1ST EDITION

Building Interactive Dashboards in Microsoft 365 Excel

Harness the new features and formulae in M365 Excel to create dynamic, automated, and awesome dashboards

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1

Dashboards, Reports, and M365 Excel

Many Excel users use the words dashboard and report interchangeably and are not able to clearly delineate them. This is often because most people learn to use Excel on the job and not before they are mandated by superiors to churn out reports and dashboards for them. It is not uncommon to have a manager who calls everything with a beautiful chart in it a dashboard and another who believes only specialist software (other than Excel) can create dashboards. Sadly, no analyst who is bounced endlessly between these two types of managers will understand the real difference between a dashboard and a report.

Microsoft sadly adds to the woes analysts face at work by creating different versions of Microsoft Excel. Almost every week, I come across an analyst spending hours and using complex formulas they copied from an online forum without understanding how the 100-plus-characters cocktail of functions works to achieve what is now an easy single function in the recent versions of Excel. My first recommendation to everyone learning how to build dashboards in Excel is to get Microsoft 365 Excel or Excel 2021. The difference between using those versions and using an older version can be likened to the difference between a horse-drawn carriage and a modern car.

This chapter will cover what dashboards are and what they are used for. Then, we will go on to explain what reports are and how they are different from dashboards. Some people may argue that all analyses from a dataset are reports and that a dashboard is a report. That is a valid argument; however, when working as a data analyst or any role that requires carrying out data analysis within a company, it is important to think of them separately. You would not want to give your CEO a report if what they are expecting is a dashboard. And if you are in a decision-making position, you will want to be clear with your team regarding what you want. After the clarification on dashboards and reports, the chapter will explain the different Excel versions and which versions you should use if you want to create dashboards easily.

By the end of this chapter, you will understand in a clear and practical way the difference between dashboards and reports, the importance of dashboards in modern companies, and why Microsoft 365 Excel or Excel 2021 should be your chosen version of Excel for building dashboards.

In this chapter, we will cover the following topics:

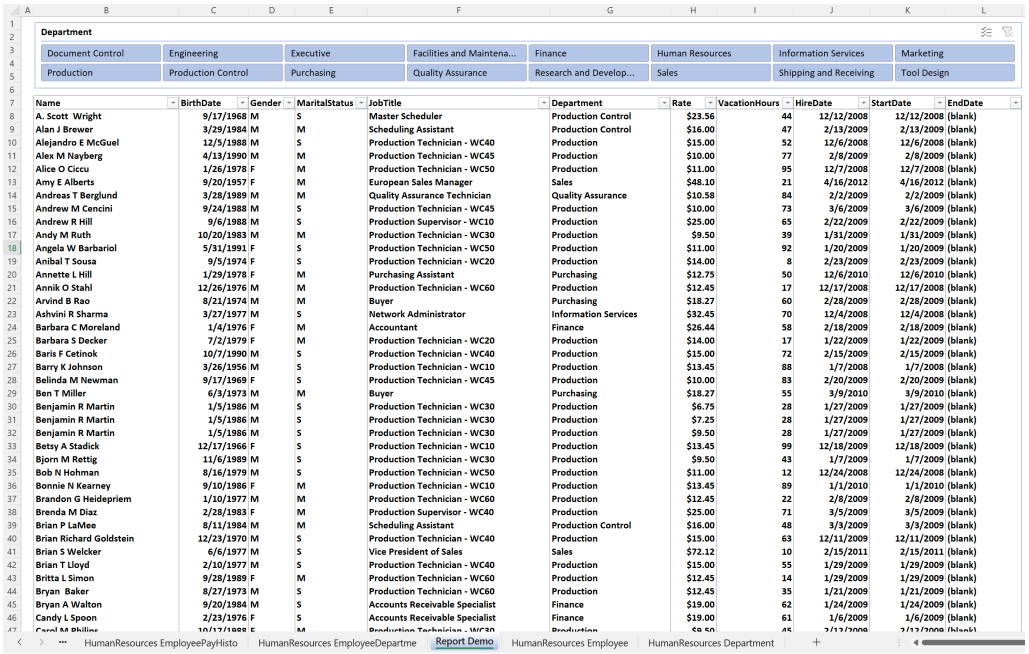
- Introducing dashboards and reports
- Meeting modern business needs
- The characteristics of a dashboard
- The different versions of Microsoft Excel

Introducing dashboards and reports

Dashboards are visual representations of key metrics and actionable insights to be primarily consumed by decision makers. Many self-acclaimed dashboard experts say it should always be set to fit within a screen view, and the reason for this is a very valid one. Imagine needing to scroll down to see the fuel gauge on your car's dashboard; seeing everything in one ever-present view is a much better user experience than having to scroll. The trouble, however, lies with *whose screen*. Screen resolution, monitor size, and Excel zoom settings are never the same for all parties concerned – the dashboard builder and the dashboard users. So it can be a very tricky clause to include in the dashboard definition, but knowing this, it is always good to aim to avoid the need for your dashboard users to scroll right or down when viewing your dashboard.

Reports are well-formatted presentations of data and are often the outcome of all data analysis processes. The very interesting thing to note is that all dashboards are reports, but not all reports are dashboards. A table of all employees showing their biodata, professional qualifications, and payroll information, one row per employee, is a report.

The following screenshot shows what such a table might look like:



Department

Document Control	Engineering	Executive	Facilities and Maintena...	Finance	Human Resources	Information Services	Marketing
Production	Production Control	Purchasing	Quality Assurance	Research and Develop...	Sales	Shipping and Receiving	Tool Design

