Mastering Data Analytics
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MASTERING DATA ANALYTICS

1. Fundamental BI & Analytical Thinking
2. **End-to-End BI Workflow in Power BI**
3. Descriptive Statistics & Analytics
4. Diagnostics Analytics
5. Analytical Idea Presentation (Dashboard – Insight - Story)
6. Business Intelligence Capstone

BUSINESS INTELLIGENCE

Module 2: End-to-End BI Workflow in Power BI (Part 2)

MASTERING DATA ANALYTICS

2. End-to-End Business Intelligence Workflow in Power BI

01

Data Preparation

1. Power Query Overview
2. Get Data
3. PQ – Basic Transform Data
4. Profiling Data
5. Data Issues
   5a. Bad Shape + Dirty Data
   5b. Missing Data + Outliers

5. Combine Data from Folder
6. Blending Data
7. Checklist

02

Data Modelling

1. Data Model Overview
2. Fact & Dimension
3. Schema
4. Cardinality
5. Cross Filter Direction
6. Hierarchies

03

End-to-End in Power BI Cloud

1. Introduce PBI Ecosystem (PBI Service)
2. Connect Data
3. Prep Data (On Pro & Premium)
4. Data Modeling
5. Report and Dashboard
6. Refresh Scorecard & Metrics
7. Sharing, Collaboration, (PBI Mobile)
8. Deployment Pipelines

MASTERING DATA ANALYTICS

POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

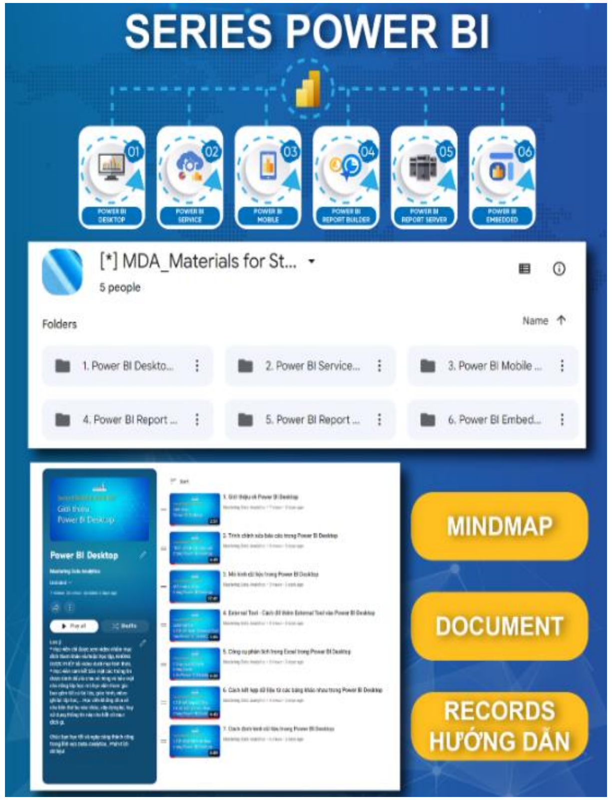
PART 5: Report and Dashboard

PART 6: Refresh Scorecard & Metrics

PART 7: Sharing, Collaboration, (PBI Mobile)

PART 8: Deployment Pipelines

Introduce PBI Ecosystem (PBI Service)
More details for Testimonials



Power BI

Power BI Service (*aka Power BI online*) is a cloud-based business intelligence service designed to help users visualize, analyze and share data in a centralized online environment

With Power BI Service, users can:

- Connect to online or on-premises data sources
- Build or publish reports and dashboards
- Collaborate through shared workspaces
- Version Power BI for Mac…

More info at **powerbi.microsoft.com**

SME’s problem & solution

Problem

- **Freely** Data Analytics
- Cost Concern
- Coding Barrier
- Manual
- Sort term
- Fix

Solution

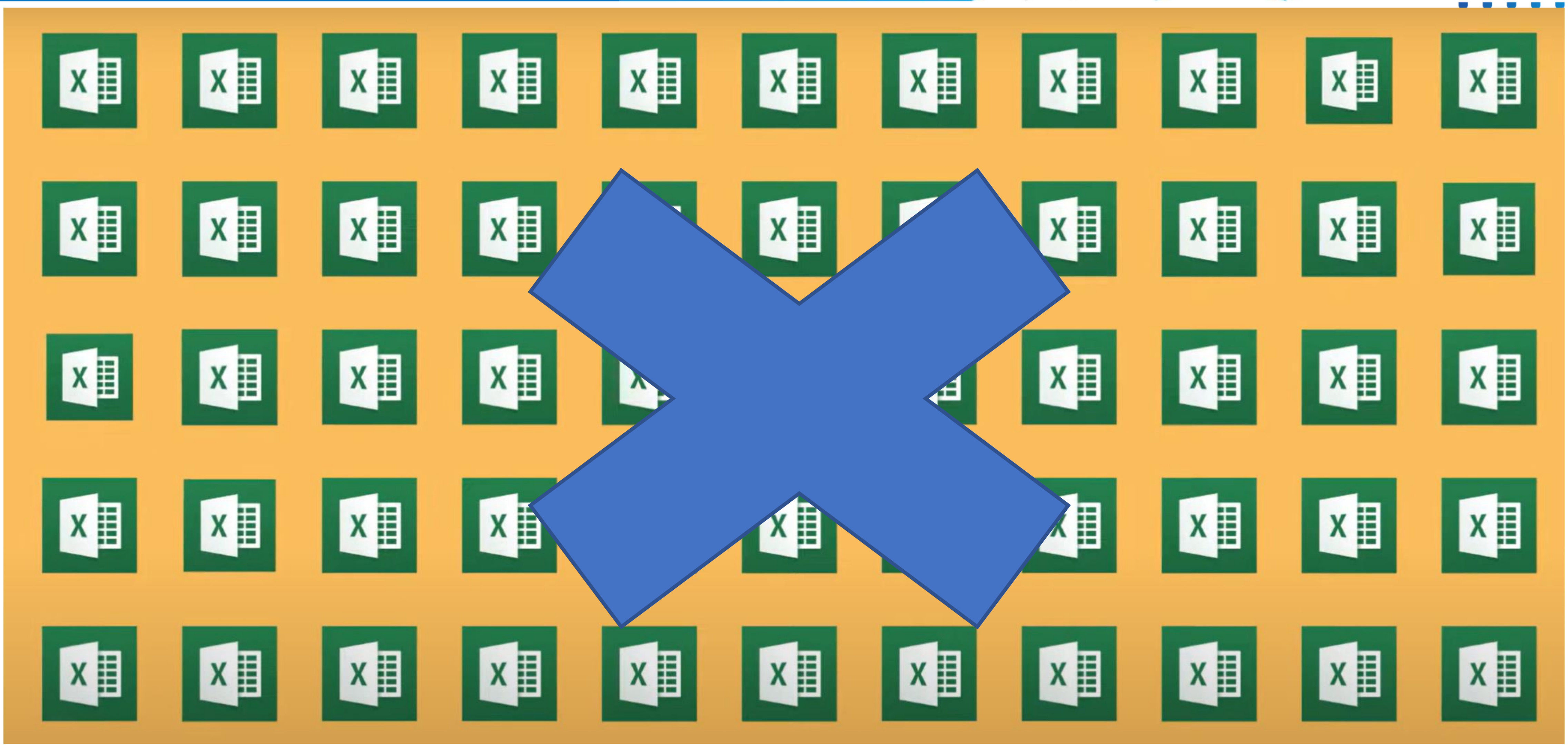
- Data Analytics **Strategy**
- **Low-cost**
- **Low-code**
- **Modern Technology**
- **Long term vision, easy scaling**
- **Continuous Improvement**

Data Strategy for SME

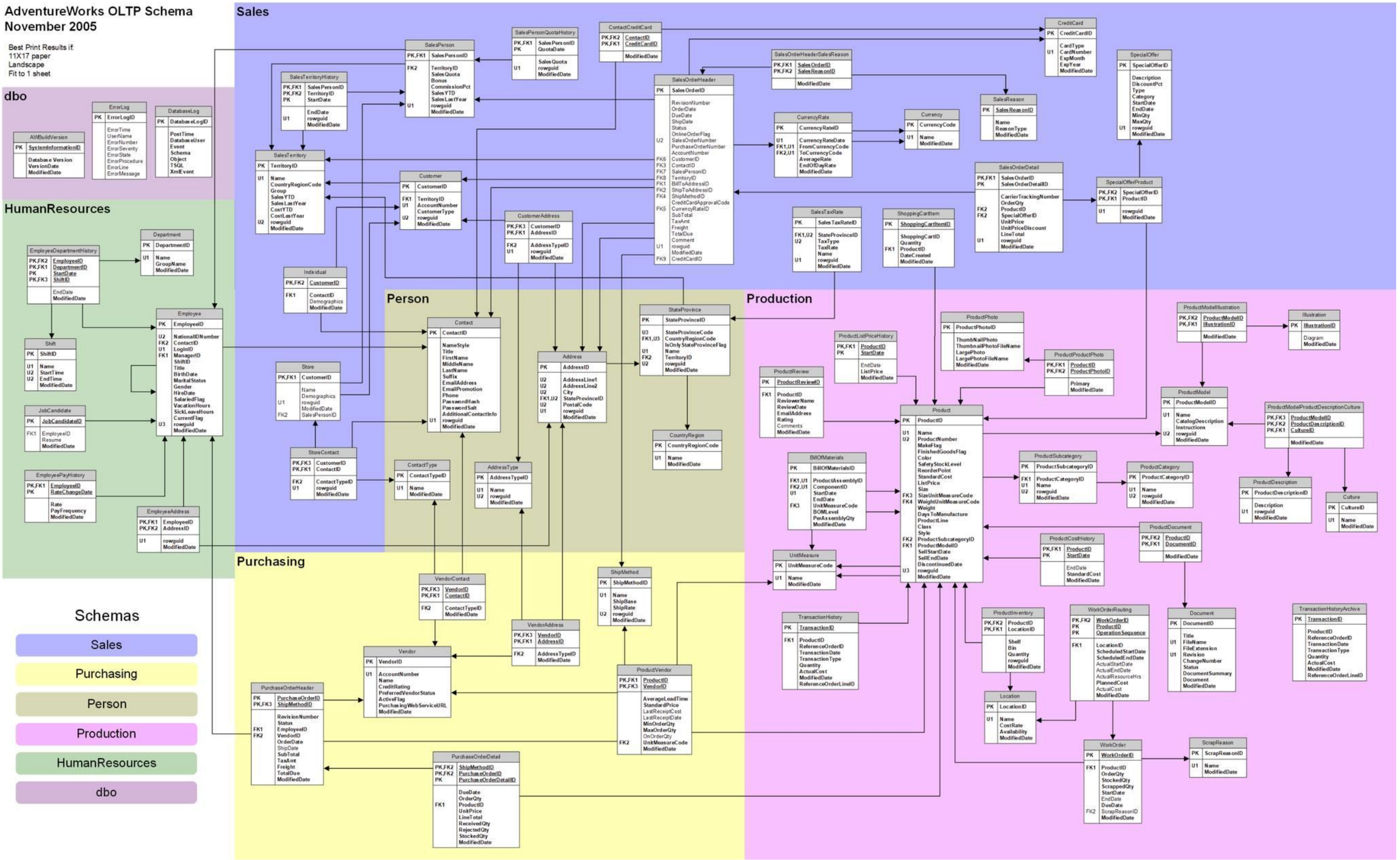
MASTERING DATA ANALYTICS

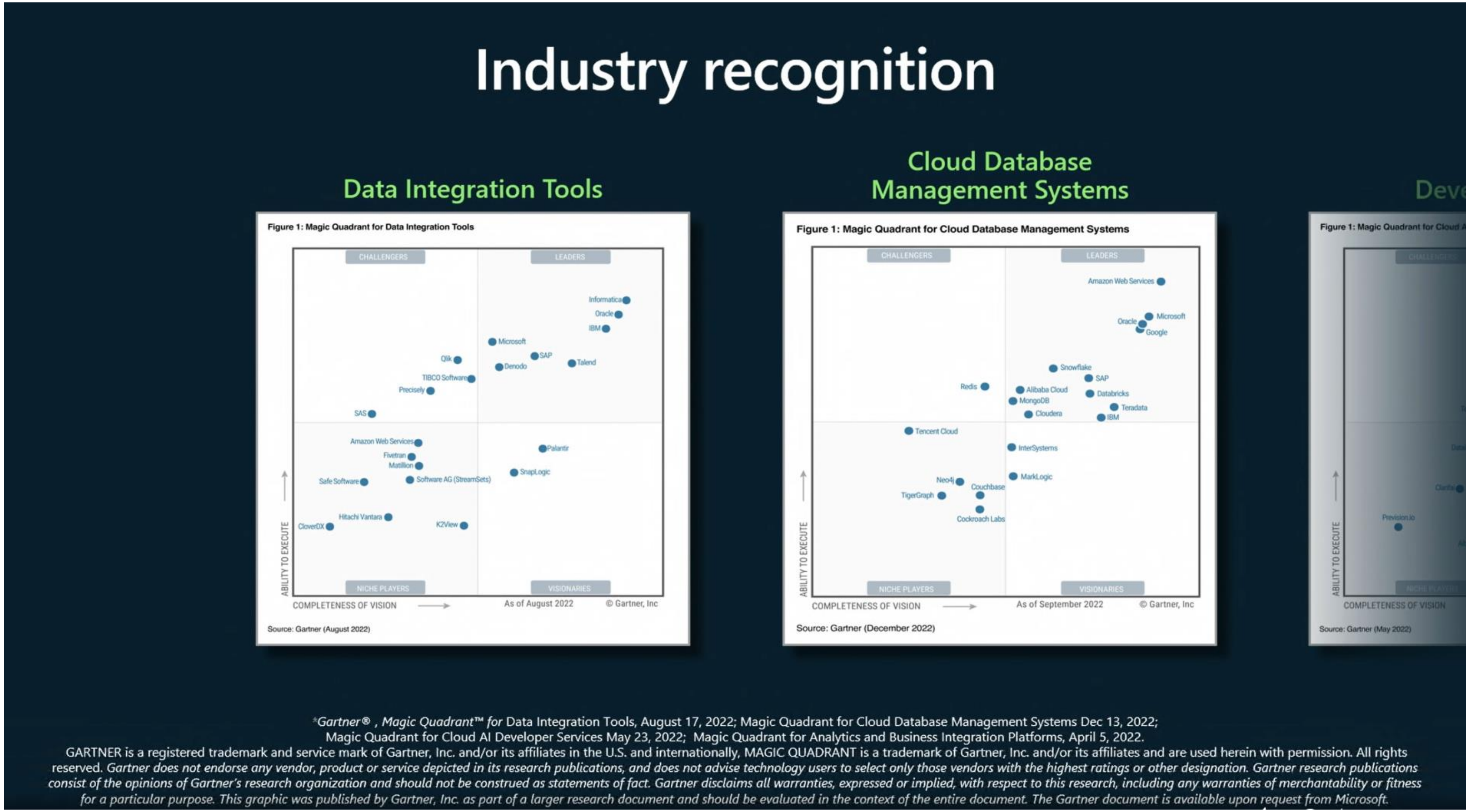
Think Big, Act Small

Doing Right Way



Sample Structure Organize





Industry recognition
Data Integration Tools
Figure 1: Magic Quadrant for Data Integration Tools
CHALLENGERS
LEADERS
NICHE PLAYERS
VISIONARIES
ABILITY TO EXECUTE
COMPLETENESS OF VISION
As of August 2022
© Gartner, Inc
Source: Gartner (August 2022)
Cloud Database Management Systems
Figure 1: Magic Quadrant for Cloud Database Management Systems
CHALLENGERS
LEADERS
NICHE PLAYERS
VISIONARIES
ABILITY TO EXECUTE
COMPLETENESS OF VISION
As of September 2022
© Gartner, Inc
Source: Gartner (December 2022)
Source: Gartner (May 2022)
*Gartner® , Magic Quadrant™ for Data Integration Tools, August 17, 2022; Magic Quadrant for Cloud Database Management Systems Dec 13, 2022;
Magic Quadrant for Cloud AI Developer Services May 23, 2022; Magic Quadrant for Analytics and Business Integration Platforms, April 5, 2022.
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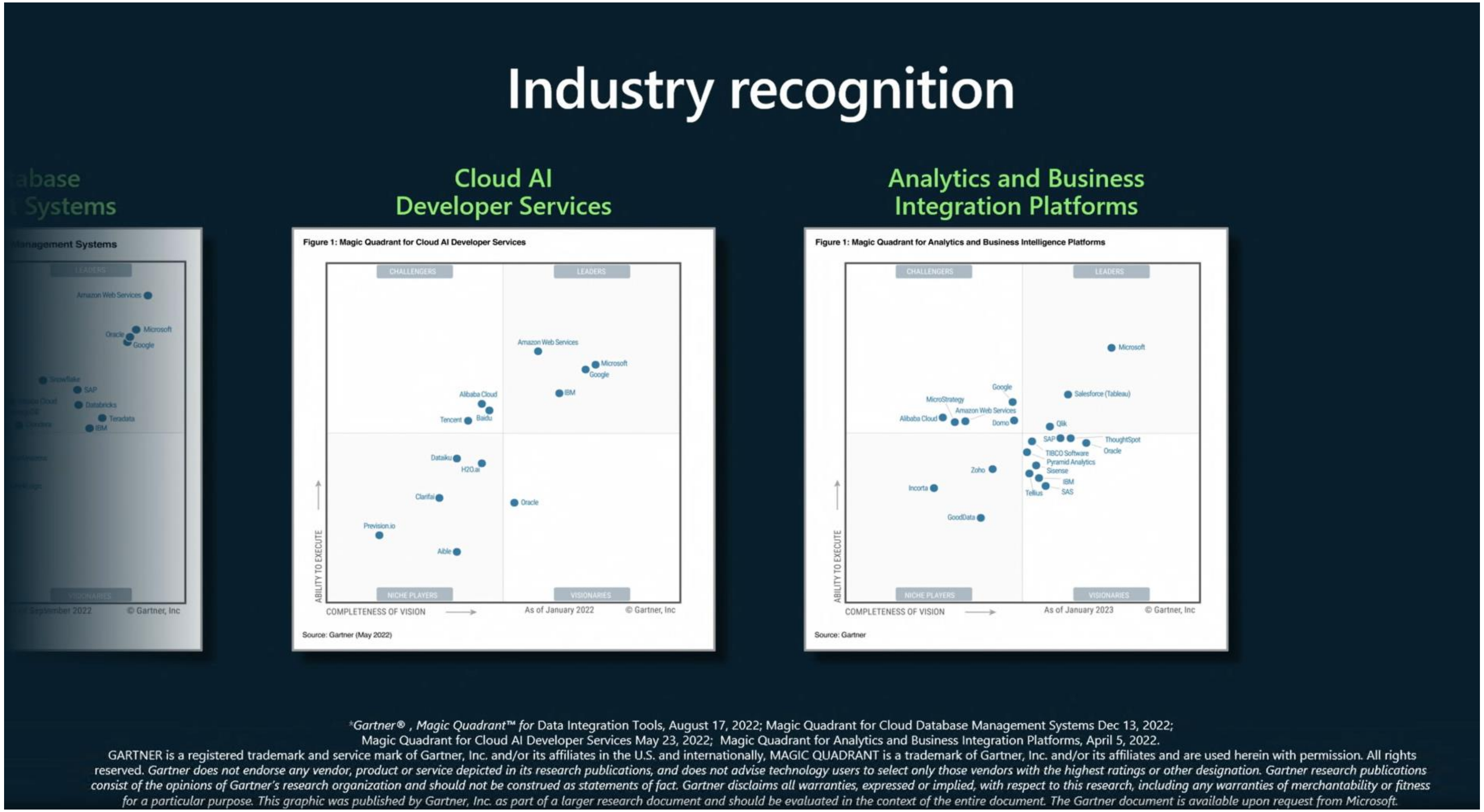
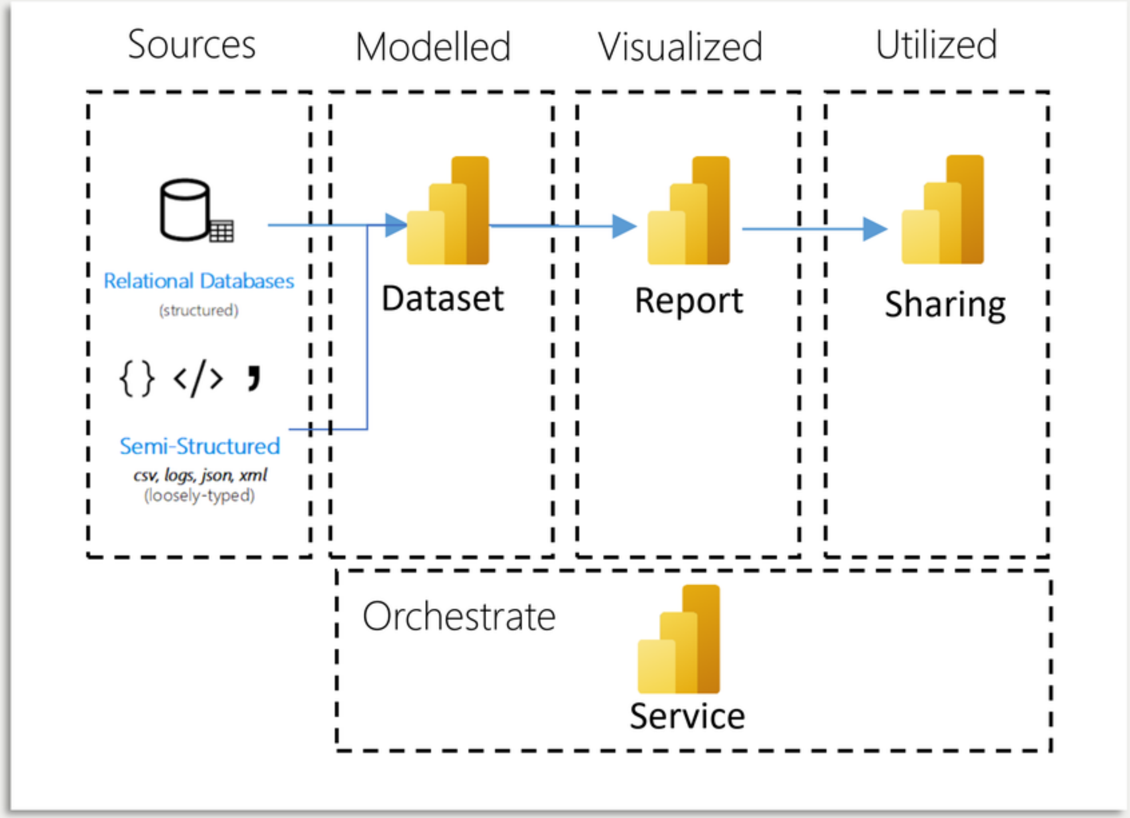
Introduce PBI Ecosystem (PBI Service)

End - to - end analytics in Power BI



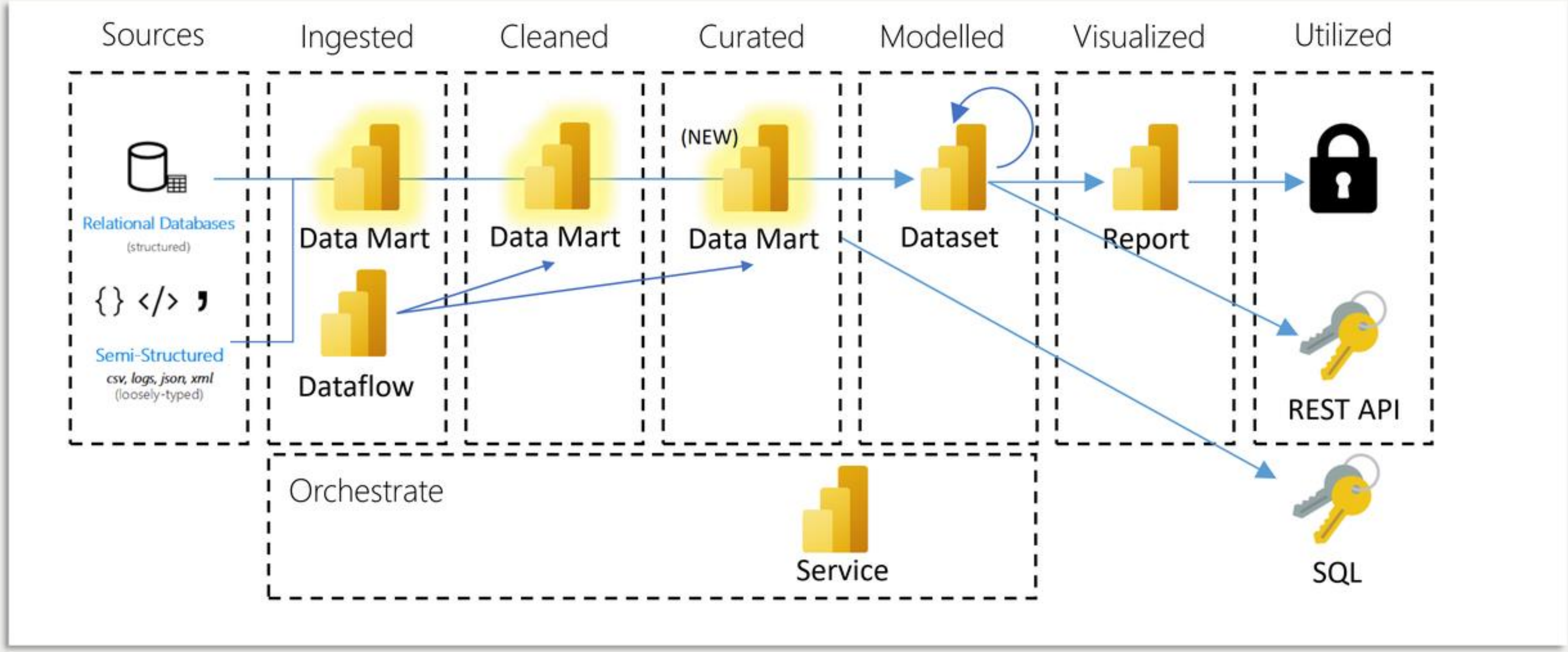
5 Million
Developers

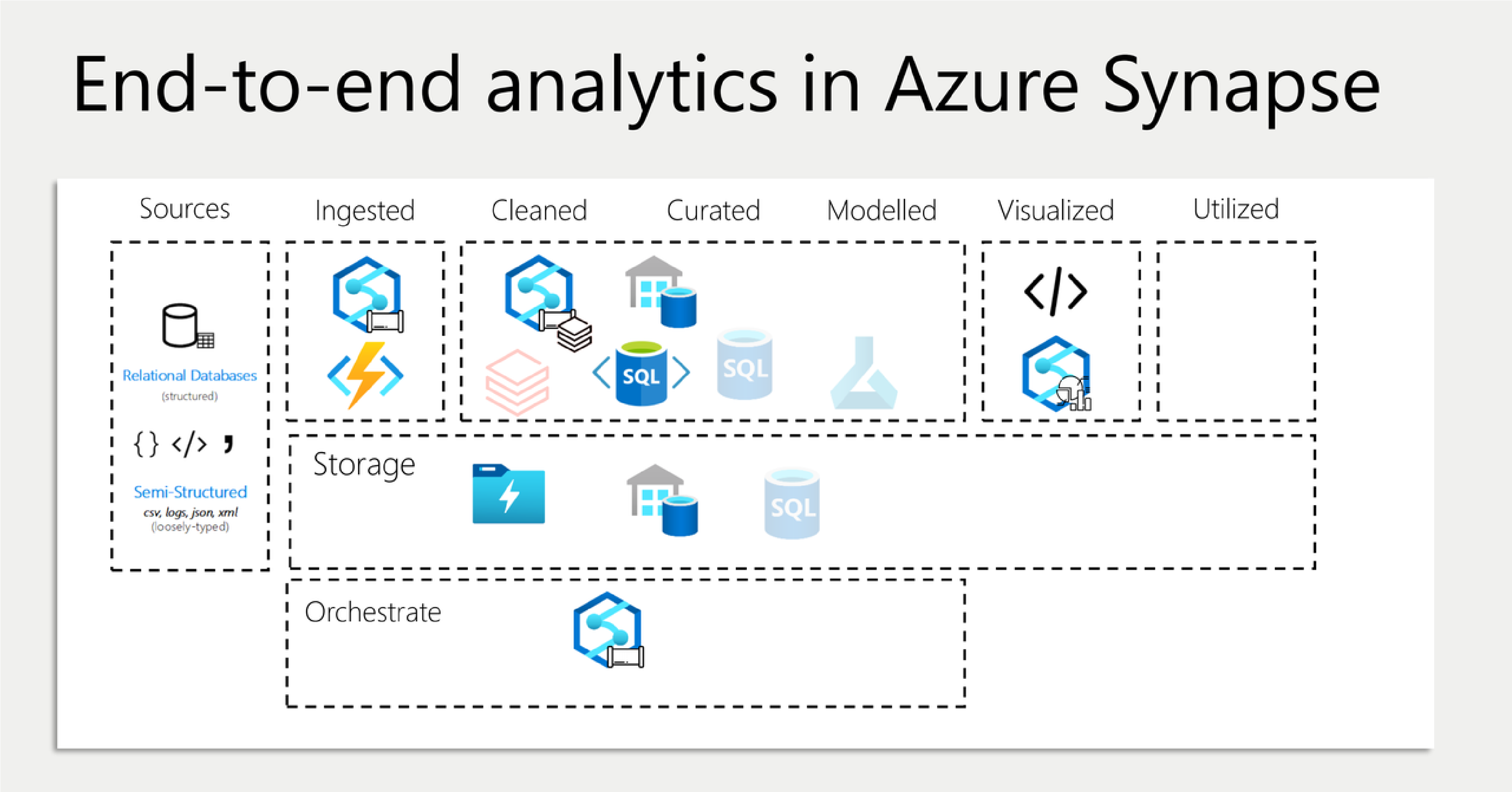
End-to-end analytics in Power BI



POWER BI FREE

End-to-end analytics in Power BI




End-to-end analytics in Azure Synapse
Sources
Ingested
Cleaned
Curated
Modelled
Visualized
Utilized
Relational Databases
(structured)
{} </> ,
Semi-Structured
csv, logs, json, xml
(loosely-typed)
SQL
SQL
</>
Storage
SQL
Orchestrate

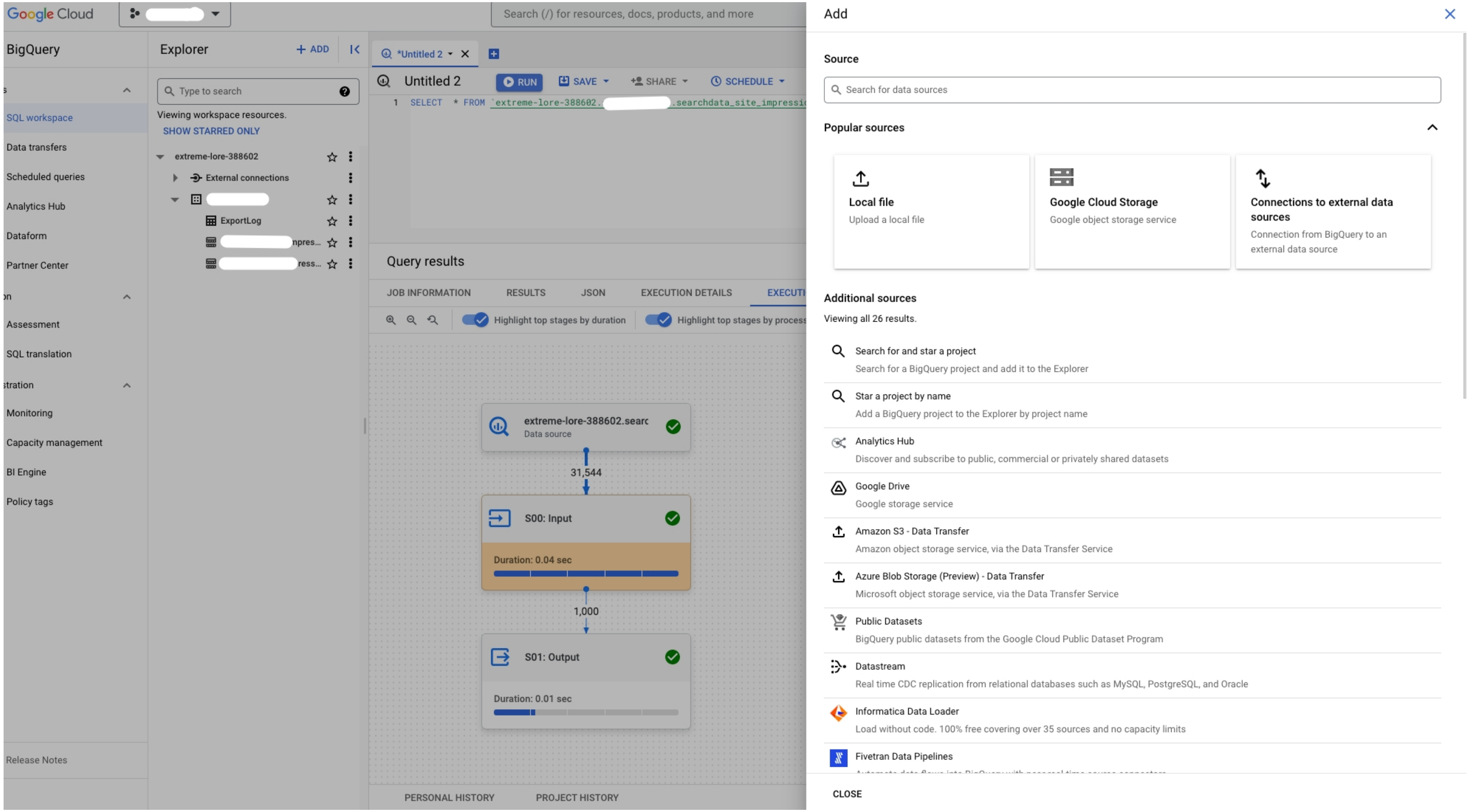
End-to-End Business Intelligence LEVEL 3

Up to 14x faster

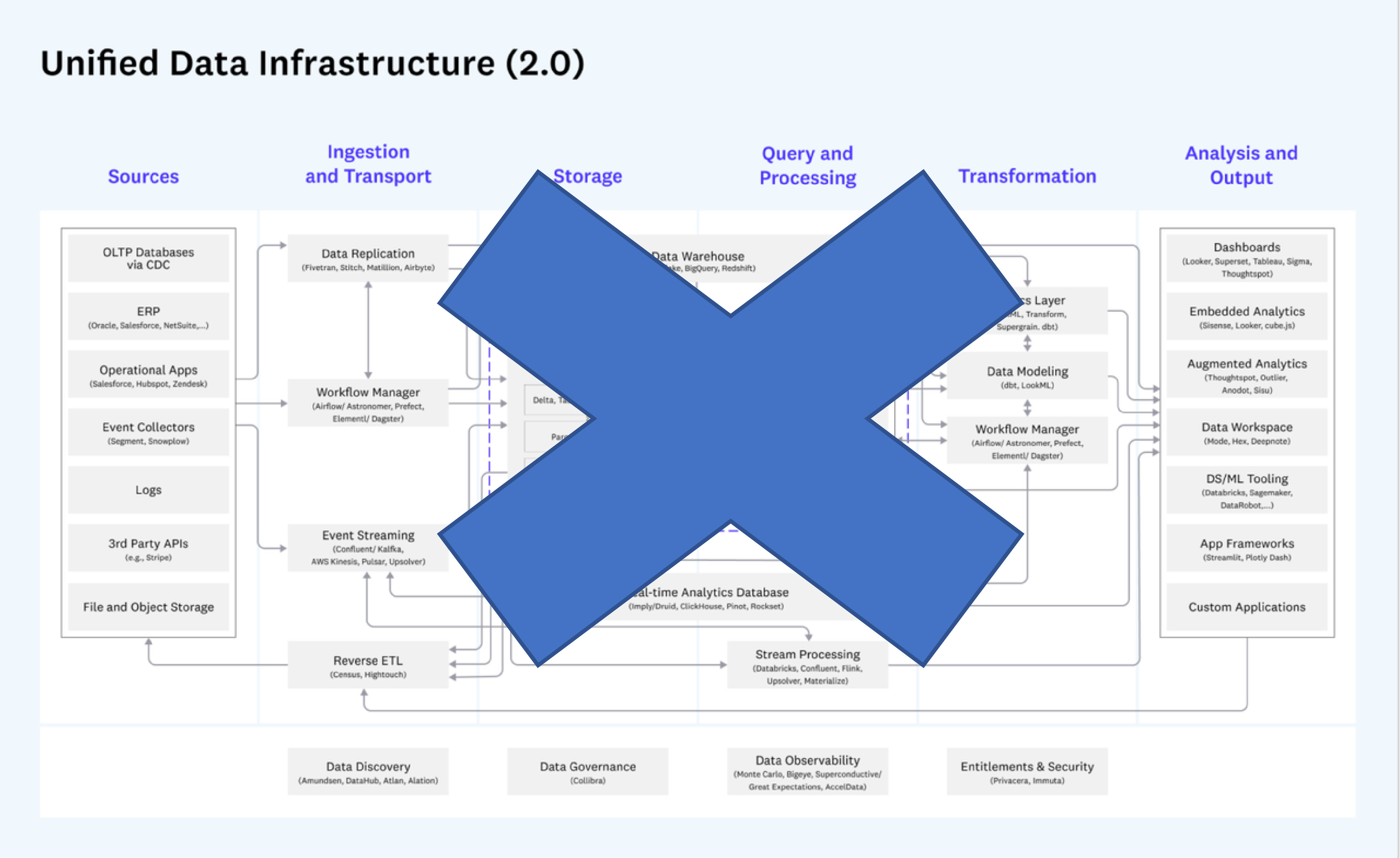
Costs 94% less than other cloud providers

- SERVERLESS
- NO INFRASTRUCTURE
- NO PAY FIRST -> pay-as-you-go
- SECURITY
- EASY MIGRATE
- LOW-CODE

End-to-End Business Intelligence LEVEL 3



Data Strategy for Enterprise



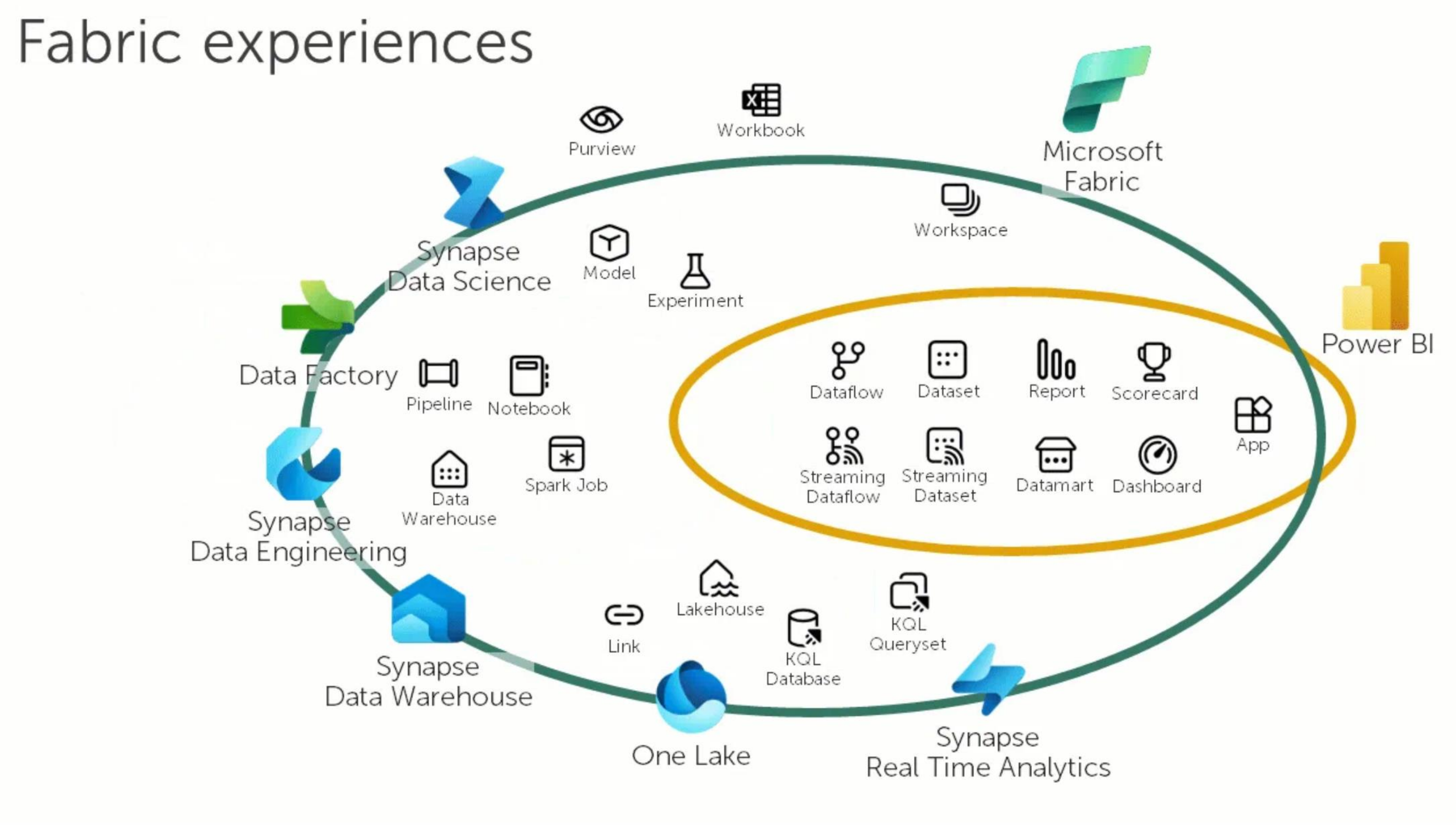
PLEASE SIMPLIFY!

SKU	Capacity unit (CU)	Pay-as-you-go (hourly)	Pay-as-you-go (monthly)
F 2	2	$0.36	$262.80
F 4	4	$0.72	$525.60
F 8	8	$1.44	$1,051.20
F 16	16	$2.88	$2,102.40
F 32	32	$5.76	$4,204.80
F 64	64	$11.52	$8,409.60
F 128	128	$23.04	$16,819.20
F 256	256	$46.08	$33,638.40
F 512	512	$92.16	$67,276.80
F 1024	1024	$184.32	$134,553.60
F 2048	2048	$368.64	$269,107.20

Table 1: Pricing of Fabric capacity SKUs at US west 2

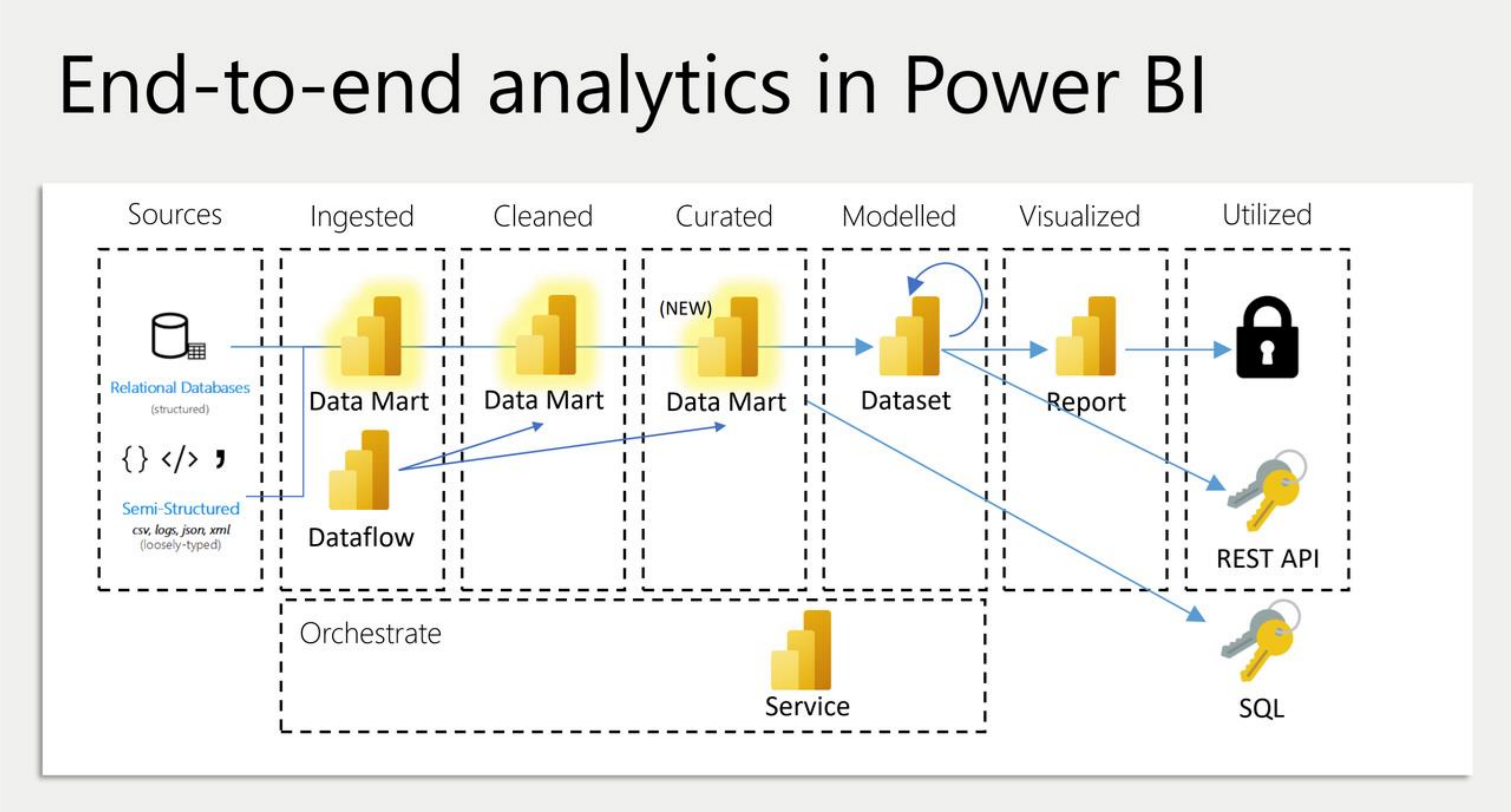
Business Intelligence Terminology
Microsoft Fabric

Business Intelligence Terminology
Microsoft Fabric



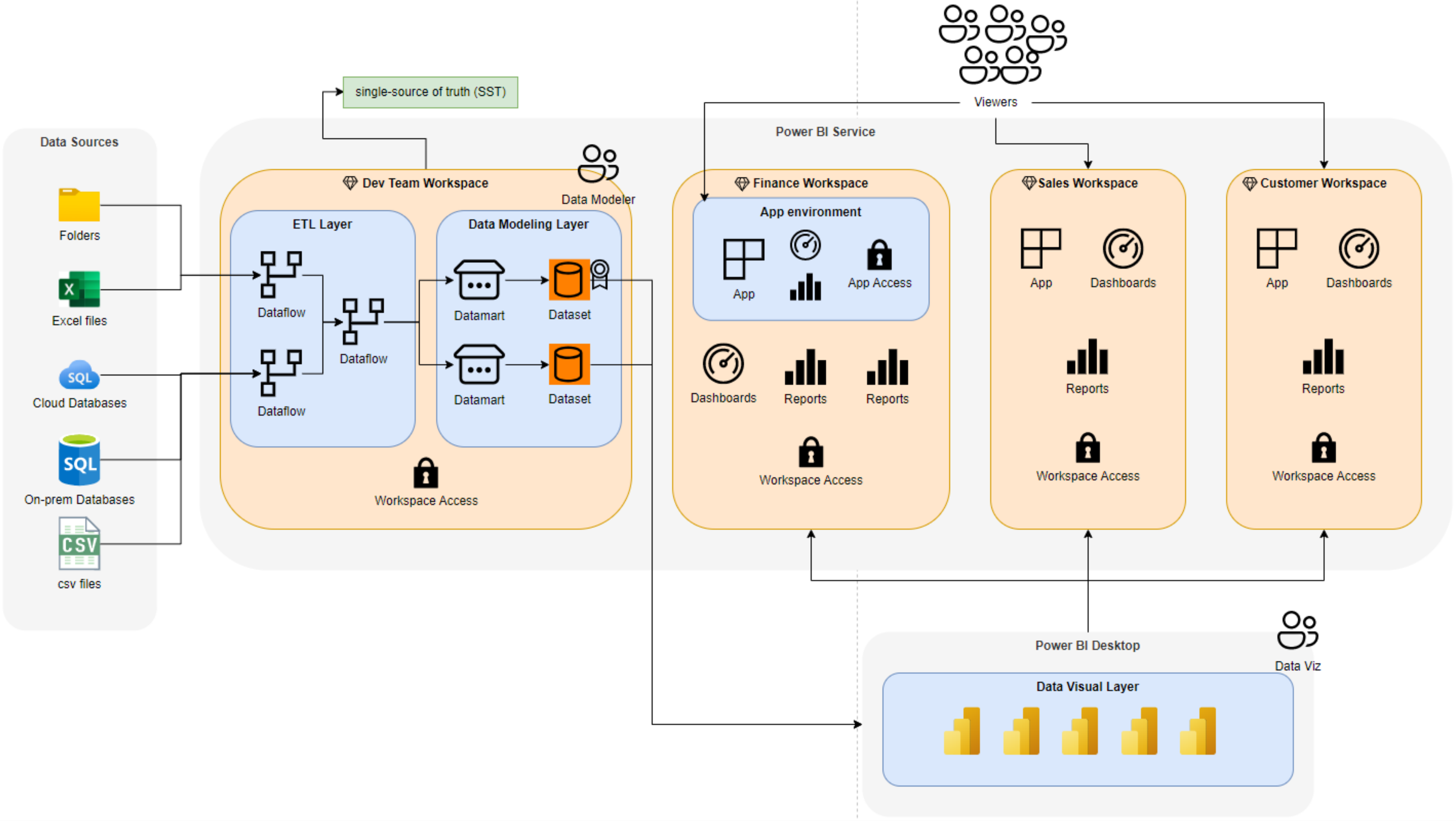
Introduce PBI Ecosystem (PBI Service)

End - to - end analytics in Power BI

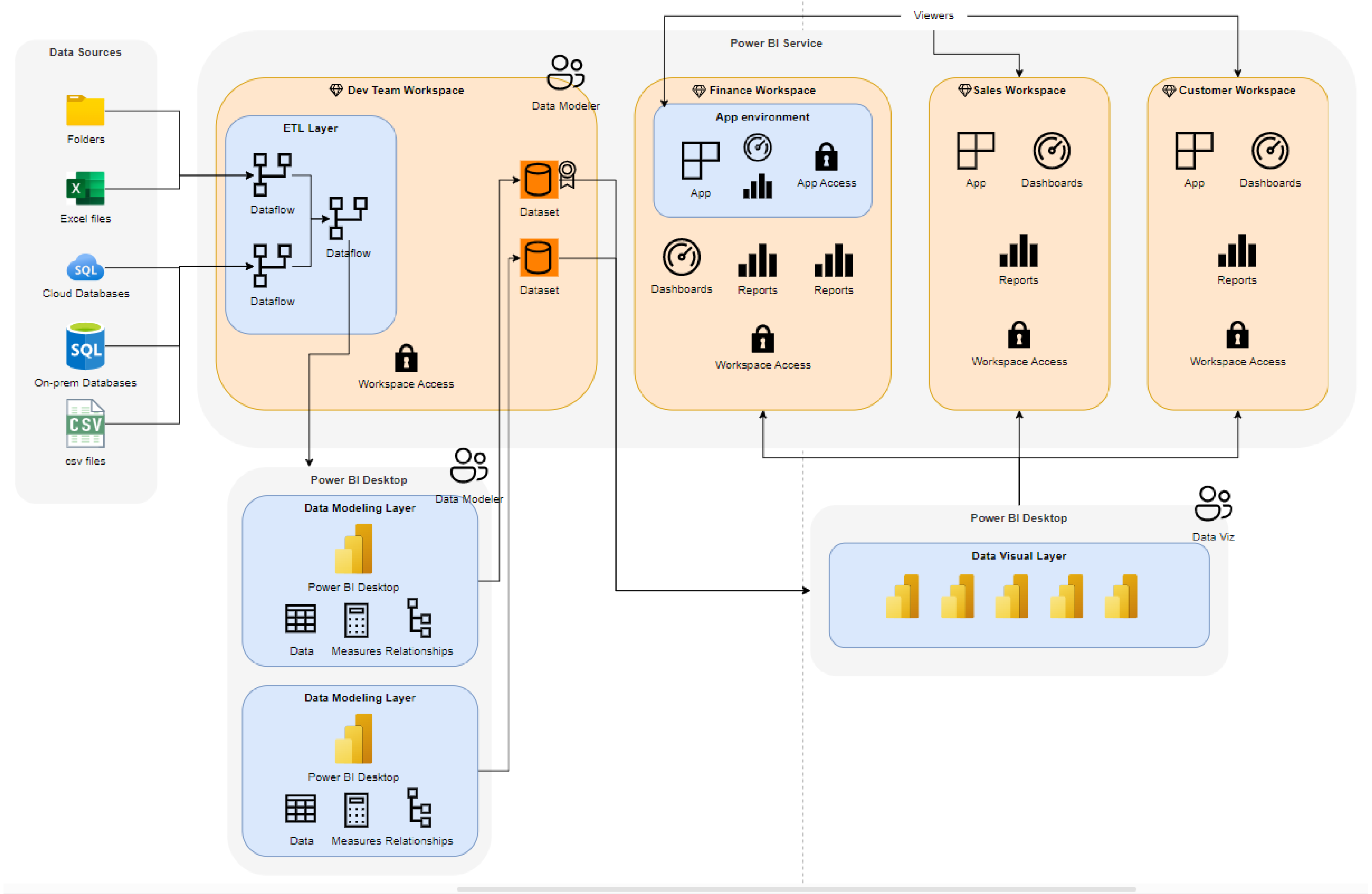


Introduce PBI Ecosystem (PBI Service)

End - to - end analytics in Power BI



Introduce PBI Ecosystem (PBI Service)
End - to - end analytics in Power BI

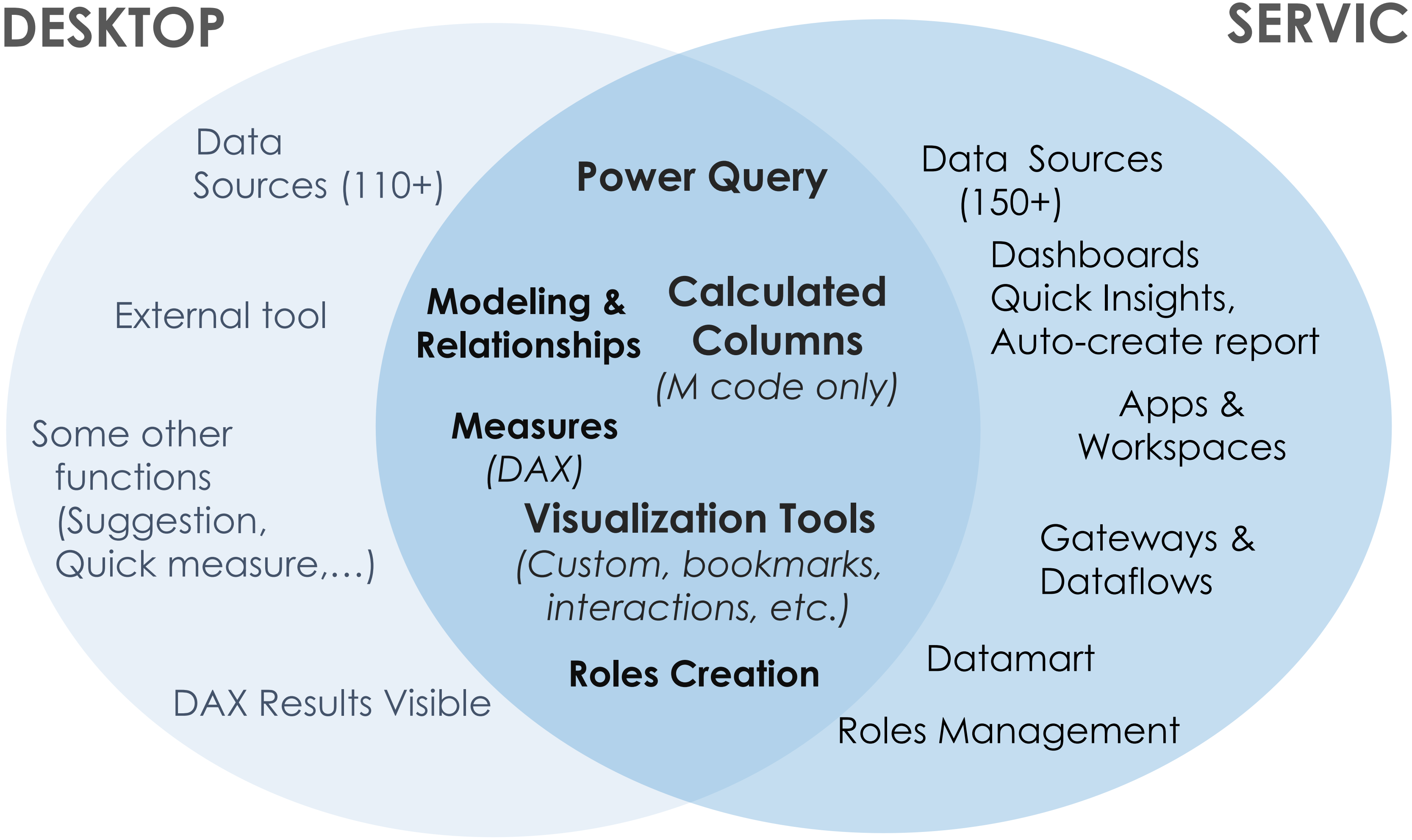


Introduce PBI Ecosystem (PBI Service)

Power BI Desktop & Power BI service

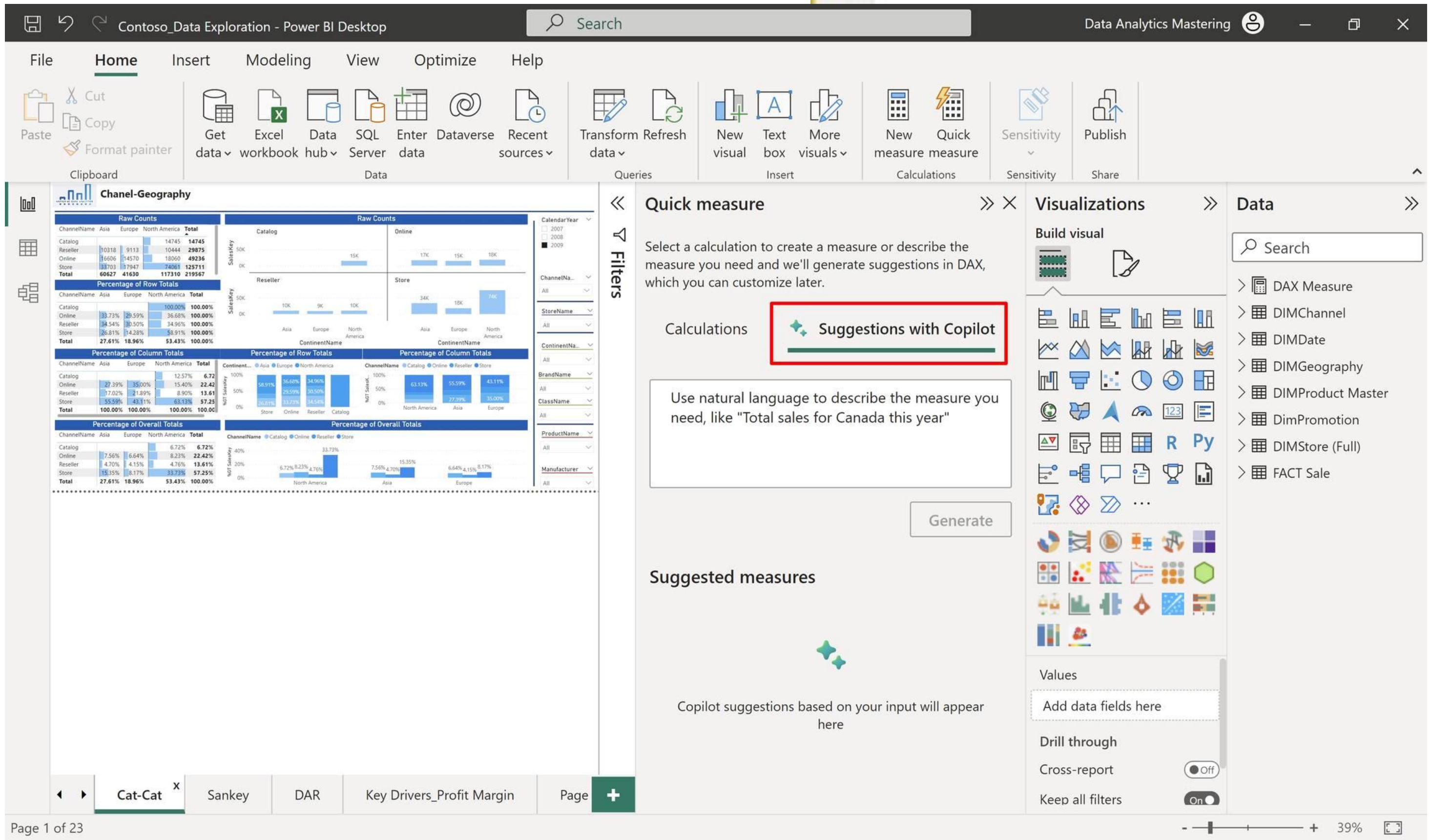
POWER BI DESKTOP

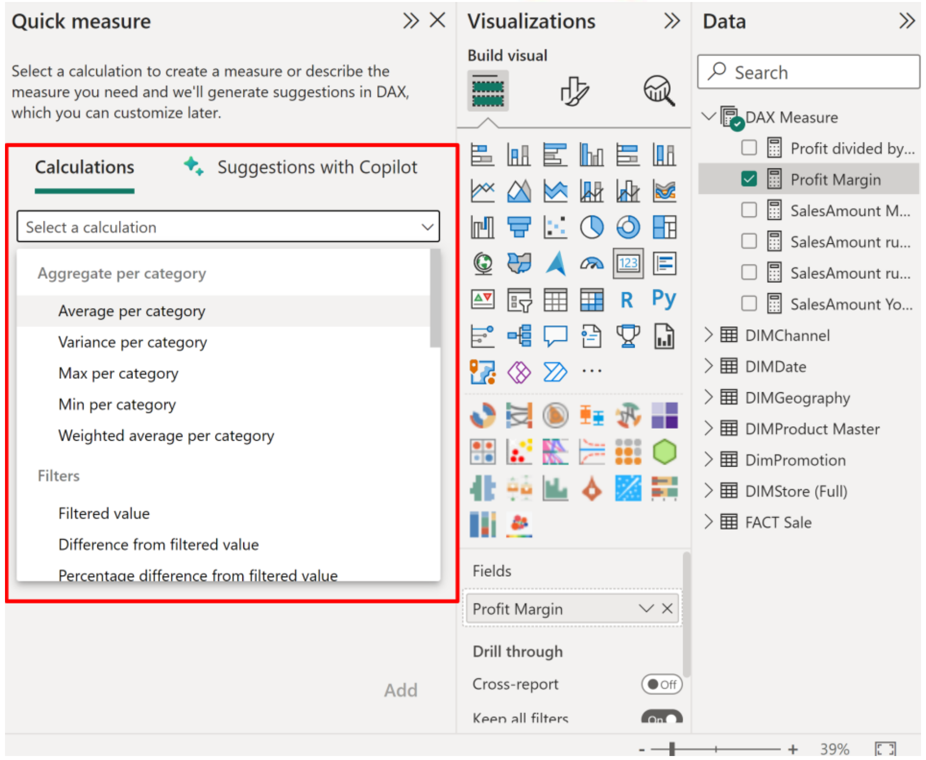
POWER BI SERVICE



Introduce PBI Ecosystem (PBI Service)

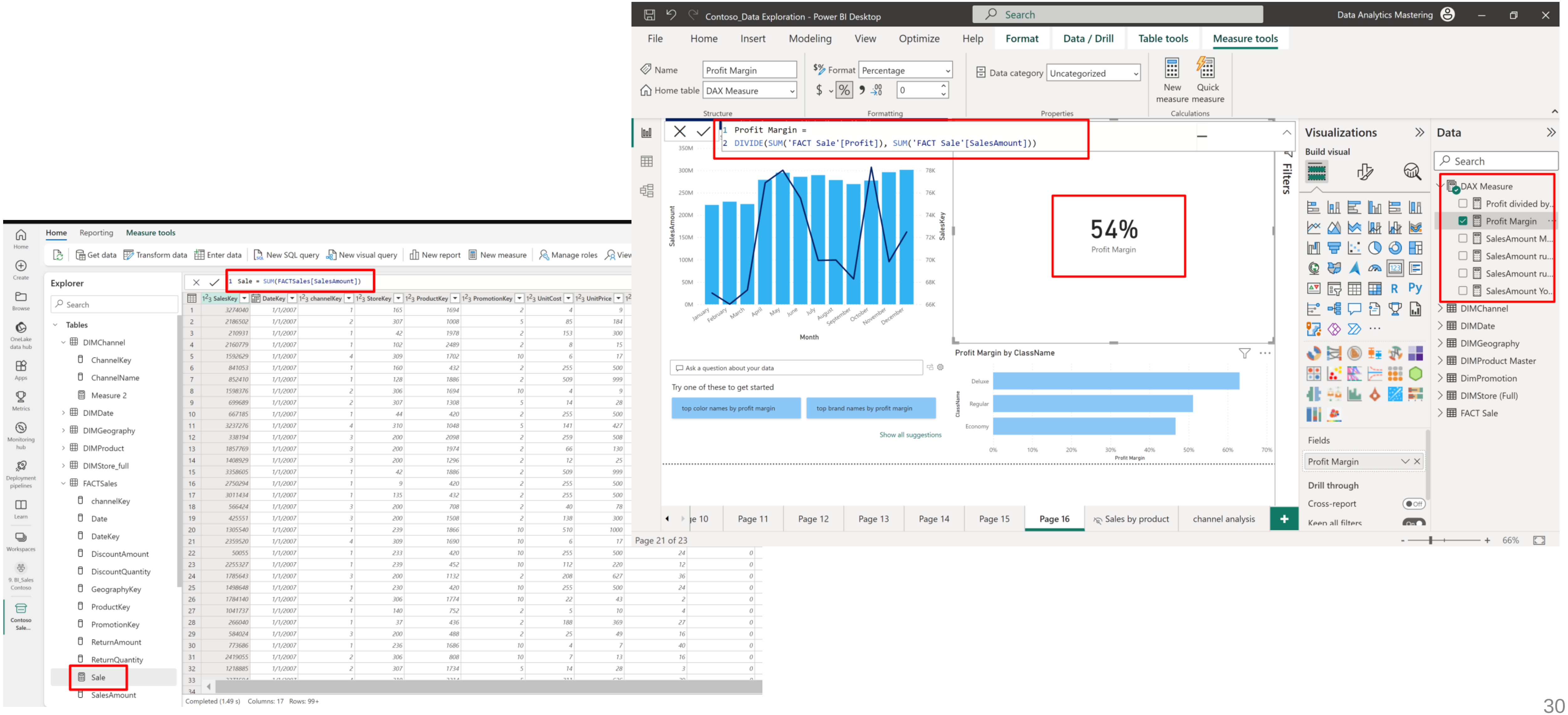
Power BI Desktop





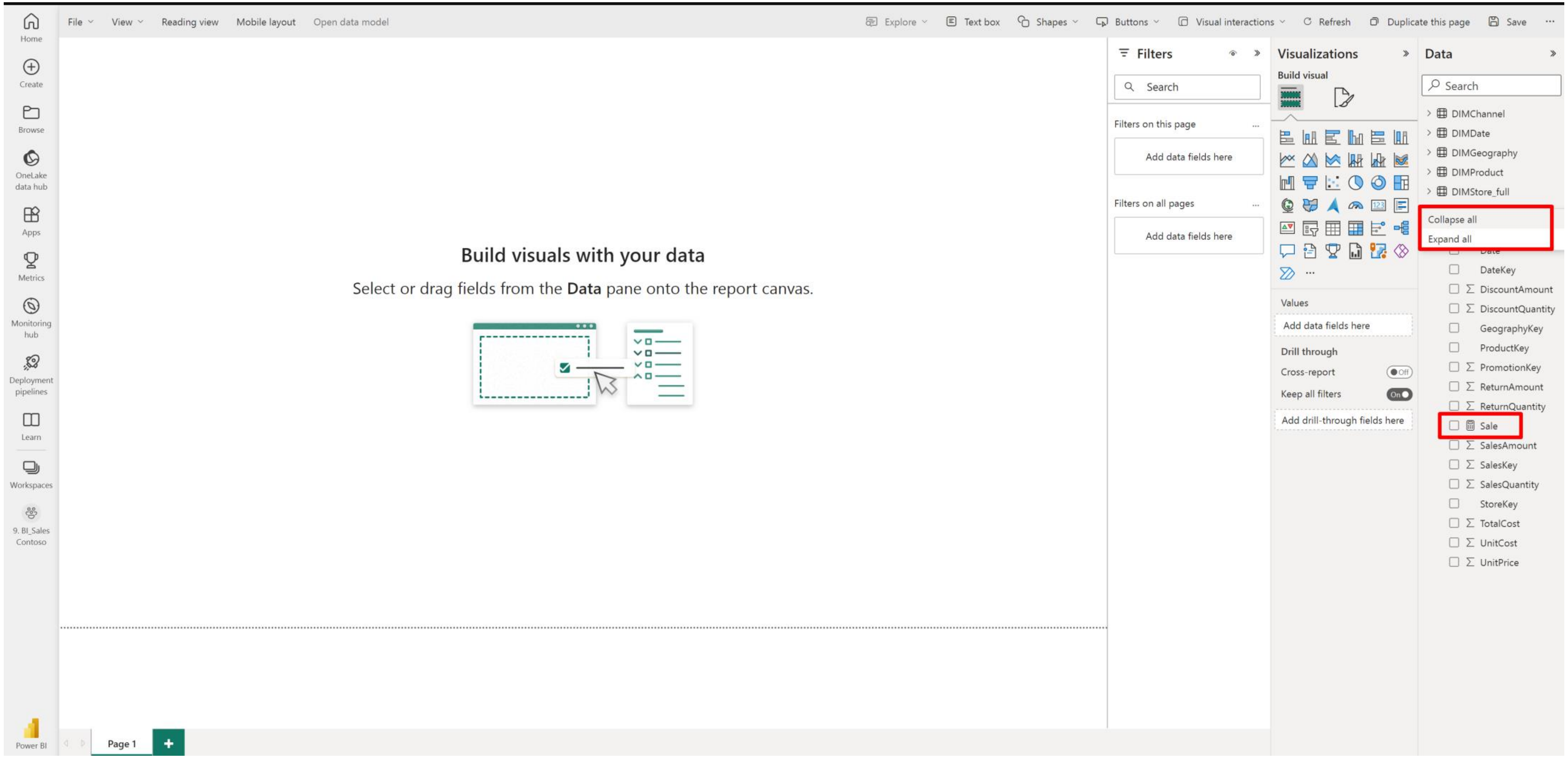
Introduce PBI Ecosystem (PBI Service)

Power BI Desktop



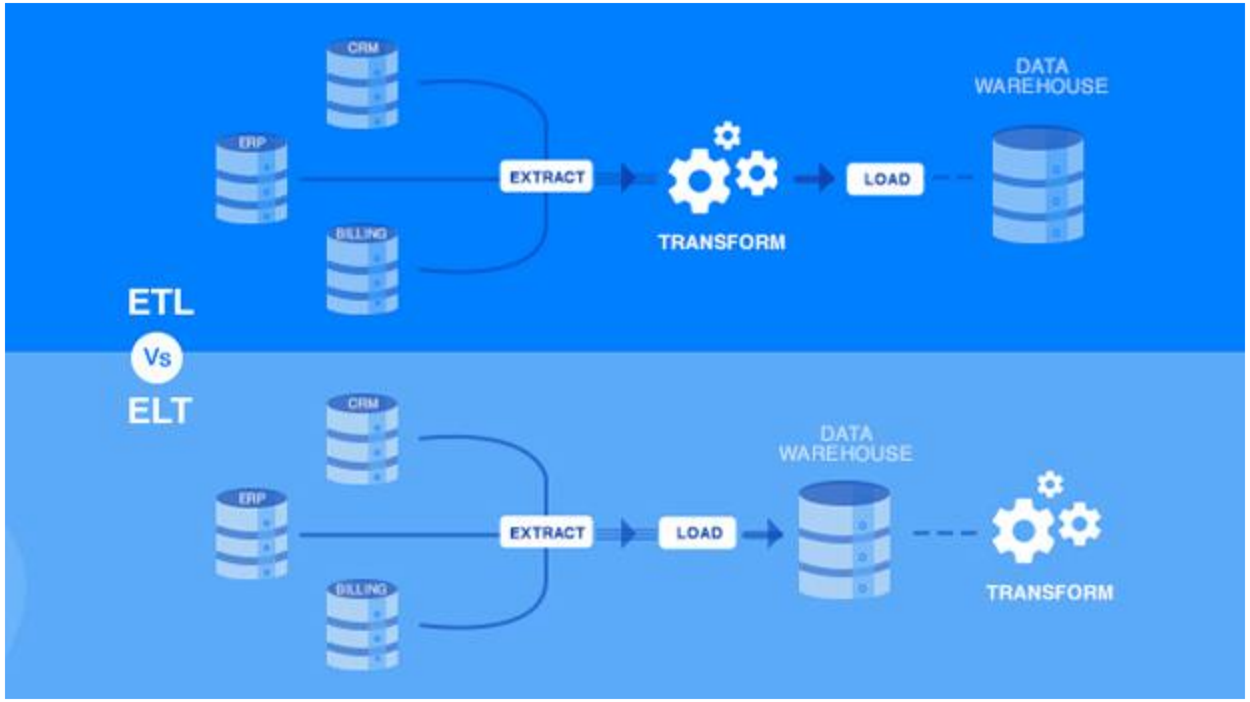
Introduce PBI Ecosystem (PBI Service)

End - to - end analytics in Power BI

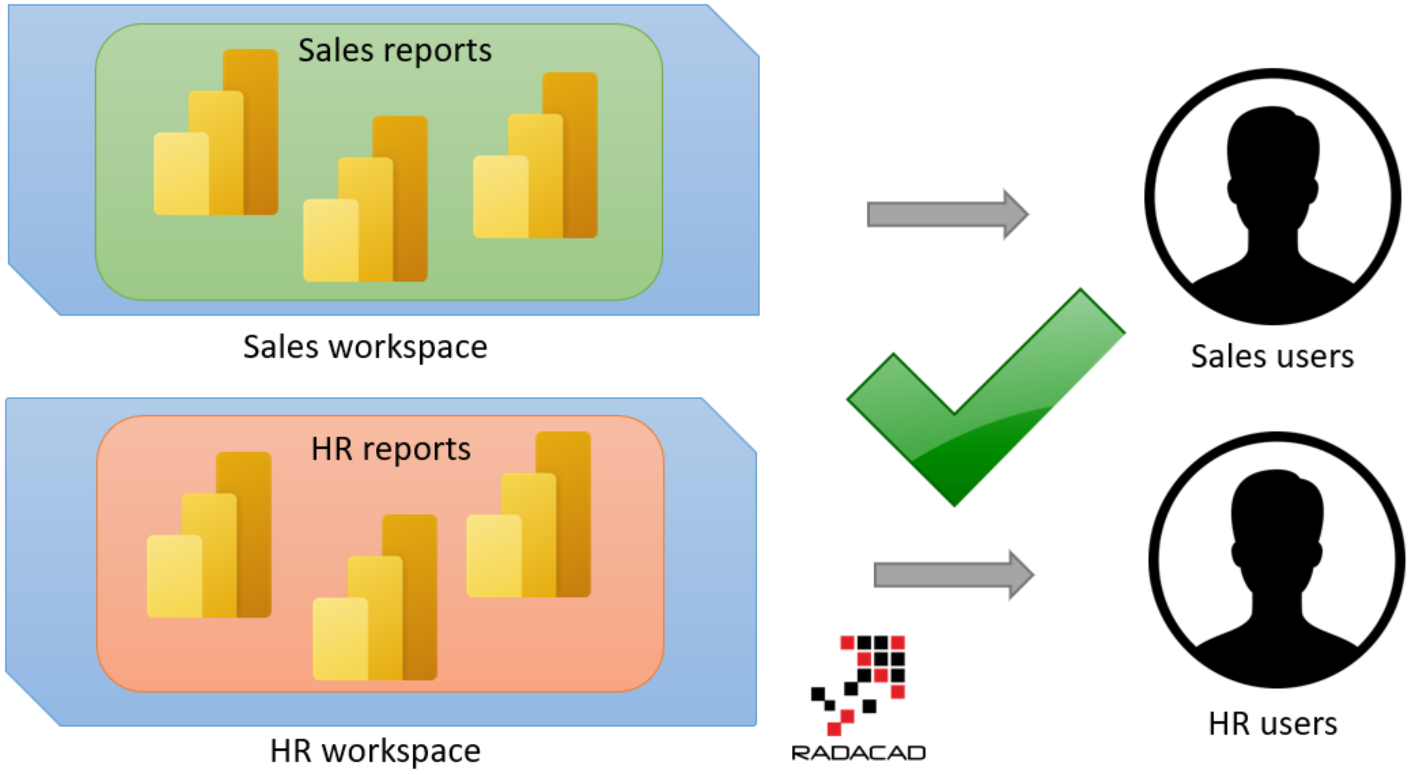


Introduce PBI Ecosystem (PBI Service)

End - to - end analytics in Power BI



Separate workspaces for different audiences



Introduce PBI Ecosystem (PBI Service)

Power BI Account

POWER BI **FREE**

No license required but users have limited access and can't collaborate or distribute content

Capabilities:

- No license Required
- Connect to 110+ Data Sources *(desktop & service)*
- Publish to Web
- Export to PowerPoint, Excel, CSV…
- Create metrics
- Share with Pro or Premium,…

POWER BI **PRO**

Individually licensed and can leverage all content creation and interaction features

Capabilities:

All from ***Free tier +***

- User-based License
- Workspaces
- Email Subscriptions
- Peer-to-Peer Sharing
- Publish Apps
- Data gateways
- Dataflows
- Analyze in Excel & Power BI Desktop

POWER BI **PREMIUM PER USER**

Individually licensed and can leverage all content creation, interaction and most premium features

Capabilities:

All from ***Pro tier +***

- AI Capabilities *(ML, Impact Analysis, Cognitive Services)*
- Advanced Dataflows *(Direct Query)*
- Deployment Pipelines
- XMLA Endpoint Connectivity
- Datamart
- Incremental refresh

Introduce PBI Ecosystem (PBI Service)

Power BI Account

MASTERING DATA ANALYTICS

Power BI
PREMIUM

Licensing based on dedicated capacity vs. number of users; content can be viewed without additional per-user costs

Capabilities:

- Capacity-based license without need for individual user licenses
- Greater scale & performance than shared capacity

NOTE: Pro licenses still required to publish, share, and collaborate

Feature [3]	Power BI Pro	Power BI Premium Per user	Power BI Premium Per capacity
Collaboration and analytics			
Mobile app access	●	●	●
Publish reports to share and collaborate	●	●	
Paginated (RDL) reports	●	●	●
Consume content without a per-user license			●
On-premises reporting with Power BI Report Server			●
Data prep, modeling, and visualization			
Model memory size limit [5]	1 GB	100 GB	400 GB
Refresh rate	8/day	48/day	48/day
Connect to more than 100 data sources	●	●	●
Create reports and visualizations with Power BI Desktop [4]	●	●	●
Embed APIs and controls	●	●	●
AI visuals	●	●	●
Advanced AI (text analytics, image detection, automated machine learning)		●	●
XMLA endpoint read/write connectivity		●	●
Dataflows (direct query, linked and computed entities, enhanced compute engine)		●	●
Datamart creation		●	●

Introduce PBI Ecosystem (PBI Service)
Power BI Account

Power BI
PREMIUM

Licensing based on dedicated capacity vs. number of users; content can be viewed without additional per-user costs

Capabilities:

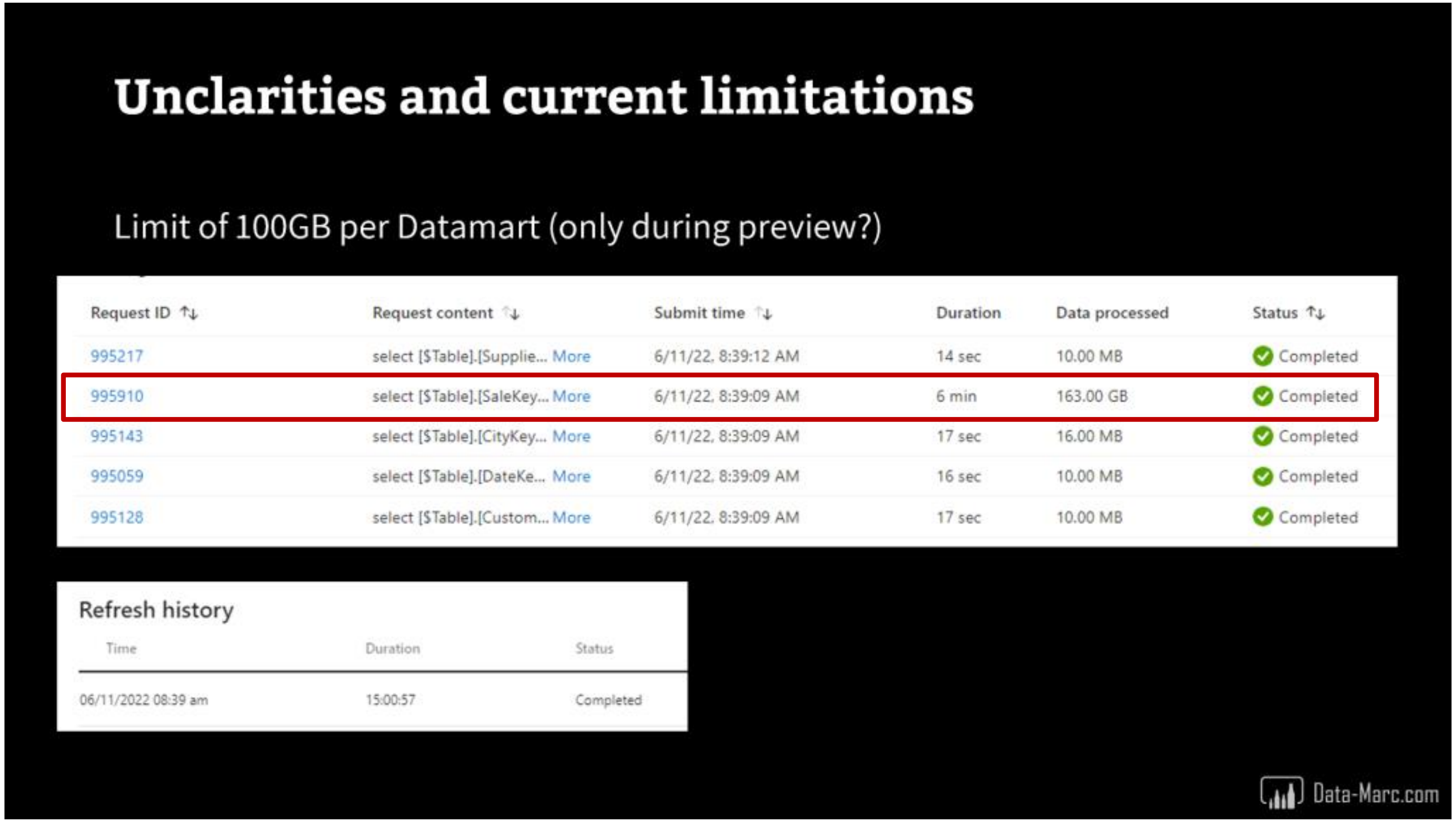
- Capacity-based license
- Publish company reports without need for individual user licenses
- Greater scale & performance than shared capacity

NOTE: Pro licenses still required to publish, share, and collaborate

Feature [3]	Power BI Pro	Power BI Premium Per user	Power BI Premium Per capacity
Governance and administration			
Data security and encryption	●	●	●
Metrics for content creation, consumption, and publishing	●	●	●
Application lifecycle management		●	●
Multi-geo deployment management			●
Bring your own key (BYOK)			●
Autoscale add-on availability			●
Maximum storage	10 GB/user	100 TB	100 TB

Introduce PBI Ecosystem (PBI Service)

Power BI Desktop



Unclarities and current limitations

Limit of 100GB per Datamart (only during preview?)

Request ID	Request content	Submit time	Duration	Data processed	Status
995217	select [$Table].[Supplie... More	6/11/22, 8:39:12 AM	14 sec	10.00 MB	Completed
995910	select [$Table].[SaleKey... More	6/11/22, 8:39:09 AM	6 min	163.00 GB	Completed
995143	select [$Table].[CityKey... More	6/11/22, 8:39:09 AM	17 sec	16.00 MB	Completed
995059	select [$Table].[DateKe... More	6/11/22, 8:39:09 AM	16 sec	10.00 MB	Completed
995128	select [$Table].[Custom... More	6/11/22, 8:39:09 AM	17 sec	10.00 MB	Completed

Refresh history

Time	Duration	Status
06/11/2022 08:39 am	15:00:57	Completed

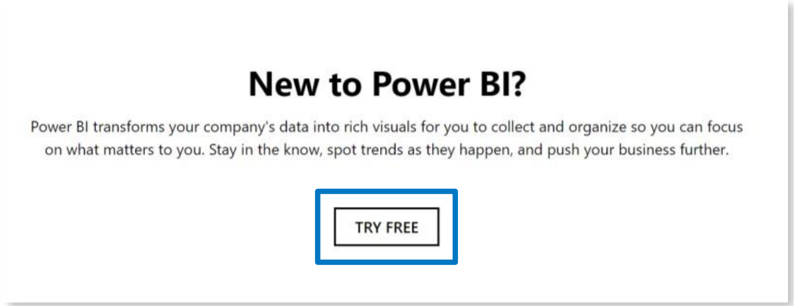
Data-Marc.com

According to documentation, Datamarts should support up to 100GB of data at this point in time. However, in my test runs, I managed to load **163GB** of data. Below image shows the total data volume processed in Azure Synapse Analytics (top screenshot) and the successful refresh of the Power BI Datamart (bottom screenshot).

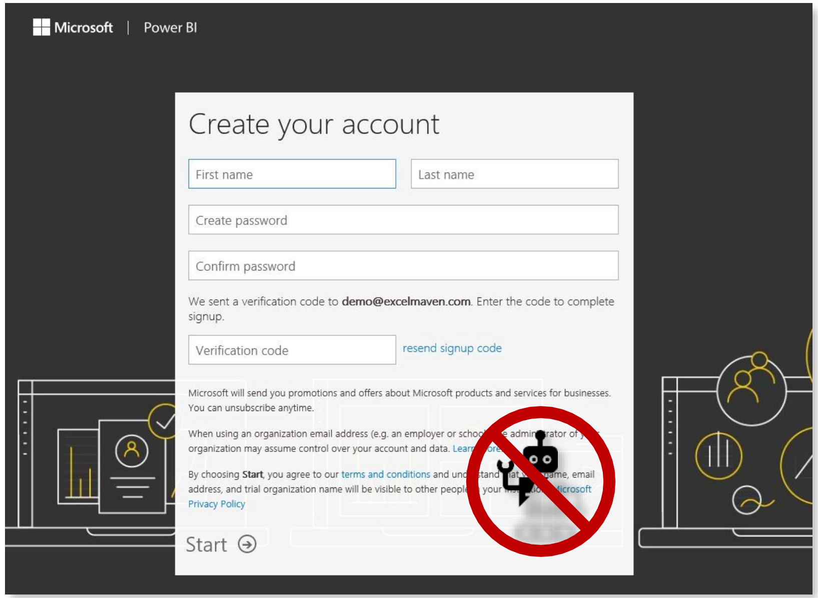
Introduce PBI Ecosystem (PBI Service)
Creating A New Power BI Account

1 Head to **powerbi.microsoft.com/landing/signin** and click **TRY FREE**

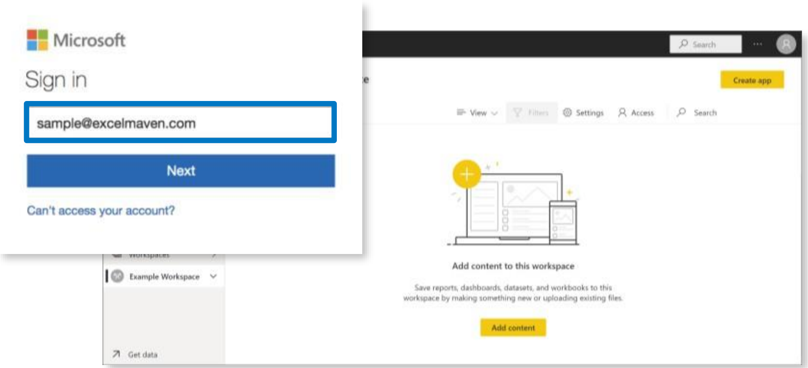
- ***Note:*** *Head to **Step 3** if you already have an account*



2 Enter your name, create a password, verify your email, and confirm you're not a robot



3 Once you've created your account, navigate directly to **app.powerbi.com** to log in



HEY THIS IS IMPORTANT!

