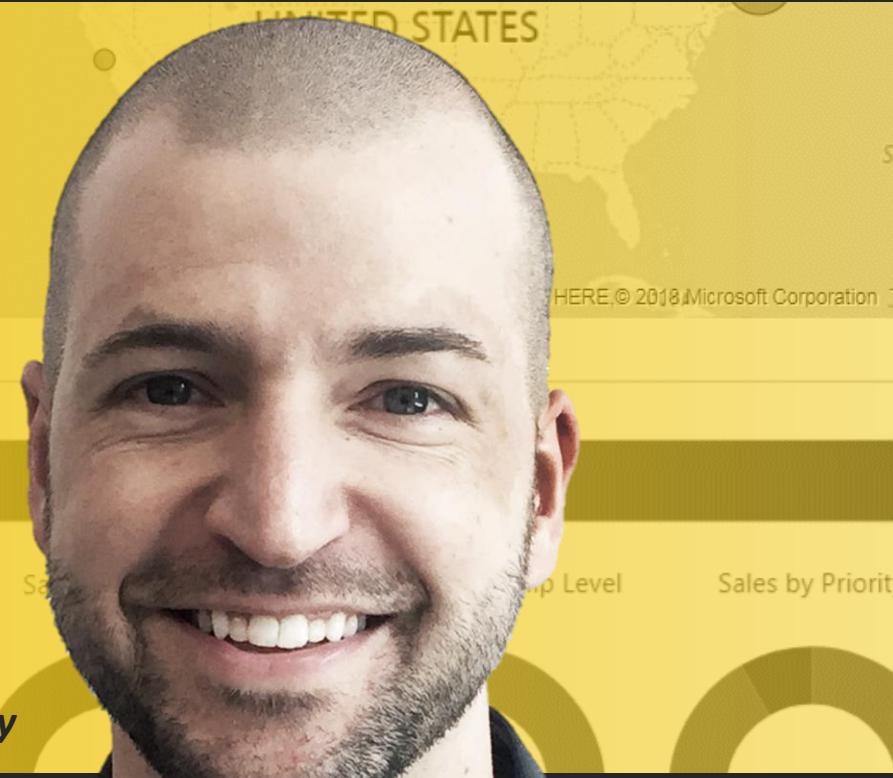




PUBLISHING TO

# POWER BI SERVICE

★ ★ ★ ★ ★ With Power BI Expert Aaron Parry



# COURSE STRUCTURE

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This course is for students looking for a **practical, hands-on, and highly engaging** approach to learning cloud-based business intelligence with Power BI Service

## *Course resources include:*

-  **Downloadable PDF Ebook** to serve as a helpful reference when you're offline or on the go (*or just need a refresher!*)
-  **Quizzes** and **Homework Exercises** to test and reinforce key concepts throughout the course, with detailed step-by-step solutions
-  **Interactive, hands-on demos** to keep you engaged, with **downloadable project files** that you can use to explore and learn at your own pace

# COURSE OUTLINE

<b>1</b>	<b>Introducing Power BI Service</b>	<i>Meet Power BI Service, Free vs. Pro vs. Premium, user personas, signing in, interface overview, etc.</i>
<b>2</b>	<b>Connecting to Data</b>	<i>Overview of data sources &amp; loading options, building blocks of Power BI Service, workspaces, pro trial, etc.</i>
<b>3</b>	<b>Gateways, Refresh &amp; Dataflows</b>	<i>Understanding gateways, personal mode, on-premises mode, understanding and creating dataflows, etc.</i>
<b>4</b>	<b>Reports &amp; Dashboards</b>	<i>Creating reports &amp; dashboards, pinning tiles and reports, alerts, Q&amp;A, web vs. mobile layout etc.</i>
<b>5</b>	<b>Sharing &amp; Collaboration Tools</b>	<i>Printing, exporting, shared with me, publish to web, collaborating with coworkers, apps</i>
<b>6</b>	<b>Power BI Mobile (Preview)</b>	<i>Understanding core mobile functionality, interacting, live iPhone demo, etc.</i>

