.

## Risks and issues with spreadsheets reporting

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The fundamental problem with using spreadsheet reports as the basis for decision-making is that they introduce a range of risks and issues that need to be managed and addressed.



### Spreadsheets introduce version control and proliferation risks

The risks fundamentally stem from the distribution of spreadsheets and the related issues of version control and management. They fall into the following categories:

#### 1. Lack of regulatory compliance

Compliance experts estimate that 80 percent of enterprises use spreadsheets to support critical business functions. For example, in one Deloitte survey of 800 financial professionals, 88 percent said their firms "use spreadsheets of material importance in financial reporting." At the same time, however, research suggests the typical spreadsheet has a 2 to 5 percent error rate.

As a result, spreadsheets are one of the biggest compliance risks facing regulated companies. Indeed, despite their prevalent use, the life of the average spreadsheet is unstructured, untracked, insecure, and potentially just inaccurate. The increasing focus on continuous process improvement, risk management and compliance within financial control functions as a result of the introduction of Sarbanes Oxley and other legislation has identified a potentially critical weakness for many organizations. The reliance on spreadsheets for critical financial reporting processes, consolidation, reconciliations, commission calculations, revenue recognition and other finance processes leading up to the release of financial statements is a major risk for many major corporates.

The lack of risk management processes around these spreadsheets is another major audit and compliance risk, which can result in losses and lawsuits from the errors and flaws that are commonplace within spreadsheets. Few companies, however, test for spreadsheet errors or outright fraud, preferring instead to eyeball results—often with predictable consequences.

#### 2. Lack of data governance & data quality

Manual excel reporting can be (and often is) complicated by a lack of corporate standards for reporting. For example, someone creating a financial summary spreadsheet may gather data from the previous month's accounting records. One hour after that data snapshot is taken, someone in the accounting department may edit last month's records with updated billing information. Because the data snapshot was created manually, without a centralized access point to the data, the spreadsheet is out of date before it is even finished.

Another common problem with manual reporting in spreadsheets is the use of different formulas or definitions to reflect the same concept. For example, the sales department may define sales to be the sum of all contracts signed in a specific time period. The production department may define sales to be the sum of all contracts delivered in a time period. Without a single formula for the value of sales,

different departments and even different individuals will have different results in their reports.

Even if your organization has (and actually uses) agreed-upon and published formulas across all departments, there is always the possibility that someone will make an error in their spreadsheet. These manual reporting errors cause endless hours of wasted effort and, perhaps worse, incorrect decisions based on erroneous data. Wasted effort and bad decisions combine to pose significant risk to organizations.

### 3. Delayed access to data for decision-making

Creating complex spreadsheets, especially when the input data has to be gathered manually, can take a lot of time. Just gathering and verifying the input data can be a time-consuming task. The longer it takes to gather the data and create the spreadsheet, the longer it will be before the decisions can be made. If these decisions affect critical organizational metrics such as resources, inventory, sales, payment schedules and shipments, the results of a delay can be significant. Delayed decisions can mean lost revenue and higher costs. These are the issues involved in the manual reporting in spreadsheets that are often overlooked by many organizations.

Sometimes there is pressure to make a decision even when the data is not available in time. In these circumstances the analysts often make their best guess or hastily gather input data without verifying it. A hastily created spreadsheet can contain countless formulaic errors as well as incorrect data. The results can be disastrous. A bad decision made because of bad data can cost a company millions in lost revenue or added costs.

### 4. Lost productivity

Manual spreadsheet reporting involves manually gathering and verifying input data, manually constructing formulas, manually building charts and graphs and manually distributing the final spreadsheet to colleagues, customers or partners. Staff are taking an extraordinary amount of time – usually many hours – to create, adjust, refine and share their spreadsheet reports.

It is not uncommon for different groups within an organization to create very similar, even identical, spreadsheets. This duplication of effort not only increases the risk of errors due to a lack of standards, but this duplication of effort is a waste of resources. Most often this duplication of effort does not happen simultaneously. More likely, one person creates a spreadsheet to solve a specific problem at a specific point in time. Then, months later, someone in another group or division needs the same report but has no idea that it has already been created. This common scenario results not only in the duplication of effort but in the perpetuation of the same problem since no action is taken to stop a third person from developing the exact same report a third time. This duplication of effort is a clear waste of resources and significant issue associated with manual reporting in Excel.