Name	BirthDate	Gender	MaritalStatus	JobTitle	Department	Rate	VacationHours	HireDate	StartDate	EndDate
A. Scott Wright	9/17/1968	M	S	Master Scheduler	Production Control	$23.56	44	12/12/2008	12/12/2008	(blank)
Alan J Brewer	3/29/1984	M	M	Scheduling Assistant	Production Control	$16.00	47	2/13/2009	2/13/2009	(blank)
Alejandro E McGuel	12/5/1988	M	S	Production Technician - WC40	Production	$15.00	52	12/6/2008	12/6/2008	(blank)
Alex M Nayberg	4/13/1990	M	M	Production Technician - WC45	Production	$10.00	77	2/8/2009	2/8/2009	(blank)
Alice O Ciccu	1/26/1978	F	M	Production Technician - WC50	Production	$11.00	95	12/7/2008	12/7/2008	(blank)
Amy E Alberts	9/20/1957	F	M	European Sales Manager	Sales	$48.10	21	4/16/2012	4/16/2012	(blank)
Andreas T Berglund	3/28/1989	M	M	Quality Assurance Technician	Quality Assurance	$10.58	84	2/2/2009	2/2/2009	(blank)
Andrew M Cencini	9/24/1988	M	S	Production Technician - WC45	Production	$10.00	73	3/6/2009	3/6/2009	(blank)
Andrew R Hill	9/6/1988	M	S	Production Supervisor - WC10	Production	$25.00	65	2/22/2009	2/22/2009	(blank)
Andy M Ruth	10/20/1983	M	M	Production Technician - WC30	Production	$9.50	39	1/31/2009	1/31/2009	(blank)
Angela W Barbariol	5/31/1991	F	S	Production Technician - WC50	Production	$11.00	92	1/20/2009	1/20/2009	(blank)
Anibal T Sousa	9/5/1974	F	S	Production Technician - WC20	Production	$14.00	8	2/23/2009	2/23/2009	(blank)
Annette L Hill	1/29/1978	F	M	Purchasing Assistant	Purchasing	$12.75	50	12/6/2010	12/6/2010	(blank)
Annik O Stahl	12/26/1976	M	M	Production Technician - WC60	Production	$12.45	17	12/17/2008	12/17/2008	(blank)
Arvind B Rao	8/21/1974	M	M	Buyer	Purchasing	$18.27	60	2/28/2009	2/28/2009	(blank)
Ashvini R Sharma	3/27/1977	M	S	Network Administrator	Information Services	$32.45	70	12/4/2008	12/4/2008	(blank)
Barbara C Moreland	1/4/1976	F	M	Accountant	Finance	$26.44	58	2/18/2009	2/18/2009	(blank)
Barbara S Decker	7/2/1979	F	M	Production Technician - WC20	Production	$14.00	17	1/22/2009	1/22/2009	(blank)
Baris F Cetinok	10/7/1990	M	S	Production Technician - WC40	Production	$15.00	72	2/15/2009	2/15/2009	(blank)
Barry K Johnson	3/26/1956	M	S	Production Technician - WC10	Production	$13.45	88	1/7/2008	1/7/2008	(blank)
Belinda M Newman	9/17/1969	F	S	Production Technician - WC45	Production	$10.00	83	2/20/2009	2/20/2009	(blank)
Ben T Miller	6/3/1973	M	M	Buyer	Purchasing	$18.27	55	3/9/2010	3/9/2010	(blank)
Benjamin R Martin	1/5/1986	M	S	Production Technician - WC30	Production	$6.75	28	1/27/2009	1/27/2009	(blank)
Benjamin R Martin	1/5/1986	M	S	Production Technician - WC30	Production	$7.25	28	1/27/2009	1/27/2009	(blank)
Benjamin R Martin	1/5/1986	M	S	Production Technician - WC30	Production	$9.50	28	1/27/2009	1/27/2009	(blank)
Betsy A Stadick	12/17/1966	F	S	Production Technician - WC10	Production	$13.45	99	12/18/2009	12/18/2009	(blank)
Bjorn M Rettig	11/6/1989	M	S	Production Technician - WC30	Production	$9.50	43	1/7/2009	1/7/2009	(blank)
Bob N Hohman	8/16/1979	M	S	Production Technician - WC50	Production	$11.00	12	12/24/2008	12/24/2008	(blank)
Bonnie N Kearney	9/10/1986	F	M	Production Technician - WC10	Production	$13.45	89	1/1/2010	1/1/2010	(blank)
Brandon G Heidepriem	1/10/1977	M	M	Production Technician - WC60	Production	$12.45	22	2/8/2009	2/8/2009	(blank)
Brenda M Diaz	2/28/1983	F	M	Production Supervisor - WC40	Production	$25.00	71	3/5/2009	3/5/2009	(blank)
Brian P LaMee	8/11/1984	M	M	Scheduling Assistant	Production Control	$16.00	48	3/3/2009	3/3/2009	(blank)
Brian Richard Goldstein	12/23/1970	M	S	Production Technician - WC40	Production	$15.00	63	12/11/2009	12/11/2009	(blank)
Brian S Welcker	6/6/1977	M	S	Vice President of Sales	Sales	$72.12	10	2/15/2011	2/15/2011	(blank)
Brian T Lloyd	2/10/1977	M	S	Production Technician - WC40	Production	$15.00	55	1/29/2009	1/29/2009	(blank)
Britta L Simon	9/28/1989	F	M	Production Technician - WC60	Production	$12.45	14	1/29/2009	1/29/2009	(blank)
Bryan Baker	8/27/1973	M	S	Production Technician - WC60	Production	$12.45	35	1/21/2009	1/21/2009	(blank)
Bryan A Walton	9/20/1984	M	S	Accounts Receivable Specialist	Finance	$19.00	62	1/24/2009	1/24/2009	(blank)
Candy L Spoon	2/23/1976	F	S	Accounts Receivable Specialist	Finance	$19.00	61	1/6/2009	1/6/2009	(blank)
Carol M Philips	10/17/1988	F	M	Production Technician - WC30	Production	$9.50	45	2/12/2009	2/12/2009	(blank)

HumanResources EmployeePayHisto | HumanResources EmployeeDepartme | Report Demo | HumanResources Employee | HumanResources Department

Figure 1.1 – Table of employee biodata and payroll data

And as simple as it sounds, it might involve a **Human Resources** (**HR**) officer working for hours to put together that report. It could be that the biodata is in PDF files of one page per employee, the payroll data is in a **Comma-Separated Values** (**CSV**) file export from the payroll software, and the updated qualifications are acquired via a survey form to all employees. However, that table is not a dashboard.

To create a dashboard from the same dataset, the HR officer will need to identify what key HR metrics the decision makers who will use his dashboard are interested in and what type of decisions they would need the dashboard to enlighten them on. It is not uncommon for the head of HR and the management team to want to track the productivity level of the staff measured in average revenue per total staff, average revenue per sales staff, and average revenue per operations staff, and then be shown this information (metrics) in a way that helps them see the trend over the years and compare it with the industry average. Another common actionable insight decision makers look for in an HR dashboard is to understand the effectiveness of their hiring and staffing process, often captured by metrics such as time to hire, employee turnover, and average tenure by job role and department, and again they are used to compare with the industry benchmarks. So, when creating a dashboard, the HR officer looks beyond the data to what the users use their dashboard for and the best ways to provide those insights in a visually engaging way, which prompts taking the right actions or business decisions.

The following screenshot shows an example of what the final HR dashboard looks like:

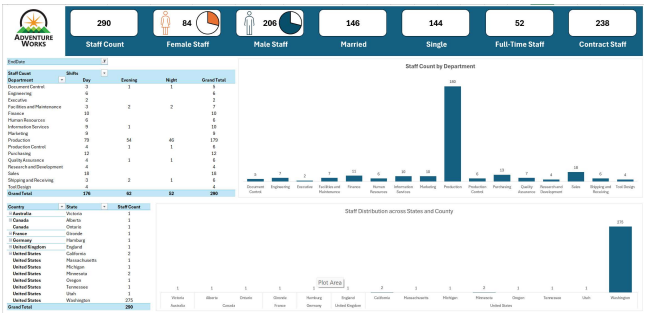


Figure 1.2 – Dashboard from the same employee dataset

In the next section, we will learn why dashboards are an important need of all modern businesses.

Meeting modern business needs

Modern businesses are drowning in data as technology has made it both easy and cheap to gather data around every aspect of business operations. Even a company's website can generate thousands of data points monthly, and this is data the business often does not do much to set up the collection of. Now imagine how much more data is being collected from the more intentionally set up accounting tool, customer relationship management tool, distribution management tool, sales management tool, vendor management, procurement tool, and HR management tool.

