

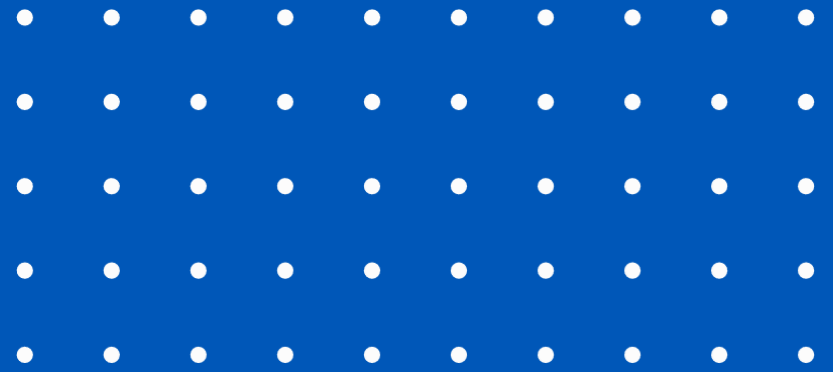
Power BI in Action: Bring Your Data to Life

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- Pronouns: She/Her



- Overview of the Power BI ecosystem
- Connect, model and transform data
- Visualize data to highlight trends and insights

Agenda

Power BI Overview

What does Power BI do?

Lots of things that we historically would have had to use many different tools for – or not have been able to do (well) at all



Data
Aggregation



Data
Modeling
Engine



Data
Reshaping
Tool



Data
Visualization
Toolkit



Interactive
Dashboard
Platform

Figure 1: Magic Quadrant for Analytics and Business Intelligence Platforms



Gartner (June 2024)

Gartner.

Leading Business Intelligence Tools

According to Gartner

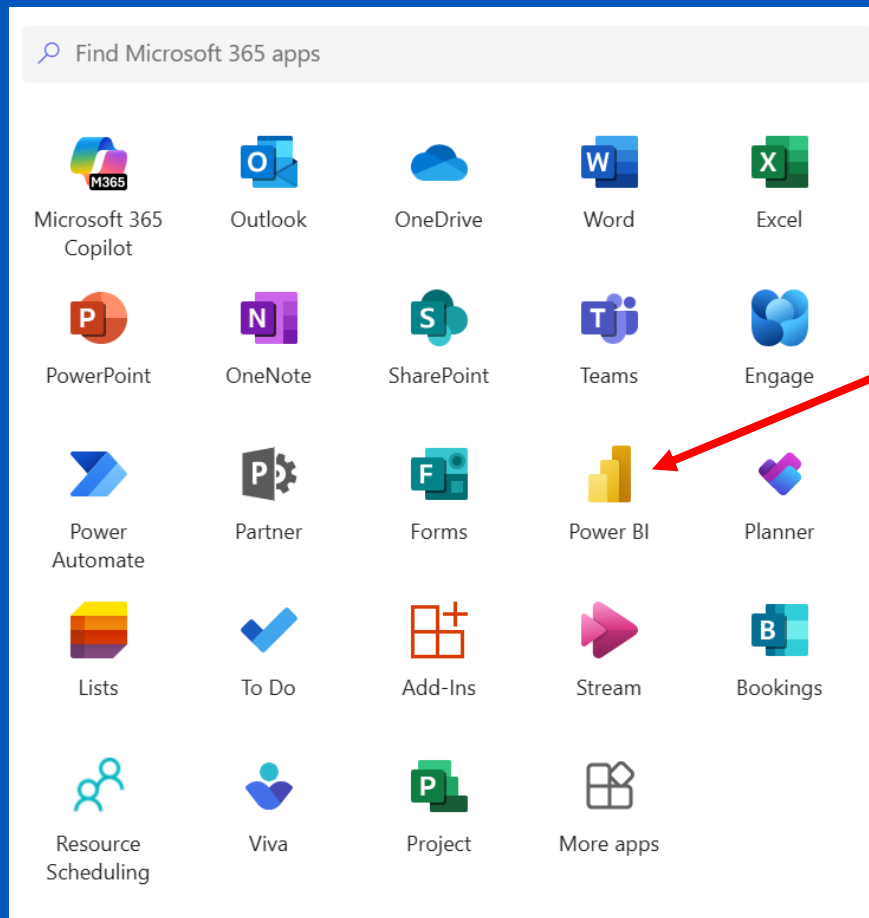
- Microsoft (Power BI) remains the leader
- Since Microsoft (Power BI) offers significantly reduced pricing for nonprofits, direct connections to many data sources that nonprofits use and is part of the M365 platform, Power BI is a commonly recommended BI tool

