When Excel Is the Right Tool and When It Is Time to Move On

Excel is one of the best business tools ever made: familiar, flexible, and strong at calculation, analysis, and presentation.

In more than 20 years in IT, I have watched useful workbooks become systems nobody consciously designed. I have even provisioned special hardware for files that could not open on a standard work laptop. The organization had adapted its infrastructure to the workbook instead of reviewing the workbook's role.

An Excel file can quietly become a business system. It gains rows, formulas, a macro, links, another editor, and an import until a business process depends on it. Nobody chose it as the permanent system or set a condition for reviewing that decision.

The practical rule is:

> **Use Excel as a workbench for analysis and controlled calculation. Review it when it starts acting like a database, shared application, workflow engine, integration hub, or control system.**

A review does not automatically mean "replace the workbook." The right outcome may be to clean it up, add controls, separate source data from analysis, move only the shared records into another system, or replace the workbook entirely.

The short answer

Excel is usually a good fit when:

- one person or a small group is exploring, calculating, reconciling, forecasting, or presenting;
- the data has a clear owner and comes from a trusted source;
- edits are controlled and the workbook is not the only record of important business events;
- the work has a limited life or a deliberate review date;
- a failure is visible, recoverable, and does not stop the business.

Excel should be reviewed now when:

- it cannot run reliably on the company's standard managed computers;
- it is the master record for customers, orders, inventory, cases, approvals, payroll, compliance, or another multi-user process;
- people, macros, flows, or connectors can write to the same file at the same time;
- a mistake can move money, create a legal or regulatory problem, expose sensitive information, or make a customer commitment without an independent check;
- only one person understands it, or the business cannot operate when that person is absent;
- broken links, stale refreshes, sync conflicts, manual calculation, crashes, repair prompts, or conflicting copies have become normal;
- the file has become a chain of files, emailed copies, macros, add-ins, and external connections rather than one understandable analysis.

Microsoft publishes hard limits such as 1,048,576 rows per worksheet, 16,384 columns, 15 digits of numeric precision, and memory-dependent workbook capacity. Those are product boundaries, not recommended design

targets.[1] A workbook can become unsuitable far below those limits because calculation cost depends heavily on its formulas, references, links, formatting, and design.[2]

Why employee count matters and why it is not the main test

Headcount changes the likelihood that a workbook will have more users, more sensitive data, more handoffs, and less direct oversight. It does not determine whether Excel is safe. A 12-person company can have a dangerous payroll or cash-flow workbook; a 400-person company can have a perfectly appropriate one-person exploratory analysis.

The main tests are:

1. **Consequence:** What happens if a value is wrong, late, missing, duplicated, or exposed?
2. **Role:** Is the workbook an analysis, or is it the authoritative record and process?
3. **Concurrency:** How many people and automations read and write it, and can those writes overlap?
4. **Complexity:** How difficult is the logic, data lineage, and exception handling to understand and test?
5. **Operating behavior:** Does it open, calculate, refresh, save, sync, and recover within an agreed service level on standard equipment?
6. **Control:** Can the company identify the owner, restrict access, trace changes, test outputs, and restore a known-good version?

Employee count should increase the formality of those controls, not create an arbitrary row or file-size limit.

The Excel review trigger

Use the following review at creation, after a material change, and at the cadence in the company-size table below. Mark each line green, amber, or red.

Area	Green: keep using Excel	Amber: stabilize and review	Red: assess another solution now
Business impact	Advisory, reversible, or easily checked	Important decisions or deadlines depend on it	Error or outage can move material money, breach an obligation, expose sensitive data, or stop a core process
System role	Analysis or presentation fed by a trusted source	Temporary master list with a named end date	Sole system of record for a continuing shared process
People	One owner; small number of readers; controlled input	Several editors or repeated handoffs	Many frequent editors, conflicting copies, or overlapping human and automated writes
Data design	One clear table or a small model	Repeated groups, mixed data types, or growing cross-sheet logic	Customers-orders-items or other relational data requiring unique IDs, relationships, or record-level rules
Logic	Short, visible formulas with test cases	Long formulas, many named ranges, Power Query steps, pivots, or one macro	Material decisions rely on opaque VBA, add-ins, hidden logic, manual calculation, or undocumented exceptions