Increasingly, business managers are getting frustrated with fragmented reports that show activities but have no meaningful or actionable insights. What is now on every modern business manager's lips to their subordinates is *give me dashboards*. It is no longer acceptable to just create hundreds of reports covering every single aspect of business operations. An analyst is now expected to build a dashboard that ties together in one visually engaging layout all the important metrics and actionable insights, just like the car's dashboard shows in one view all the driver needs to be abreast of as they drive the car. Similarly, business managers who are the drivers of the company to the desired destination also want a dashboard they can take a look at every day and see how well or poorly they are doing. And just like an abnormally high-temperature signal on the car's dashboard will make you pop open the bonnet to start digging around for the cause, a poor performance metric will necessitate the business manager to request the hitherto mundane reports to fish out the probable cause and remedy for the poor performance.

Without exaggeration, dashboards are a vital need for all modern business managers.

In the next section, we will take a look at the main characteristics of all dashboards.

The characteristics of a dashboard

Search for the word *dashboard* online, and you will be presented with a list of articles about dashboards that seem to have little in common. The reason is that most online articles that are at the top of search results are by professional content writers and not data analysts, and many were hired to promote a specific tool. For data analysts, a dashboard has some clear characteristics that set it apart from other types of reports.

A dashboard has the following definitive characteristics:

- It is designed to be very visually engaging
- It must be easy to read and understand
- It must present actionable insights, using the key business metrics decision makers need to be on top of
- It must be interactive, allowing users to dynamically view dimensions or aspects of the analysis (this is often achieved with slicers and filters in Excel)
- It must be in its own dedicated sheet and occupy as close to a one-screen view as possible
- It must be automated to reflect new insights as the source data grows or is updated

In the next section, we will examine the different versions of Microsoft Excel in use today and discuss which versions you should use in order to have a more enjoyable experience in building dashboards.

The different versions of Microsoft Excel

Since the first Excel, Excel 1.0 for Apple Macintosh, in 1985, there have been over 25 versions of Excel by Microsoft, but 99% of Excel users today are spread across the following versions:

- Excel 365, which is a subscription-based version with constantly updated features and can be referred to as the most recent version.
- Excel 2021, which came out in October 2021, is the most recent non-subscription-based version of Excel. Unlike the subscription-based Excel 365, it only gets security updates after its initial release, while Excel 365 gets additional monthly features.
- Excel 2019, which came out in October 2019.
- Excel 2016, which was released in September 2015.
- Excel 2010, which was released in June 2010.
- Excel 2007, which was released in November 2006.

To know what version of Excel you are on, go to **File**, **Account**, and in the upper right section, you will see your Excel version. See *Figure 1.3* to *Figure 1.5* for a helpful illustration of the steps to identify your Excel version. If you do not have **File** but have Excel sheets with 1,048,576 rows, then you are on Excel 2007. If your Excel sheets have less than 1 million rows, you are on a version earlier than Excel 2007 and should not continue reading this book until you have upgraded your version of Excel.

The following screenshot shows you how to get to **File**:

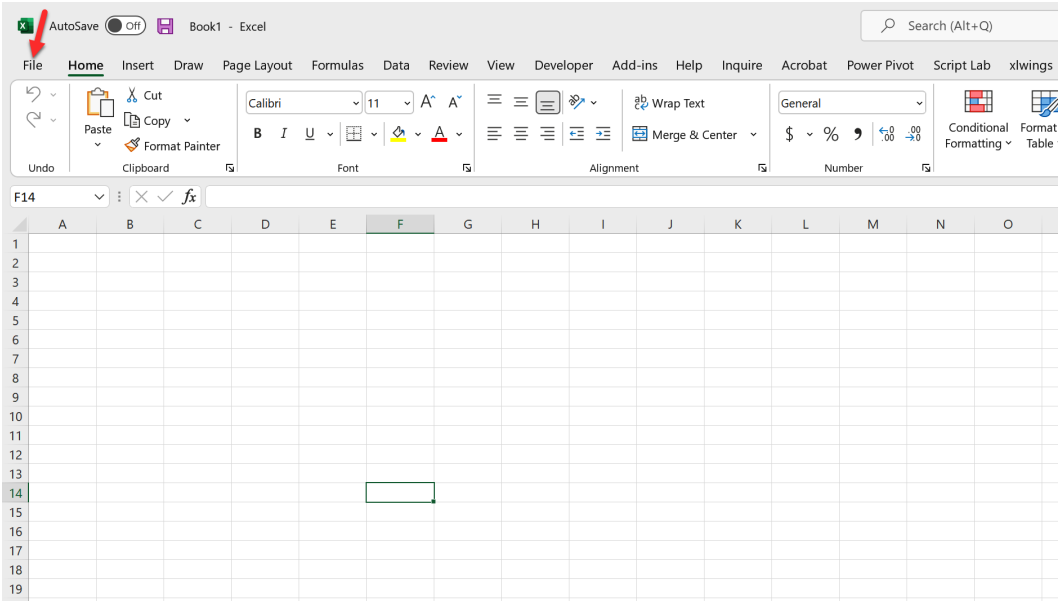


Figure 1.3 – Navigating to File within Excel

The following screenshot shows you how to locate **Account**:

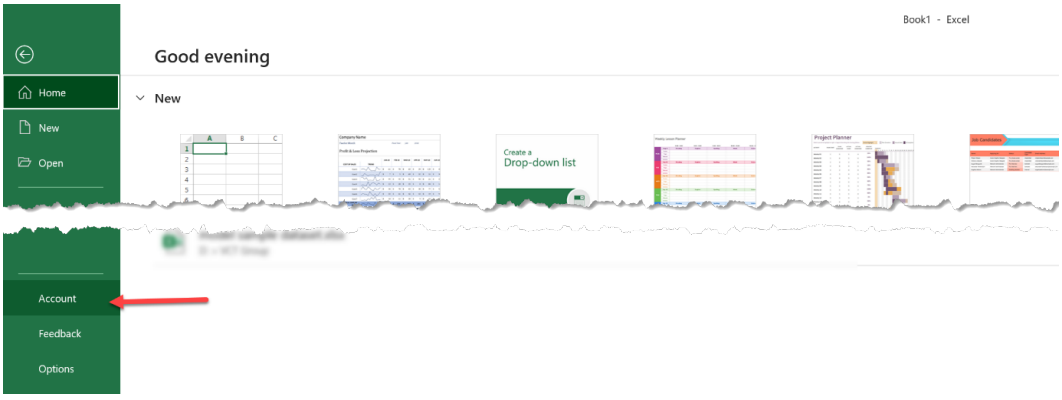


Figure 1.4 – Navigating to Account

The following screenshot shows you where to look to see the Microsoft Excel version:

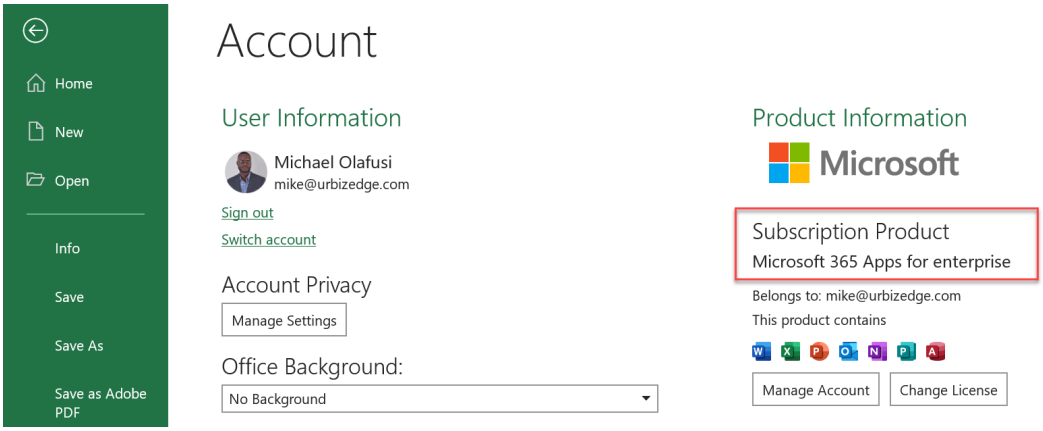


Figure 1.5 – Identifying the Excel version

In interpreting the version, you can swap out **Microsoft** with **Excel**, so my version shown in the preceding figures then reads as **Excel 365**.

In the next section, we will take a look at what is special about the Excel 365 version.

Excel 365

Excel 365 is the subscription-based version of Microsoft Excel that constantly pushes feature updates and is the most feature-rich version of Excel. It is sold as part of the Microsoft 365 productivity suite, often giving the buyer access to all Microsoft Office applications and some other productivity applications, such as OneDrive and Teams. For dashboard creation, it is the most recommended version to use as it has all the time-saving features. It has new dynamic array formulas, such as `UNIQUE`, `FILTER`, `SEQUENCE`, `SORTBY`, `RANDARRAY`, and `SORT`, which have made possible the type of calculations and automation in Excel that used to require **Visual Basic for Applications** (**VBA**), the programming aspect of Excel. And more recently, Microsoft has added another family of functions that further stretch the automation capabilities of Excel: `LET`, `LAMBDA`, `BYROW`, `BYCOLUMN`, `MAP`, `REDUCE`, `SCAN`, `MAKEARRAY`, and `ISOMITTED`.

The advantages of Excel 365 are not just limited to the new formulas it has that are not in the other versions. In addition, its charting and visualization features are more advanced than in the other versions, except Excel 2021, which was just released 3 months ago as of the time of writing this chapter.

> **Important note**
>
> You can always keep track of the updates for Excel 365 at `https://docs.microsoft.com/en-us/officeupdates/update-history-microsoft365-apps-by-date`.

The following screenshot shows the version history as detailed in the preceding link:

Version History

Year	Release date	Current Channel	Monthly Enterprise Channel	Semi-Annual Enterprise Channel (Preview)	Semi-Annual Enterprise Channel
2022	January 12	Version 2112 (Build 14729.20260)			Version 2008 (Build 13127.21856)
2022	January 11	Version 2112 (Build 14729.20248)	Version 2111 (Build 14701.20290) Version 2110 (Build 14527.20364)	Version 2108 (Build 14326.20738)	Version 2108 (Build 14326.20738) Version 2102 (Build 13801.21106)
2022	January 04	Version 2112 (Build 14729.20194)			
2021	December 17		Version 2110 (Build 14527.20344) Version 2109 (Build 14430.20386)		
2021	December 16	Version 2111 (Build 14701.20262)		Version 2108 (Build 14326.20702)	Version 2102 (Build 13801.21092) Version 2008 (Build 13127.21846)
2021	December 14	Version 2111 (Build 14701.20248)	Version 2110 (Build 14527.20340) Version 2109 (Build 14430.20380)	Version 2108 (Build 14326.20692)	Version 2102 (Build 13801.21086) Version 2008 (Build 13127.21842)
2021	December 03	Version 2111 (Build 14701.20226)			
2021	December 01	Version 2110 (Build 14527.20312)			
2021	November 09	Version 2110 (Build 14527.20276)	Version 2109 (Build 14430.20342) Version 2108 (Build 14326.20600)	Version 2108 (Build 14326.20600)	Version 2102 (Build 13801.21050) Version 2008 (Build 13127.21820)

Figure 1.6 – Microsoft 365 updates history

The best Excel 365 channel to be on is the **current channel** because it gets new features more quickly than the **monthly enterprise channel** and the **semi-annual enterprise channel**. Do note that if your license was assigned to you by a company IT admin, the admin invariably controls what channel you will be on. In the next section, we will discuss Excel 2021 version.

Excel 2021

Excel 2021 is the most recent perpetual license version of Excel. It has all the feature updates of Excel up to October 2021, spanning new formulas to new data transformation tools.

> **Important note**
>
> You can read Microsoft's official listing of the new features above Excel 2019 that Excel 2021 has at `https://support.microsoft.com/en-us/office/what-s-new-in-excel-2021-for-windows-f953fe71-8f85-4423-bef9-8a195c7a1100`.

Now let us understand the features in depth:

Coauthoring: Coauthoring is collaborative working on the same Excel file by two or more people. This method is recommended over the **Share Workbook** feature under the **Review** tab in the older versions of Excel.

The following screenshot shows us what the coauthoring experience is like:

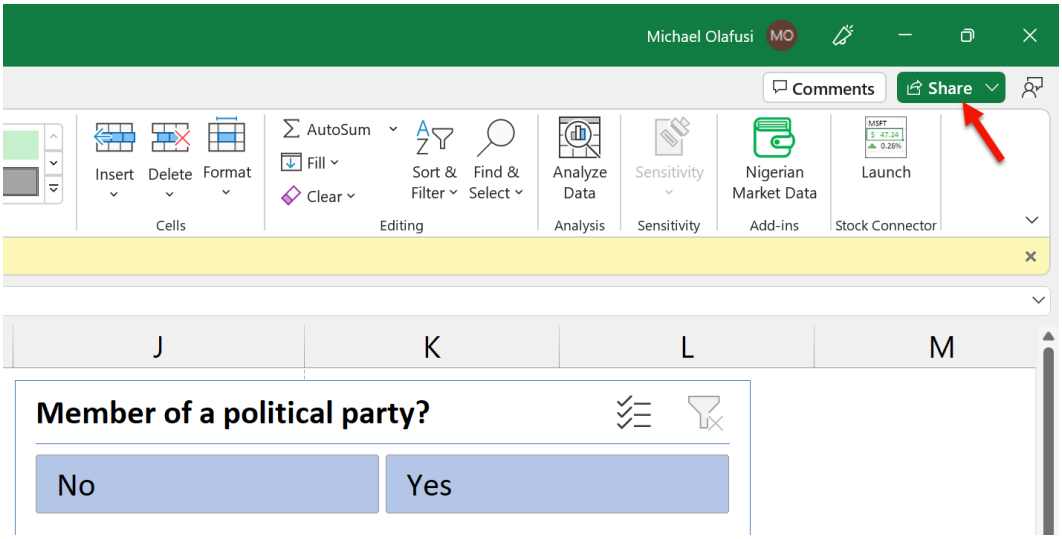


Figure 1.7 – Coauthoring

Let us look at this feature in more detail in the following screenshot:

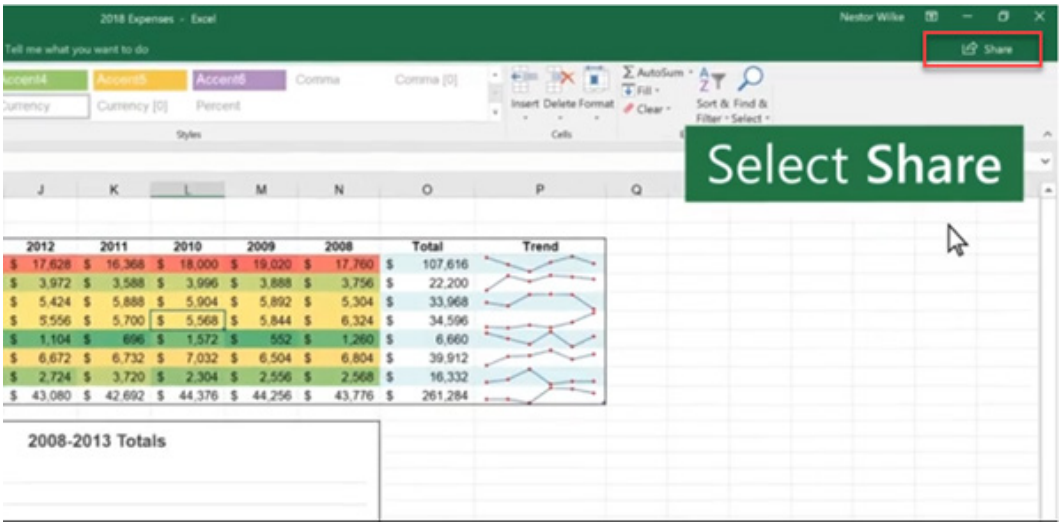


Figure 1.8 – Coauthoring

Modern comments: This is a threaded comment experience with the ability to mention/tag a colleague. The following screenshot shows what modern comments look like:

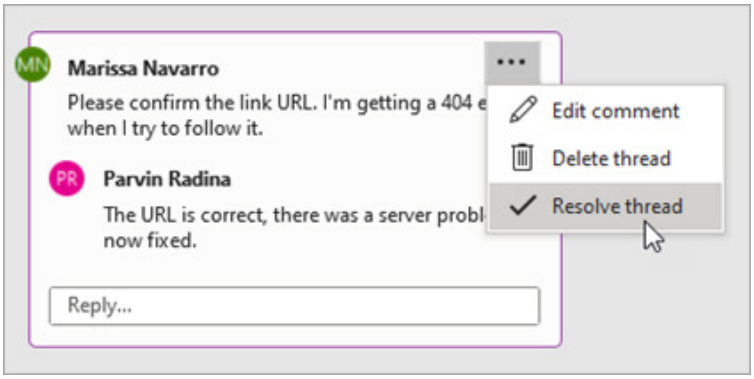


Figure 1.9 – Modern comments

Know who's in your workbook: This works hand in hand with coauthoring. You now can now see the names of people co-working with you on a shared Excel file.

The following screenshot illustrates the feature:

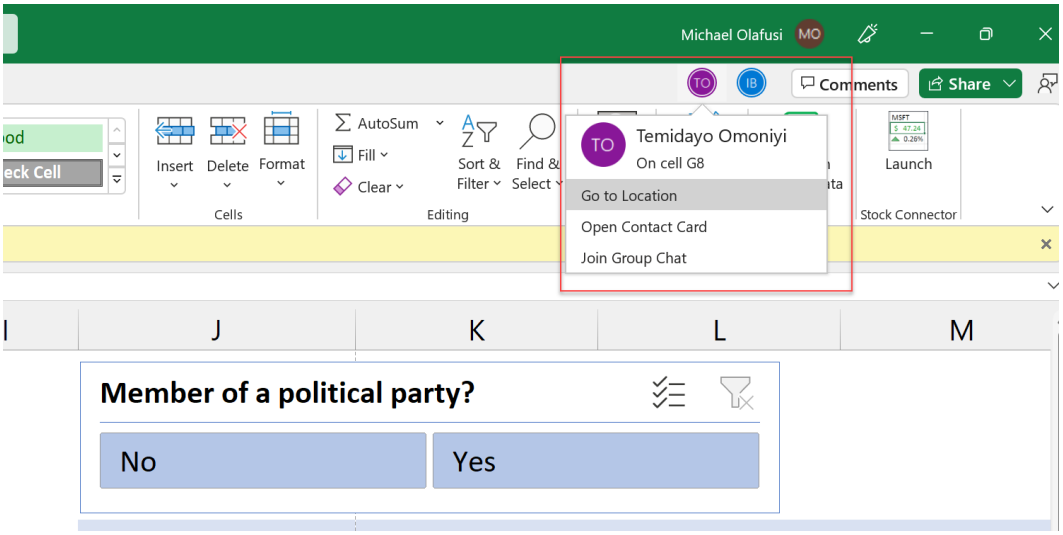


Figure 1.10 – Know who's in your workbook

Visual refresh: This is more of a UI design change that aims at making the menu tabs cleaner and more action aligned.

The following screenshot illustrates the feature:

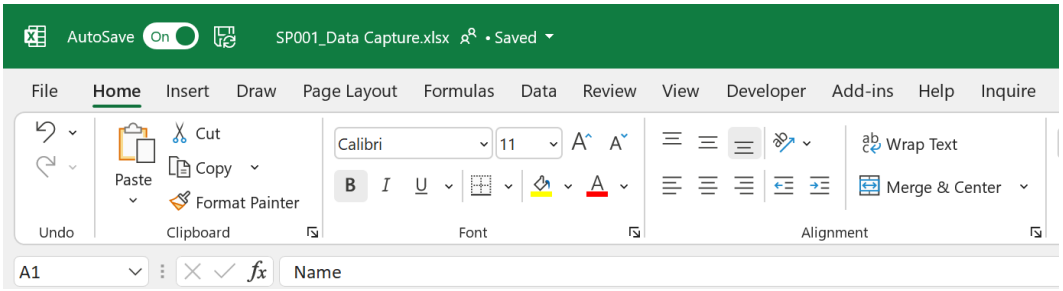


Figure 1.11 – Visual refresh

The XLOOKUP function: This is a replacement for `VLOOKUP` and `HLOOKUP`. It allows you to search across rows or columns and pick values to the left or right, or above or below your found lookup value. It also contains error handling.

The following screenshot illustrates the feature:

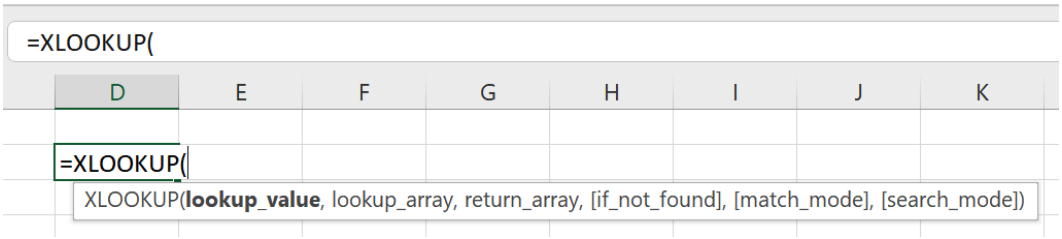


Figure 1.12 – The XLOOKUP function

The LET function: `LET` is a function that allows you to create the equivalent of reusable variables within a formula.