Power BI Details

Desktop Version	Free (download from Microsoft)
Online application (for publishing and collaborating on visualizations online)	<ul style="list-style-type: none">• There is a (very limited) free version. No ability to share/collaborate reports or datasets.• Power BI Pro is ~ \$3/user per month for most non-profit users• Premium starts at \$8/user per month.<ul style="list-style-type: none">• More than 50% off list price
Palette and design	<ul style="list-style-type: none">• Standard palette options has recently improved. Can import and adopt different palettes.• Many standard visualization options available and many more custom visualizations can be imported.
Usability	Initially, Power BI can be difficult to digest and comprehend.
Resources and documentation	<ul style="list-style-type: none">• Lots of accessible Power BI learning resources from Microsoft – and elsewhere• Very active user community/knowledge base posts

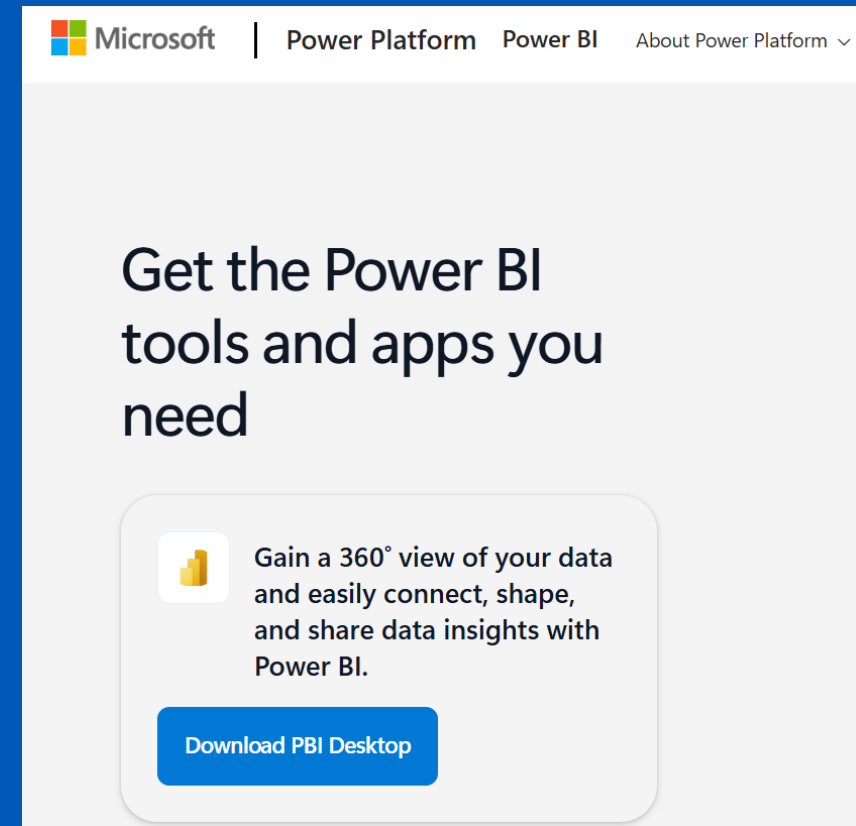
Getting Power BI

M365 App



Desktop

<https://powerbi.microsoft.com/en-us/downloads/>



Power BI Terminology

Visualization

Report

Dashboard

**Semantic
Model**

**Power Query/
Transform
Data**

M and DAX

Power BI Terminology

Visualization

A visualization type/
style (pie, bar, line, tree)

Report

Most commonly used Power BI option for visual reporting of data. Can create reports with 1 or many tabs.