Finally, lost productivity is not confined to low-level staff. C-Level executives, senior management and line managers in every department spend many hours working on spreadsheets. Rather than spending hours building and manipulating spreadsheets their efforts would be better spent analyzing data and making better business decisions.

### 5. Dependency on the spreadsheet gatekeeper

Every organization has them - “super-spreadsheets” that drive decisions and thinking across the company. And, with every “super-spreadsheet” there is usually a “super-spreadsheet gatekeeper,” the one person that knows how to make that spreadsheet work. What happens when this person is sick, or worse, leaves the company? How is new data, new assumptions and new formulas to be added to existing spreadsheets? The reality is that many companies are dependent on these super-spreadsheets and the super-spreadsheet gatekeepers. The gatekeeper in effect replaces the IT department as the information bottleneck, and so represents a new risk to the organization.

## Why your BI solution needs to accommodate spreadsheet reporting

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So understanding the reasons why spreadsheets are used and the associated risks, what are the combined needs of business users for timely access to data and those of the organization for control and data governance? In simple terms data and data access needs to be:

- Integrated
- Timely
- Accurate
- Granular (go to the fine detail of the information within the organization)
- Historical
- Central
- Easily accessible by all users

The above describes a typical Business Intelligence approach to data management and reporting. Providing business users with a flexible reporting tool is one significant step to limiting spreadsheet use. The problem, however with traditional BI tools is that they do not embrace spreadsheets as a data source. Why is this important? Well in revisiting the key drivers for spreadsheet adoption organizations also need to cater for that additional 30% of external data. Despite the best efforts of IT departments to centralize the organizations data there will always be data that needs to be included in analysis and reporting that is not centralized but sourced from elsewhere.

As such organizations need to provide a BI solution that embraces the spreadsheet and lets business users load their external data via a spreadsheet into the BI tool easily. This data can then be merged with other corporate data assets, shared with many users and all without the need for IT assistance or intervention. Since this data is now centralized it can be easily verified, audited and maintained.

The key benefits of this approach include:

For the compliance team

1. Ensure an audit trail of changes to any spreadsheets
2. Filter changes to focus on specific types of change
3. Integrate with an existing compliance process

For managers

1. Reduce time taken to analyze differences
2. Easily spot changes to large spreadsheets
3. Restrict access by users and the changes they can make

For the IT department

1. Easy to maintain
2. Focus on value added activities
3. Spreadsheet disaster recovery

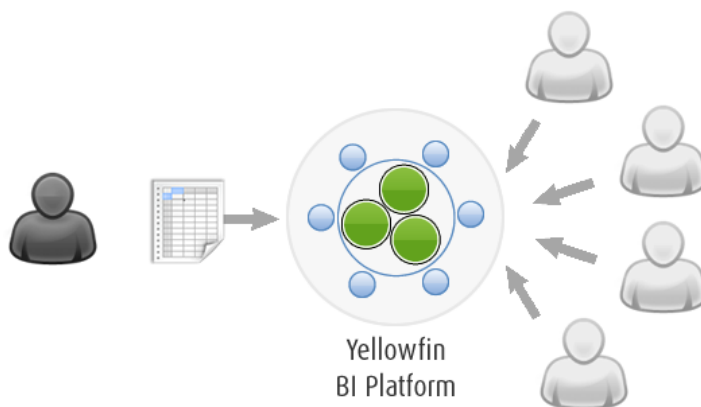


## Adopting Business Intelligence with spreadsheet data sources

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The successful adoption of spreadsheet reporting into your Business Intelligence environment requires a thorough approach. The goals of integration and centralization are to:

1. Reduce the volume of spreadsheet reports used
2. Stop data from being extracted from core systems and merged in spreadsheets
3. Ensure audit processes are in place for external data uploads



**Centralized access and management of all data sources reduces proliferation and versioning risks**

Don't prohibit spreadsheet use, but rather identify which spreadsheets handle critical business functions, integrate these into your BI solution, then implement controls to ensure their integrity and accuracy, and especially to prevent fraud. For starters, apply change management controls to spreadsheet modifications within your BI application, including sign-offs, a record of all changes and the rationale for every change, plus rollback capabilities. Each spreadsheet's business logic must also be thoroughly vetted, as with any application which handles complex business functions. To enable this approach a number of key elements need to be in place:

### Pervasive Business Intelligence within the organization

One of the most critical elements to reduce the need for spreadsheet reliance is access to a centralized and trusted BI solution. By addressing one of the central drivers for spreadsheet adoption organizations can lower the need for the use. For this strategy to be successful the BI solution must fulfill certain criteria. These are:

#### Consumer and write access

Business users are used to the flexibility that spreadsheets provide to them. So if all the organization provides is consumer access to a BI tool then the business user is worse off. If they cannot create their own reports then they will revert back to what they know – using spreadsheets.

Providing write access does not mean uncontrolled access to report creation. An approval process whereby experts can vet and check new reports prior to being made generally available is critical to ensure the high quality of reports being written and published.

### Must be easy to use

Simply building centralized tools for ensuring the accuracy of financial information isn't enough. Companies must also ensure such tools are easy enough to use and full-featured enough that users will be willing to give up their spreadsheets. The BI tool needs to be easy enough to use so that with minimal training business users can be left to discover their own insights using the solution provided to them without the need for reliance on specialized report developers.

### Reports must be easy to share

All reports created must be centralized and easily accessible by all users, so that they can be shared. Many BI solutions are desktop ones. This limits the amount of sharing that is possible, so a server based solution is preferable. Included in the BI solution should be the capacity to broadcast and subscribe to reports, so that when data is updated all users can be notified and immediately access the relevant data.

## Spreadsheet Audit & Change Management

Introducing a fantastic new Business Intelligence solution is not enough to remove the use of spreadsheets internally. For this program to be successful you need to conduct a thorough spreadsheet audit and change management program. This will include:

### Conducting a spreadsheet audit

Conduct a thorough audit of all the spreadsheets in the organization. This may be difficult if you haven't got the various departments on-board – individual desktops are filled with manual spreadsheets. Identify and select the business critical spreadsheets. To do this you should consider as mission-critical those spreadsheets that are used to make core business decisions or whose misuse could result in hefty fines for noncompliance with important regulations.

Identify the data source of the spreadsheet and re-engineer how the data is gathered, calculated and reported, and determine the best course for replacing the spreadsheet all the way through its life cycle.

### Developing a communications plan

A key factor to consider is that this is a change management process. By moving users from spreadsheets to a BI tool you are changing the way they do things. Develop an internal communications strategy that encourages everyone to load their spreadsheets into the BI system and rewards them for doing so.

### Ongoing control and management

In many companies, the answer to the spreadsheet problem is simply better command and control: set spreadsheet policies and procedures, and then enforce them, by carefully managing any spreadsheets entwined with critical business applications. In other words, a little oversight and tough love can help companies enforce the authenticity and reliability of their regulated financial information, while providing users with the tools to let go of their spreadsheets that they rely on to get their jobs done.

## What technology has to underpin spreadsheet reporting?

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The critical requirements of any Business Intelligence solution that supports spreadsheets as a data source are:

### Business user access

#### Load Spreadsheets

Business users must be able to load spreadsheet data into their BI environment without the need for IT involvement. Traditionally this was not possible since the typical approach was to build extract, transform and load (ETL) procedures to handle this. Instead users must be provided with an easy to use interface that allows them to load their data whenever they need to.

#### Ability to append new data

Not surprisingly, spreadsheet data changes on a regular basis. This requires users to update their spreadsheets by either appending or replacing the data stored in them. The BI tool has to support this process by allowing users to easily update the data without the need to rebuild reports or calculations. This is in fact one of the hidden benefits of a centralized spreadsheet process – changes to data do not require the end user to modify the data used for charts etc. New data is incorporated into reports with no additional effort.

#### Join spreadsheet data to corporate data assets

One of the most critical elements of user access is the ability to merge spreadsheet data with data from their data warehouse or from the ERP system etc. The BI tool should support federated queries, which allow the user to merge data from multiple source systems into a single report.