Area	Green: keep using Excel	Amber: stabilize and review	Red: assess another solution now
Connections	One or two documented, stable sources	Several sources, credentials, or refresh dependencies	Chained workbooks, broken links, local paths, unowned credentials, or silent/stale refreshes
Reliability	Meets agreed open, refresh, calculate, save, and sync times on standard equipment	Intermittent slowness or support workarounds	Crashes, repair prompts, repeated sync conflicts, missed refreshes, or special hardware required
Control and recovery	Named owner and backup; protected storage; tested restore	Limited documentation, review, access control, or change testing	No backup owner, no trusted version, no independent check, or worksheet protection is being treated as security
Life cycle	Purpose and review date are recorded	“Temporary” file has no exit date	Permanent dependency grew without approval or replacement plan

Decision rule

This is a Zoevin recommendation, not a Microsoft product standard:

- **Keep and govern:** no red areas and no more than two amber areas.
- **Review within 30 days:** one red area or three amber areas.
- **Prioritize a replacement or redesign:** two red areas, or one red area in business impact, system role, reliability, or control and recovery.
- **Contain immediately:** suspected data exposure, materially wrong output, corrupted data, uncontrolled automation writes, or inability to recover a trusted version.

Do not let a low total score cancel a serious red condition. A small, fast workbook that calculates payroll incorrectly is not low risk.

Zoevin screening thresholds

Use measured operating thresholds as early warnings. These are starting points for a review, not Microsoft product limits and not automatic replacement rules.

Measure	Start a review when	Why it matters
Routine interactive wait	Users regularly wait more than 30 seconds for an ordinary action	Small delays become workarounds, duplicate clicks, and avoided checks
Attended refresh	A person regularly waits more than five minutes	The workbook is consuming operating time and may be doing pipeline work in a desktop file
Reliability events	Two crashes, sync conflicts, failed refreshes, repair prompts, or support incidents in 90 days	Repetition turns an annoyance into an operating pattern
Manual recovery work	Two or more hours a month spent repairing, reconciling, rerunning, or working around the file	Hidden support time belongs in the keep-or-change decision

Measure	Start a review when	Why it matters
Standard equipment	The workbook cannot operate reliably on the company's standard managed computer	Special hardware or a special desktop image is a red condition
Output integrity	Any material omission, duplication, corruption, or wrong result	One consequential failure can outweigh every green score
Concurrent writing	Human and automated writers can overlap	Collision risk belongs in the design, not in user etiquette
Continuity	A critical workbook has no trained backup owner or tested recovery path	The business has a person dependency and a recovery gap
Growth	Forecast use crosses a published product or connector boundary within 12 months	Migration is safer before the boundary becomes an incident

After the initial screen, each company should set its own service levels for acceptable data age, recovery time, acceptable data loss, open and refresh performance, correction tolerance, incident response, and how long the manual fallback can sustain the work.

Public examples worth learning from

The goal of these examples is not to blame Excel. Each shows what happens when a spreadsheet's role, controls, or operating boundaries no longer match the consequence of the work.

Public Health England and COVID 19 reporting

In October 2020, 15,841 positive COVID-19 cases were omitted from UK reporting after records were moved through an older Excel file format with a lower row limit. BBC reporting described how excess rows were cut off rather than included in the combined dataset.[16] The practical lesson is broader than the specific format: published capacity boundaries must be treated as design constraints, and high-consequence pipelines need completeness checks that compare expected and received records.

JPMorgans London Whale control failure

The SEC's 2013 settlement with JPMorgan described spreadsheet miscalculations alongside wider valuation, review, and internal-control failures.[17] It would be misleading to say Excel alone caused the bank's multibillion-dollar trading loss. The relevant lesson is that a material model needs documented logic, independent challenge, controlled changes, reliable source data, and governance proportionate to the decision it supports.