Microsoft requires a **work** or **school email address**. Domains like @gmail, @yahoo, @outlook will not be accepted

Introduce PBI Ecosystem (PBI Service)

Creating A New Power BI Account

You can sign up for a free Office 365 E5 trial account with **any email address**, which includes an automatic sign-up for Power BI Pro

Link: https://docs.google.com/document/d/1vmHk3UHTVxFW8_uMwDX_rZaGdTakEkmU/edit

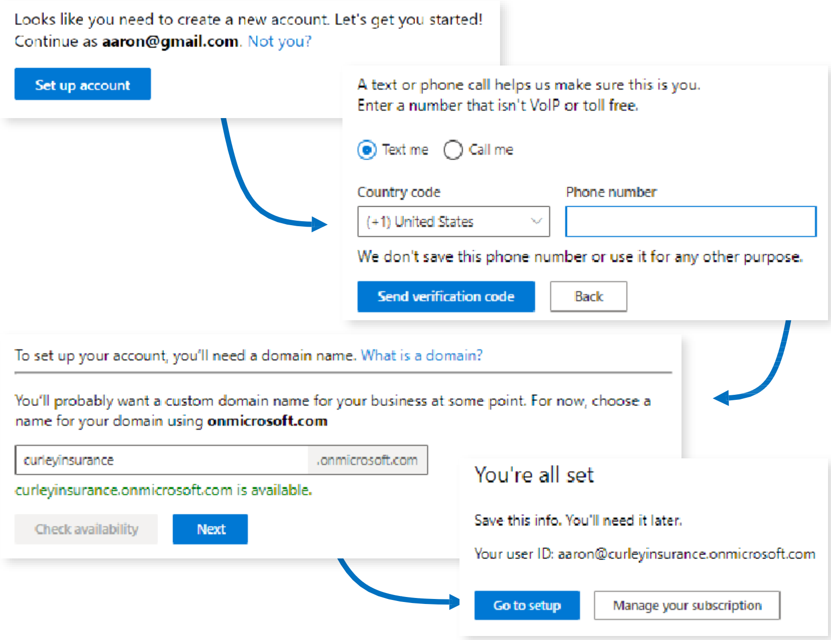
- Head to: https://www.microsoft.com/en-us/microsoft-365/enterprise/compare-office-365-plans
- Select **Try for free** within the Office 365 E3 or E5 menu and receive a 30-day free trial

1 Enter your email and click **Set up account**

2 Fill in the required info and verify your phone number

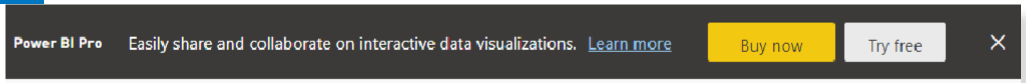
3 Set up a domain name, username and password

4 You're ready to use Power BI Service (Pro)!

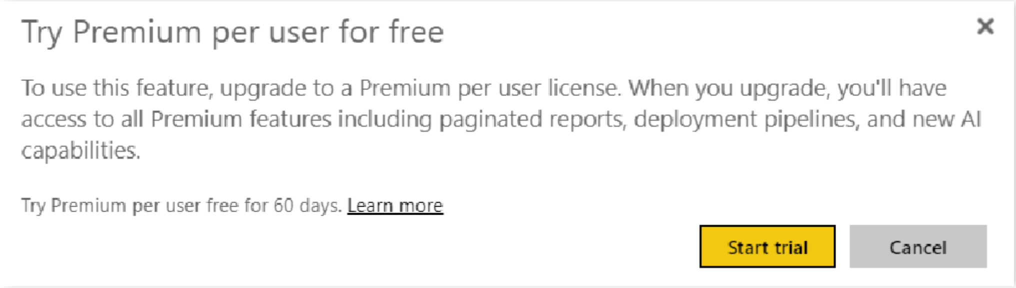


Introduce PBI Ecosystem (PBI Service)
Creating A New Power BI Account

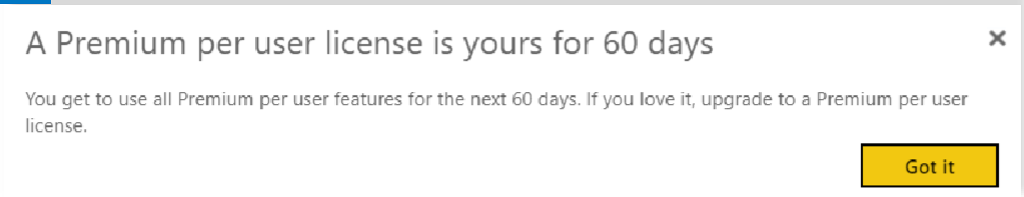
1



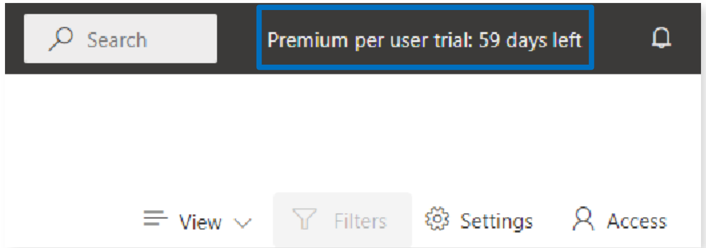
2



3



Your **trial period** lasts for **60 days**, and you'll see your remaining time in the header bar each time you log in



HEY THIS IS IMPORTANT!

We are activating a **Premium per User (PPU) trial**

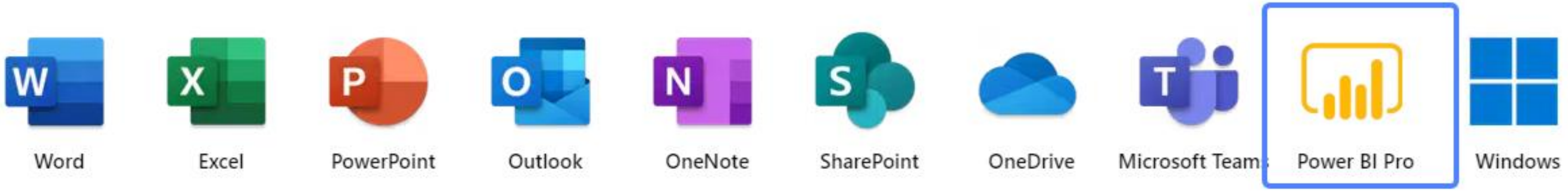
All Pro features are included with a PPU trial, and we'll focus on additional features included with PPU later in the course

Introduce PBI Ecosystem (PBI Service)

Microsoft 365 E5

MASTERING DATA ANALYTICS

Microsoft 365 E5 includes



Introduce PBI Ecosystem (PBI Service)

Interface of Power BI service

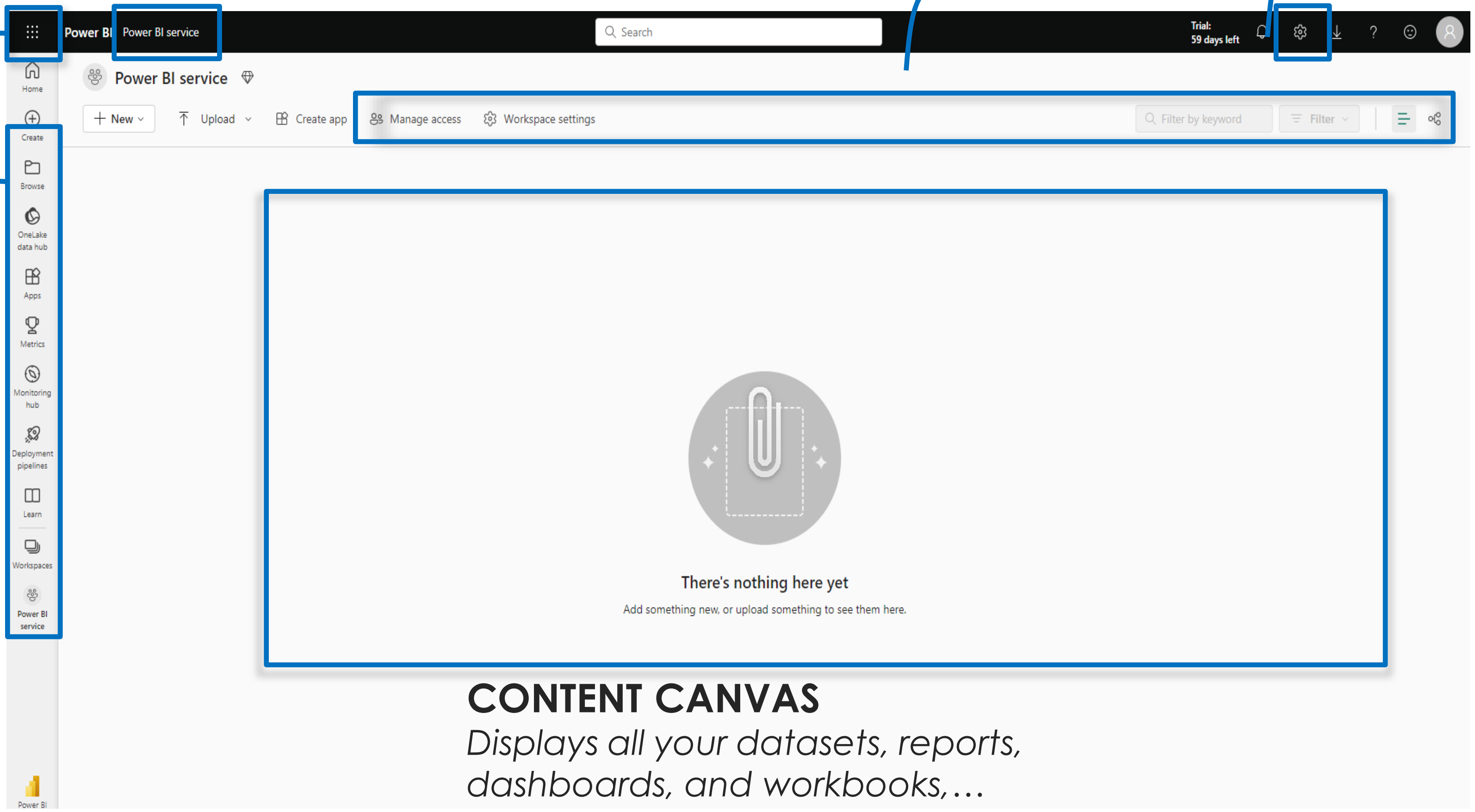
OFFICE 365 APP LAUNCHER
Email, OneDrive, Calendar, etc.

NAVIGATION PATH
Highlights the active workspace, app, report or dashboard

WORKSPACE OPTIONS
Change view, update settings, manage access & search

SETTINGS MENU
Quick links for settings, help feedback, downloads etc.

NAVIGATION PANE
Key Power BI views, including Favorites, Apps, Workspaces, etc.



CONTENT CANVAS
Displays all your datasets, reports, dashboards, and workbooks,…

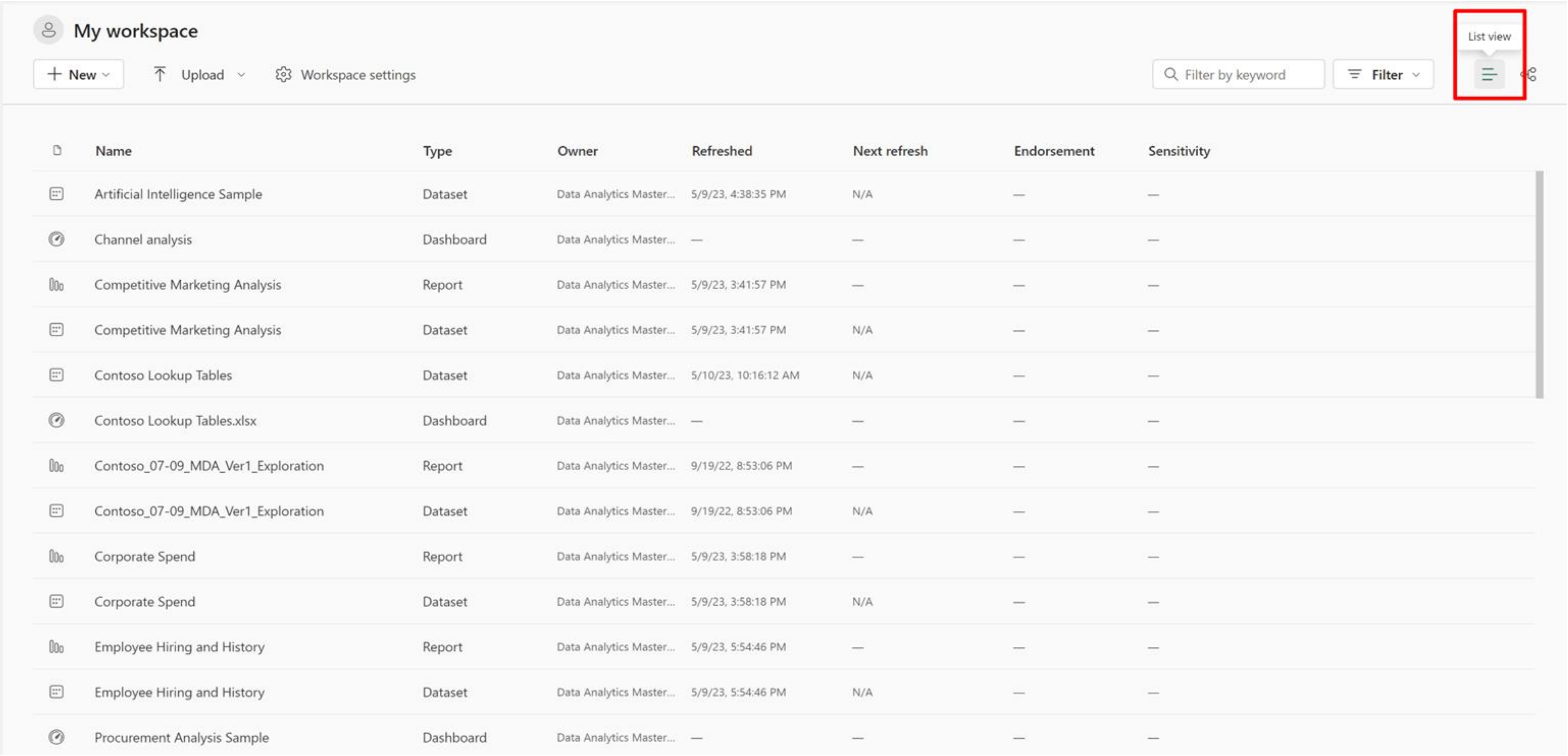
Introduce PBI Ecosystem (PBI Service)

- **List view**
- Lineage view

Introduce PBI Ecosystem (PBI Service)
List view

MASTERING DATA ANALYTICS

The items are arranged in a list

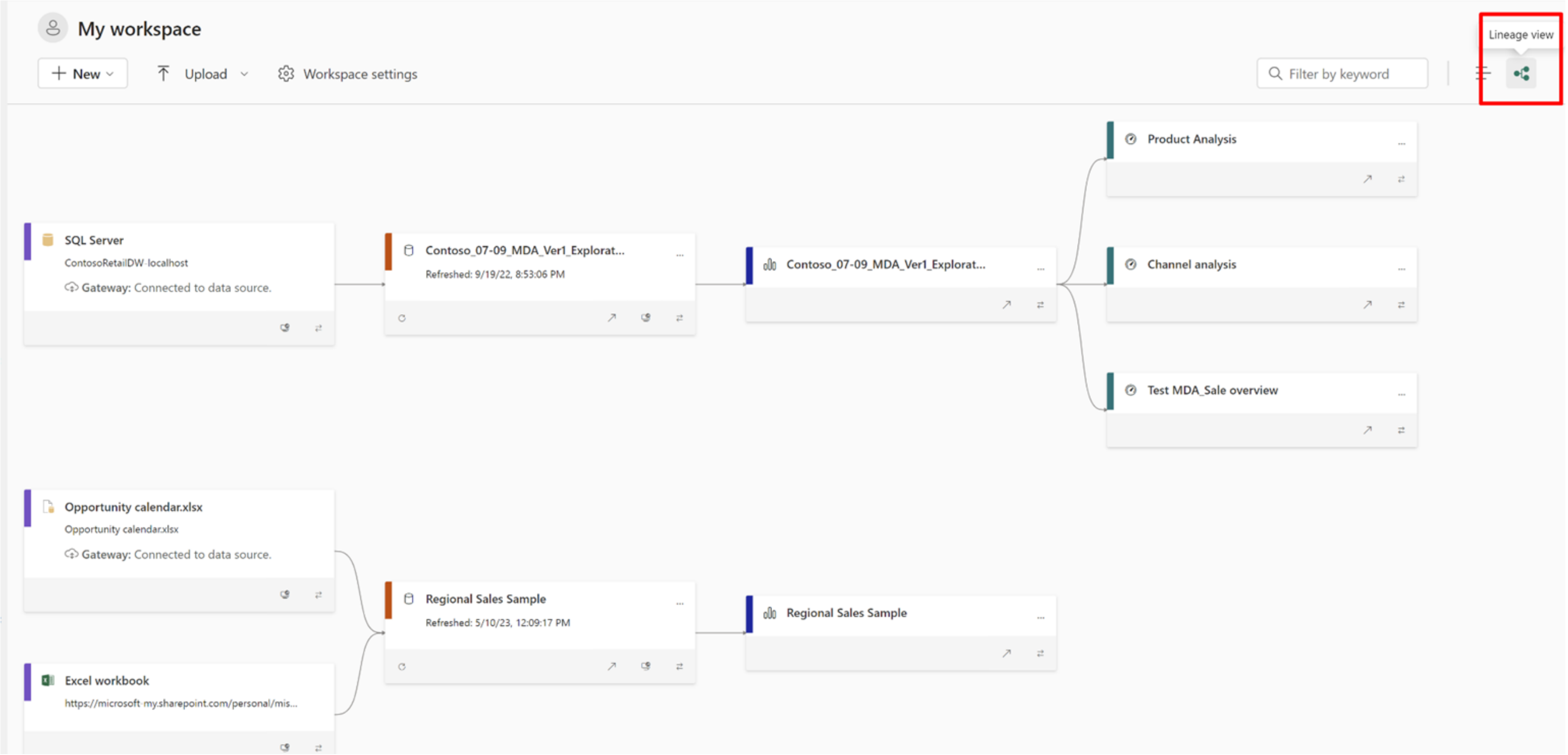


Introduce PBI Ecosystem (PBI Service)

- List view
- **Lineage view**

Introduce PBI Ecosystem (PBI Service)
Lineage view

Lineage view shows how data is linked across multiple data sources & dependencies



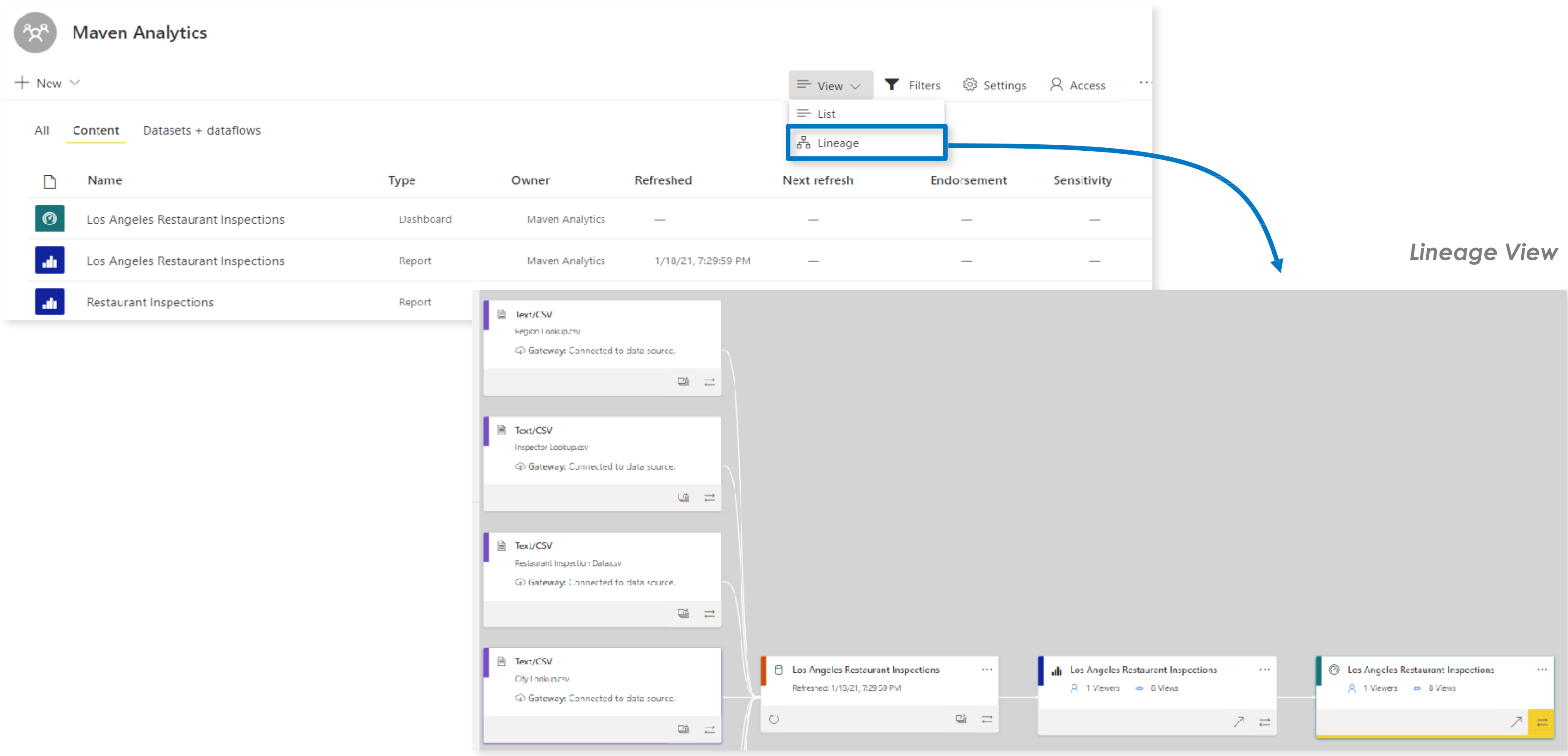
Introduce PBI Ecosystem (PBI Service)

Data Lineage

Lineage view shows how data is linked across multiple data sources & dependencies

List View

Lineage View



Introduce PBI Ecosystem (PBI Service)
Data Lineage

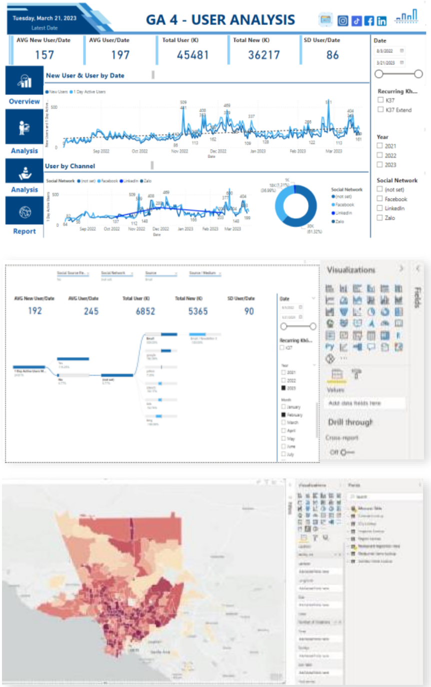
Data lineage refers to the flow of data from a data source to a report and dashboard

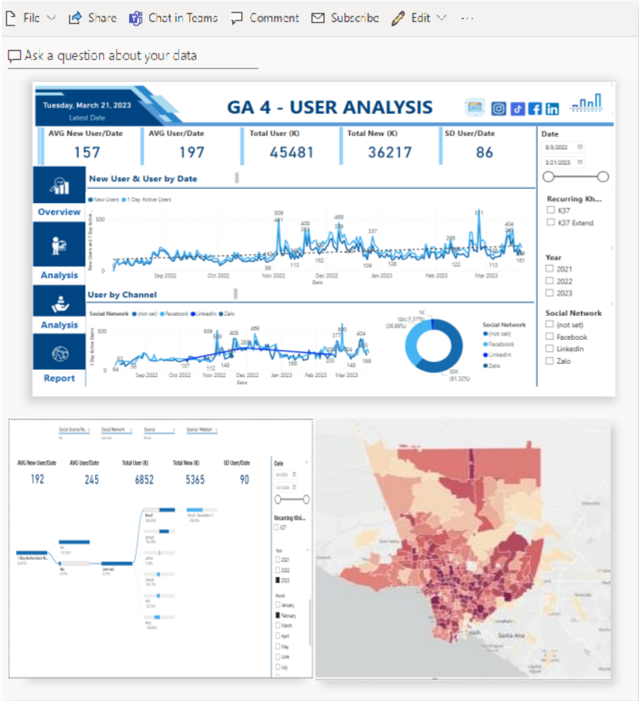
Datasets
Data sources you've connected to

Reports
*Visuals built from a **single dataset***

Dashboards
Reports & tiles built from multiple datasets

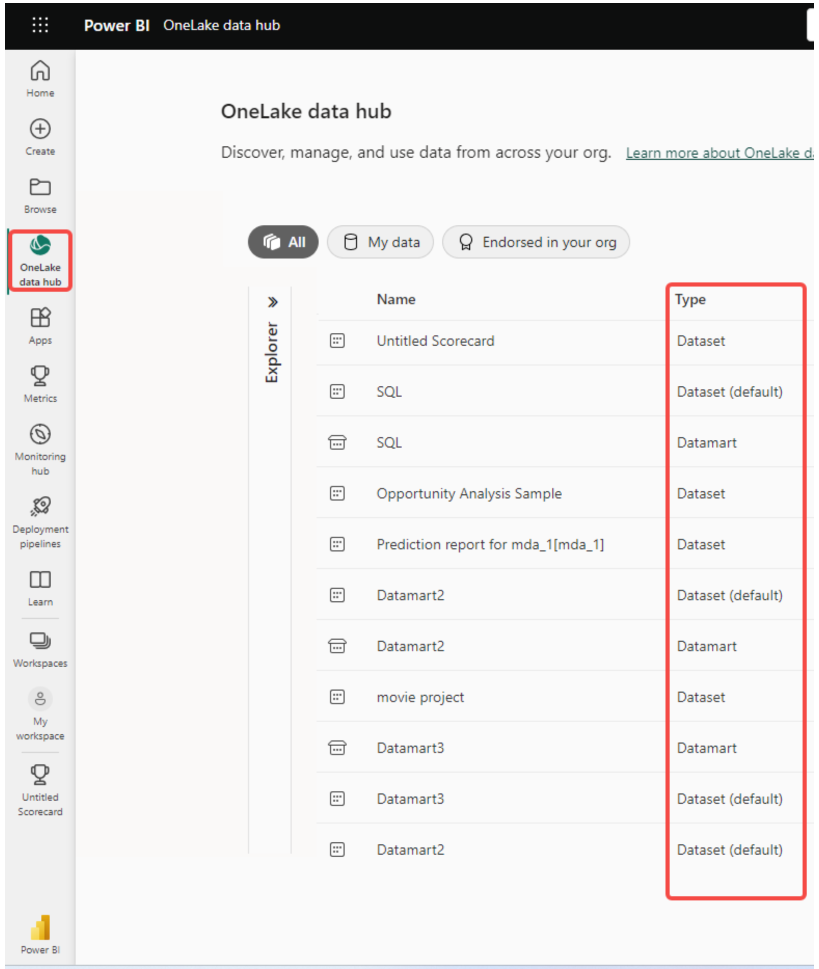
Google Analytics





Introduce PBI Ecosystem (PBI Service)

Interface of Power BI service



The OneLake data hub makes it easy to find, explore, and use the Fabric data items in your organization that you have access to.

In PBI service, it concludes **Datamarts and Datasets**

There are *two types* of workspaces in Power BI Service: **My Workspace** & **Workspaces**

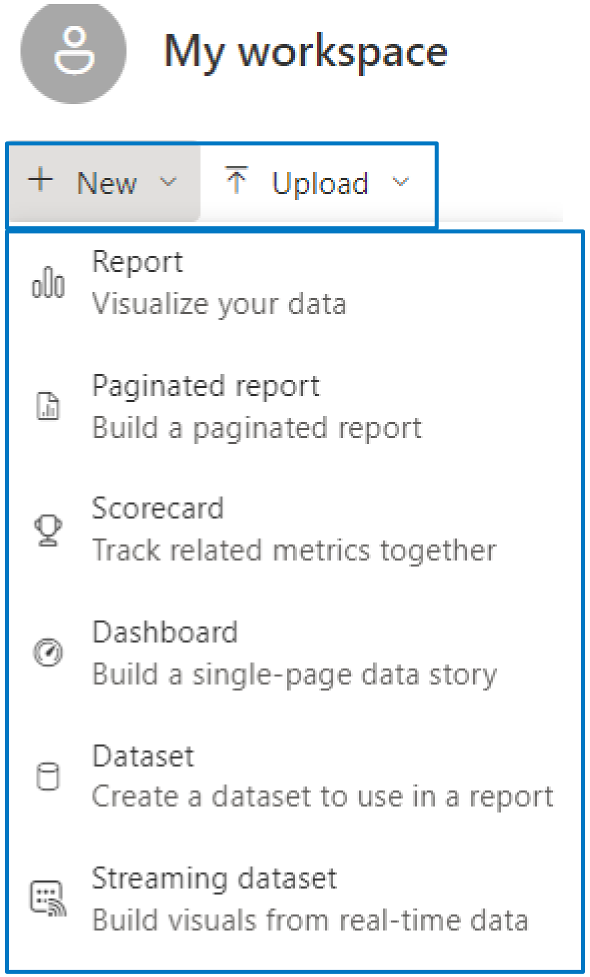
My Workspace

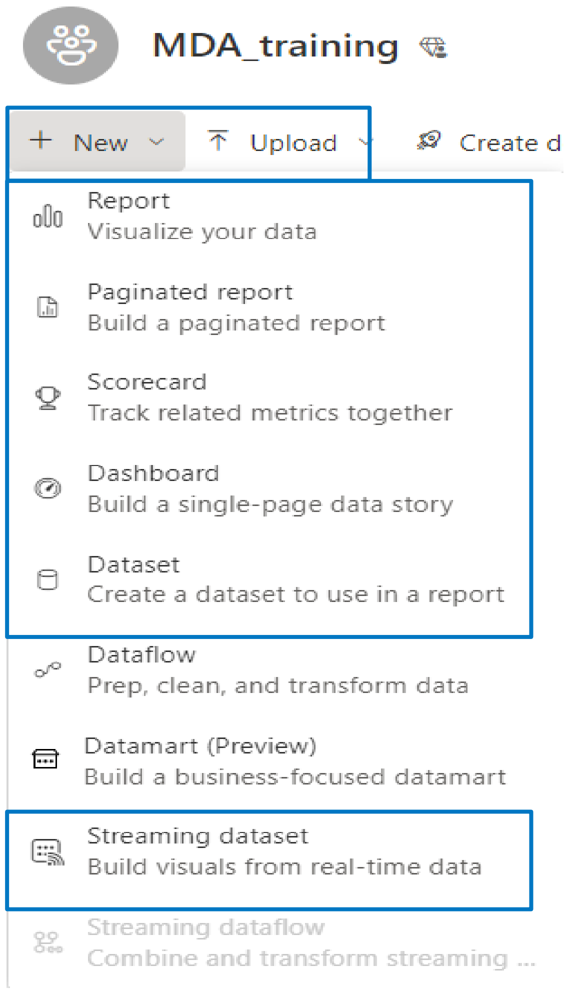
- **Personal workspace** for a single user (*Free or paid license*)
- **Only you** can access its content (*can't collaborate with others*)
- Content can be shared with **individual Pro/PPU users** *(shared with me)*
- Contains core **building blocks** (*datasets, workbooks, reports, and dashboards*)

Workspaces

- **Shared workspace** for many users (*with paid licenses*)
- **Multiple users** can access & collaborate on content
- Content can be created & shared **across your organization**
- Contains core **building blocks** (*datasets, workbooks, reports, and dashboards*) plus **dataflows**

Introduce PBI Ecosystem (PBI Service)
Workspace



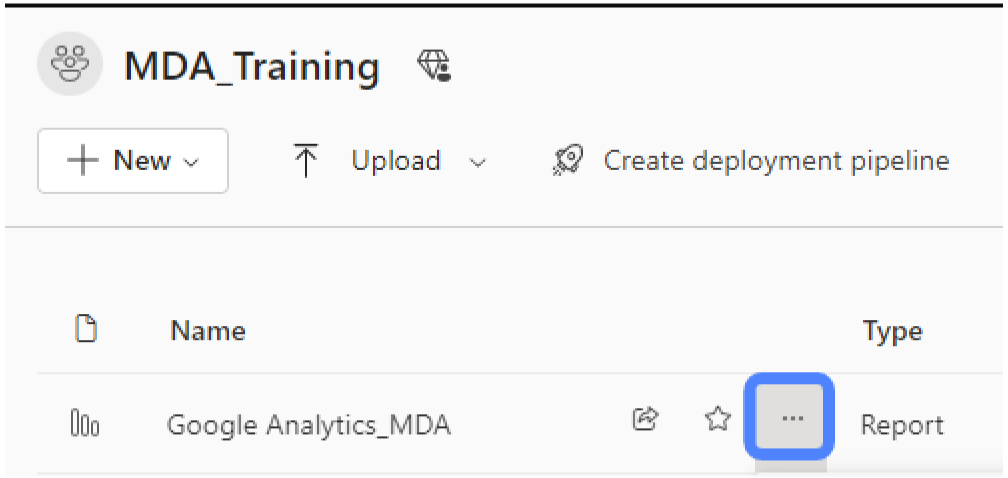


In **My workspace** and **Workspace**:

- Report, Paginated report, Scorecard, Dashboard, Dataset, Streaming dataset
- Upload & + New

Introduce PBI Ecosystem (PBI Service)

Workspace



In each block, there will be additional options.

Reports

- Analyze in Excel
- Delete
- Quick Insights
- Save a Copy (Pro)
- Settings
- View Usage Metrics
- View Lineage
- Create paginated report
- Manage permissions (Pro)

Dashboards

- Delete
- Settings
- View usage metrics report (Pro)
- View Lineage
- Manage permissions

Workbooks

- Refresh now
- Edit
- Replace file
- Settings
- Delete

Paginated report

- Edit in Power BI Report Builder
- Delete
- Save a copy
- Manage
- Settings
- View lineage
- Manage permissions

Scorecard

- Analyze in Excel
- Delete
- Settings
- View Lineage
- View usage metrics report
- Manage permissions

Introduce PBI Ecosystem (PBI Service)

Workspace

Share *– Reports & Dashboards with colleagues & coworkers*

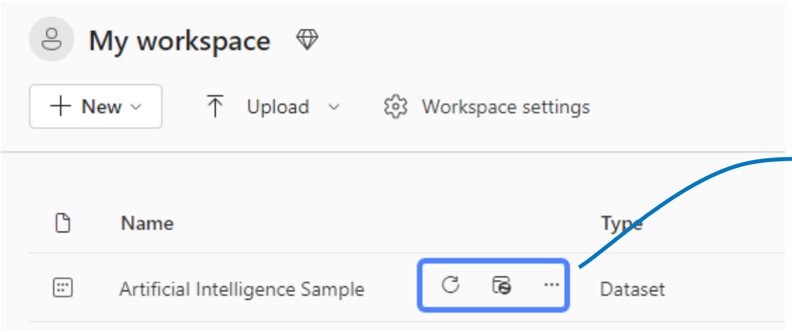
Favorite *– Add selected report or dashboard to Favorites*

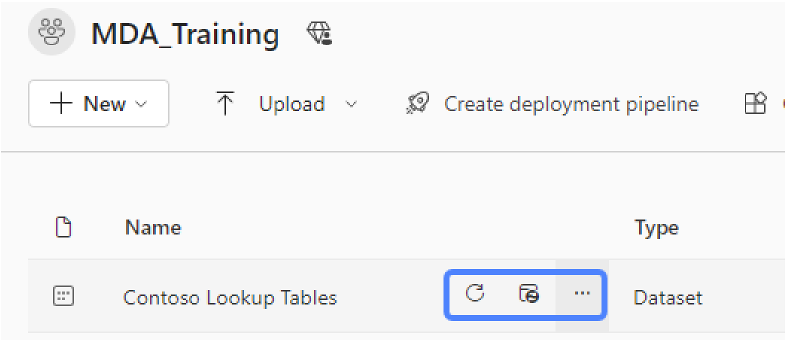
More *– Contextual menu with additional settings & options*

Dashboard, Scorecard, Report

	Name		Type
	MDA_test	···	Dashboard
	MDA_test		Scorecard
	Regional Sales Sample		Report
	salary		Workbook

MASTERING DATA ANALYTICS





Datasets

Refresh Now *- Refresh underlying source data*

Scheduled Refresh *– Set automated refresh schedule*

More *– Contextual menu with additional settings & options*

Streaming dataset

- Delete
- Manage permissions
- Quick insights
- Edit
- API info

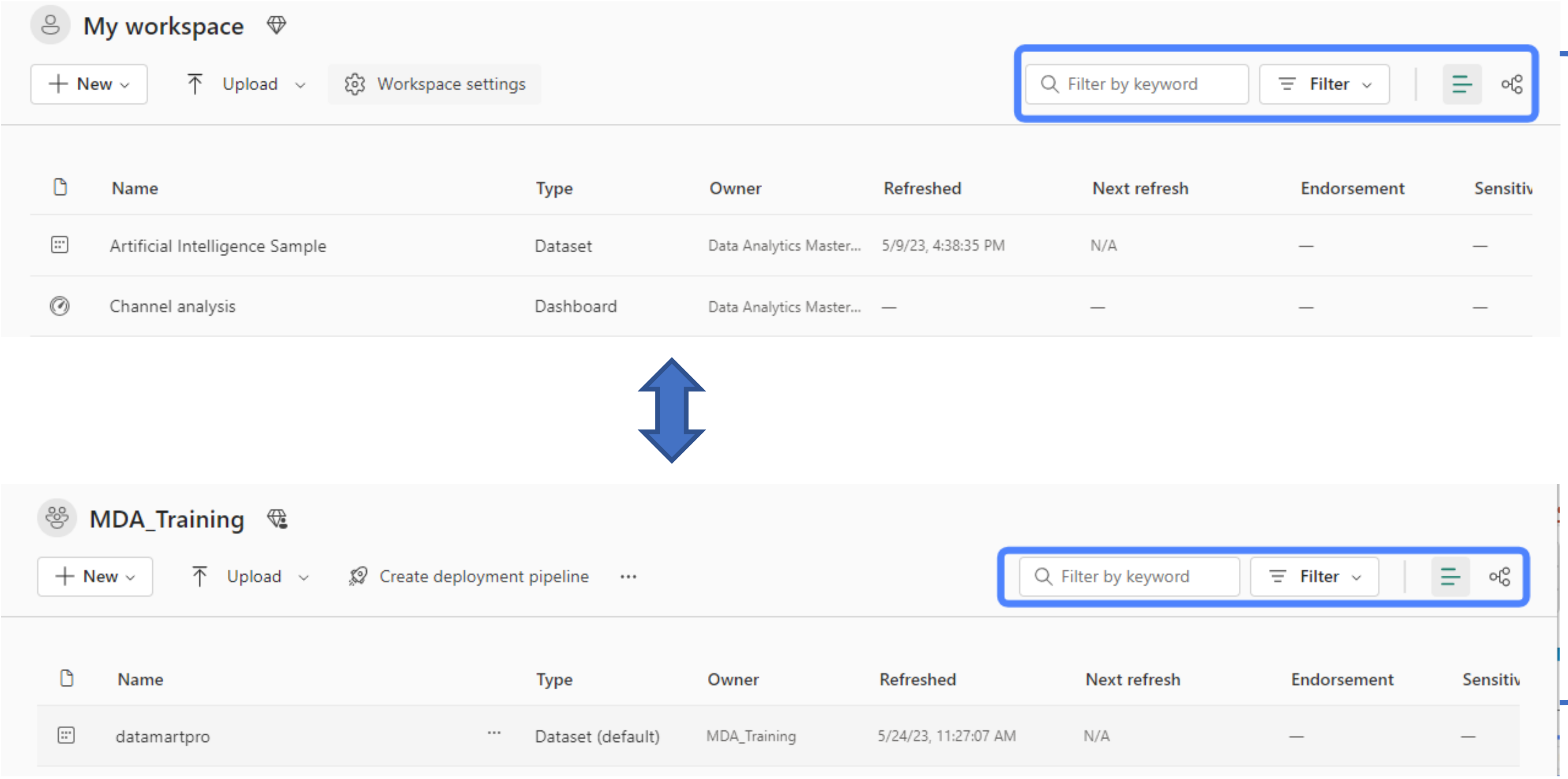
Datasets

- Analyze in Excel
- Create Report
- Auto - create report
- Create paginated report
- Delete
- Quick Insights
- Security
- Rename
- Settings
- Manage Permissions
- View Lineage

- In my workspace & workspace: streaming dataset & dataset

Introduce PBI Ecosystem (PBI Service)

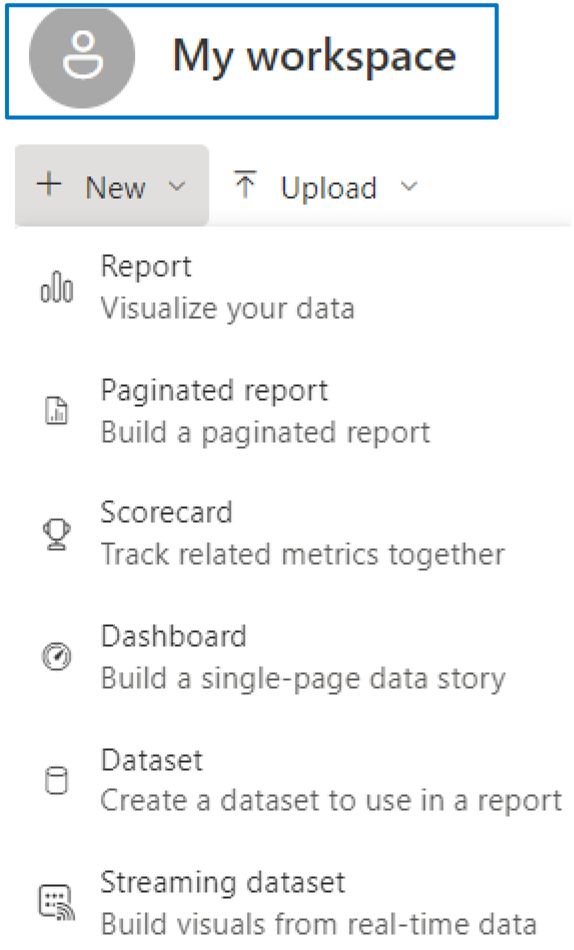
Workspace functions



Both workspaces: Filter by keyword, Filter, List view, Lineage view

Introduce PBI Ecosystem (PBI Service)

Workspaces



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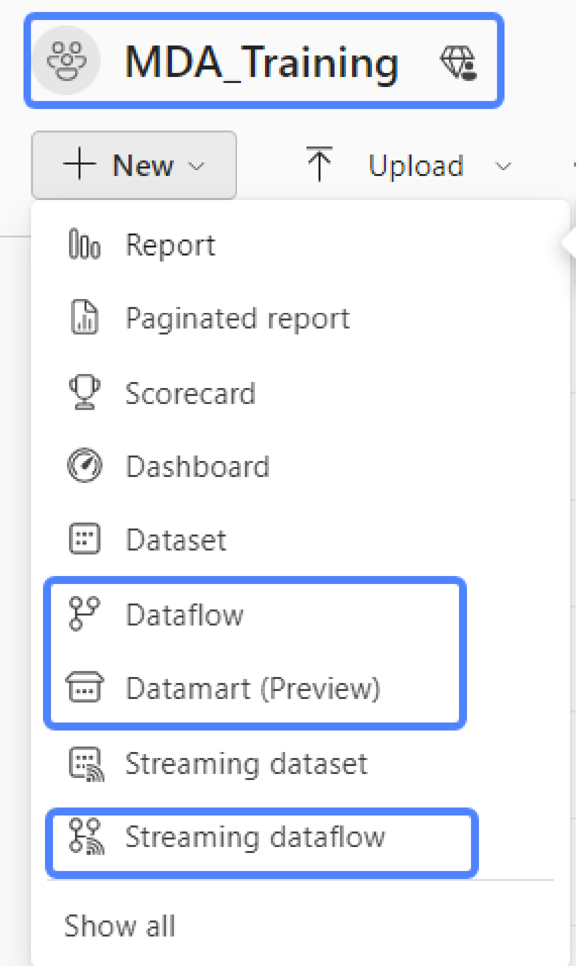
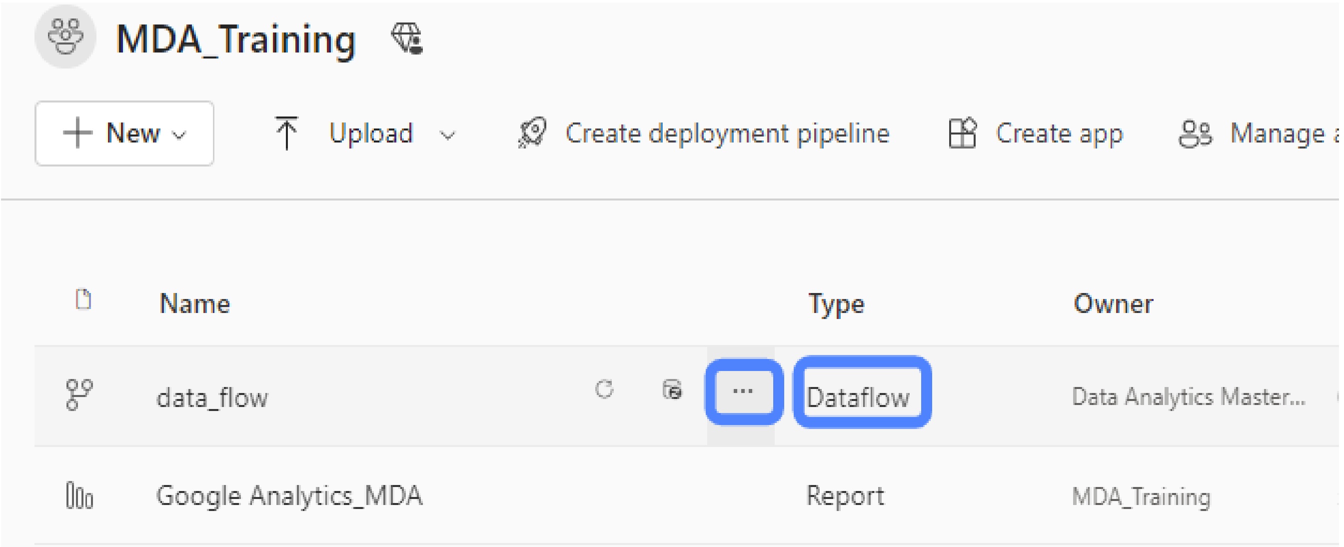


In Workspace: Dataflow, Datamart, Streaming dataflow (not in My workspace)

Introduce PBI Ecosystem (PBI Service)
Workspace

- **Dataflow**
- Datamart
- Streaming dataflow (pending)

Introduce PBI Ecosystem (PBI Service)
Workspace (normal)



Additional settings

Dataflows (Pro)

- Delete
- Edit
- Export .json
- Properties
- Refresh History
- Settings
- View Lineage

Dataflow

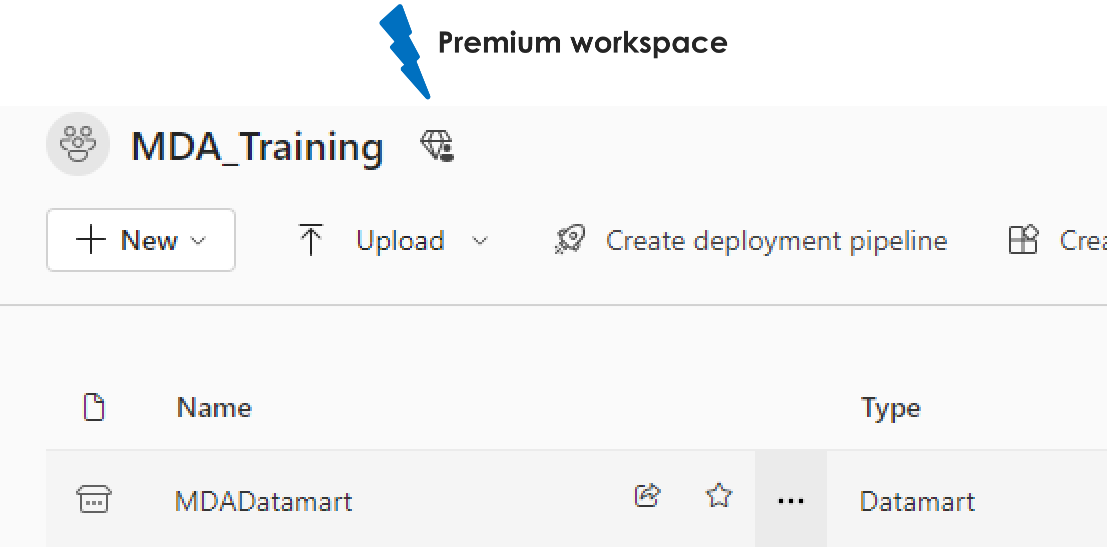
Refresh Now *- Refresh underlying source data*

Scheduled Refresh *– Set automated refresh schedule*

More *– Contextual menu with additional settings & options*

Introduce PBI Ecosystem (PBI Service)
Workspace

- Dataflow
- **Datamart**
- Streaming dataflow (pending)



Datamarts (Previews) Premium

Share – *Datamart with colleagues & co-workers*

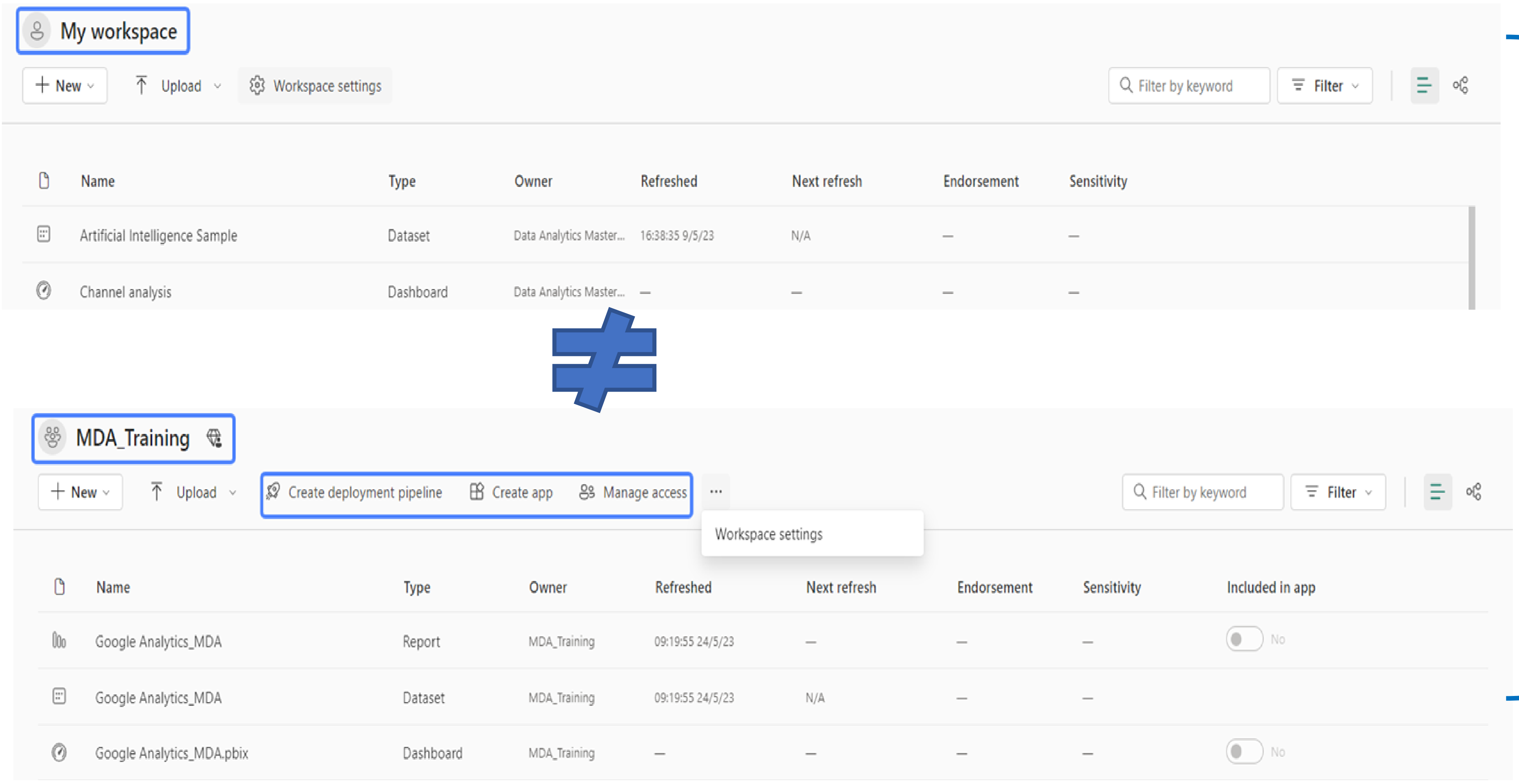
Favorite – *Add selected datamart to Favorites*

More – *Contextual menu with additional settings & options*

Additional settings

- Edit
- Open with
- Share
- Analyze in Excel
- New report
- Favorite
- Rename
- Delete
- Manage permissions
- Copy SQL server endpoint
- Setting
- Refresh
- View lineage

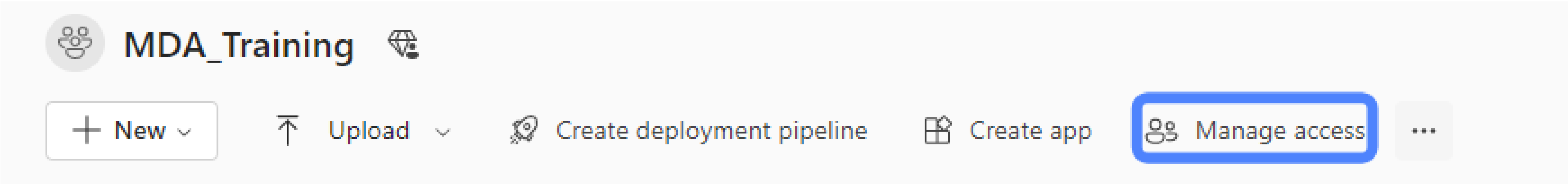
Introduce PBI Ecosystem (PBI Service)
Workspace

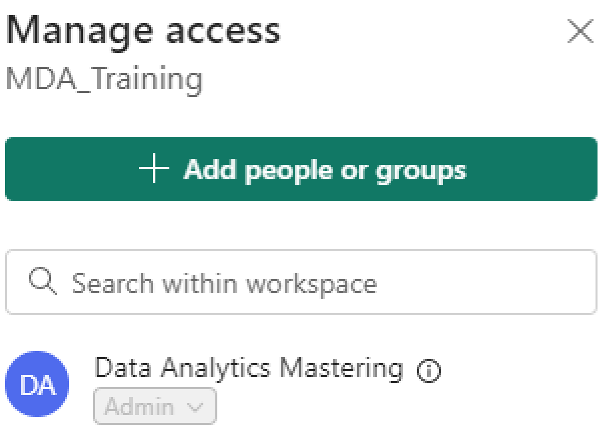


Create deployment pipeline, Create App, Manage access

Introduce PBI Ecosystem (PBI Service)

Workspace access

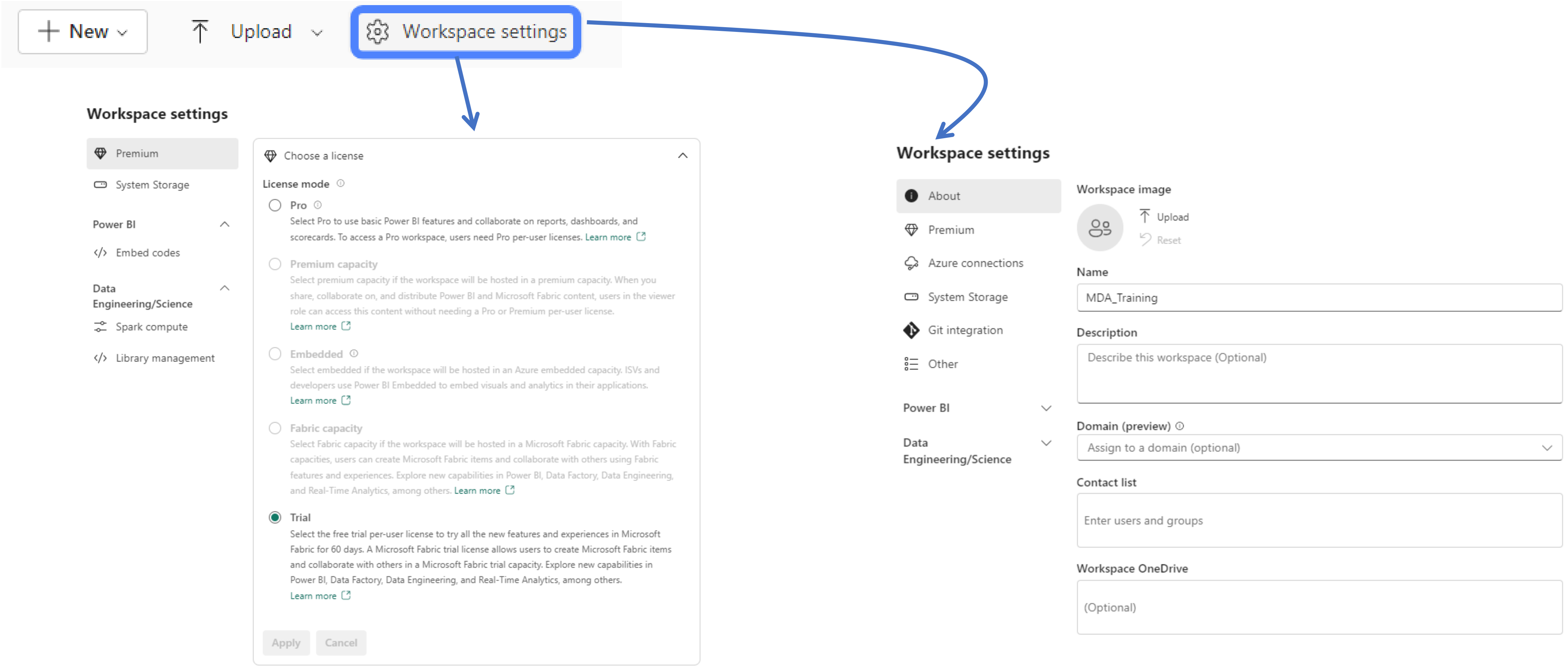




If you have an admin role in a workspace, you can give others access to it by adding them to the different roles.

Introduce PBI Ecosystem (PBI Service)

Workspace settings



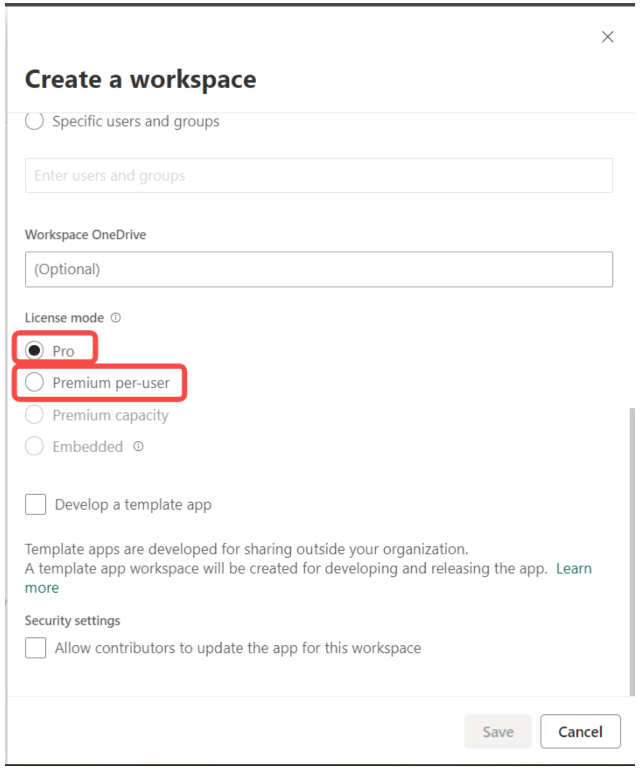
My workspace

Workspaces

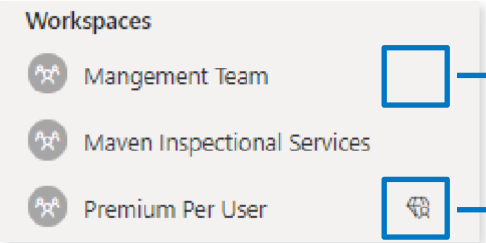
Introduce PBI Ecosystem (PBI Service)

Creating Workspace

Create a new workspace and assign it to a **premium capacity** in the advanced options



New icon indicates a **Premium Per User workspace**



Pro license workspace

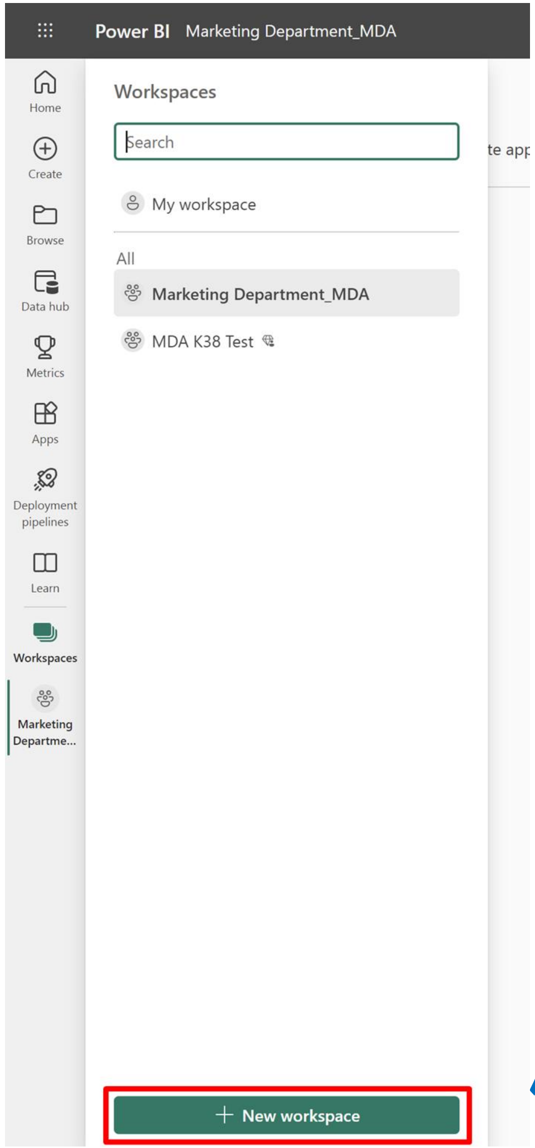
Premium Per User workspace

HEY THIS IS IMPORTANT!

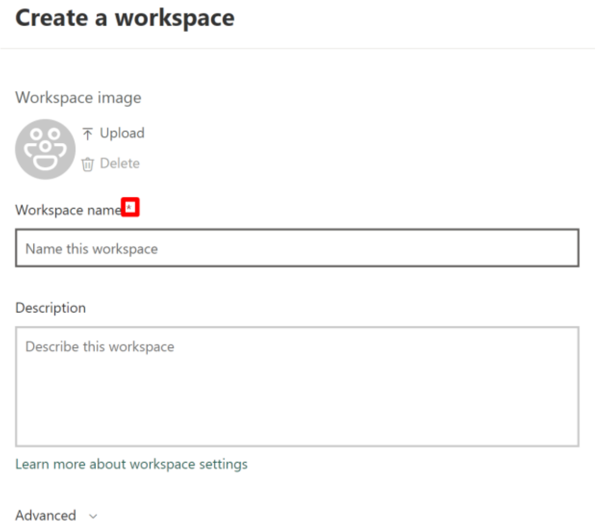
Datasets, reports, or dashboards that are created within Power BI Premium Per User workspaces can only be consumed by users that also have Premium Per User licenses

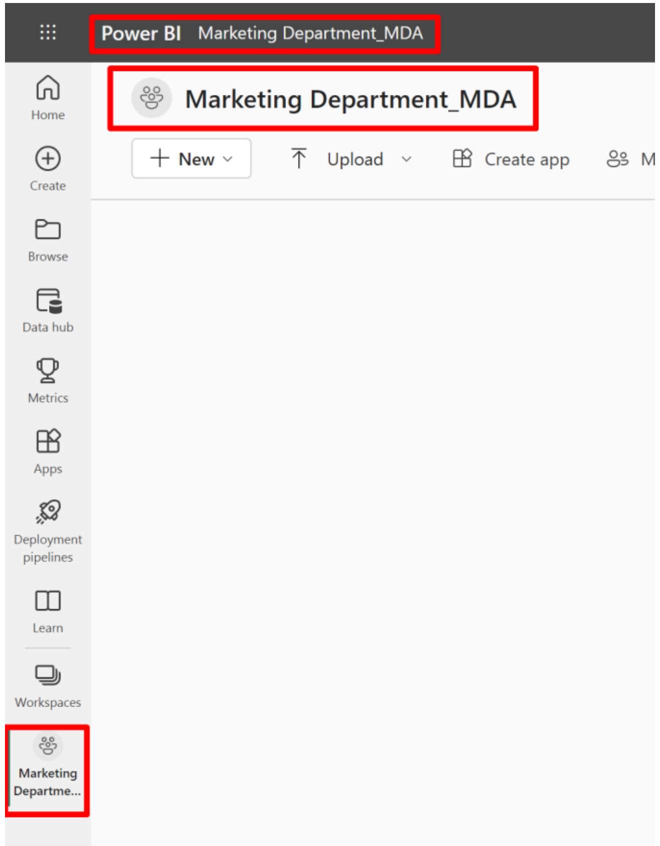
Introduce PBI Ecosystem (PBI Service)

Creating Workspace



*Add a **Name** (required) and optional **Description** for your workspace*





POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

PART 5: Report and Dashboard

PART 6: Refresh Scorecard & Metrics

PART 7: Sharing, Collaboration, (PBI Mobile)

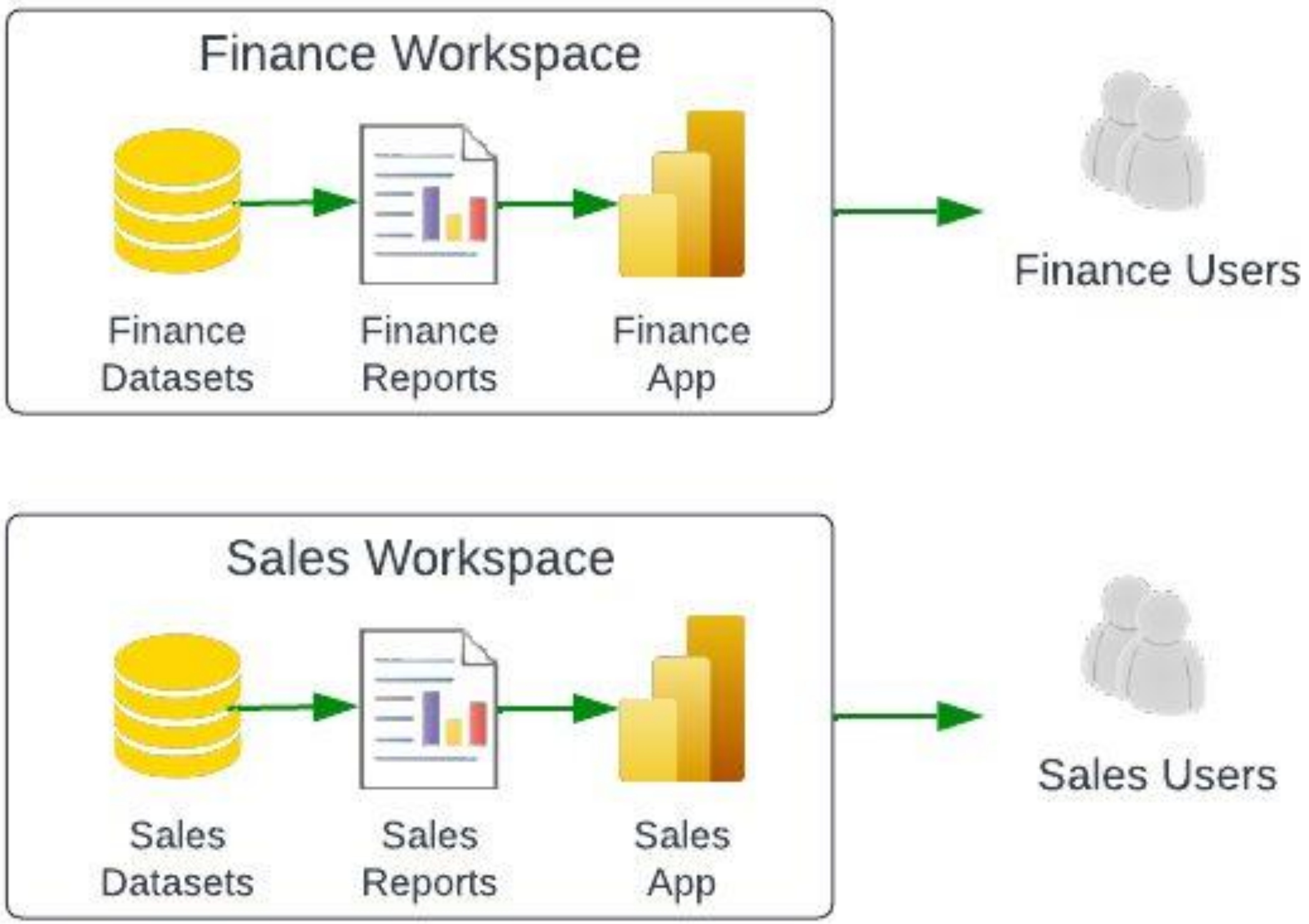
PART 8: Deployment Pipelines

Connecting data

On My Workspace & Workspaces (Pro, Premium): We practice to load data.

- From Dataset: Excel table, CSV, manual input.
- From Upload: Excel sheet, pbix, rld.
- From Streaming Dataset: API, PubNub, Azure Stream
- **From Dataflow (Not available in My Workspace)**
- **From Datamart (Not available in My Workspace)**
- **From Streaming Dataflow (pending)**

Connecting data

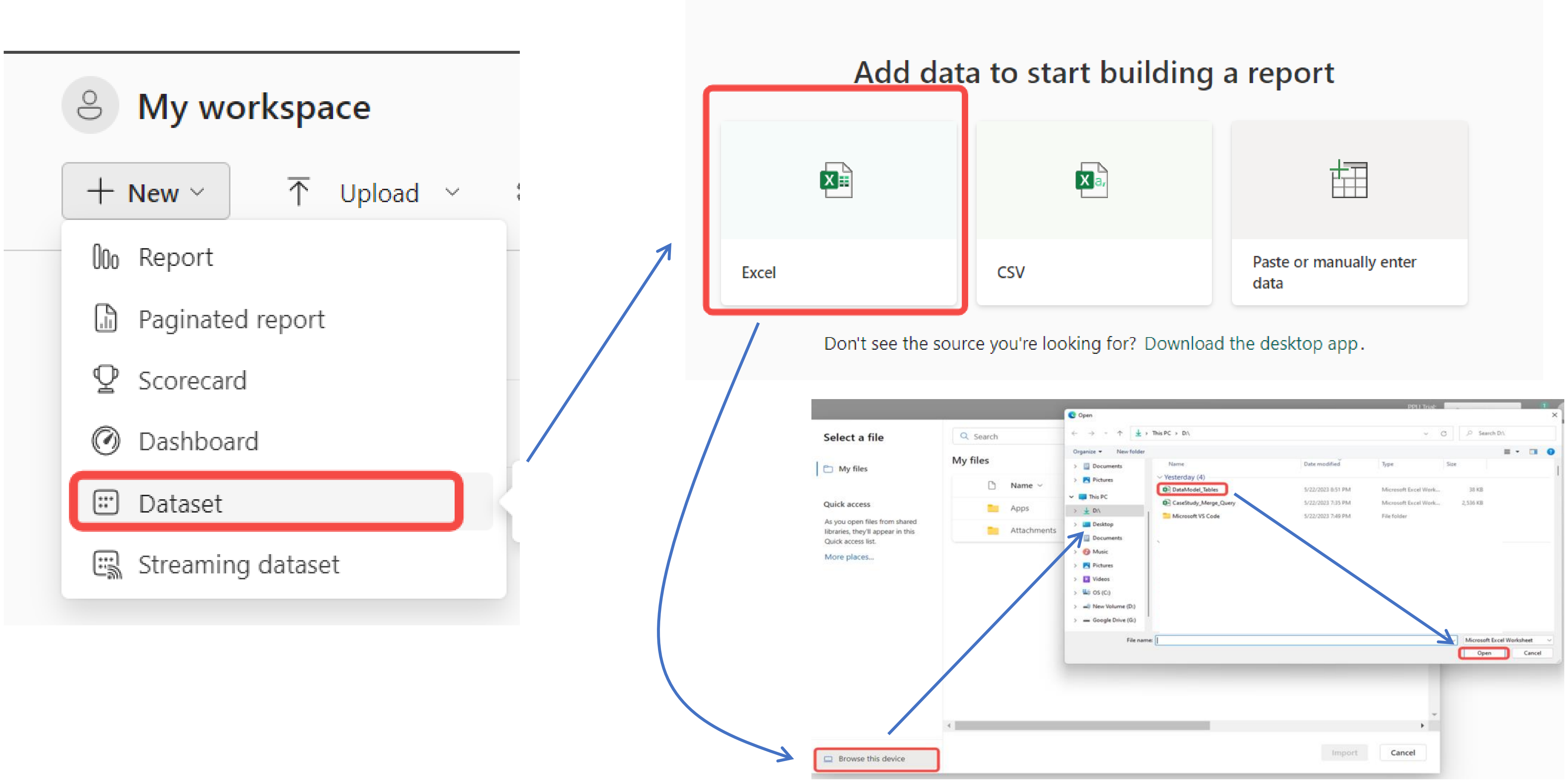


Connecting data

On My Workspace & Workspaces (Pro, Premium): We practice to load data.

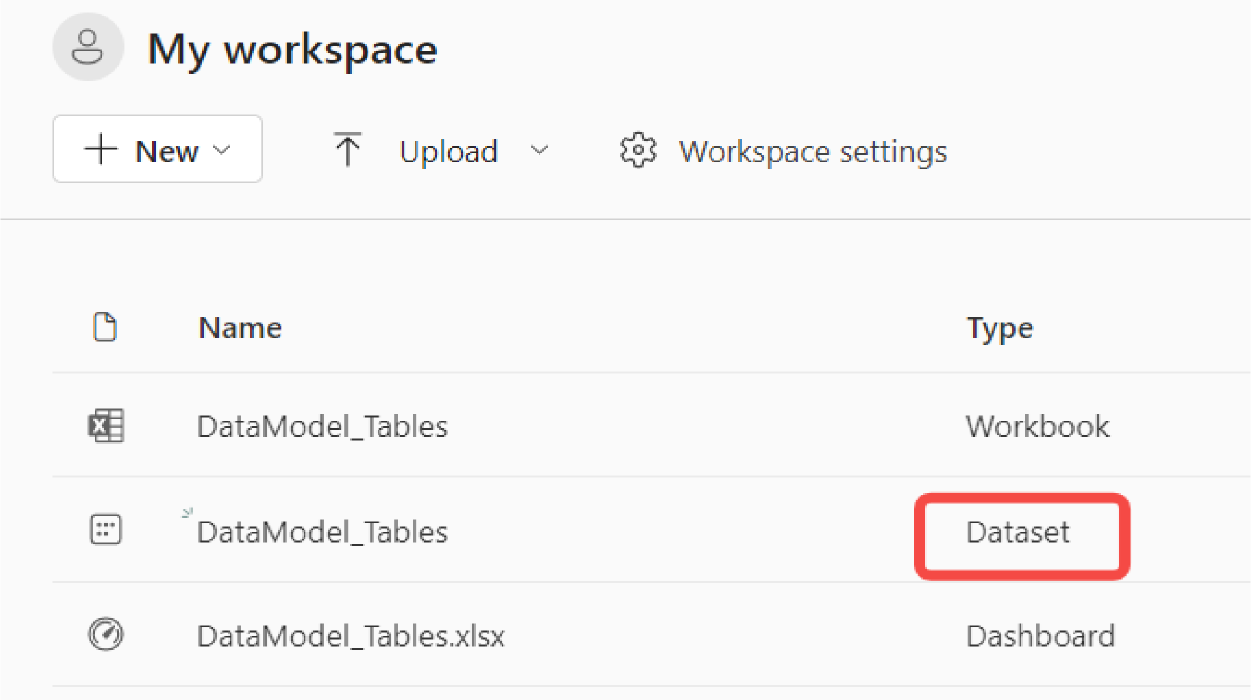
- **From Dataset: Excel table, CSV, manual input. => Dataset**
- From Upload: Excel sheet (=>Workbook), pbix, rld.
- From Streaming Dataset: API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace)
- From Streaming Dataflow (pending)

Connecting data
Dataset from Excel



Connecting data
Dataset from Excel

Result



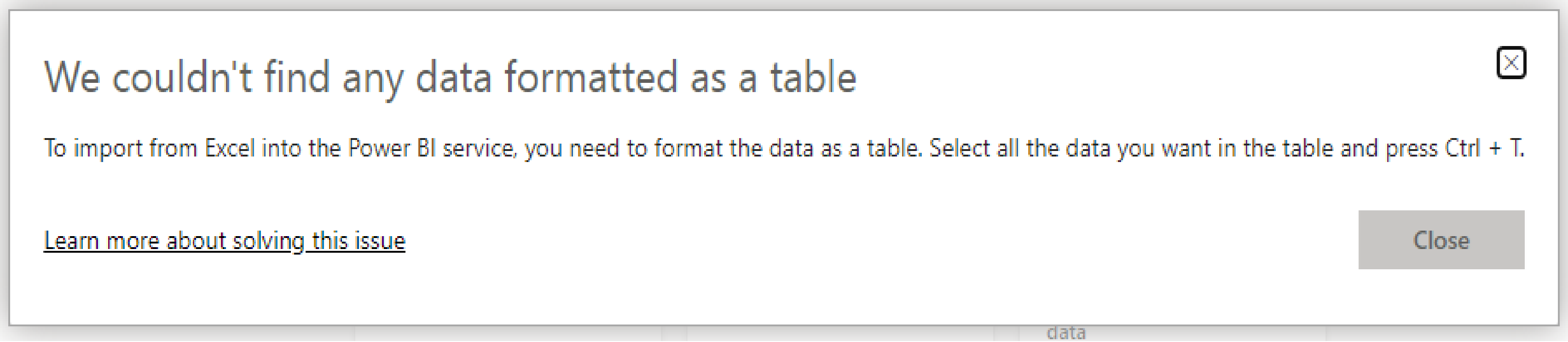
HEY THIS IS IMPORTANT!

When you *connect your Excel file* through Dataset, Power BI will search for data formatted as a **table** and create a new **Dataset** in your workspace, *NOT* a new **Workbook**

Remember, your file must include at least one table!

Connecting data
Dataset from Excel

If you load a Excel file which has not a table:

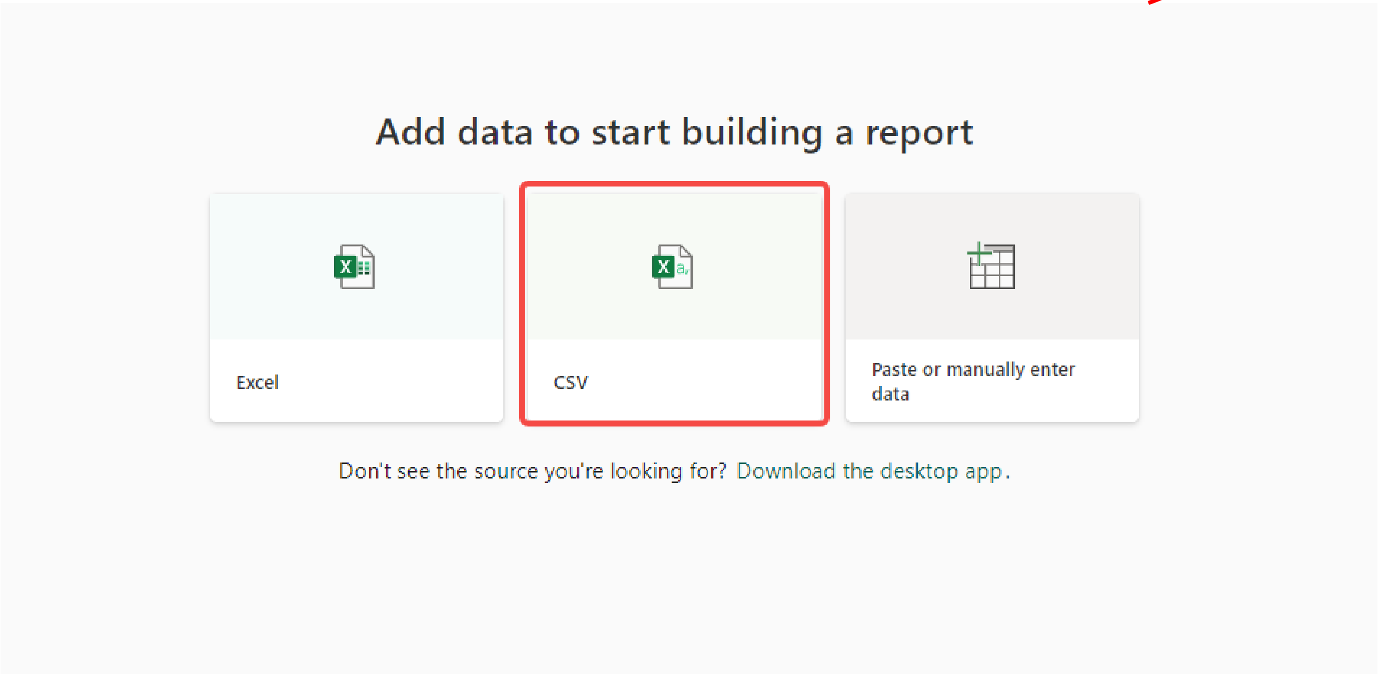


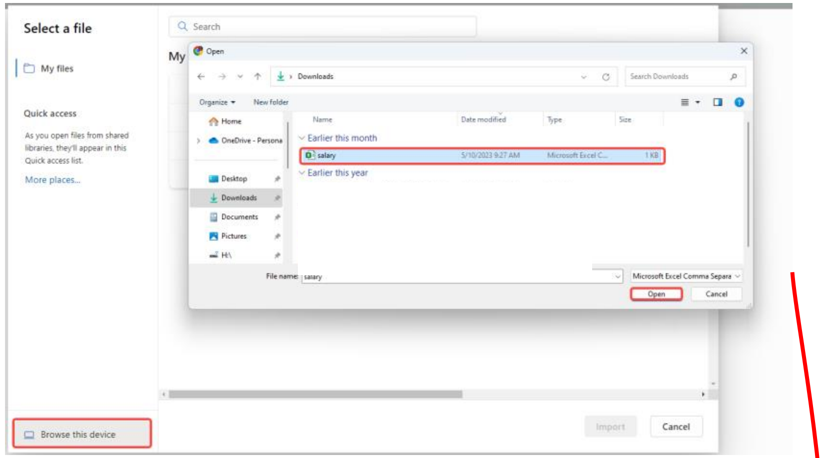
HEY THIS IS IMPORTANT!

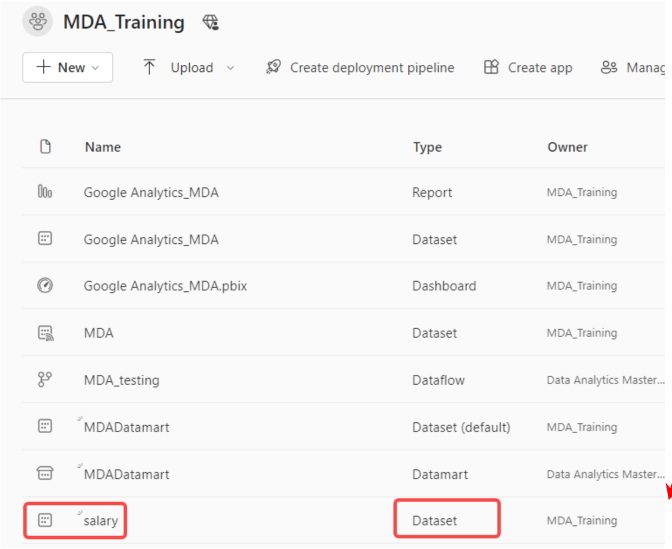
When you *"Upload your Excel File"* through Dataset, Power BI will search for data formatted as a **table** and create a new **Dataset** in your workspace, *NOT* a new **Workbook**

Remember, your file must include at **least one table**!

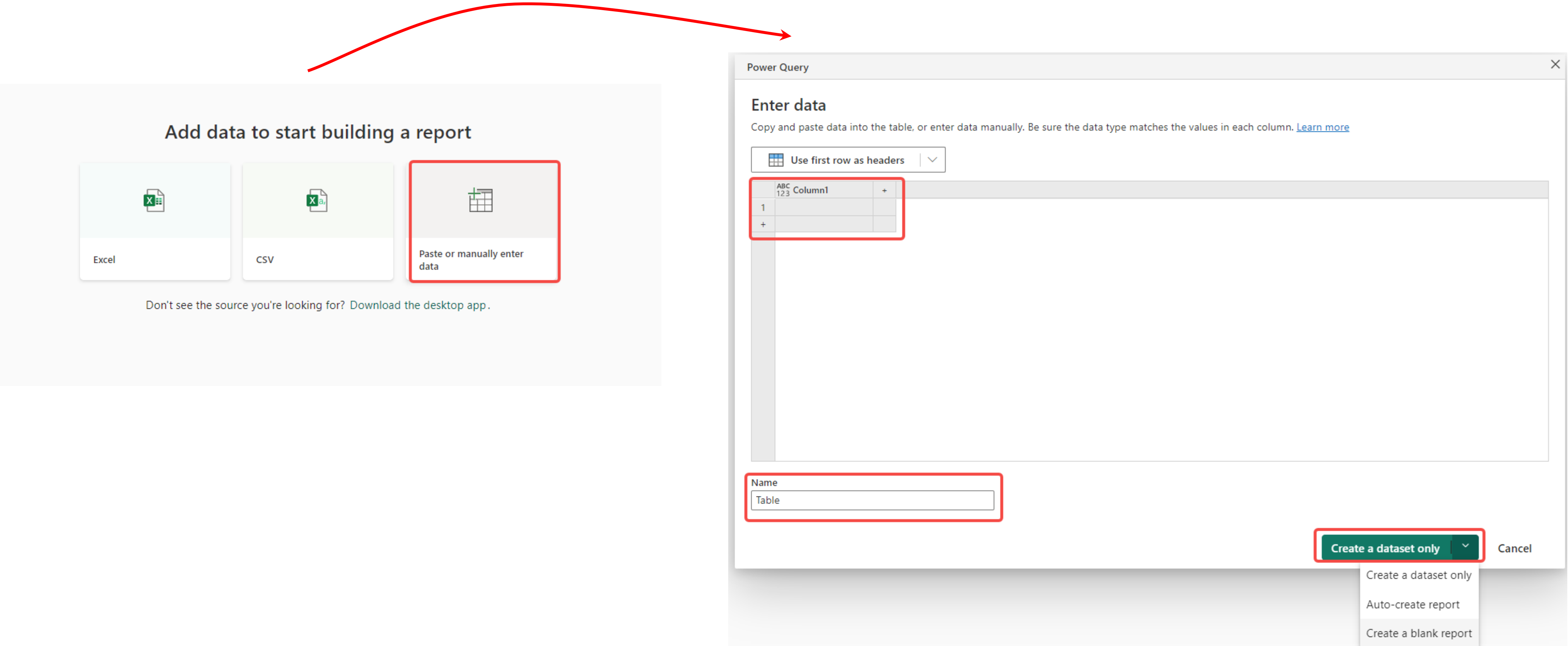
Connecting data
Dataset from CSV







Connecting data
Dataset from manual input



Connecting data

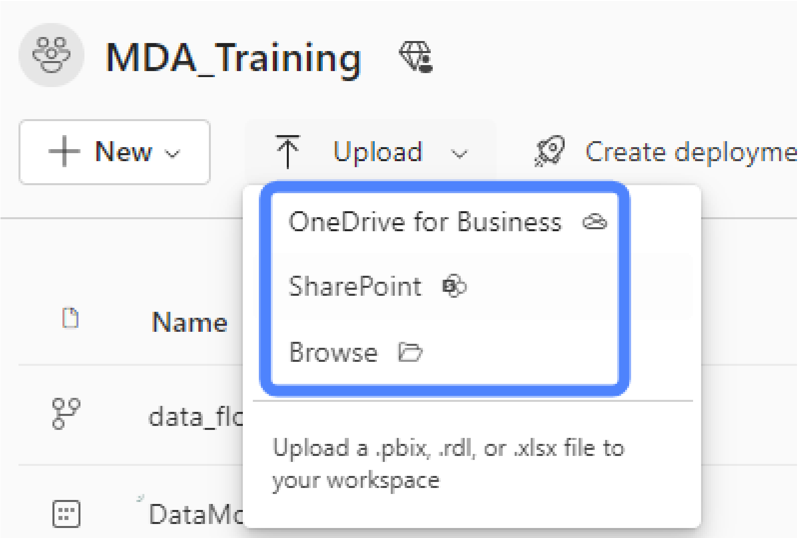
On My Workspace & Workspaces (Pro, Premium): We practice to load data.