The following screenshot shows an example of using `LET` to assign a value to a variable called *radius* and using it for calculation:

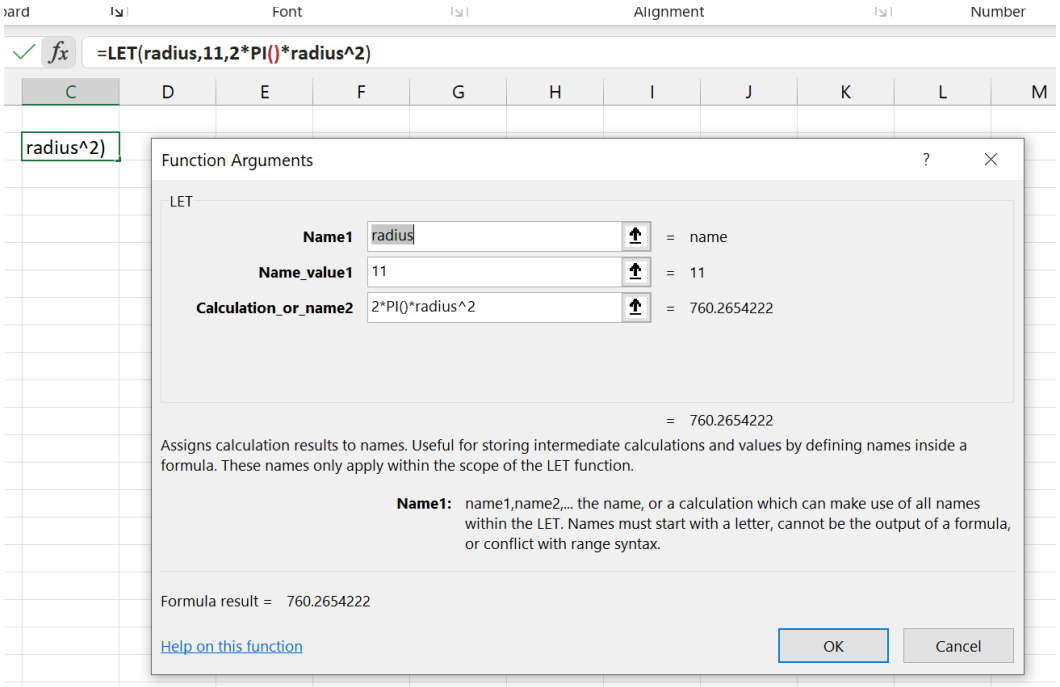


Figure 1.13 – The LET function

Dynamic arrays: Dynamic arrays are the biggest update in Excel 2022. It is what makes it a great version for dashboard creation. We have a separate section on dynamic arrays in *Chapter 4*, *Power Query: The Ultimate Data Transformation Tool*.

Dynamic arrays allow calculations that spill into multiple cells and also automatically shrink or expand. Before dynamic arrays, people tried to achieve this by using array formulas, but they don't shrink and can be very difficult to work with.

In the following screenshot is the use of `UNIQUE`, a dynamic array function, to get the unique entries from a range:

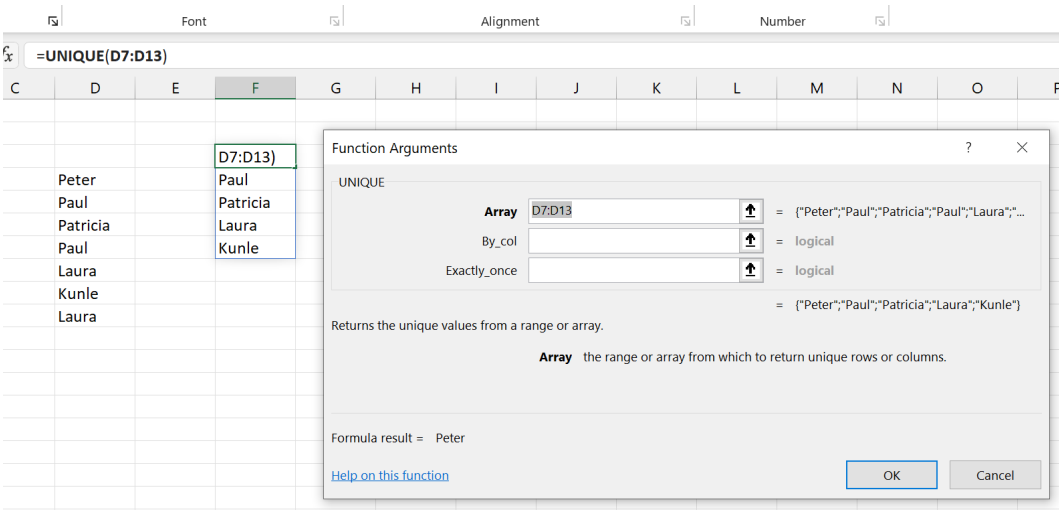
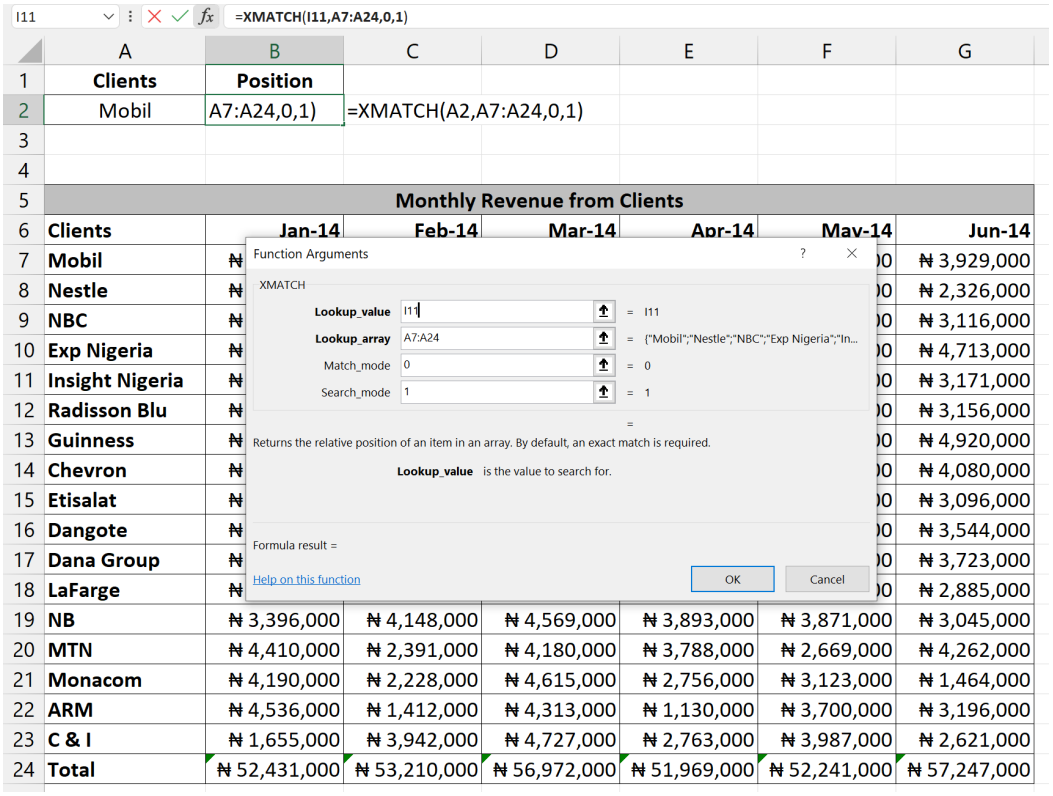


Figure 1.14 – Dynamic arrays

The XMATCH function: Like `XLOOKUP`, this is a replacement for the `MATCH` function.