Dashboard

A single page canvas with connected visuals. Generally used for a single purpose/audience.

Semantic Model

Used to be called a Dataset, which can be just one or many+ sources of data. Not Direct Query

Power Query/ Transform Data

Where major data transformations occurs in the platform

M and DAX

The formula languages Power BI Uses. M is used in Power Query. DAX is used for contextual analysis in the reporting layer of Power BI.

Demo Part 1

Parts of the Power BI (Desktop) toolbox
Connecting to Data

Power BI Desktop has various layers: Report, Table, Model.

Report View

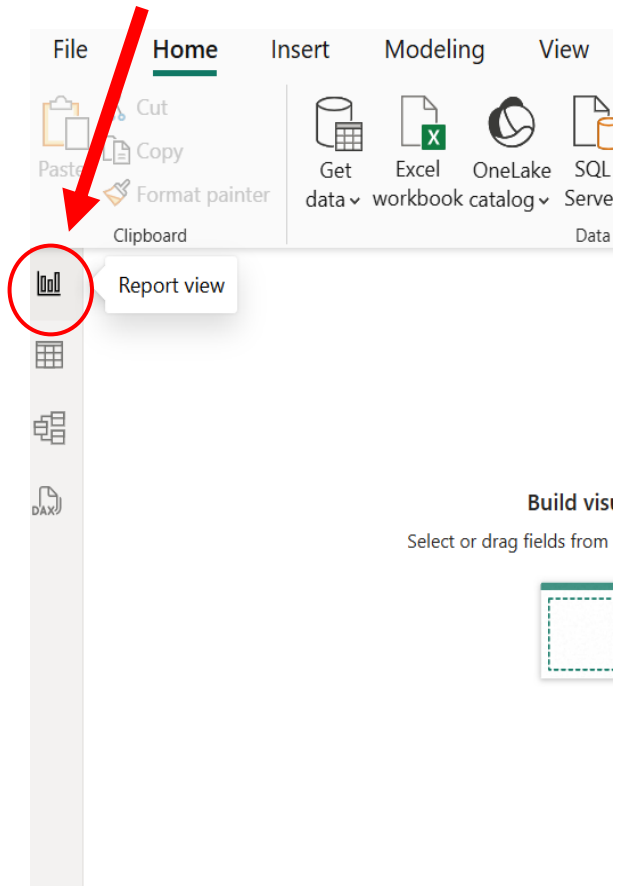
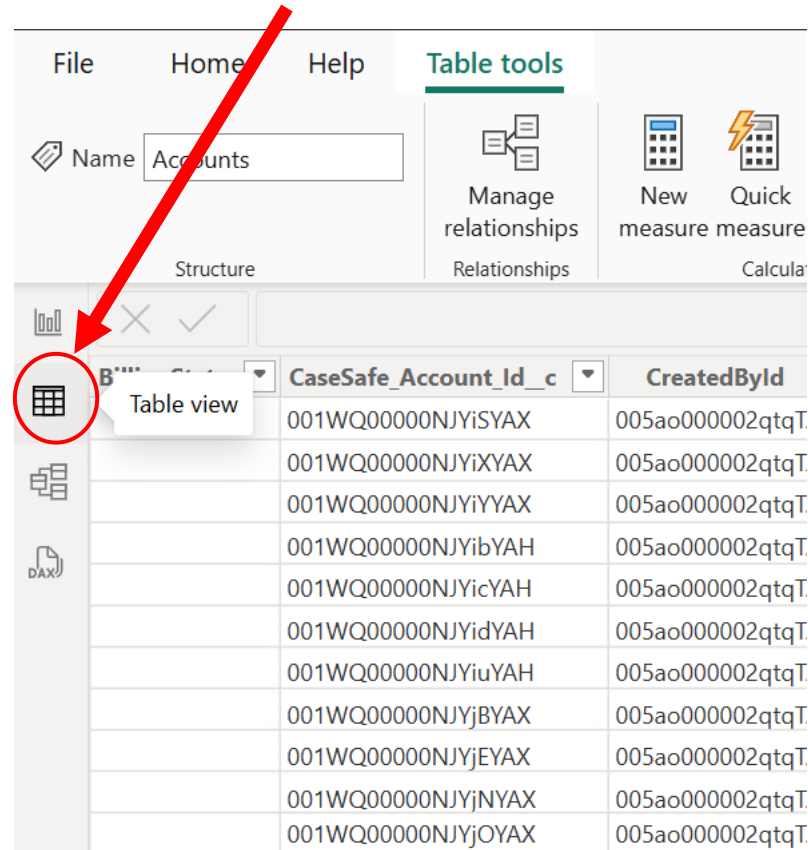
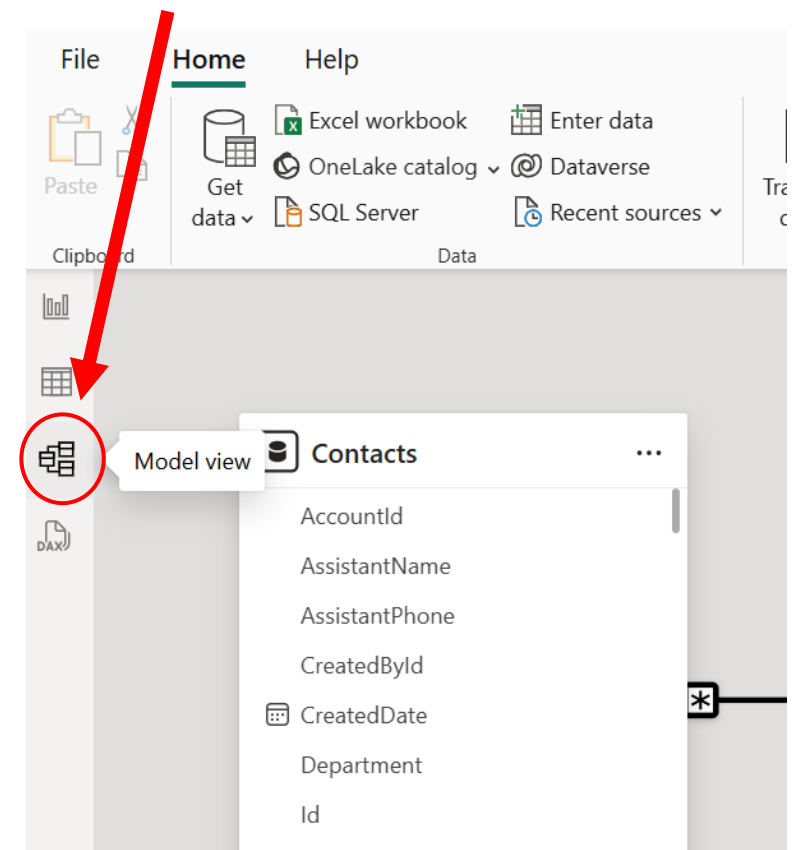