- From Dataset: Excel table, CSV, manual input. => Dataset
- **From Upload: Excel sheet (=>Workbook), pbix, rld.**
- From Streaming Dataset: API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace)
- From Streaming Dataflow (pending)

Connecting data

- **From Upload: Excel sheet (=>Workbook), pbix, rld.**
  Browse (Local file)
  SharePoint
  OneDrive for Business

Workbook

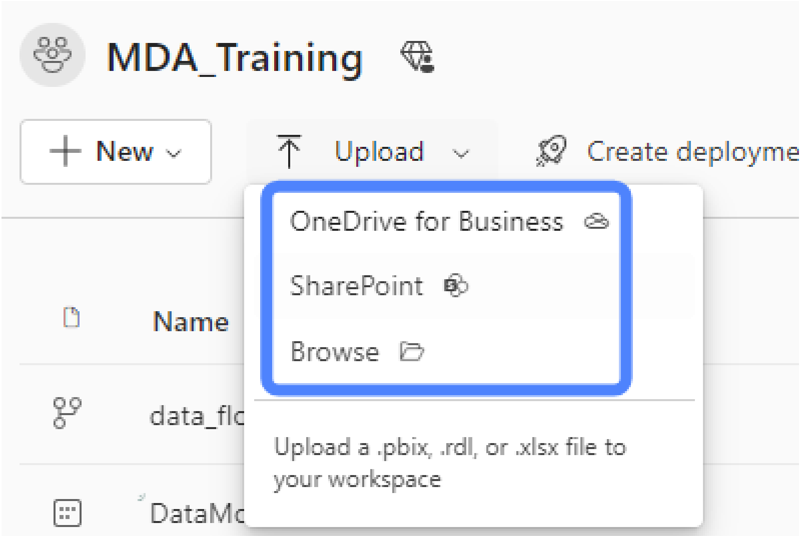


Connecting data

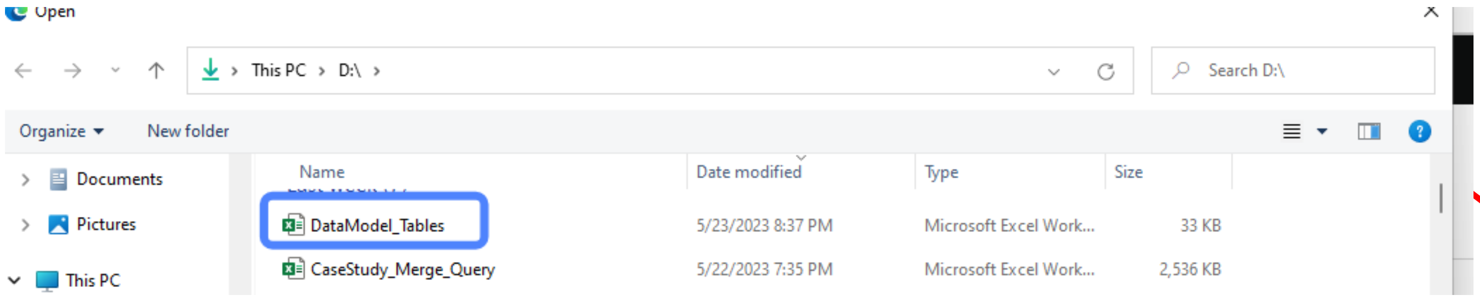
- **From Upload: Excel sheet (=>Workbook), pbix, rld.**

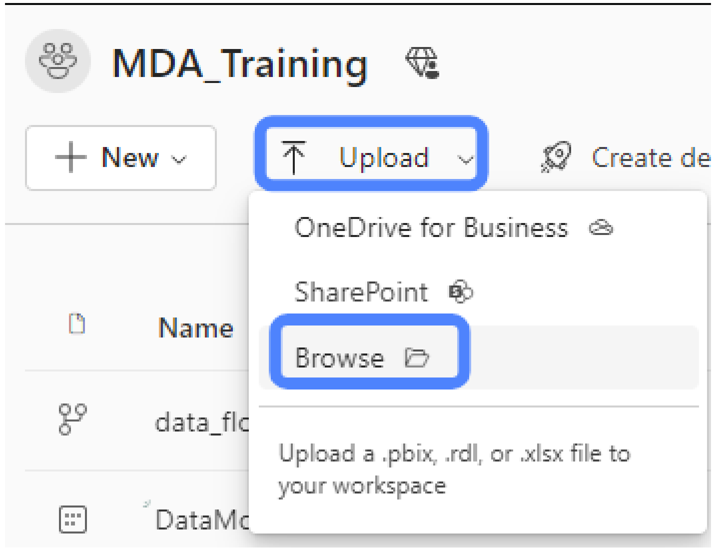
  Browse (Local file)
  SharePoint
  OneDrive for Business

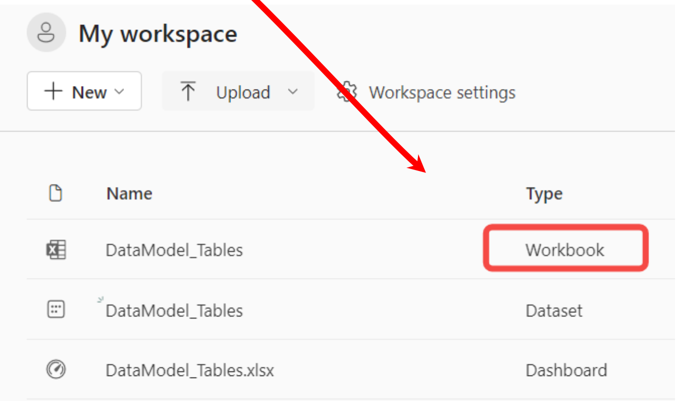
  Workbook



Connecting data
Upload file from local file







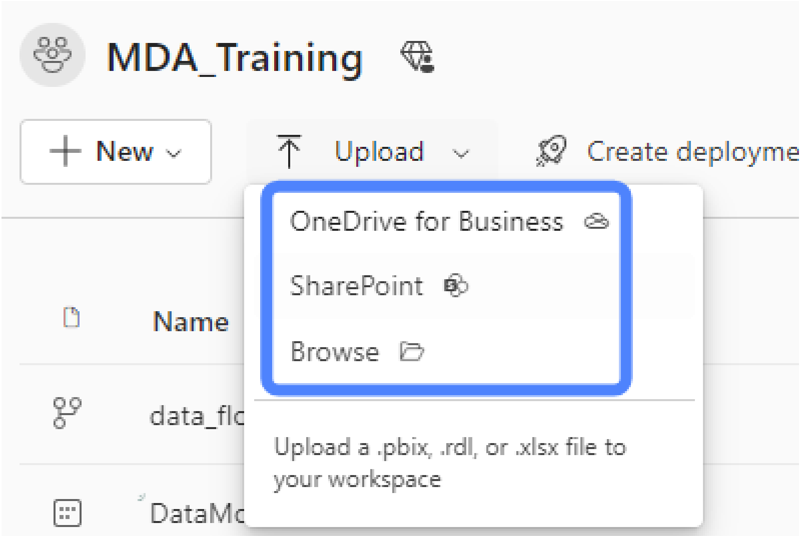
Workbook is a special dataset, you can not create a report from it

Connecting data

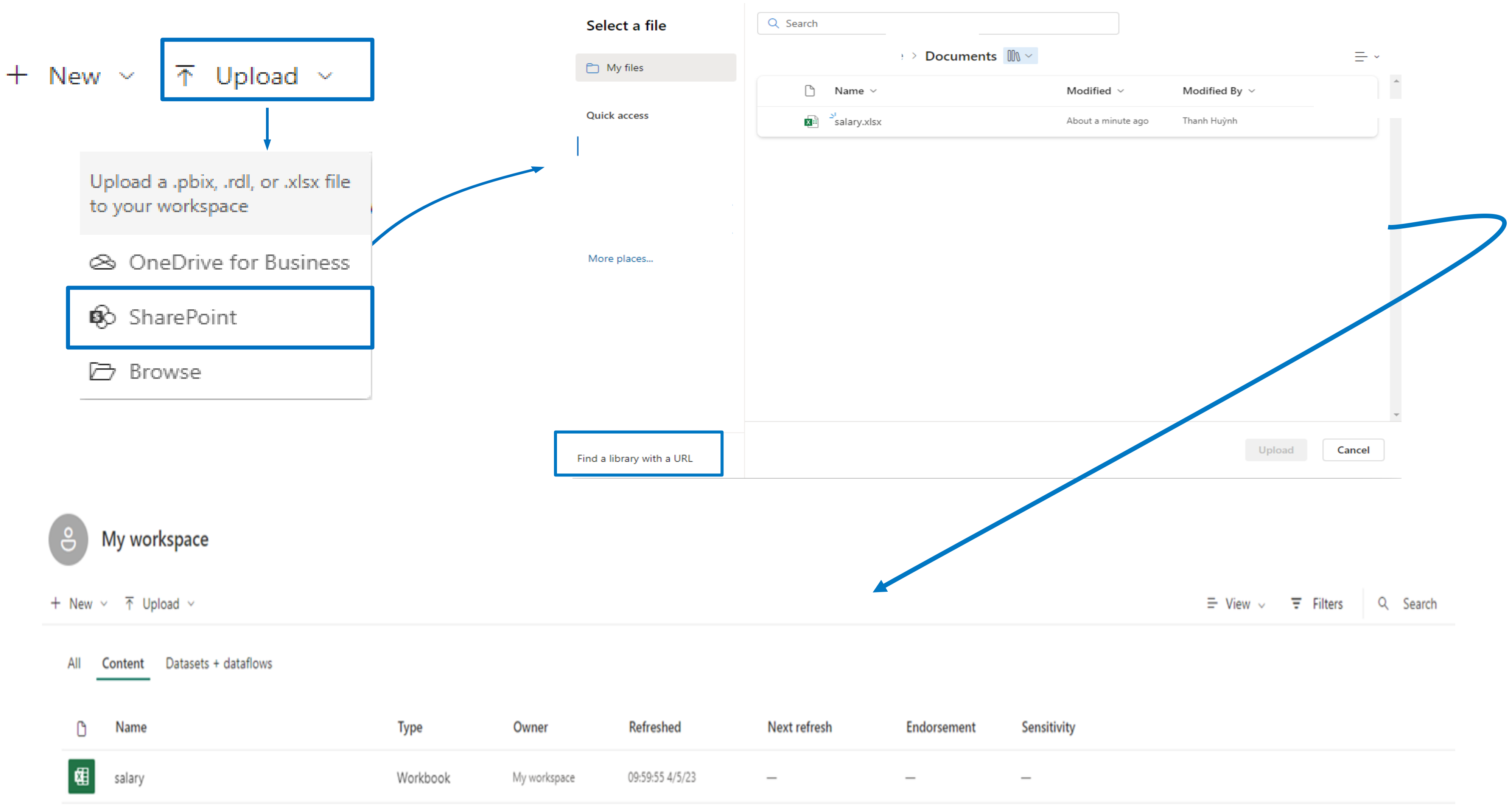
- **From Upload: Excel sheet (=>Workbook), pbix, rld.**

  Browse (Local file)
  SharePoint
  OneDrive for Business

  Workbook



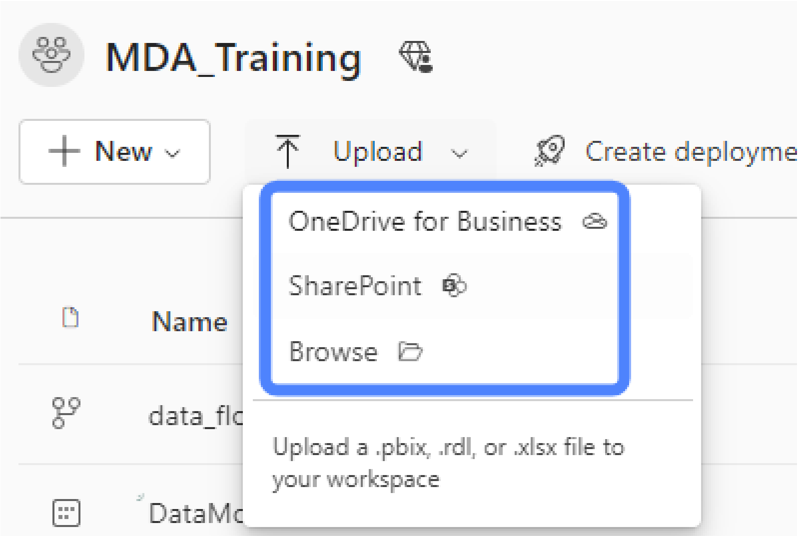
Connecting data
Upload file from Sharepoint



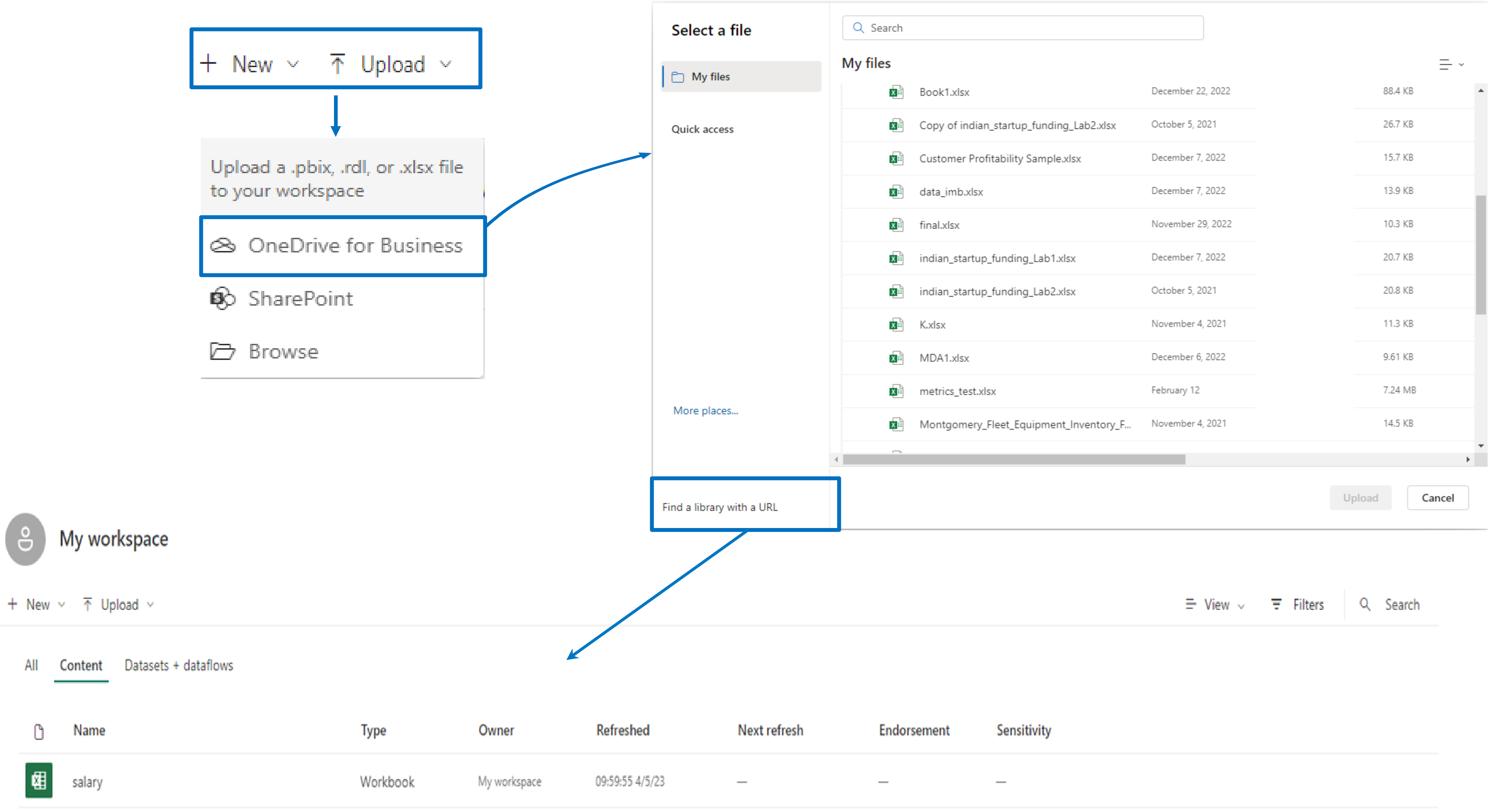
Connecting data

- **From Upload: Excel sheet (=>Workbook), pbix, rld.**
  - Browse (Local file)
  - SharePoint
  - **OneDrive for Business**

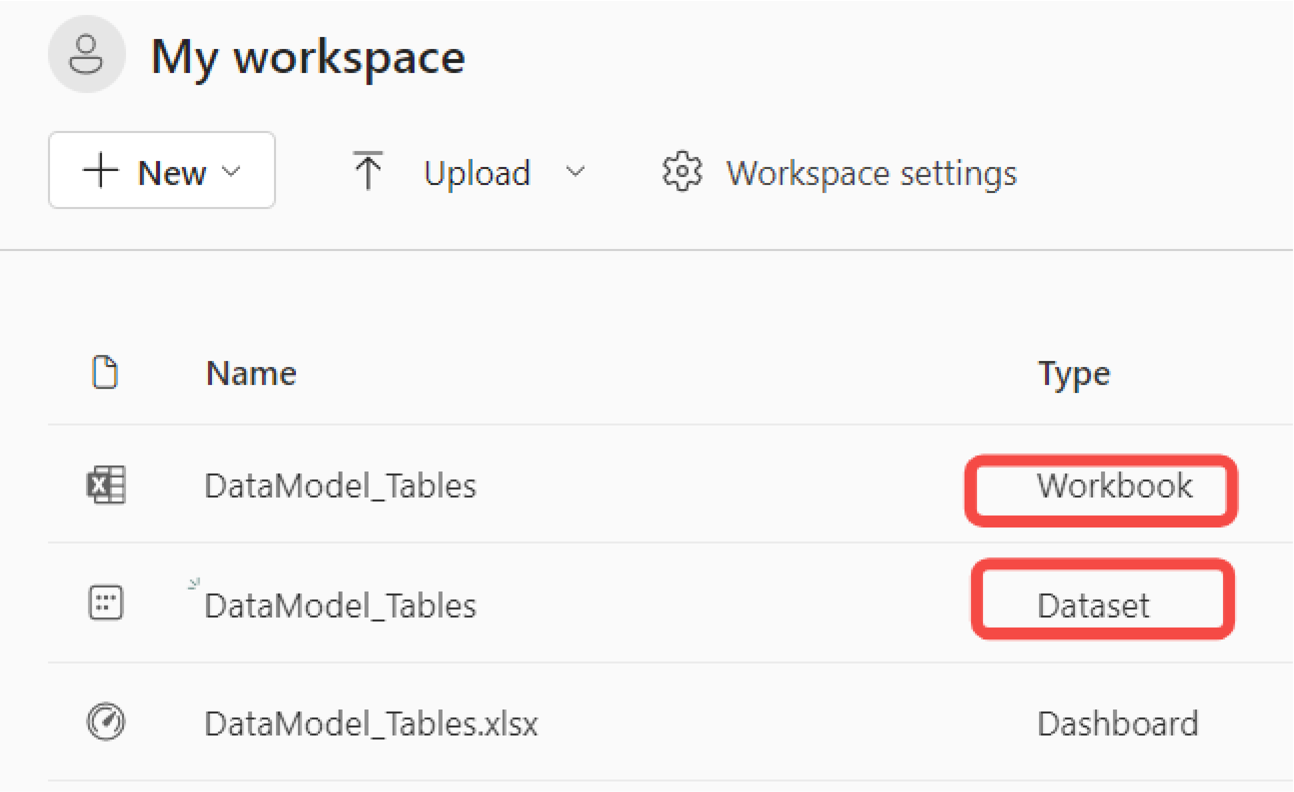
Workbook



Connecting data
Upload file from OneDrive for Business



Connecting data
Upload file & Dataset



Through Dataset, Excel => Dataset

Through Upload, Excel => Workbook (not create REPORT)

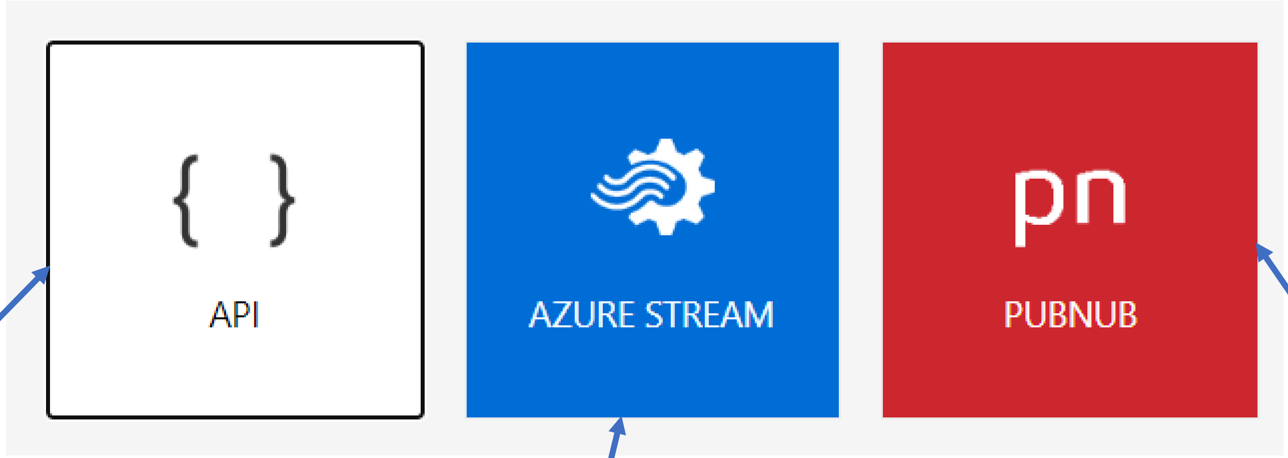
Connecting data

On My Workspace & Workspaces (Pro, Premium): We practice to load data.

- From Dataset: Excel sheet, CSV, manual input. => Dataset
- From Upload: Excel sheet (table) (=>Workbook), pbix, rld.
- **From Streaming Dataset:** API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace)
- From Streaming Dataflow (pending)

Connecting data
Creating streaming dataset

Three ways to create a real-time streaming data feed

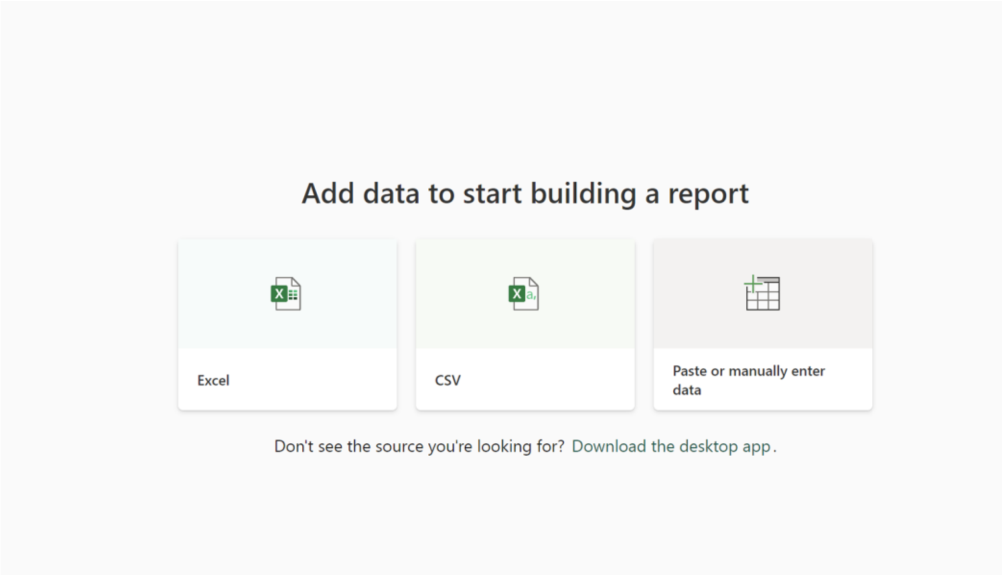


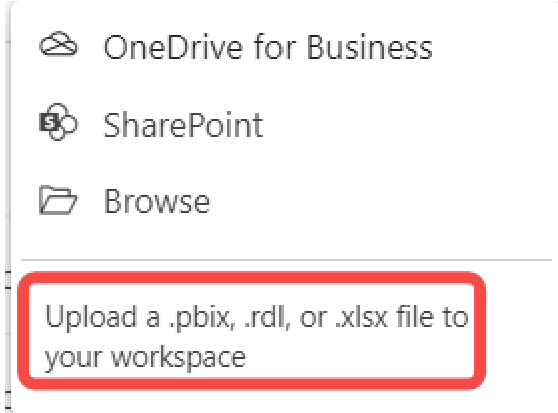
The Power BI REST API makes real-time streaming easier for developers

Use Power BI as an output for a Stream Analytics job to provide for a rich visualization experience of analysis results. User this capability for operational dashboards, report generation, and metric-driven reporting.

The integration of PubNub streaming with Power BI helps you create and use your low-latency PubNub data streams in Power BI.

Connecting Data **from Dataset**, no. of connectors:
Excel Table; Excel Sheet; CSV; PBIX, RLD; Manual Input (No refresh), streaming dataset



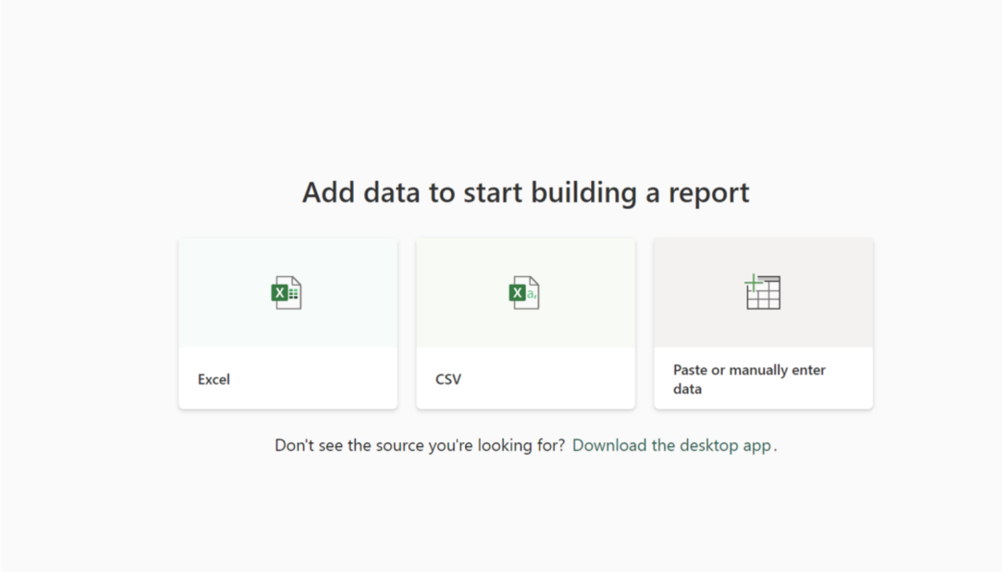


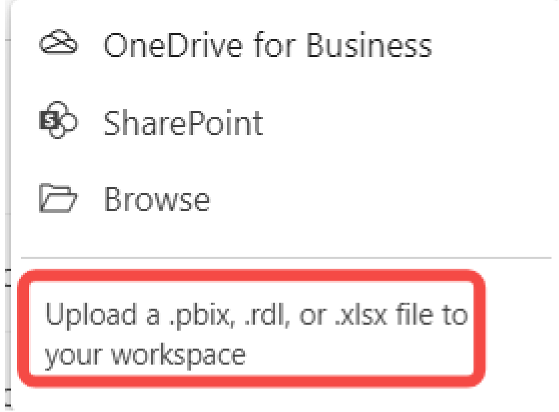
Connecting data
Upload file & Dataset

Connecting Data **from Dataset**, no. of connectors:
Excel Table; Excel Sheet; CSV; PBIX, RLD; Manual Input (No refresh), streaming dataset.

Need to connect other sources?

=> Dataflow





Connecting data
Dataflow

On My Workspace & Workspaces Pro, Premium: We practice to load data.

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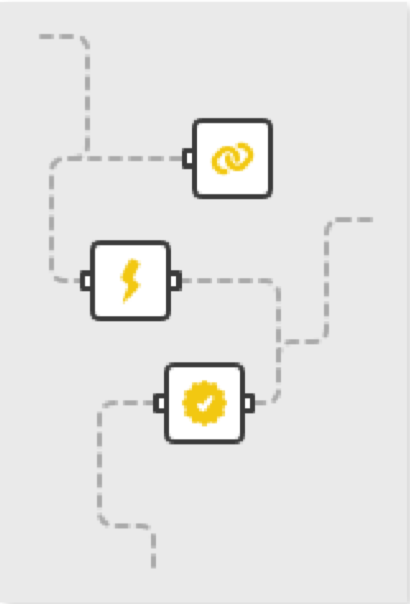
- From Upload: Excel sheet, pbix, rld.
- From Streaming Dataset: API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace)
- From Streaming Dataflow (pending)

Prep data (On Pro & Premium)
By Dataflow

Dataflows are queries that run *independently* within Power BI Service (*Power Query in the cloud!)* and are used to ingest, transform, store, and integrate data



Why Dataflows?

- ✓ Reuse queries across **multiple Power BI Desktop** or **Service reports**
- ✓ Run ETL (*extract, transform & load*) processes on **specific schedules**
- ✓ Create a centralized data warehouse to serve as a **single source of truth**

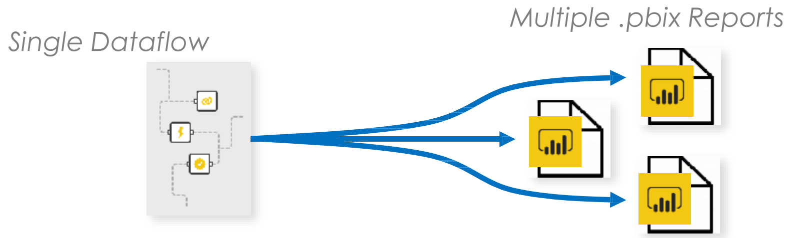
How are Dataflows Implemented?

1. **Create** and **build** dataflows in Power BI Service
2. **Refresh dataflow** in Power BI Service
3. **Connect to a dataflow** as the dataset in Power BI Desktop

Prep data (On Pro & Premium)
By Dataflow

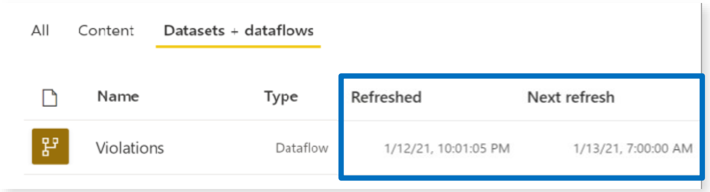
USE CASE #1 Create **entities** to recycle common queries across multiple Power BI reports

- *Need to use the same query across multiple reports? Create a **single dataflow** and connect to it as a data source, instead of creating a brand-new connection and replicating your applied steps each time*



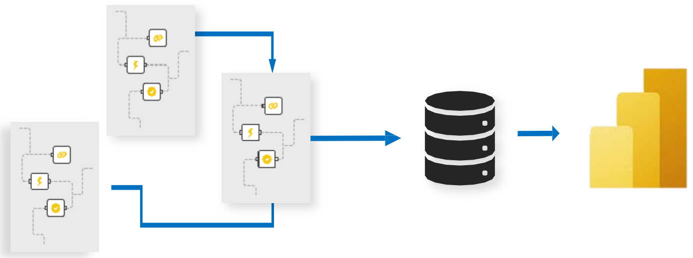
USE CASE #2 Create **scheduled refreshes** to align with reporting cadence

- *For example, schedule one dataflow to refresh at **7 am** for your internal KPI report, and another to refresh **weekly** for your executive client dashboard*



USE CASE #3 Centralize **critical ETL processes** to ensure data quality

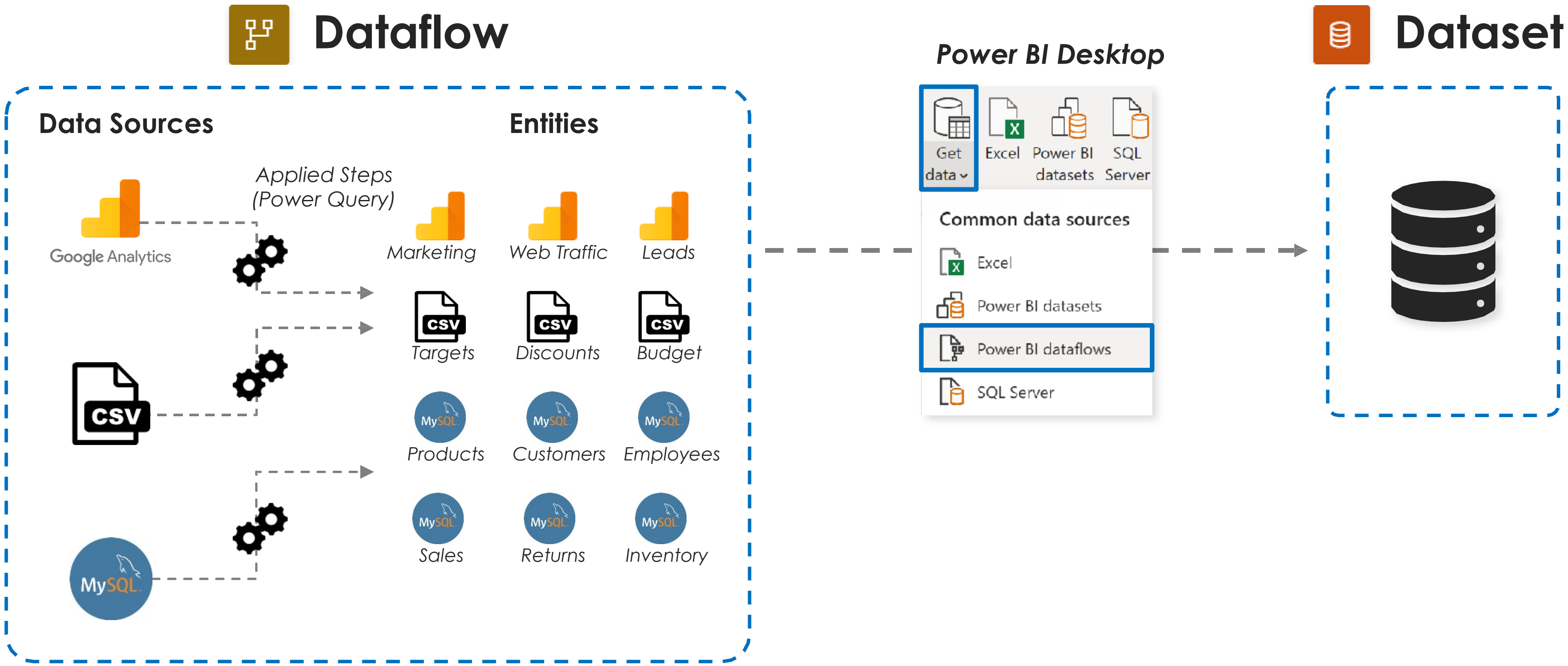
- *Maintaining separate ETL processes across reports with the same data is tedious, inefficient, and error-prone*
- *Dataflows allow you to create, manage, and QA those processes in **one central place***



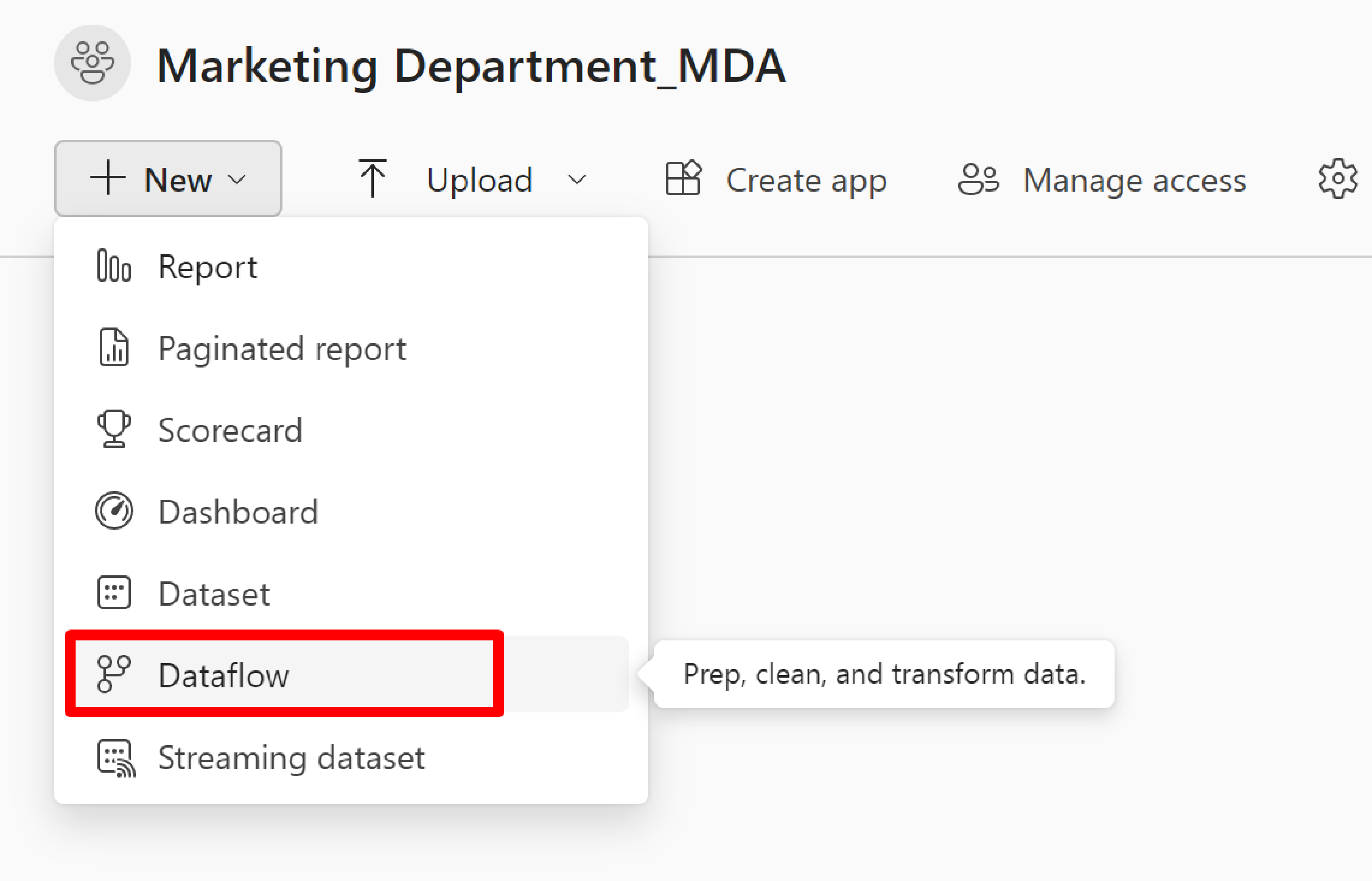
Prep data (On Pro & Premium)
By Dataflow

Dataflows connect to raw **data sources**, apply a series of steps (Power Query), and store data as tables or **entities**

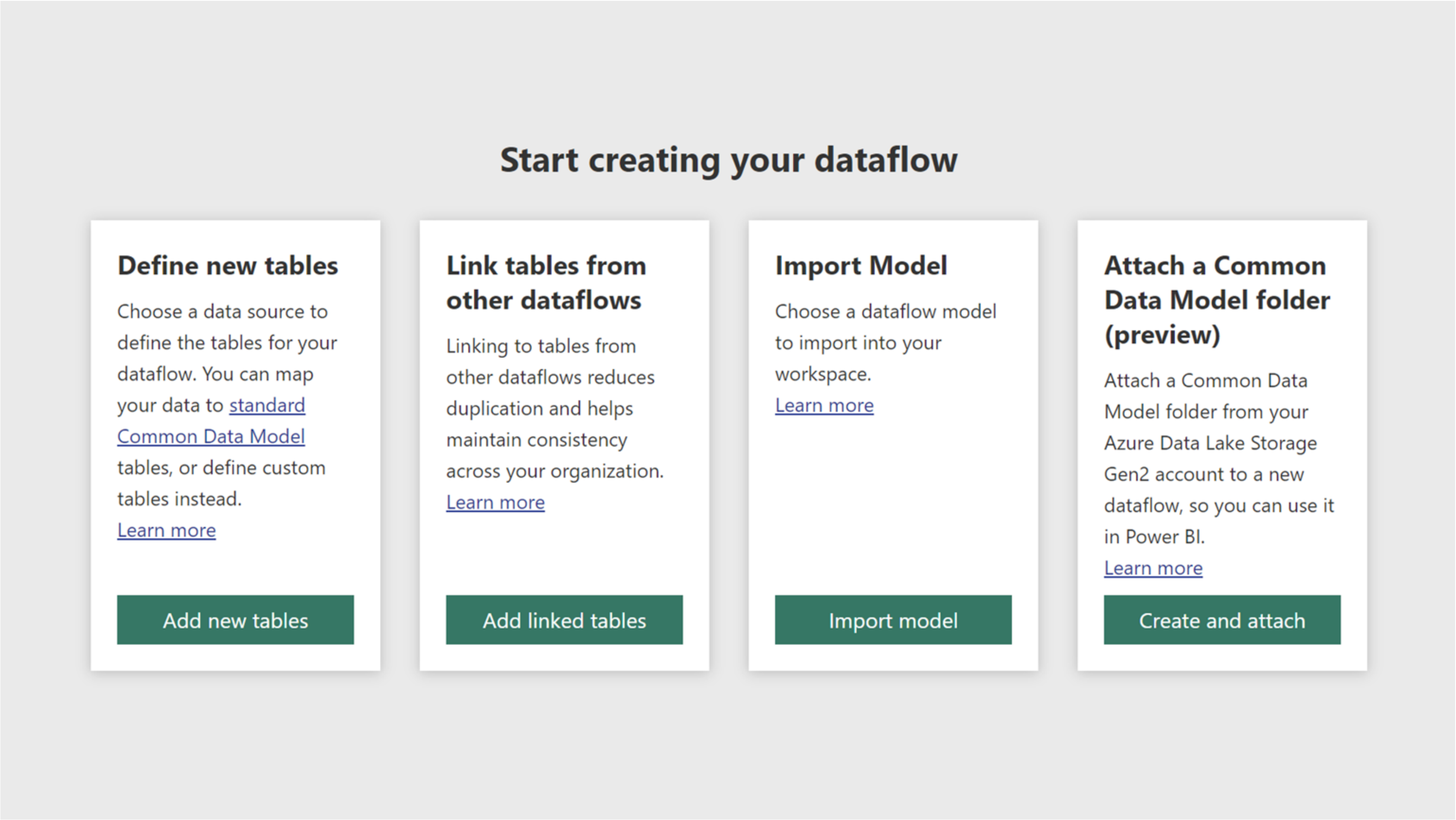
- You can connect to a dataflow from Desktop and publish to Service as a dataset



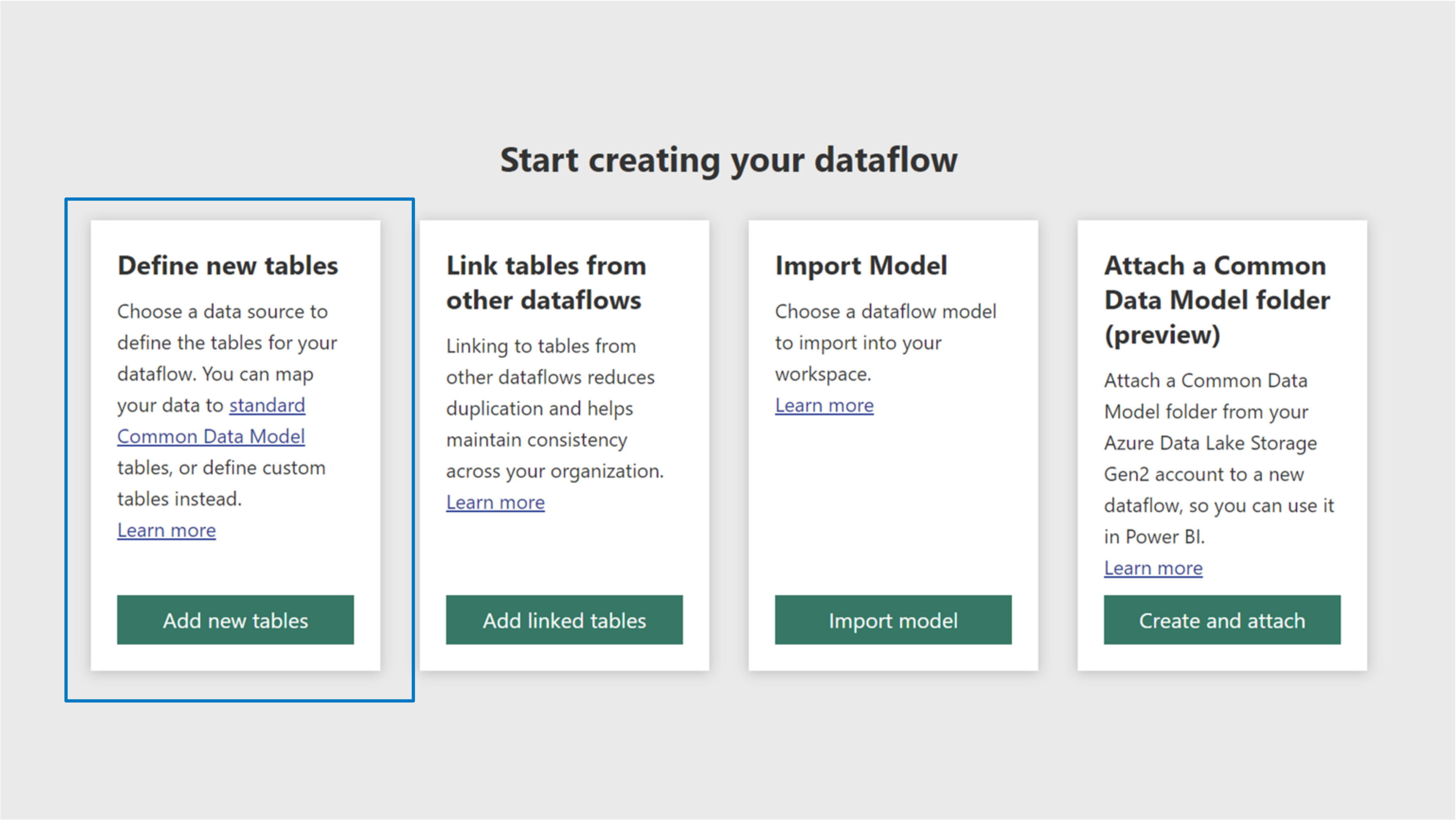
Connecting data
Dataflow



Connecting data
Creating a new Dataflow



Connecting data
Dataflow (Define new tables)

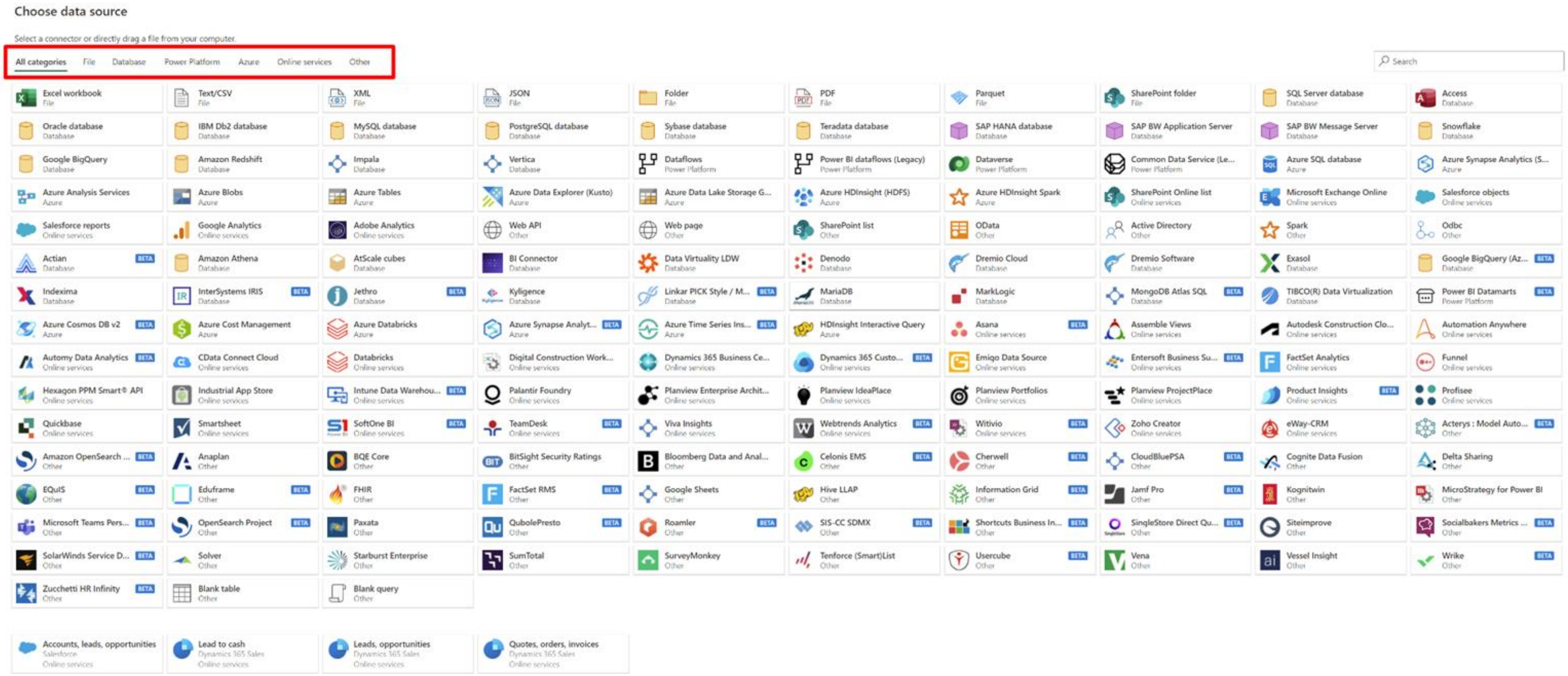


Connecting data

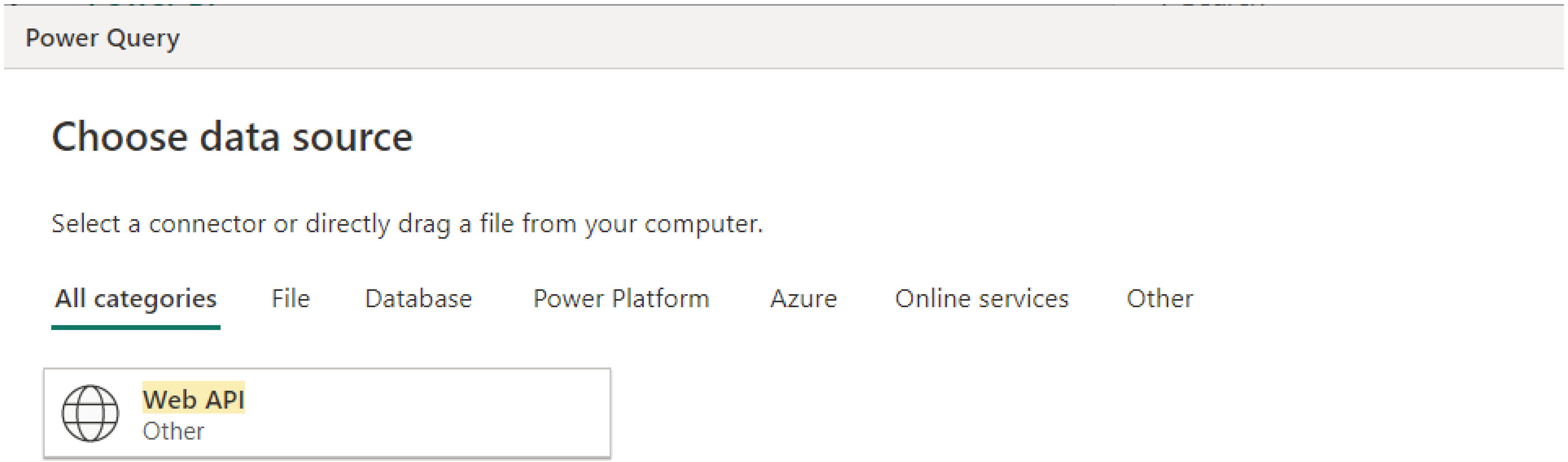
Dataflow (Define new tables)

MASTERING DATA ANALYTICS

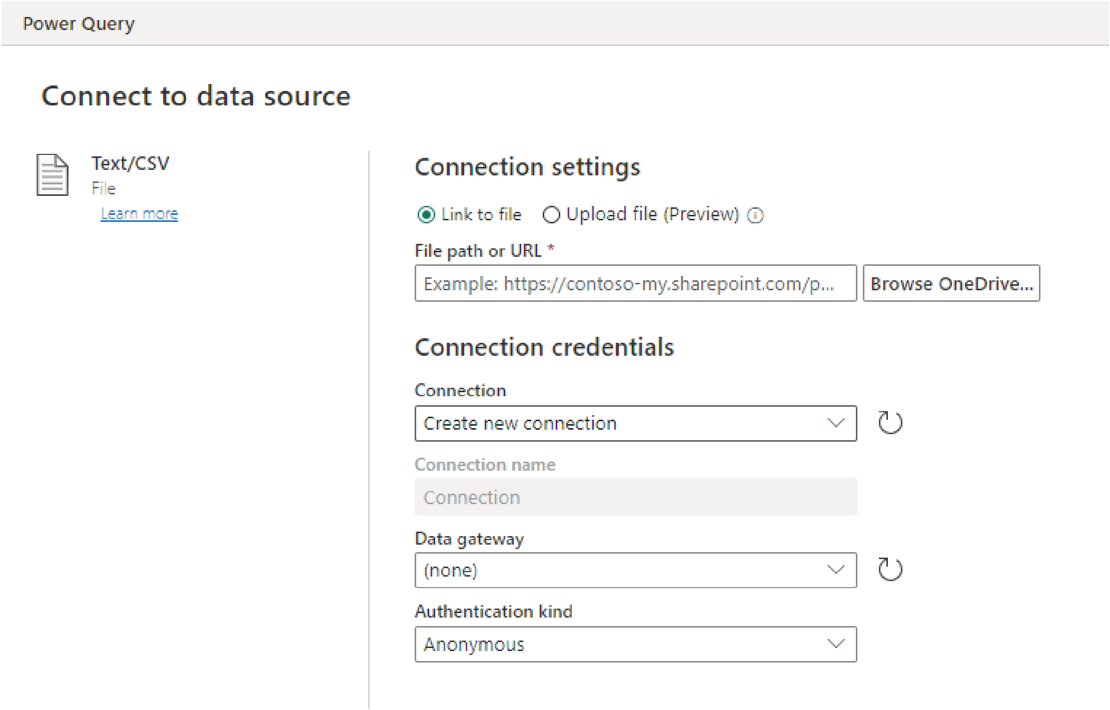
150+ sources Service vs 110+ sources Desktop

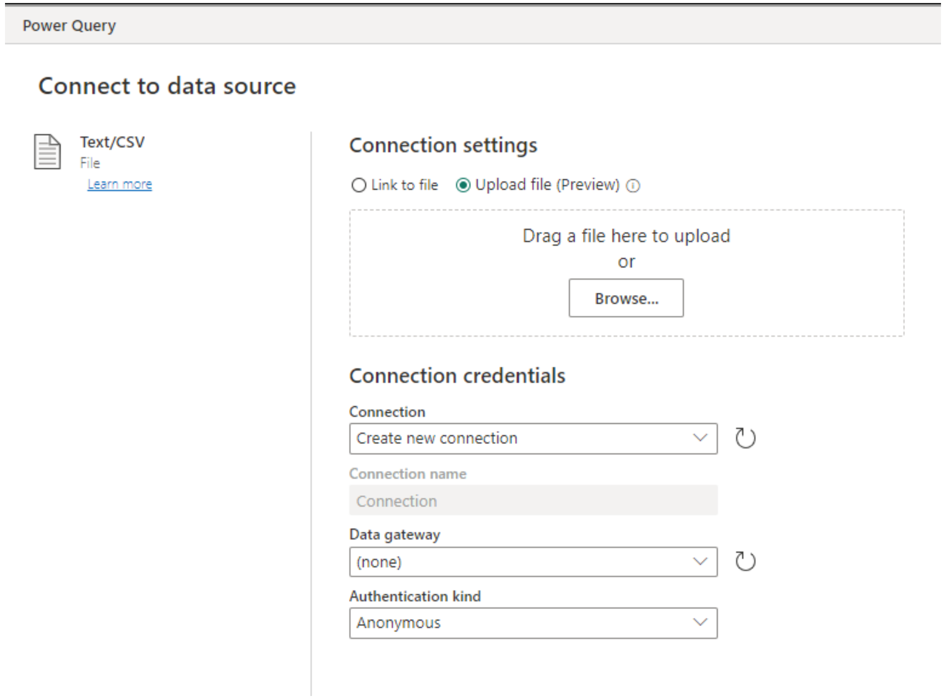


Connecting data
Dataflow (Define new tables)



Connecting data
Dataflow (Define new tables)

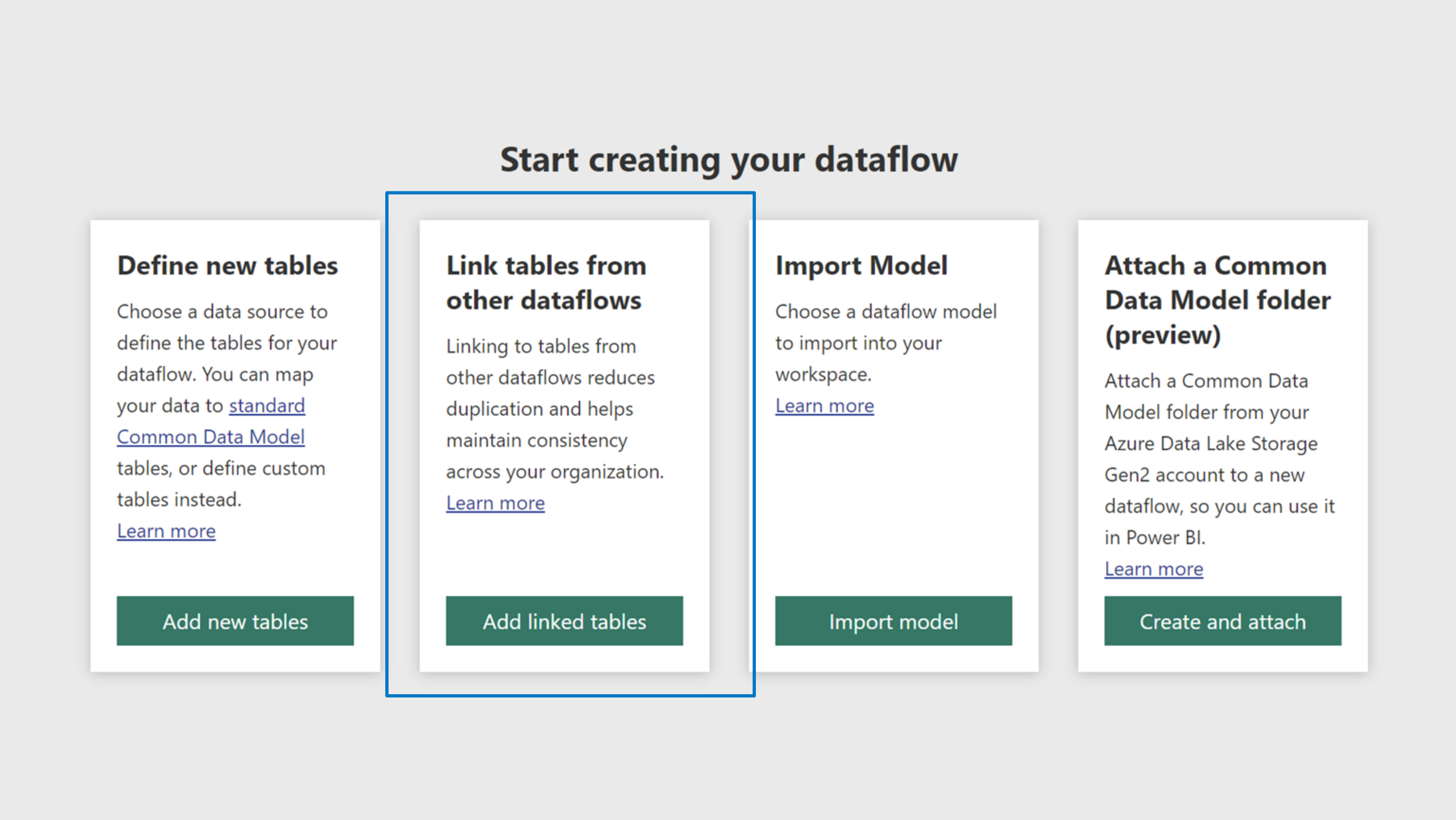




Link to file — or — Upload file

- File path (Local file) => Need Data Gateway
- URL (Onedrive) => Need Microsoft 365

Connecting data
Create a new dataflow



Connecting data
Link tables from other dataflow

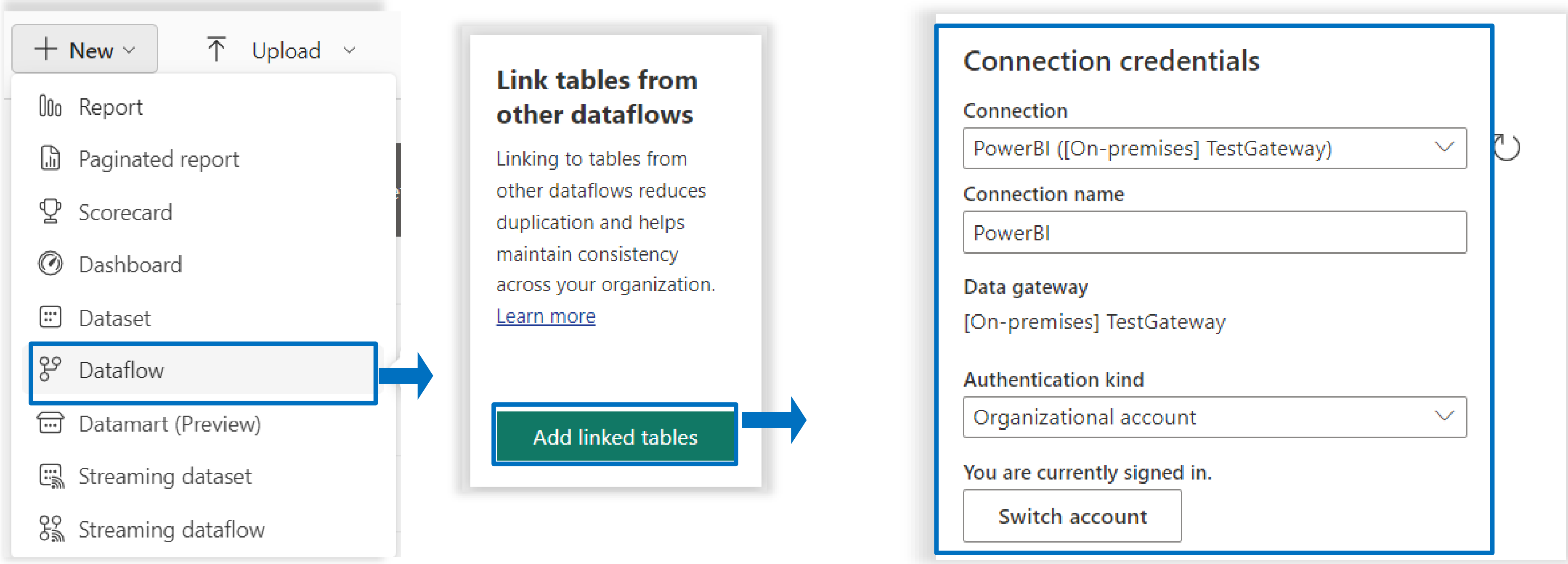
Creating a dataflow by using linked tables enables to reference an existing table, defined in another dataflow, in a read-only fashion

Some reasons to choose this approach:

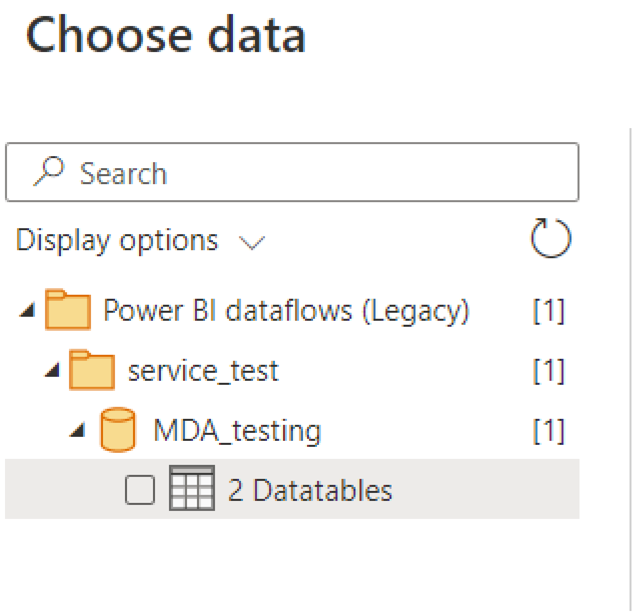
- ✓ Reusability: Create a table once and reference it across multiple dataflows for reuse, such as date tables or static lookup tables.
- ✓ Data source optimization: Use linked tables as a cache to avoid multiple refreshes to a data source, reducing the load on the underlying data source.
- ✓ Table merging: Linked tables facilitate merging or combining data from two tables efficiently.

Connecting data
Link tables from other dataflow

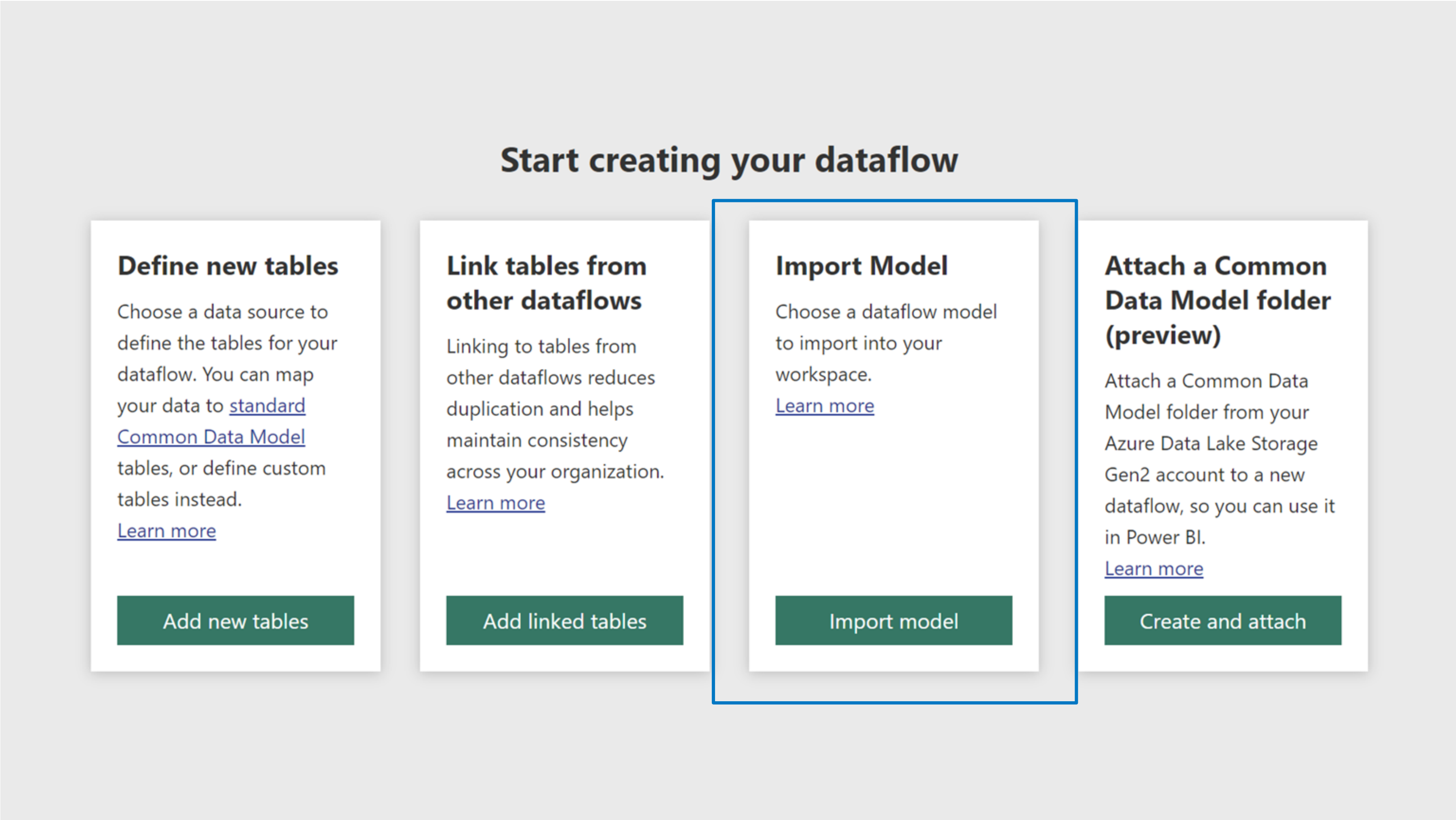
1 Create a **new dataflow** and config connection



2 Result

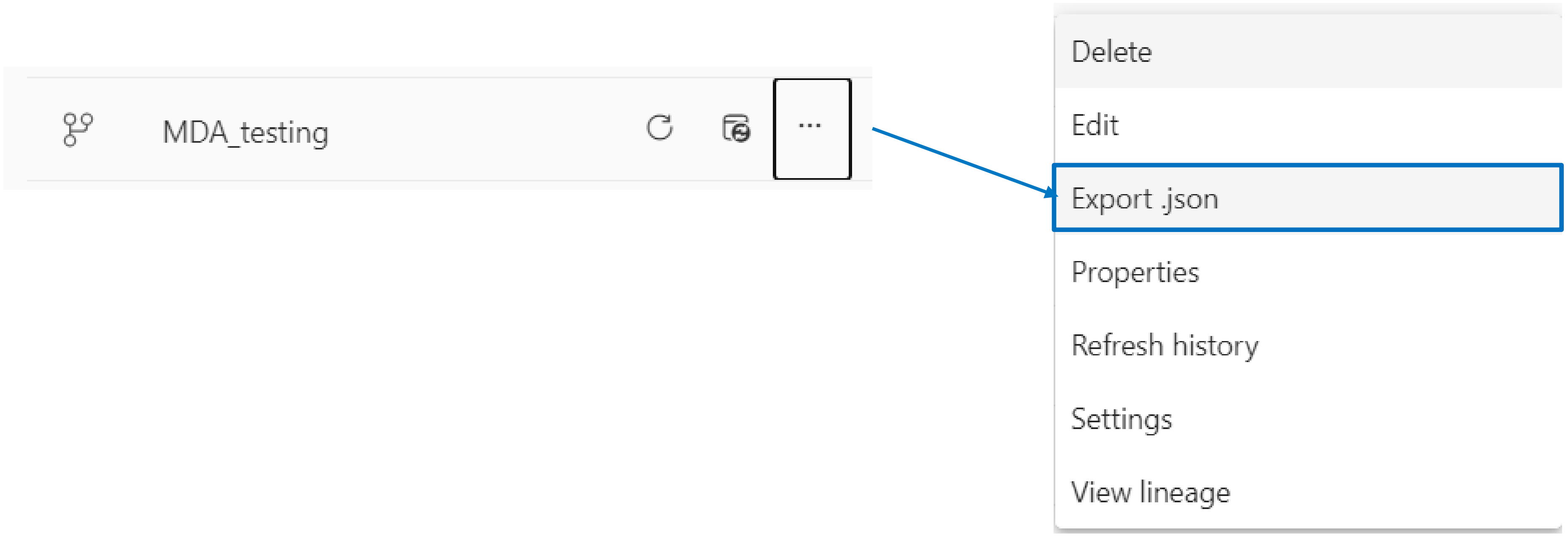

Choose data
Search
Display options
Power BI dataflows (Legacy) [1]
service_test [1]
MDA_testing [1]
2 Datatables

Connecting data
Create dataflow by Import Model



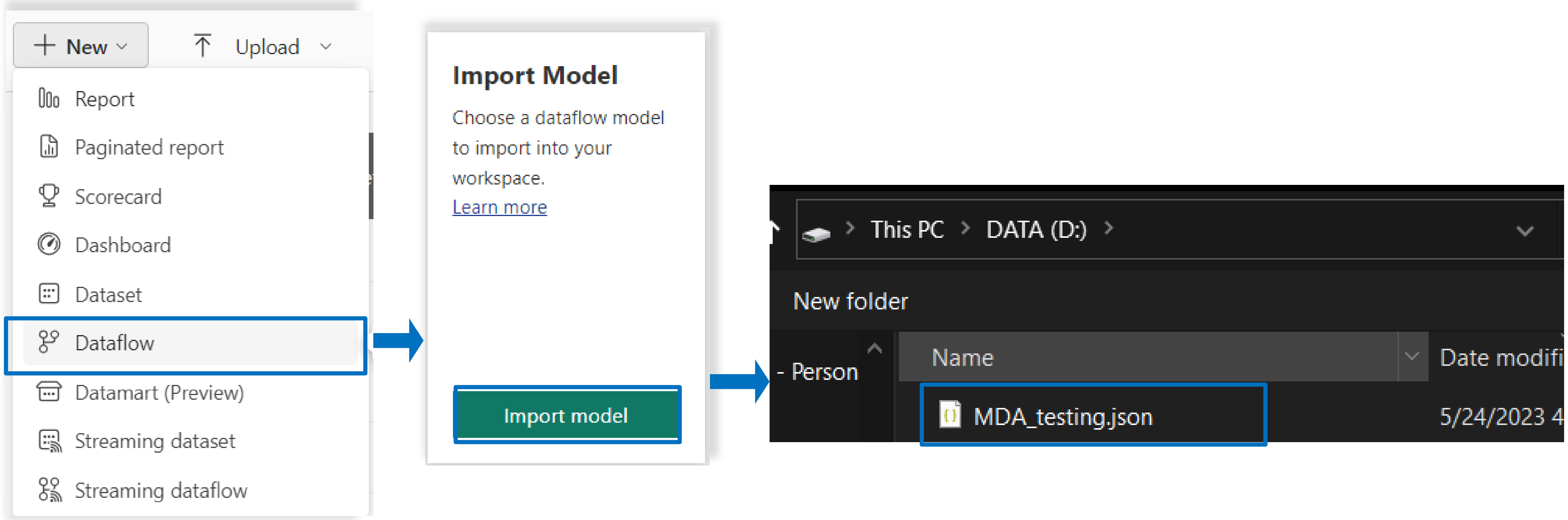
Connecting data
Create dataflow by Import Model

1 Export dataflow



Connecting data
Create dataflow by Import Model

2 Import dataflow



Connecting data
Create dataflow by Import Model

3 Result

MDA_testing

Search

Tables | Machine learning models

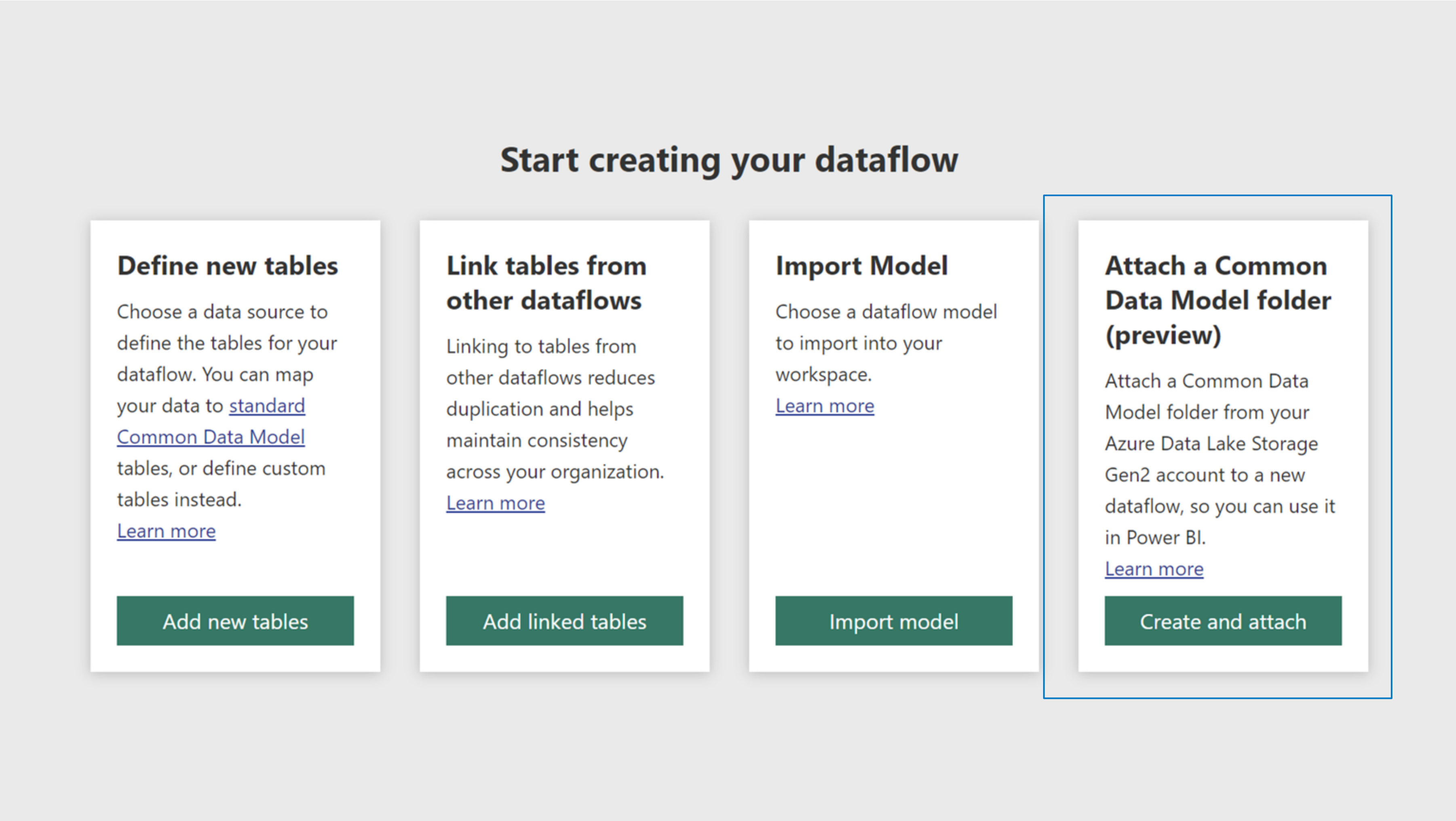
TABLE NAME

2 Datatables

COLUMN NAME	DATA TYPE
Name	String
Extension	String
Date accessed	DateTime
Date modified	DateTime
Date created	DateTime
Folder Path	String

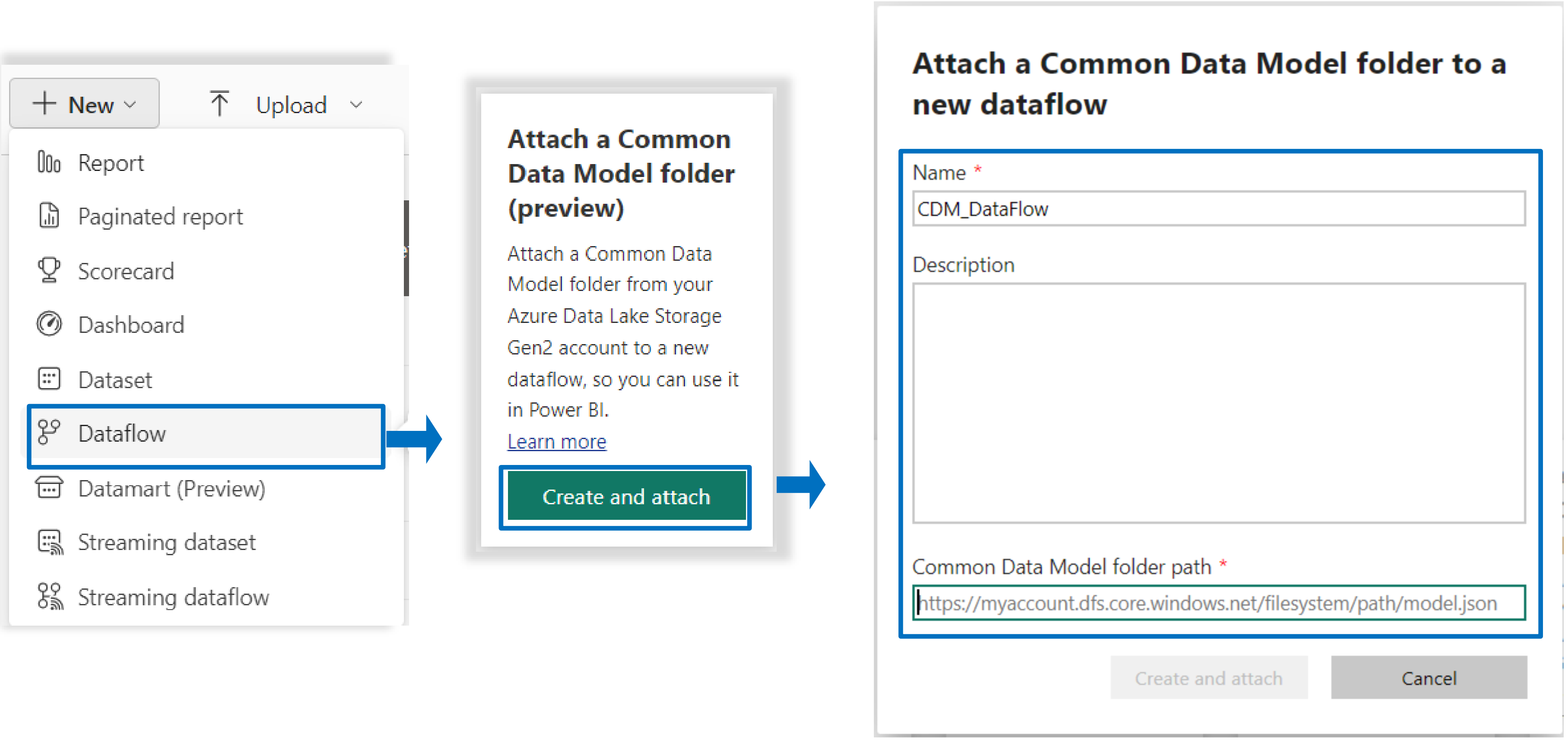
MASTERING DATA ANALYTICS

Connecting data
Create dataflow by CDM

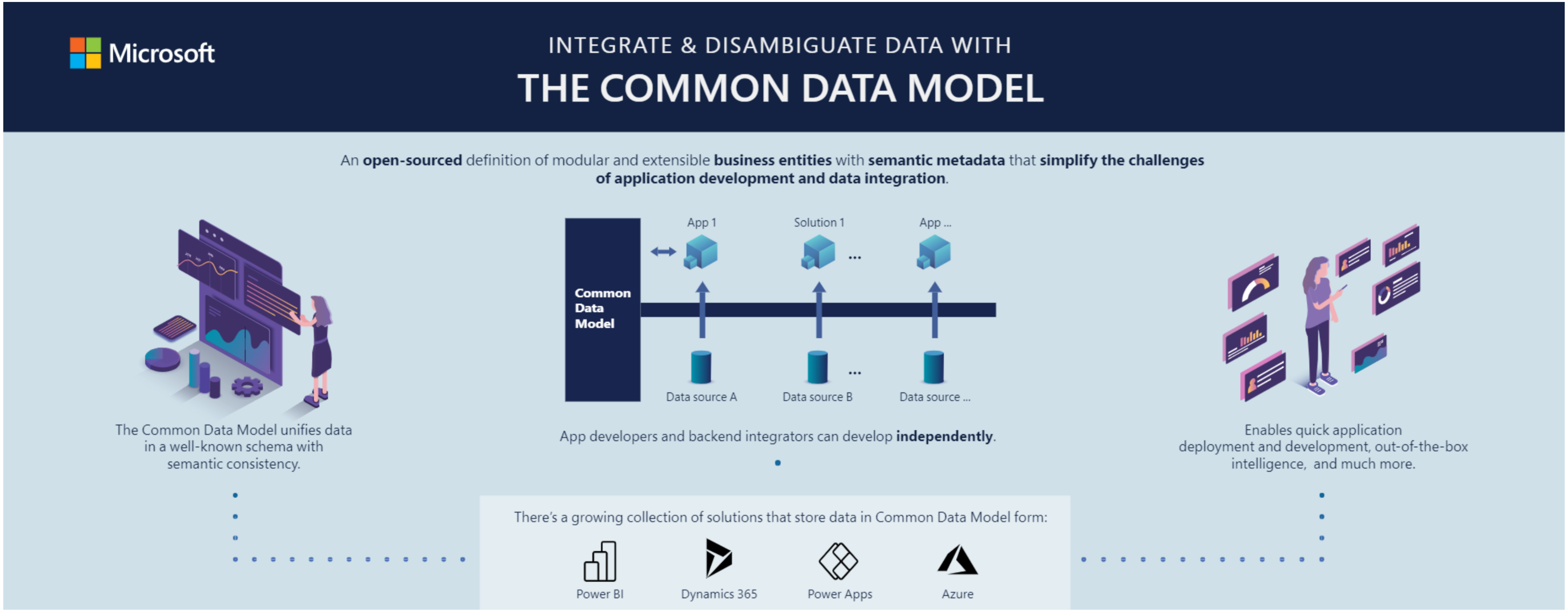


Connecting data
Create dataflow by CDM

1 Create and attach



Connecting data
Create dataflow by CDM



Connecting data on Workspace

Datamart

On My Workspace & Workspaces Pro, Premium: We practice to load data.