### Collaboration & Analysis

#### Many reports from a single spreadsheet

The ability to author many reports from a single spreadsheet is a critical requirement for a BI solution. The ability to reuse data stored in a spreadsheet many times is fundamental to limiting the proliferation of data sets within the organization and improving the analysis capability from that data set.

#### Broadcast

Broadcasting a report or notifying users that new data has been appended is a critical feature that needs to be available. If decision timeliness is to be improved and spreadsheet emails to be avoided users need to know when the latest data is available to them. This is achieved through either a broadcast or notification process.

## Dashboards & Analysis

Dashboards and analytical functions are some of the features that spreadsheets lack. Having this functionality available to end-users will vastly improve the use and the efficiency of data sourced from spreadsheets. After all, maximizing the value of your data assets is one of the reasons for reporting on them in the first place.

## Audit and Control

### Disaster Recovery

Spreadsheets lack an in-built disaster recovery process. What happens if the spreadsheet being worked on gets corrupted, deleted or lost? How is all that work effort protected. By loading spreadsheets into a centralized repository the BI solution should facilitate a disaster recovery processes so that the data used for critical business decisions is protected.

### Audit functionality

The ability to audit who is loading data and who is creating and reading reports is critical to understanding the use and value of your data assets. Spreadsheets, on their own, do not have this capacity, but in a robust BI solution this capability does exist. This means that organizations can have greater insight into the use of their data assets.

### Approval Processes

Lastly, controlling what reports and data is published is vitally important if that data is being sourced externally. The ability to approve the data and check for data quality will significantly reduce risk in the organization. A BI solution must have this capability if spreadsheet data is to be loaded by end users. Without it, you are back to some of the fundamental problems of spreadsheets themselves.

## Yellowfin's BI platform supports spreadsheets

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Yellowfin lowers the complexity of your reporting environment and has been specifically designed to enable business users to easily create and access reports via the web. With Yellowfin users can analyze data from multiple data sources such as excel spreadsheets.

Yellowfin has been designed to allow business users the ability to load spreadsheet data into a central auditable repository, append new data and merge spreadsheet data with corporate data assets to allow accurate and timely reporting and analysis.

Yellowfin supports collaboration and analysis by allowing multiple reports to be generated from a single spreadsheet, by automatically sending notifications when a spreadsheet is updated and by providing access to easy to use dashboards and analysis capabilities that maximize the value of your organizations data assets.

By supporting spreadsheets as a data source Yellowfin provides your organization with a disaster recovery process that is not currently available with excel spreadsheets. In addition the data and reports can be continuously audited for quality control purposes and reports previewed and approved prior to publishing to a wider audience.

Ultimately, Yellowfin provides a business intelligence solution that solves the needs of your business users and reduces the risks and issues currently experienced as a result of the use of spreadsheets as a reporting tool.

## Summary

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Spreadsheet reporting is pervasive not because they are the best option but because they are the only option available to most business users to solve their needs to merge external and internal data and their associated reporting requirements.

The use of spreadsheets as the primary reporting tool puts organizations at great risk. Spreadsheets that are distributed and pass through many hands until a final version of the numbers are complete have a huge potential for error and significant consequences if erroneous decisions are made as a result.

The reality is that Business users often need to merge corporate data with externally generated data sets. As such organizations need to ensure a robust data governance procedure for this data. The best way to achieve this is via a Business Intelligence tool that embraces the spreadsheet and lets business users load their external data via a spreadsheet into a central repository that can be easily accessed. This data can then be merged with other corporate data assets, shared with many users all without the need for IT assistance or intervention. Since this data is now centralized it can be easily verified, audited and maintained.

Yellowfin has been designed to ensure your organizations internal and spreadsheet data is:

- Integrated
- Timely
- Accurate
- Granular
- Historical
- Central
- Easily accessible by all users

Yellowfin's Business Intelligence solution provides an ideal way to manage the risks associated with using spreadsheets for reporting within an organization. With Yellowfin users can combine data from multiple data sources, share reports with many users and manage updates to data themselves. Providing a compelling alternative to spreadsheets.



### Find out more

Contact Yellowfin at [www.yellowfin.bi](http://www.yellowfin.bi) and ask for our proven roadmap to assist you to successfully implement Yellowfin spreadsheet management into your organization.