Table View



Model View



Sample Data

	A	B
1	Program_Name	Description
2	Parenting	Classes and support groups
3	Job Readiness	Resume, interview prep
4	Mental Health Workshops	Drop-in wellness sessions
5		

Programs

	A	B	C	D
1	Participant_ID	Name	Phone	Email
2	P00565	Tina Marsh	406-555-9283	tina.marsh@example.com
3	P00002	Eric Woods	802-555-6754	eric.woods@example.net
4	P00119	Jessica Warren	321-555-3412	jessica.warren@example.org
5	P00116	Thomas Snyder	219-555-8439	thomas.snyder@example.com
6	P00581	Emily Romero	512-555-2901	emily.romero@example.com
7	P00469	Tyler James	406-555-7302	tyler.james@example.net
8	P00046	Laura Dean	707-555-8745	laura.dean@example.org
9	P00238	Nicholas Armstrong	973-555-0037	nick.armstrong@example.com
10	P00144	Cynthia Hamilton	408-555-7629	cynthia.h@example.com
11	P00396	Mark Castillo	216-555-9347	mark.castillo@example.org
12	P00204	Rachel Klein	623-555-1183	rklein@example.net
13	P00414	Jason Torres	312-555-7810	itorres@example.com

Participants

Sample Data

	A	B	C	D	E
1	Session_ID	Topic	Program_ID	Date	Location
67	S0066	Parenting Teens	Parenting	7/12/2025	Northside Resource Hub
68	S0067	Toddler Sleep Strategies	Parenting	7/13/2025	Downtown Community Center
69	S0068	Co-Parenting Communication	Parenting	7/13/2025	East End Church Hall
70	S0069	Parent Support Circle	Parenting	7/19/2025	East End Church Hall
71	S0070	Co-Parenting Communication	Parenting	7/19/2025	Downtown Community Center
72	S0071	Positive Discipline	Parenting	7/19/2025	Northside Resource Hub
73	S0072	Wellness Check-In	Mental Health Workshops	7/28/2025	Virtual (Zoom)

Sessions

	A	B	C	D	E
1	Attendance_ID	Participant_ID	Topic	Session_ID	
2	e4e32ac5-b4d4-47a8-8e40-aa59a3985d98	P00565	Cover Letter Workshop	S0098	
3	d952bb84-ea5e-4767-9ee8-d371b5fa19f7	P00002	Wellness Check-In	S0018	
4	86e9c40e-5164-4e89-b0b3-517369a0ee92	P00119	Stress Management Drop-in	S0035	
5	f33b18d5-99ea-4b5b-a1b4-74a59982b73f	P00116	Cover Letter Workshop	S0007	
6	ca0de0c2-d961-442c-9f9f-dc3ab37304ad	P00581	Cover Letter Workshop	S0095	
7	1793b998-397f-4b1e-ac91-5848434e43d4	P00469	Breathing Techniques	S0009	
8	e7c6ce11-74b0-4a16-bfbd-91ca094fe5ed	P00046	Wellness Check-In	S0093	
9	14a45861-7571-4020-be79-810691ca2067	P00238	Toddler Sleep Strategies	S0085	
10	63156f0f-cb46-45a0-bb37-45250bbfb987	P00144	Mock Interview Practice	S0028	

Attendance

Demo Part 2

Data Visualization Steps in PowerBI

Data Visualization Steps in Power BI

- **Step 1:** Connect to data/import dataset
- **Step 2:** Make modifications to the data as it comes in
 - Create new fields/columns
 - Perform calculations
 - Unpivot data
- **Step 3:** Create a Report
- **Step 4:** Publish to Power BI App on-line
- **Step 5:** Collaborate, Publish and Share

Step 1. Connect to Data with “Get Data”

The screenshot displays the Microsoft Power BI Desktop interface. The 'Home' ribbon is active, and the 'Get data' button is highlighted with a red arrow. The 'Get data' dropdown menu is open, showing 'Common data sources' such as Excel workbook, Power BI semantic models, Dataflows, Dataverse, SQL Server, Analysis Services, Text/CSV, Web, OData feed, and Blank query. The 'Data' pane on the right shows a list of fields under 'Accounts', including BillingState, CaseSafe_Acc..., CreatedByld, CreatedDate, Date_of_Refer..., Id, LastActivityDate, LastModifiedB..., LastModified..., LastReference..., LastViewedDate, npe01_SYSTE..., npe01_SYSTE..., npo02_Avera..., npo02_Best..., and npo02_Best... The 'Filters' pane on the left shows 'Filters on this page' and 'Filters on all pages', both with 'Add data fields here' buttons. The 'Visualizations' pane on the right shows 'Build visual' and 'Values' sections, both with 'Add data fields here' buttons. The 'Drill through' section at the bottom right has 'Cross-report' set to 'Off' and 'Keep all filters' set to 'On'.