- From Dataset: Excel table, Csv, manual input.
- From Upload: Excel sheet, pbix, rld.
- From Streaming Dataset: API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace) (Premium)
- From Streaming Dataflow (pending)

Connecting data on Workspace
Introduction datamart

Datamart

Allows us to sort, filter, and aggregate data for ad-hoc analysis through SQL or the no-code Visual Query design, access the data through a SQL endpoint from supported programs and enable users who don't have access to Power BI Desktop to efficiently comb through your organization's data

USE CASE #1

Departmental self-service data

USE CASE #2

Relational database analytics with Power BI

USE CASE #3

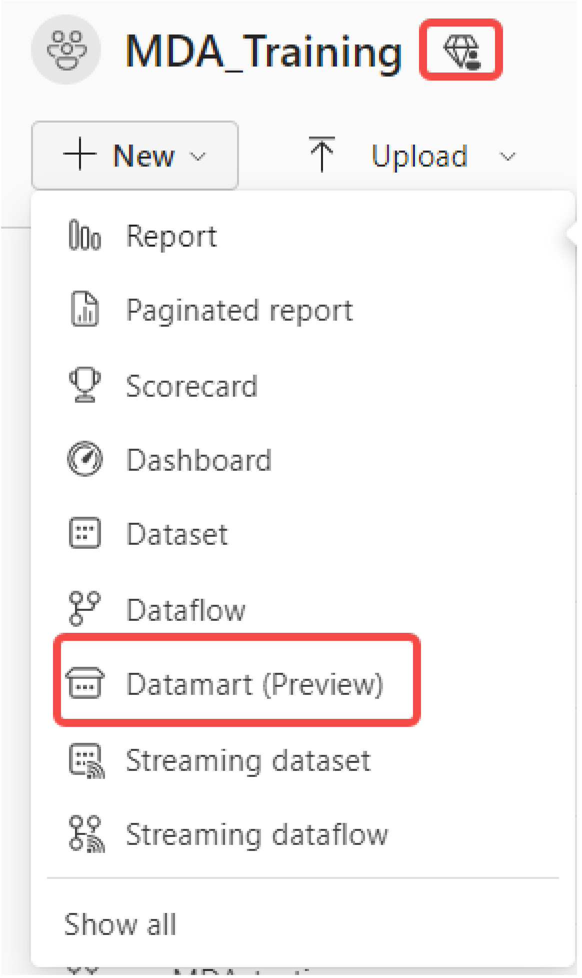
End-to-end semantic models

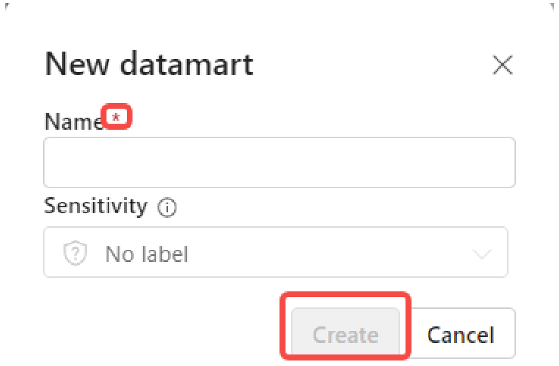
Datamart features:

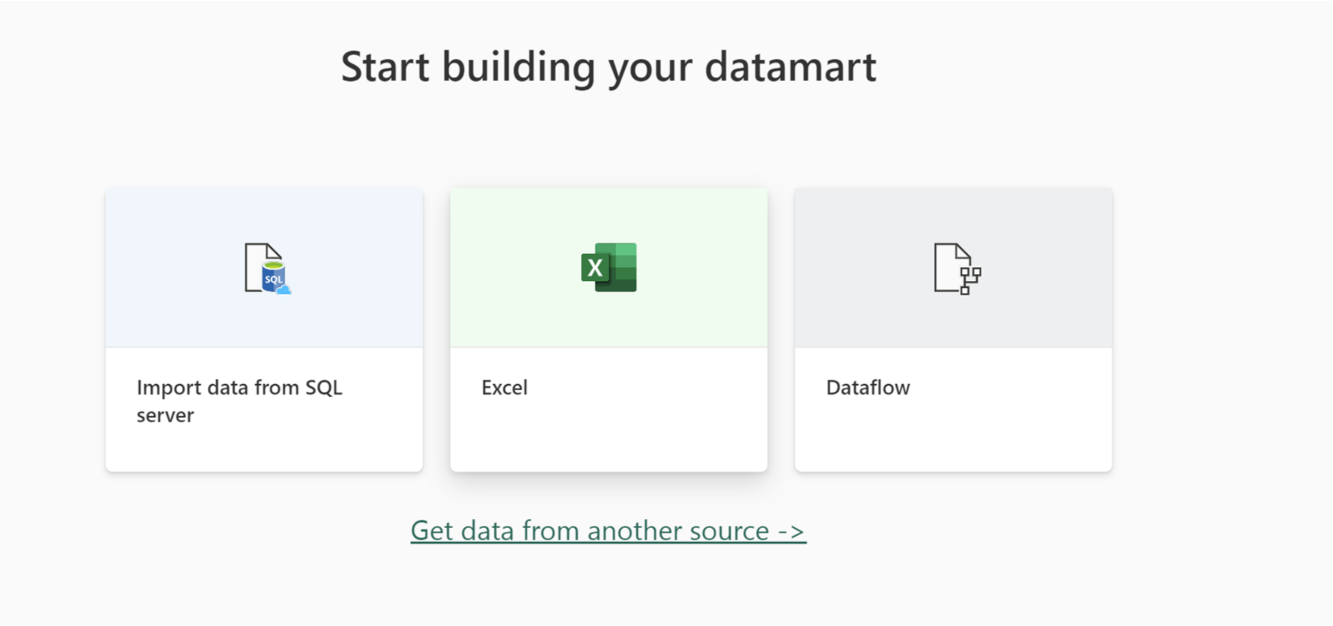
- 100% web-based, no other software required
- A no-code experience resulting in a fully managed datamart
- Automated performance tuning
- Built-in visual and SQL Query editor for ad-hoc analysis
- Support for SQL and other popular client tools
- Native integration with Power BI, Microsoft Office and other Microsoft analytics offerings
- Included with Power BI Premium capacities and Premium Per User

Connecting data on Workspace

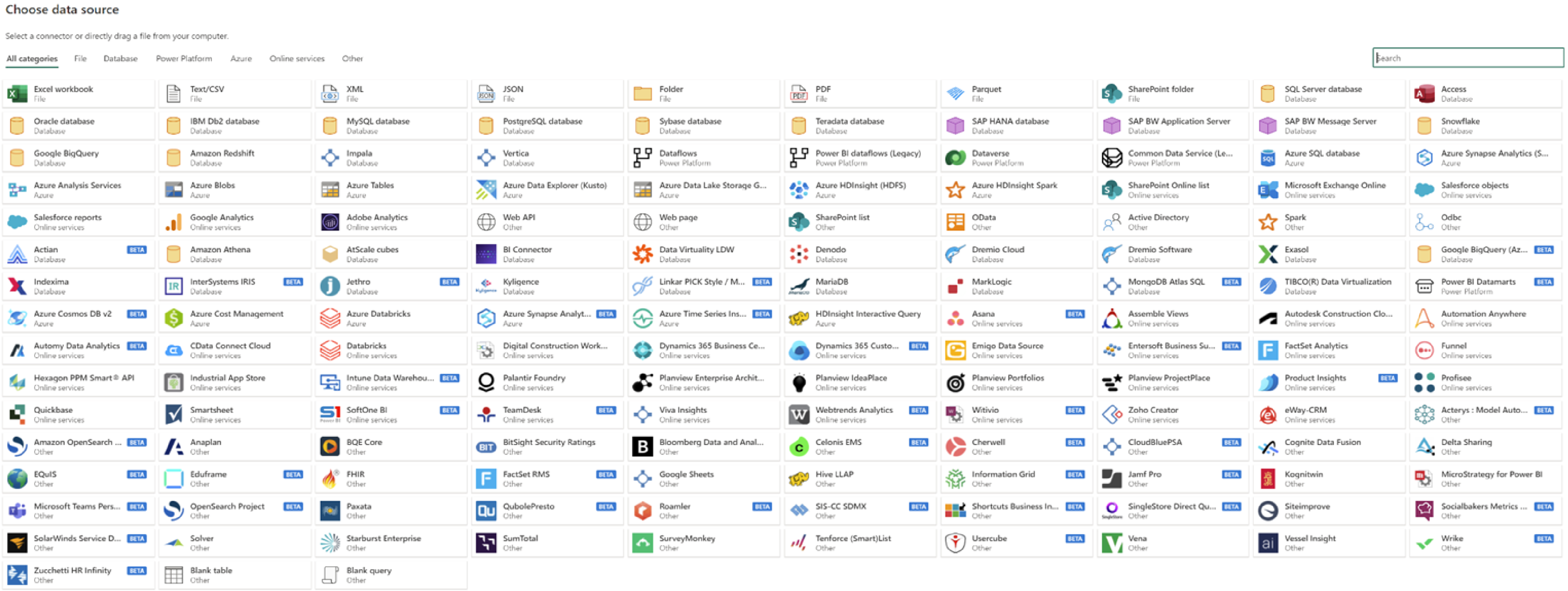
Creating Datamart



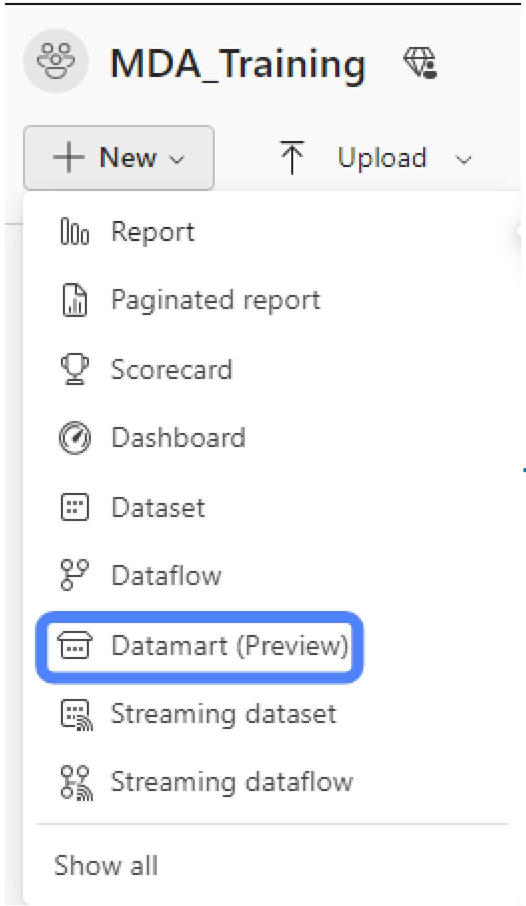


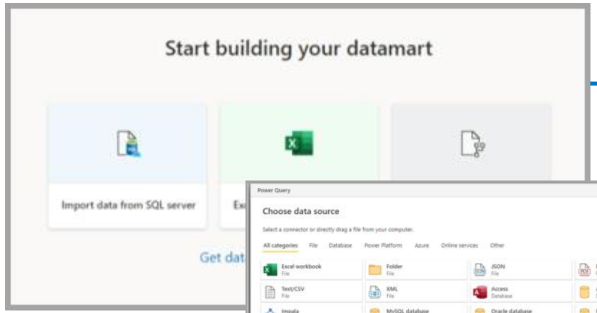


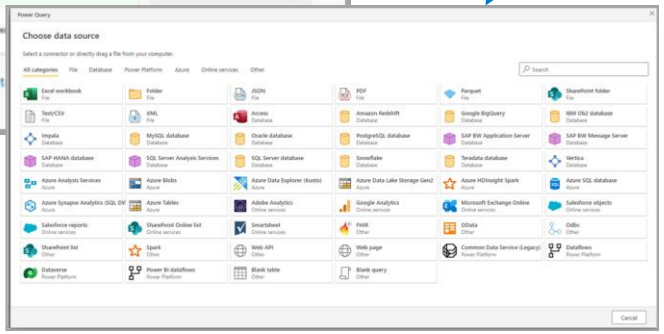
Connecting data on Workspace
Creating Datamart (Sources)

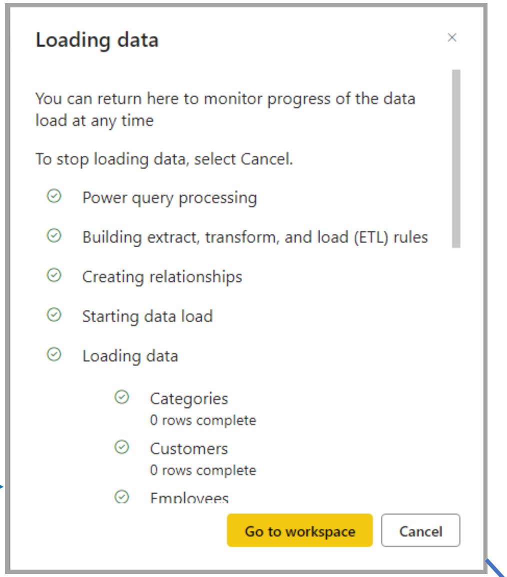


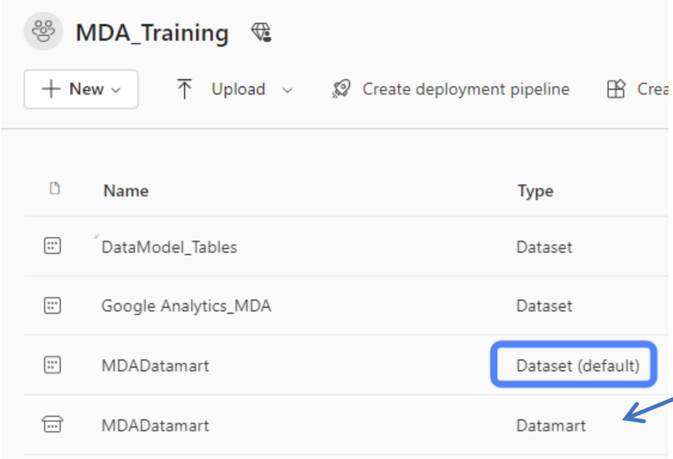
Connecting data on Workspace
Creating Datamart











HEY THIS IS IMPORTANT!

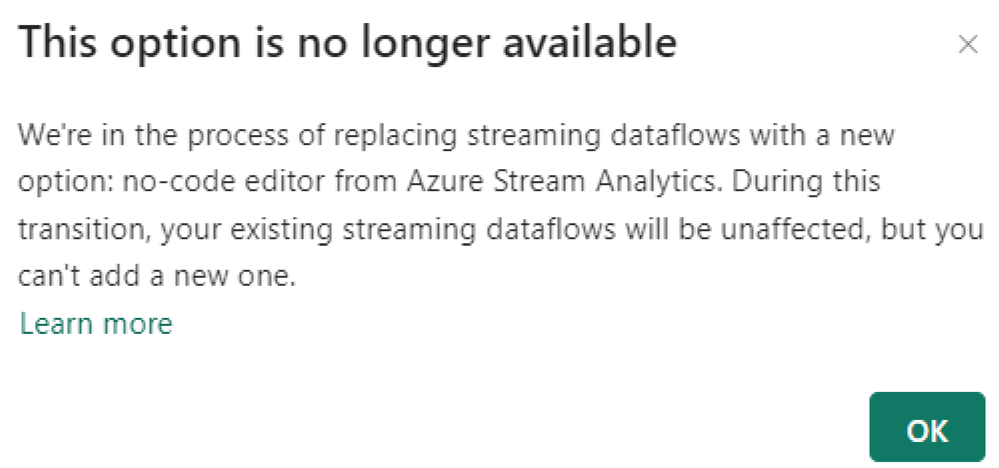
Auto-generated datasets from datamart

On My Workspace & Workspaces Pro, Premium: We practice to load data.

- From Dataset: Excel table, Csv, manual input.
- From Upload: Excel sheet, pbix, rld.
- From Streaming Dataset: API, PubNub, Azure Stream
- From Dataflow (Not available in My Workspace)
- From Datamart (Not available in My Workspace) (Premium)
- From Streaming Dataflow (pending)

Connecting data on Workspace
Streaming Dataflow

Convert to no-code



MASTERING DATA ANALYTICS

POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

PART 5: Report and Dashboard

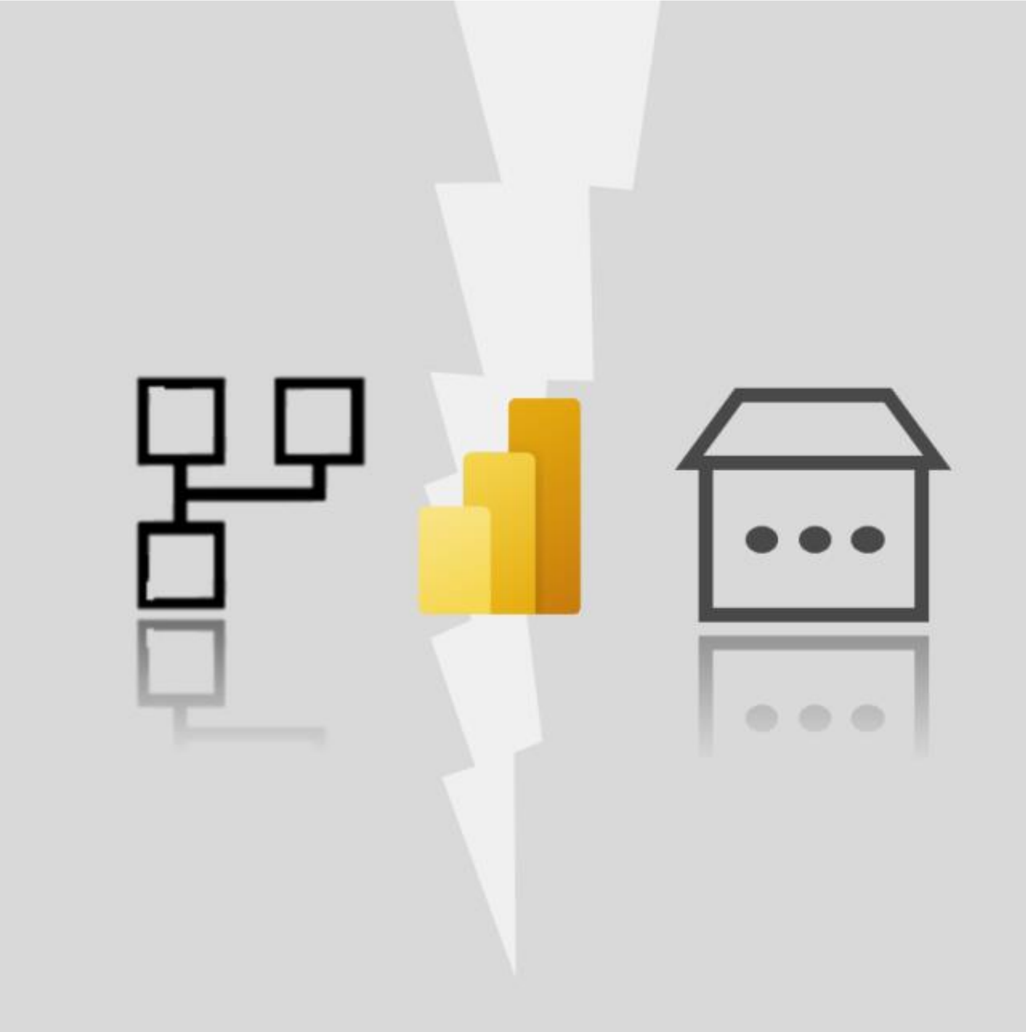
PART 6: Refresh, Scorecard & Metrics

PART 7: Sharing, Collaboration, (PBI Mobile)

PART 8: Deployment Pipelines

Prep data (On Pro & Premium)

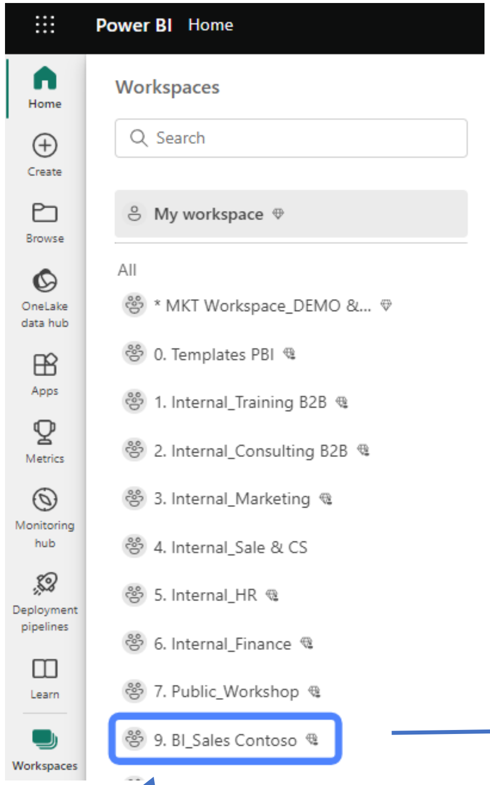
- **By Dataflow (Visual, M)**
- By Datamart (Visual, M, SQL)

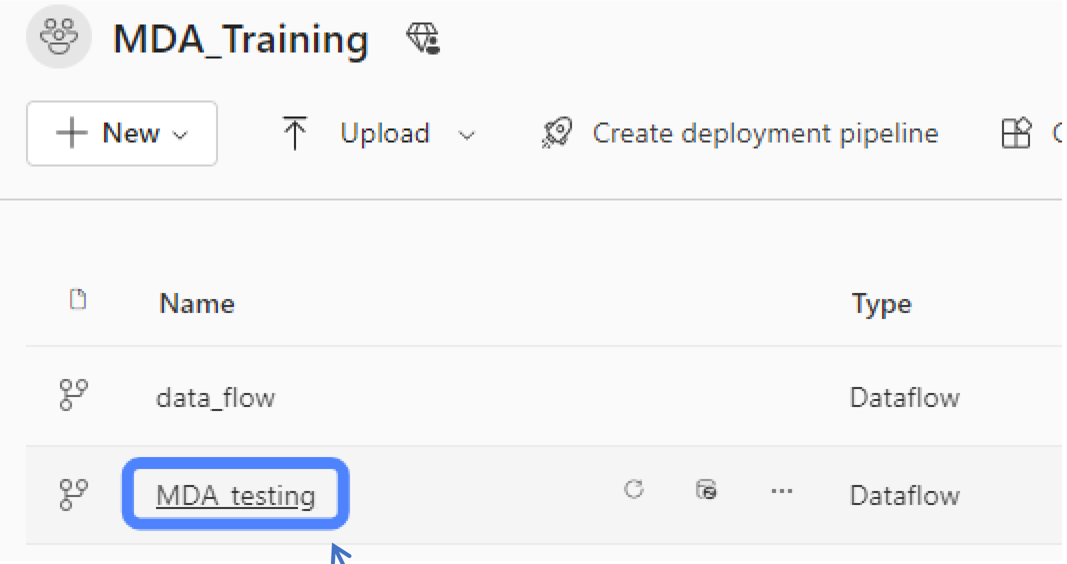


Prep data (On Pro & Premium)
By Dataflow

Open Dataflow

Open a workspace containing a dataflow and then click on the desired dataflow to open it





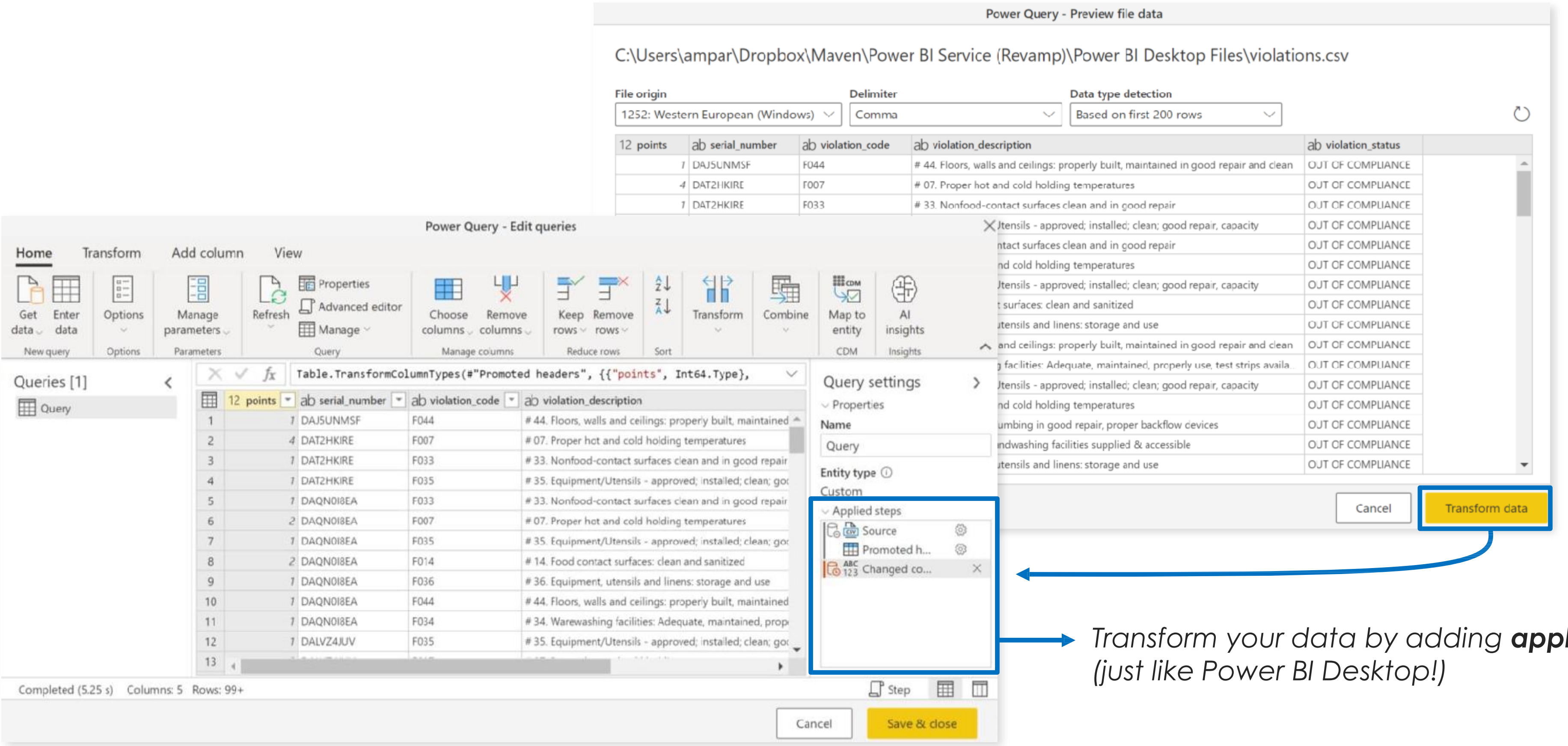
Prep data (On Pro & Premium)

By Dataflow

MASTERING DATA ANALYTICS

Use the Power Query editor to **clean** or **transform** the data prior to loading

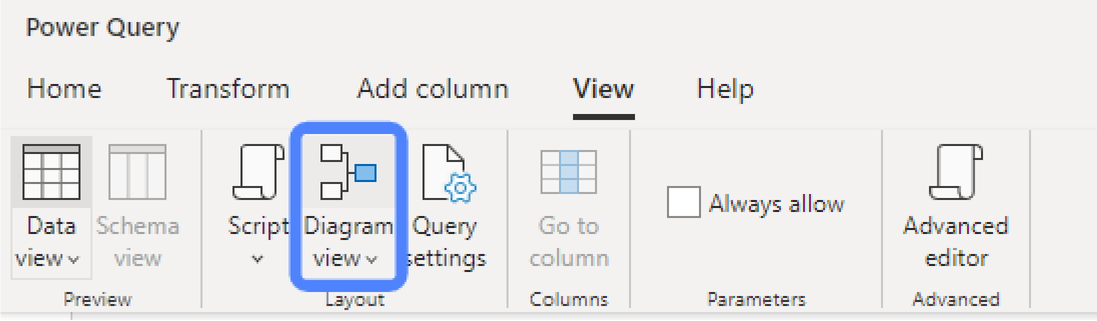
Data preview to ensure you're working with the right data



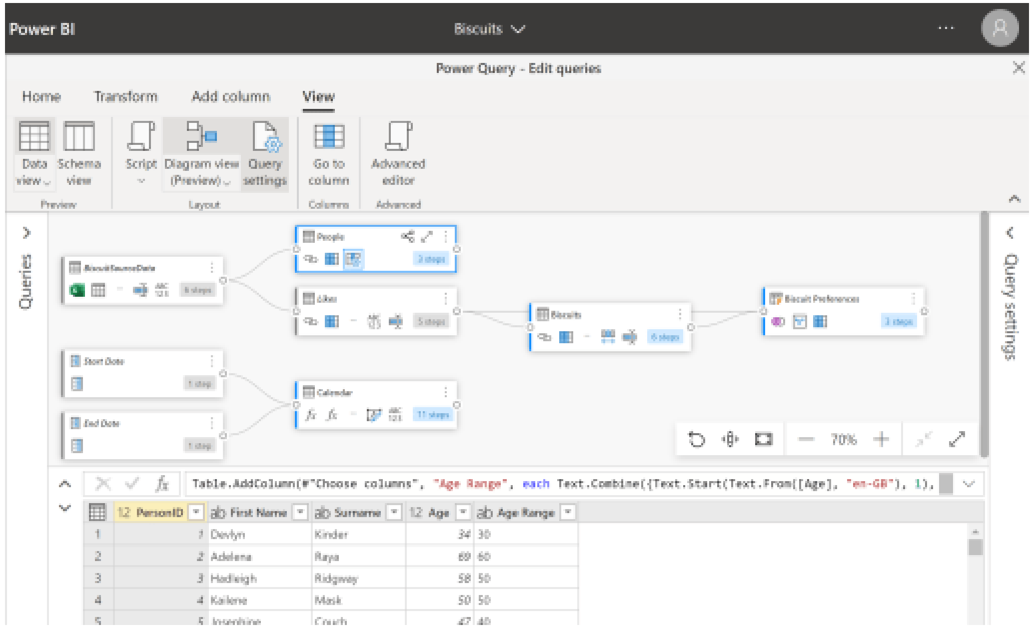
*Transform your data by adding **applied steps** (just like Power BI Desktop!)*

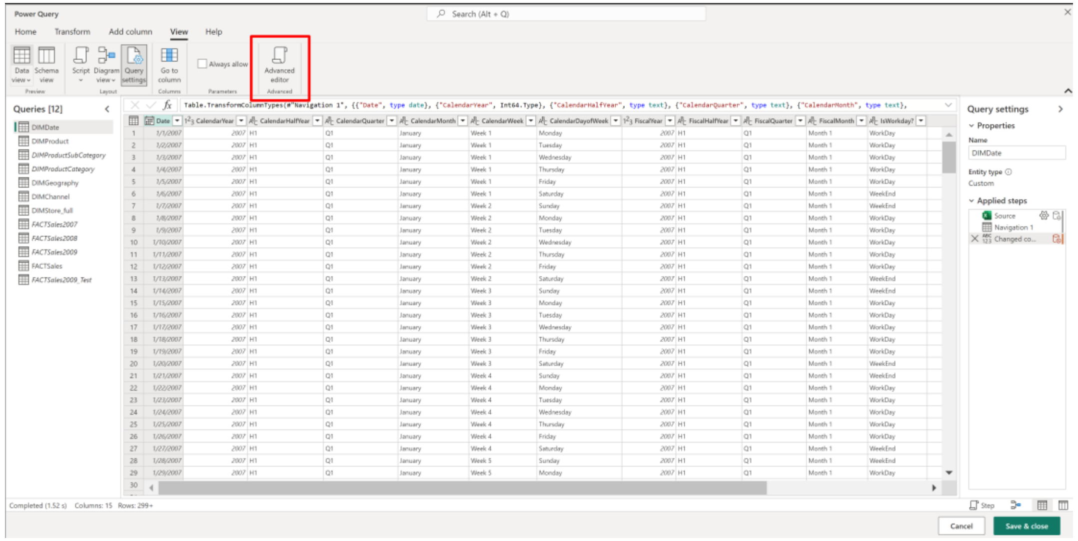
Prep data (On Pro & Premium)
By Dataflow

Special



How the queries and parameters relate within the dataflow.



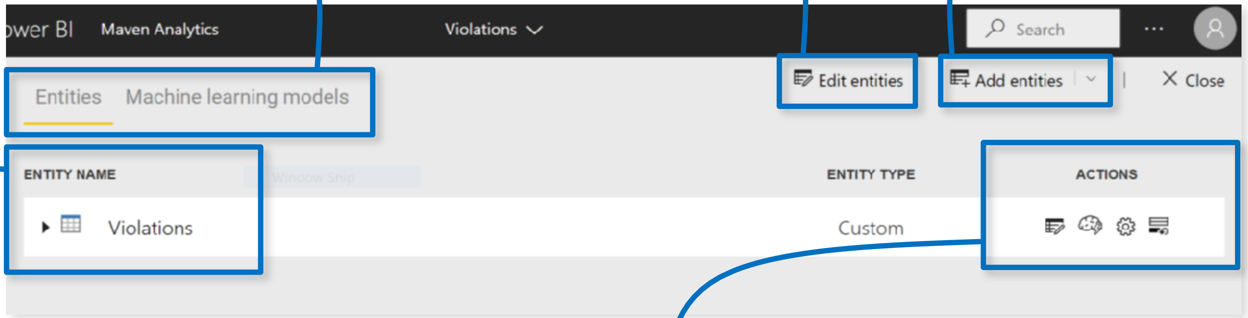


Prep data (On Pro & Premium)
Interface Dataflow

ENTITIES | MACHINE LEARNING MODELS
Switch between views to see your Entities & Machine Learning Models

EDIT ENTITIES
Opens Power Query in the cloud to enable edits & updates

ADD ENTITIES
Add a new or linked entity to your dataflow



ENTITY NAME
Expand to see a list of the columns contained within the entity

EDIT ENTITIES
Opens Power Query in the cloud and links to selected entity to enable edits & updates

APPLY ML MODEL
Apply a defined machine learning model to the selected entity

PROPERTIES
Add a description of your entity to add additional context

INCREMENTAL REFRESH
Configure an incremental refresh policy for your entity defining row storage and refresh

Note: Requires Premium Workspace

Prep data (On Pro & Premium)

Interface Dataflow – Auto AI Model

Data prep, modeling, and visualization		
Model memory size limit[5]	1 GB	100 GB
Refresh rate	8/day	48/day
Connect to more than 100 data sources	●	●
Create reports and visualizations with Power BI Desktop[4]	●	●
Embed APIs and controls	●	●
AI visuals	●	●
Advanced AI (text analytics, image detection, automated machine learning)		●
XMLA endpoint read/write connectivity		●

Prep data (On Pro & Premium)
Interface Dataflow – Auto AI Model

Select a column to predict — Choose a model — Select data to study — Name and train

Choose a model

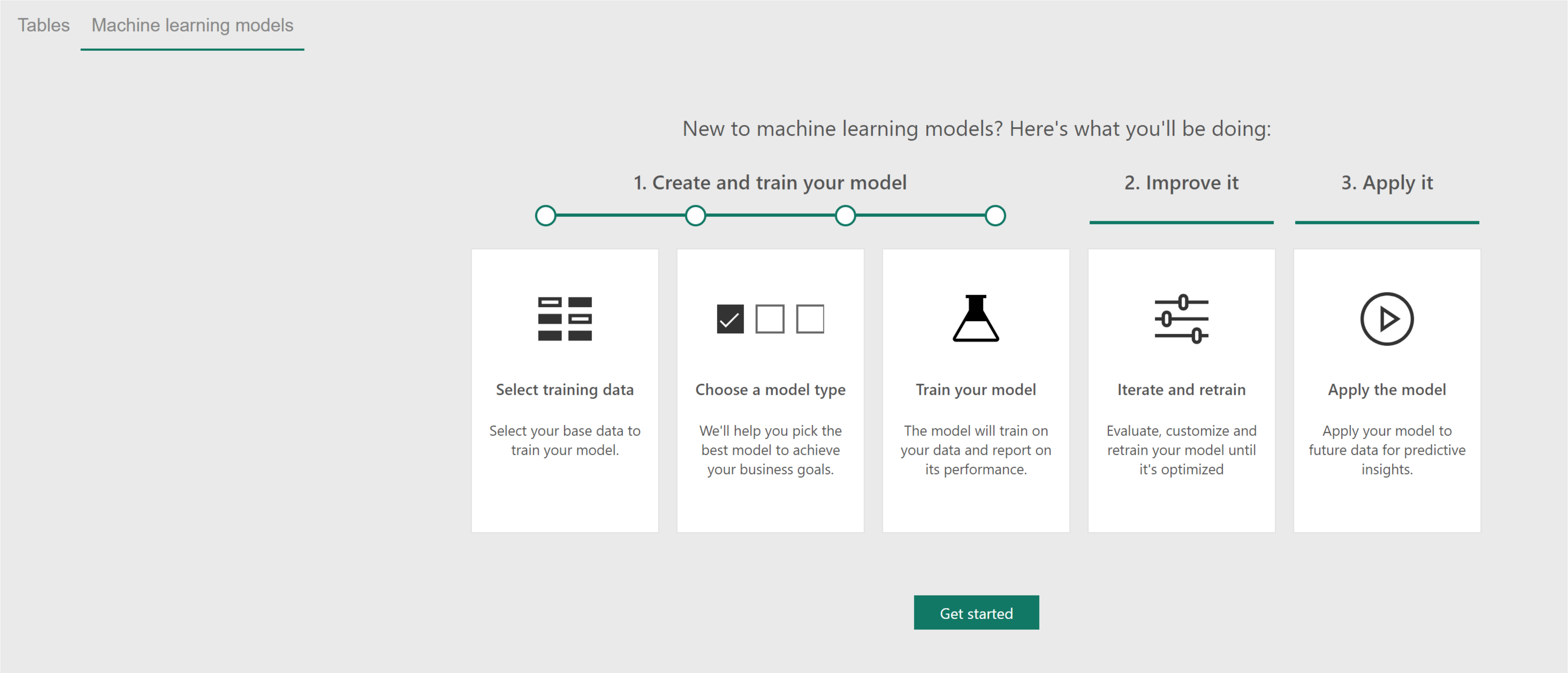
Classification | **Regression**

Binary Prediction
Predict whether or not an outcome will be achieved.

General Classification
Distinguish between three or more outcomes.

Regression
Estimate a numeric value.

Prep data (On Pro & Premium)
Interface Dataflow – Auto AI Model

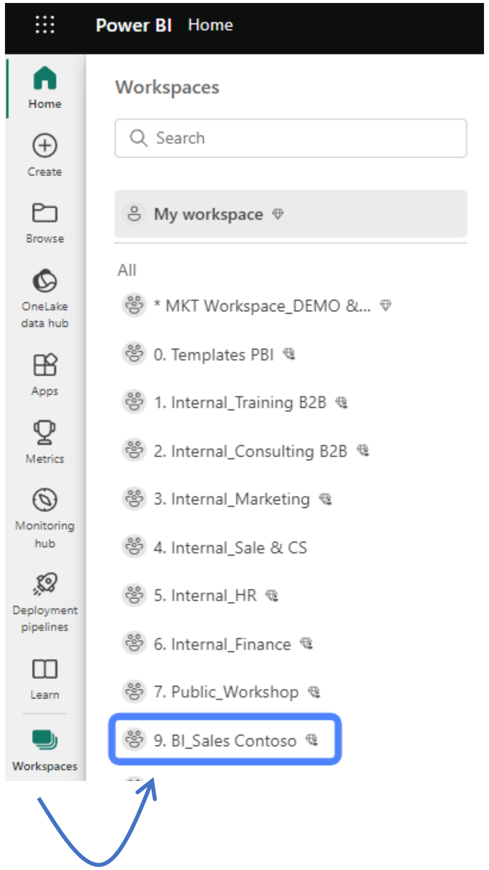


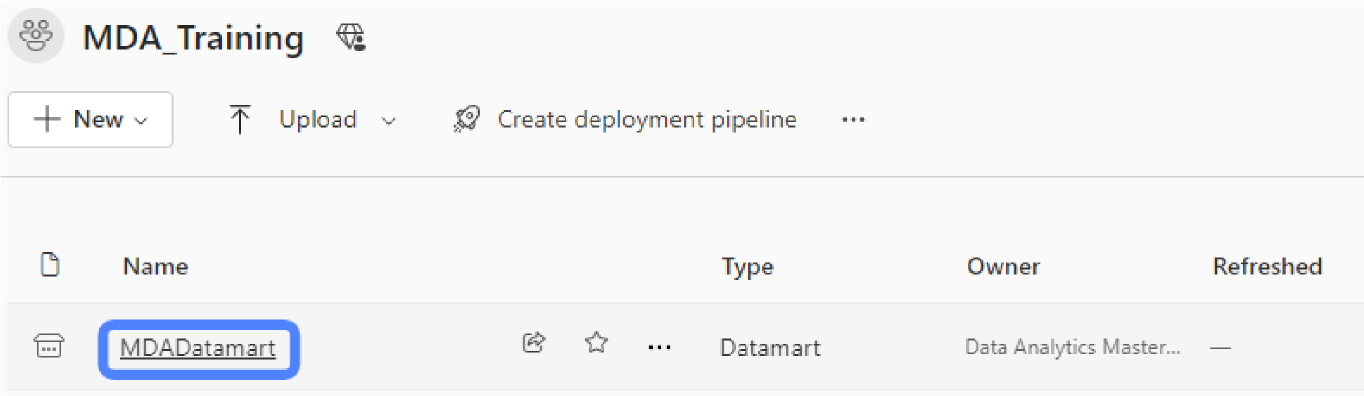
Prep data (On Pro & Premium)

- By Dataflow (Visual, M)
- **By Datamart (Visual, M, SQL)**

Prep data (On Pro & Premium)

Open Datamart

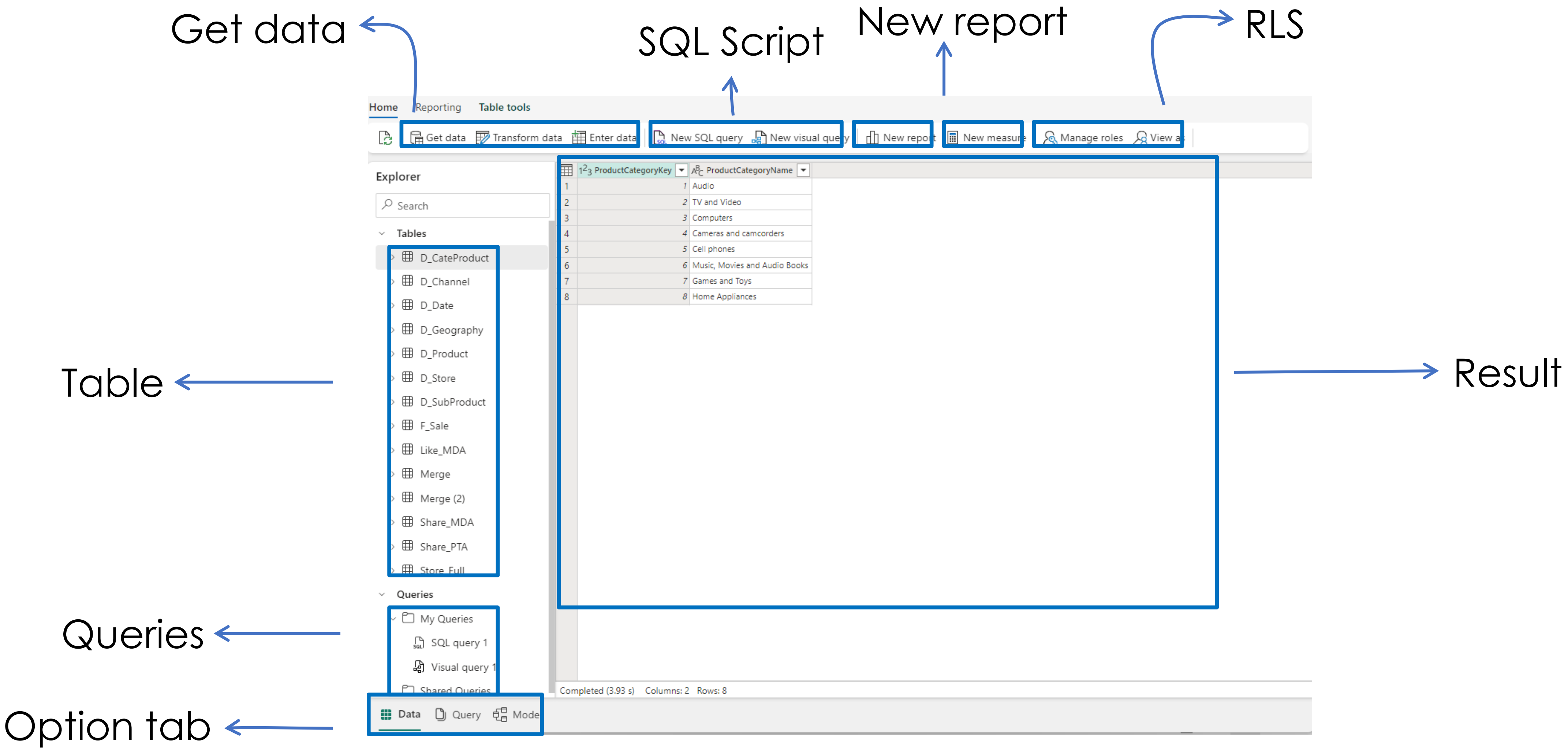




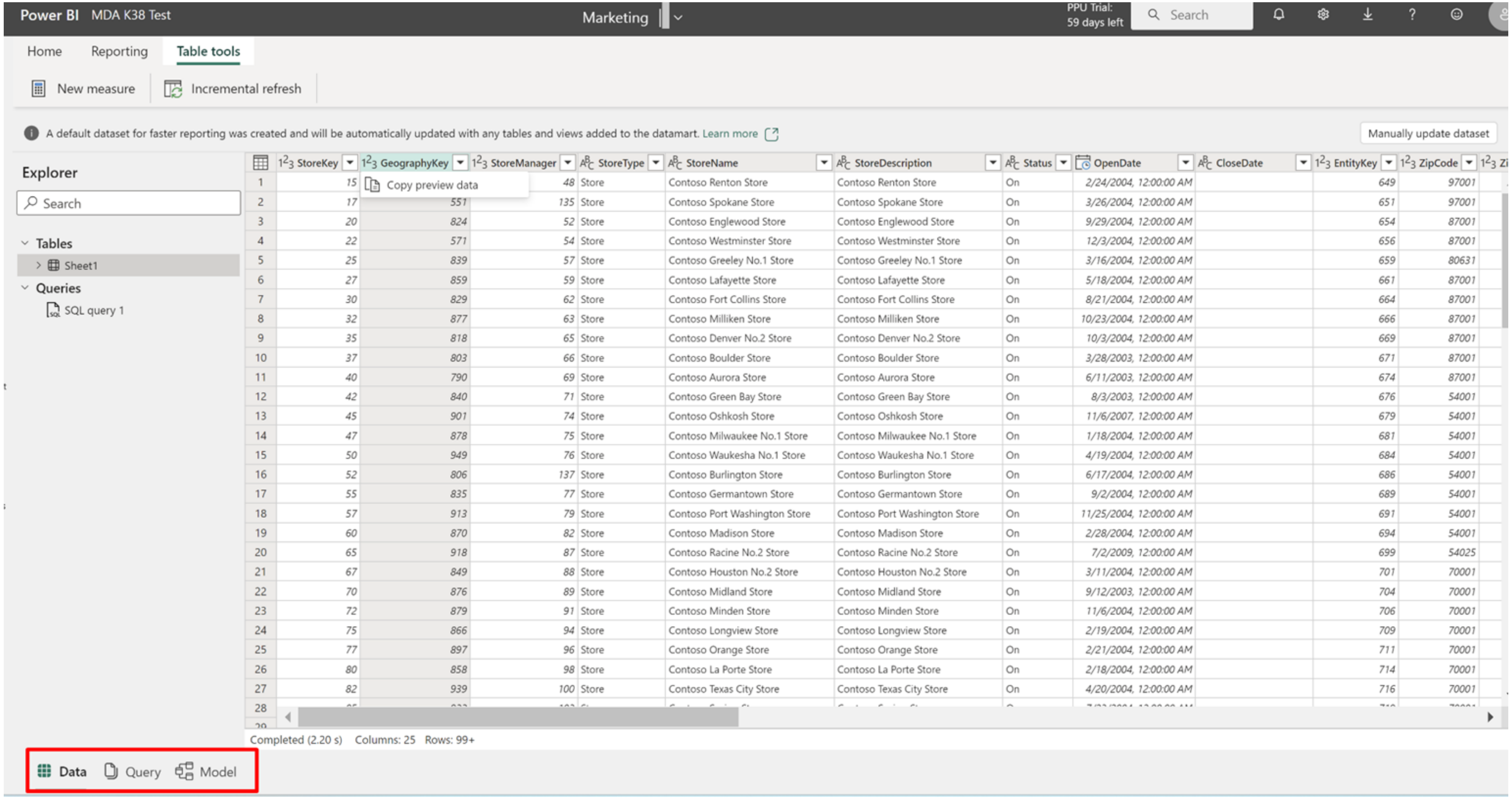
Open a workspace containing a datamart and then click on the desired datamart to open it

Prep data (On Pro & Premium)
By Datamart

MASTERING DATA ANALYTICS

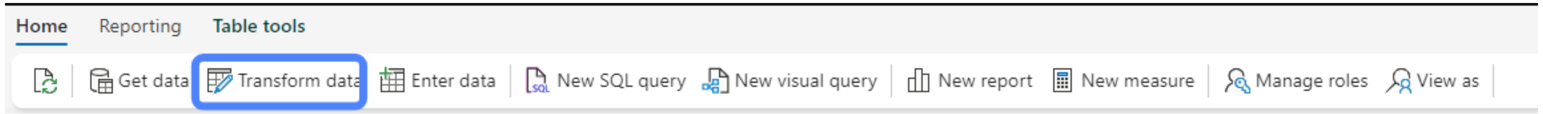


Prep data (On Pro & Premium)
By Datamart

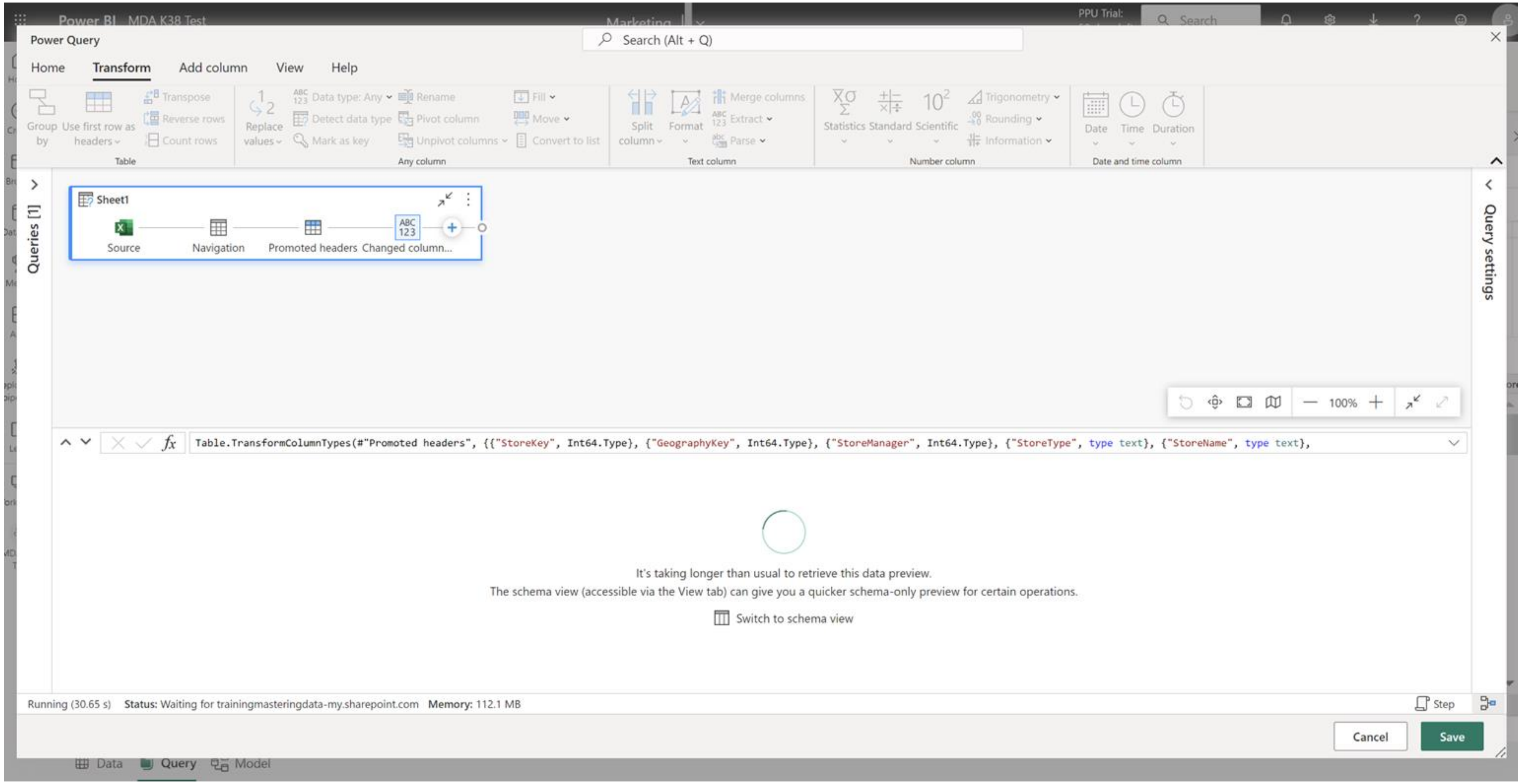


Prep data (On Pro & Premium)

By Datamart

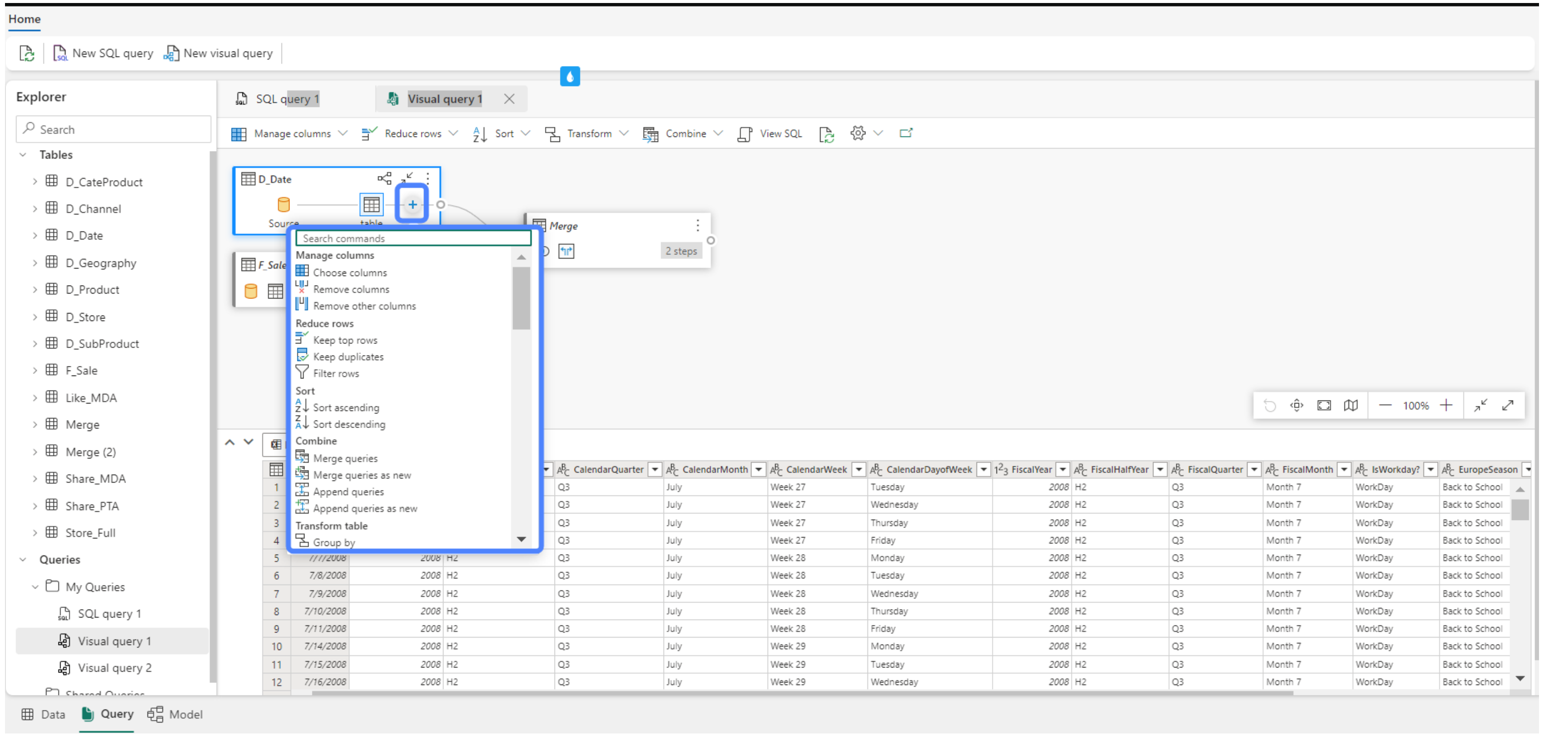


Same to Dataflow (Transform)



Prep data (On Pro & Premium)
By Datamart

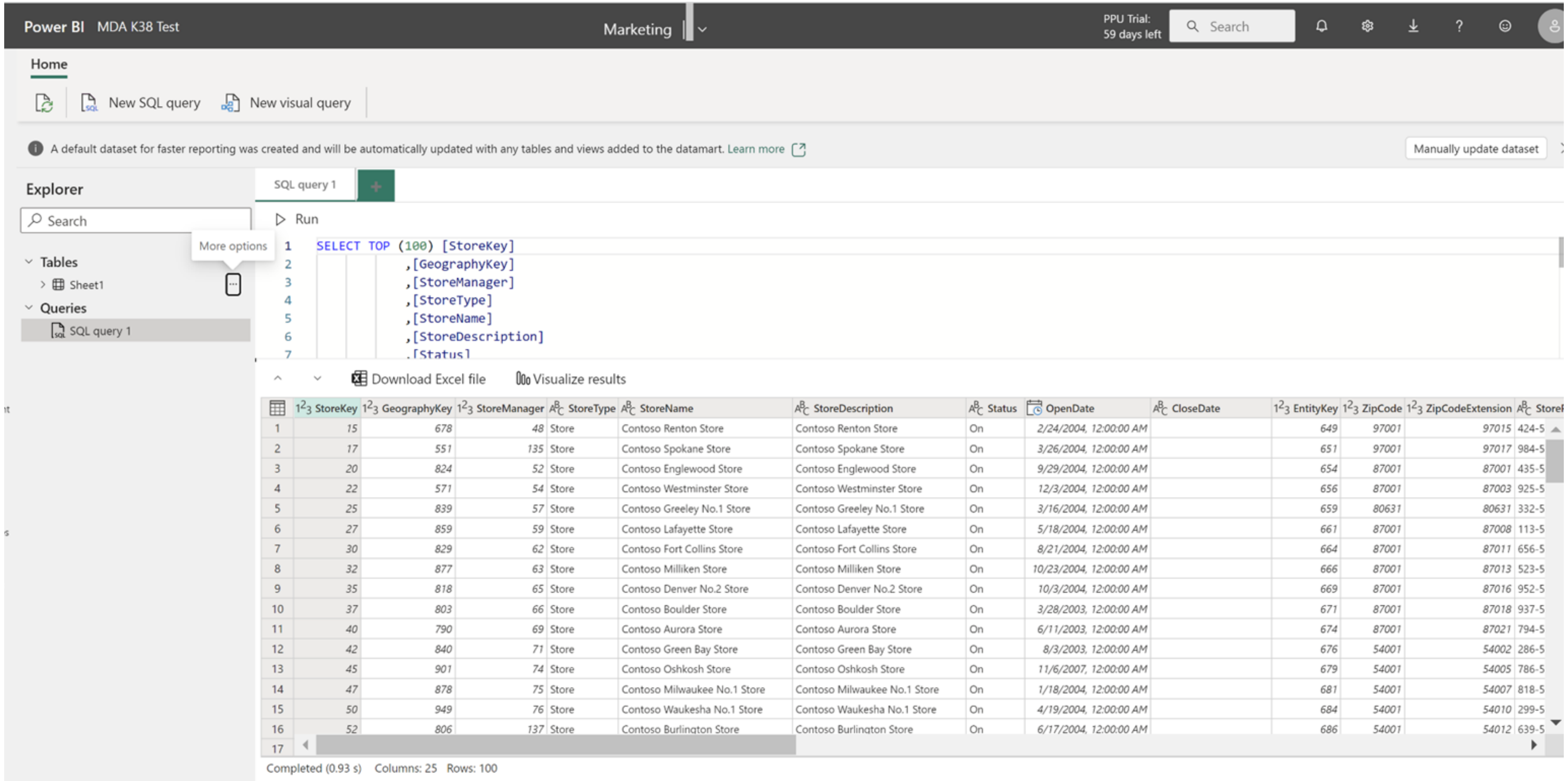
You can use the **Datamart editor** to create queries to analyze your data. You can use the Visual Query editor for a no-code experience to create your queries



Prep data (On Pro & Premium)

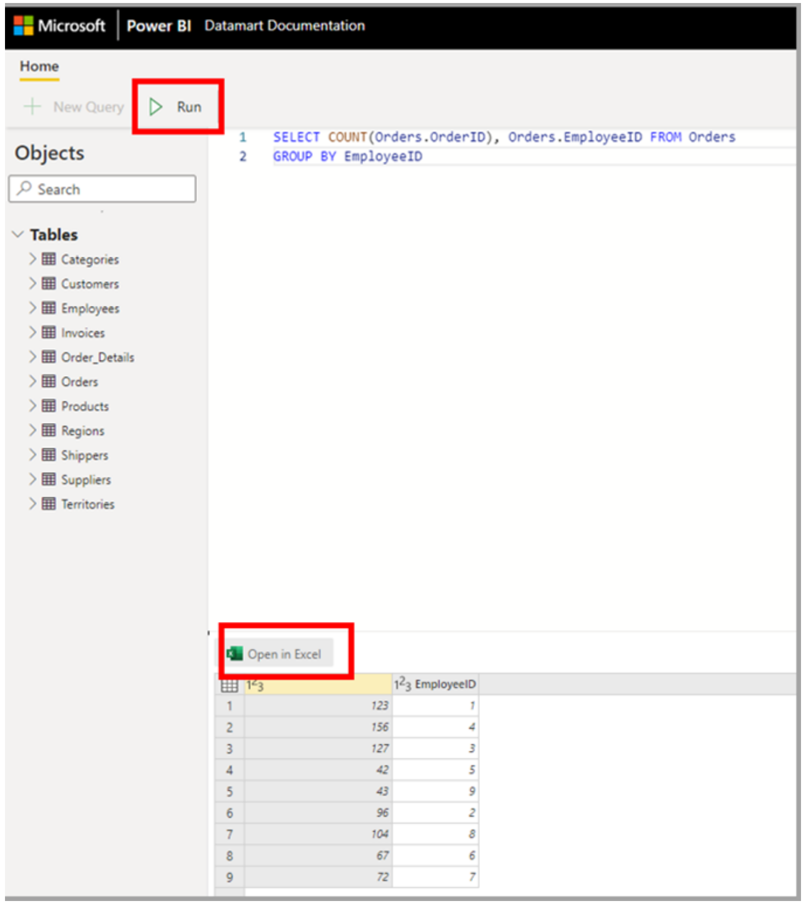
By Datamart

The **SQL Query Editor** provides a text editor to write queries using T-SQL. To access the built-in SQL query editor, select the **SQL query editor view** icon located at the bottom of the datamart editor window



Prep data (On Pro & Premium)
By Datamart

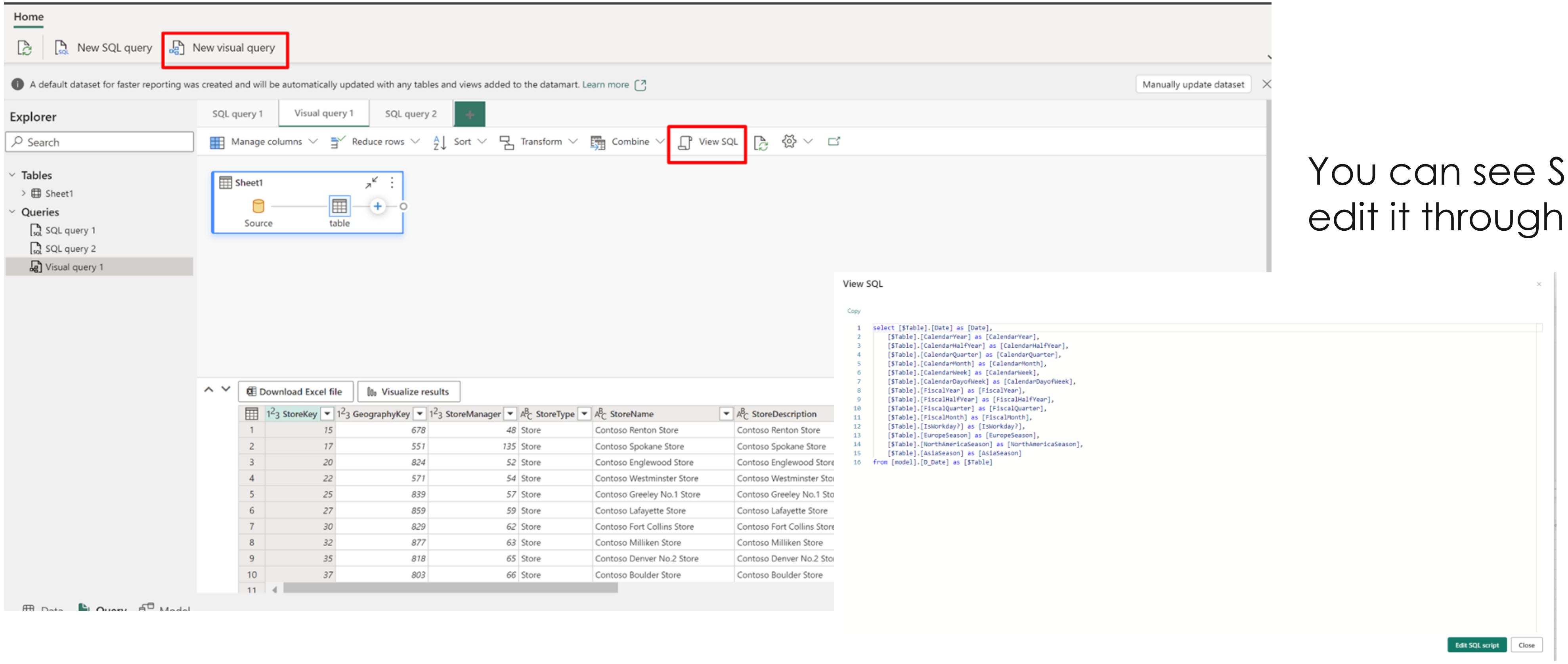
SQL Query Editor



Once you've written the T-SQL query, select Run to execute the query. The Results preview is displayed in the Results section. The Open in Excel button opens the corresponding T-SQL Query to Excel and executes the query, enabling you to view the results in Excel.

Prep data (On Pro & Premium)

By Datamart

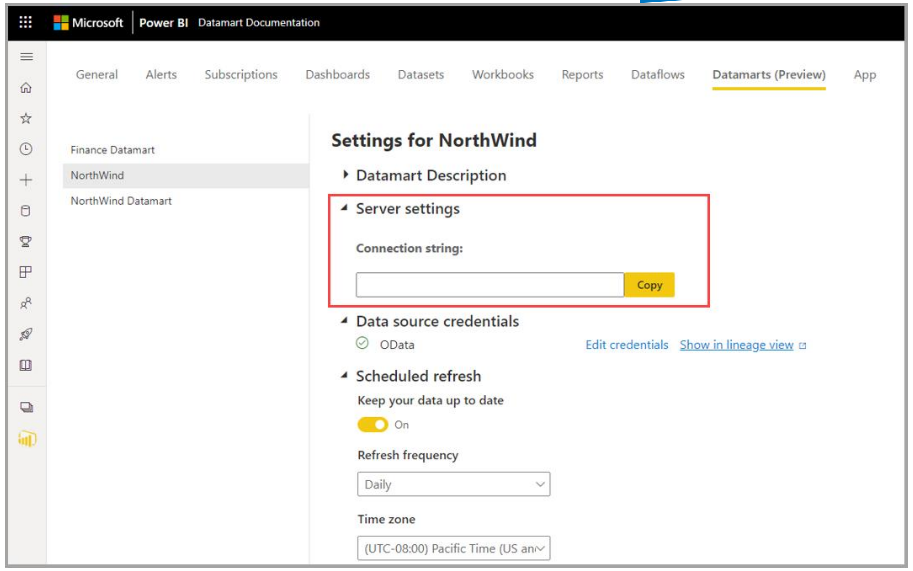


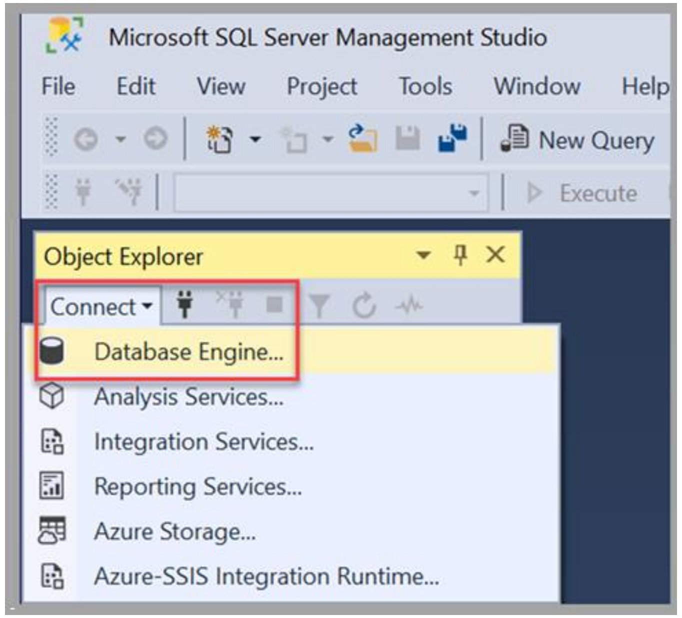
You can see SQL script and edit it through Visual query

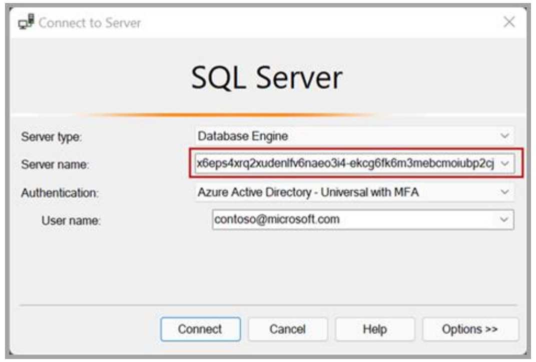
Prep data (On Pro & Premium)
By Datamart

Get the T-SQL connection string

With SSMS

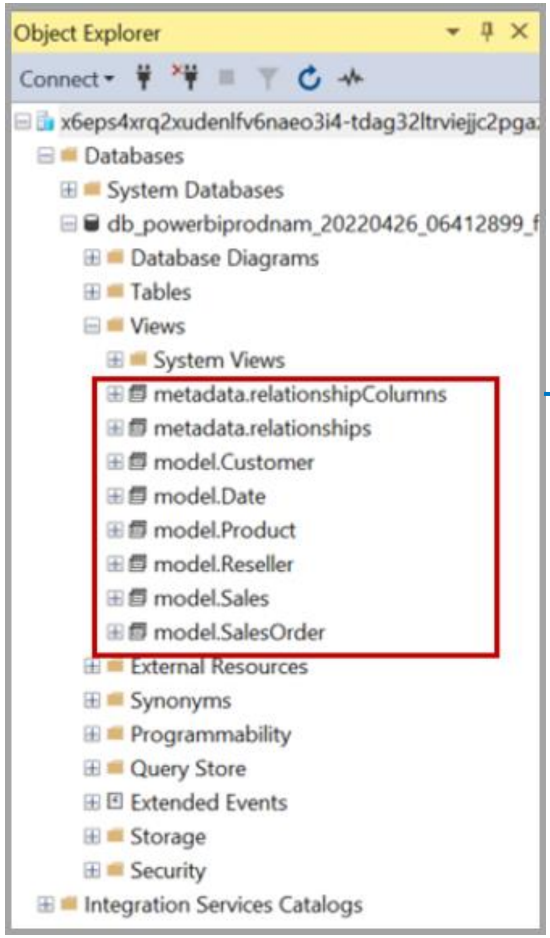


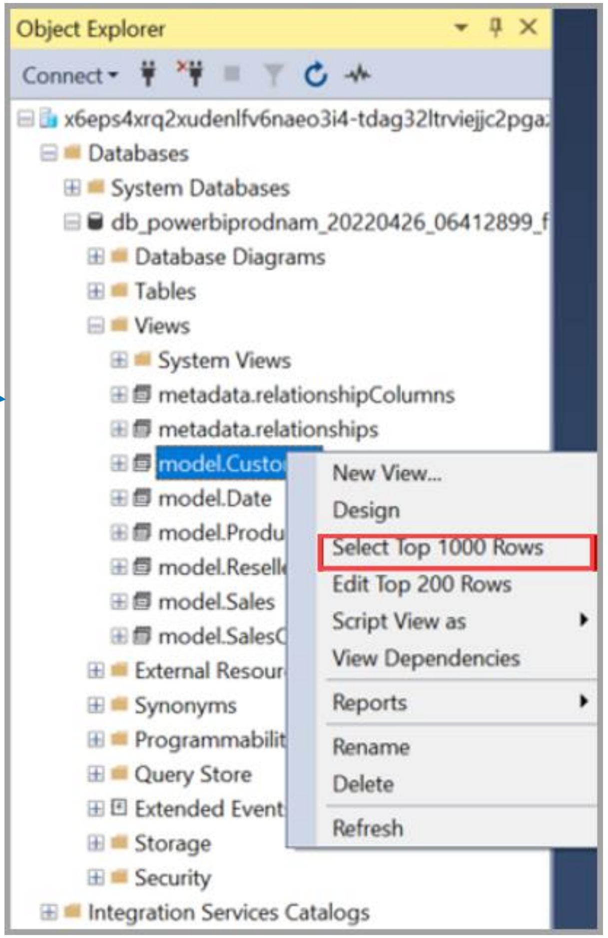


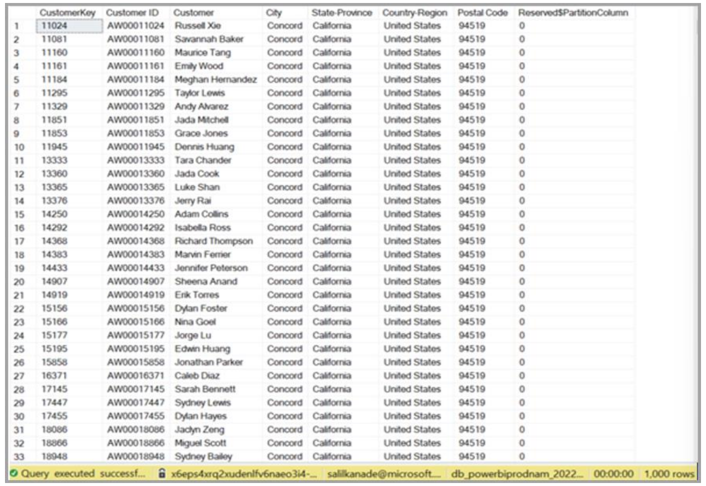


Prep data (On Pro & Premium)

By Datamart

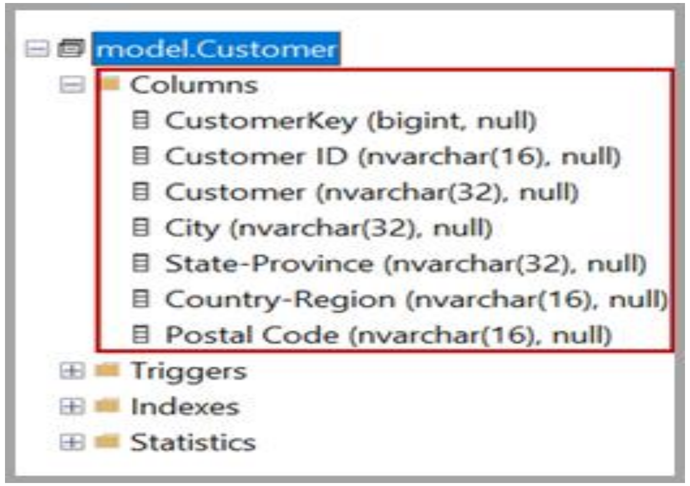






	CustomerKey	Customer ID	Customer	City	State-Province	Country-Region	Postal Code	Reserved$PartitionColumn
1	11024	AW00011024	Russell Xie	Concord	California	United States	94519	0
2	11081	AW00011081	Savannah Baker	Concord	California	United States	94519	0
3	11160	AW00011160	Maurice Tang	Concord	California	United States	94519	0
4	11161	AW00011161	Emily Wood	Concord	California	United States	94519	0
5	11184	AW00011184	Meghan Hernandez	Concord	California	United States	94519	0
6	11295	AW00011295	Taylor Lewis	Concord	California	United States	94519	0
7	11329	AW00011329	Andy Alvarez	Concord	California	United States	94519	0
8	11851	AW00011851	Jada Mitchell	Concord	California	United States	94519	0
9	11853	AW00011853	Grace Jones	Concord	California	United States	94519	0
10	11945	AW00011945	Dennis Huang	Concord	California	United States	94519	0
11	13333	AW00013333	Tara Chander	Concord	California	United States	94519	0
12	13360	AW00013360	Jada Cook	Concord	California	United States	94519	0
13	13365	AW00013365	Luke Shan	Concord	California	United States	94519	0
14	13376	AW00013376	Jerry Rai	Concord	California	United States	94519	0
15	14250	AW00014250	Adam Collins	Concord	California	United States	94519	0
16	14292	AW00014292	Isabella Ross	Concord	California	United States	94519	0
17	14368	AW00014368	Richard Thompson	Concord	California	United States	94519	0
18	14383	AW00014383	Marvin Ferrier	Concord	California	United States	94519	0
19	14433	AW00014433	Jennifer Peterson	Concord	California	United States	94519	0
20	14907	AW00014907	Sheena Anand	Concord	California	United States	94519	0
21	14919	AW00014919	Erik Torres	Concord	California	United States	94519	0
22	15156	AW00015156	Dylan Foster	Concord	California	United States	94519	0
23	15166	AW00015166	Nina Goel	Concord	California	United States	94519	0
24	15177	AW00015177	Jorge Lu	Concord	California	United States	94519	0
25	15195	AW00015195	Edwin Huang	Concord	California	United States	94519	0
26	15858	AW00015858	Jonathan Parker	Concord	California	United States	94519	0
27	16371	AW00016371	Caleb Diaz	Concord	California	United States	94519	0
28	17145	AW00017145	Sarah Bennett	Concord	California	United States	94519	0
29	17447	AW00017447	Sydney Lewis	Concord	California	United States	94519	0
30	17455	AW00017455	Dylan Hayes	Concord	California	United States	94519	0
31	18086	AW00018086	Jaclyn Zeng	Concord	California	United States	94519	0
32	18866	AW00018866	Miguel Scott	Concord	California	United States	94519	0
33	18948	AW00018948	Sydney Bailey	Concord	California	United States	94519	0

Query executed successf... | x6eps4xrq2xudenlfv6naeo3i4-... | salilkanade@microsoft... | db_powerbiprodnam_2022... | 00:00:00 | 1,000 rows



Prep data

Prep data

Dataset	Dataflow	Datamart
⊖	✓	✓

MASTERING DATA ANALYTICS

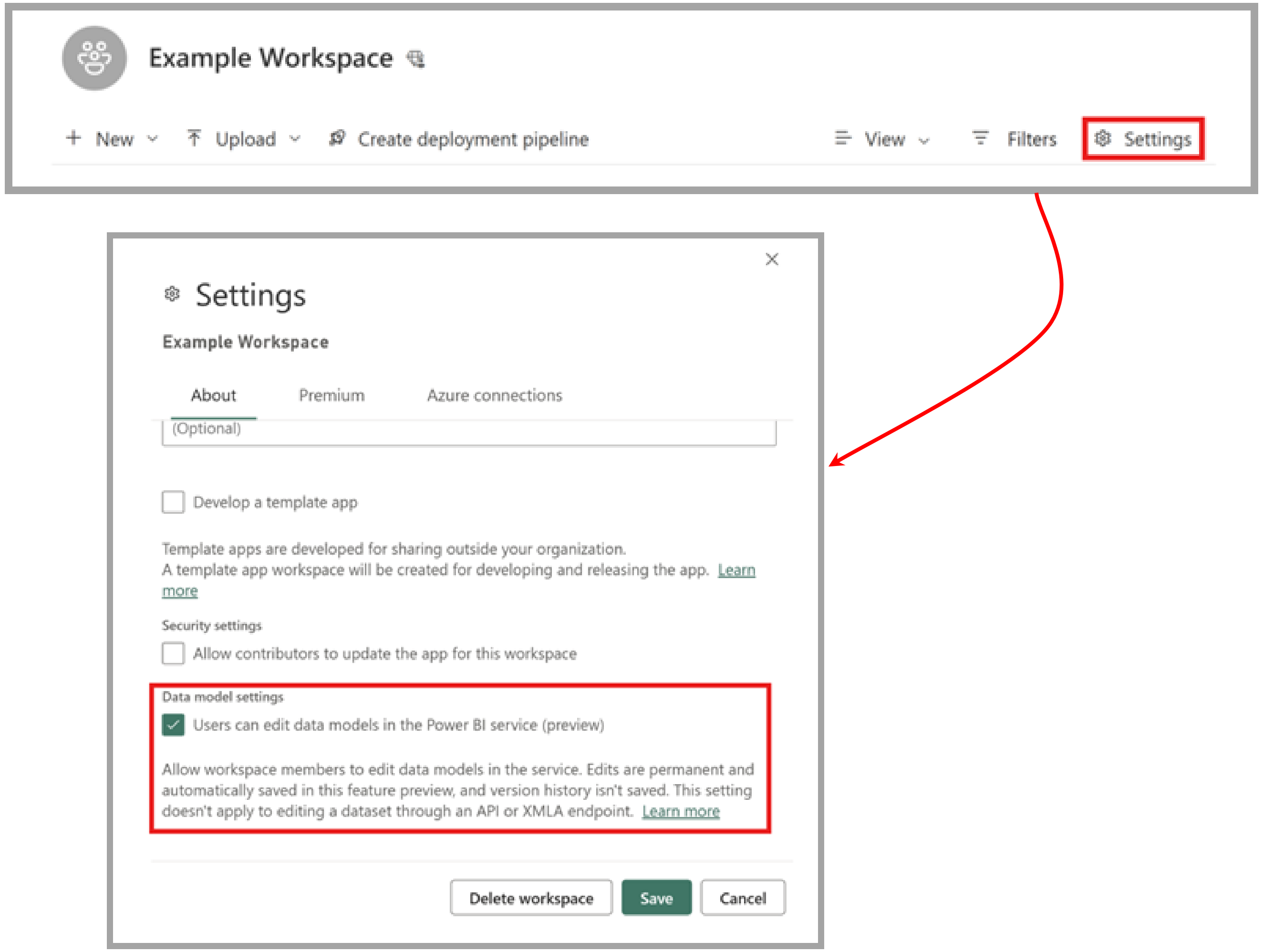
POWER BI SERVICE

- PART 1: Introduce PBI Ecosystem (PBI Service)
- PART 2: Connecting data
- PART 3: Prep data (On Pro & Premium)
- PART 4: Data Modeling
- PART 5: Report and Dashboard
- PART 6: Metrics
- PART 7: Sharing, Collaboration, (PBI Mobile)
- PART 8: Deployment Pipelines

- **Editing data model on dataset (required input from PBIX)**
- Editing data model on datamart

Data Modeling
Editing data model on dataset

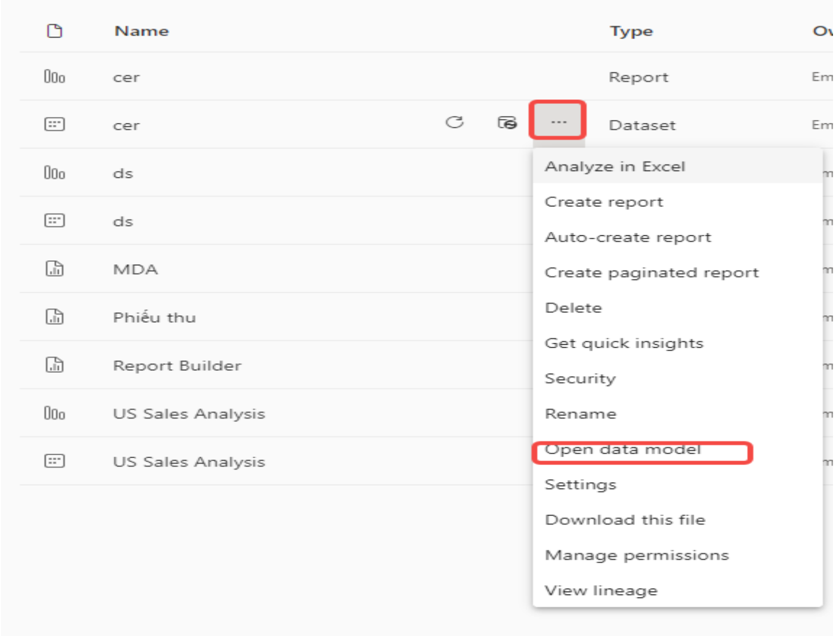
Editing data models in the Power BI service is automatically enabled for datasets stored in *My Workspace*



Data Modeling
Editing data model on Dataset

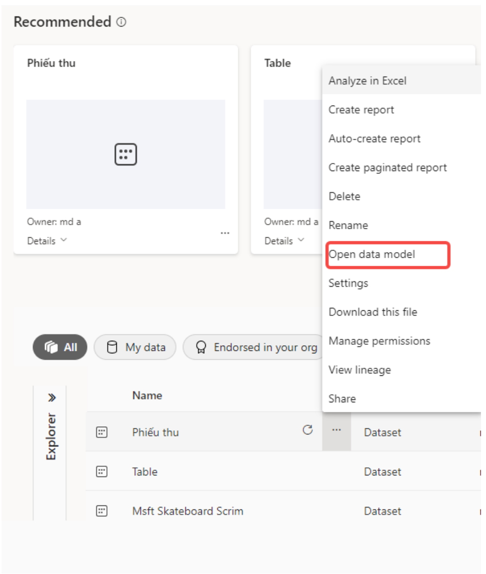
1

From workspace

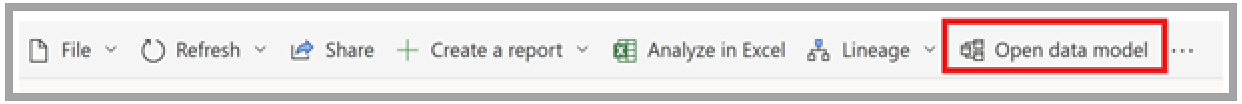


2

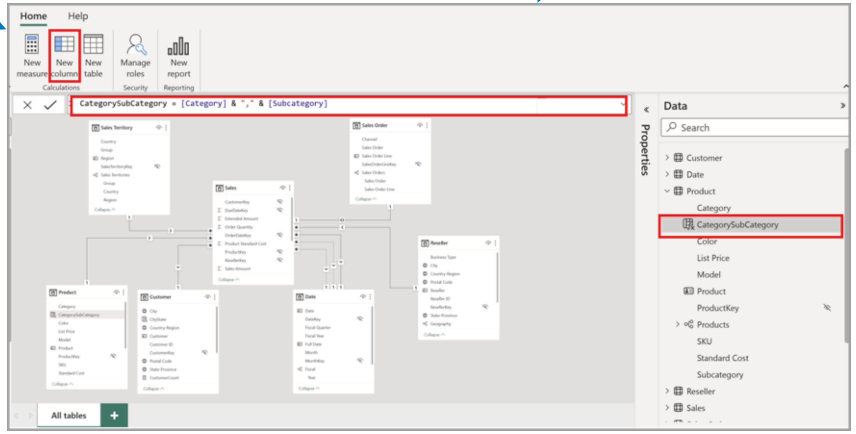
From the OneLake hub



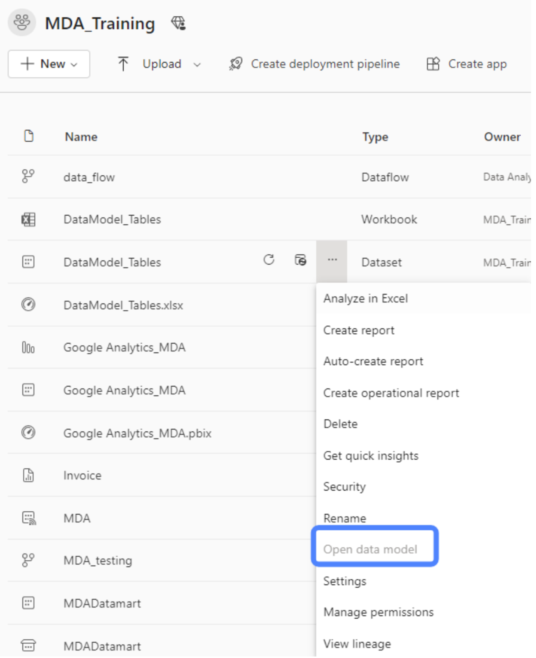
3

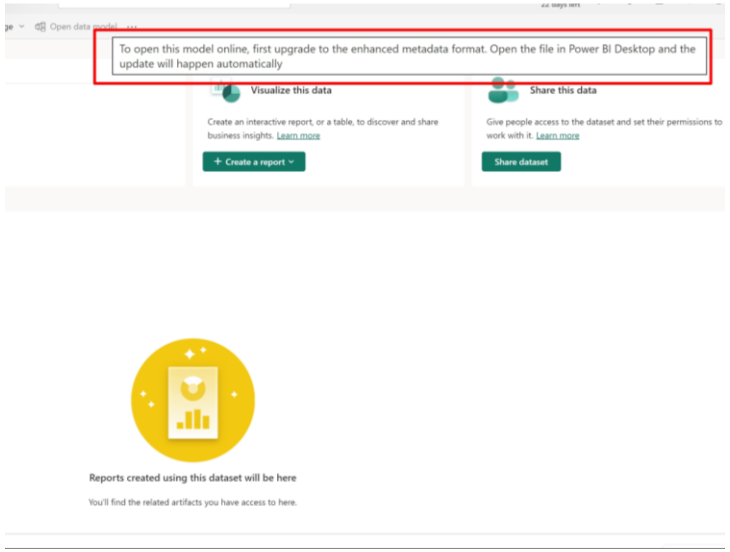


From report



Data Modeling
Editing data model on Dataset





HEY THIS IS IMPORTANT!