The following screenshot illustrates the feature:

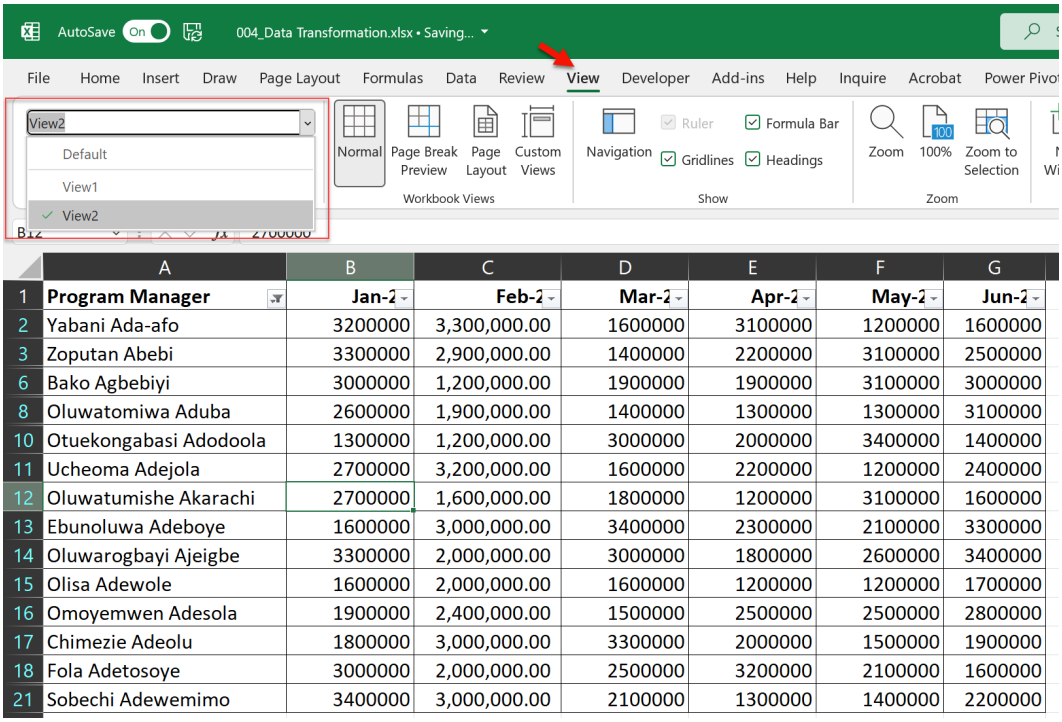


	A	B	C	D	E	F	G
1	**Clients**	**Position**					
2	Mobil	A7:A24,0,1)	=XMATCH(A2,A7:A24,0,1)				
3							
4							
5	**Monthly Revenue from Clients**						
6	**Clients**	**Jan-14**	**Feb-14**	**Mar-14**	**Apr-14**	**May-14**	**Jun-14**
7	**Mobil**	₦				)0	₦ 3,929,000
8	**Nestle**	₦				)0	₦ 2,326,000
9	**NBC**	₦				)0	₦ 3,116,000
10	**Exp Nigeria**	₦				)0	₦ 4,713,000
11	**Insight Nigeria**	₦				)0	₦ 3,171,000
12	**Radisson Blu**	₦				)0	₦ 3,156,000
13	**Guinness**	₦				)0	₦ 4,920,000
14	**Chevron**	₦				)0	₦ 4,080,000
15	**Etisalat**	₦				)0	₦ 3,096,000
16	**Dangote**	₦				)0	₦ 3,544,000
17	**Dana Group**	₦				)0	₦ 3,723,000
18	**LaFarge**	₦				)0	₦ 2,885,000
19	**NB**	₦ 3,396,000	₦ 4,148,000	₦ 4,569,000	₦ 3,893,000	₦ 3,871,000	₦ 3,045,000
20	**MTN**	₦ 4,410,000	₦ 2,391,000	₦ 4,180,000	₦ 3,788,000	₦ 2,669,000	₦ 4,262,000
21	**Monacom**	₦ 4,190,000	₦ 2,228,000	₦ 4,615,000	₦ 2,756,000	₦ 3,123,000	₦ 1,464,000
22	**ARM**	₦ 4,536,000	₦ 1,412,000	₦ 4,313,000	₦ 1,130,000	₦ 3,700,000	₦ 3,196,000
23	**C & I**	₦ 1,655,000	₦ 3,942,000	₦ 4,727,000	₦ 2,763,000	₦ 3,987,000	₦ 2,621,000
24	**Total**	₦ 52,431,000	₦ 53,210,000	₦ 56,972,000	₦ 51,969,000	₦ 52,241,000	₦ 57,247,000

Figure 1.15 – The XMATCH function

Sheet views: This feature allows you to create many saved, customized, filtered, and/or sorted views of a table. It is a huge convenience when working on a shared file so that each person's view is retained.

The following screenshot illustrates the feature:



	A	B	C	D	E	F	G
1	**Program Manager**	**Jan-2**	**Feb-2**	**Mar-2**	**Apr-2**	**May-2**	**Jun-2**
2	Yabani Ada-afo	3200000	3,300,000.00	1600000	3100000	1200000	1600000
3	Zoputan Abebi	3300000	2,900,000.00	1400000	2200000	3100000	2500000
6	Bako Agbebiyi	3000000	1,200,000.00	1900000	1900000	3100000	3000000
8	Oluwatomiwa Aduba	2600000	1,900,000.00	1400000	1300000	1300000	3100000
10	Otuekongabasi Adodoola	1300000	1,200,000.00	3000000	2000000	3400000	1400000
11	Ucheoma Adejola	2700000	3,200,000.00	1600000	2200000	1200000	2400000
12	Oluwatumishe Akarachi	2700000	1,600,000.00	1800000	1200000	3100000	1600000
13	Ebunoluwa Adeboye	1600000	3,000,000.00	3400000	2300000	2100000	3300000
14	Oluwarogbayi Ajeigbe	3300000	2,000,000.00	3000000	1800000	2600000	3400000
15	Olisa Adewole	1600000	2,000,000.00	1600000	1200000	1200000	1700000
16	Omoyemwen Adesola	1900000	2,400,000.00	1500000	2500000	2500000	2800000
17	Chimezie Adeolu	1800000	3,000,000.00	3300000	2000000	1500000	1900000
18	Fola Adetosoye	3000000	2,000,000.00	2500000	3200000	2100000	1600000
21	Sobechi Adewemimo	3400000	3,000,000.00	2100000	1300000	1400000	2200000

Figure 1.16 – Sheet views

Performance improvements: Many formulas have been optimized to compute faster, and to improve the overall stability of Excel. This is a big plus when working with large datasets, as is commonly the case with dashboards.