Step 2: Make modifications to the data in Table view or Transform Data

The screenshot displays the Microsoft Power BI Desktop interface. The top ribbon shows the 'Table tools' tab, which includes the 'Transform data' button. A red arrow points to this button. Another red arrow points to the 'Table view' icon in the left-hand navigation pane. The main area shows a table with the following columns: BillingState, CaseSafe_Account_Id_c, CreatedById, CreatedDate, Date_of_Referral_c, Id, LastActivityDate, and LastModifiedB. The table contains 18 rows of data. On the right side, the 'Data' pane is visible, showing a search bar and a list of tables: Accounts and Contacts.

BillingState	CaseSafe_Account_Id_c	CreatedById	CreatedDate	Date_of_Referral_c	Id	LastActivityDate	LastModifiedB
	001WQ00000NJYiSYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYiSYAX		005ao000002
	001WQ00000NJYiXYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYiXYAX		005ao000002
	001WQ00000NJYiYYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYiYYAX		005ao000002
	001WQ00000NJYibYAH	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYibYAH		005ao000002
	001WQ00000NJYicYAH	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYicYAH		005ao000002
	001WQ00000NJYidYAH	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYidYAH		005ao000002
	001WQ00000NJYiuYAH	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYiuYAH		005ao000002
	001WQ00000NJYjBYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYjBYAX		005ao000002
	001WQ00000NJYjEYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYjEYAX		005ao000002
	001WQ00000NJYjNYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYjNYAX		005ao000002
	001WQ00000NJYjOYAX	005ao000002qtqTAAQ	1/22/2025 8:39:33 AM		001WQ00000NJYjOYAX		005ao000002
	001WQ00000NJe7BYAT	005ao000002qtqTAAQ	1/22/2025 8:16:14 AM		001WQ00000NJe7BYAT		005ao000002
	001WQ00000NJe7DYAT	005ao000002qtqTAAQ	1/22/2025 8:16:14 AM		001WQ00000NJe7DYAT		005ao000002
	001WQ00000NJe7FYAT	005ao000002qtqTAAQ	1/22/2025 8:16:14 AM		001WQ00000NJe7FYAT		005ao000002

Step 3: Create visualizations by selecting Visualization Types and Data (fields/columns)

The screenshot displays the Microsoft Power BI Desktop interface. The main canvas shows a treemap visualization titled "Organization Billing State", where each colored rectangle represents a US state. The ribbon at the top includes tabs for File, Home, Insert, Modeling, View, Optimize, Help, Format, and Data / Drill. The "Data / Drill" tab is active, showing options like Transform Refresh data, New visual, Text box, More visuals, New visual calculation, New measure, Quick measure, Sensitivity, Publish, and Copilot. On the right, the "Visualizations" taskpan is open, showing a "Build visual" section with various chart icons. A red arrow points from the title text to the chart icons. Below the icons, the "Category" dropdown is set to "BillingState", and the "Values" dropdown is set to "Count of Id". The "Data" taskpan is also open, showing a search bar and a list of fields under the "Accounts" table. A red arrow points from the title text to the "Id" field, which is currently selected.

Visualizations Taskpan:

- Build visual
- Category: BillingState
- Details: Add data fields here
- Values: Count of Id

Data Taskpan:

- Accounts
- ☒ BillingState
- ☐ CaseSafe_Acc...
- ☐ CreatedById
- ☐ CreatedDate
- ☐ Date_of_Refer...
- ☒ Id
- ☐ LastActivityDate
- ☐ LastModifiedB...
- ☐ LastModified...
- ☐ LastReference...
- ☐ LastViewedDate
- ☐ npe01_SYSTE...
- ☐ npe01_SYSTE...
- ☐ Σ npo02_Avera...
- ☐ Σ npo02_Best_...
- ☐ Σ npo02_Best_...
- ☐ npo02_FirstC...

Resources and Questions

Resources

Power BI Learning Resources

- Learning paths from Microsoft, based on user level and role
 - <https://learn.microsoft.com/en-us/training/browse/?products=power-bi>

LET'S ANSWER SOME QUESTIONS