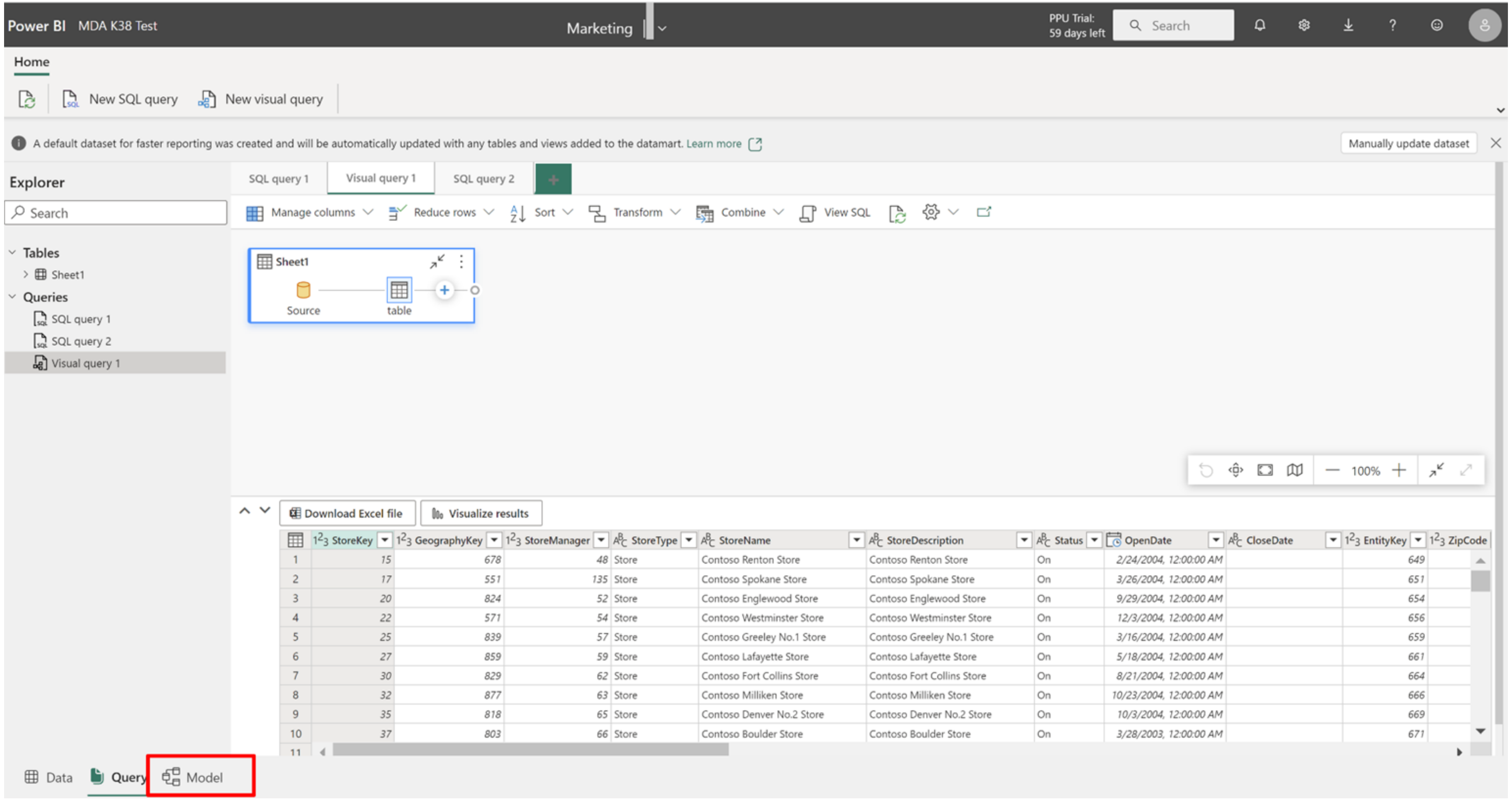
Connecting data from Excel file => Can not edit data model

- Editing data model on dataset (required input from PBIX)
- **Editing data model on datamart**

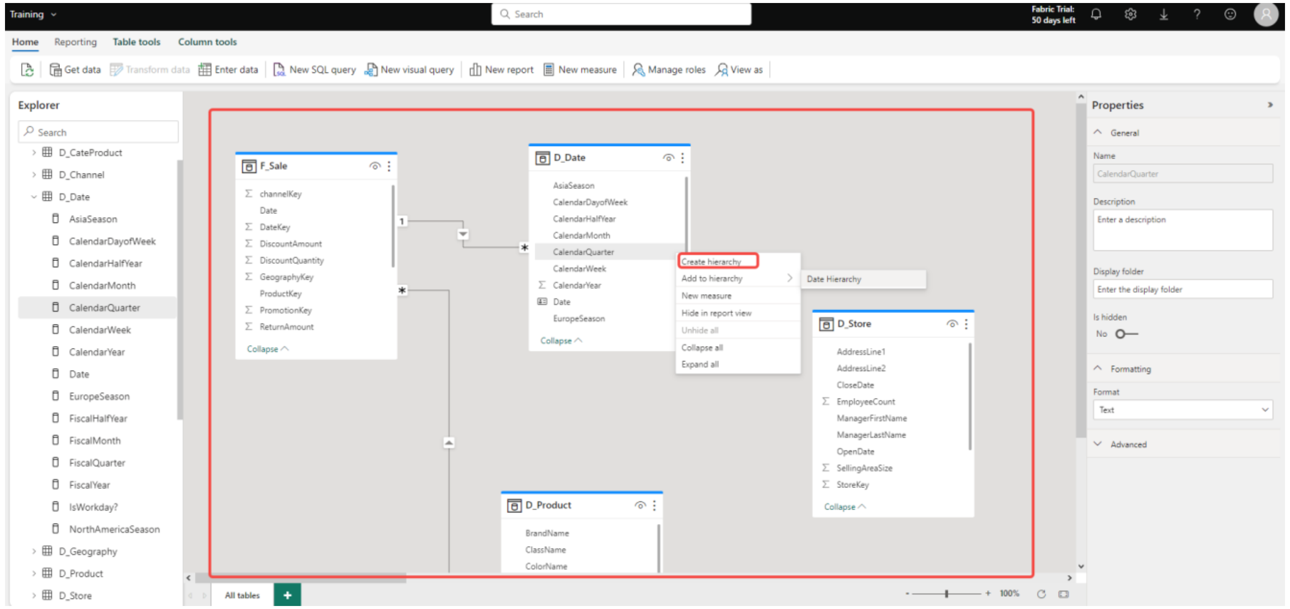
Datamart allows you to **create DAX measures** and **relationships** between your tables, and all datamarts automatically generates a dataset in the end (with all your stuff inside, of course).

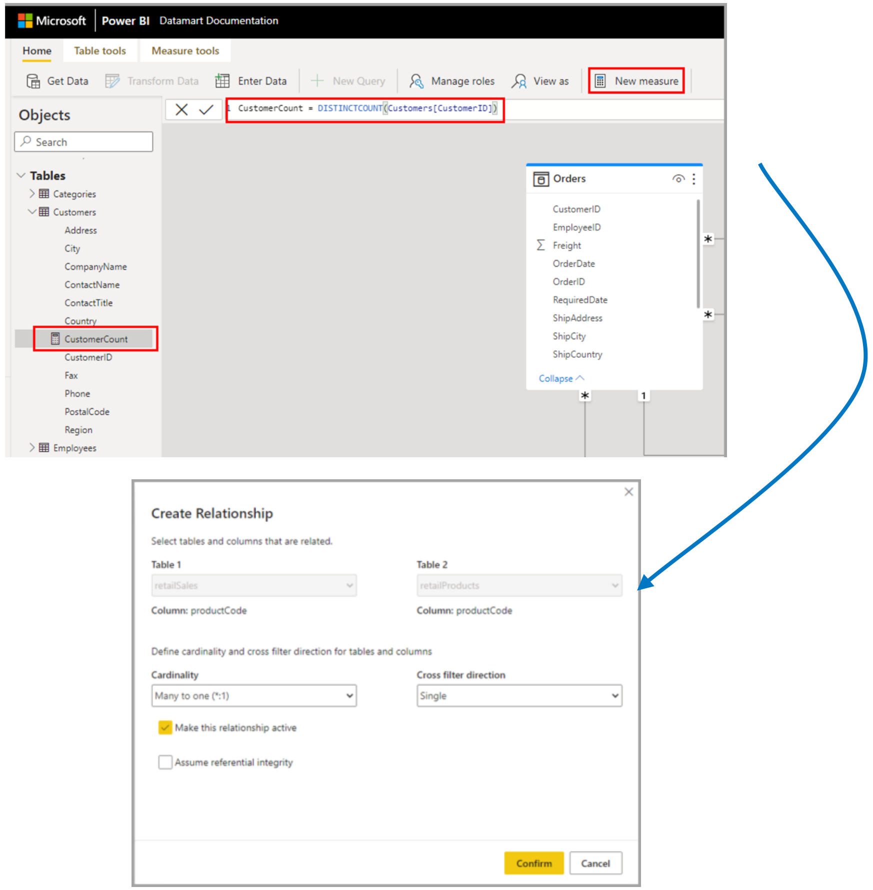
Connecting to a datamart from PBI Desktop (PBID) is like connecting to a dataset in your workspace, you will see your tables, your relationship diagram, but you won't see underlying data, nor have power query available to assess data, and you also cannot pick and choose which tables to load.

Data Modeling
Editing data models on Datamart



Data Modeling
Editing data models on Datamart





You can create data model and create hierarchy (same Desktop)

Data Modeling

Data Modeling

Dataset (Excel)	Dataset from PBI report	Dataflow	Datamart
⊖	✓	⊖	✓

MASTERING DATA ANALYTICS

POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

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PART 6: Refresh Automation & Metrics

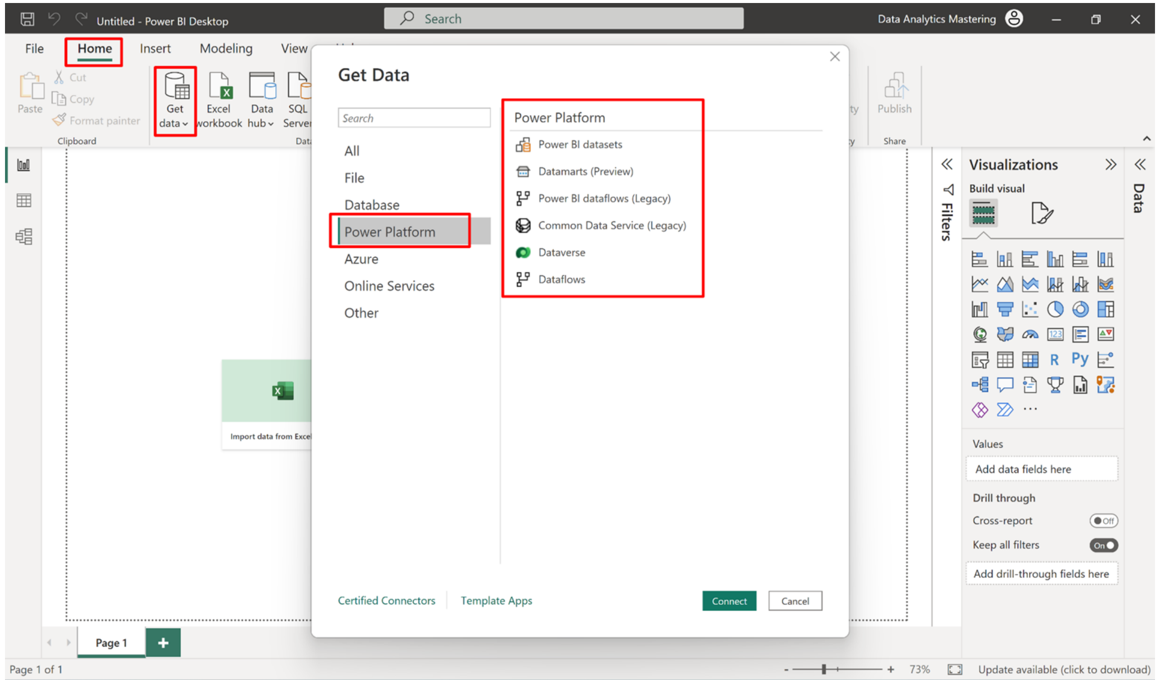
PART 7: Sharing, Collaboration, (PBI Mobile)

PART 8: Deployment Pipelines

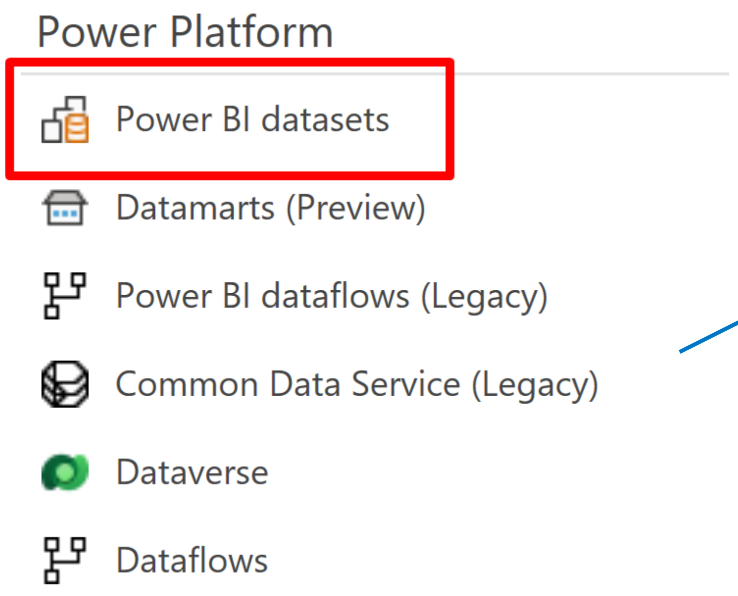
Report and Dashboard

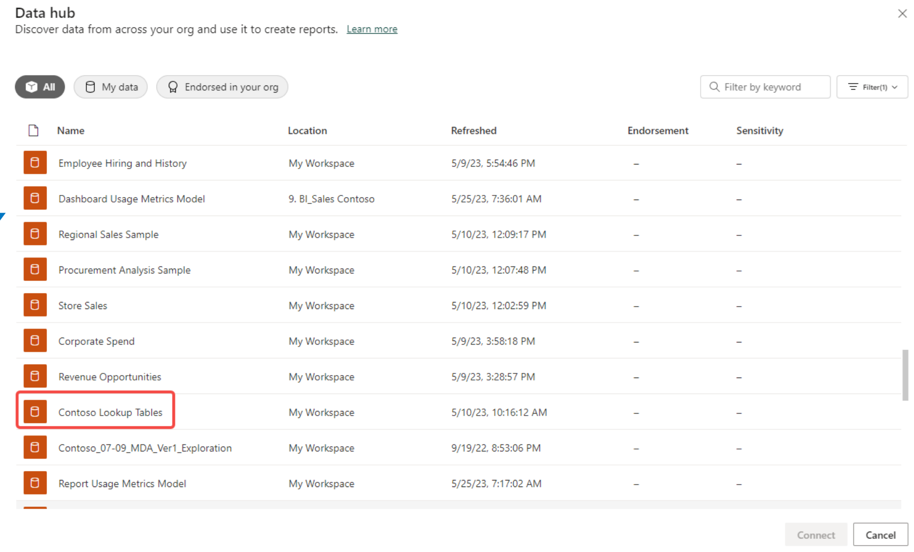
1. In Desktop:
- **Connecting from Dataset PBI**
- **Connecting from Dataflow**
- **Connecting from Datamart**

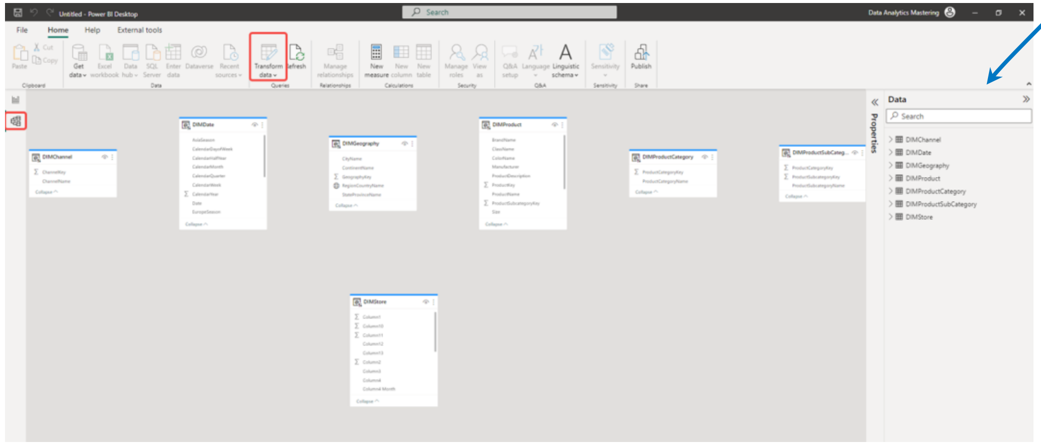
2. In Service



Report and Dashboard
Connecting to dataset PBI in Desktop

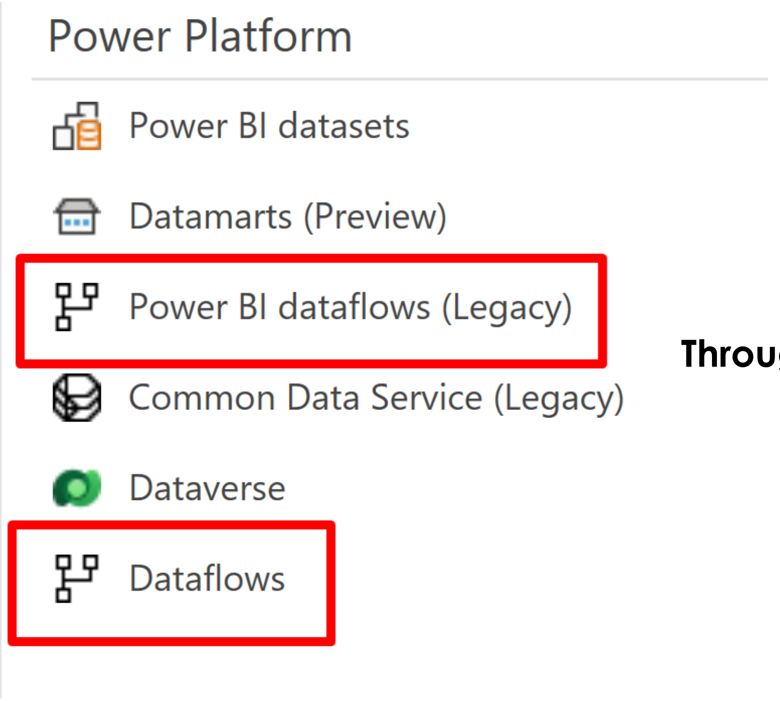




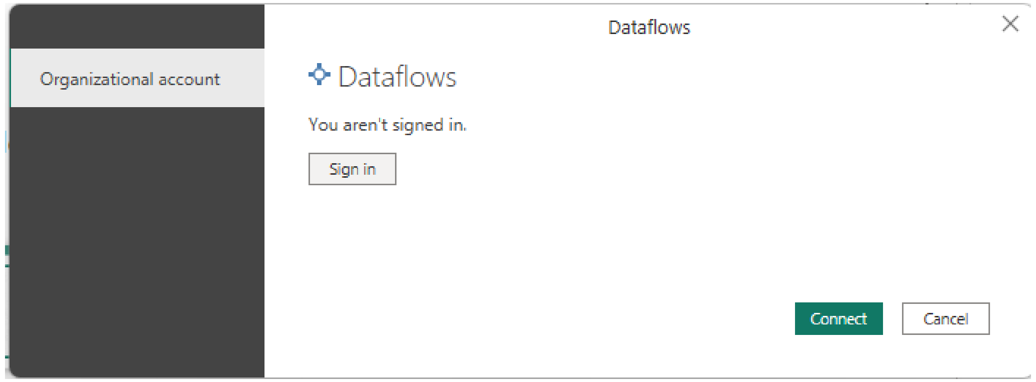


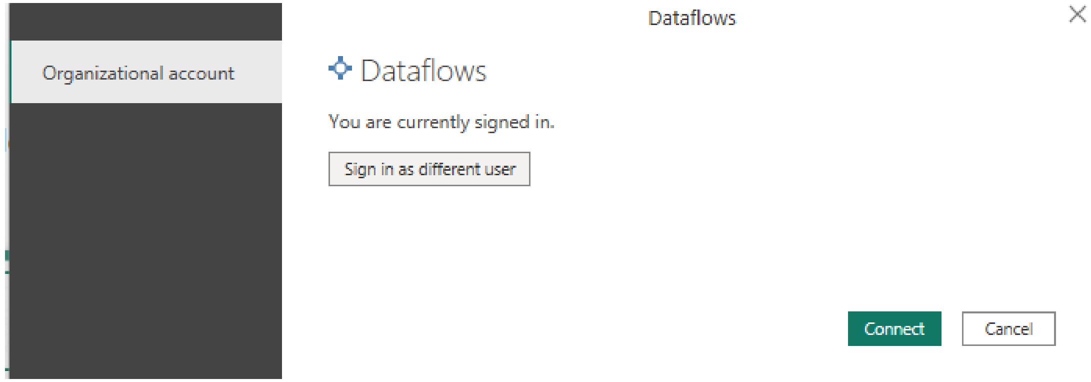
Connecting from Dataset PBI =>
Can not continue to transform data

Report and Dashboard
Connecting to PBI dataflow in Desktop



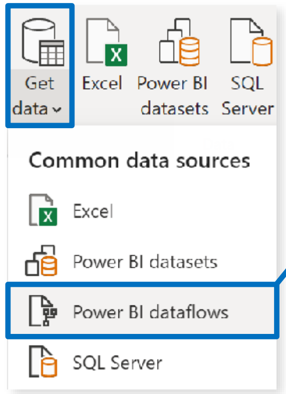
Through a third party

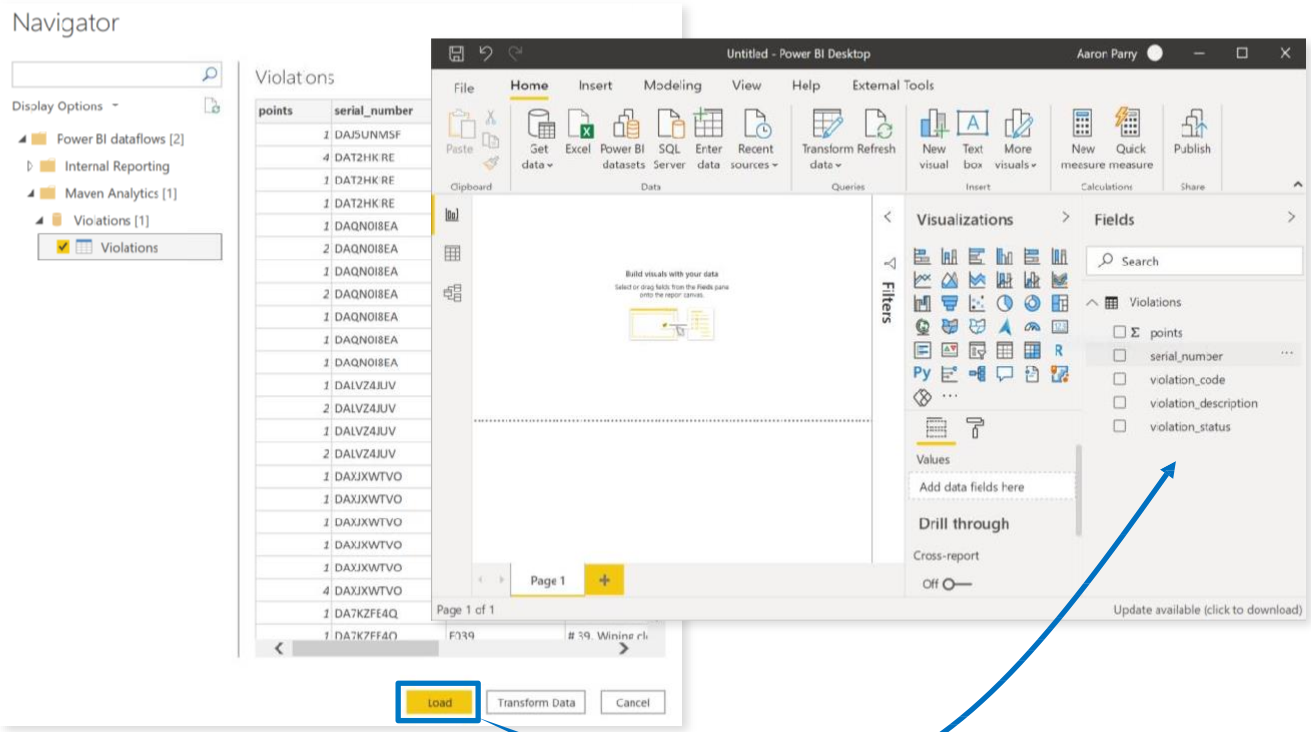




Report and Dashboard
Connecting to a dataflow in Desktop

Connect to a dataflow and **load it as a dataset** in Power BI Desktop





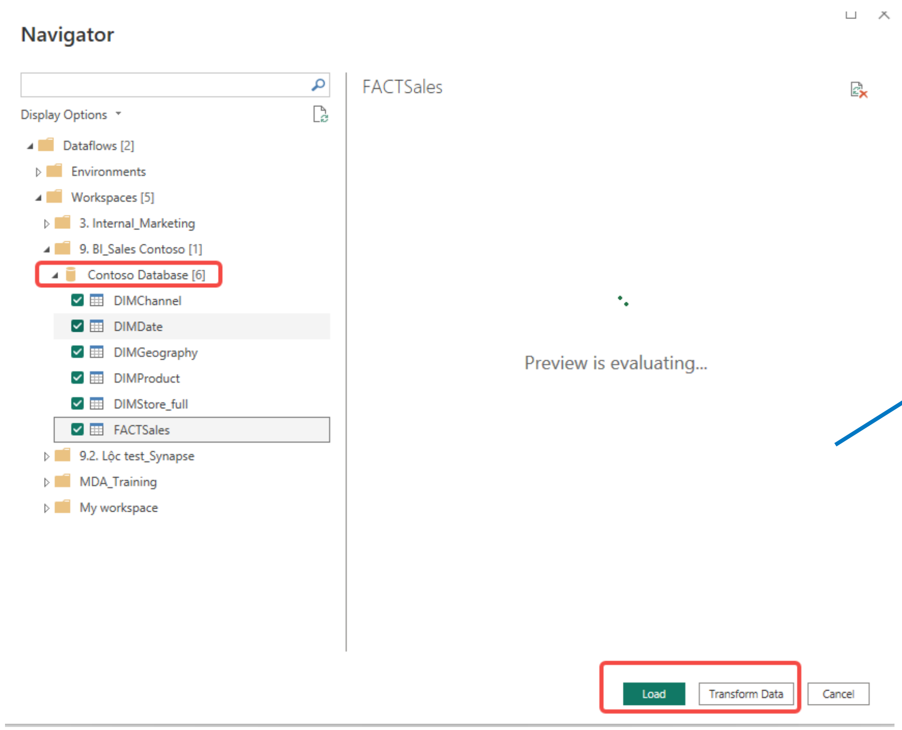
HEY THIS IS IMPORTANT!

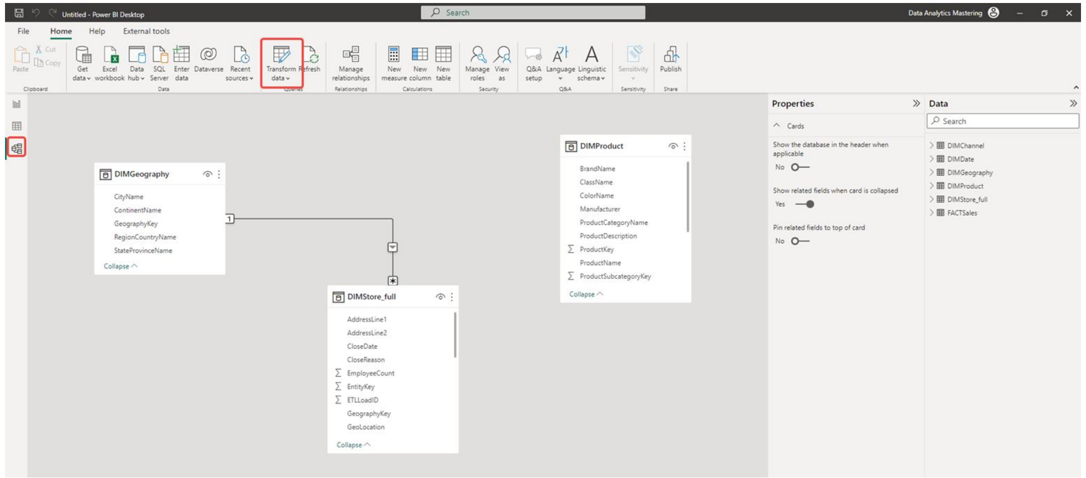
If your dataflow isn't displaying, make sure you've refreshed it!

The dataflow won't populate if it hasn't been refreshed in service

Report and Dashboard
Connecting to a dataflow in Desktop

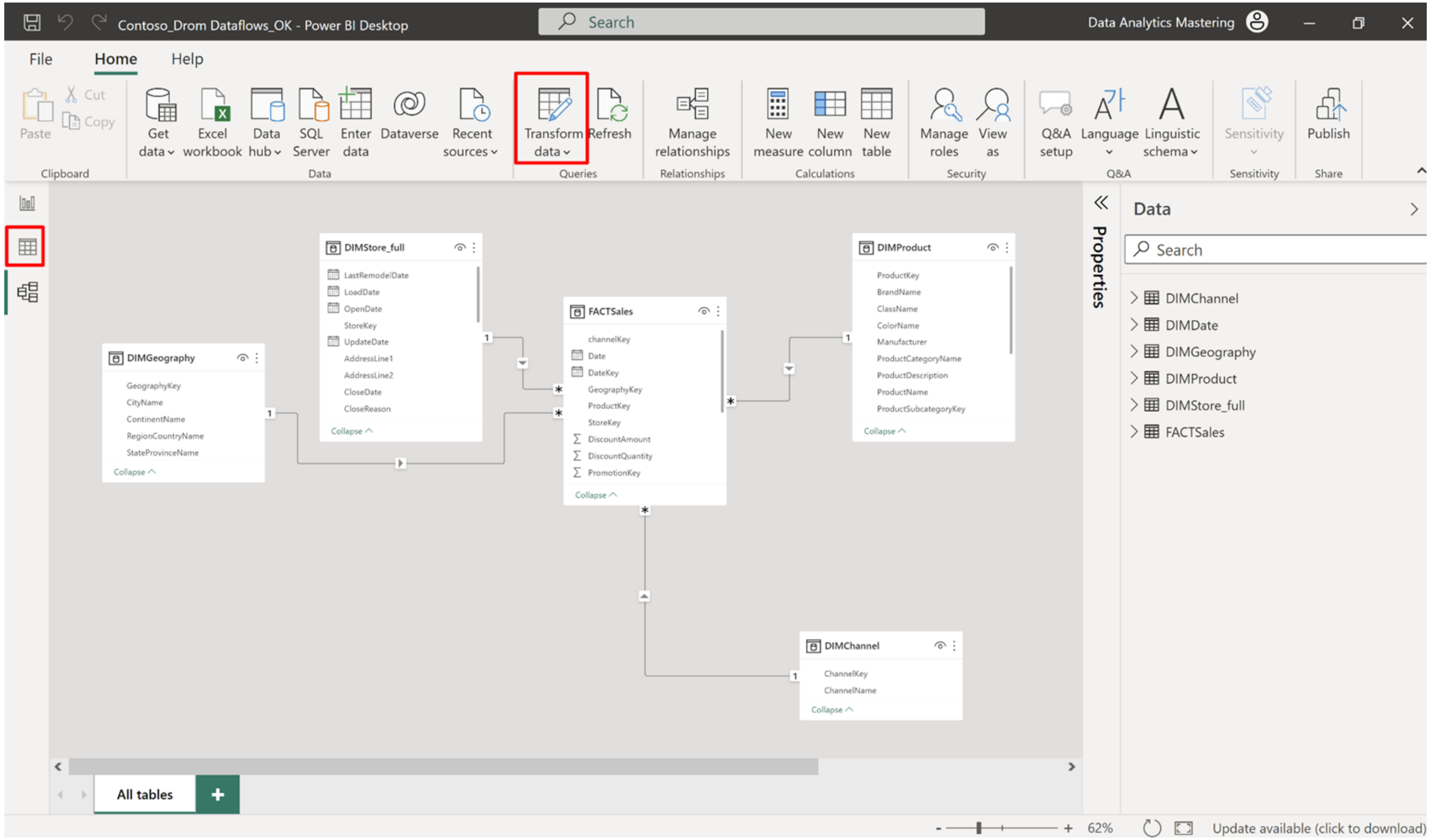
ETL on Dataflow, Need to model
Continue prep on Desktop



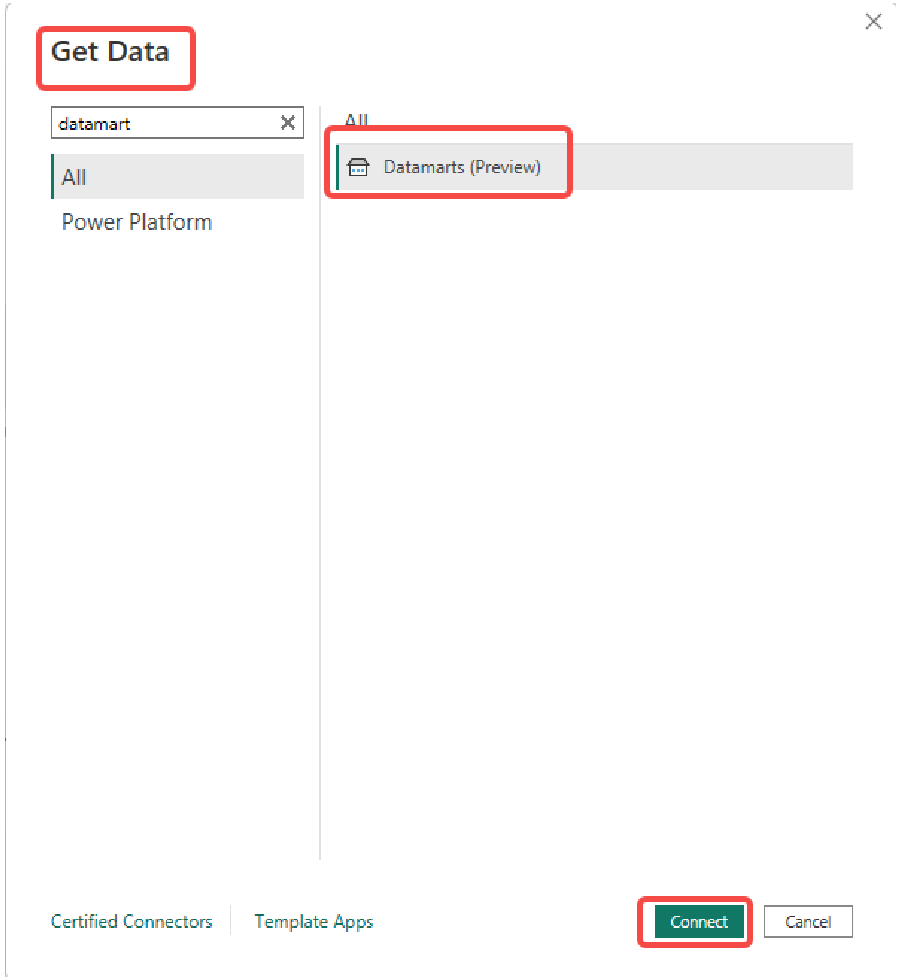


Report and Dashboard
Connecting to a dataflow in Desktop

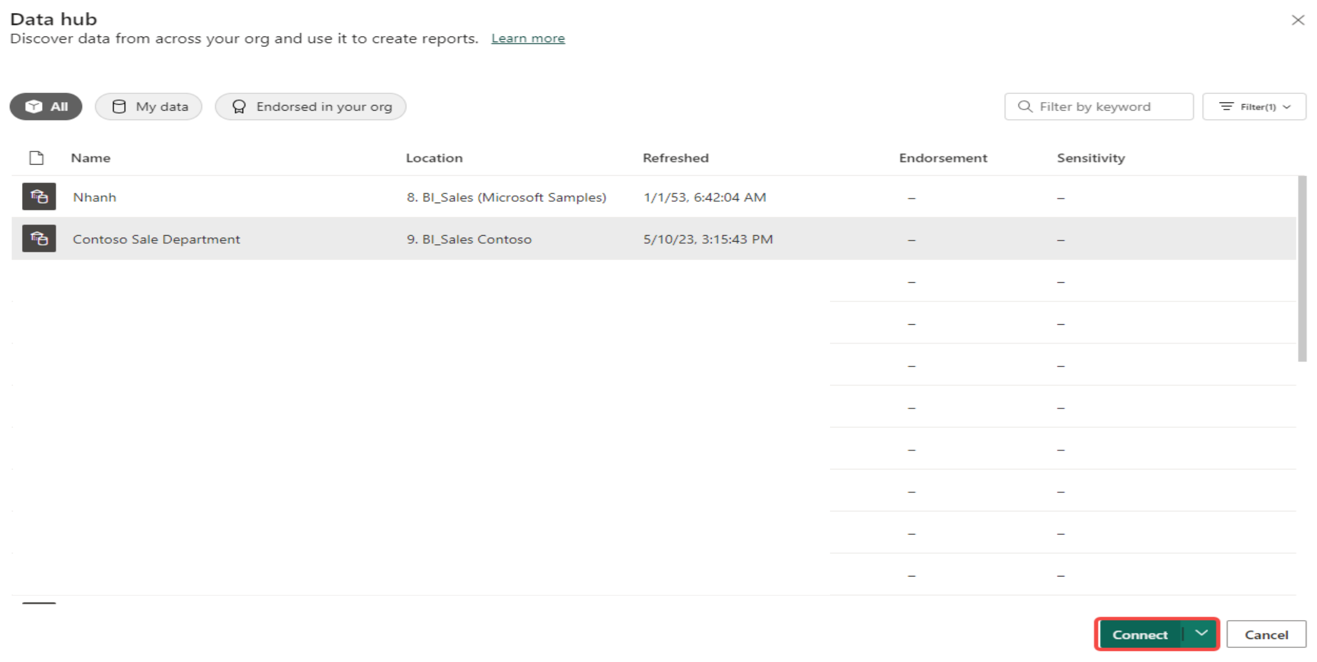
Can continue to transform



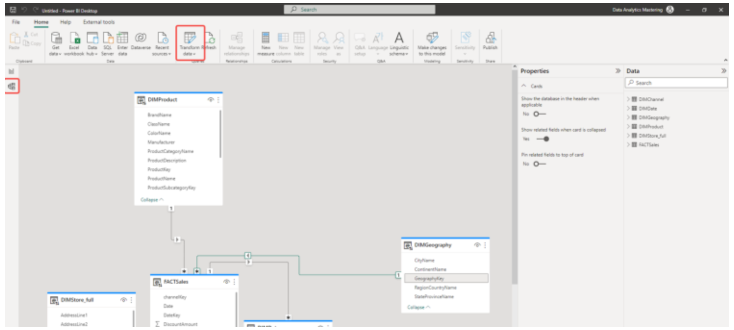
Connecting to a datamart in Desktop

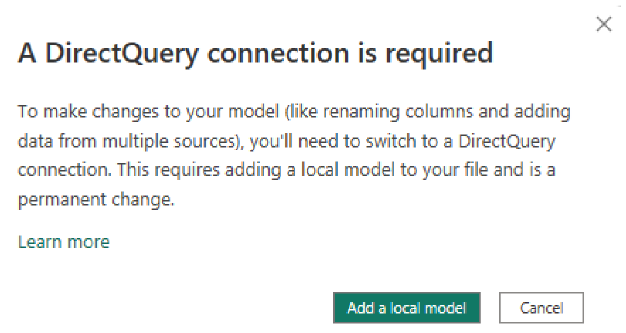


Report and Dashboard
Connecting to a datamart in Desktop



Step by step: Connecting to a datamart in Desktop





You can not continue to prep data on datamart in Desktop (so need DirectQuery)

Report and Dashboard

In Desktop

	Dataset PBI	Dataflow	Datamart
Prep data	⊖	✓	⊖
Data model	✓	✓	✓

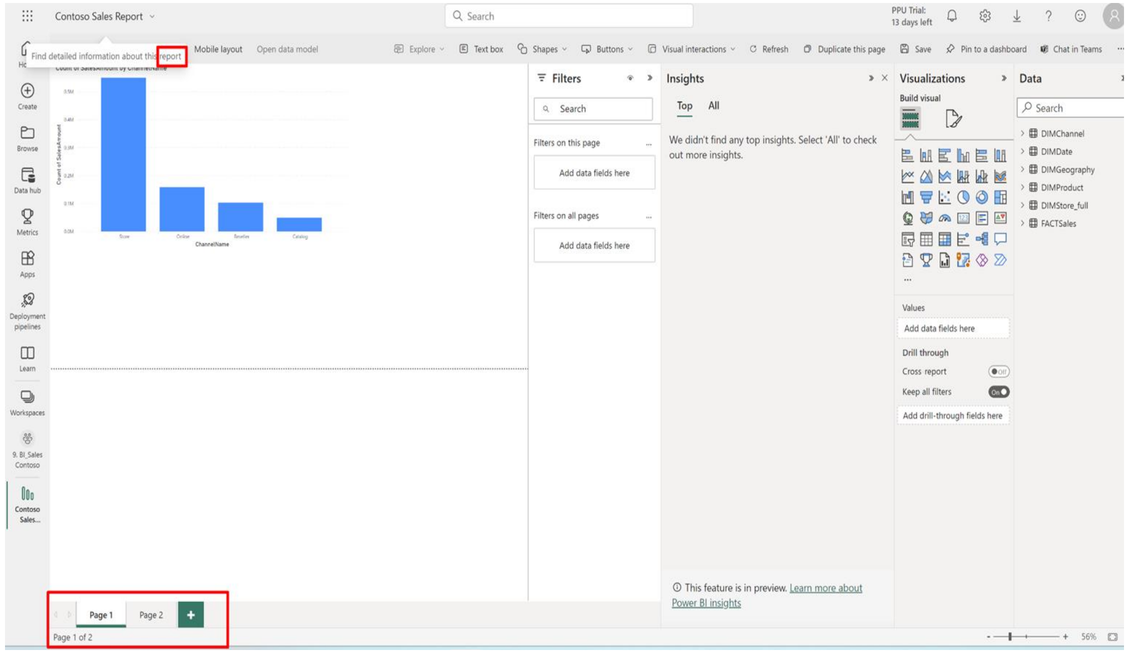
Report and Dashboard

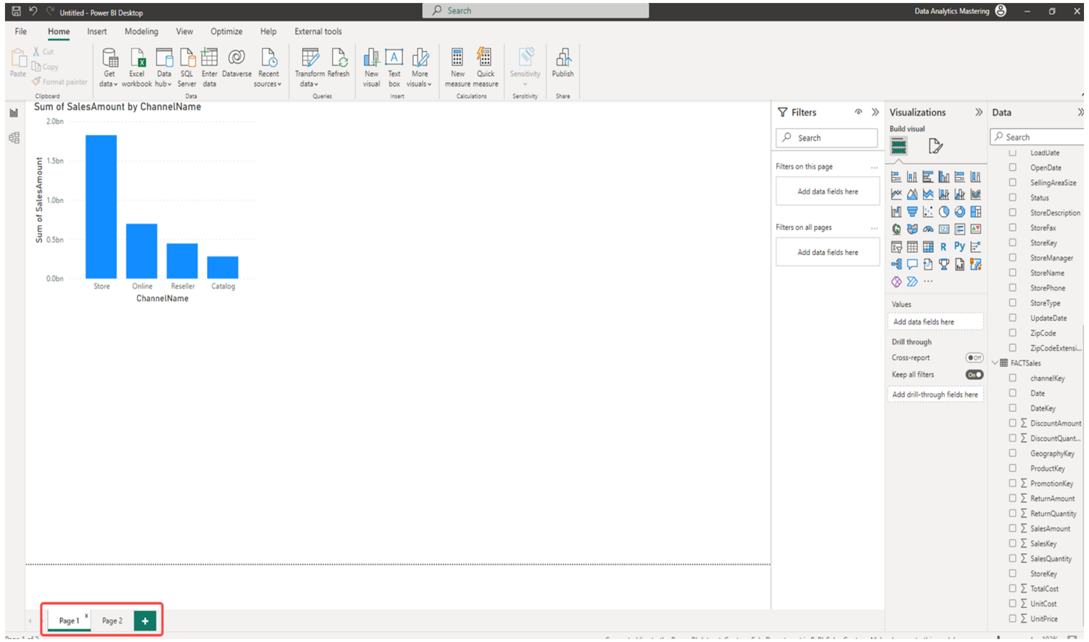
1. **Report**
- **In PBI Desktop**
- **In PBI Service**

2. Dashboard
- In PBI Service

Report and Dashboard

Report in Desktop & Service





Same: Basic functions (Page, visual,…)

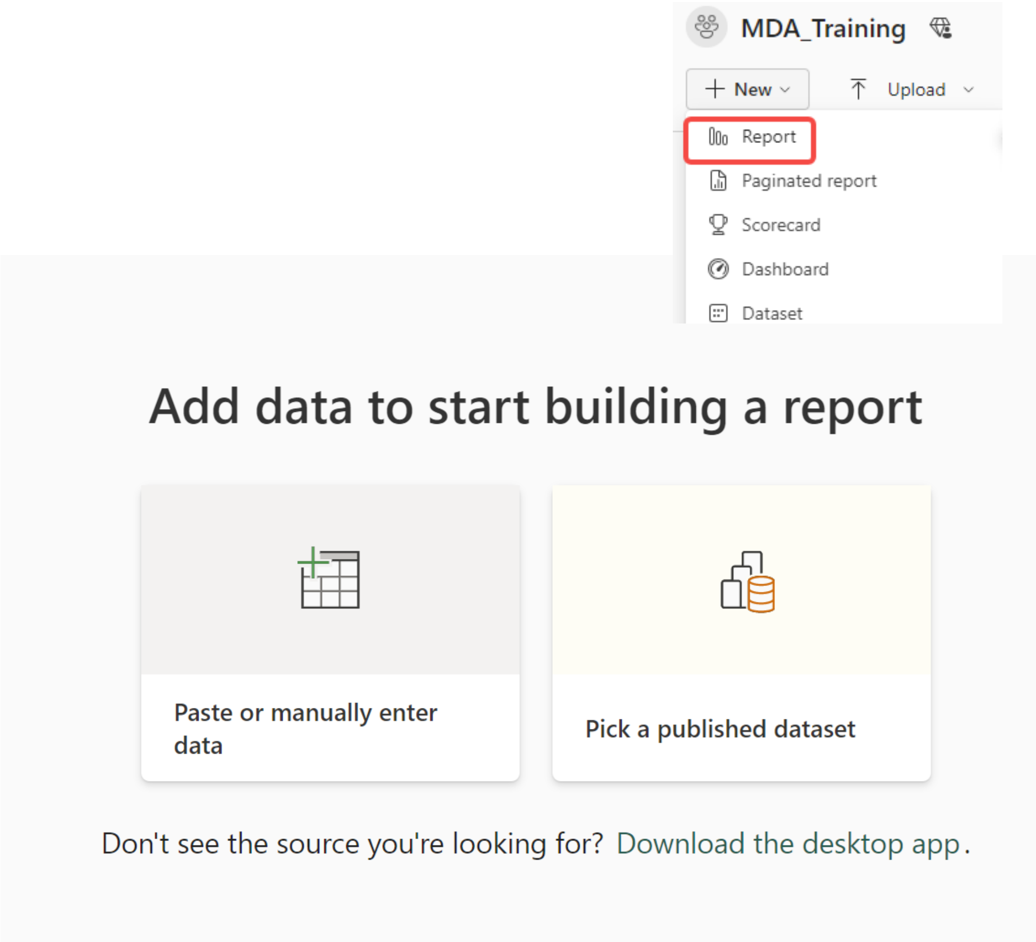
1. **In Desktop: Full functions (Suggestion, Hierarchy,…)**
2. **In Service: Limit functions**

1. In Desktop:
- Connecting from Dataset PBI
- Connecting from Dataflow
- Connecting from Datamart

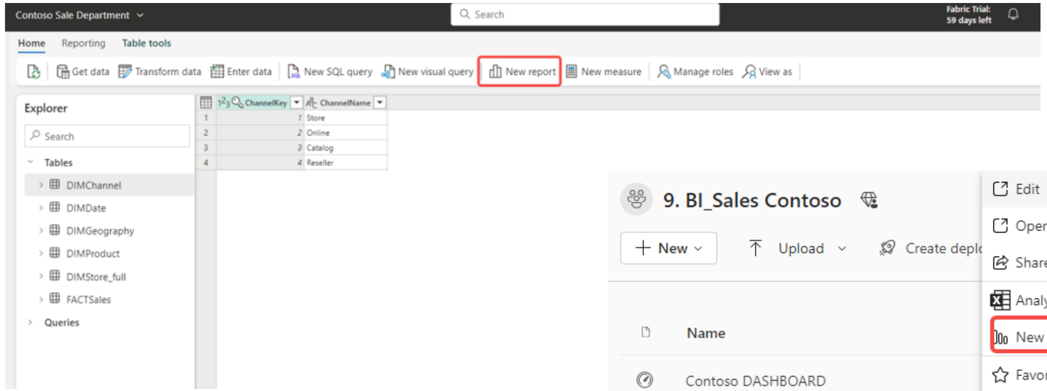
2. In Service:
- **Connecting from dataset**
- **Connecting from datamart**

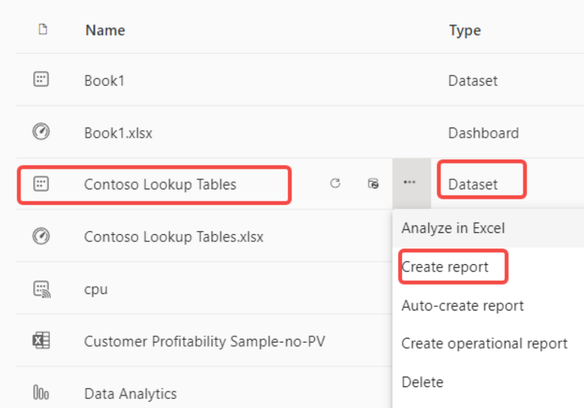
Report and Dashboard
Report in Service

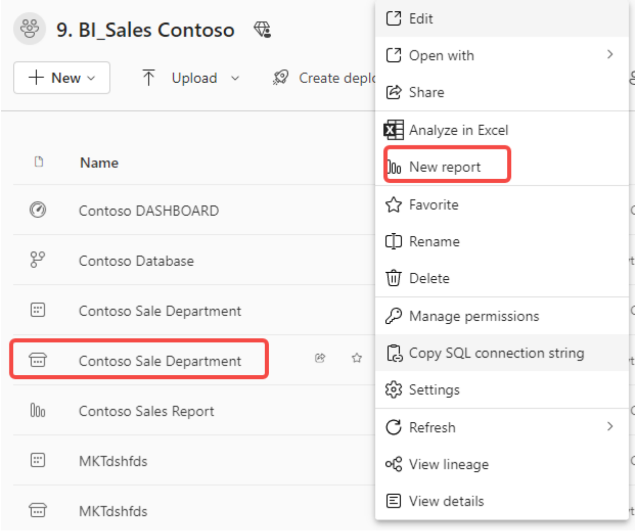
1. From Dataset (Manual, Published) (+ New report)



2. From Dataset, Datamart

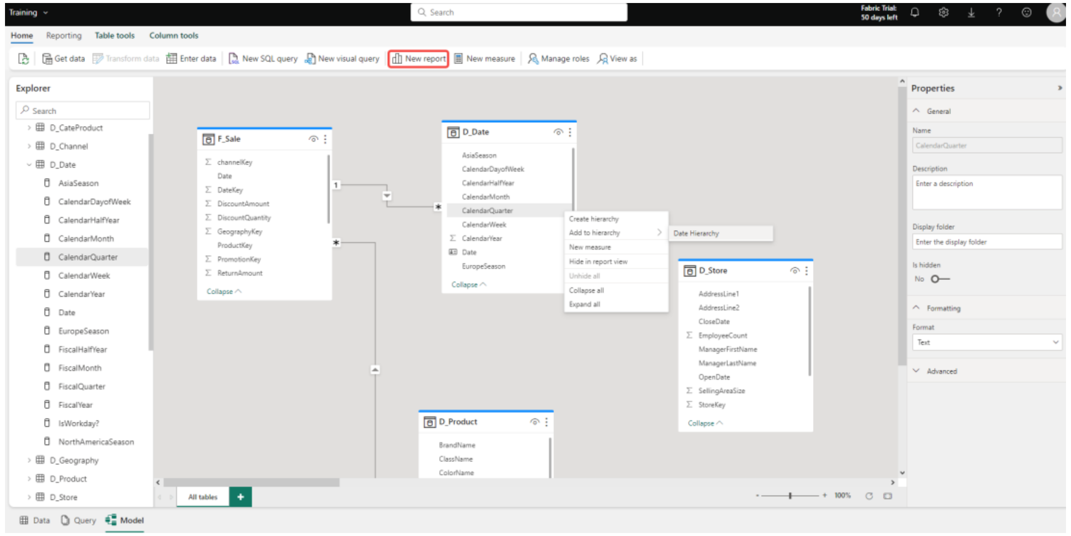






Report and Dashboard
Report in PBI service

2. From Datamart

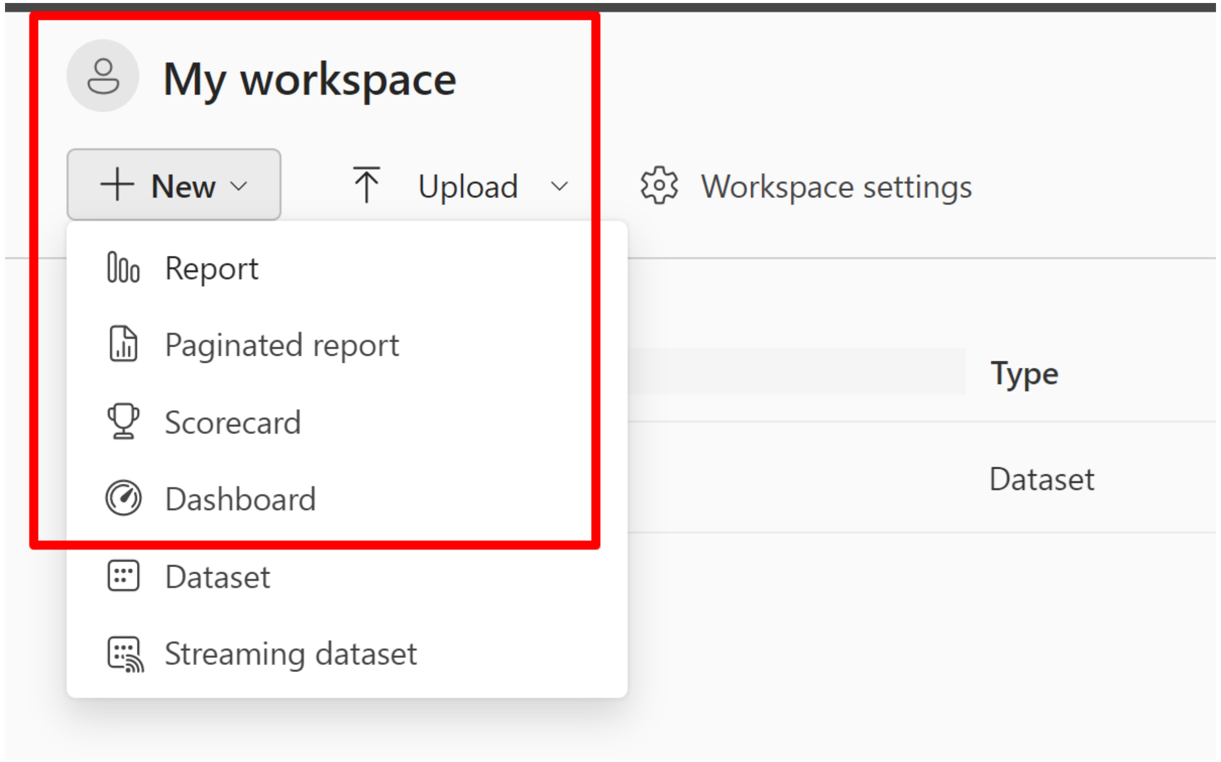


Report and Dashboard

Report in Service

	Dataset PBI	Dataflow	Datamart
Report	✓	—	✓

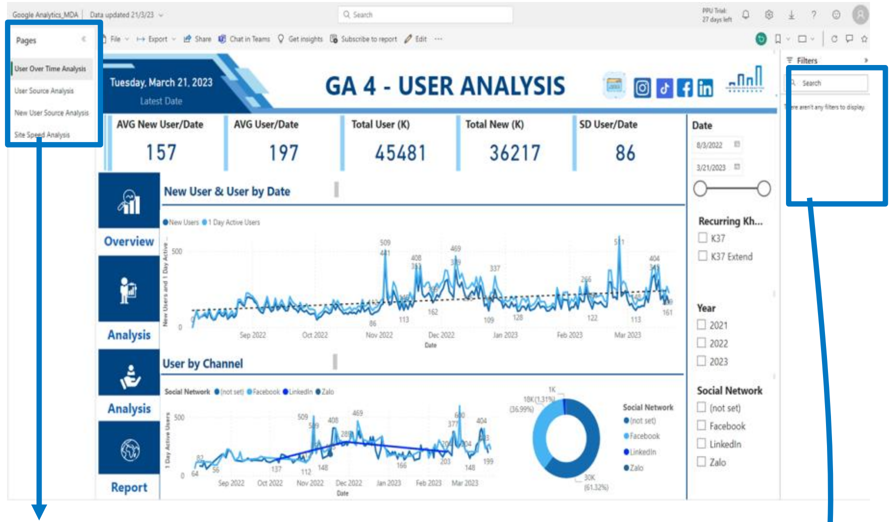
Report and Dashboard
Report, Paginated Report, Dashboard (FREE)



Report and Dashboard
Report

*Report **Reading** View*

Tools & options for **interacting**, **exploring**, **filtering**, and **pinning** tiles and pages to dashboards

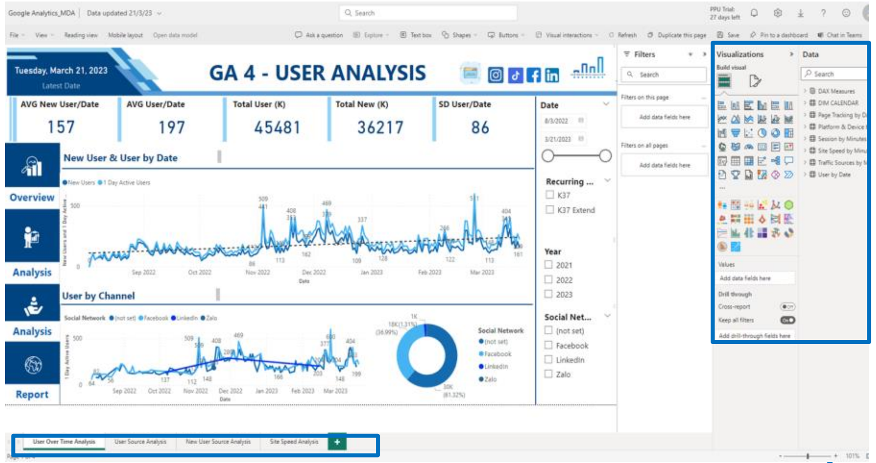


Pages (*Navigate between different pages in your report*)

Filters Pane (*Visual-Level, Page-Level, Report-Level, and Drill through Filters*)

*Report **Editing** View*

Tools & options for **editing**, **modifying**, and **creating** individual or multiple report visuals

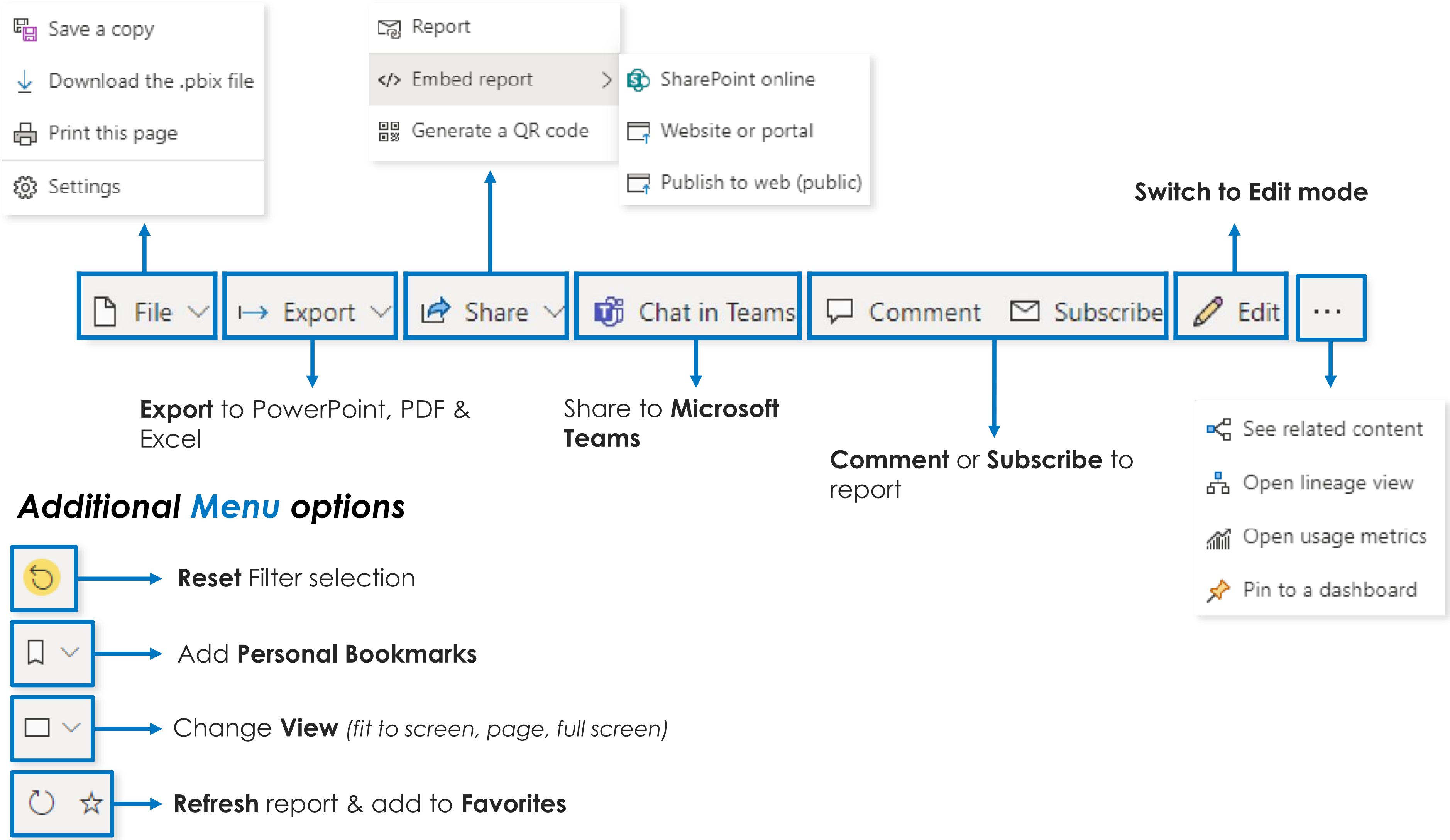


Report Pages (*Similar to Excel tabs, each serves a blank reporting canvas*)

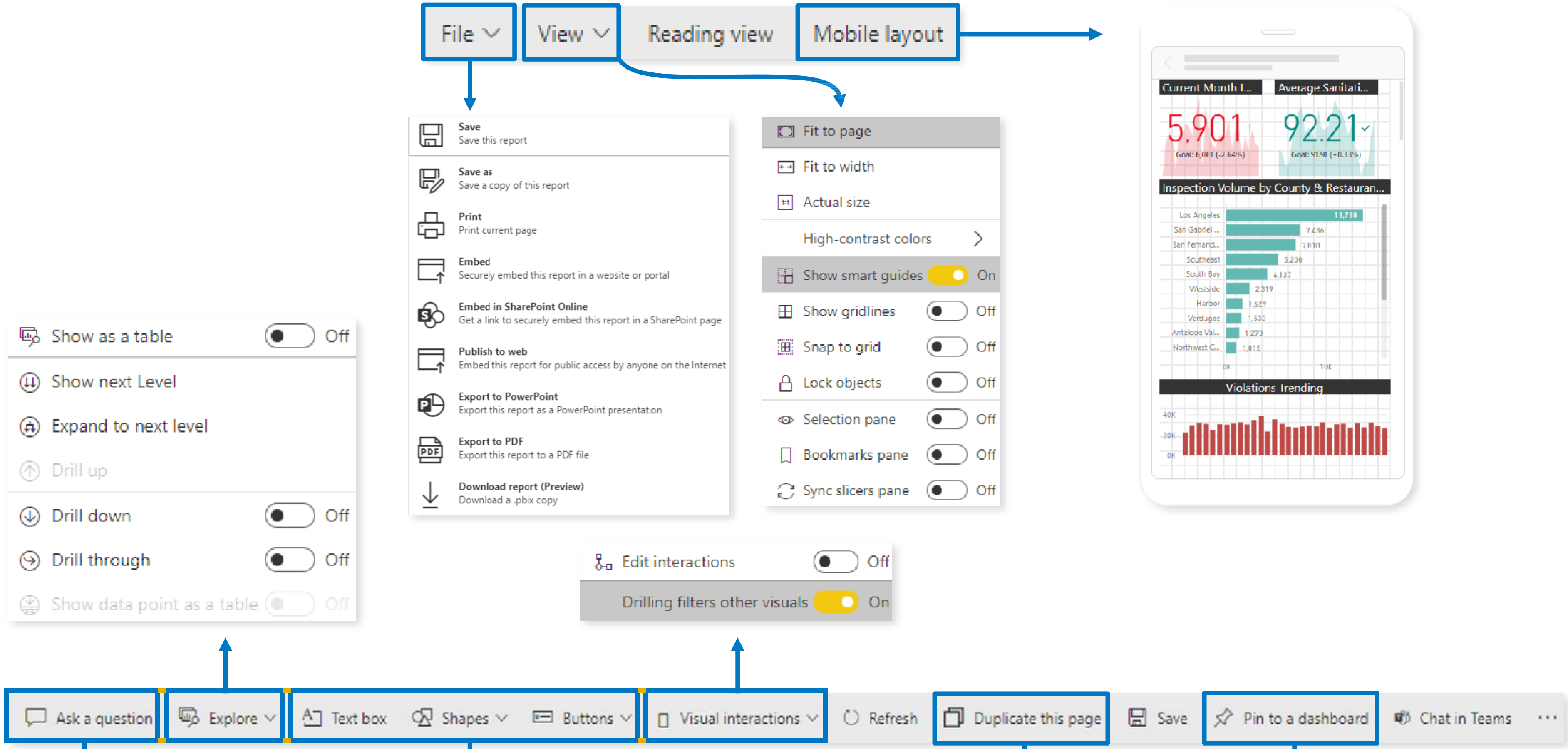
Visualization & Formatting Options (*Charts, Slicers, Maps, Matrices, etc.*)

Filters Pane (*Drill through Filters*)

Report and Dashboard
Report reading tools



Report and Dashboard
Report editing tools

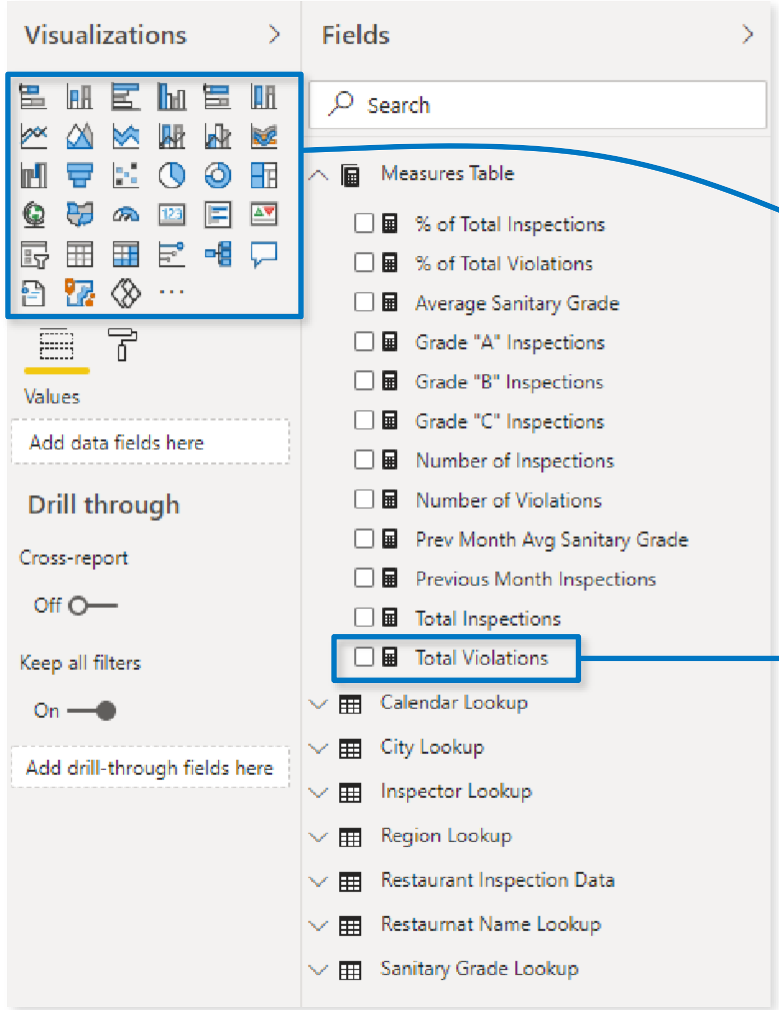


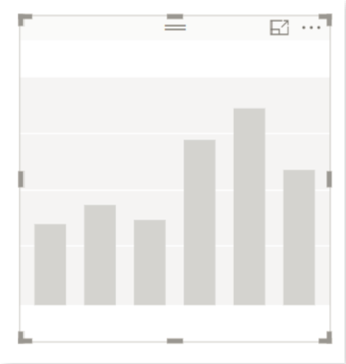
Use natural language to ask **questions**

Insert **text**, **shapes**, or **buttons**

Add a **duplicate** page into the same report

Pin entire report to a dashboard





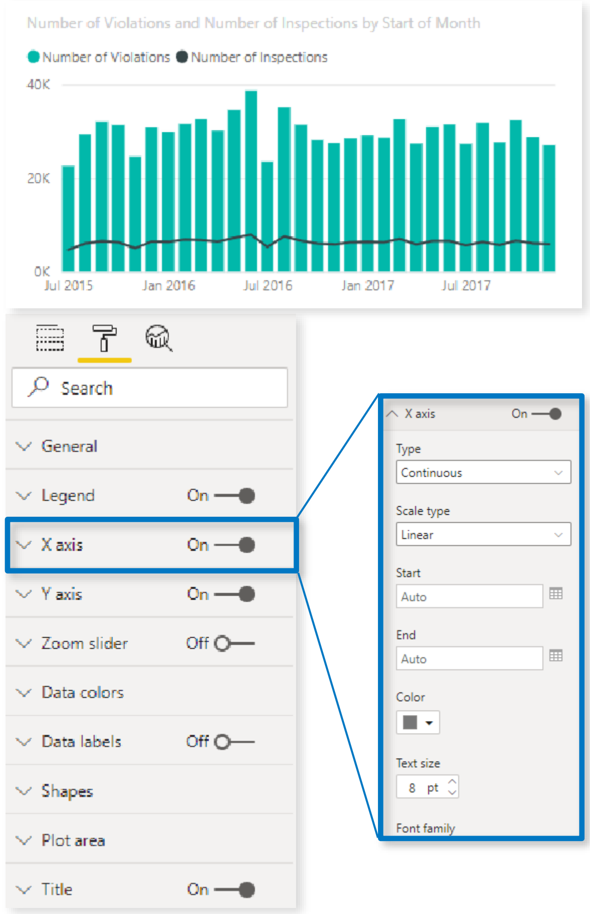
Select a **visualization type** to create a blank chart template on the canvas

(or)

Drag **fields** into the report canvas to automatically generate a new visual *(typically a column chart, by default)*

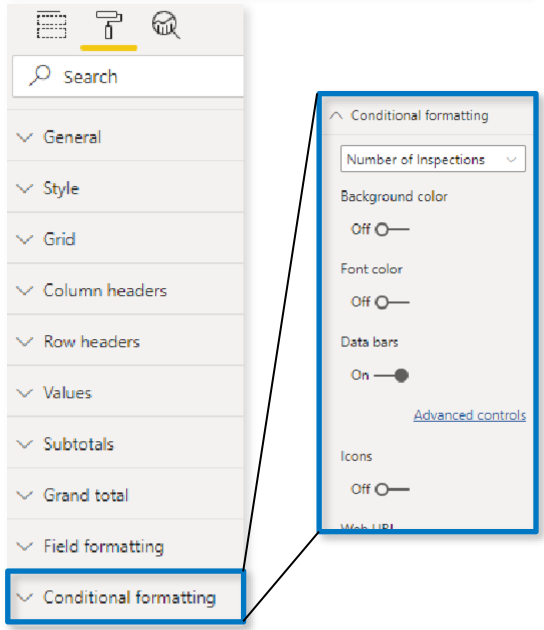
Report and Dashboard
Basic visual

Example: ***Line & Column Chart***

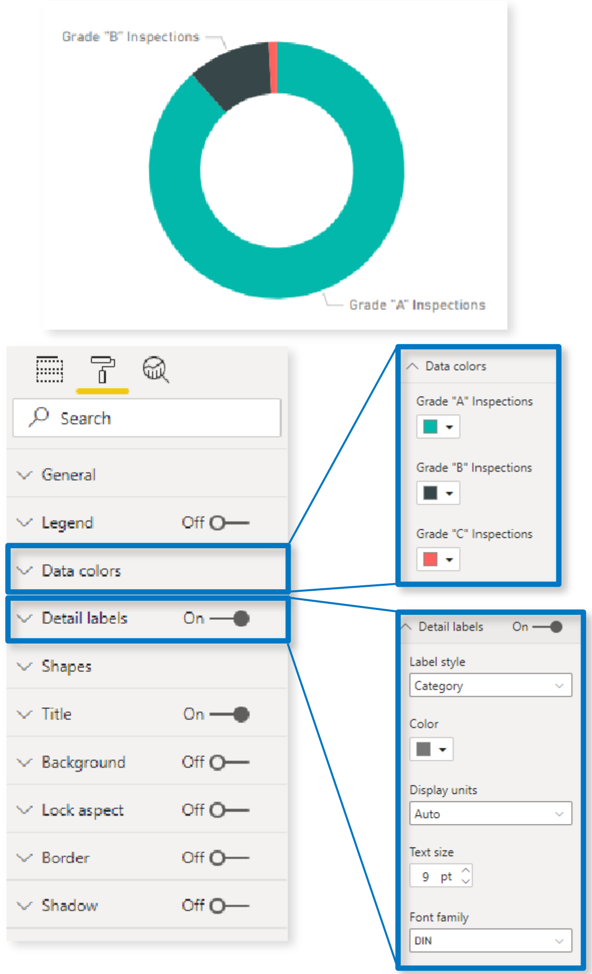


Example: ***Matrix***

facility_region	Number of Inspections	Number of Violations
Los Angeles	13,758	271,118
San Gabriel Valley	7,436	141,426
San Fernando Valley	7,010	137,167
Southeast	5,200	92,571
South Bay	4,137	81,763
Westside	2,319	38,339
Harbor	1,629	32,688
Verdugos	1,533	34,471
Antelope Valley	1,270	20,017
Northwest County	1,015	11,401
Pomona Valley	1,000	17,090



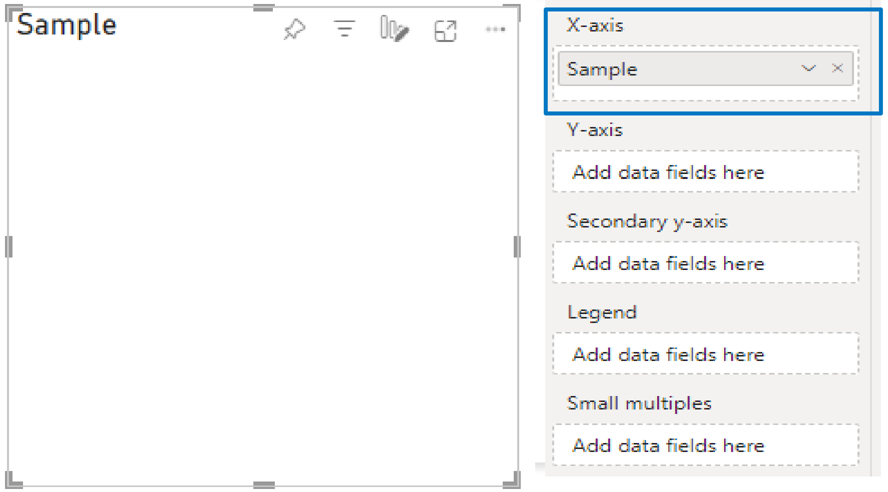
Example: ***Donut Chart***



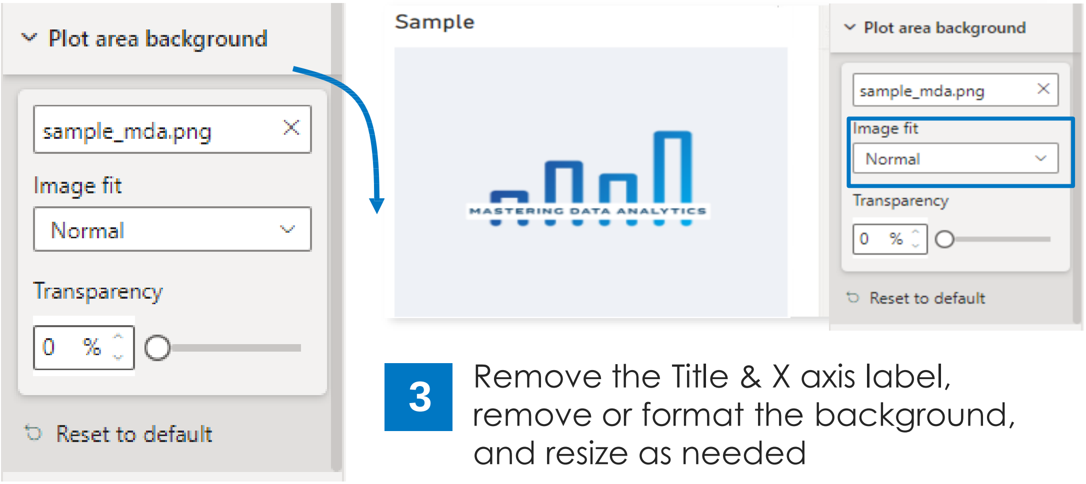
MASTERING DATA ANALYTICS

While **adding images** to reports in Power BI Desktop is simple, the process isn't as straightforward in Power BI Service

1 Select any visual with plot area (*bar, line, area, etc.*) add a dimension to the axis but leave all other fields blank



2 Add an image from file to the plot area (*format pane*) and change Image Fit to "*Fill*"



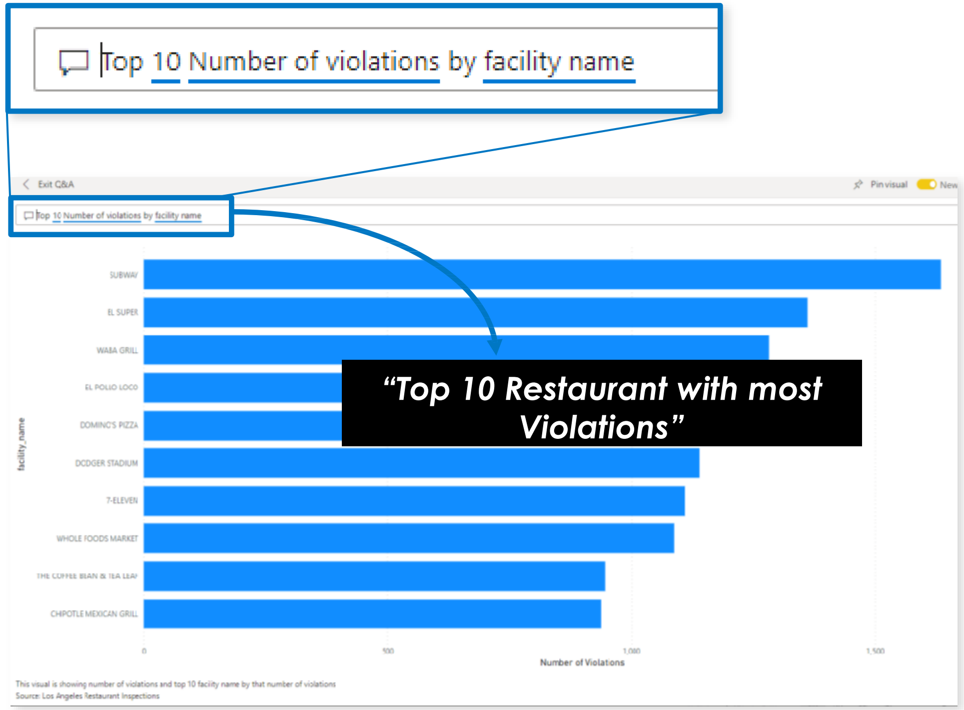
3 Remove the Title & X axis label, remove or format the background, and resize as needed

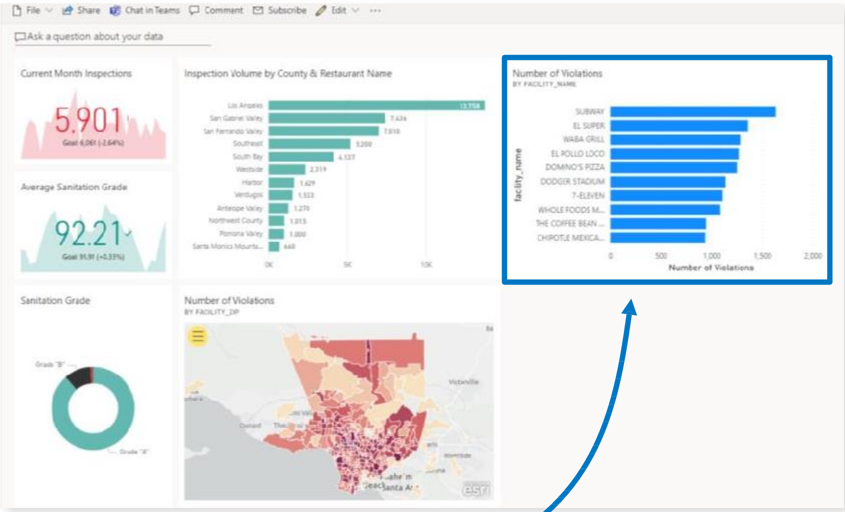
PRO TIP: Plan ahead! If you know you'll need an image in the report, add in Power BI Desktop first

Report and Dashboard
Q&A

MASTERING DATA ANALYTICS

Q&A allows you to visualize and explore your data using **natural language queries**

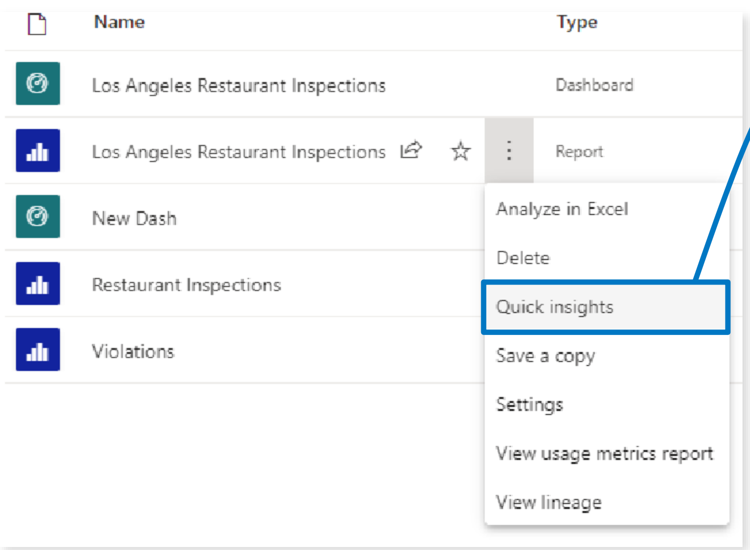


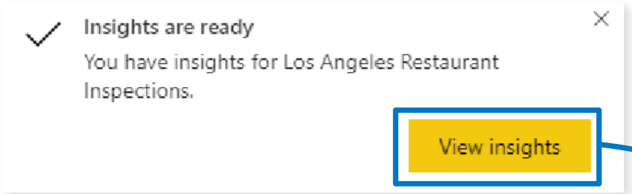


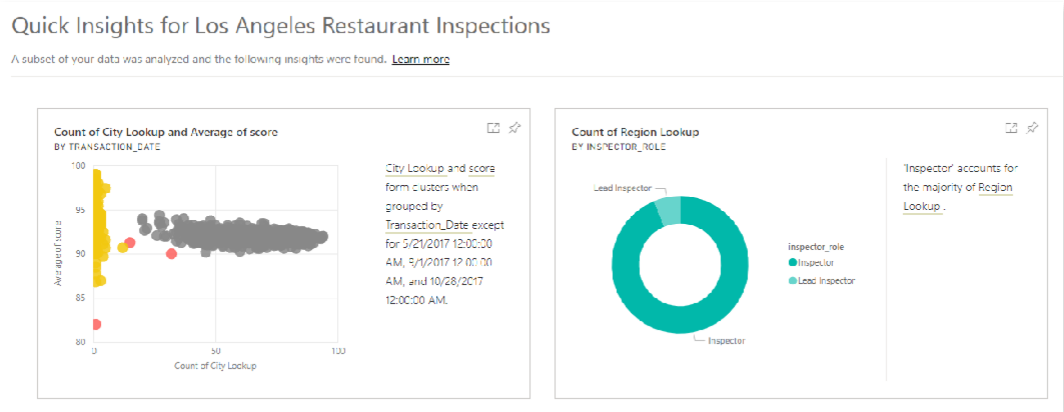
You can even pin the visual to a dashboard!

Report and Dashboard
Quick Insight

The **Quick Insights** tool searches for trends and patterns in your dataset and displays up to 32 individual insight cards with visuals and descriptions







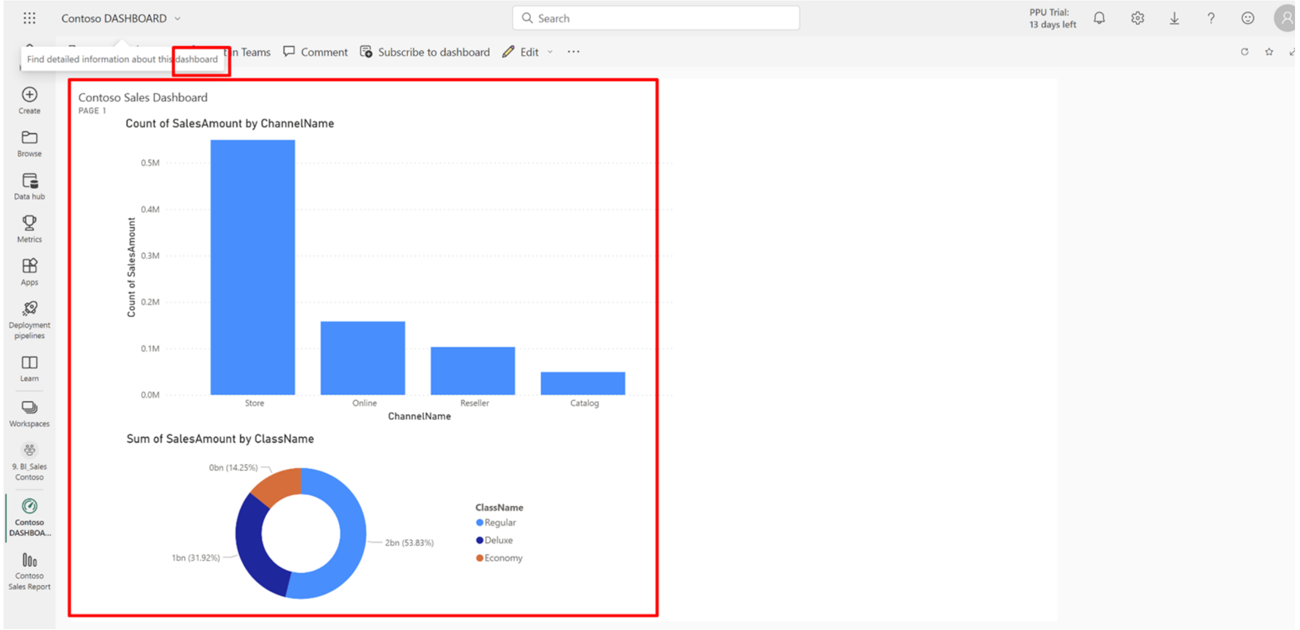
HEY THIS IS IMPORTANT!

Roles (RLS) and **Direct Query** are not supported, so Quick Insights will be grayed out in either case

Dashboard: Highlight to Present

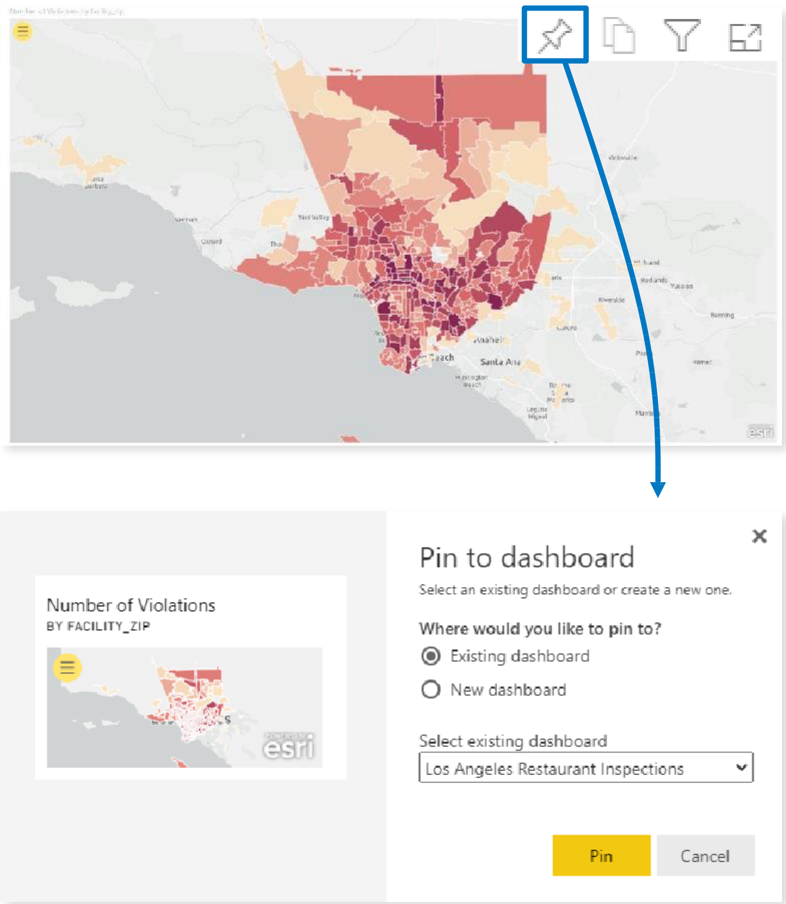
To highlight information from multiple reports.

For example, you can create a Company Highlight Performance Dashboard that combines data from different reports, such as Sales Report, Marketing Report, and Finance Report.