Model assurance as normal management

The UK National Audit Office's model-assurance guidance recommends proportionate quality assurance across a model's life cycle, including governance, documentation, testing, and review.[18] That framing is useful for businesses of any size: the question is not whether a workbook is "just Excel," but whether its controls match its business consequence.

Hard product boundaries that should trigger a review

Some thresholds depend on how the workbook is used:

Situation	Published boundary or behavior	Business implication
Worksheet capacity	1,048,576 rows by 16,384 columns; numeric precision is 15 digits.[1]	Do not use the maximum as a design target. Long identifiers can also be damaged if Excel treats them as numbers.
Data Model on 32-bit Excel	The process shares a 2 GB virtual address space; the data model may receive much less. In 64-bit Excel, practical capacity is still limited by available memory and system resources.[1]	If a workbook requires a different hardware or Office architecture from the company standard, review the design and data location.
Excel for the web in SharePoint Online	Browser workbooks are documented up to 100 MB in SharePoint Online.[3]	A desktop-open workaround is not equivalent to a broadly accessible business process.
Power Automate Excel Online (Business) connector	Maximum supported Excel file size is 25 MB. A file may remain locked for update or deletion for up to six minutes.[4]	A flow that depends on a larger workbook is outside the connector's supported boundary. Locking must be part of the design.
Concurrent automated writes	Microsoft says simultaneous modification by connectors or manual editors is not supported and can create merge conflicts or inconsistent data.[4]	Use a single-writer pattern or put operational records in a database, list, or application.
Office Scripts	Requests and responses are limited to 5 MB; a range is limited to five million cells. Synchronous Power Automate operations have a 120-second timeout.[5]	Split work into bounded operations, or move heavy processing out of the workbook.

File size alone is a weak health measure. Microsoft notes that excessive formatting, unused styles, shapes, conditional formatting, broad formula references, and cross-workbook calculations can increase memory use, file size, and failures.[6] Track what users actually experience: open time, calculation time, refresh duration, save time, failure rate, sync conflicts, and recovery time.

Good uses for Excel

Exploratory analysis

Excel is excellent when a person needs to inspect a dataset, test an idea, compare scenarios, or answer a question before the method is stable. The grid makes assumptions and intermediate calculations visible and easy to change.

Controlled financial models and forecasts

Budgets, forecasts, pricing models, cash-flow scenarios, valuations, and reconciliations can fit well when inputs are separated from formulas and outputs, material formulas are independently reviewed, assumptions are documented, and a trusted source retains the underlying transactions.

Reconciliation and exception review

A workbook is useful for bringing two controlled extracts together, highlighting differences, assigning a human review, and recording the disposition elsewhere. It is less suitable when the workbook itself becomes the permanent transaction ledger or approval record.

Ad hoc reporting and presentation

PivotTables, charts, what-if analysis, and formatted summaries are core strengths. Excel can remain the interface even when a database or governed semantic model stores the data. Microsoft explicitly positions Excel as stronger for calculation, analysis, and visualization, while relational tools are stronger for maintaining data integrity and multi-user data.[7]

Small bounded lists

A flat list can be reasonable when it has one row per item, one meaning per column, limited editors, validation, a named owner, and no requirement for relational integrity or record-level permissions. Examples include a one-time event list, a short-lived issue log, or a local checklist.

Prototypes and temporary bridges

Excel can prove a calculation, report, intake structure, or process before the company buys or builds a permanent solution. The prototype needs an owner, a review date, an expected lifetime, and a clear statement that it is not yet the permanent system.

Human controlled last mile work

Excel is valuable at the edge of a governed data system: filtering a trusted extract, adding a scenario assumption, preparing a presentation, or reviewing exceptions. It should be possible to recreate the workbook from controlled data and documented logic.