Unhide many sheets at once: This is a feature for people who work with many sheets and often need to hide/unhide sheets live.

The following screenshot illustrates the feature:

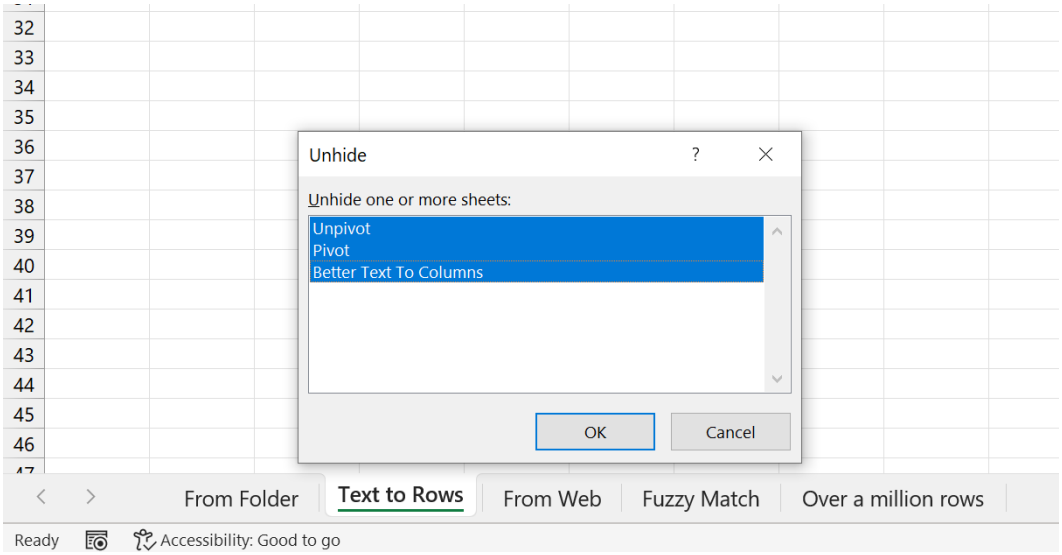


Figure 1.17 – Unhide many sheets at once

Altogether, these features make Excel 2021 a great tool to use for modern business reporting and dashboard building.

In the next section, we will discuss the other Excel versions.

Older versions of Excel

Excel 2019 and earlier are the older versions that I am referring to. Excel 2019 was released barely 3 years ago, and many people are still trying to catch up with the added features in Excel 2016 (especially the additional charts and forecast tool). So some people may find it shocking to classify Excel 2019 as an outdated version. However, when it comes to creating modern dashboards, you will do yourself good by accepting that all versions earlier than Excel 2021 are outdated.

One great thing about Excel is that the features are incremental, so the newer versions have the features of the older versions retained. To give you a good idea of the other features in Excel 365 and Excel 2021 we will be focusing on as we build dashboards, I have created a listing of all the notable features that come with each version of Excel, dating back to Excel 2007, in the following subsections.

Excel 2019

Excel 2019 was released in September 2018 and came preloaded with the following functions that were not in the earlier version:

- New functions, such as `CONCAT`, `IFS`, `MAXIFS`, `MINIFS`, `SWITCH`, and `TEXTJOIN`
- Map charts and funnel charts
- Insert vector graphics and 3D models
- New themes (especially the famous black theme)
- Customizable default PivotTable layout
- PivotTable automatic date and time grouping
- PivotChart drill-down buttons
- Automatic relationship detection in the data model
- Search in the PivotTable field list
- Power Query improvements

Excel 2016

Excel 2016 was released in September 2015 and created a big buzz in the user community due to its very popular new charts. Before it, Excel had not delivered any major chart updates for over a decade. The following is a listing of the new features it introduced:

- New chart types: treemap, sunburst, histogram, box and whisker, waterfall, and Pareto
- Power Query (known in this version as Get and Transform Data)
- 3D maps

Excel 2013

Excel 2013 was released in January 2013 and came with a major UI upgrade. The following is a full listing of the new features it delivered:

- Flash Fill
- Chart recommendations
- Filter tables with slicers
- One workbook, one window (this fixed a big issue of needing to work with two different Excel files opened and displayed at the same time on one or two monitors)
- Power Query (a huge time-saving and data transformation tool)

- Drill down, drill up, and cross drill in Pivot Table
- Standalone PivotChart
- 51 new functions

Excel 2010

Excel 2010 was released in June 2010 and was another delight to the user communities because of its sparkline feature. Excel fans around the world were churning out interesting use cases for sparklines, and it was positioned as a great-to-have visual in a dashboard. The following is a listing of its new features:

- Sparklines
- Slicers
- Improved tables and filters
- Paste previews
- More conditional formatting options
- Improved PivotTable calculation options

Excel 2007

Excel 2007 was released in January 2007 and caused an uproar in the user community as people expressed their displeasure with the new ribbon style of the menu. Today, it is, however, considered one of the most important versions ever released, as it was the first to have 1,048,576 rows and 16,384 columns. The following list shows the new features in the version:

- The now well-loved ribbon system
- Increased number of cells per sheet
- Themes and styles
- Sort by color, add levels in filters, and many additions to sort and filter functionality
- New functions, including `IFERROR`, `AVERAGEIFS`, `SUMIFS`, `COUNTIFS`, and `Cube` formulas
- Improved charts
- Improved PivotTable

We are now at the end of the chapter; it has been a very enlightening one on dashboards, reports, and Microsoft Excel versions. In the next section, we will do a quick summary of the entire chapter.

Summary

In this chapter, we have covered the key foundational things to know as we progress into building modern dashboards. Just to reiterate, the major learning highlights from this chapter are as follows: we started with the difference between dashboards and reports. We then learned about why dashboards are important for modern businesses. We then learned about the definitive characteristics of dashboards. Next, we went through the different Excel versions and why Excel 365 and Excel 2021 are the recommended versions for building dashboards.

And that's it for this chapter; in the next chapter, we will dive into the common dashboards required by most modern companies.s

Further reading

You can read more on the Excel features mentioned in this chapter at this official Microsoft documentation pages:

- *What's new in Excel 2021 for Windows*: `https://support.microsoft.com/en-us/office/what-s-new-in-excel-2021-for-windows-f953fe71-8f85-4423-bef9-8a195c7a1100`
- *What's new in Office 2021*: `https://support.microsoft.com/en-us/office/what-s-new-in-office-2021-43848c29-665d-4b1b-bc12-acd2bfb3910a`
- *What's the difference between Microsoft 365 and Office 2021?*: `https://support.microsoft.com/en-us/office/what-s-the-difference-between-microsoft-365-and-office-2021-ed447ebf-6060-46f9-9e90-a239bd27eb96`