Report and Dashboard
Pinning tiles to a dashboard

Use the pushpin icon to **pin an individual visual** to a dashboard



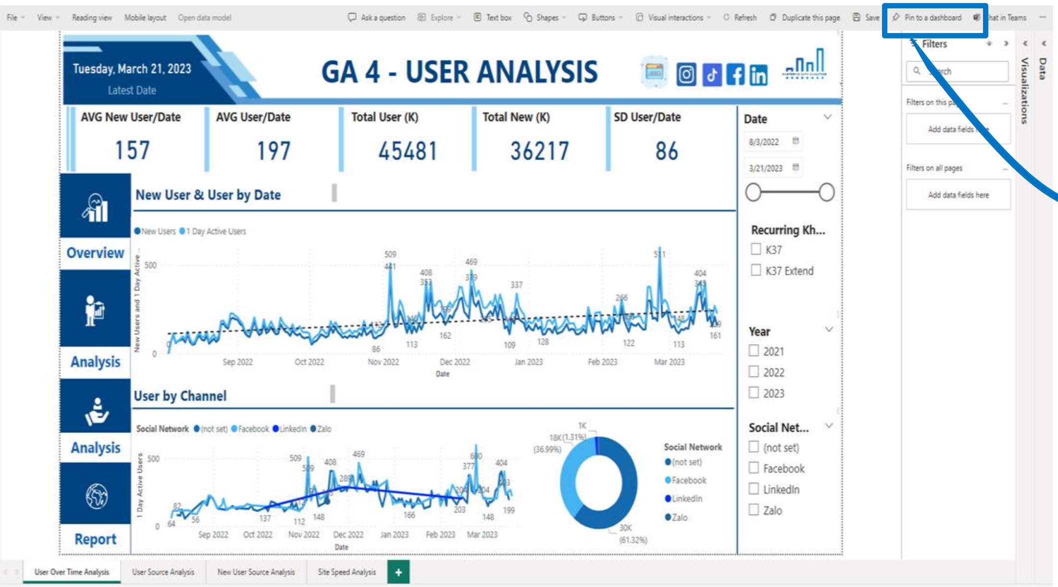
HEADS UP!

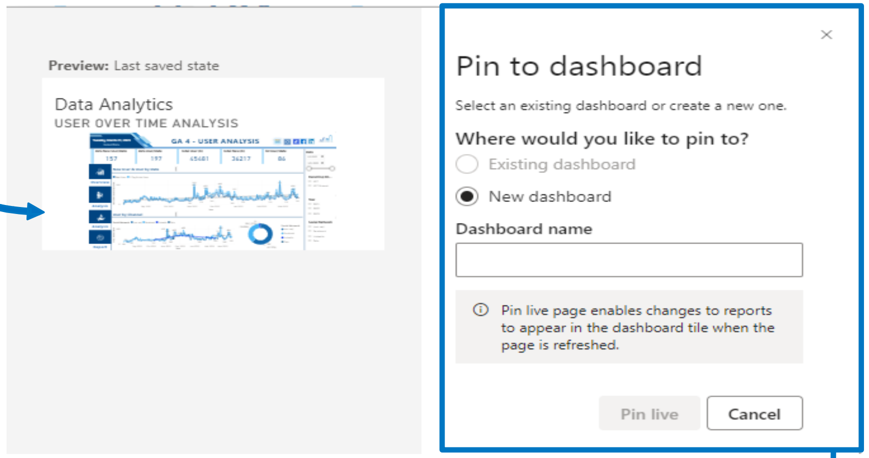
Slicers have some limitations in Power BI, and cannot:

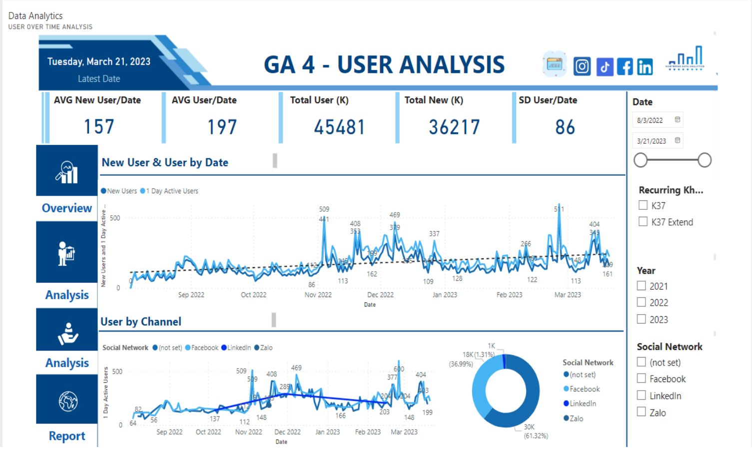
- *Drill down non-hierarchical fields*
- *Support visual level filters*
- *Be pinned to a dashboard individually (they can be pinned as part of a **live page**)*

Report and Dashboard
Pinning entire report to a dashboard

Use the **Pin Live Page** option to pin an entire report to a dashboard

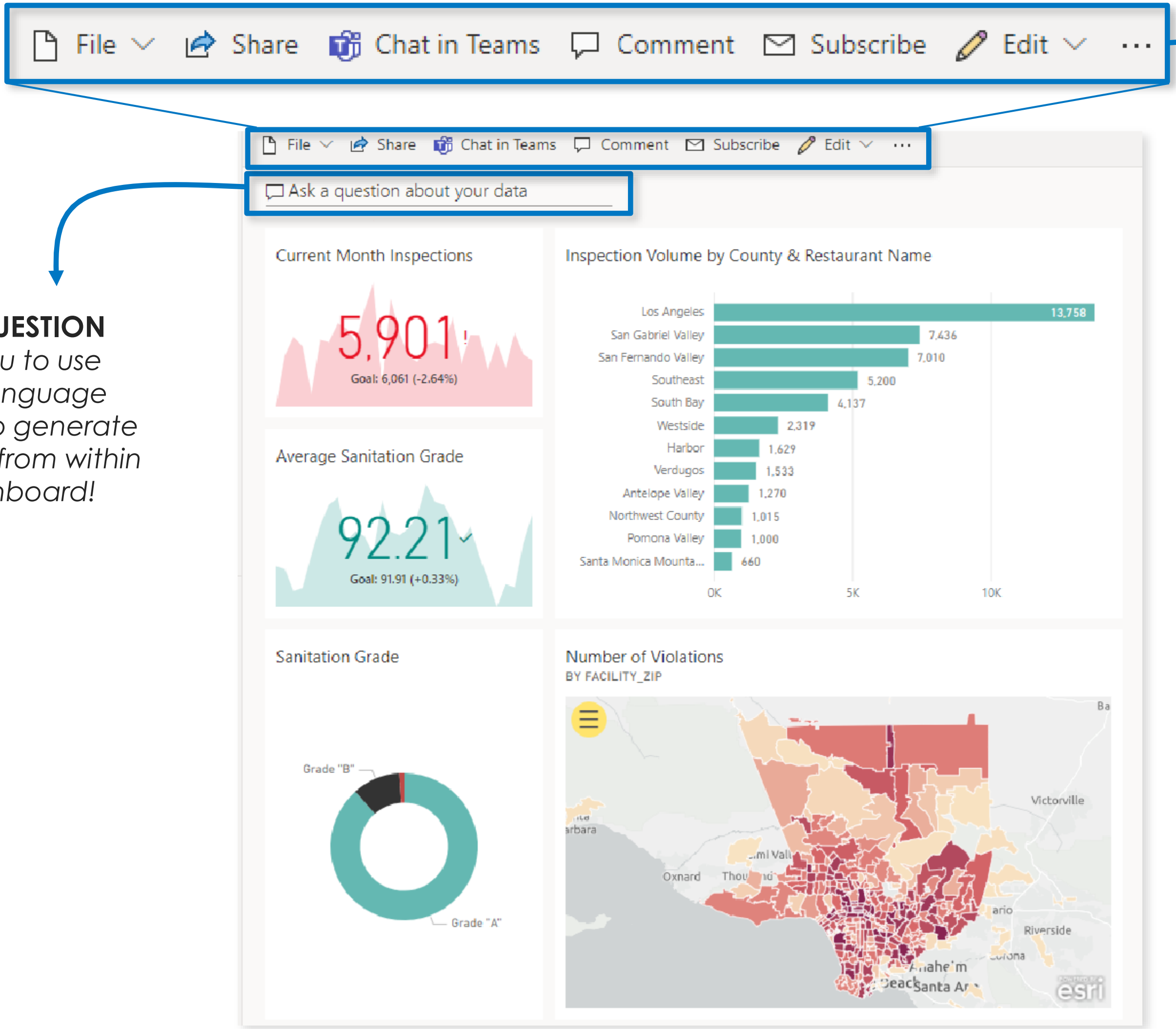






PRO TIP: Pinning a live page will import slicers, preserve functionality, and reflect any updates to the report

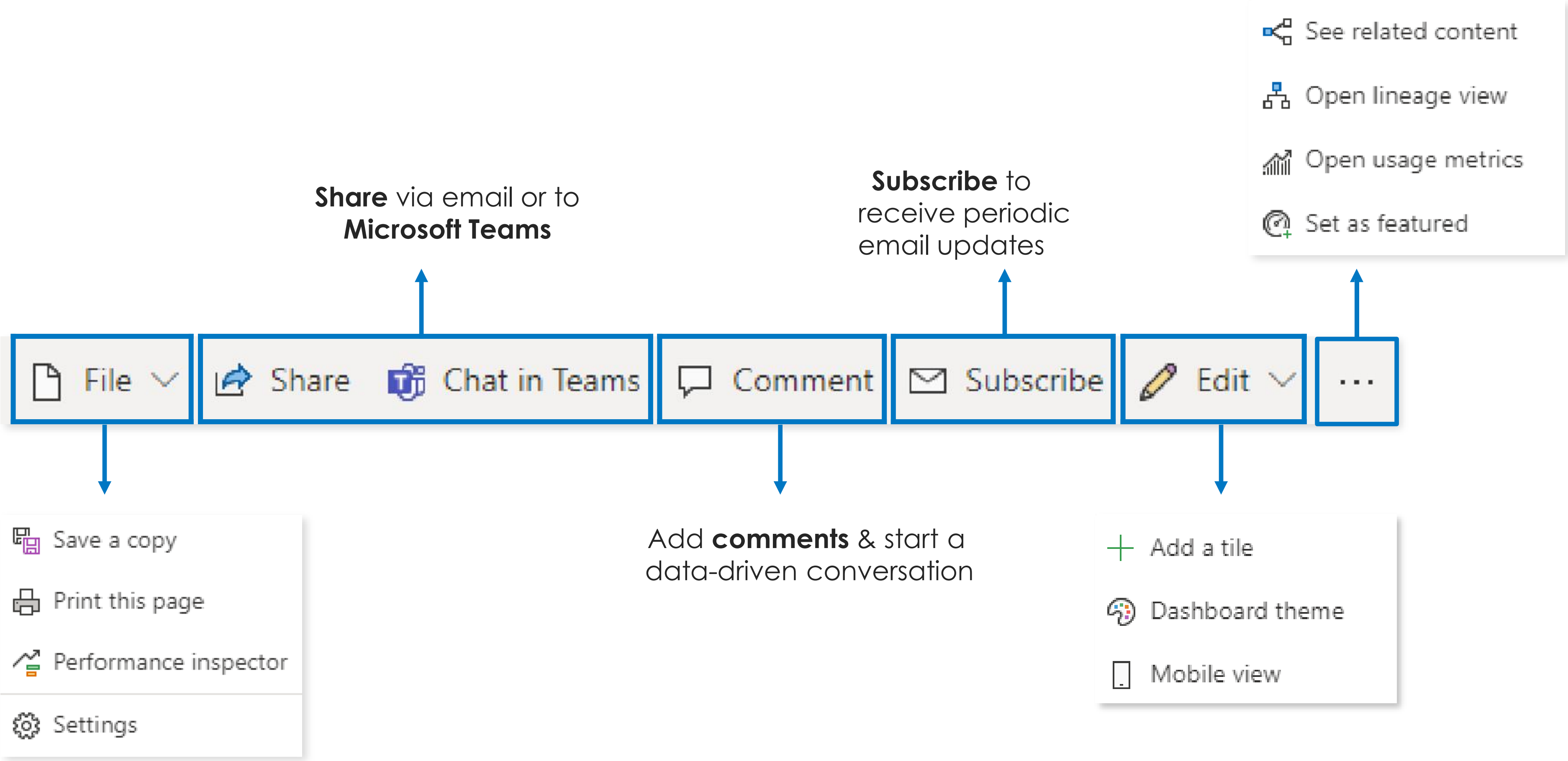
Report and Dashboard
Dashboard interface



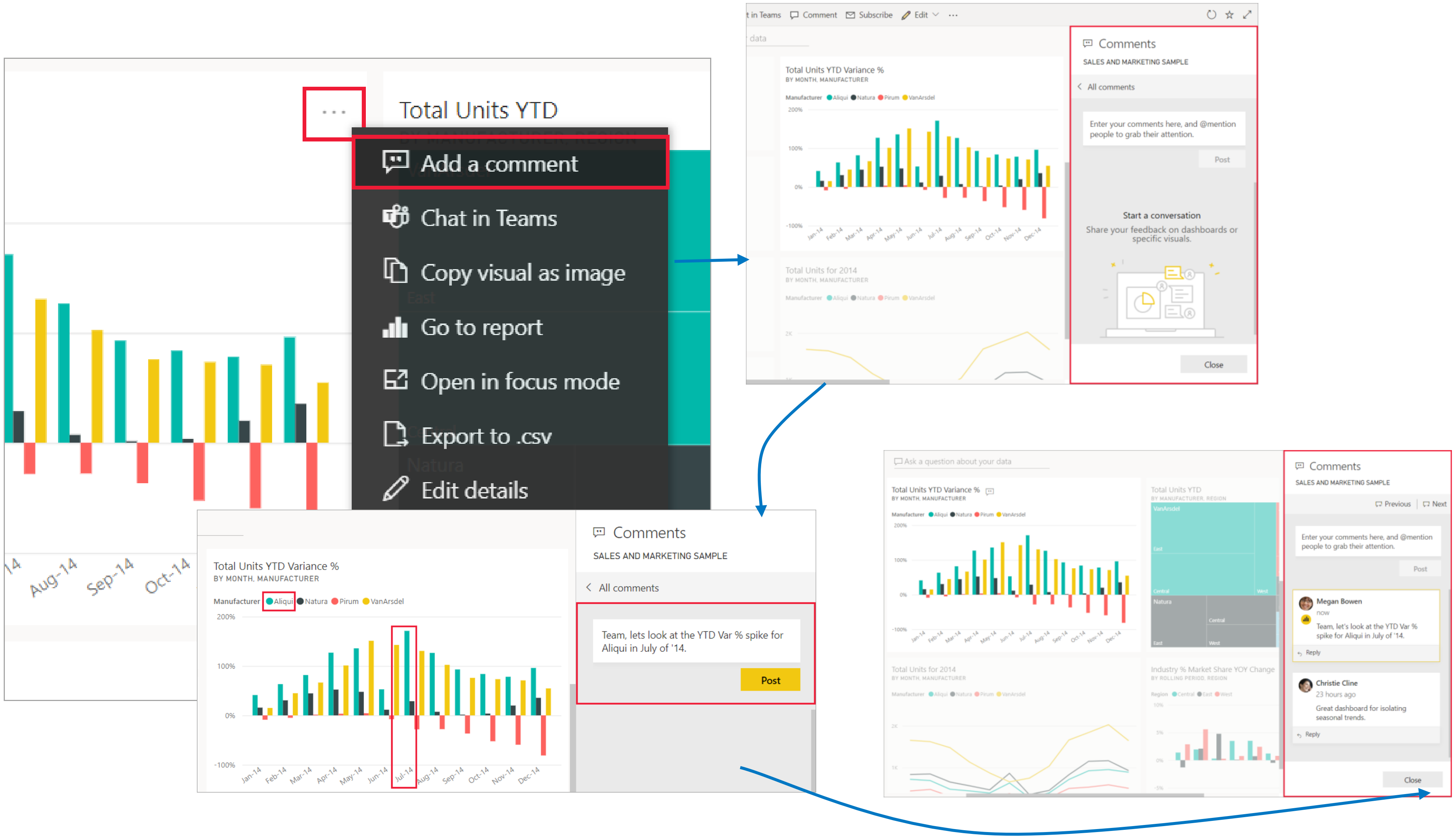
ASK A QUESTION
Allows you to use natural language queries to generate new tiles from within your dashboard!

TOOLBAR
Tools to add new tiles, add/view comments, subscribe, share, set as featured dashboard, etc.

Report and Dashboard
Dashboard tools

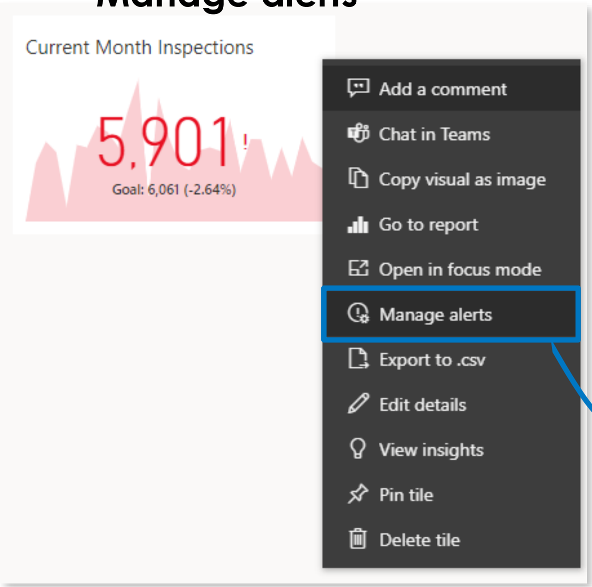


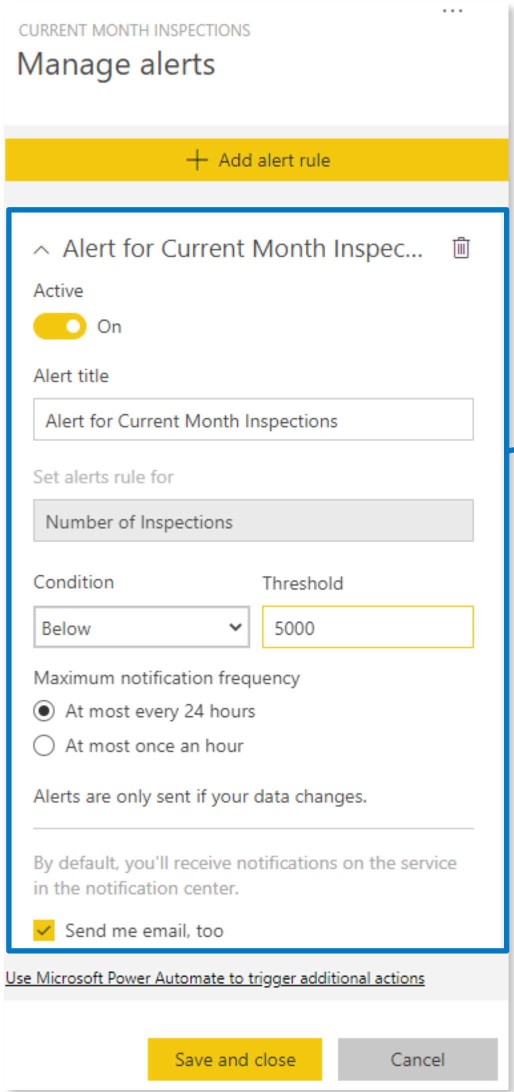
Report and Dashboard
Comment in dashboard



Report and Dashboard
Add alert in dashboard

1 To **add a new alert**, click the ellipsis next to a dashboard tile and select **Manage alerts**



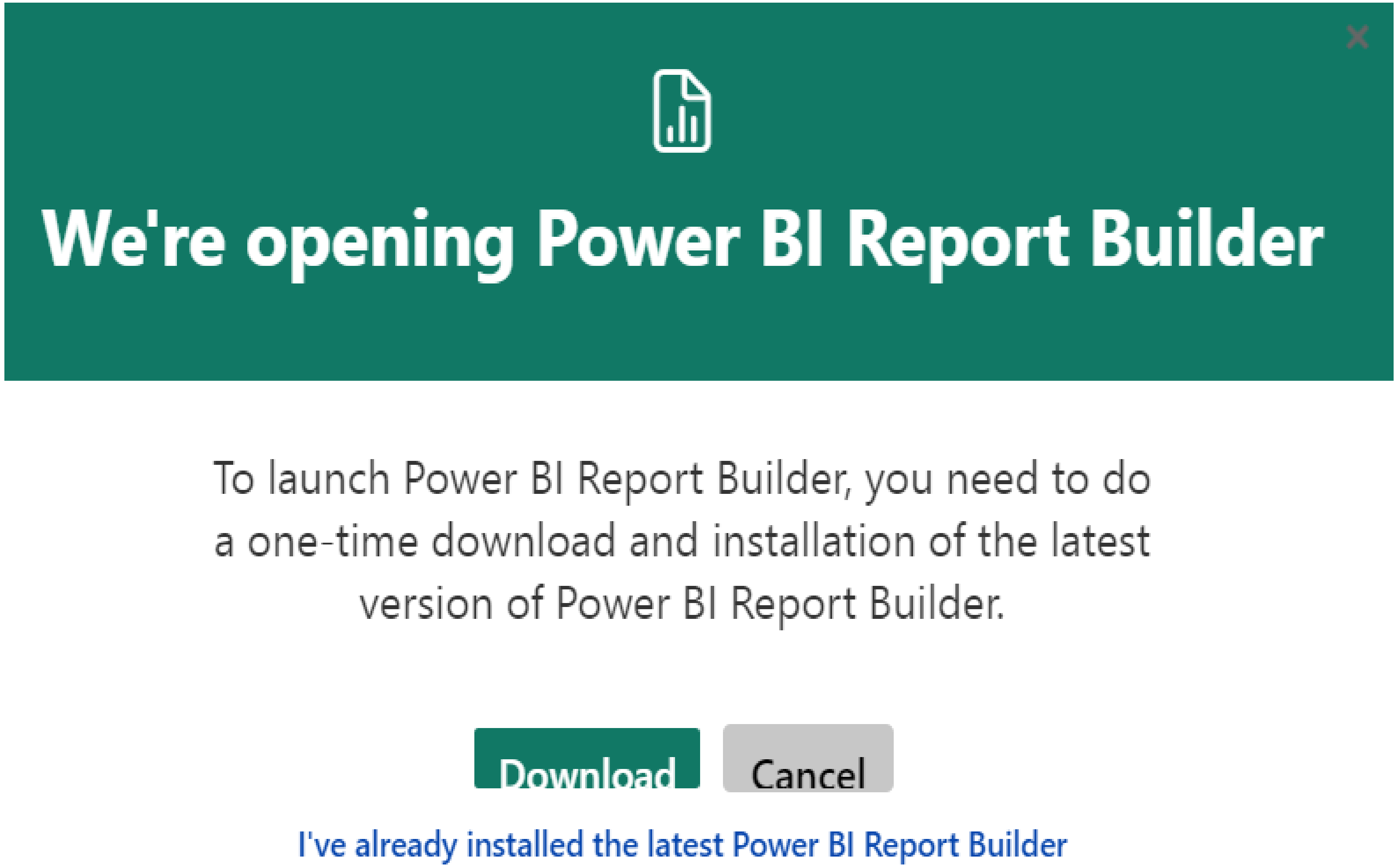


2 **Configure** your alert with a name, condition threshold, and notification cadence, then click **Save and close**

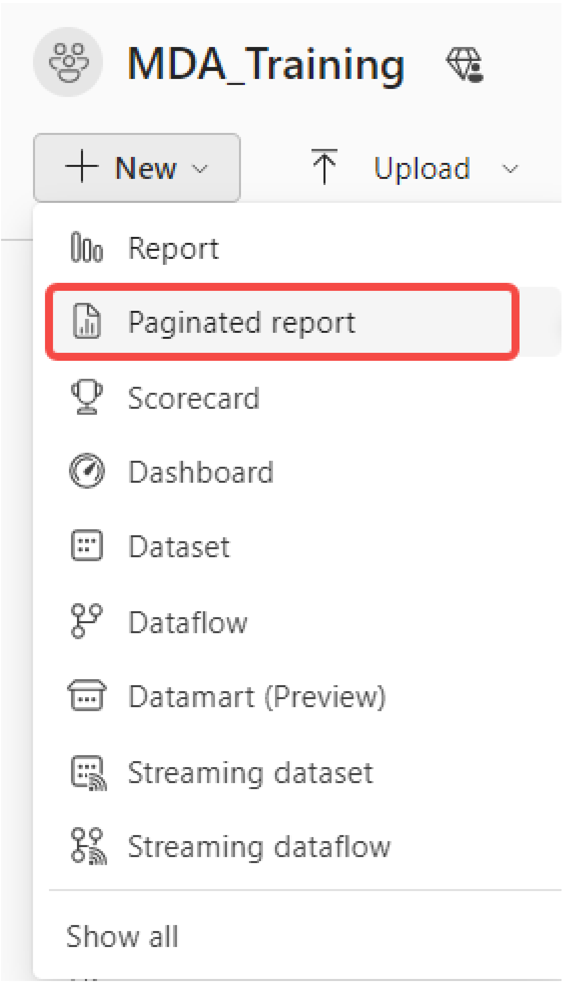
HEY THIS IS IMPORTANT!

Alerts can ONLY be set on **gauge charts**, **KPI cards**, and **cards**; they DO NOT work with live pinned report pages

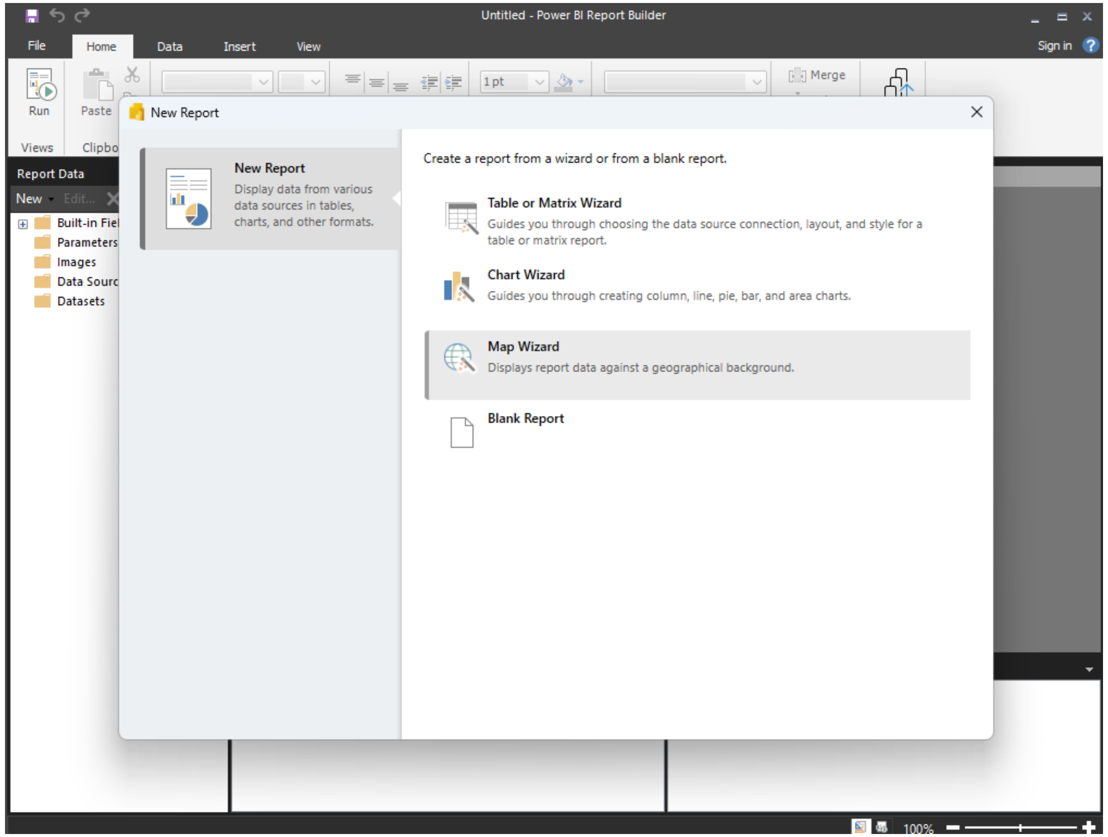
Report & Dashboard
Report Builder



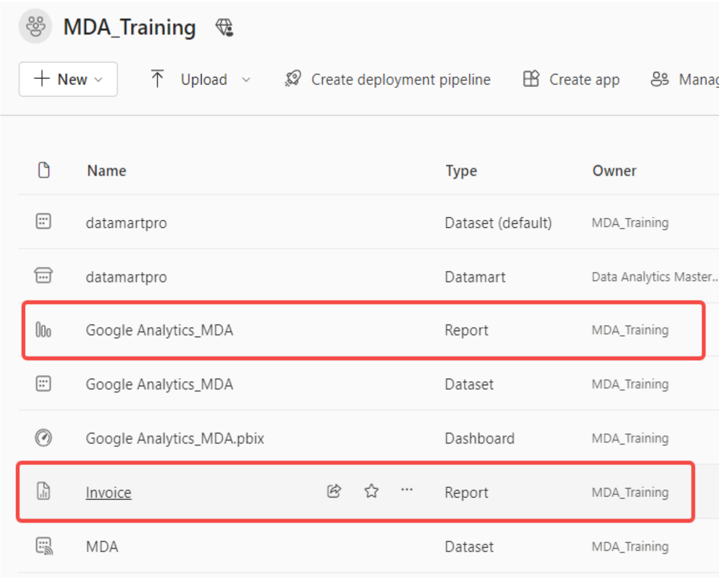
Report & Dashboard
Paginated report



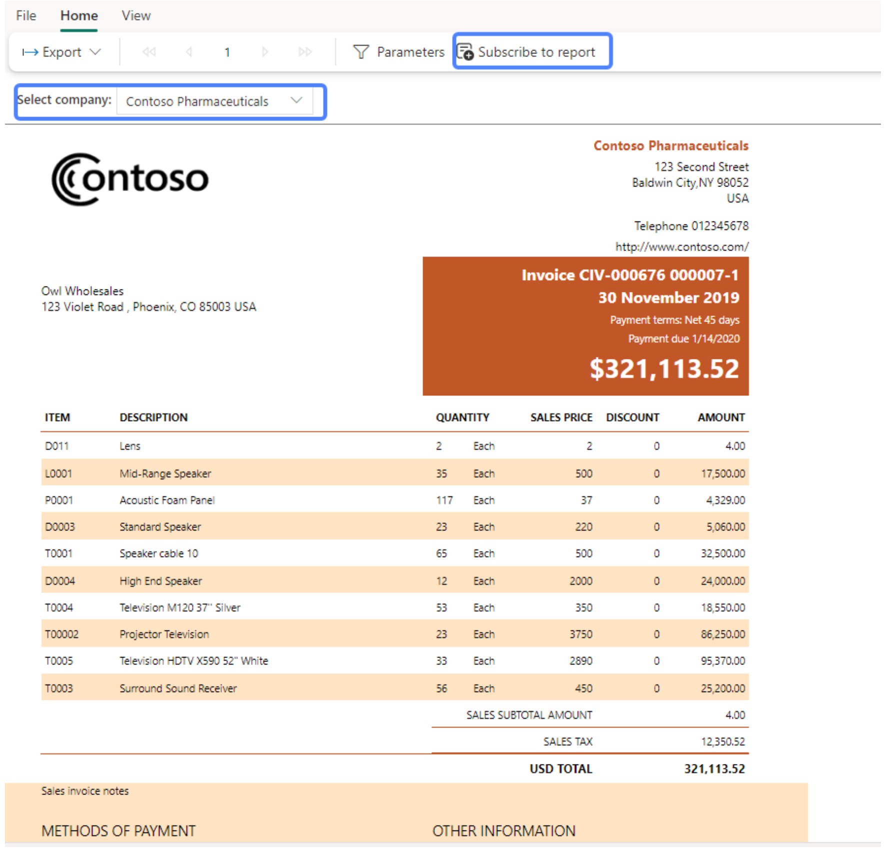
Report Builder (build paginated report)



Report & Dashboard
Paginated report



You can see paginated report and use parameters.



POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

PART 5: Report and Dashboard

PART 6: Refresh, Scorecard vs. Metrics

PART 7: Sharing, Collaboration

PART 8: Deployment Pipelines

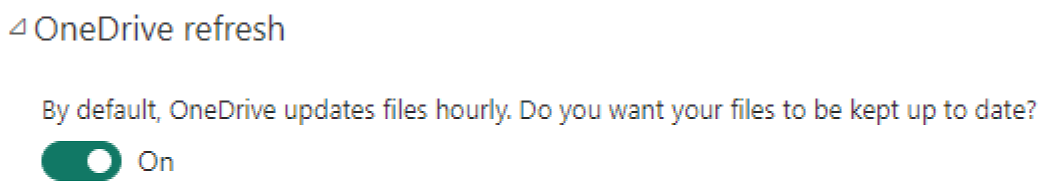
Refresh, Scorecard vs Metrics
Refresh

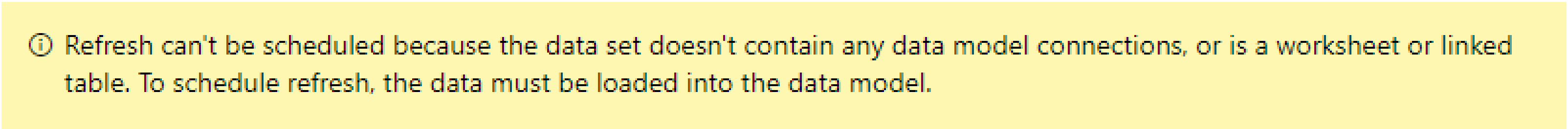
Feature [3]	Power BI Pro	Power BI Premium Per user	Power BI Premium Per capacity
Collaboration and analytics			
Mobile app access	●	●	●
Publish reports to share and collaborate	●	●	
Paginated (RDL) reports	●	●	●
Consume content without a per-user license			●
On-premises reporting with Power BI Report Server			●
Data prep, modeling, and visualization			
Model memory size limit[5]	1 GB	100 GB	400 GB
Refresh rate	8/day	48/day	48/day

- Refresh dataset
- Refresh dataflow
- Refresh datamart
- Refresh report
- Refresh dashboard

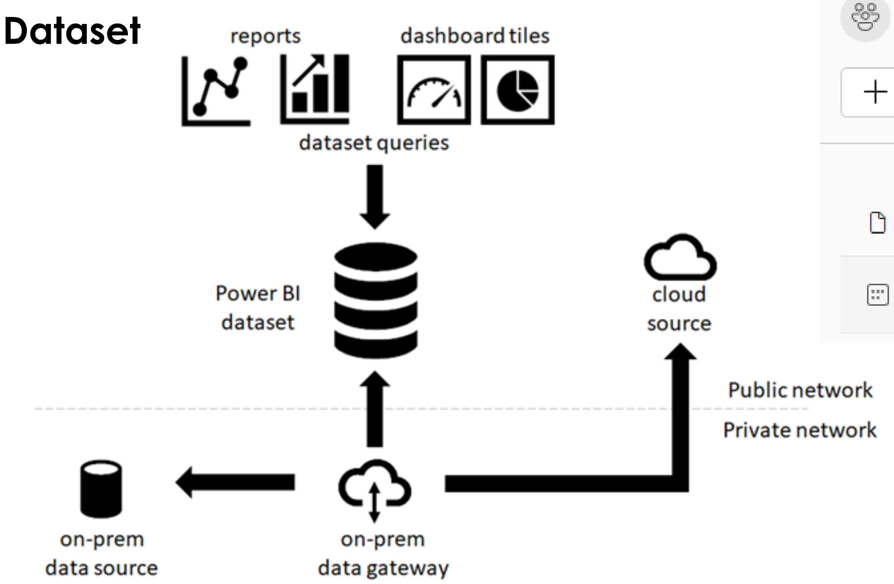
- **Refresh dataset**
- Refresh dataflow
- Refresh datamart
- Refresh report
- Refresh dashboard

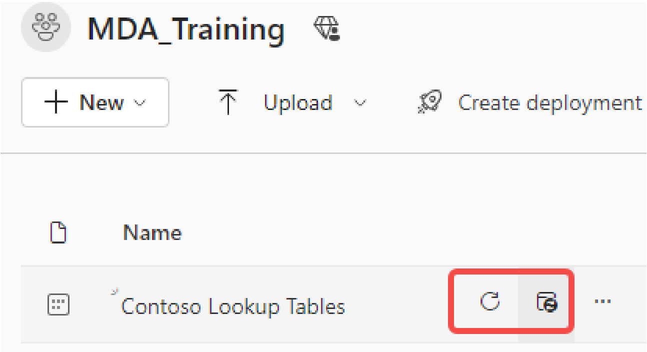
Dataset

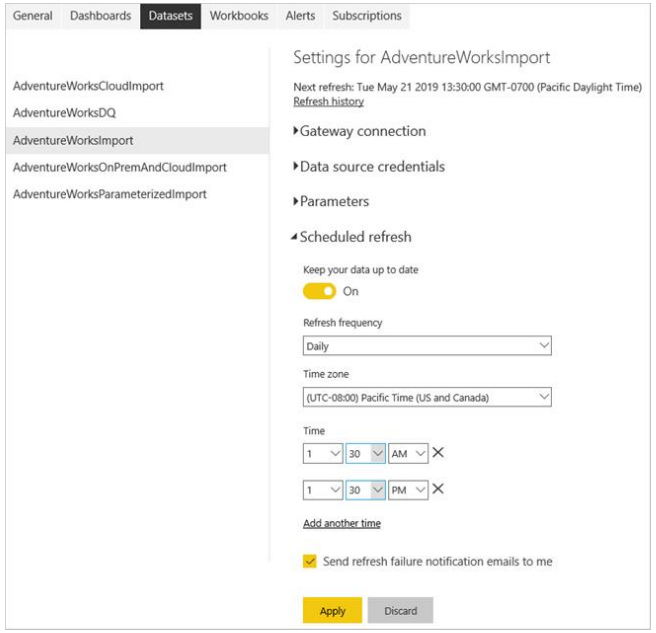

OneDrive refresh
By default, OneDrive updates files hourly. Do you want your files to be kept up to date?
On


Refresh can't be scheduled because the data set doesn't contain any data model connections, or is a worksheet or linked table. To schedule refresh, the data must be loaded into the data model.

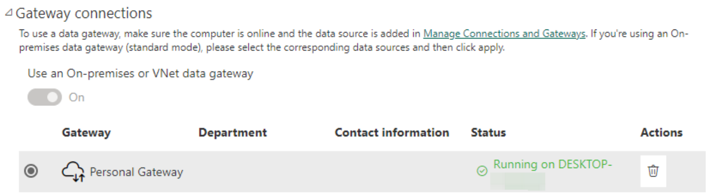
Refresh, Scorecard vs Metrics
Refresh





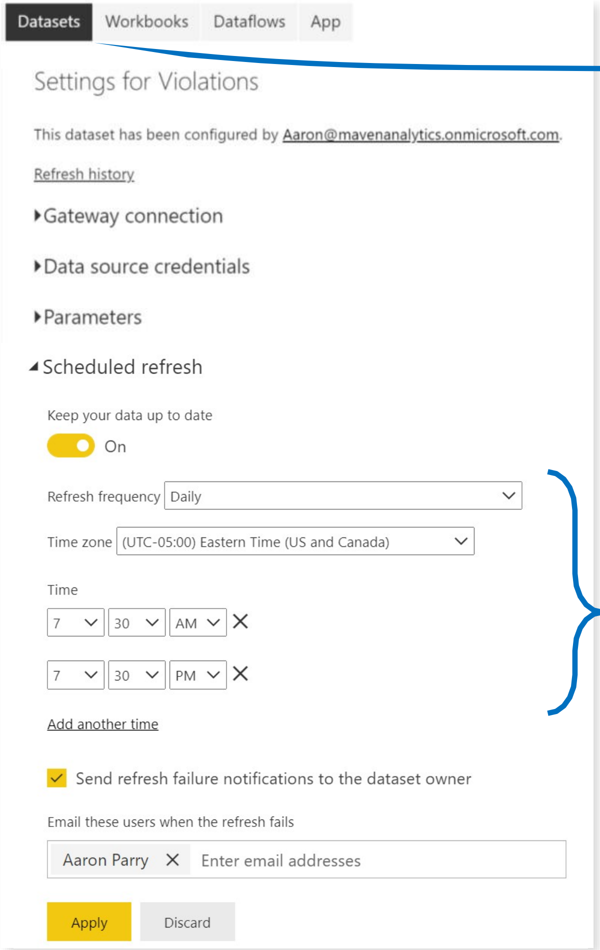


Need Gateway (Personal mode)



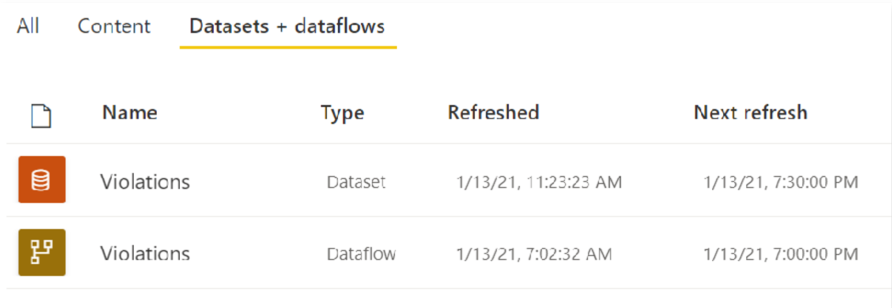
Refresh, Scorecard vs Metrics
Scheduled refresh on Dataflow, Datamart, Dataset

You can also configure **scheduled refresh** for other types of datasets



*Select the dataset to refresh and click **Scheduled Refresh** or **Settings** from the ellipsis menu options*

Confirm dataset refresh is working properly (schedules align, errors, etc.)



Name	Type	Refreshed	Next refresh
Violations	Dataset	1/13/21, 11:23:23 AM	1/13/21, 7:30:00 PM
Violations	Dataflow	1/13/21, 7:02:32 AM	1/13/21, 7:00:00 PM

*Set a **Frequency** (daily or weekly), **Time Zone**, and **Time** (half-hour increments AM/PM)*

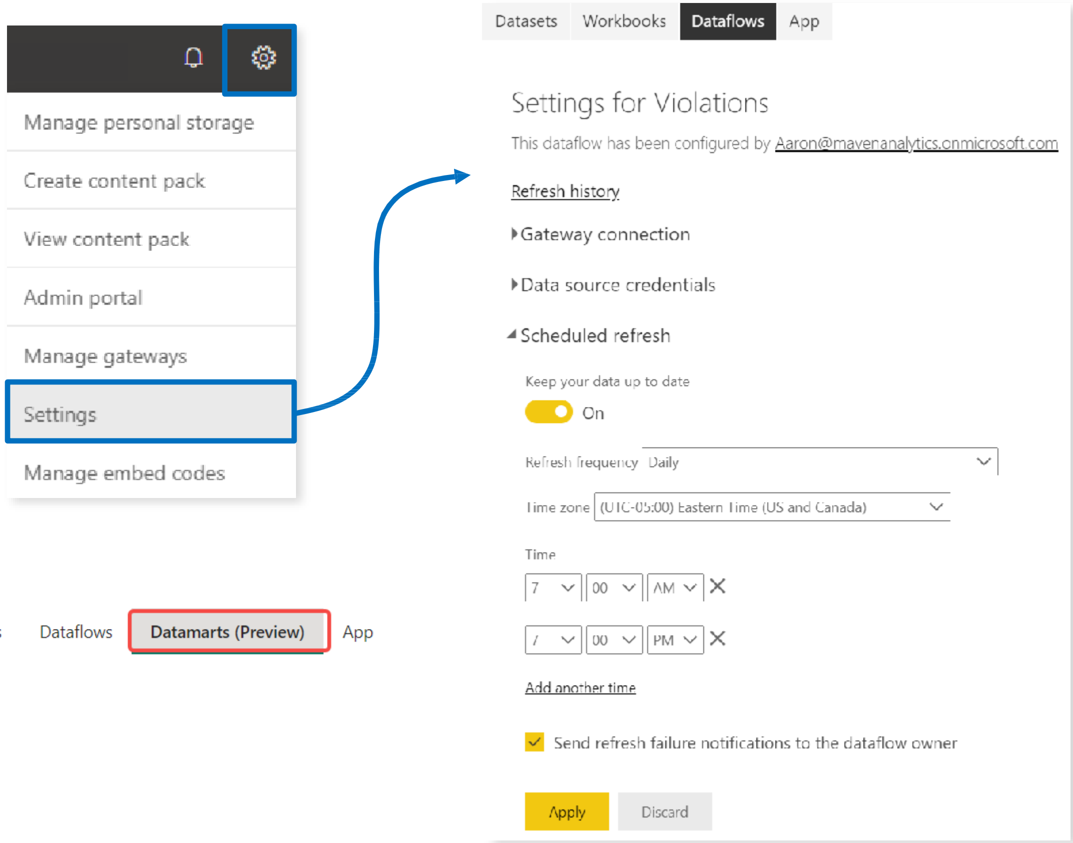
PRO TIP: Offset the dataflow and dataset scheduled refresh times, if they run concurrently the dataset won't reflect recent updates

Refresh, Scorecard vs Metrics
Refresh

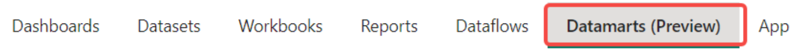
- Refresh dataset
- **Refresh dataflow**
- **Refresh datamart**
- Refresh report
- Refresh dashboard

Refresh, Scorecard vs Metrics
Refresh

Scheduled refresh allows you to keep your Power BI reports up to date by automatically refreshing dataflows, datamart based on a given frequency & time of day



*Set **daily** or **weekly** refresh frequencies based on a time zone*

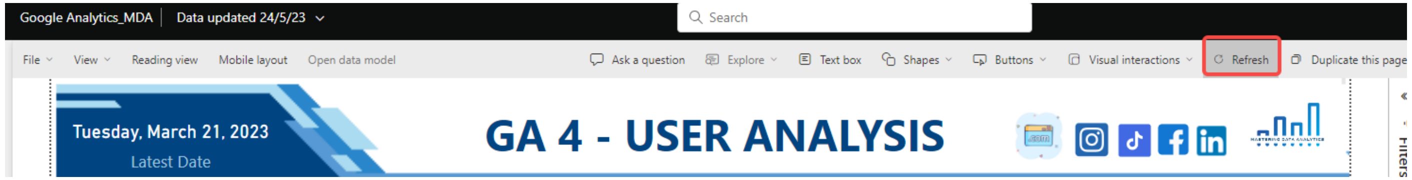


*Pro licenses can add up to **eight** refreshes per day*

- Refresh dataset
- Refresh dataflow
- Refresh datamart
- **Refresh report**
- **Refresh dashboard**

Refresh, Scorecard vs Metrics
Refresh

Refresh report & dashboard

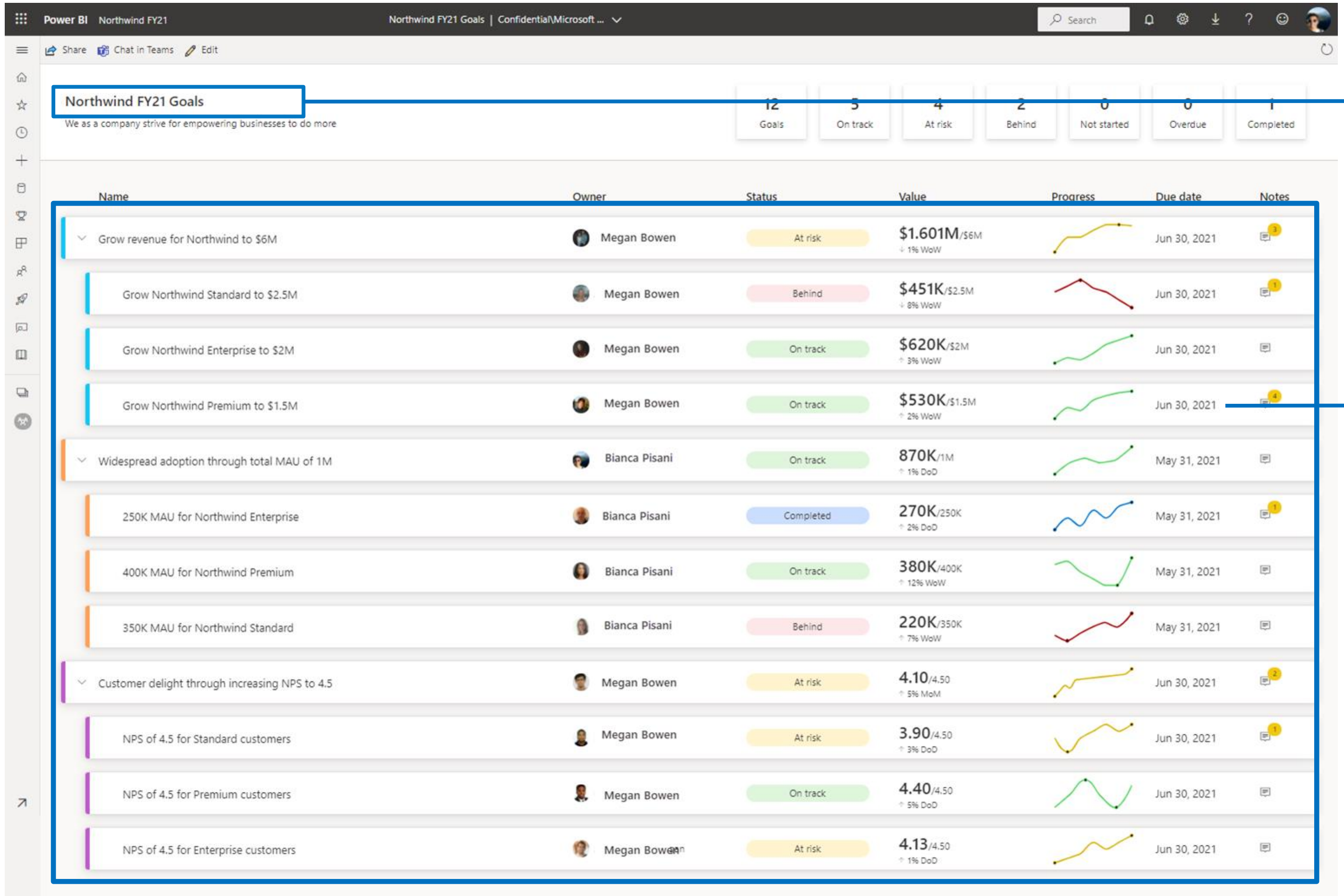


Refreshing report => Dashboard automatically refresh

Scorecard

- Power BI Scorecards serve as a centralized platform for visualizing and analyzing Key Performance Indicators (KPIs) for employees, teams, and business areas.
- They enable organizations to assess overall performance and productivity in a visually appealing manner.
- Scorecards provide a consolidated view of KPIs, allowing for easy monitoring and analysis.
- They help track progress, identify trends, and make data-driven decisions.
- Power BI Scorecards offer an aesthetically pleasing presentation of KPIs, enhancing the understanding and engagement of users.

Refresh, Scorecard vs Metrics
Scorecard

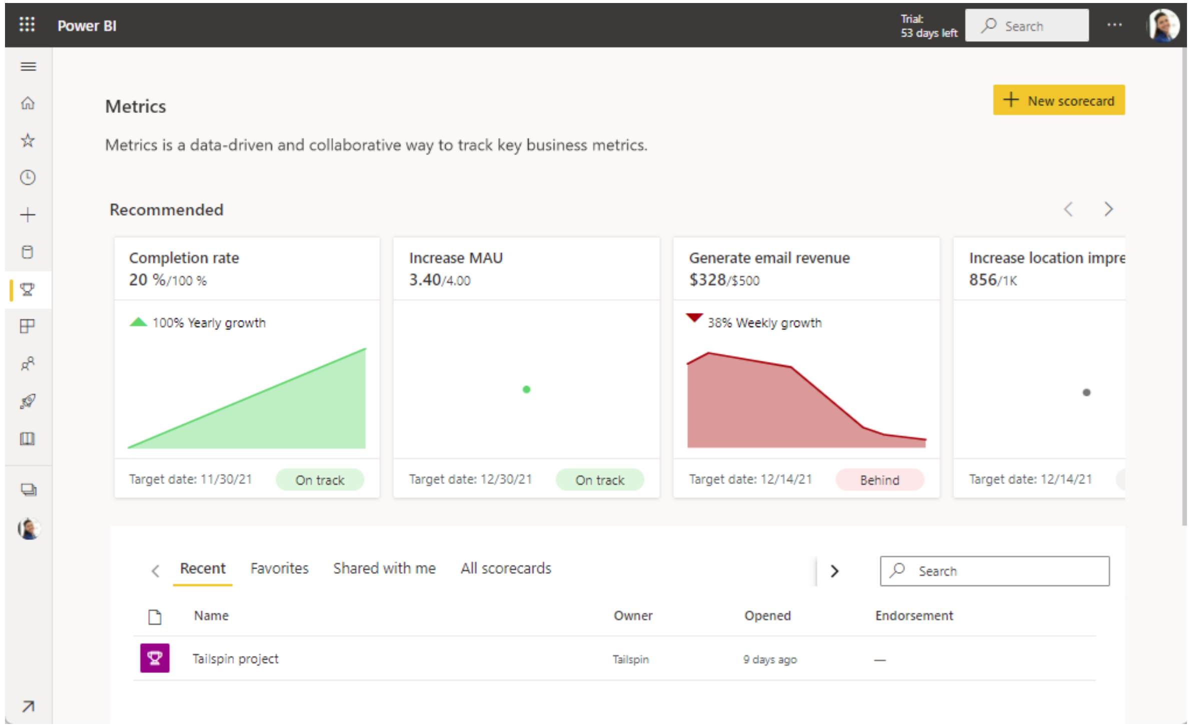


Scorecard

Metrics

Refresh, Scorecard vs Metrics
Metrics

Metrics in Power BI let customers curate their metrics and track them against key business objectives, in a single pane. This feature enhances data culture by promoting accountability, alignment, and visibility for teams and initiatives within organizations.



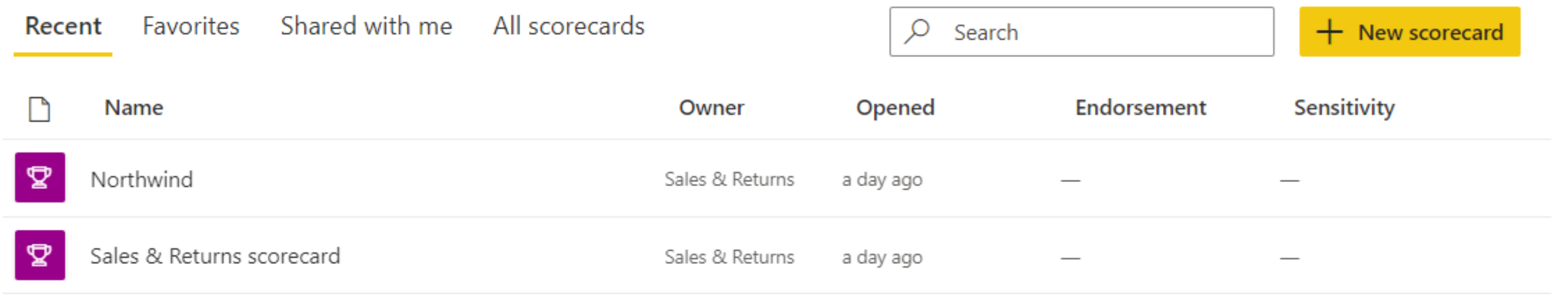
License requirements

Users can access various aspects of the experience depending on their license.

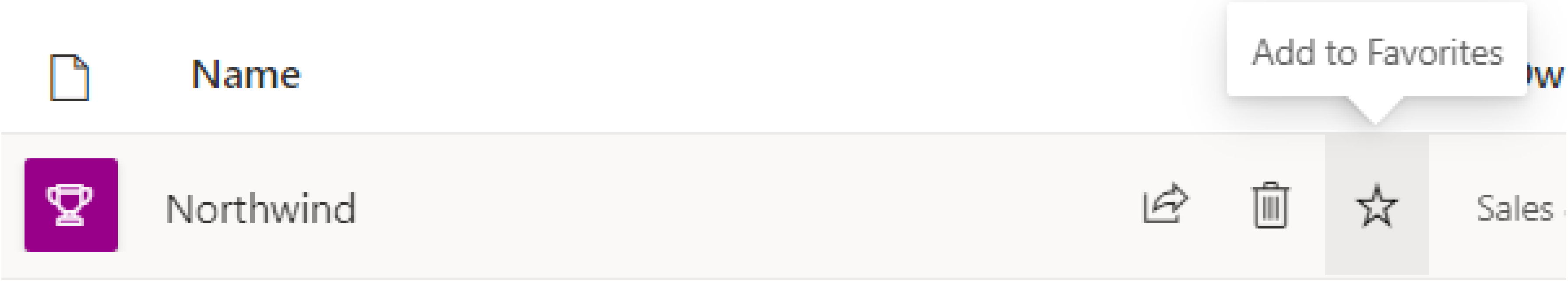
Permission	Minimum requirements
Author and share scorecards and metrics, and perform check-ins	Power BI Pro license
View scorecards and metrics	Power BI Premium capacity + Free user OR Power BI Pro license
View scorecard samples and author scorecards in My Workspace	Free user

Recent, Favorites, Shared with me, and All Scorecards

The next section is a tabbed list.



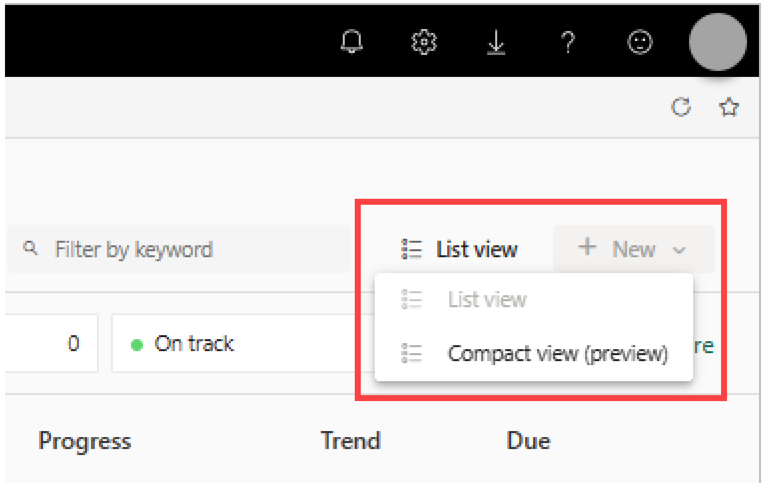
- **Recent** are the scorecards you've visited most recently. Each item has a timestamp.
- **Favorites** are the scorecards you've starred.



- **Shared with me** contains scorecards that your colleagues have shared with you.
- **All scorecards** lists all the scorecards you have access to.

Change the scorecard view

When you're viewing your scorecard, you can also change the view from **List view** to **Compact view**, which is currently in preview.



Compact view adjusts to various screen sizes and supports resizing columns. You can do everything you can do in list view, except editing and creating a new metric.

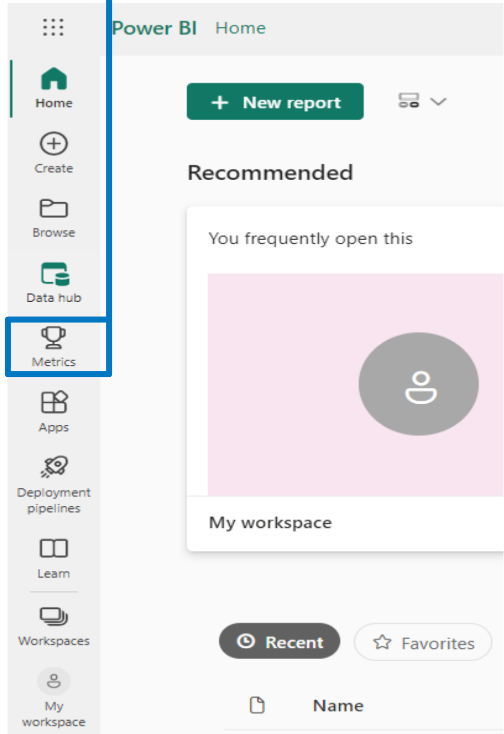
Refresh, Scorecard vs Metrics

- Creating scorecard
- Creating metric

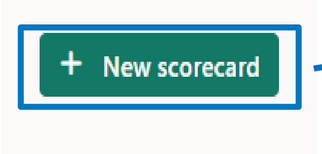
Refresh, Scorecard vs Metrics

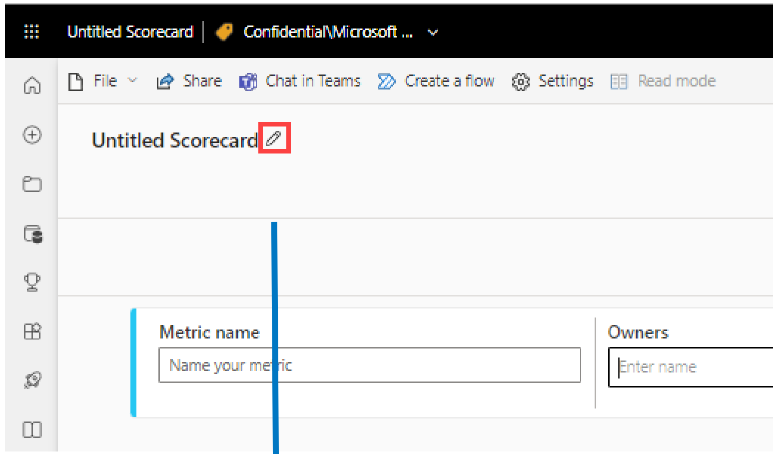
Create scorecard

Select **Metrics** in the navigation pane



Select **New scorecard**





Select the edit pencil next to **Untitled Scorecard** and new scorecard a name

Refresh, Scorecard vs Metrics

Create scorecard

Power BI saves these items in the workspace: the scorecard itself, and a *dataset* associated with your scorecard that houses all the metrics data.

My workspace

+ New ⌄ ⤒ Upload ⌄ View ⌄ Filters

All Content Datasets + dataflows

	Name	Type	Owner	Refreshed	Next refresh	Endorsement	Sensitivity
	Product Analysis	Dashboard	Data Analytics Master...	—	—	—	—
	Sample_metrics	Scorecard	Data Analytics Master...	17:13:05 4/5/23	—	—	—
	Sample_metrics	Dataset	Data Analytics Master...	17:13:05 4/5/23	N/A	—	—

PRO TIP: You can also define one or more submetrics for your metric. Like their parent metrics, submetrics can be either connected or set manually.

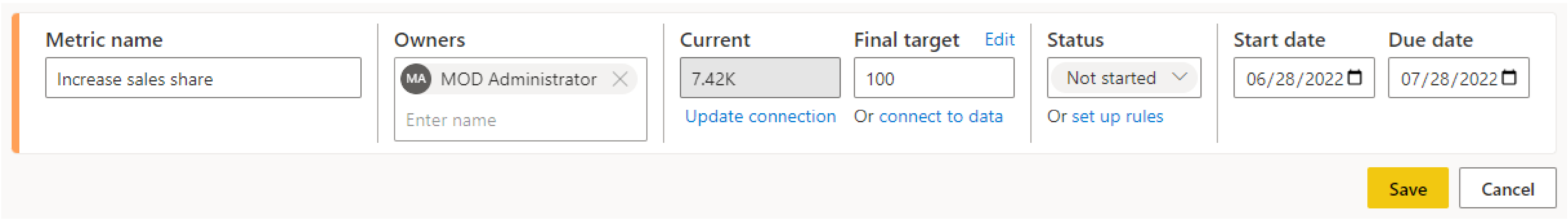
Refresh, Scorecard vs Metrics

- Creating scorecard
- Creating metric
  - Creating connected metrics
  - Creating submetrics
  - Creating automate metrics statuses

Connect values to data

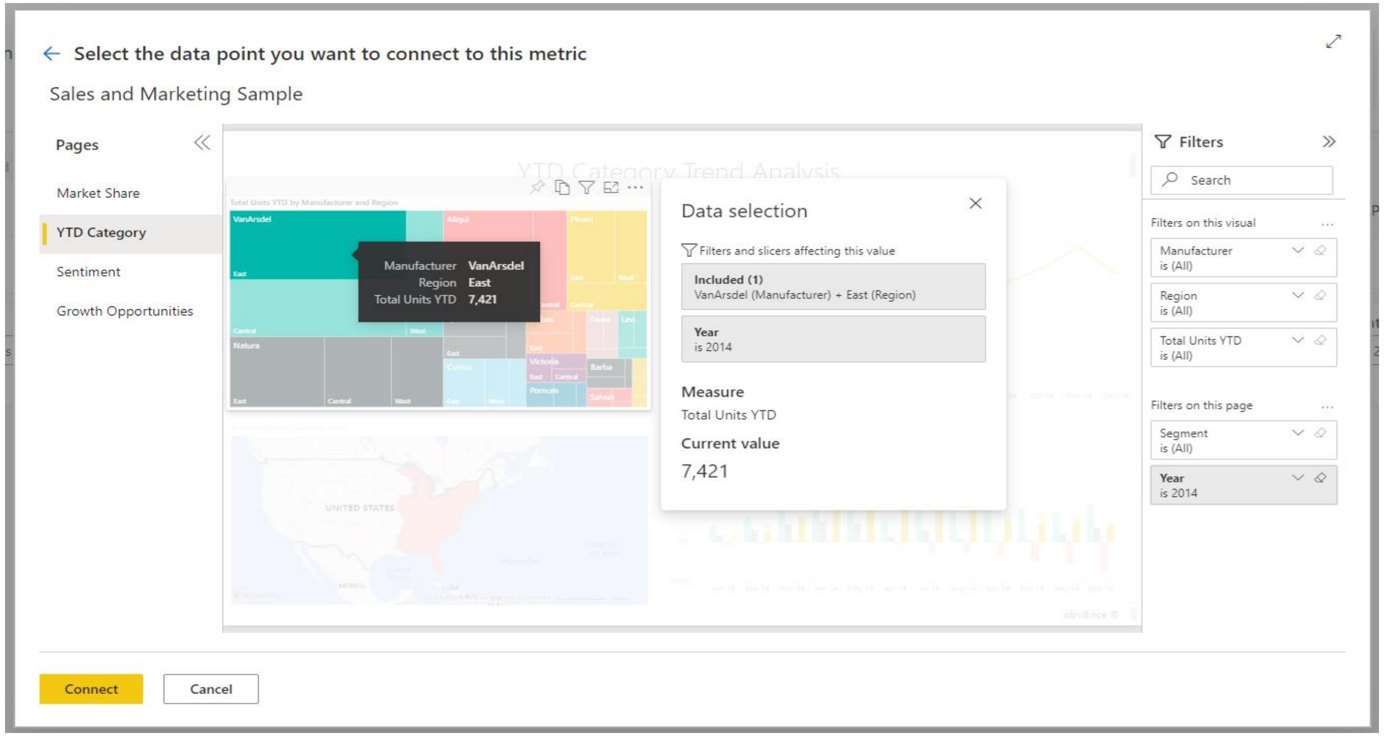
You can connect either the current or the target value, or both, to a value in a report.

- Create a metric or edit an existing metric in a scorecard.
- In the **Current** or **Target** field, select **Connect to data**.
- In the dialog, search for the report with the data that you want to track, select it > **Next**.



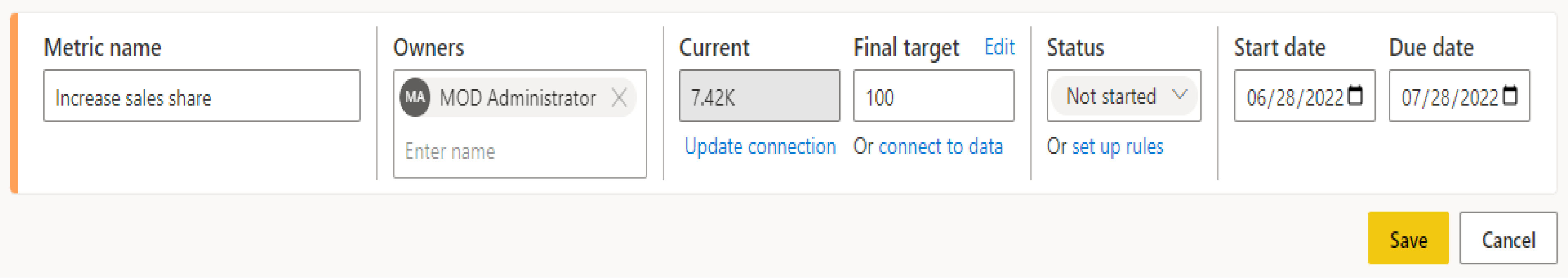
Refresh, Scorecard vs Metrics
Connected metrics

In the report that you selected, navigate to the visual that contains the data you want to track.
Select the data point or visual. Power BI displays the measure card, summarizing all the filters applied to the selection.



Refresh, Scorecard vs Metrics
Connected metrics

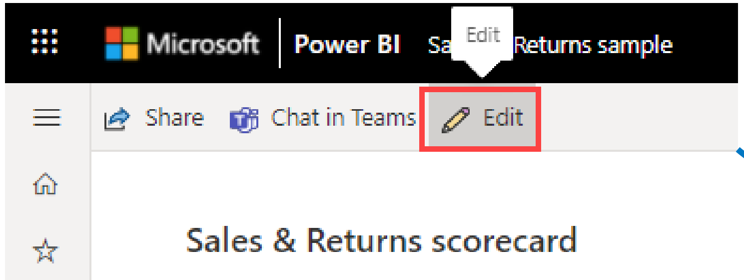
Select **Connect**.
Power BI automatically represents values in numeric notation. For example, *2044* is represented as *2K*.
Select **Save**.



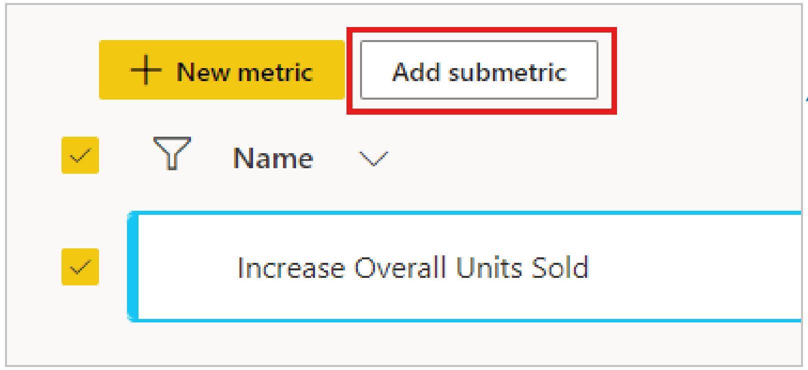
HEY THIS IS IMPORTANT!

In a 100% stacked bar or column chart, Power BI will pull in the measure value rather than the percentage.
In a multi-row card, Power BI will pull in the first measure in the card. Multi-Geo is currently not supported.
In gauges and KPI tiles, Power BI will pull in the value, but not the target, or the min or max value in the gauge.
In a table with more than one column of measures, Power BI selects the first measure in the row.

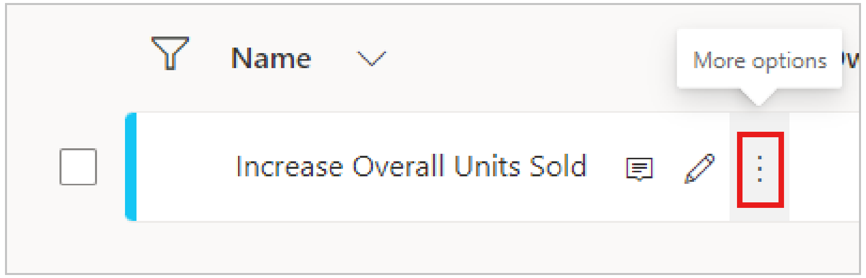
Refresh, Scorecard vs Metrics
Creating submetrics



Open a scorecard and select **Edit**.

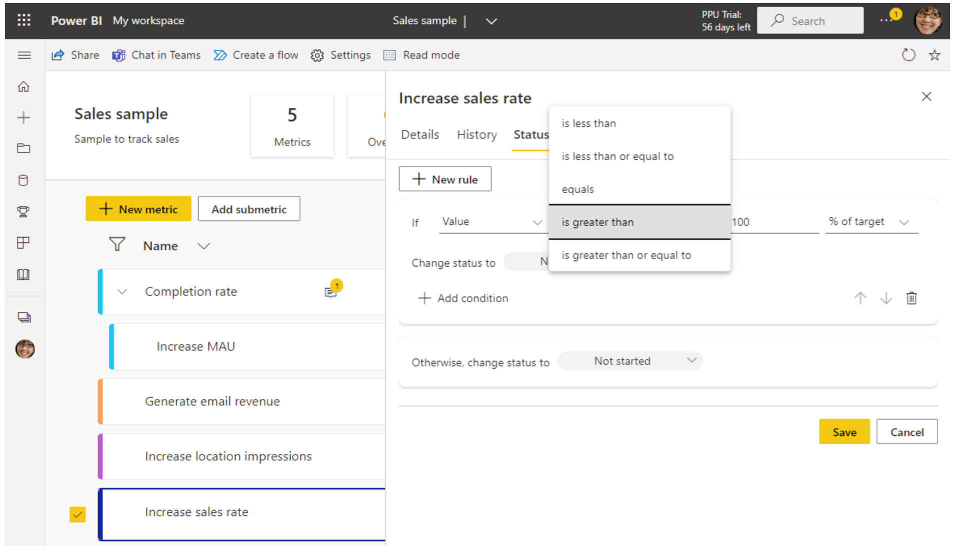


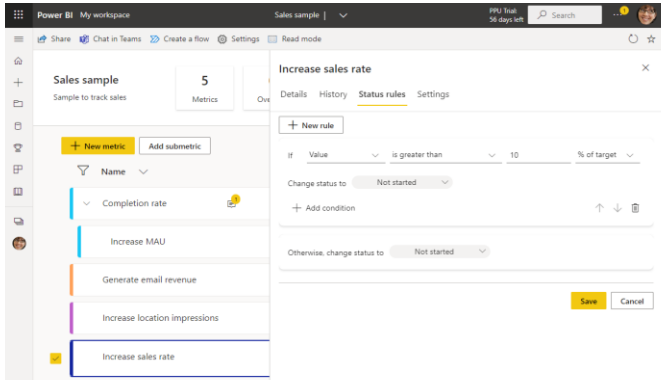
Select the metric you want to create a submetric for and select **Add submetric** on top of the scorecard.

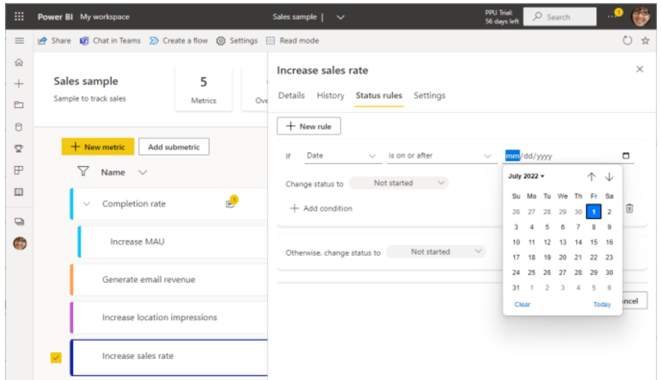


Or hover over the metric you want to create a submetric for, select **More options** (...) > **New submetric**

Refresh, Scorecard vs Metrics
Automated metrics status



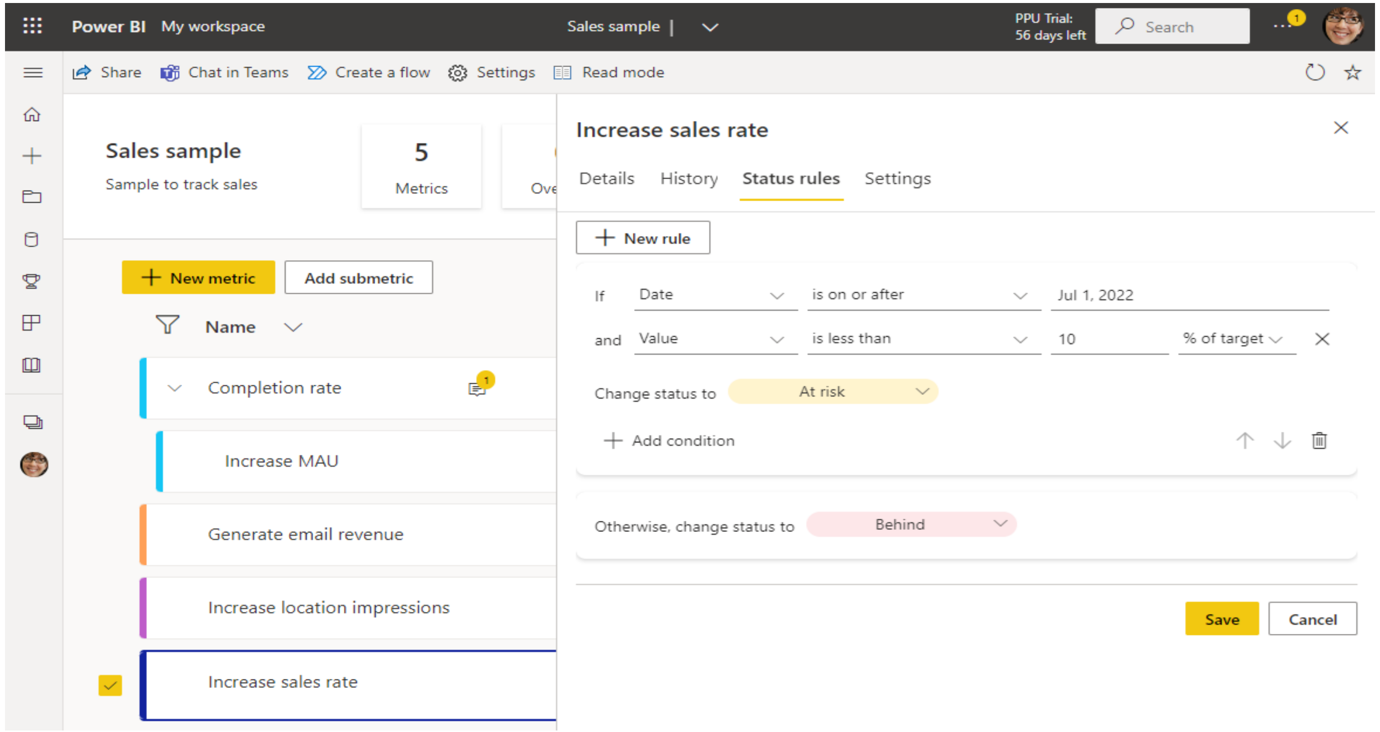




HEY THIS IS IMPORTANT!

If you chose **Value**, you can either set the value or the percent or target met.

Refresh, Scorecard vs Metrics
Automated metrics



HEY THIS IS IMPORTANT!

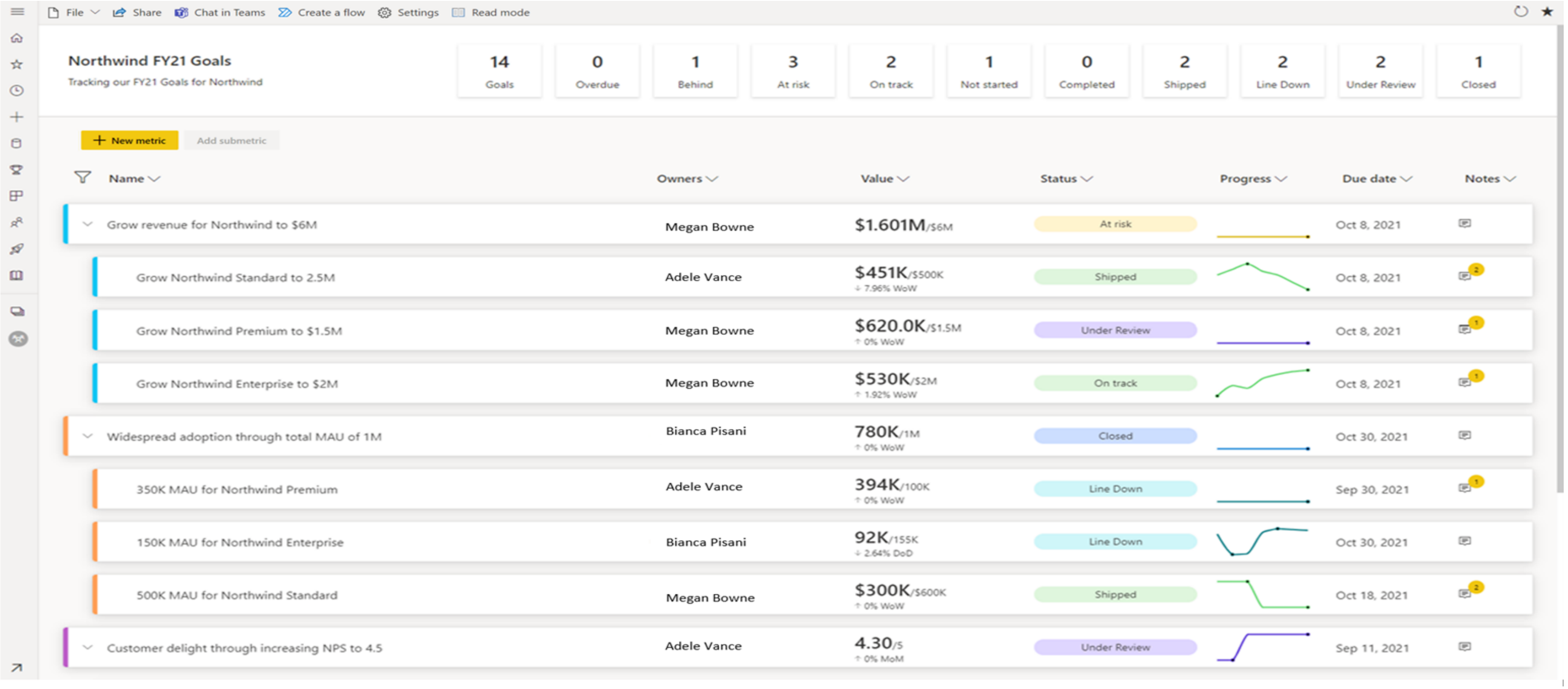
With automated status rules, you can create multiple conditions to ensure your rules represent your unique business needs. You can also drag the rules to reorder the priority.
For the mobile experience, automatic refresh on status rules isn't supported at this time.

Refresh, Scorecard vs Metrics

Custom statuses

MASTERING DATA ANALYTICS

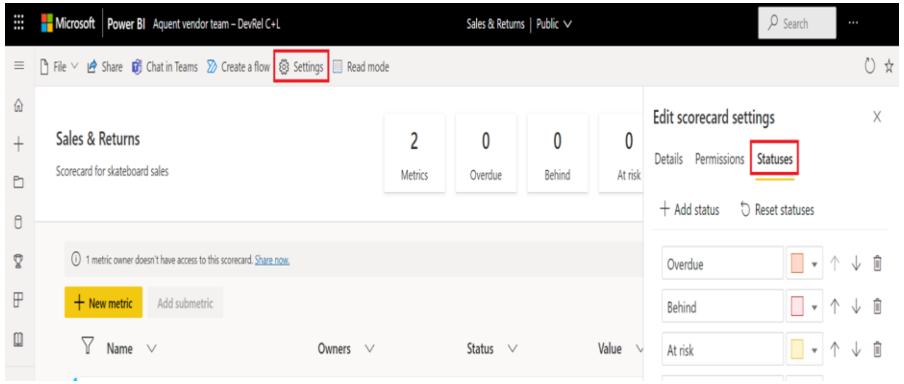
STATUSES are an integral part of metric tracking. In some scenarios the statuses that come with a scorecard aren't right for your organization's needs. You may want to customize the statuses to reflect your organization's terminology.

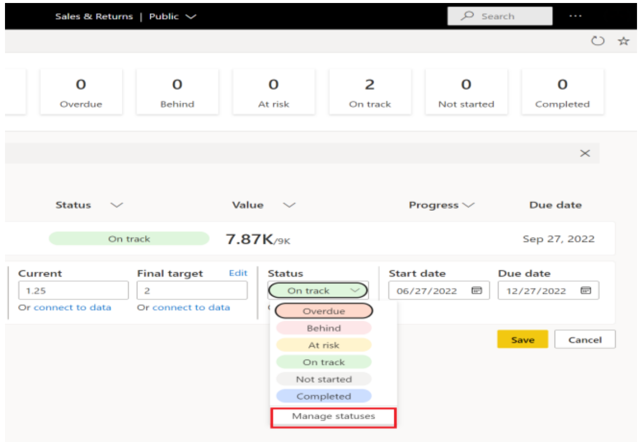


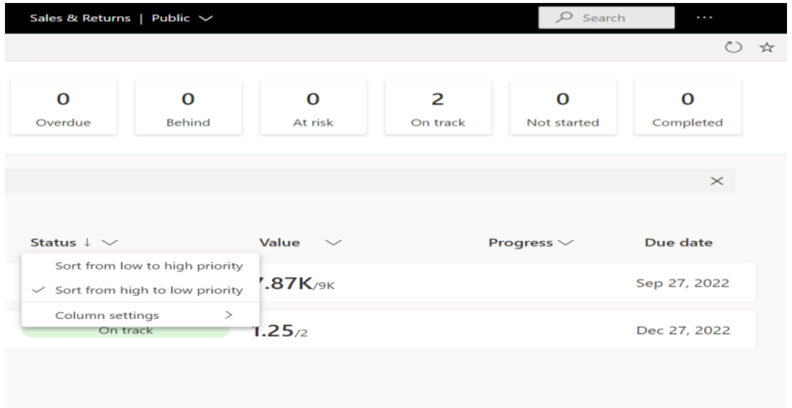
Refresh, Scorecard vs Metrics

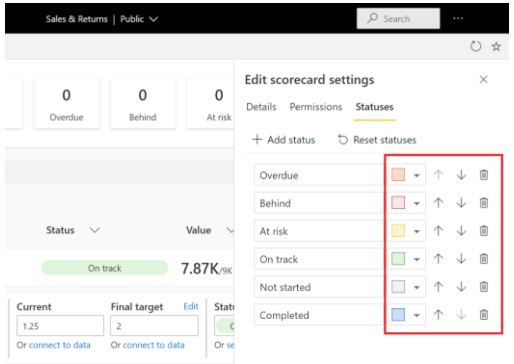
Custom statuses

Select the **Settings** gear icon, or
Select the **Statuses** section of the **Edit scorecard settings** pane.

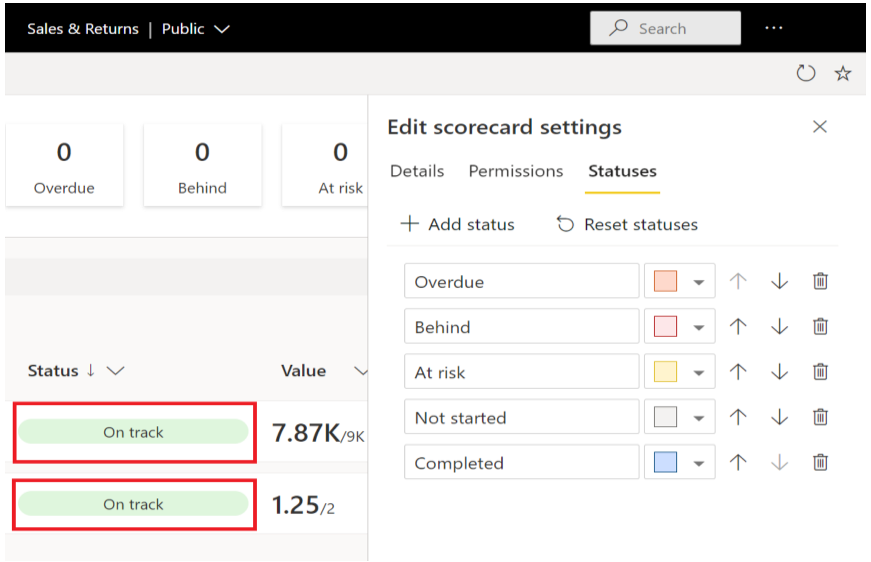








Refresh, Scorecard vs Metrics
Custom statuses

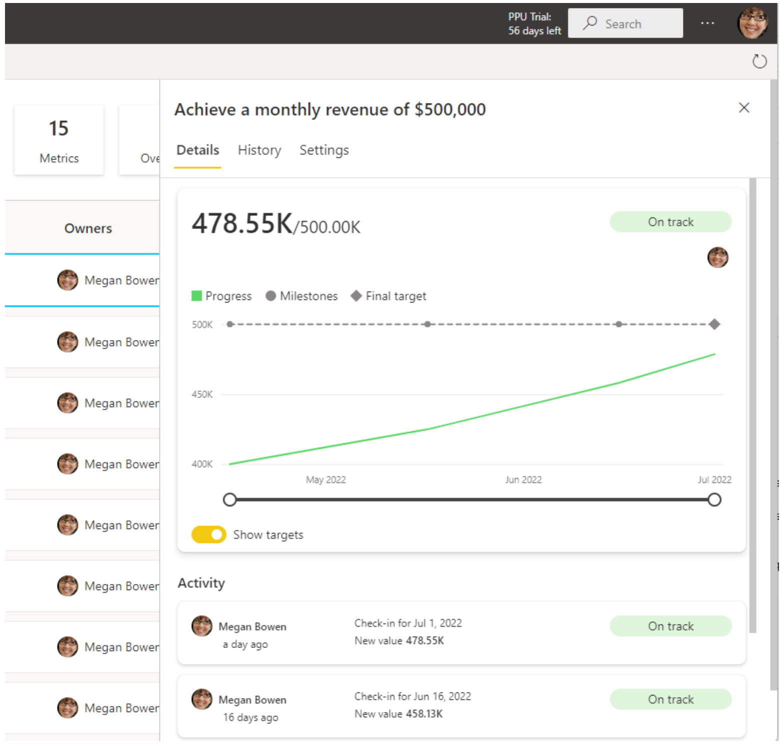


HEY THIS IS IMPORTANT!