Bad uses for Excel

A shared operational database

Customer records, inventory movements, work orders, cases, orders, and other related data usually require unique identifiers, relationships, validation, safe concurrent updates, and predictable queries. Excel is flexible because it does not enforce the same relational integrity as a database.[7]

A workflow and approval engine

A colored status cell is not an assignment, reminder, escalation, approval control, or audit record. If work must move between people, enforce separation of duties, meet a deadline, or prove who approved what and when, use a workflow or line-of-business system.

An integration hub

A workbook that receives automated writes from several systems and people is a collision point. The Power Automate Excel connector specifically warns that simultaneous writes are unsupported.[4] A controlled data store or queue should receive events; Excel can consume a view of the result.

A security boundary

Worksheet protection helps prevent accidental edits, but Microsoft states that it is not a security feature.[8] Sensitive access should be enforced by the storage platform and, when necessary, by row- or field-level controls in the system holding the records.

The only copy of critical logic or history

Version history can restore earlier files stored in OneDrive or SharePoint,[9] but version history is not a substitute for requirements, test cases, change approval, an independent review, and a durable event or transaction log.

A high concurrency transaction system

Human coauthoring is supported when the workbook is in OneDrive or SharePoint Online and users have compatible Microsoft 365 versions.[10] That does not turn cell edits into transactions, enforce referential integrity, or make concurrent connector writes safe.

A chain of hidden dependencies

Workbooks that depend on other workbooks, local file paths, personal credentials, macros, add-ins, or manually refreshed extracts often fail when a person leaves, a folder moves, an account changes, or one upstream file is late. This is operational architecture hidden inside documents.

A permanent substitute for software already owned

Before building more spreadsheet logic, check the CRM, ERP, accounting, HR, service, project, or document platform already in use. The safer answer is often a configuration, form, approval rule, report, or connector the company already pays for.

Where Excel belongs in the automation and data landscape

The healthy pattern is:

Systems of record → governed integration or transformation → trusted data model/store → Excel analysis and controlled input → reviewed decision or approved update

1 Systems of record own business facts

The accounting system owns posted transactions. The CRM owns customer and opportunity records. The HR system owns employee records. The operational application owns work orders, cases, or inventory movements. Name the owner for every important field.

2 Integration moves data without making Excel the bus

Use supported APIs, native connectors, scheduled exports, data pipelines, or an integration platform to move data between systems. Record failures and retries outside the workbook. Do not make a file path and a person's refresh habit the integration design.

3 A governed store or semantic model prepares reusable data

When several reports need the same definitions, calculations, and joins, put those definitions in a governed dataset, warehouse, database, or business intelligence semantic model. Excel can connect to that model. Microsoft supports refreshable Excel workbooks connected to Power BI semantic models, preserving Excel as an analysis interface while centralizing the governed data model.[11]

4 Power Query is the preferred read and shape layer inside Excel

For appropriate workbook-scale tasks, Power Query can connect to files, databases, and services, set data types, filter early, and document repeatable transformations. Microsoft recommends choosing the correct connector, filtering early, using correct data types, documenting work, and splitting large queries into modules.[12]

Power Query privacy levels also matter. They control whether data from one source can be combined with another; ignoring them can expose sensitive information.[13] Connections need named ownership, least-privilege credentials, a refresh schedule, a visible last-success status, and a failure path.

5 Excel input should be narrow and controlled

If people must enter data in Excel, use a defined table, required columns, validation, stable unique IDs, protected formulas, and an explicit submission step. Prefer a single automated writer. For multi-user operational intake, a form or application backed by a list or database is usually safer.

6 Automation should be bounded and observable

Office Scripts and Power Automate can remove repeated workbook steps, but the automation needs an owner, supported file size, timeout handling, idempotency or duplicate protection, monitoring, and a manual recovery path. Automation should not hide an already fragile workbook.

7 Excel outputs should be replaceable views

The safest important workbook can be rebuilt from trusted inputs and documented transformations. The workbook may contain valuable presentation and scenario logic, but it should not be the only place where business events, approvals, or source facts exist.

