

# 7 STEPS TO SOLVE THE TOP 4 EXCEL CHALLENGES

## OVERVIEW

- **SPREADSHEETS REMAIN A CRITICAL ENABLER IN ANY FINANCIAL ORGANISATION**
- **ERRORS, COMPLEXITY AND OTHER CHALLENGES INTRODUCE SIGNIFICANT OPERATIONAL RISK**
- **LEARN ABOUT THE TOP 4 EXCEL PROBLEMS AND THE 7 STEP PROCESS TO SOLVE YOUR EXCEL CHALLENGES**

In the business world, Microsoft Excel remains one of the most widely used, most powerful and important software applications of all time.

Analysts with no experience of computer programming love the power and flexibility that Excel provides, enabling them to perform advanced analysis on data from a wide variety of data sources, as well as using its simple and intuitive user interface to build complex estimation and forecasting models and inspect each stage of a calculation step-by-step. Using Excel, it is also incredibly quick and easy to develop and deliver new functionality, which for any cost-conscious organization can be a significant obstacle to driving innovation and seizing competitive advantage.

Consequently, Excel is pervasive across the insurance industry, particularly in areas such as capital modelling, forecasting, pricing optimisation, risk management and regulatory reporting. Even though dedicated back-end systems may be used to generate some of the core information used in these business processes, in all likelihood, Excel will be utilized to extract data for financial analysis upon which key critical business decisions are made.

However, whilst the Excel program itself is reasonably robust, the spreadsheets that people create can be fragile. Users of Excel will be all too familiar with issues caused by manual data entry, cutting and pasting and the significant formula complexity that don't cause a spreadsheet to break when incorrect, but simply generate wrong numbers.

When combined with Excel's lack of version controlling and the fact that it's not easy to write repeatable and robust tests for spreadsheets, it comes as no surprise that they remain a significant operational risk concern, especially when errors can have severe consequences.

The Schematiq software platform was developed to provide new features and capabilities to data-intensive businesses, particularly in the finance sector, that experience significant loss of productivity and operational risk when faced with the most common Excel issues listed overleaf.

## THE TOP 4 EXCEL CHALLENGES

- **ERRORS ARISING FROM MANUAL PROCESSES**
- **FORMULA COMPLEXITY**
- **INABILITY TO COLLABORATE EFFECTIVELY**
- **INSUFFICIENT PROCESSING POWER**

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## THE TOP 4 EXCEL CHALLENGES

### Manual Processes

Loading, transforming and exporting data from spreadsheets often involves a large number of manual steps that are not only time-consuming but are also likely to introduce an error into the analysis. Additionally, every time the source data changes, the entire process has to be repeated. Schematiq introduces new data connectors for loading and exporting data that eliminate manual processes, this means establishing live links to data so that when it changes you don't need to start again.

### Collaboration

Over time, users of Excel build up a library of spreadsheets that perform related but distinct tasks, often using a previous version of a spreadsheet as the baseline for developing the next sheet. Making sure that common logic within these related spreadsheets is kept up-to-date can be a difficult and error-prone activity. This difficulty is accentuated when the spreadsheets are shared with other users for reuse and collaboration. Schematiq templates allow Excel users to package common spreadsheet functionality (such as data manipulation or formatting) and expose it to other spreadsheets via a simple function call. The Schematiq templates themselves are stored within a version-control system, allowing users to manage changes to these templates and also track different revisions.

### Formula complexity

Complex calculations require many levels of formulas nested within formulas which makes the underlying logic very hard to decipher. Additionally, these formulas will likely be present in multiple locations throughout the sheet, making reliable updates difficult. Schematiq lets users define common formula logic as reusable building blocks called templates that can be version managed and also support the development of tests to validate correctness when changed, meaning that modifications can be made with confidence.

### Insufficient processing power

When spreadsheets become large in size or perform complex computations, they can often consume vast amounts of memory leading to Excel process instability or long execution times due to limited desktop CPU processing power. Schematiq introduces a new concept to Excel called data-links; data links allow data to be held externally from the Excel process but make it seamlessly accessible from within the Excel process. Moving the data to a separate process on the same machine, a powerful remote server or external database means that the memory footprint of the Excel is reduced and user calculations have access to more processing power, increasing both stability and performance.

**“Schematiq lets users define common formula logic as reusable building blocks that can be version managed”**

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## THE 7 STEPS TO TRANSFORMATION

- 1. Inventory.** The goal of this step is to build a complete inventory of spreadsheets that are used across the organisation. In addition to capturing a current state, the inventory must be continually maintained to identify newly generated assets that could be critical to the business. Capturing key metrics from the sheets such as active user, duration used, worksheet size, add-ins used and sheet complexity are key to informing step two of the process.
- 2. Ranking.** During this step a risk ranking model is defined across the metrics held in the inventory to generate a score card that can be used to prioritise a remediation or governance work stream. Spreadsheets have many common characteristics that lend themselves to a standard complexity risk model, however the inventory is typically enriched with organisational information to focus on specific business areas or roles that are deemed high-risk.
- 3. Spreadsheet Controls.** Determined by the ranking and business priorities, the spreadsheet can be subjected to spreadsheet controls, where access is controlled and changes are tracked without impeding the agility required by the business. Providing full transparency on how a spreadsheet is being used and by whom is a key pre-requisite to ensuring stability in the change process.
- 4. Standards.** Once the spreadsheet is placed under control, it can be reviewed against standards that are viewed as best practice in Excel. These recommendations can be provided to the spreadsheet owner allowing them autonomy in improving the quality of the spreadsheet and adherence centrally monitored. Common functionality and logic can be extracted into Schematiq templates and added to a common library. This means that they can be re-used across many different spreadsheets that have the similar but different approaches to solving the same problem.
- 5. Baseline.** When the spreadsheet has been brought in-line with the organisational standards and controls, it is deemed to be functionality correct and is baselined. This ensures that future changes can be deployed confidently and that a full set of tests exist to confirm correctness of the spreadsheet. Changes to the spreadsheet can be approved for deployment as part of a sign-off process only when all tests have been successfully passed.
- 6. Monitor.** Ongoing monitoring of how spreadsheets are used is essential to ensure that additional complexity or operational risk is not re-introduced into the environment.
- 7. Remediation.** Sometimes, spreadsheets are not the right tool for the job, however migrating away from their use can be problematic, as they may still require access to the underlying spreadsheet. Schematiq provides deployment options that allow spreadsheet logic to be converted into programs and then run externally from Excel, allowing logic to be directly exposed to Web and software such as Tableau without the need to rewrite the entire spreadsheet in another technology.

Using the steps above and our deep experience of working in finance organisations, we can help you identify the areas where you will get most value from Schematiq. Determined by your current focus we can build a tailored road-map to overcome your challenges.

If you have questions about Schematiq or would like to learn about our work to deliver significant improvements to the **Economic Capital Assessment (ECA) reporting** process of a leading diversified (re)insurance businesses operating through Lloyds of London, please [visit this link](#) to learn more.