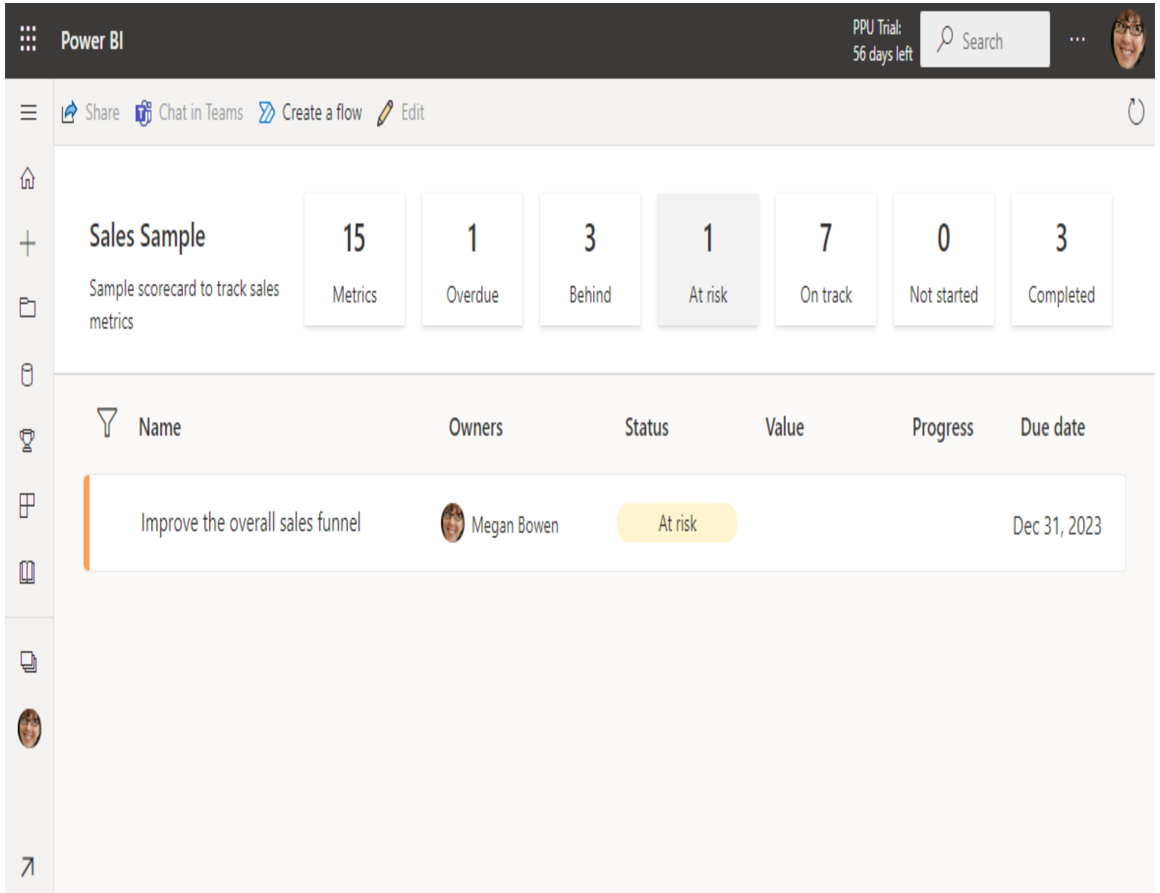
When you delete a status, it's no longer available in your status list. You don't see the deleted status as an option when you perform check-ins. However, we preserve the history in your dataset and check-in history for up to 12 deleted statuses.

Refresh, Scorecard vs Metrics
Follow-up metrics

View metric details

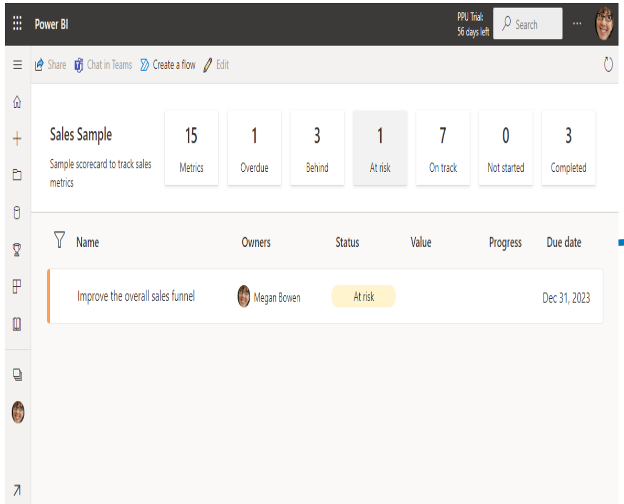


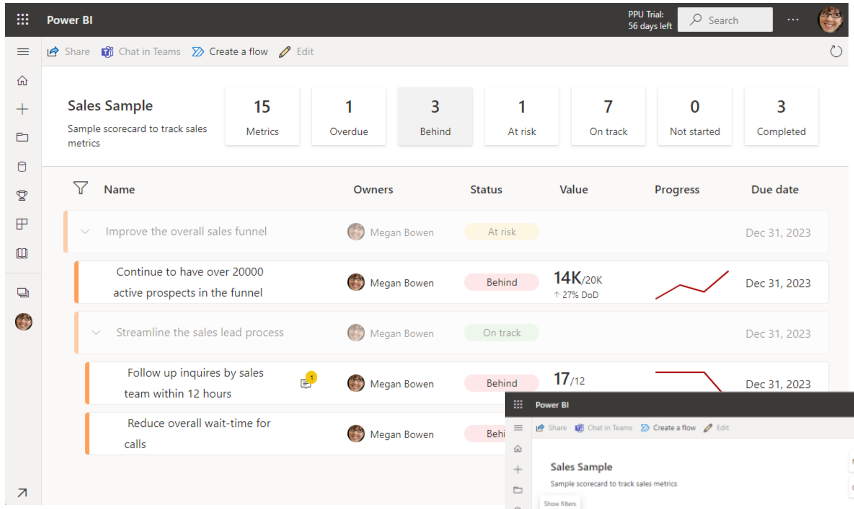
Filtering and keyword search

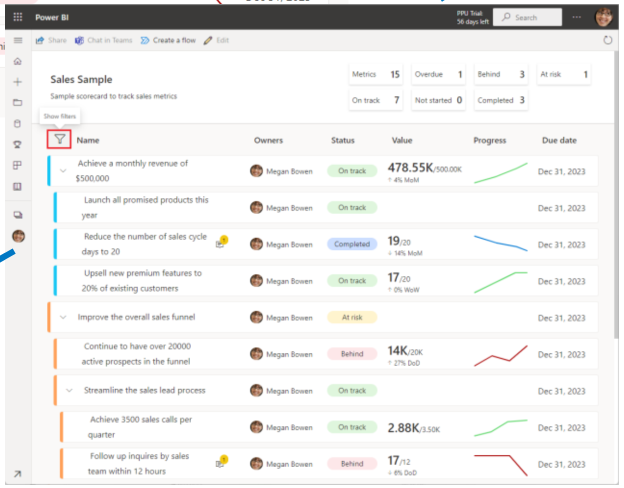


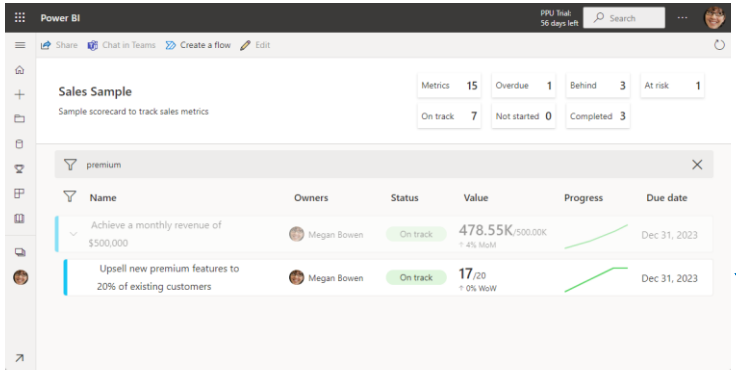
Refresh, Scorecard vs Metrics
Follow-up metrics

Filtering and keyword search



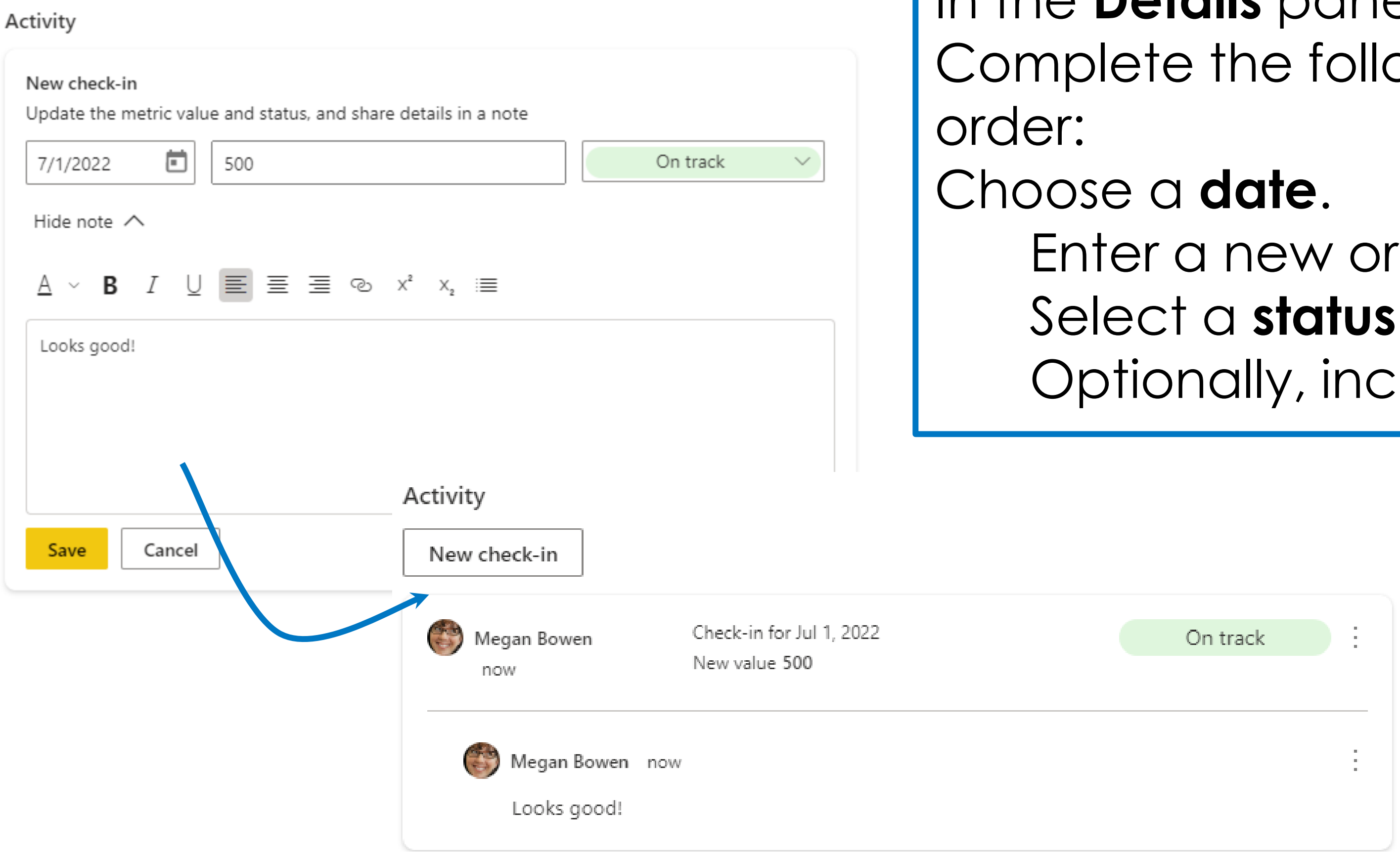






Refresh, Scorecard vs Metrics
Follow-up metrics

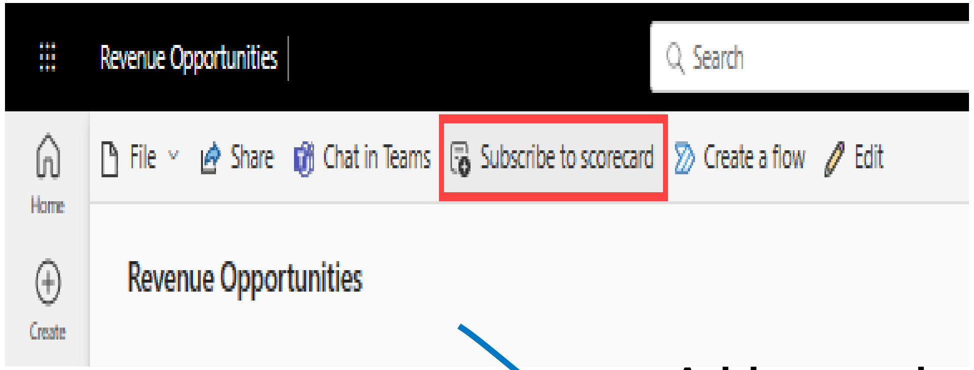
Update manual values



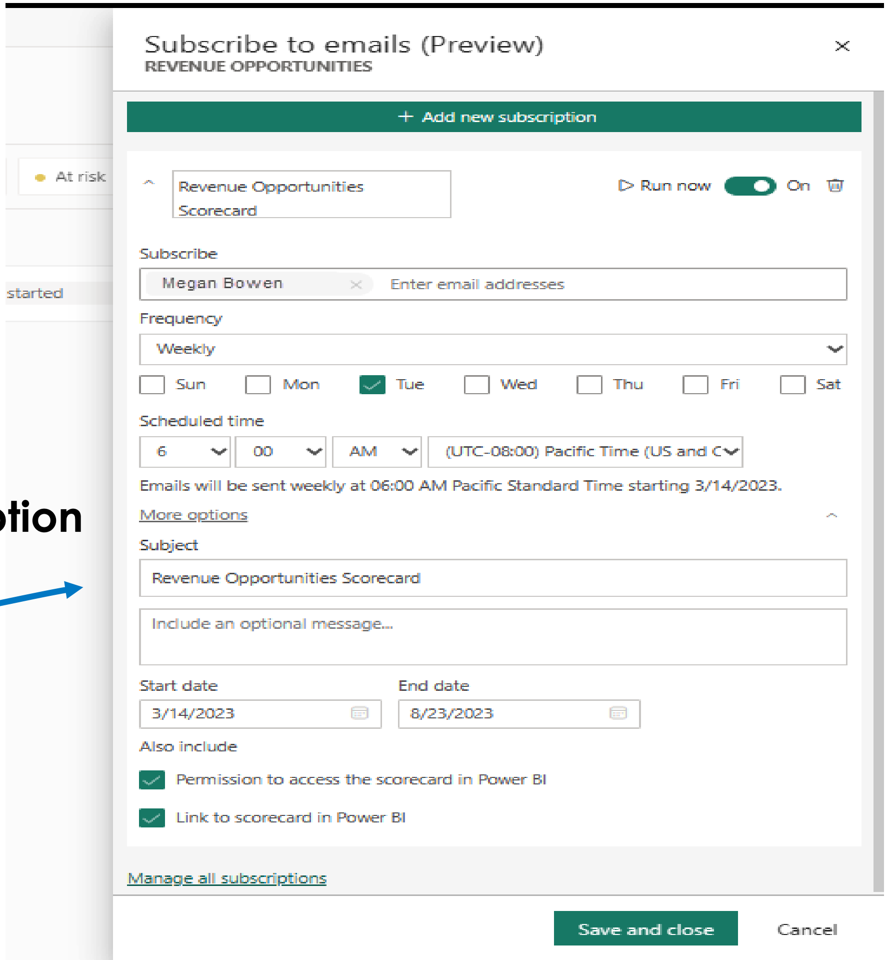
In a scorecard, select the metric name.
In the **Details** pane, select **New check-in**.
Complete the following actions in any order:
Choose a **date**.
- Enter a new or updated **value**.
- Select a **status**.
- Optionally, include a **note**.

MASTERING DATA ANALYTICS

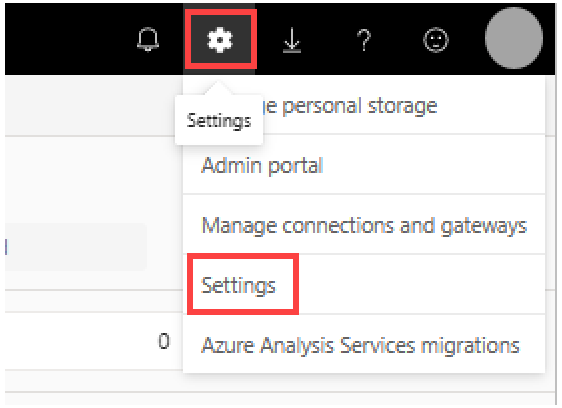
Create a subscription



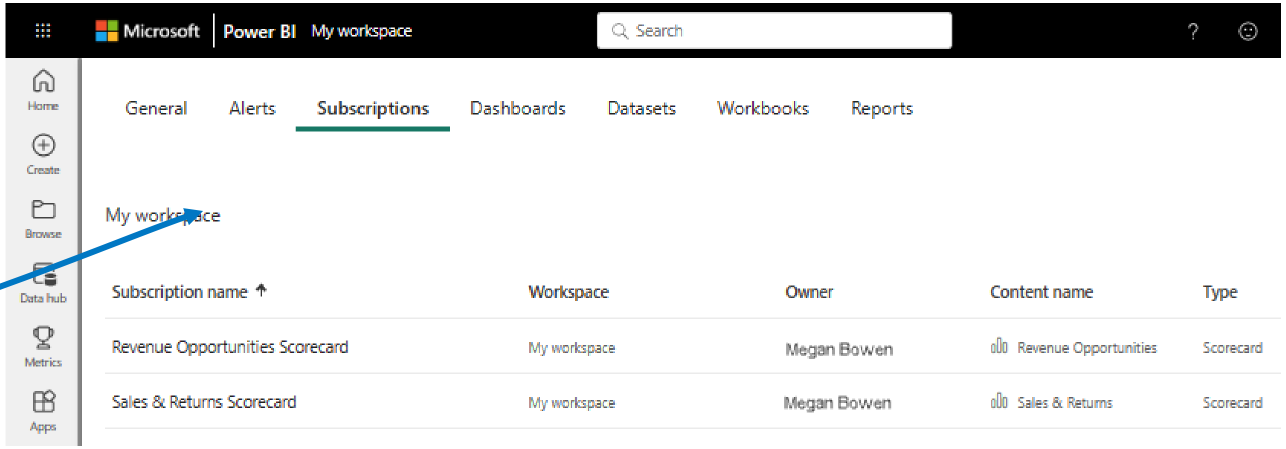
Add new subscription



Manage subscription

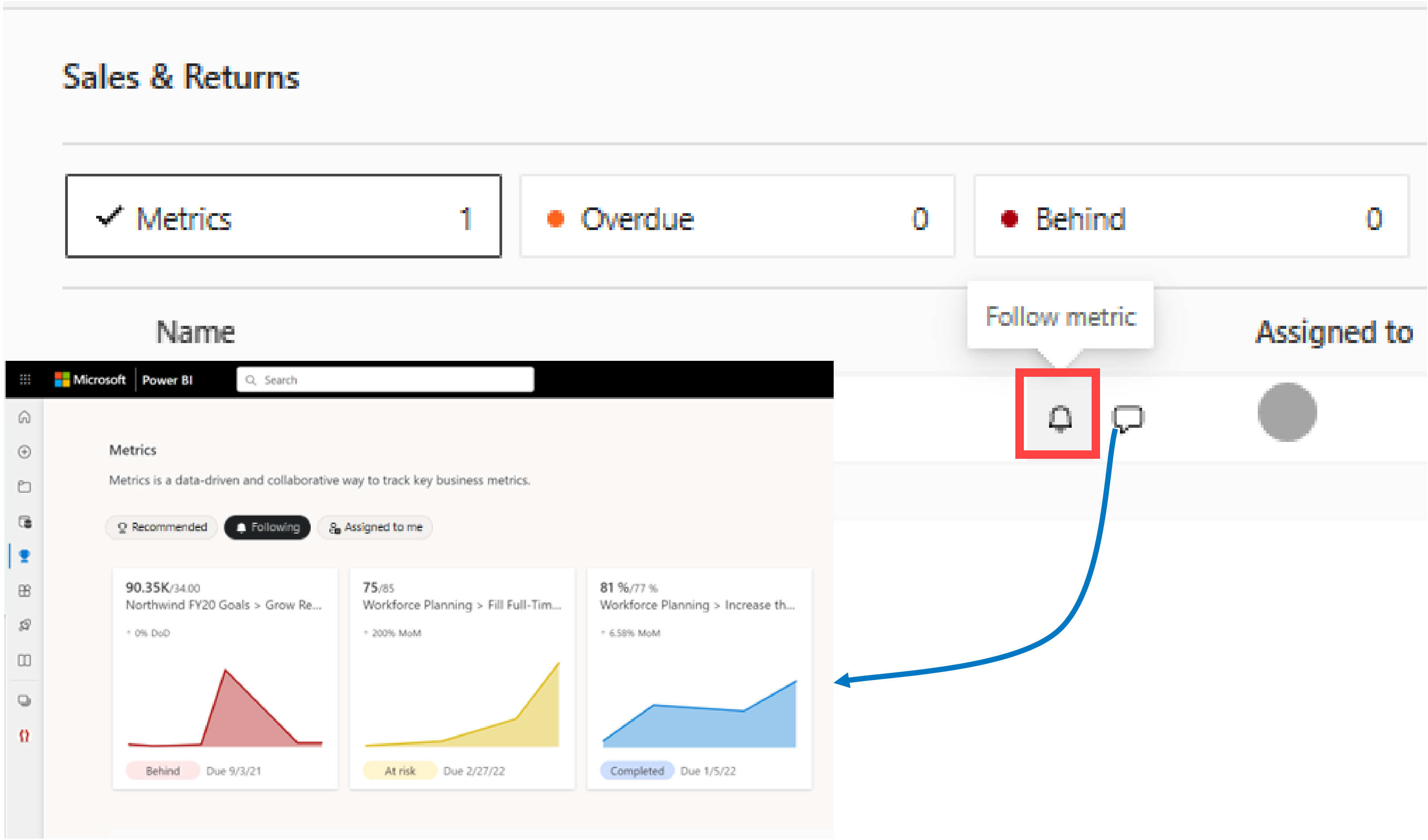


Select **Subscribe to scorecard >** select **Manage all subscriptions >** select **Settings > Settings**

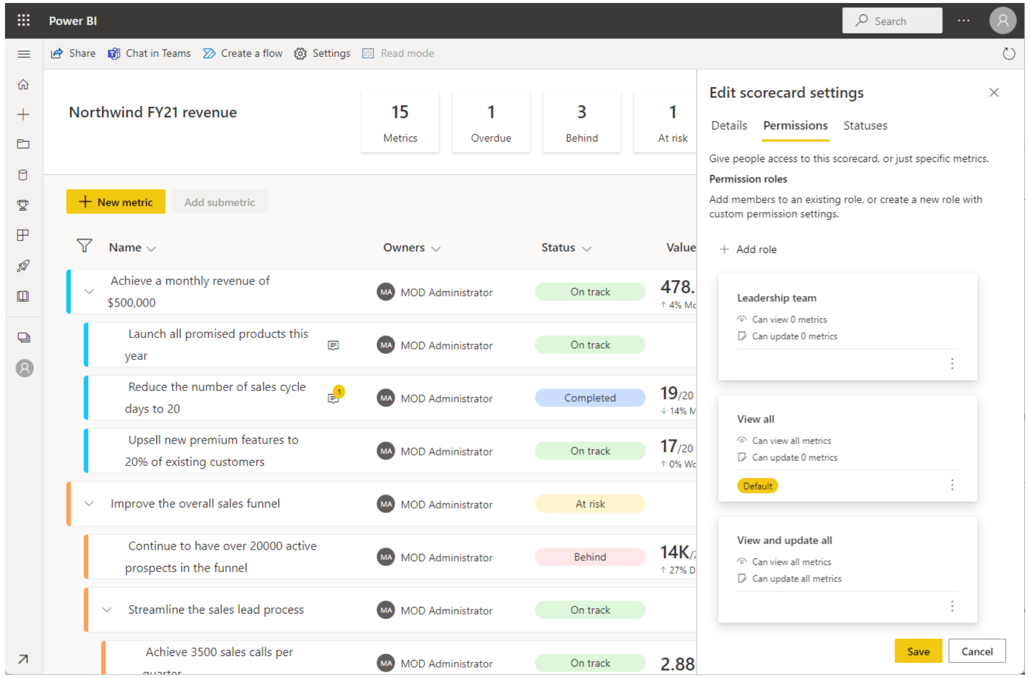


HEY THIS IS IMPORTANT!
You can add up to 24 subscriptions per scorecard
You have a Pro license or PPU license

Follow metrics

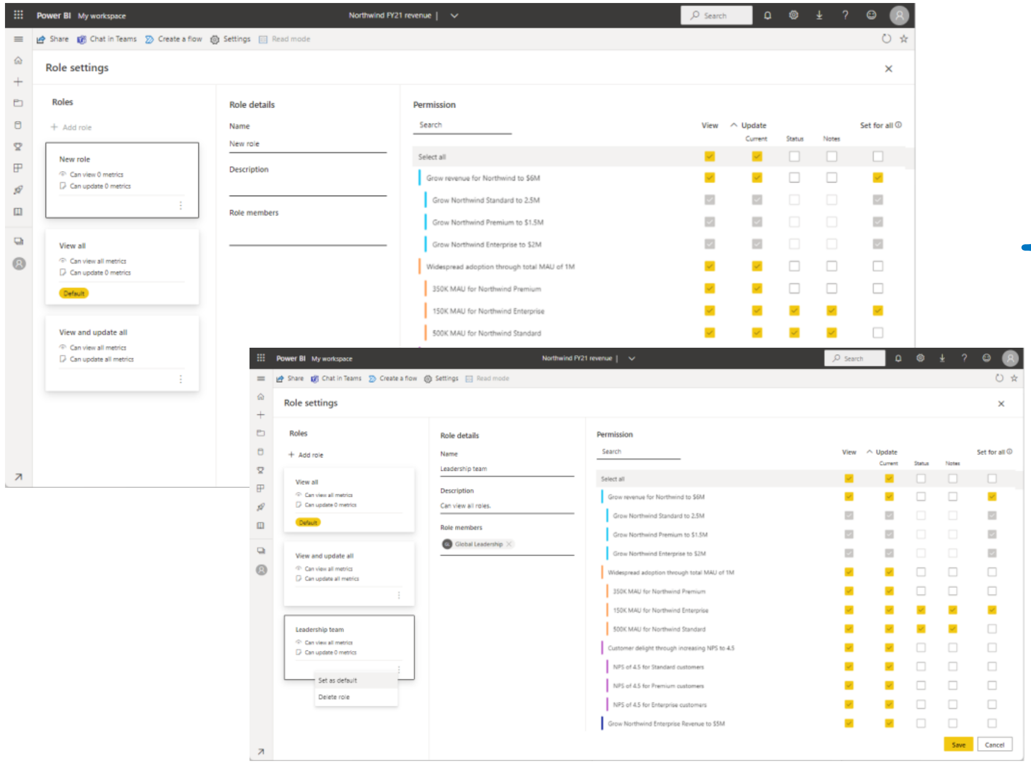


Protect your scorecard with metric-level permissions



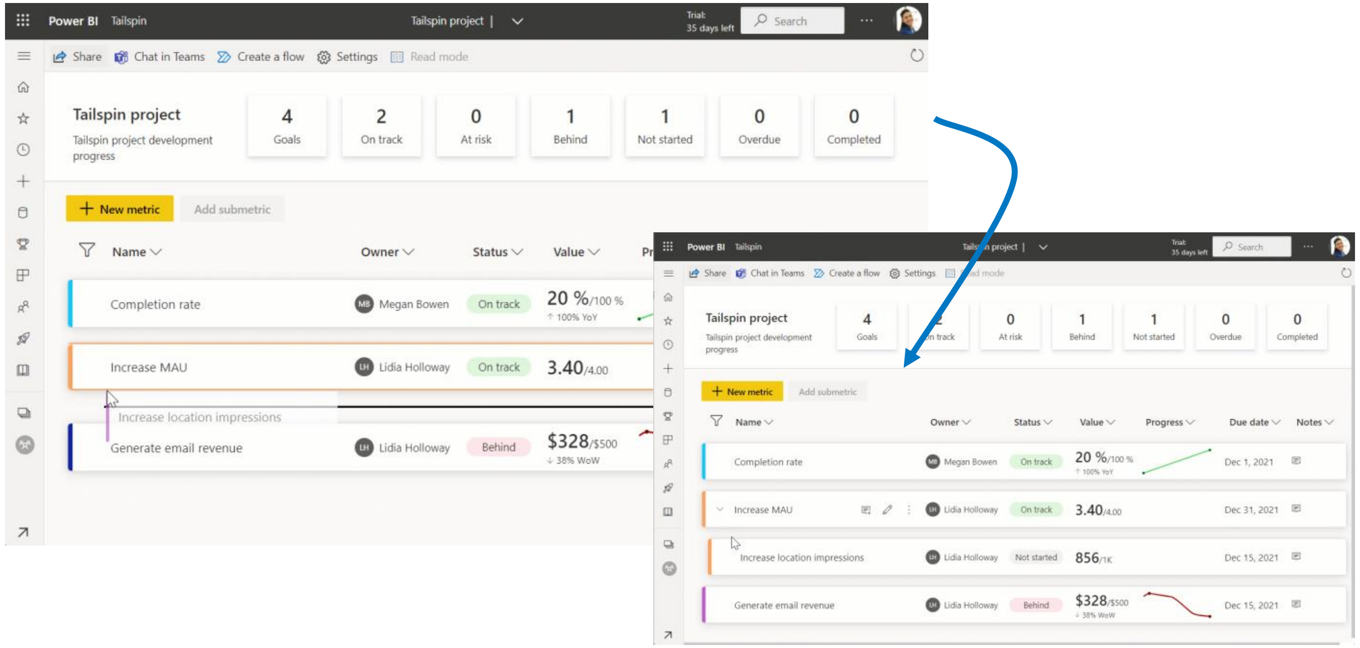
Select the **Edit** pencil **>** Select the **Settings >** Select the new **Permissions** tab **>** Select **Add role** or select **More options (...)**

Protect your scorecard with metric-level permissions



View permissions: Grant access for users to view specific metrics within a scorecard.
Update permissions: Grant access for users to update or check in specific aspects of a metric.

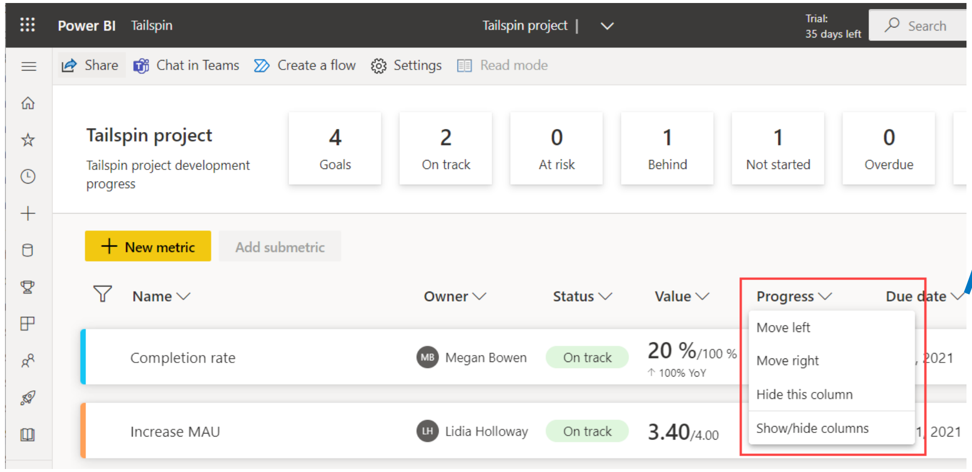
Arrange metrics



Refresh, Scorecard vs Metrics

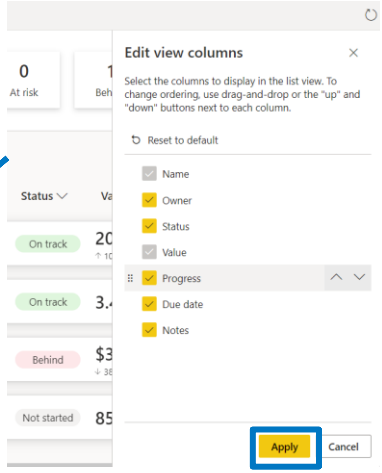
Arrange metrics

Hide or move metrics/Show

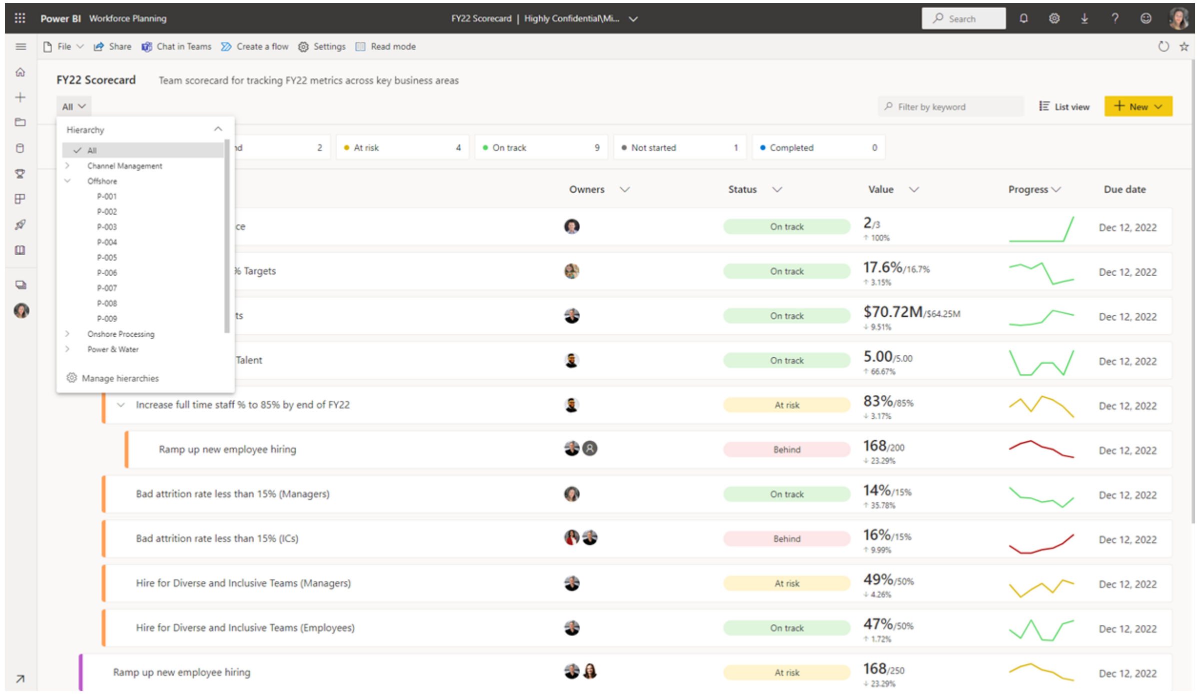


Select the arrow icon next to the column you want to hide or move > **Column settings.** Select **Move right**, **Move left**, or **Hide this column**

Select **Show/Hide columns.**
In **Edit view columns**, select **Reset to default** or select the column you want to view.



Refresh, Scorecard vs Metrics
Hierarchies metrics



USE CASE #1

Measuring organizational health across teams

USE CASE #2

Retail metrics across locations and product areas

USE CASE #3

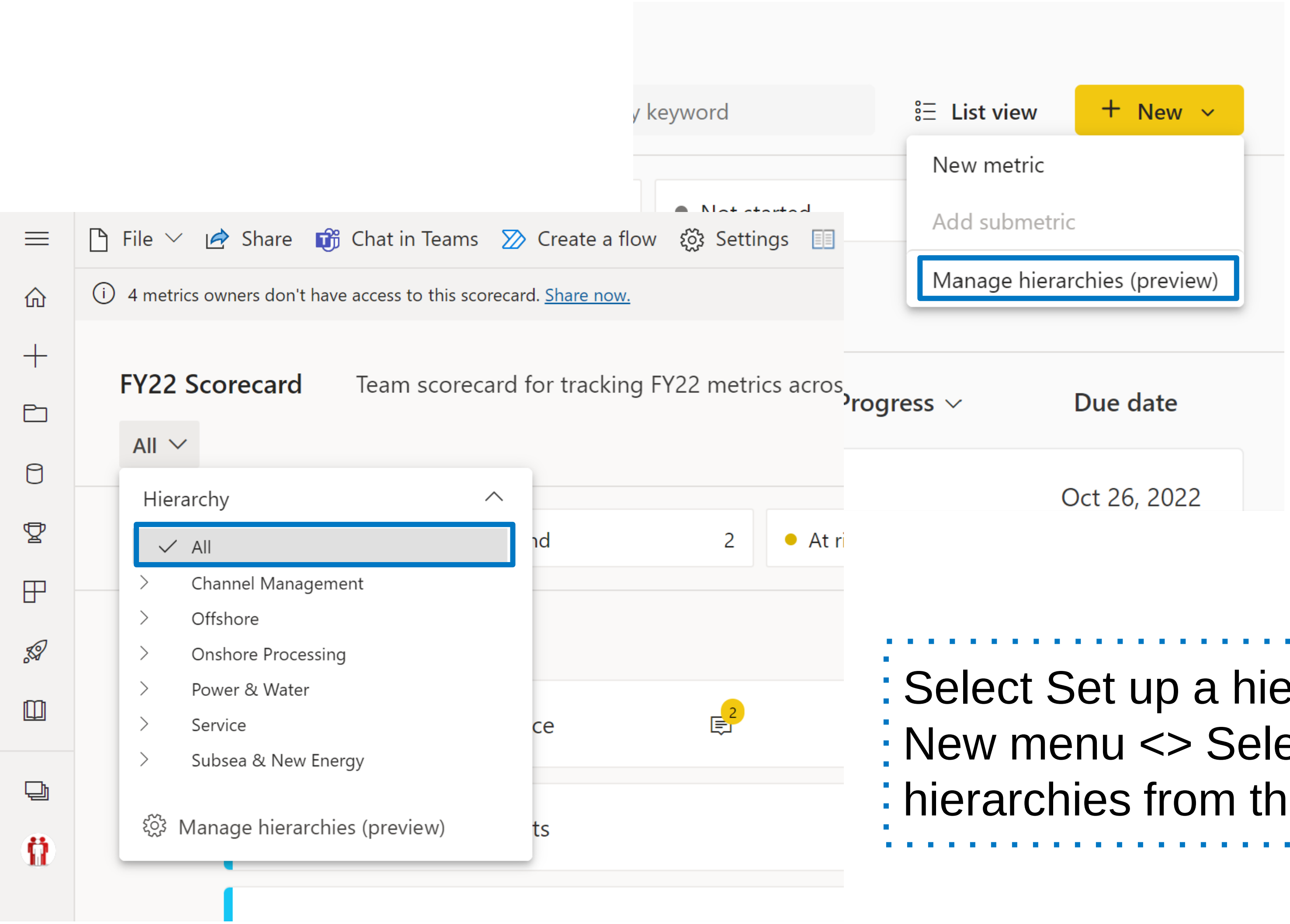
Organizational hierarchies

HEY THIS IS IMPORTANT!

Hierarchies require a Premium or Premium Per User workspace.
You need Edit permission to the scorecard.
Your scorecard needs at least one connected metric.
You need Build access to the datasets connected in your scorecard.

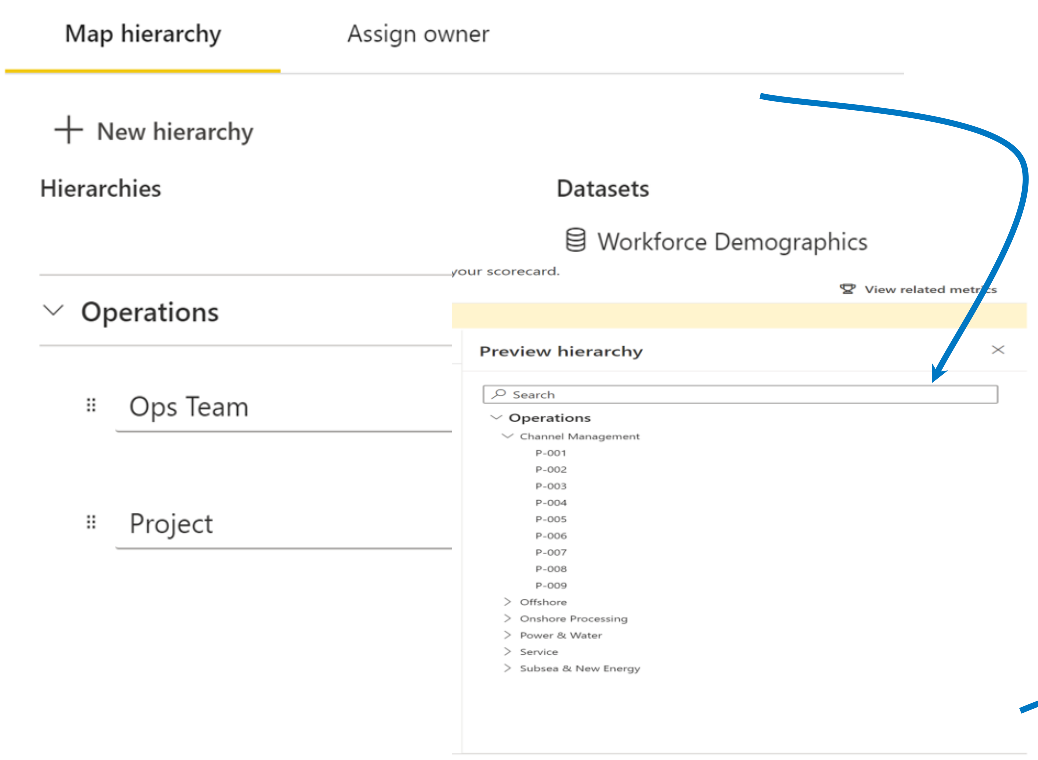
Refresh, Scorecard vs Metrics

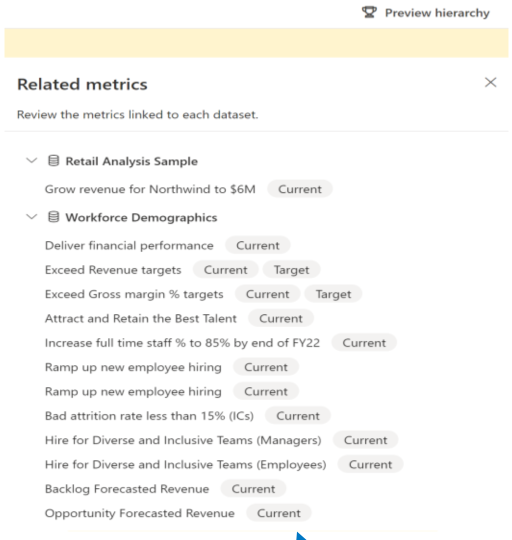
Hierarchies metrics



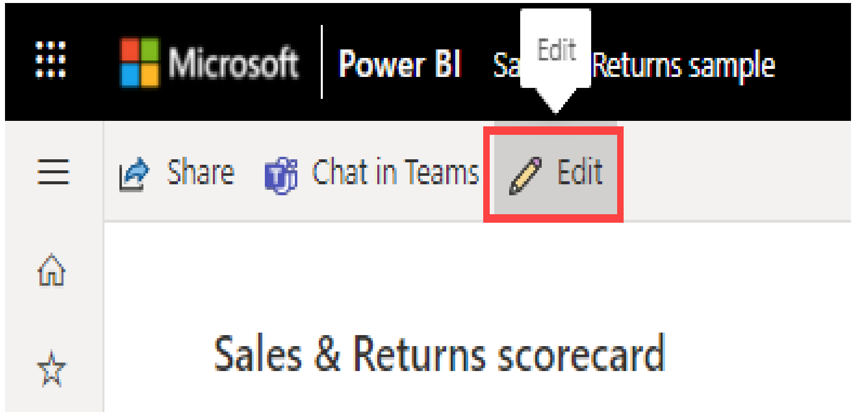
Select Set up a hierarchy from the New menu <> Select Manage hierarchies from the All slicer

Map hierarchy levels to data



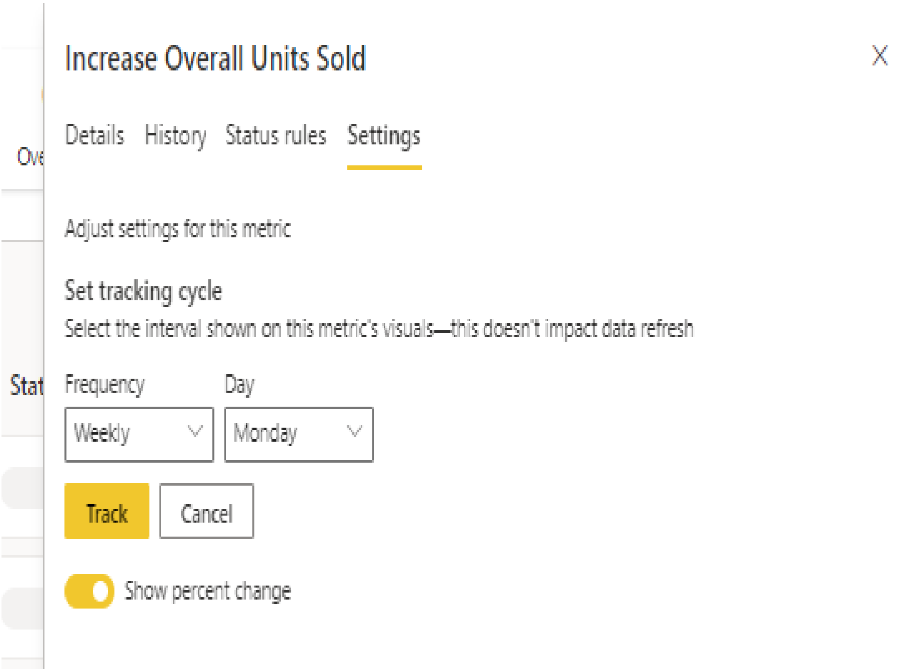


Refresh, Scorecard vs Metrics
Update metrics tracking cycle

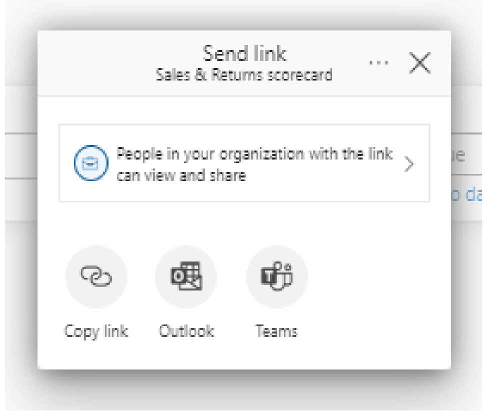


Open a scorecard and select **Edit**.

Select the name of any metric or submetric.
Power BI opens the **Details** pane.
Select the **Settings** tab.
Set the **tracking cycle** frequency for your metric, and select **Track.**



Select the **Share** button in the scorecard action bar and follow the steps outlined in the experience. It's the same as sharing a dashboard.



HEY THIS IS IMPORTANT!
When you share scorecards, whether inside or outside your organization, your recipients need Power BI Pro licenses, unless the content is in a Power BI Premium capacity

PRO TIP: When you share a scorecard, the people you share it with can view and interact with it. They can also edit it if they have an Admin, Member, or Contributor role in the workspace

POWER BI SERVICE

PART 1: Introduce PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

PART 5: Report and Dashboard

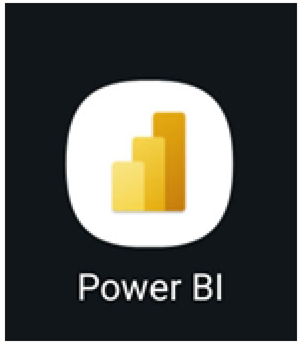
PART 6: Refresh, Scoreboard vs. Metrics

PART 7: Sharing, Collaboration, RLS

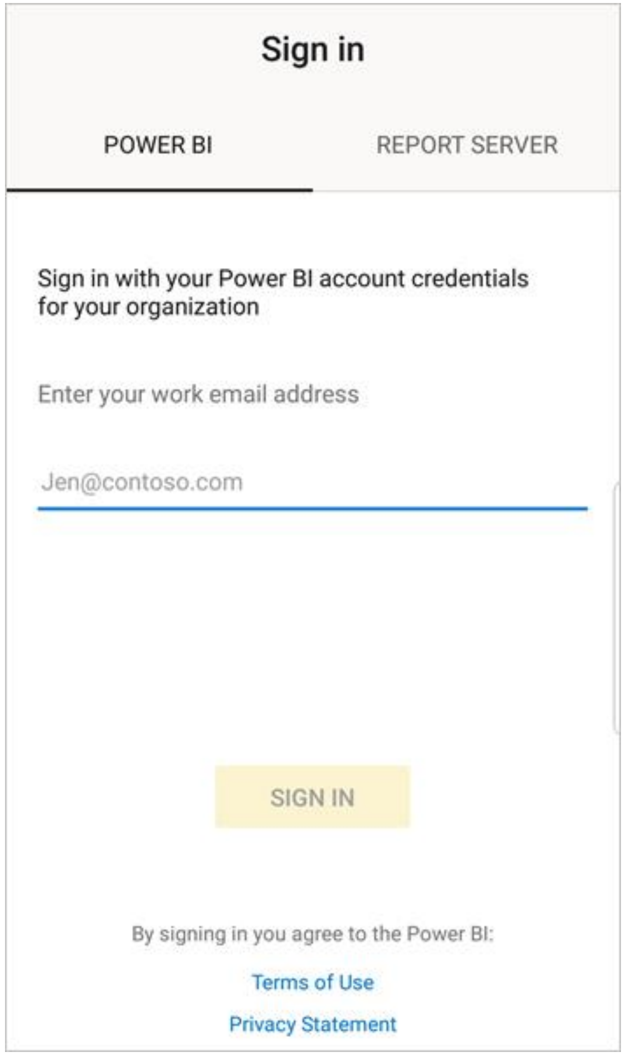
PART 8: Deployment Pipelines

Sharing, Collaboration, RLS

Sharing to Mobile view

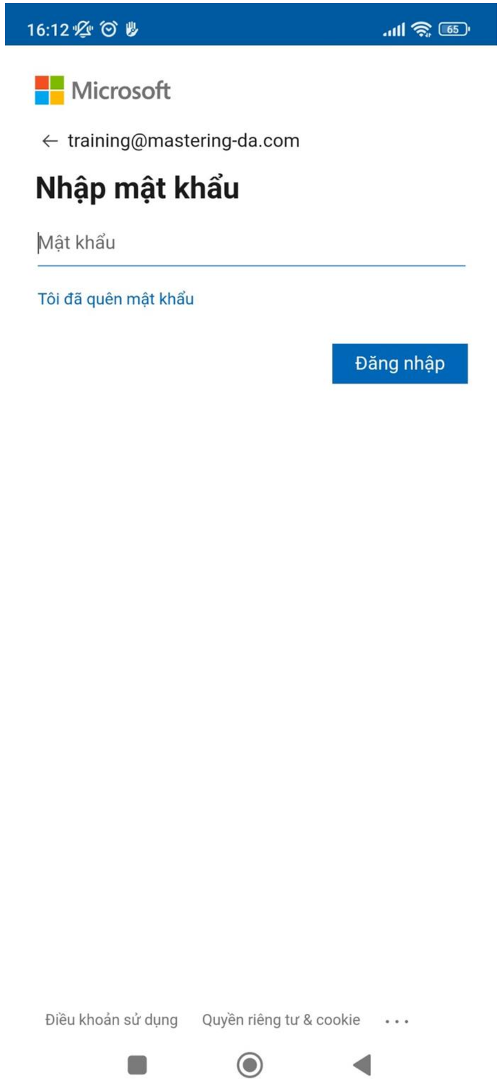


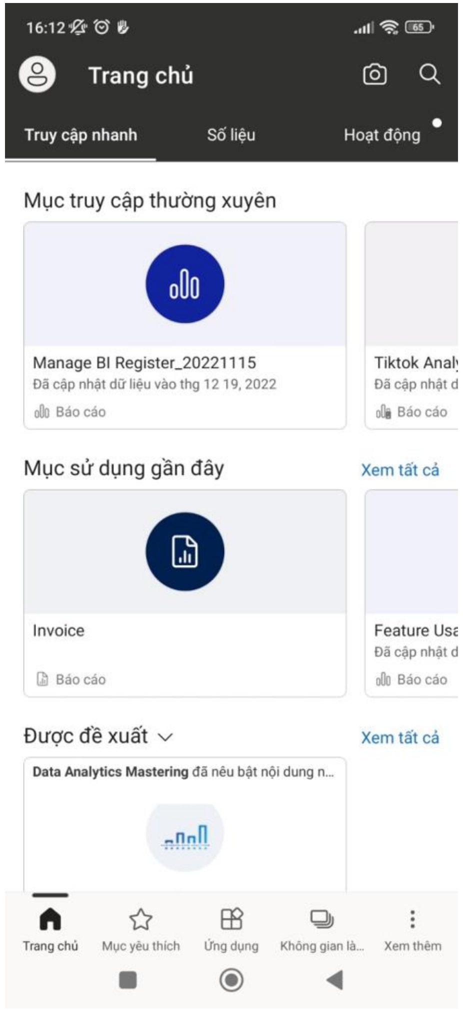
On your Android device, from the start screen open the Power BI for Android app

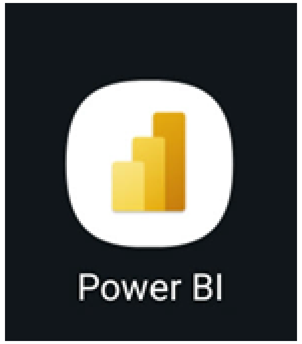


Sharing, Collaboration, RLS

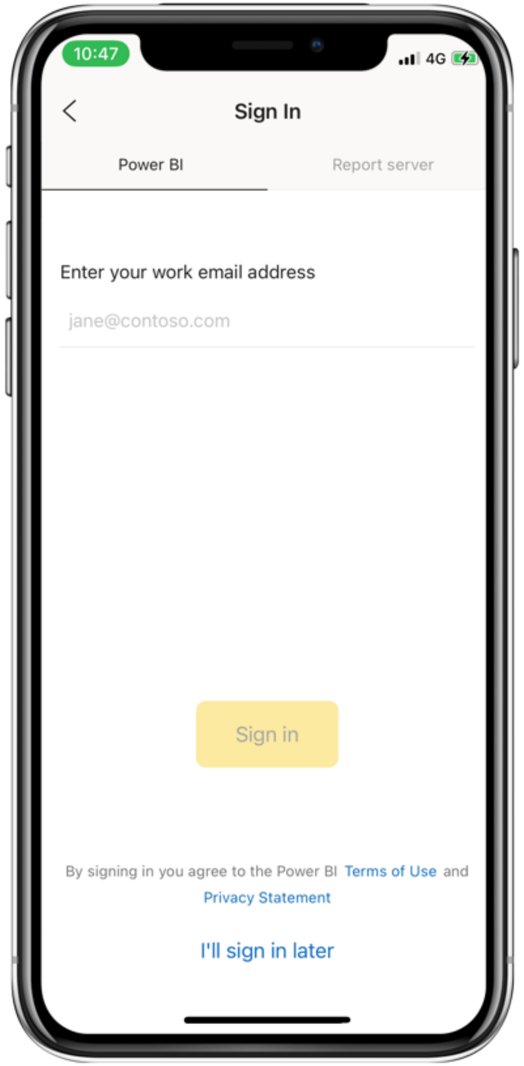
Sharing to Mobile view







On your IOS device, from the start screen open the Power BI for IOS app

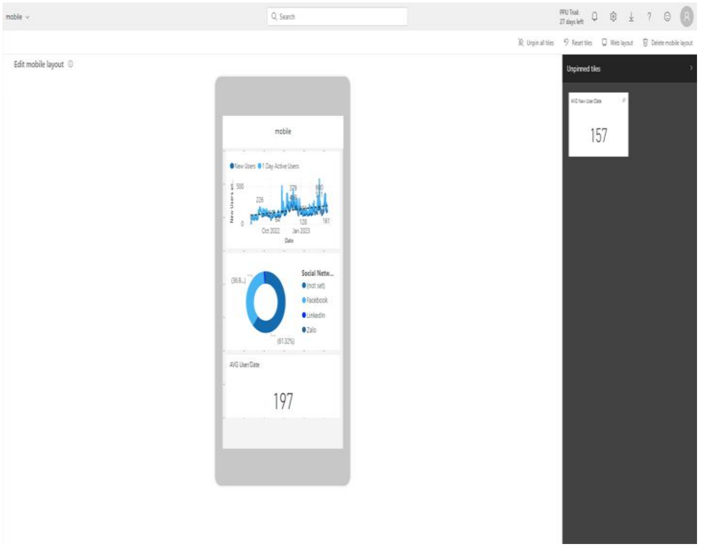


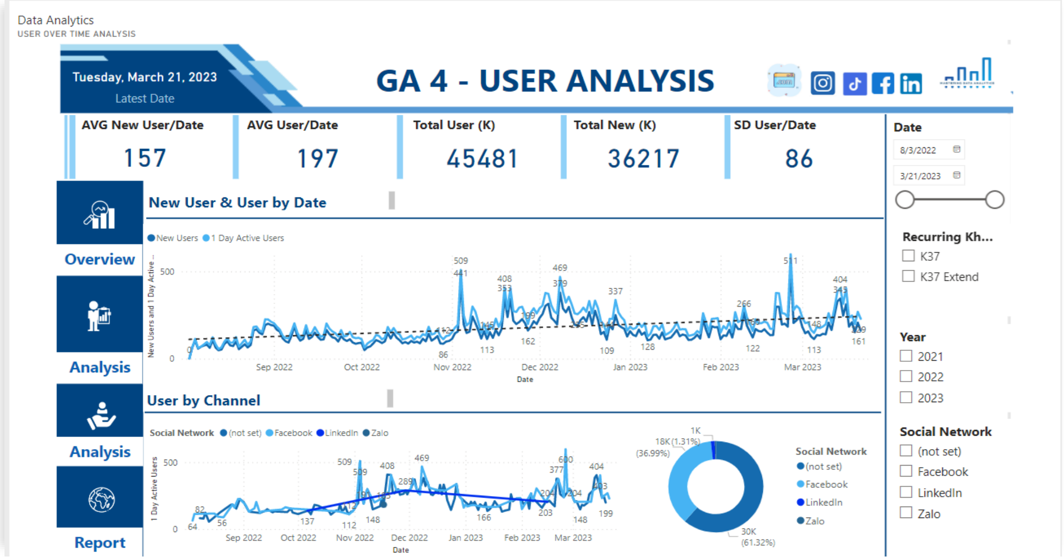
Mobile Layout allows you to design reports optimized for mobile viewing (*vs. web*)

- *NOTE: You can't build content within the Mobile Layout view; you need to build in Web Layout and assemble select visuals to share via the Power BI mobile app*

Reading view | Mobile Layout

Reading view | Web Layout





Sharing, Collaboration, RLS

Sharing to Mobile view

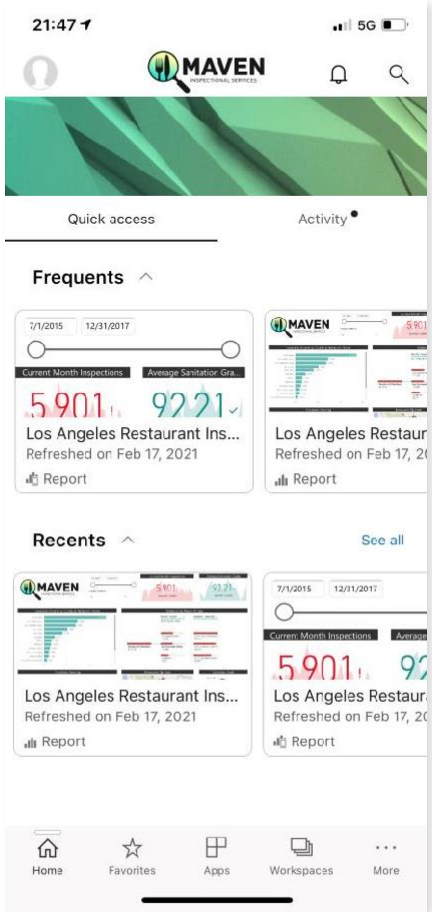
MASTERING DATA ANALYTICS

Power BI’s mobile app lets you view your reports and dashboards on the go

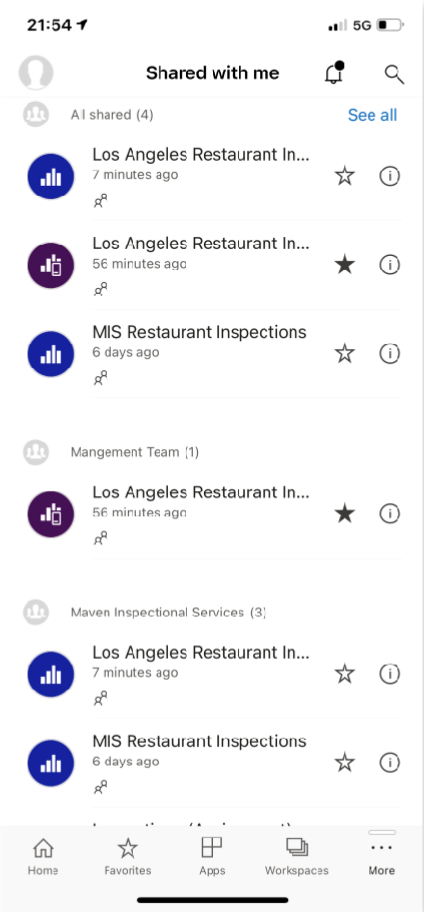
1. **View** & **interact** with dashboard and reports
   - *Interact with report visuals and filters, or use Q&A features to discover new insights*
2. **Share** dashboards or reports straight from your phone
   - *Share links to workspace reports and dashboards to anyone else with a Pro account*
3. **Draw** & **comment** anywhere on your screen
   - *Add annotations that you can share with your team using text, drawings, icons and more*
4. **Notify users** & **set alerts** to stay up-to-date on key changes
   - *Get notifications based on any alerts you've configured, or when you've been @mentioned*

Sharing, Collaboration, RLS
Sharing to Mobile view

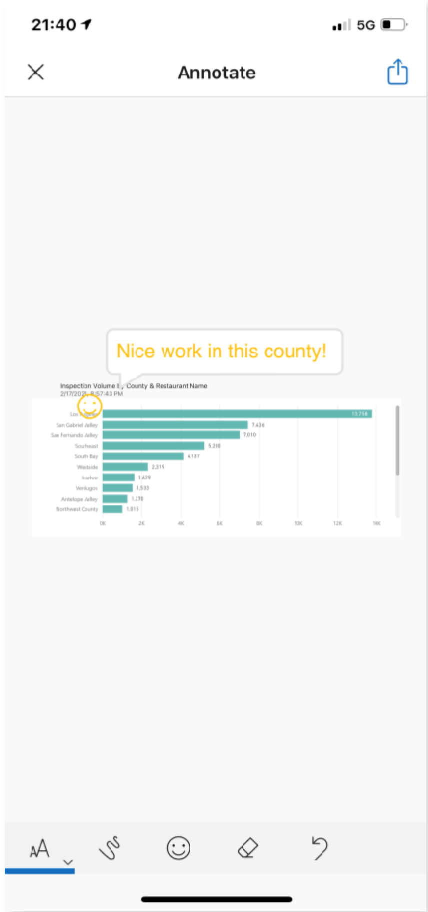
INTERACT



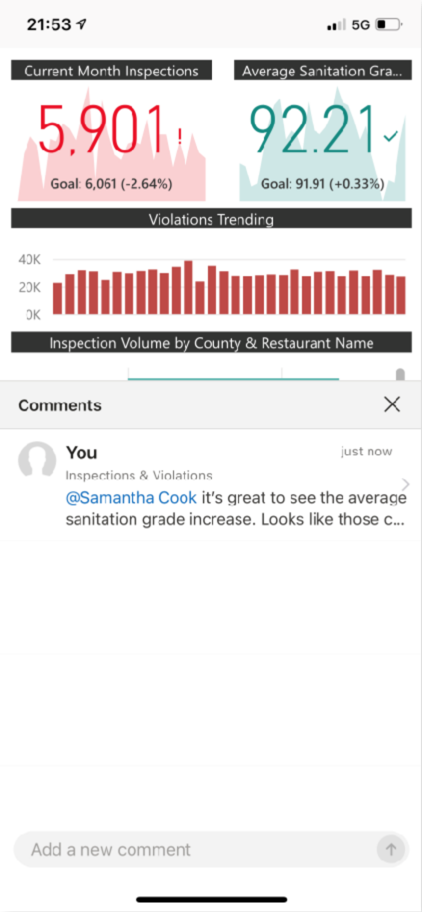
SHARE



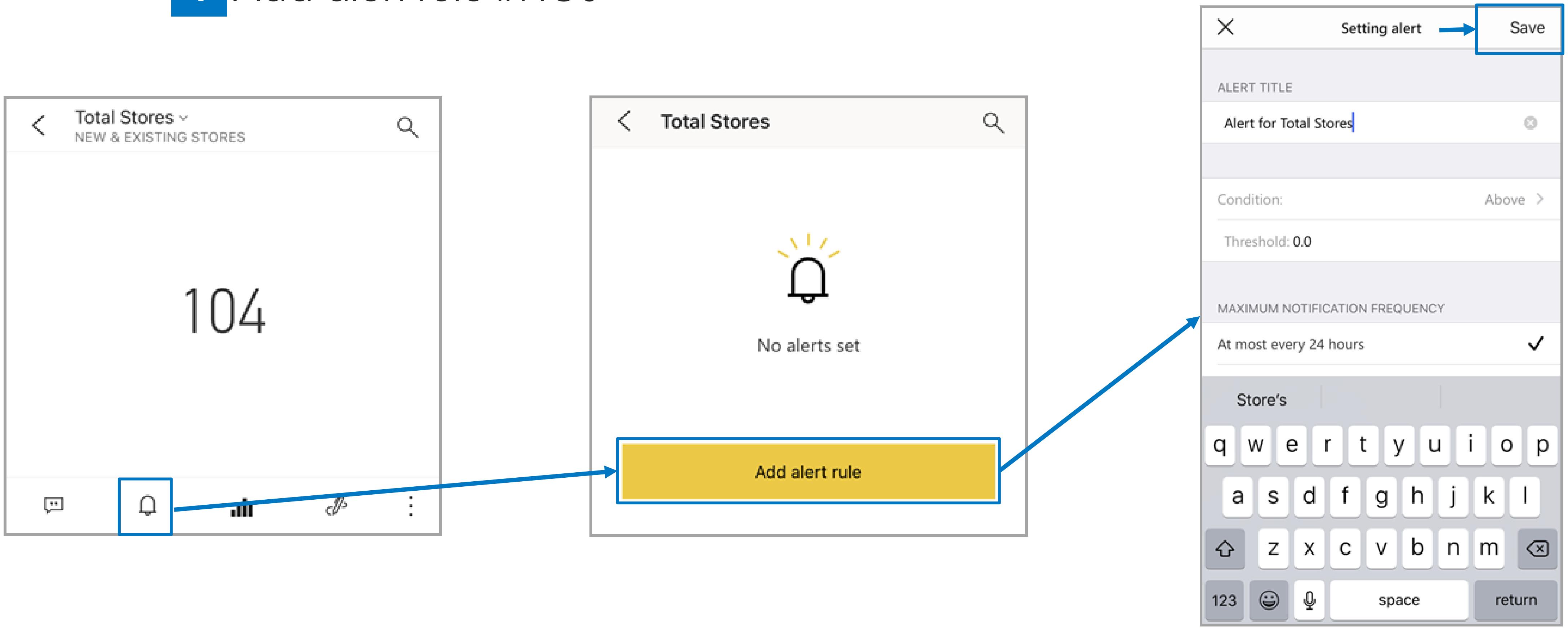
DRAW



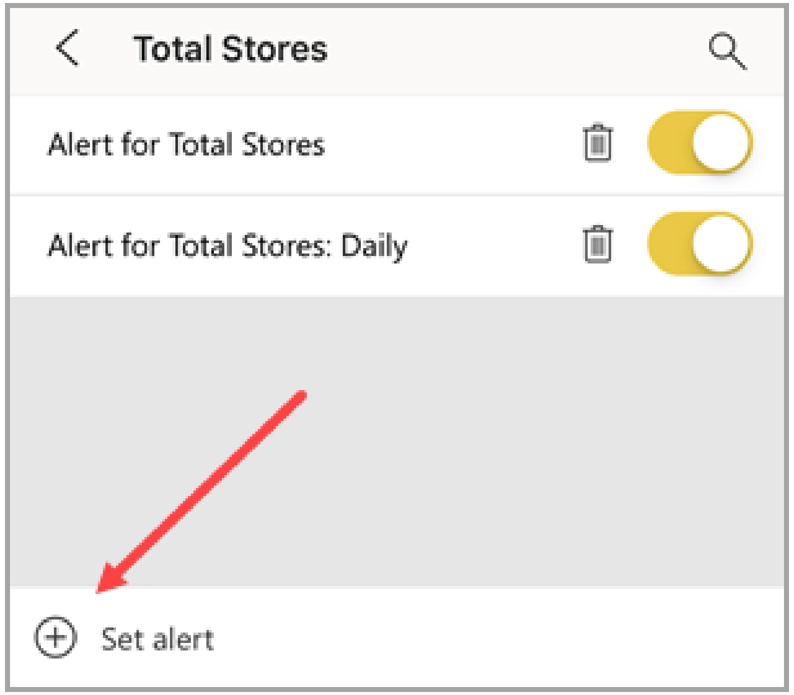
NOTIFY



1 Add alert rule in IOS

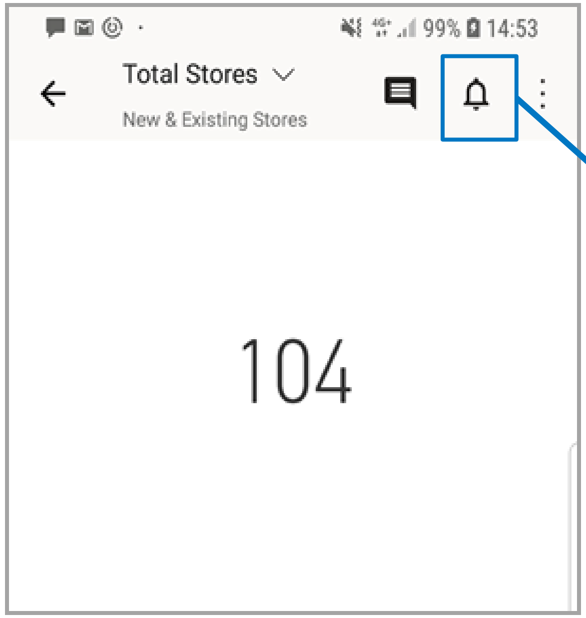


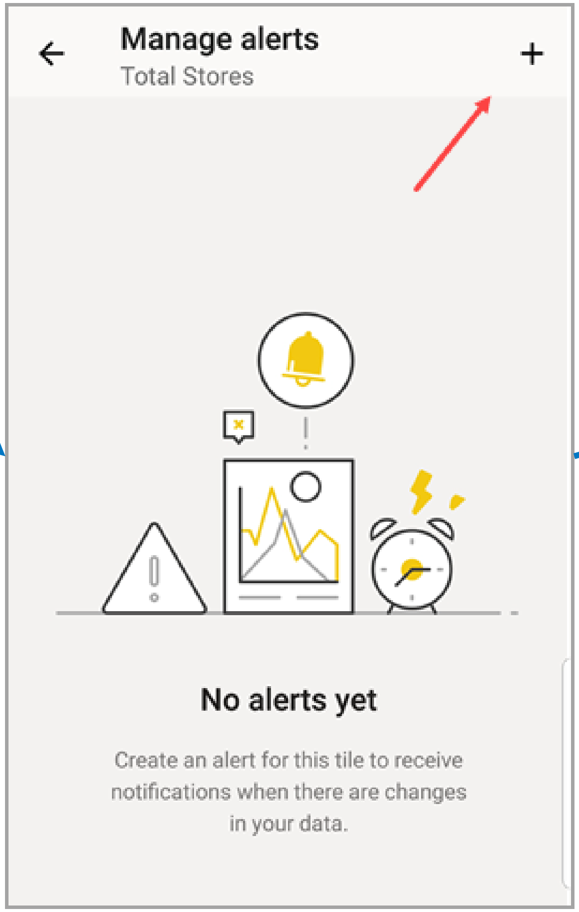
2 List alert and turn on/off or remove alert in IOS

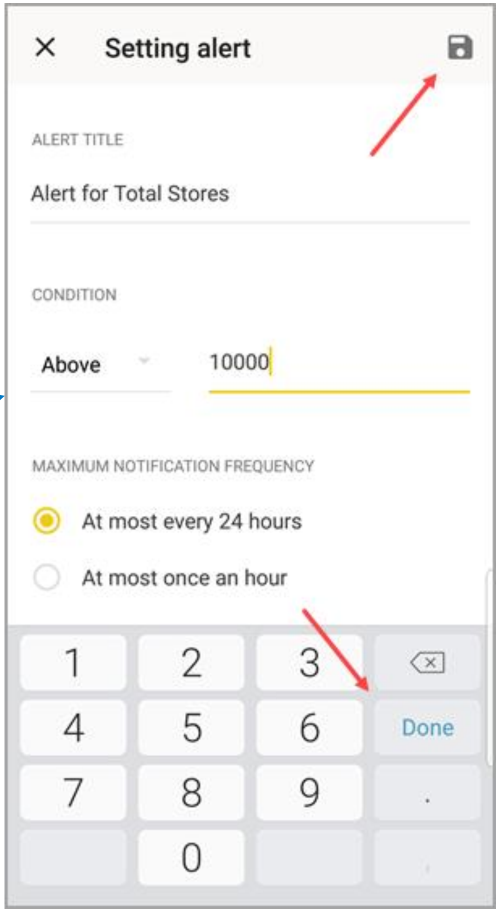


MASTERING DATA ANALYTICS

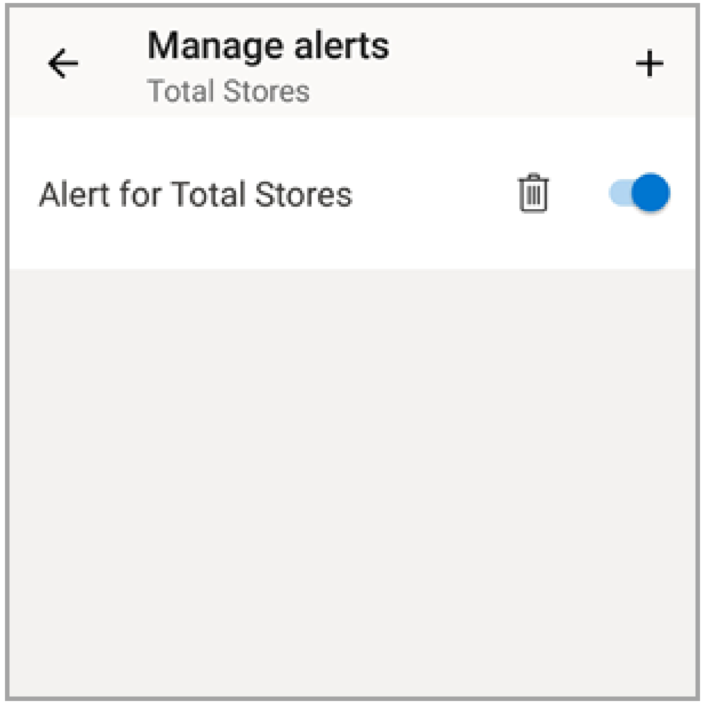
1 Add alert rule in android







2 List alert and turn on/off or remove alert in android



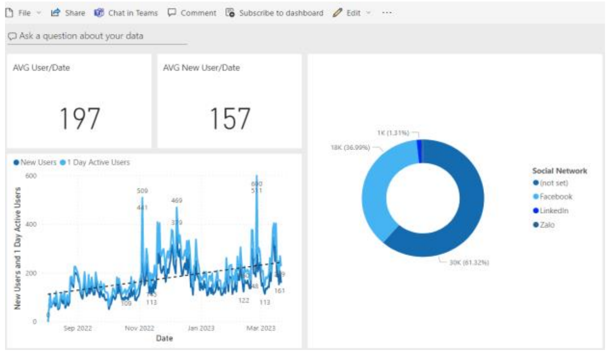
1	**Print or Export a Report**	*Ideal for quickly exporting reports or dashboards as **static PDFs or PowerPoint** documents (great for handouts!)*
2	**Share Reports or Dashboards**	*Best for **sharing individual pieces of content**, especially when recipients only need to view and interact with content (not edit)*
3	**Share a Workspace**	*Easiest way to **collaborate with a team** by sharing ownership and management of all content (datasets, reports, dashboards, etc.)*
4	**Publish an App**	*Great for **distributing content to large groups** or teams, and for publishing specific sets of datasets, reports or dashboards*
5	**Embed Securely Online**	*Used for **securely embedding content to a website you own** through SharePoint Online, via URL, or iframe*
6	**Publish to Web**	*Only use the Publish to Web option if you want your content to be **publicly visible to anyone online** (use with caution!)*

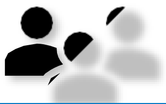
Sharing, Collaboration, RLS
Sharing Options

Reports

INDIVIDUALS

Dashboards





TEAMS

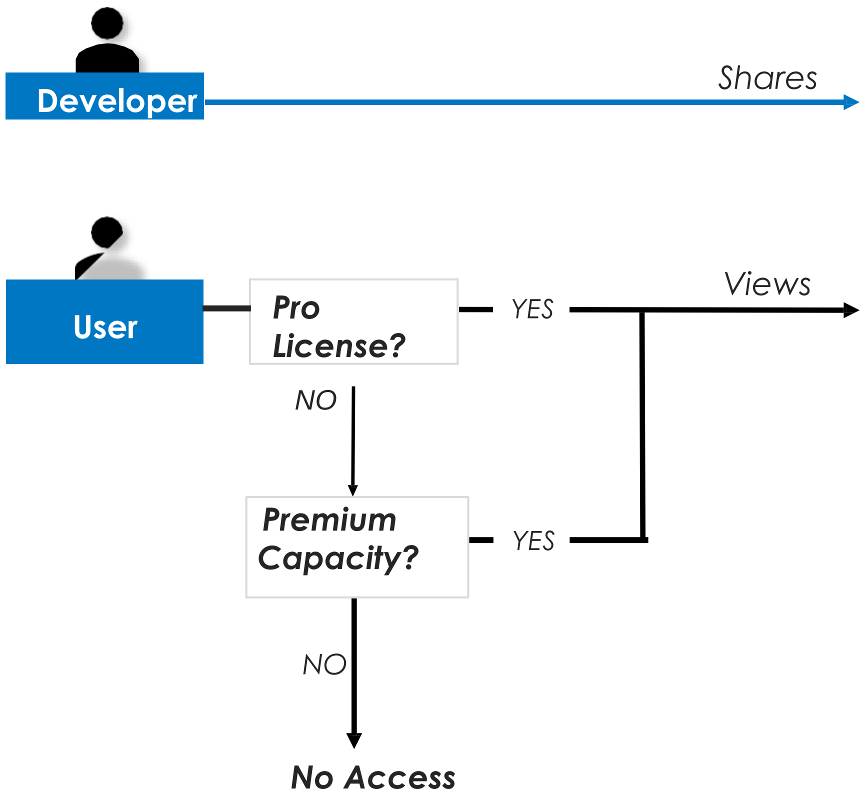
Apps

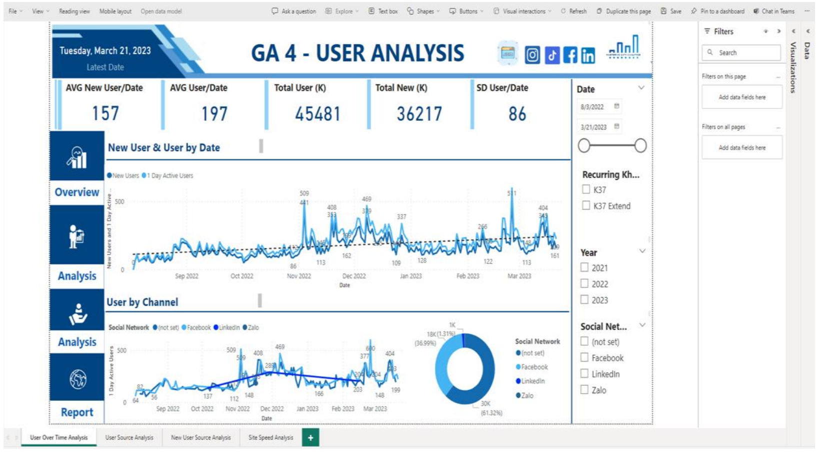
ORGANIZATIONS

PRO TIP: When sharing reports & dashboards, the maximum number of recipients is 100 at a time (or 500 total); if you need to share with more than 100 recipients, split into multiple sends or use groups

Sharing, Collaboration, RLS
Viewing options

When a developer shares a report or dashboard or publishes an app, users must have either a **pro license** or **access to premium capacity** in order to view





HEY THIS IS IMPORTANT!

Users with Pro licenses can share content with PPU but not the other way around

Sharing, Collaboration, RLS
User Permissions

When sharing workspaces, you can assign roles based on these **levels of permissions**:

VIEWER

- View workbooks, reports, and dashboards
- Can't access datasets, dataflows, or edit content

CONTRIBUTOR

Lifts Viewer restrictions, plus:

- Publish, create, edit, and delete content
- Can't add people to new roles or modify members
- Can share if the content has been previously shared but can't share new content

MEMBER

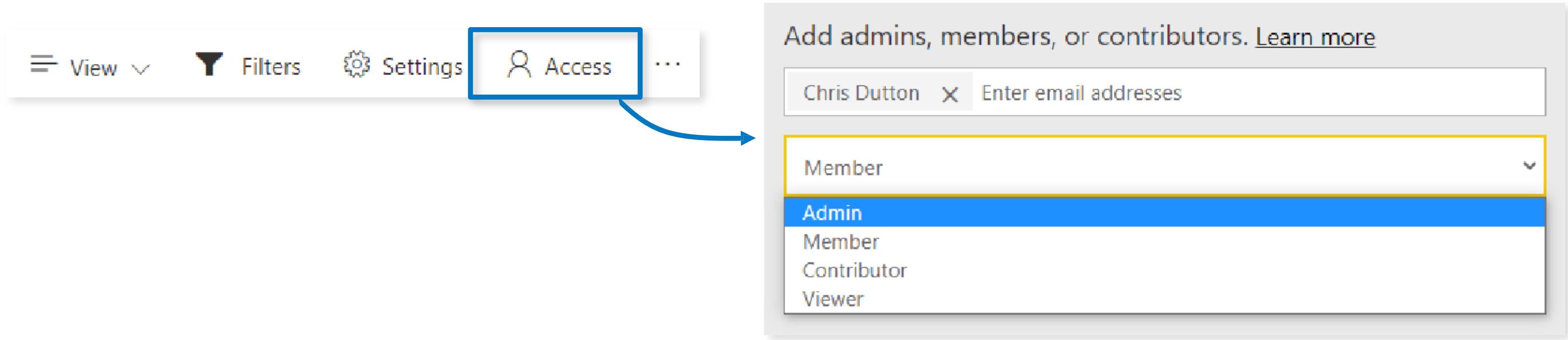
All Contributor rights, plus:

- Add members or users with lower permission levels
- Publish and update apps
- Share an item or app
- Allow others to reshare

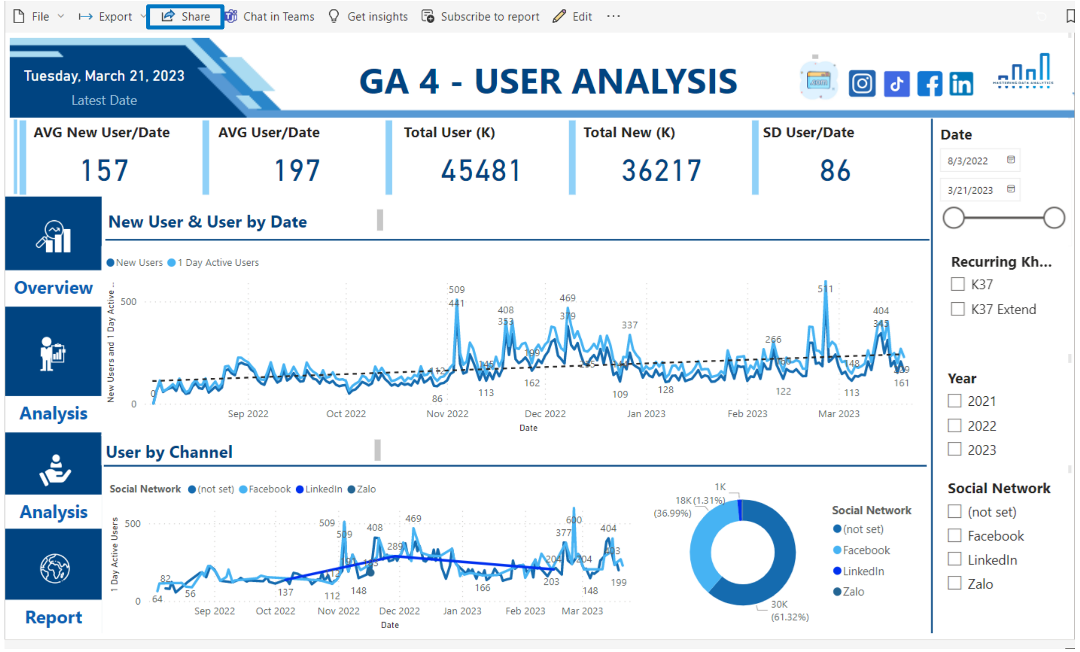
ADMIN

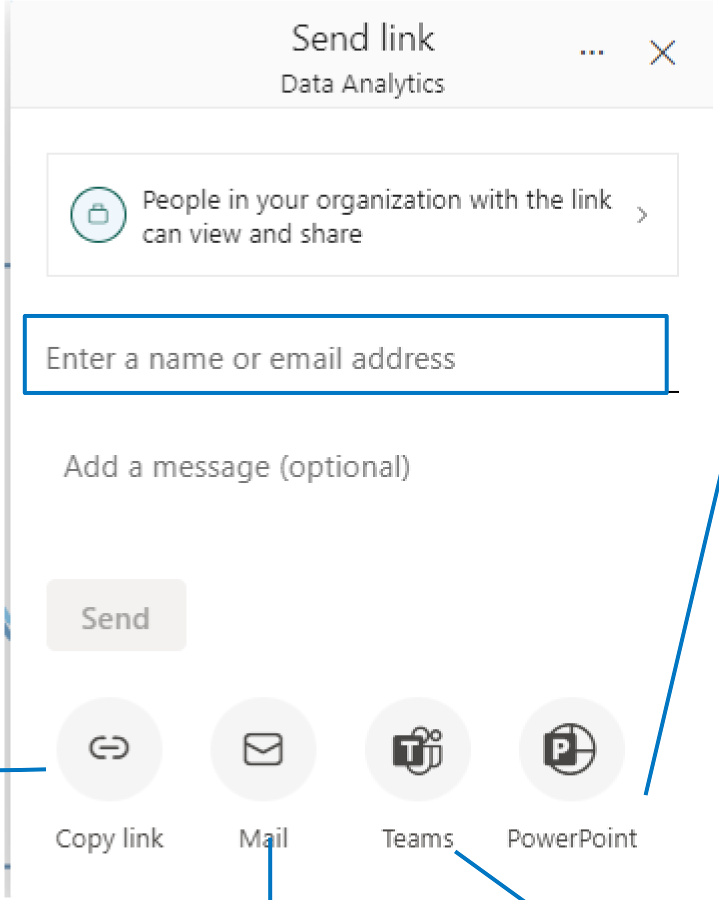
All Member rights, plus:

- Update/delete workspaces
- Add or remove other users (including admins)



Sharing, Collaboration, RLS
Sharing report





Via PowerPoints

Via Link

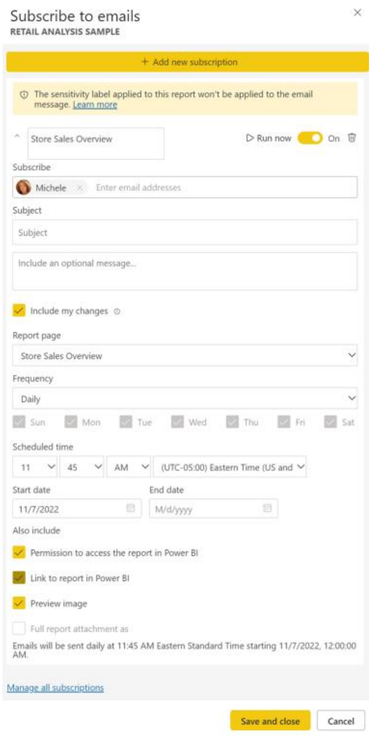
Via Mail

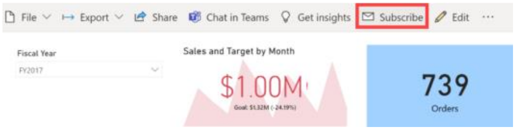
Via Teams

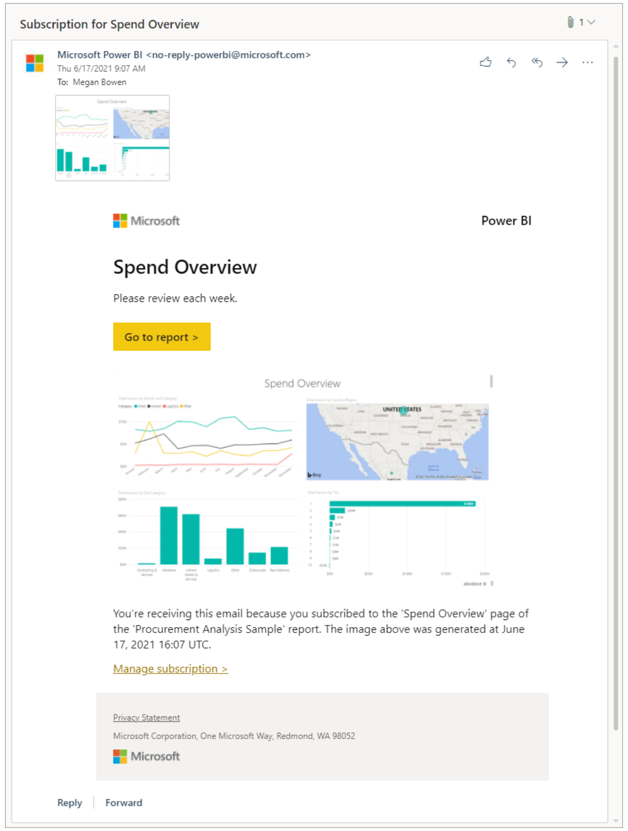
Sharing, Collaboration, RLS

Subscribe to emails (Dashboard/Report)

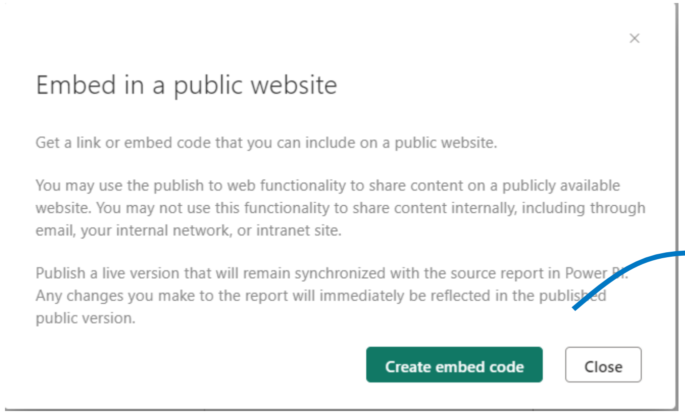
Subscribe Power BI reports, dashboards, and paginated reports, you receive an email on a schedule you set. The email contains a snapshot and link to the report or dashboard

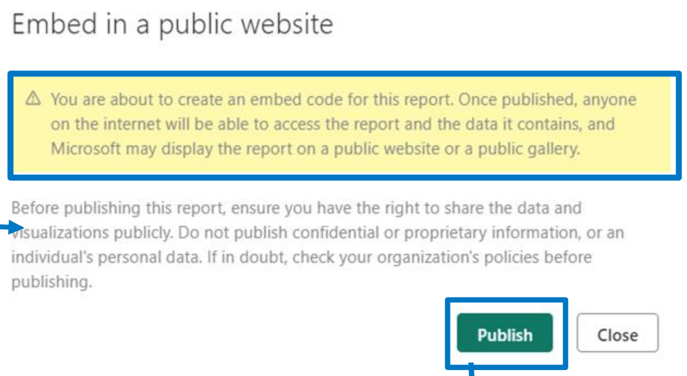




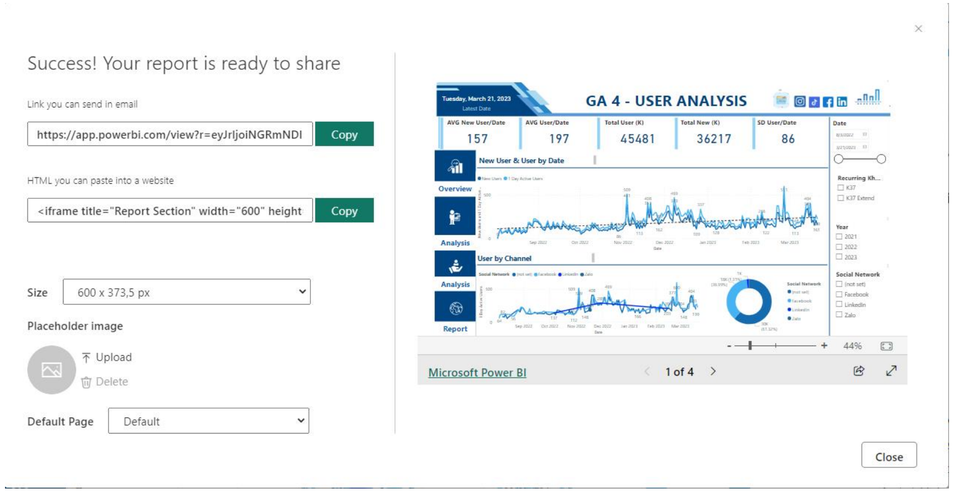


Use **Publish to Web** to host reports online publicly

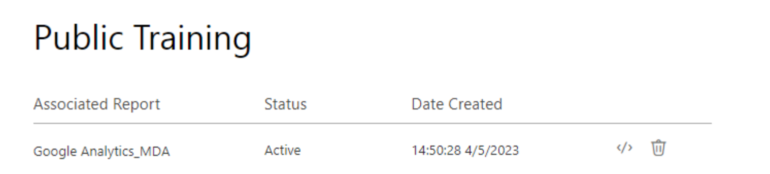




Pay Attention to this Warning!
You're about to make the report **100% accessible** to anyone on the internet



PRO TIP: Go to Settings > manage embed codes to delete the Publish to Web report



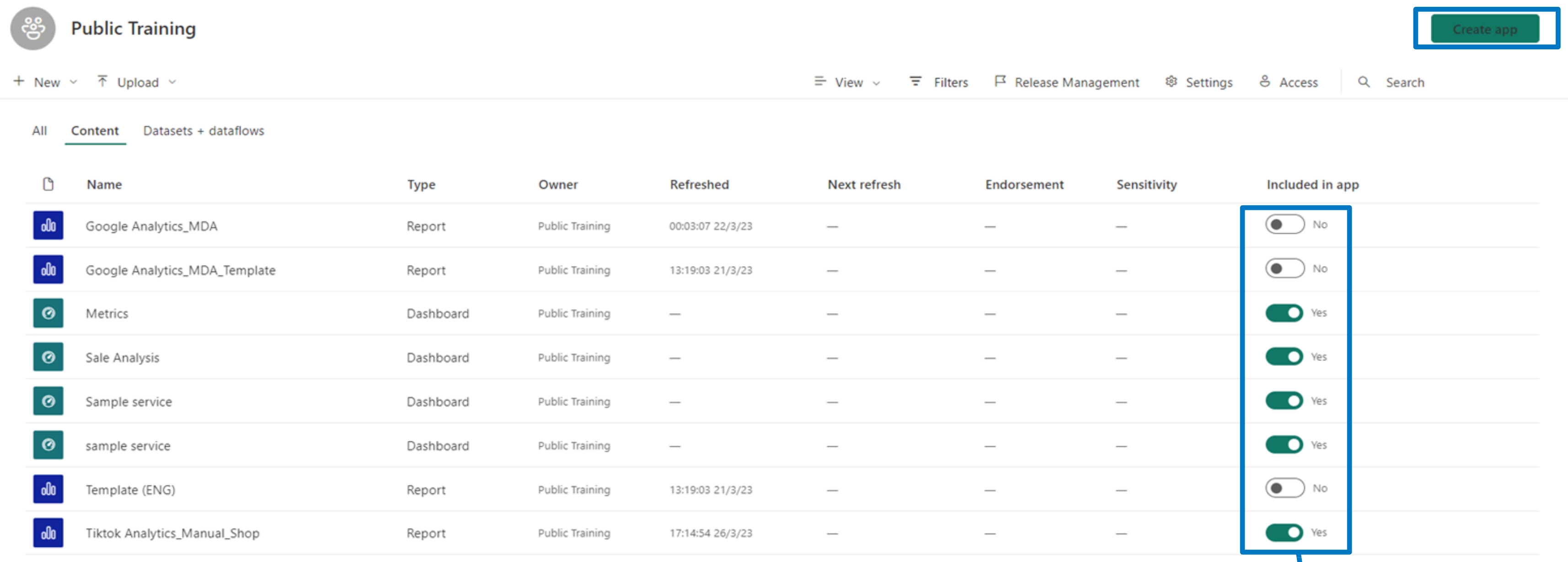
- An app can have permissions that are different than the permissions set on a workspace. This capability makes it easier for designers to manage permissions on an app.