Choosing the next solution

Need that has outgrown Excel	Better-fit category	Excel's continuing role
Shared flat records, assignments, simple status tracking	Managed list or lightweight work-management tool	Export, analysis, one-off cleanup
Related customers, orders, items, cases, or assets	Relational database or line-of-business application	Analysis and controlled import/export
Forms, approvals, reminders, escalations, service levels	Workflow platform or application	Review queue or reporting output
Repeated dashboards and shared definitions	BI platform and governed semantic model	Connected PivotTables and ad hoc analysis
Multi-entity budgets, consolidation, scenario workflow	Planning and performance-management platform	Local modeling and supplemental schedules
Large, repeatable transformations from many sources	Data pipeline, warehouse/lakehouse, or governed dataflow	Last-mile analysis
Complex reusable algorithms with testing and deployment needs	Maintained software service, script, or analytical application	Input/output review where appropriate
Sensitive records requiring granular permissions and audit	Governed application/data platform with role-, row-, or field-level security	Restricted extracts only

Choose the smallest solution that fixes the actual failure mode. A team may only need to move the master rows into a managed list while keeping the calculations in Excel. Another may need a database and application but can keep Excel as the familiar analysis surface.

Compare the cost of keeping it with the cost of changing it

A replacement decision should include more than software licensing. Estimate the annual cost of:

- time spent waiting for the workbook to open, calculate, refresh, save, or sync;
- manual imports, exports, rekeying, reconciliation, duplicate cleanup, and support;
- incidents, missed deadlines, delayed billing, and rework;
- special hardware, desktop exceptions, add-ins, and fragile credentials;
- dependence on one person, including the cost of absence, turnover, and knowledge transfer;
- control work that exists only because the workbook is filling the role of a shared system.

Compare that with the cost and risk of process cleanup, configuration in software already owned, a partial redesign, migration, training, parallel operation, and retirement. A new tool will not repair an unclear process. Name the owner, decision, normal path, exceptions, and trusted records before automating or migrating them.

Recommendations by organization size

These tiers set governance expectations. They do not declare that a workbook is safe based on company size.

Organization size	Minimum operating practice	Review cadence	Typical escalation point
1–25 employees	Name an owner and backup; store important workbooks in managed cloud storage; record purpose, sources, and review date; protect inputs and formulas; test restore	Critical workbooks quarterly; other continuing workbooks annually	The file becomes a shared master record, one person becomes indispensable, or an automation starts writing to it
26–100 employees	Maintain a register of business-important workbooks; classify sensitivity; document connections and macros; require a second-person check for material outputs	Critical quarterly; important semiannually; after material change	Several departments depend on it, editors multiply, or the workbook needs recurring support
101–250 employees	Establish an end-user-computing standard; risk-tier workbooks; require independent test evidence, change notes, owner/backup, access review, and recovery test for high-risk files	High-risk quarterly and before release; register review semiannually	The workbook is a cross-functional system, drives regulated or financial reporting, or has an incident history
251–500 employees	Centralize the high-risk register and control standard; assign accountable business and technical owners; monitor refreshes and failures; fund a replacement roadmap	High-risk monitoring plus quarterly control review; portfolio review at least annually	A workbook duplicates an enterprise capability, cannot meet service/recovery needs, or depends on unsupported concurrency or personal infrastructure

The United Kingdom government's 2025 AQuA Book is aimed at analytical work rather than ordinary commercial spreadsheets, but its core principle transfers well: assurance should be proportionate to the risk and analysis should have clear governance, peer review, transparency, documented limitations, and senior ownership where it is business-critical.[14]

The 30 minute workbook intake

For each workbook, capture:

1. **Name and purpose:** What decision or process does it support?
2. **Business owner and backup:** Who approves changes? Who can operate it tomorrow?
3. **Users:** Who reads, edits, approves, and automates it? Can writes overlap?
4. **Source of truth:** Where does each important field originate?
5. **Outputs and consequences:** What uses the result, and what happens if it is wrong or late?
6. **Data:** Row counts, growth, sensitivity, retention, identifiers, and relationships.
7. **Logic:** Formulas, queries, macros, add-ins, hidden sheets, manual steps, and exceptions.
8. **Connections:** Sources, destinations, credentials, refresh method, and last successful refresh.
9. **Performance:** Measured open, refresh, calculate, and save times on a standard managed computer.
10. **Reliability:** Incidents, crashes, repair messages, sync conflicts, stale data, and duplicate records in the last 90 days.
11. **Controls:** Access, validation, independent checks, change approval, version history, backup, and tested restore.
12. **Decision:** Keep, stabilize, split, migrate, or retire—with an owner and date.

Controls for Excel that remains in use

For a continuing business-important workbook:

- Store one authoritative copy in managed storage with permissions and version history.
- Name a business owner, technical maintainer, and backup; for a small company, one person may fill two roles, but no critical workbook should have no backup.
- Separate source data, inputs, calculations, checks, and outputs.
- Use Excel tables, stable column names, validation, and unique identifiers.
- Protect formulas against accidental edits, while recognizing that worksheet protection is not a security boundary.[8]
- Document sources, refresh steps, credentials owner, assumptions, exceptions, and last successful refresh.
- Add visible checks: row counts, control totals, missing IDs, duplicate IDs, stale-data date, and reconciliations to the source.
- Test material formulas and macros with known inputs and expected outputs. Require a person other than the builder to review high-impact logic.
- Record material changes and retest before release.
- Avoid emailing copies. Use a link to the authoritative file.
- Test restore and the manual fallback, not merely the existence of a backup.
- Set the next review date and the conditions that will trigger an earlier review.

Spreadsheet errors are not hypothetical, although published field-audit estimates vary by sample and method. A long-running synthesis by spreadsheet researcher Raymond Panko reports that 84% of 163 operational spreadsheets in nine studies contained errors; the evidence is older and not a current population estimate, so it should be treated as a warning about error detectability rather than a prediction for any one company.[15] The practical response is not to ban Excel. It is to apply review and testing in proportion to consequence.

A safe migration sequence

1. **Contain current risk.** Freeze uncontrolled copies and overlapping writers. Preserve the authoritative file and a recoverable version.
2. **Observe the real work.** Document inputs, decisions, exceptions, outputs, users, timing, and workarounds. Do not rely only on the written procedure.
3. **Name trusted records and owners.** Decide which system owns each important field and who approves changes to the process.
4. **Separate the workbook's roles.** Identify storage, calculation, workflow, integration, input, and presentation. Keep the parts Excel performs well.
5. **Choose the smallest useful change.** Configure software already owned, move shared records to a managed store, centralize a data model, or build only the missing workflow.
6. **Test with real cases.** Include normal work, exceptions, missing inputs, duplicates, failed connections, recovery, and the manual fallback.
7. **Run in parallel when consequence requires it.** Reconcile results before making the new path authoritative.
8. **Retire deliberately.** Archive the final workbook, remove automated writes and obsolete credentials, update procedures, and publish the new owner and support path.

A policy businesses can adopt

> **Excel may be used for analysis, controlled calculation, reconciliation, presentation, temporary prototypes, and bounded lists. Every continuing business-important workbook must have a named owner and backup, an authoritative storage location, documented sources and connections, visible quality checks, a recovery method, and a review date. A workbook must be reviewed when it becomes a shared system of record, accepts concurrent automated writes, cannot run reliably on standard equipment, depends on unowned macros or connections, handles risk that its controls cannot enforce, or records business events that require a durable audit trail. The review may result in improving, splitting, migrating, or retiring the workbook.**

The next step

Complete the one-page Zoevin workbook assessment with the business owner and the person who supports the file. Bring the result, the workbook's purpose, and one recent example of a failure or workaround to a free fit consultation. I will help you decide whether the practical next step is to keep and govern the workbook, stabilize it, split its roles, or assess a replacement.

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