- An app combines related content, like dashboards, spreadsheets, datasets, and reports, all in one place. An app has one or more of each content type bundled together. There are many ways a designer can share an app

Sharing, Collaboration, RLS
Publishing Apps

You can select reports and dashboards to **publish as an app** so large groups of people, both internal and external to your organization, can view them

2 Select **Create app** to publish the app

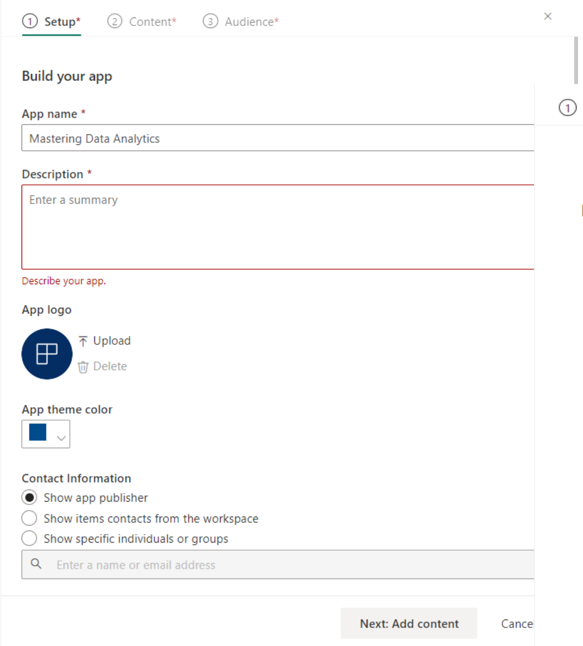


Name	Type	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Included in app
Google Analytics_MDA	Report	Public Training	00:03:07 22/3/23	—	—	—	No
Google Analytics_MDA_Template	Report	Public Training	13:19:03 21/3/23	—	—	—	No
Metrics	Dashboard	Public Training	—	—	—	—	Yes
Sale Analysis	Dashboard	Public Training	—	—	—	—	Yes
Sample service	Dashboard	Public Training	—	—	—	—	Yes
sample service	Dashboard	Public Training	—	—	—	—	Yes
Template (ENG)	Report	Public Training	13:19:03 21/3/23	—	—	—	No
Tiktok Analytics_Manual_Shop	Report	Public Training	17:14:54 26/3/23	—	—	—	Yes

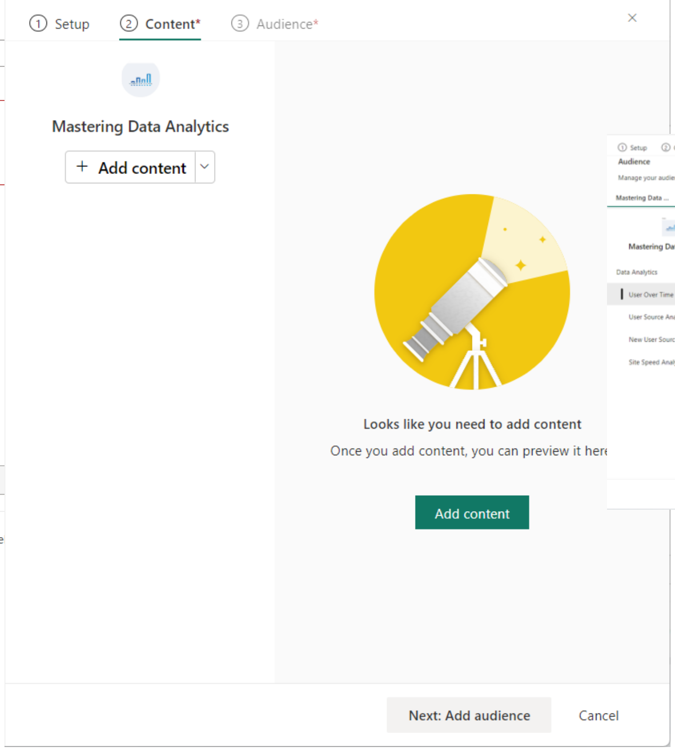
1 From within a workspace, select any **reports** and **dashboards** you want to include

After selecting Create app, configure the **setup**, **navigation**, and **permissions**

3 In the **Setup** tab, name the app, add a description, logo, and color theme



4 In the **Content** tab, use the navigation builder to customize the order, name, and navigation width

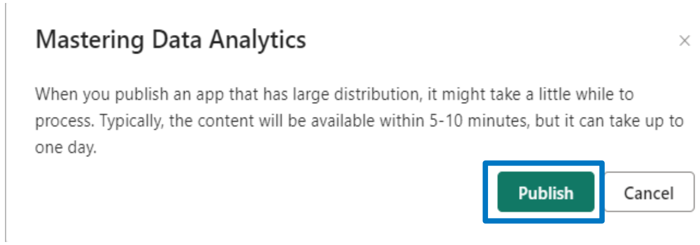


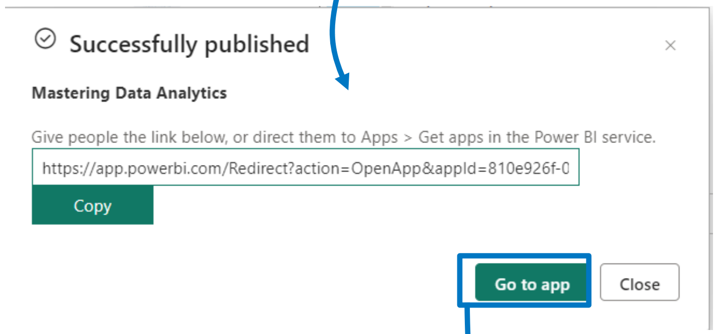
5 In the **Audience** tab, add individuals, groups, or entire organizations to the App

6 Publish the app!

MASTERING DATA ANALYTICS

After publishing the app, you'll be provided a link for direct access



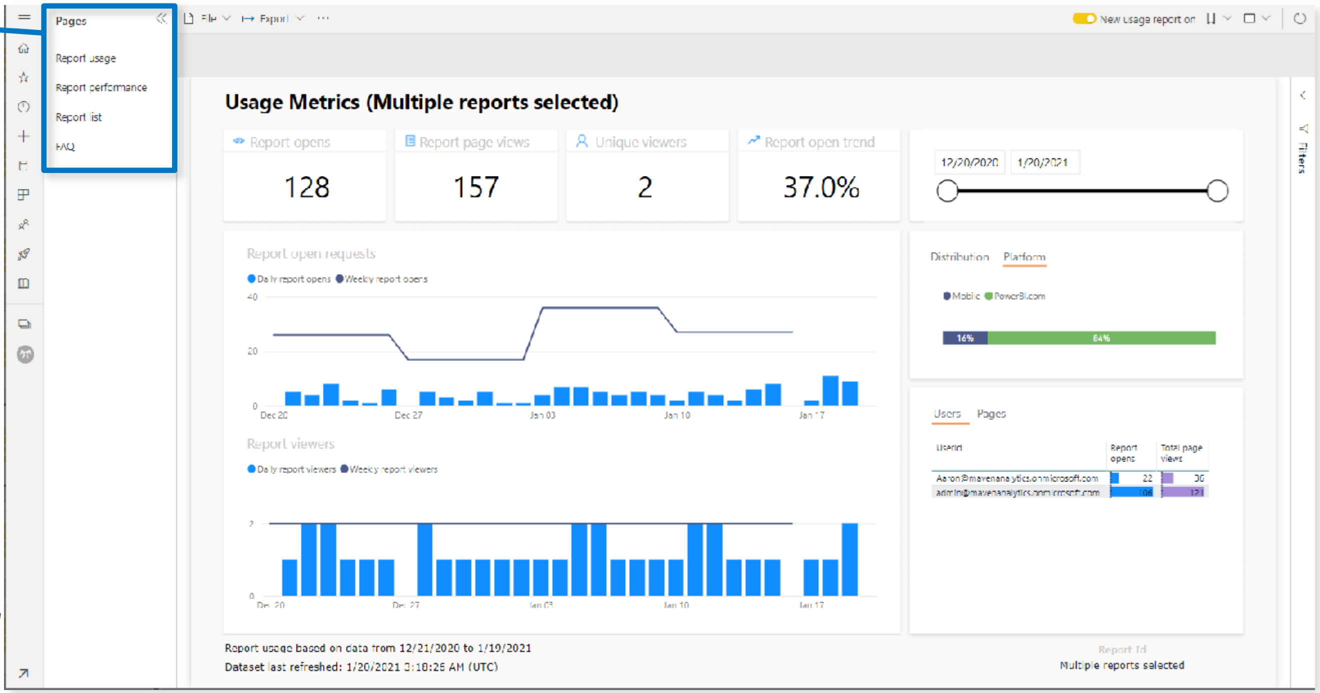


Menu options allow users to do things like **print**, chat in **Teams**, add **comments**, **subscribe**, **favorite**, **edit** *(permissions depending)*, etc.

Sharing, Collaboration, RLS
Usage reports

The **usage metrics** tool monitors how your dashboards and reports are being used

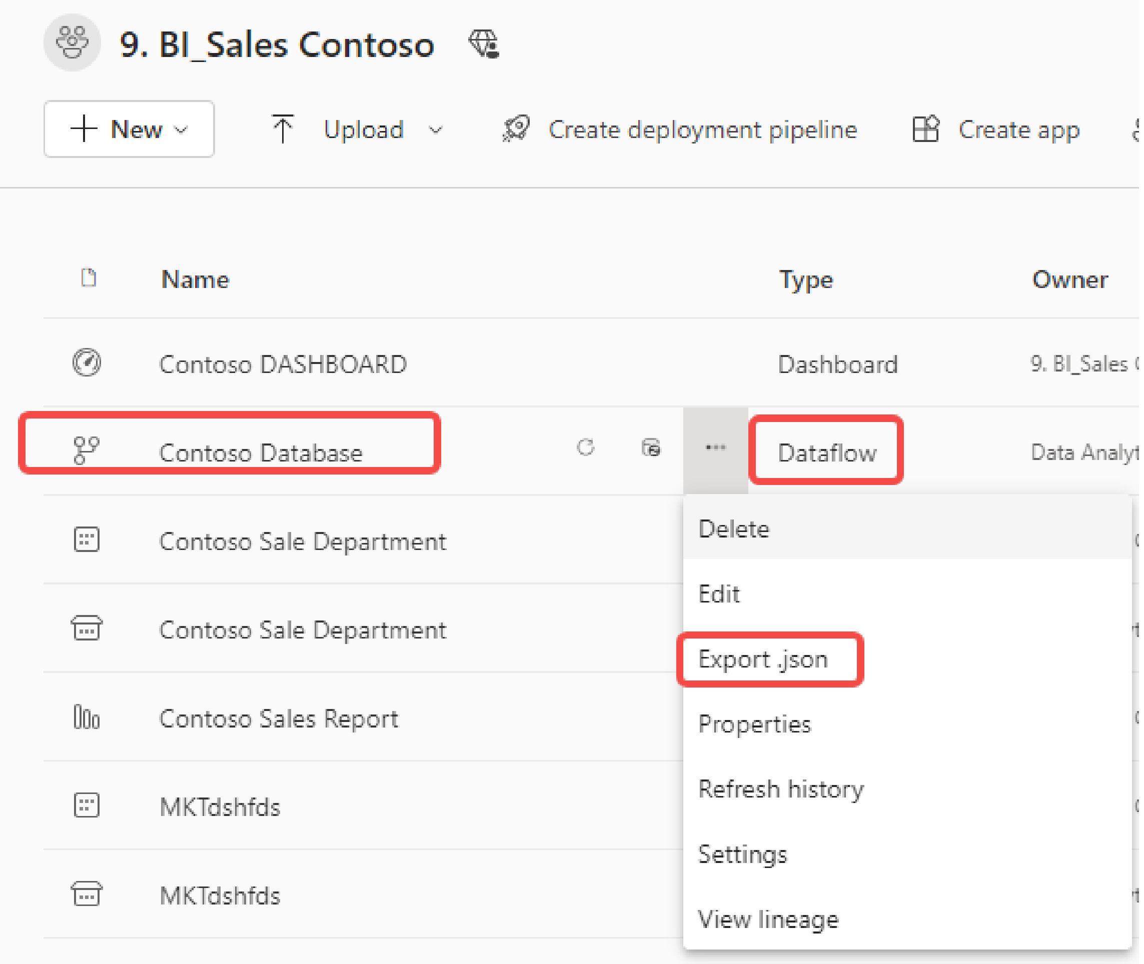
- **REPORT USAGE**
  Displays metrics like opens, views, viewers, users, etc.
- **REPORT PERFORMANCE**
  Displays typical open time, browser, device, etc.
- **REPORT LIST**
  Shows key metrics by report across entire workspace
- **FAQ**
  Like term & calculation definitions, plus links to additional info



PRO TIP: Choose “Save report as” from the file menu to access the underlying data to build and customize your own usage metrics report

Sharing, Collaboration, RLS

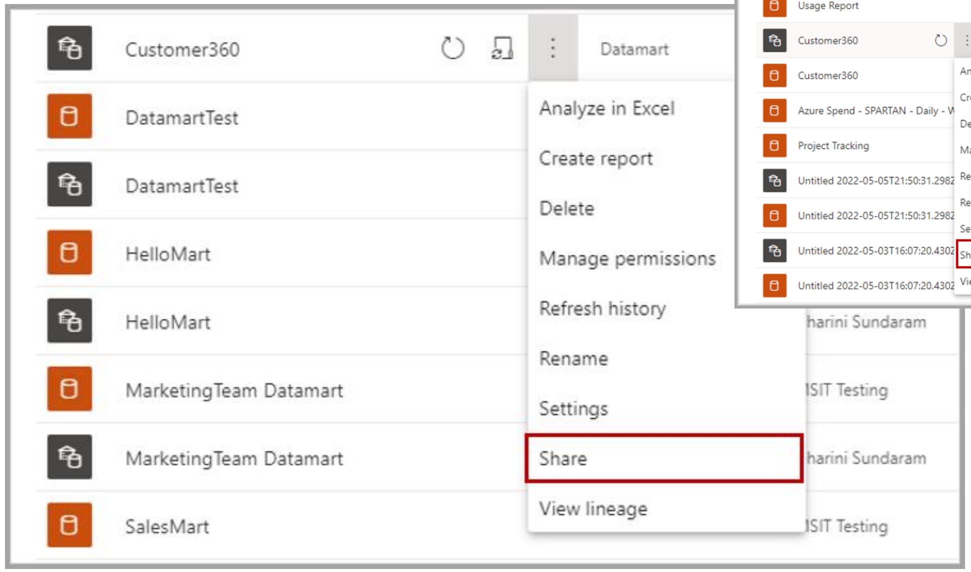
Sharing dataflow



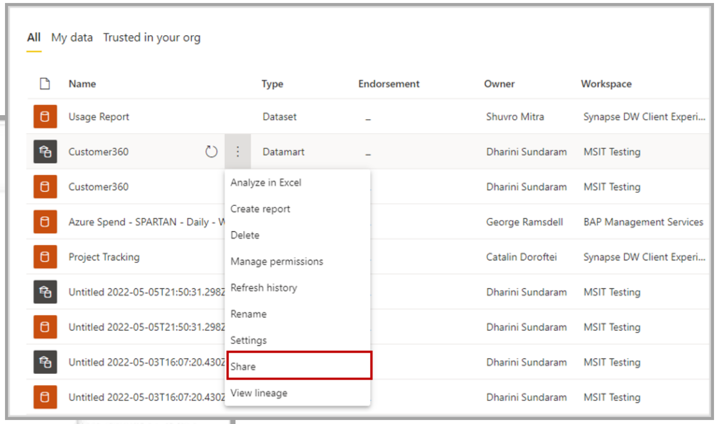
Sharing, Collaboration, RLS
Sharing datamart

MASTERING DATA ANALYTICS

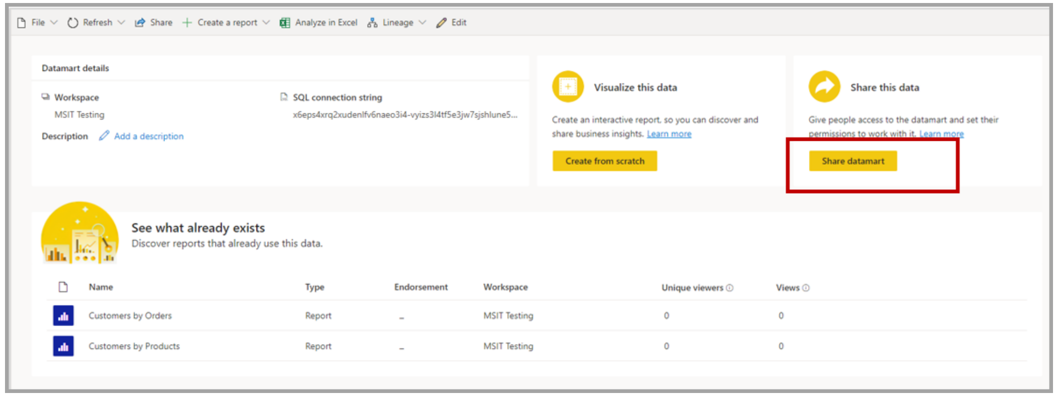
Share from a workspace



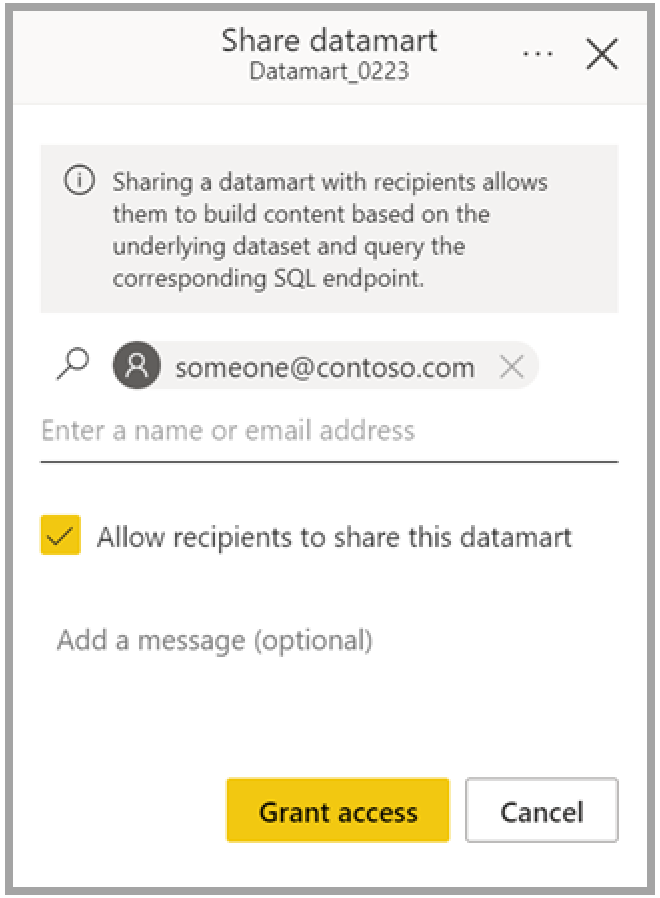
Share from the data hub

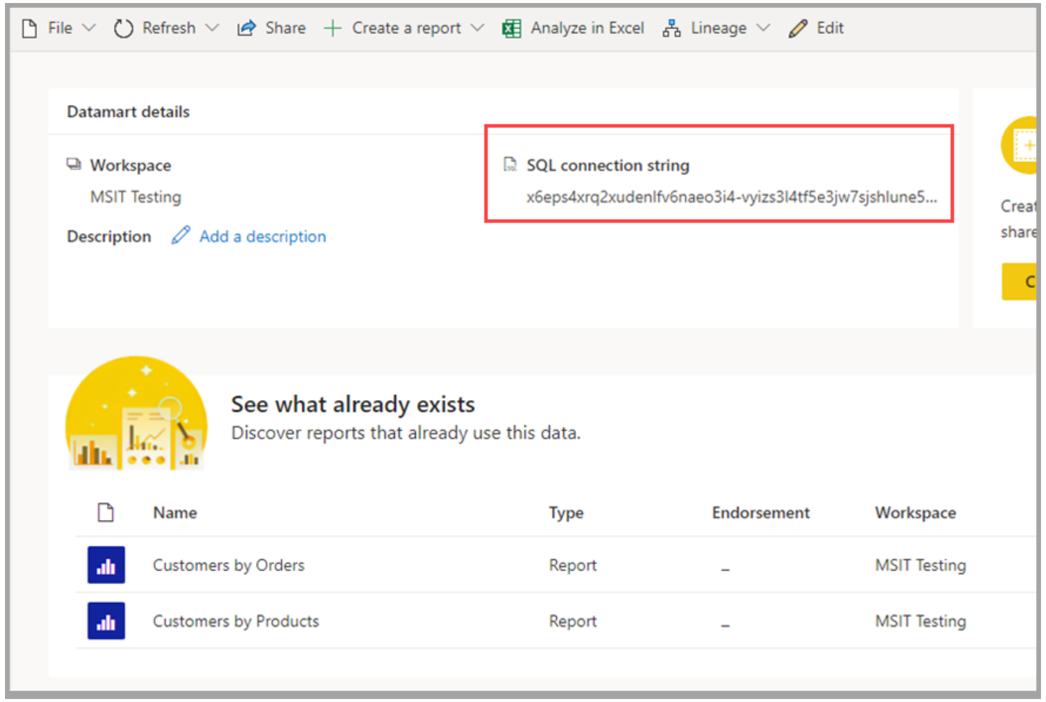


Share from datamart information page



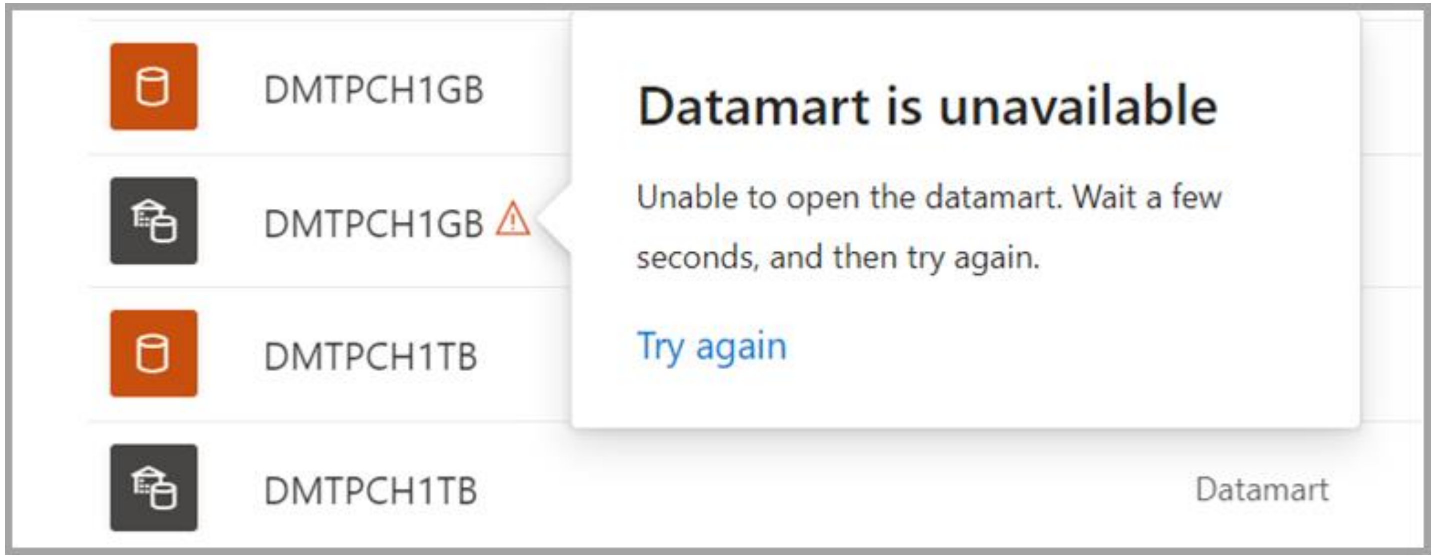
Sharing, Collaboration, RLS
Sharing datamart



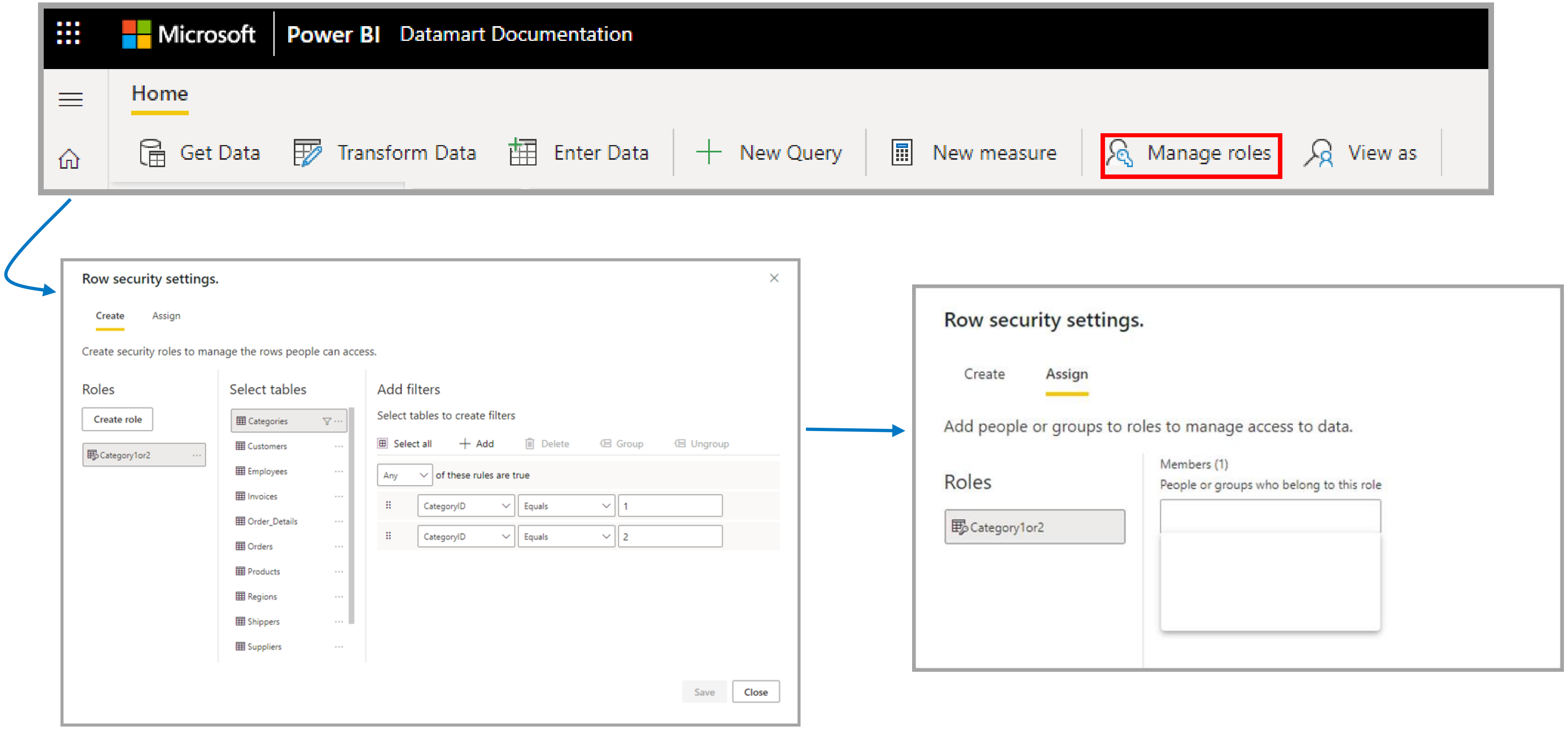


Situation 1: When a Premium workspace is changed from Premium to non-premium

Situation 2: When dataflow updates a datamart and associated dataset, but due to a system lock the datamart or dataset update is pending, the datamart becomes unavailable

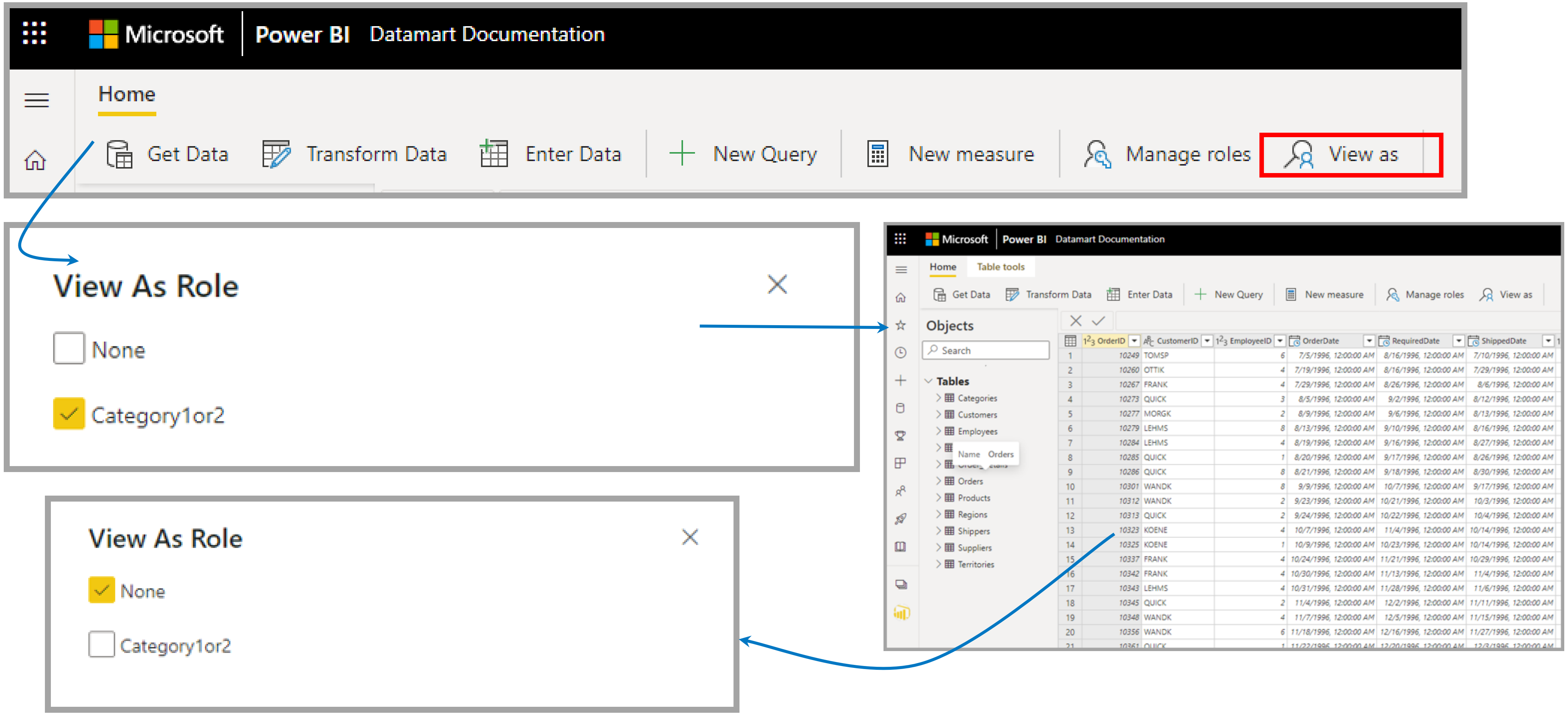


Define RLS and rules

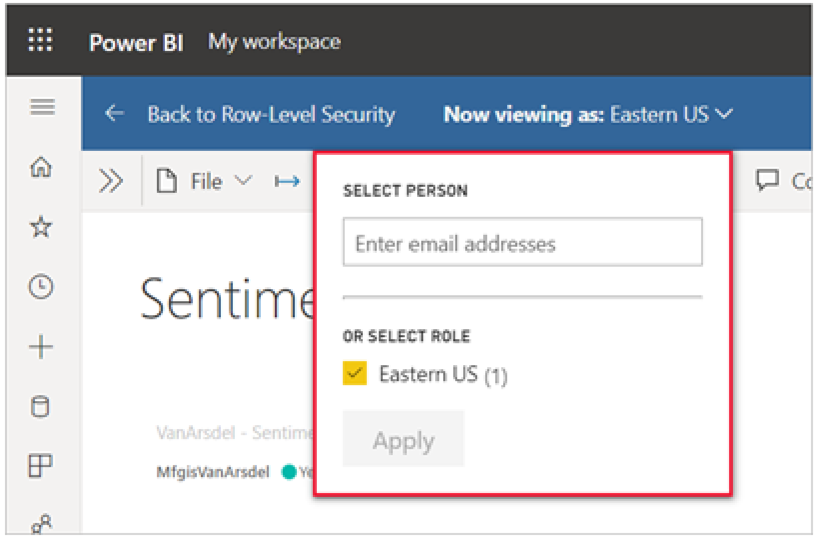


Sharing, Collaboration, RLS
Access control in datamart

Define RLS and rules

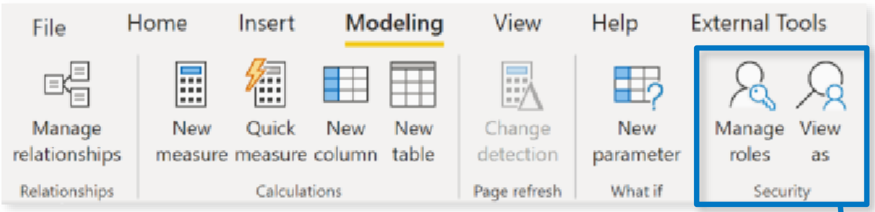


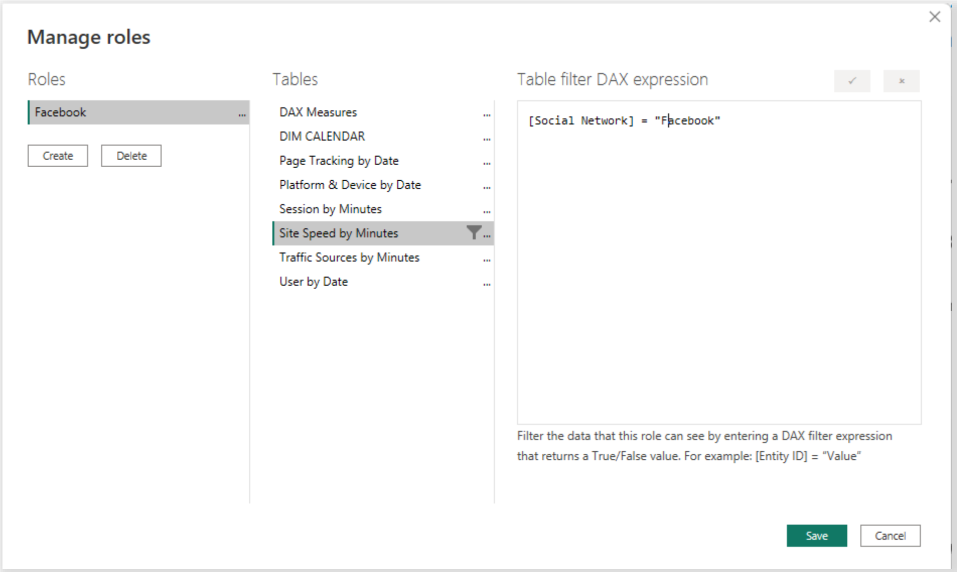
Row-level security *(RLS)*, which are used to restrict data access to users at the row level and limit what they're able to view



Static roles allow you to define filtered views for specific audiences (*territory managers, department leads, execs, etc.*) using simple DAX statements

- This is not the same as bookmarks or pre-filtered views; roles filter data out of your model and limit what audiences can access
- Static roles must first be configured in Power BI Desktop and then applied in Power BI Service



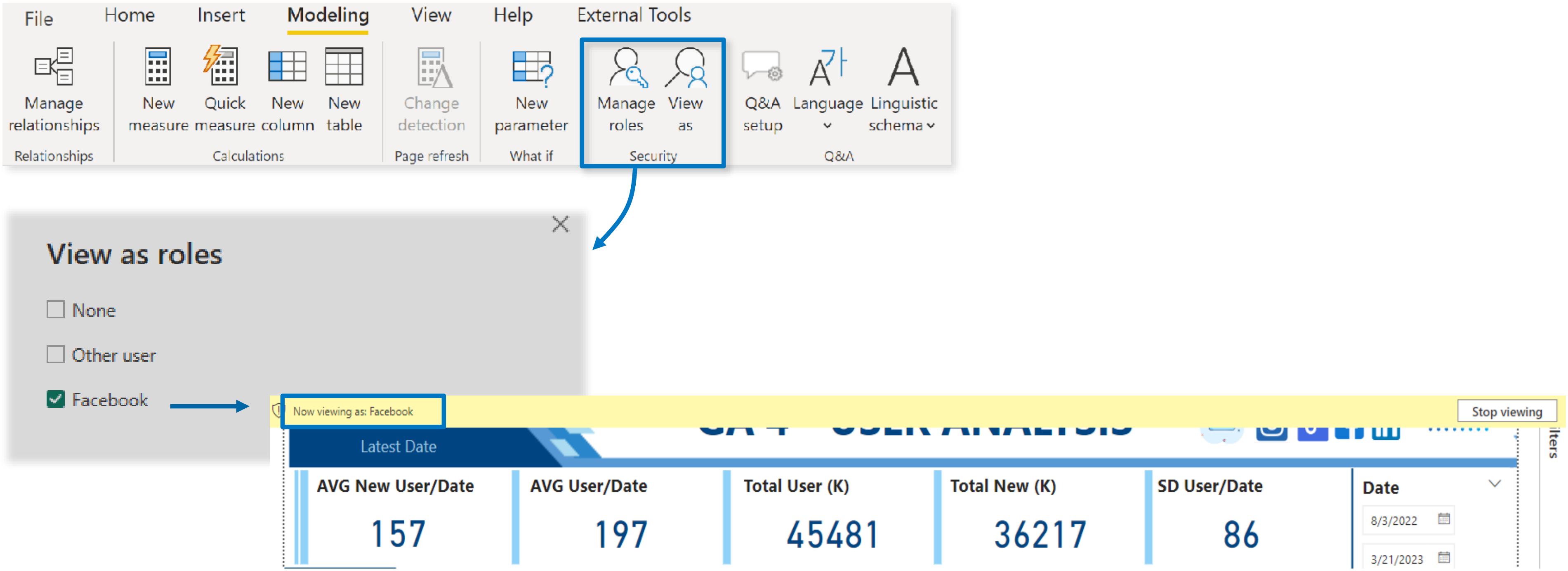


HEY THIS IS IMPORTANT!

DAX expressions used to define roles must use expressions that filter rows and cannot reference a column, table, or measure alone

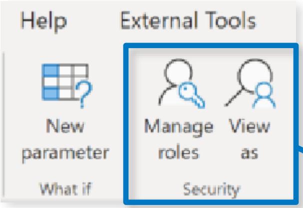
Sharing, Collaboration, RLS
RLS

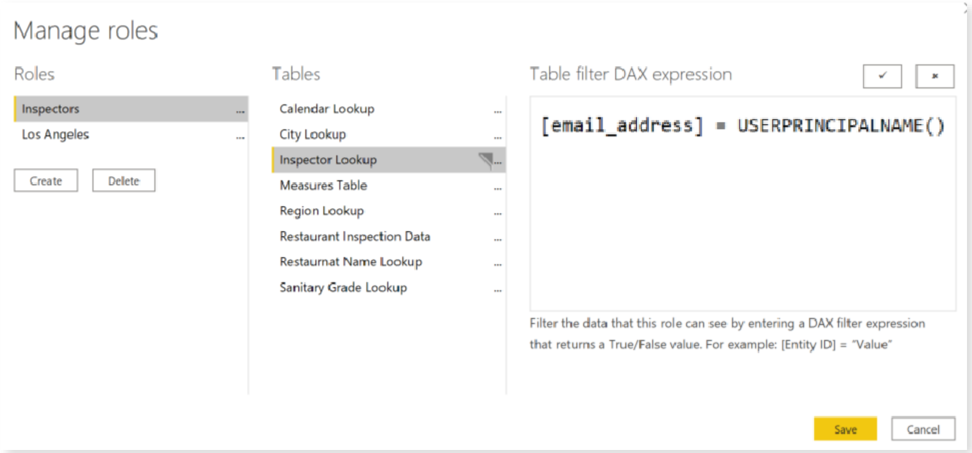
As a best practice, use the **View as** option to confirm that the security role properly limits the data prior to publishing to Power BI Service



Dynamic roles allow you to define filtered views for a specific list of users with the DAX function **USERPRINCIPALNAME**

- This DAX function requires adding an additional table into your data model
- Dynamic roles must first be configured in Power BI Desktop and then applied in Power BI Service



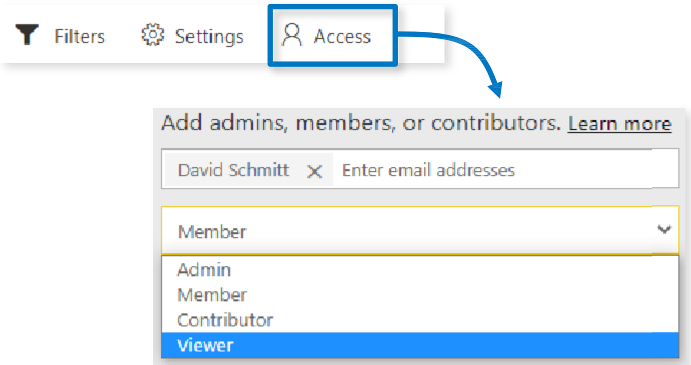


This dynamic role will filter by the users in this table

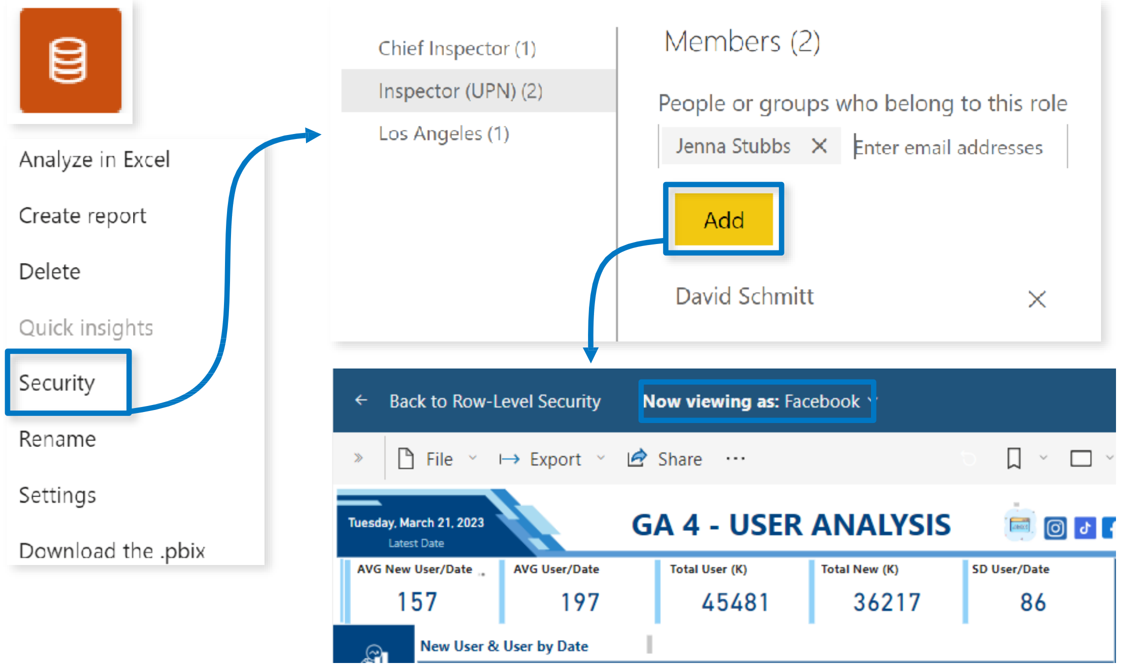
email_address	inspector_role
bfinnegan@maveninspectionalservices.onmicrosoft.com	Inspector
dkrueger@maveninspectionalservices.onmicrosoft.com	Inspector
kmeza@maveninspectionalservices.onmicrosoft.com	Inspector
jkay@maveninspectionalservices.onmicrosoft.com	Inspector
bblanco@maveninspectionalservices.onmicrosoft.com	Inspector
dschmitt@maveninspectionalservices.onmicrosoft.com	Lead Inspector
jstubbs@maveninspectionalservices.onmicrosoft.com	Inspector
rriggs@maveninspectionalservices.onmicrosoft.com	Inspector
dgently@maveninspectionalservices.onmicrosoft.com	Inspector
ssalt@maveninspectionalservices.onmicrosoft.com	Inspector
smurphy@maveninspectionalservices.onmicrosoft.com	Inspector
ajuan@maveninspectionalservices.onmicrosoft.com	Inspector
mtyson@maveninspectionalservices.onmicrosoft.com	Inspector
aholt@maveninspectionalservices.onmicrosoft.com	Inspector
lburns@maveninspectionalservices.onmicrosoft.com	Inspector
jlebean@maveninspectionalservices.onmicrosoft.com	Inspector
scook@maveninspectionalservices.onmicrosoft.com	Chief Inspector

Once RLS rules have been defined in Power BI Desktop, they can be applied to users who you've shared reports with or have **Viewer** permissions in Power BI Service

1 Confirm that users impacted by RLS are assigned to the **Viewer** role



2 Add people or groups to the RLS rule



HEY THIS IS IMPORTANT!

If a user is assigned as an Admin, Member, or Contributor, RLS will be overridden

On Desktop, RLS rules have been defined in Power BI Desktop => Service to management RLS

≠

On Service, RLS works entirely on the service (define, management)

MASTERING DATA ANALYTICS

POWER BI SERVICE

PART 1: PBI Ecosystem (PBI Service)

PART 2: Connecting data

PART 3: Prep Data (On Pro & Premium)

PART 4: Data Modeling

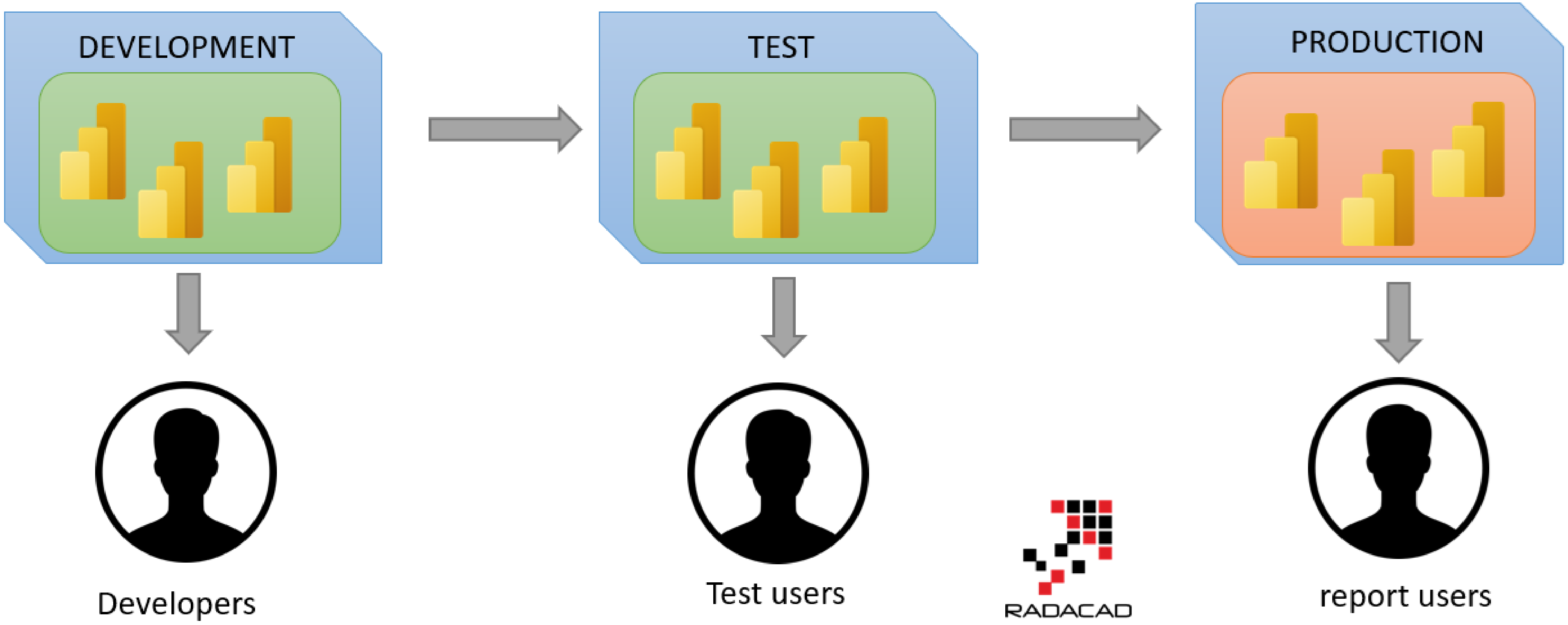
PART 5: Report and Dashboard

PART 6: Refresh, Scoreboard vs. Metrics

PART 7: Sharing, Collaboration, RLS

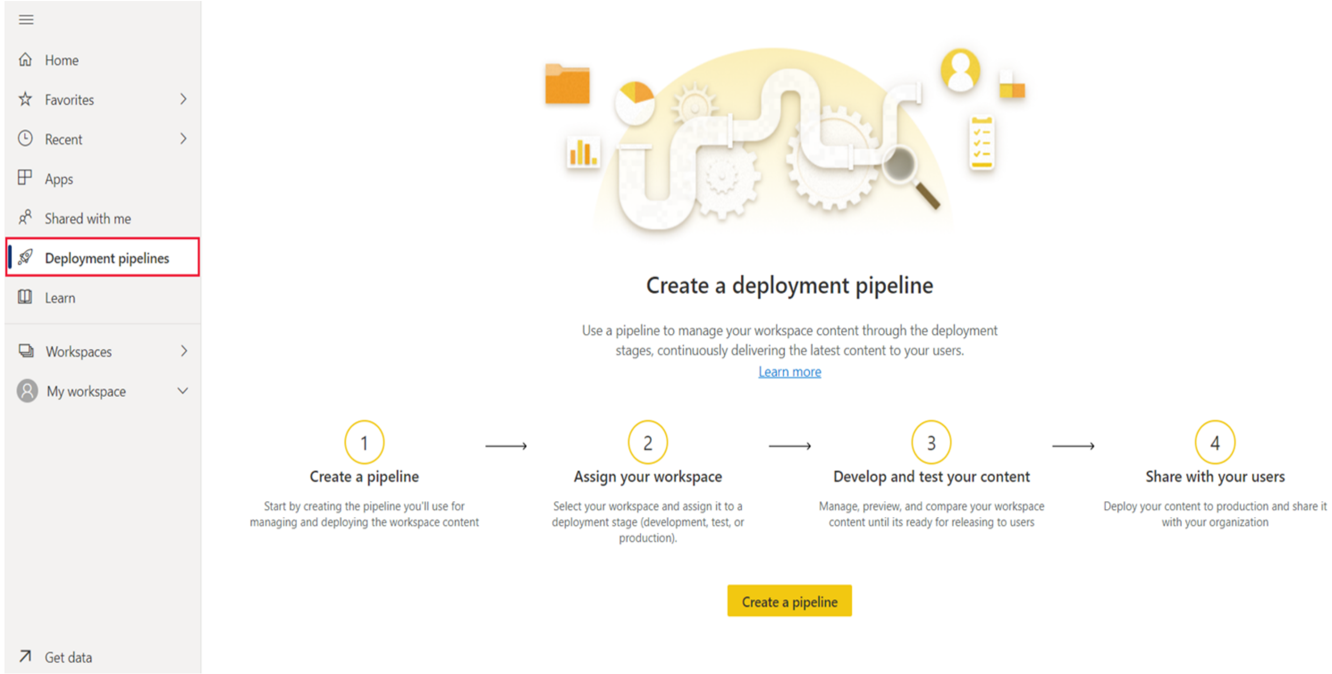
PART 8: Deployment Pipelines

Separating environments



Deployment pipelines

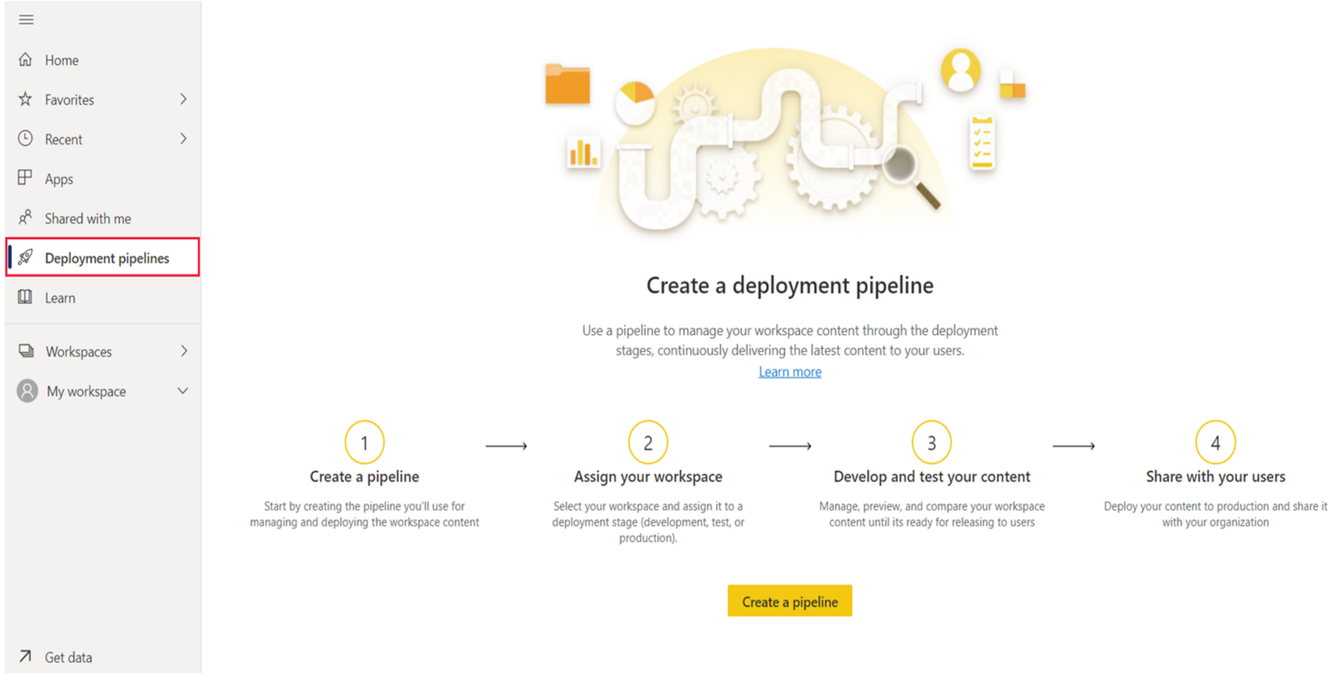
- The deployment pipelines tool enables BI creators to manage the lifecycle of organizational content.
- Deployment pipelines enable creators to develop and test Power BI content in the Power BI service, before the content is consumed by users



Deployment pipelines
Introduction

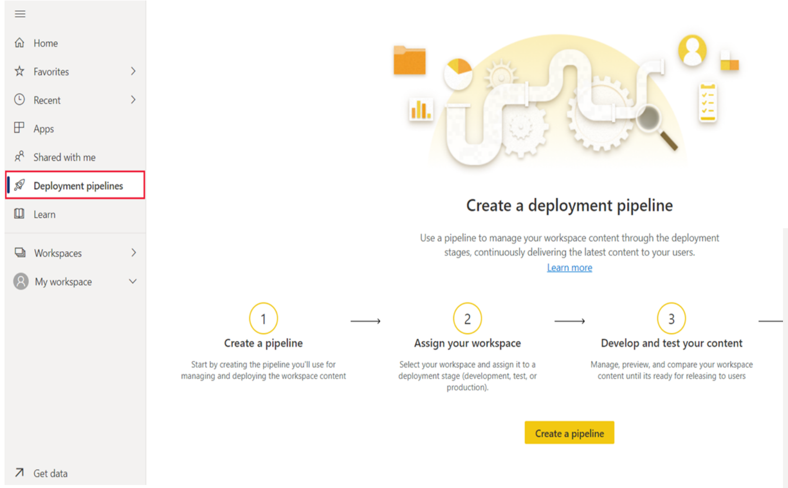
Pipeline structure

- Development
- Test
- Production

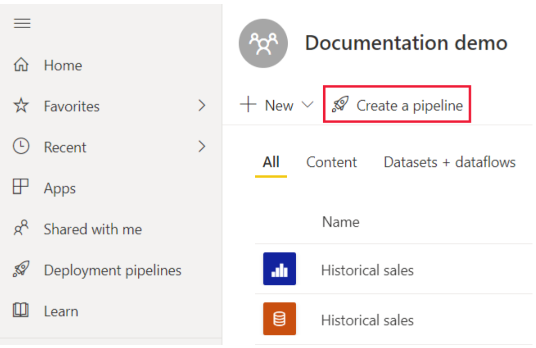


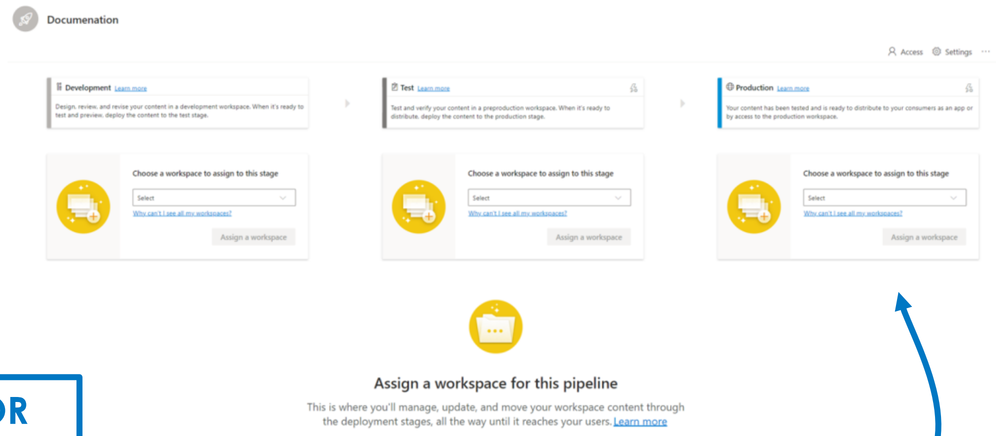
HEY THIS IS IMPORTANT!
Datasets that don't originate from a .pbix
PUSH datasets
Streaming dataflows
Reports based on unsupported datasets
Template app workspaces
Workbooks
Metrics

Deployment pipelines
Creating deployment pipelines



OR



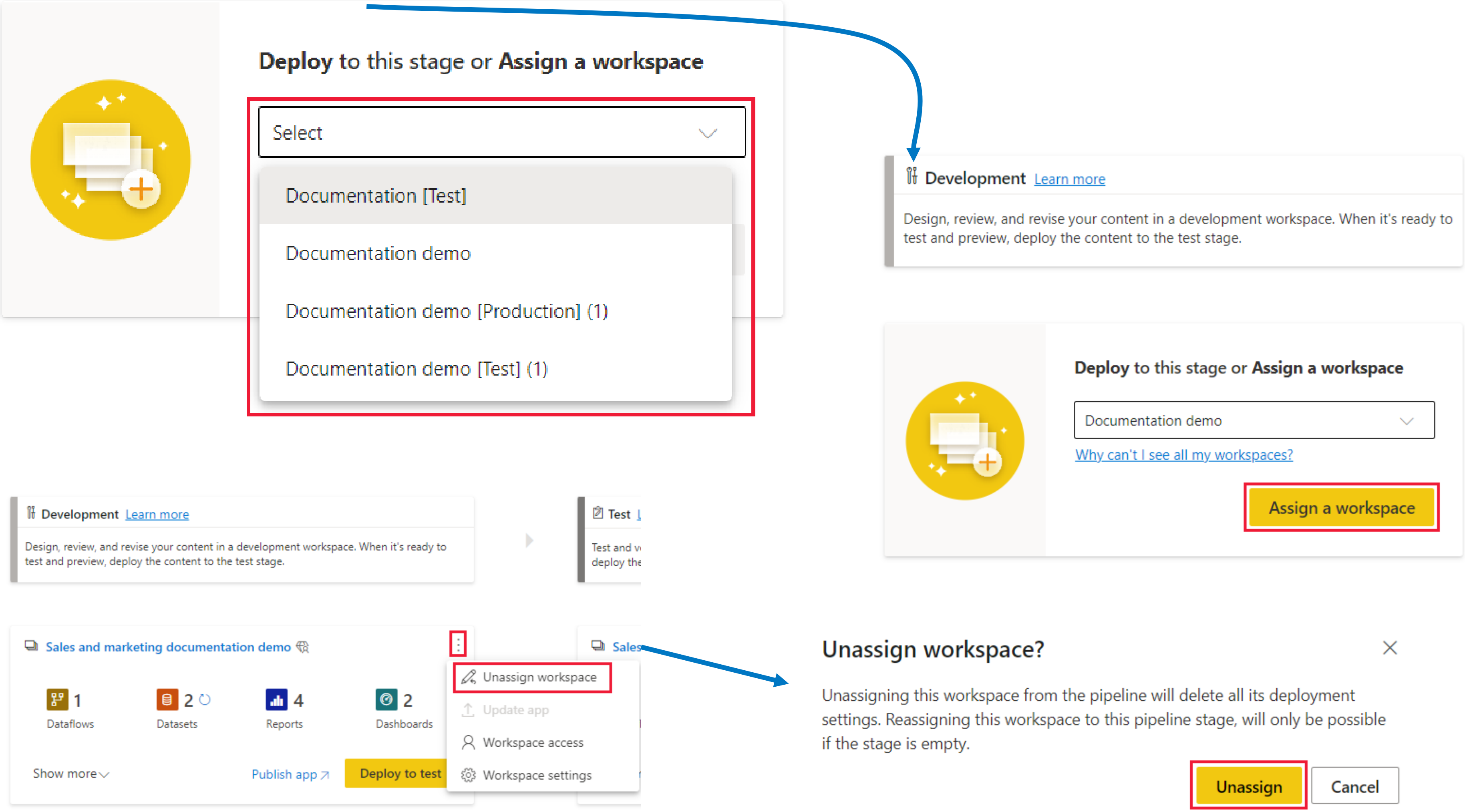


HEY THIS IS IMPORTANT!

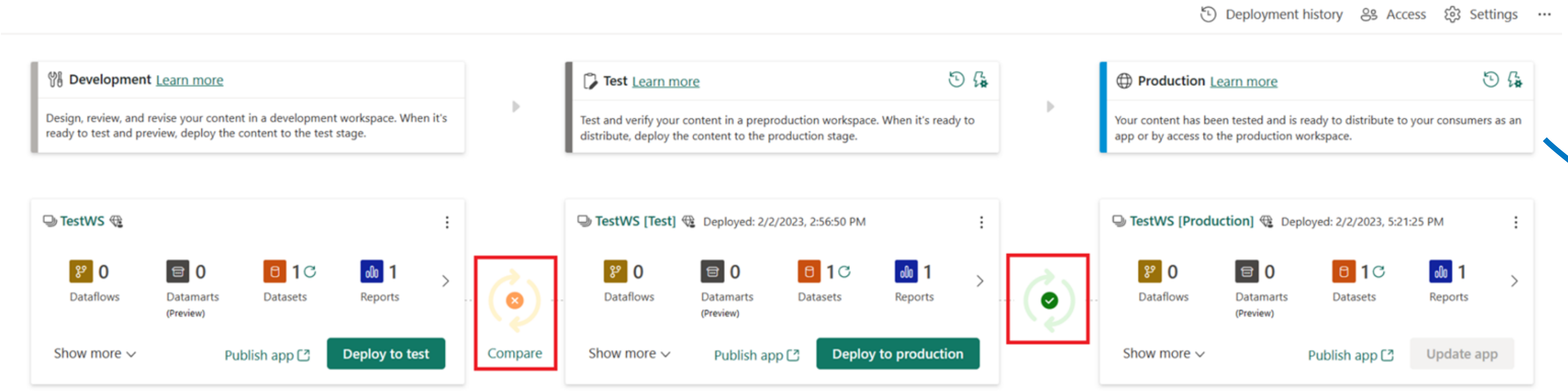
You have one of the following Premium licenses

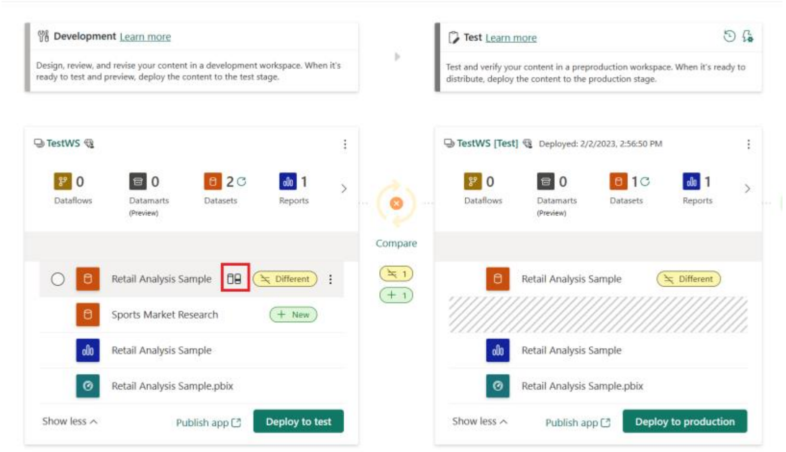
You're an admin of a Premium workspace

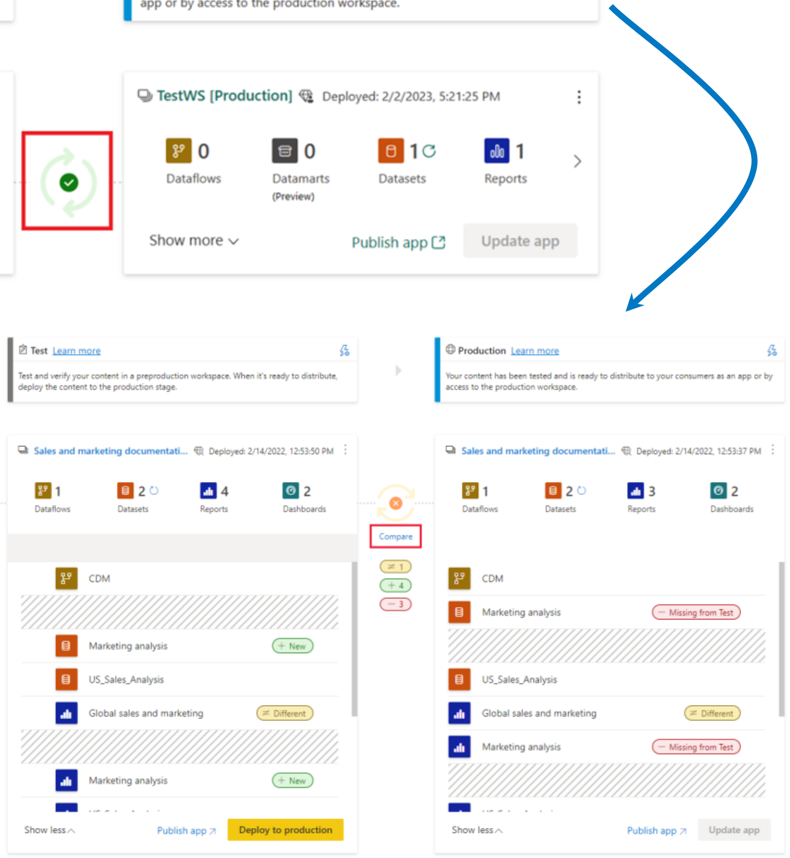
Deployment pipelines
Creating deployment pipelines



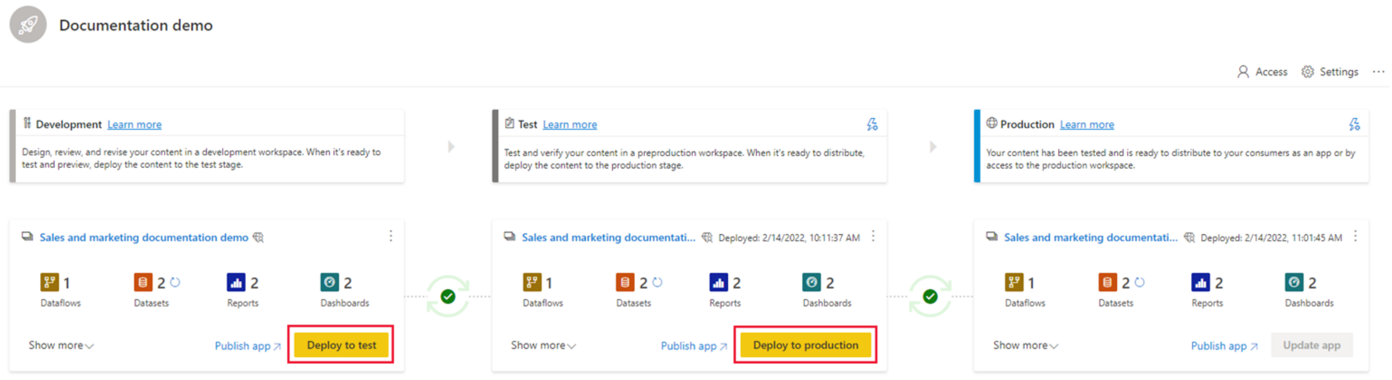
Deployment pipelines
Creating deployment pipelines

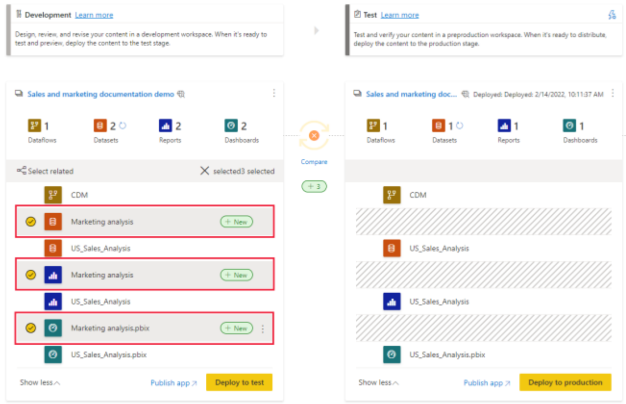


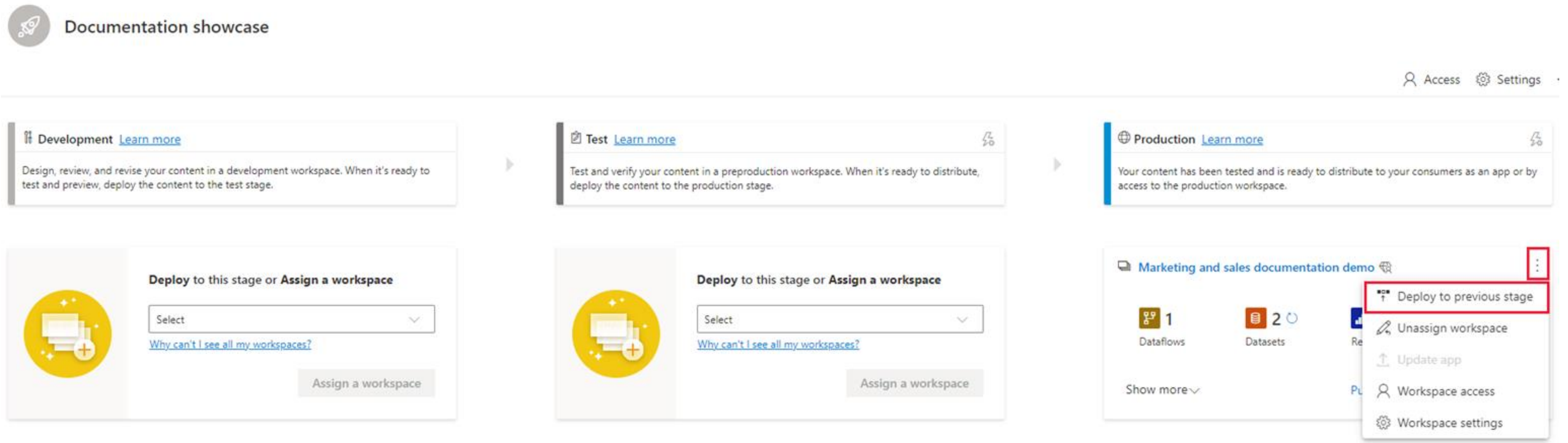




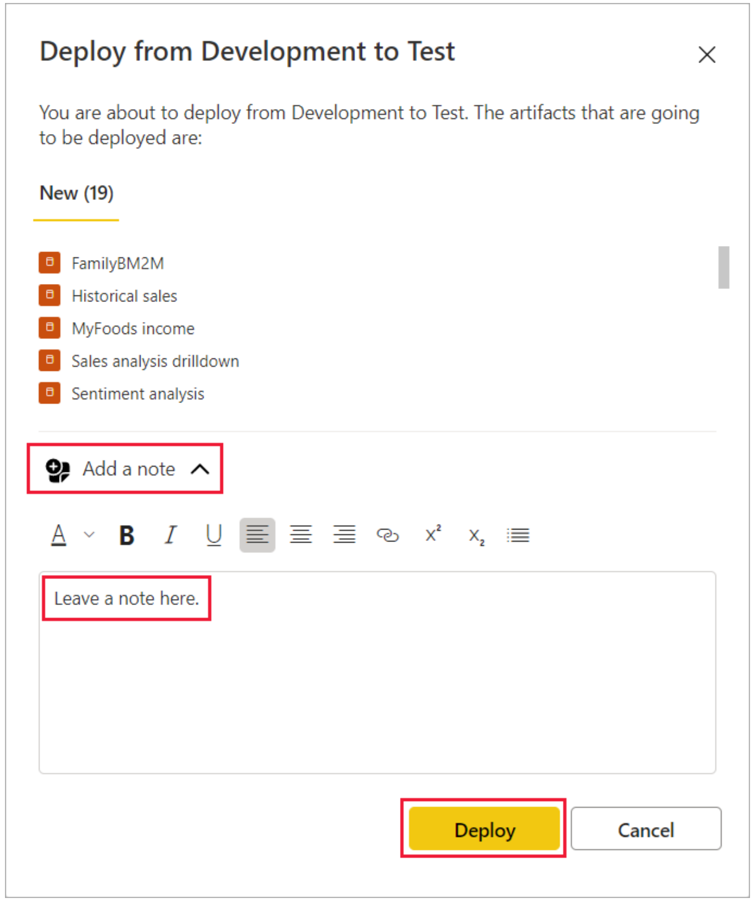
Deployment pipelines
Deployment

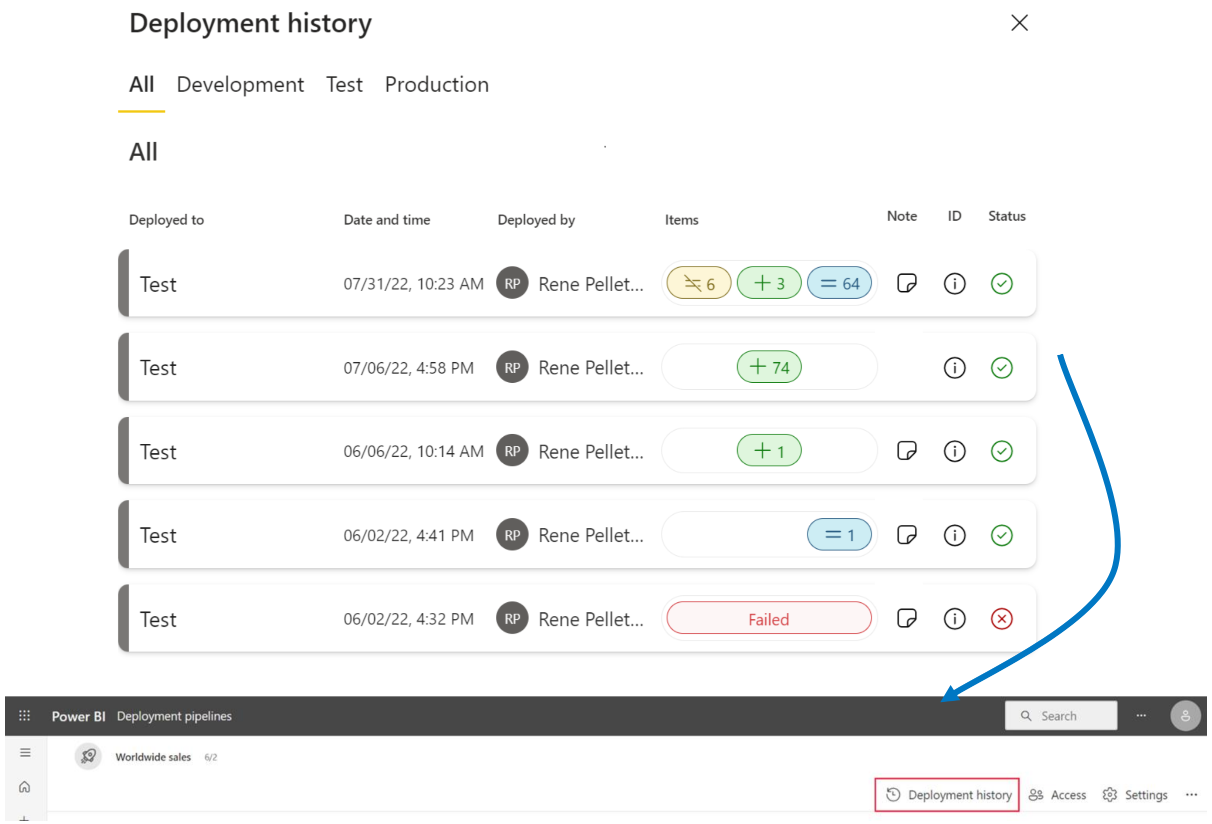




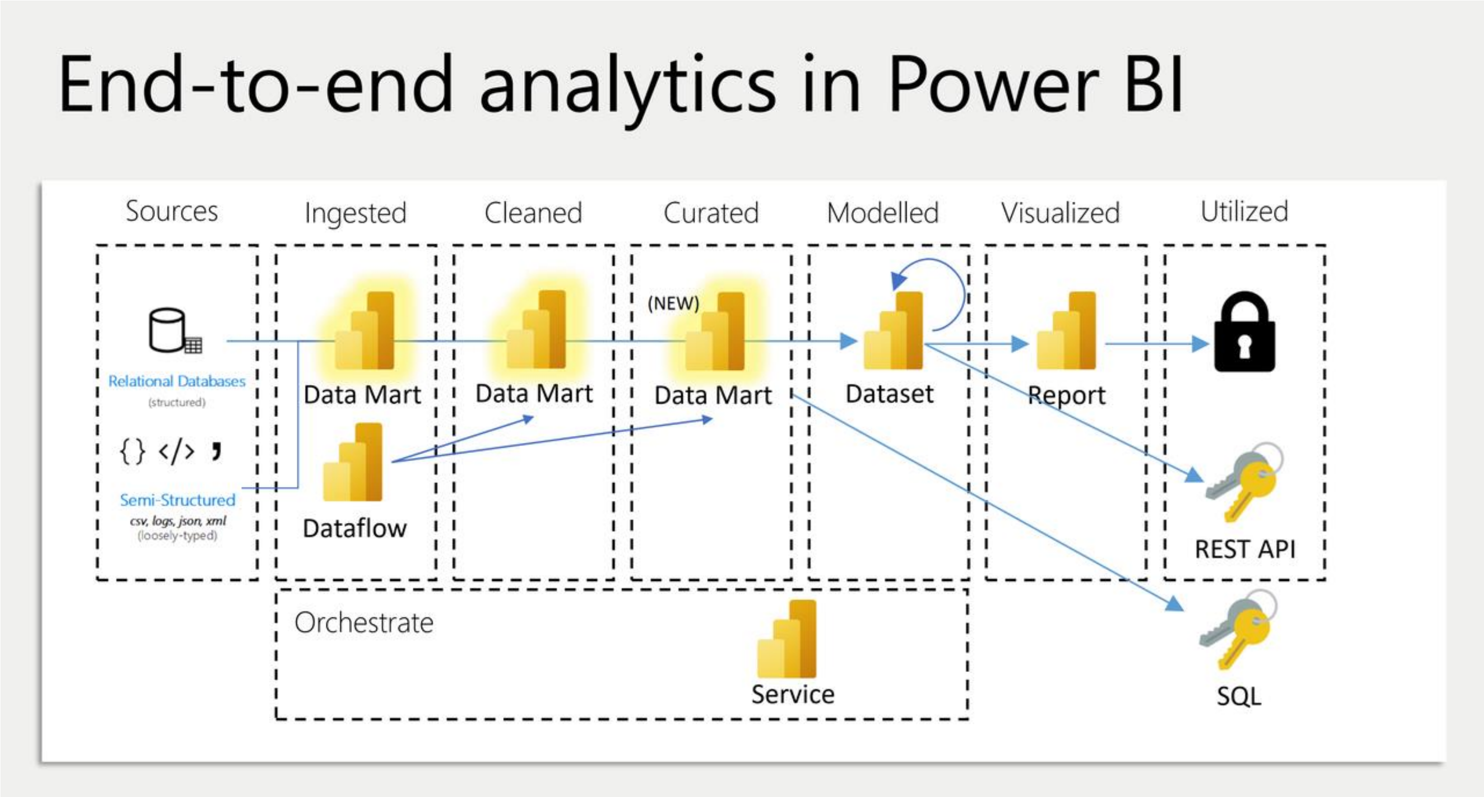


Deployment pipelines
Deployment





Full Automation Dashboard Cycle
End - to - end analytics in Power BI



THANK YOU