# SETTING EXPECTATIONS

## 1 This course is designed as part of a **larger Power BI series**

- *It is strongly recommend that you complete **Up & Running with Power BI Desktop** before proceeding to Power BI Service, as the desktop course provides important context and covers several core topics in depth*

## 2 What you see on your screen **may not always match mine**

- *Power BI features are updated frequently (often monthly), so tools and interface options may change over time*
- *I'm using a **Chrome** browser on a **PC/Windows** machine; note that some features are **not available for Mac***

## 3 The goal is to get you **up & running** with Power BI Service

- *This course is designed to provide a **foundational understanding** of Power BI Service; some concepts may be simplified, and we won't cover some advanced tools (organizational content packs, premium administration, etc.)*

## 4 You'll need a **compatible email address** to access PRO features

- *Sharing and collaboration features are only accessible with a pro license (**60-day free trial** available)*
- *Compatible emails must be associated with **work, school or government** addresses; personal email domains ending with **gmail.com, hotmail.com, outlook.com, etc.** will not work*

# INTRODUCING POWER BI SERVICE

# MEET POWER BI SERVICE



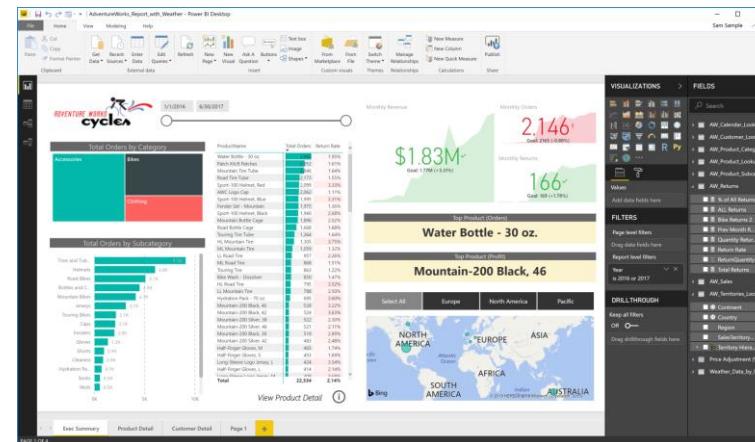
# Power BI

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

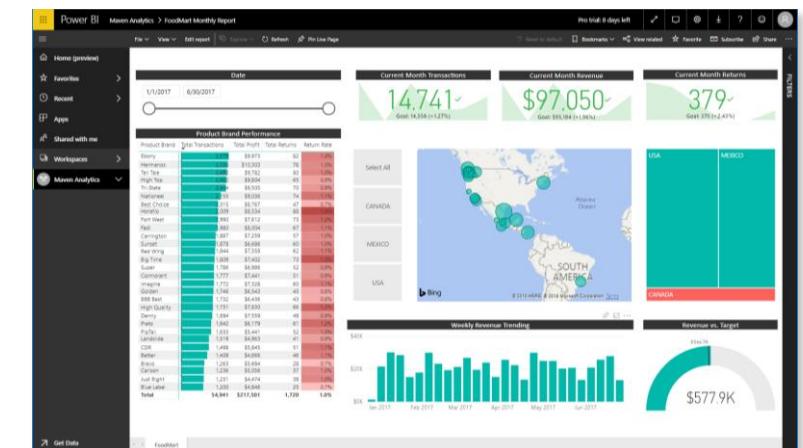
With Power BI Service, users can connect to online or on-premises data sources, build or publish reports and dashboards, and collaborate through shared workspaces and apps.

More info: [powerbi.microsoft.com](http://powerbi.microsoft.com)

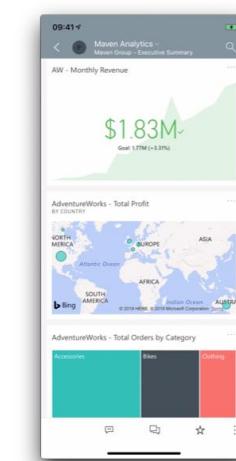
Power BI Desktop



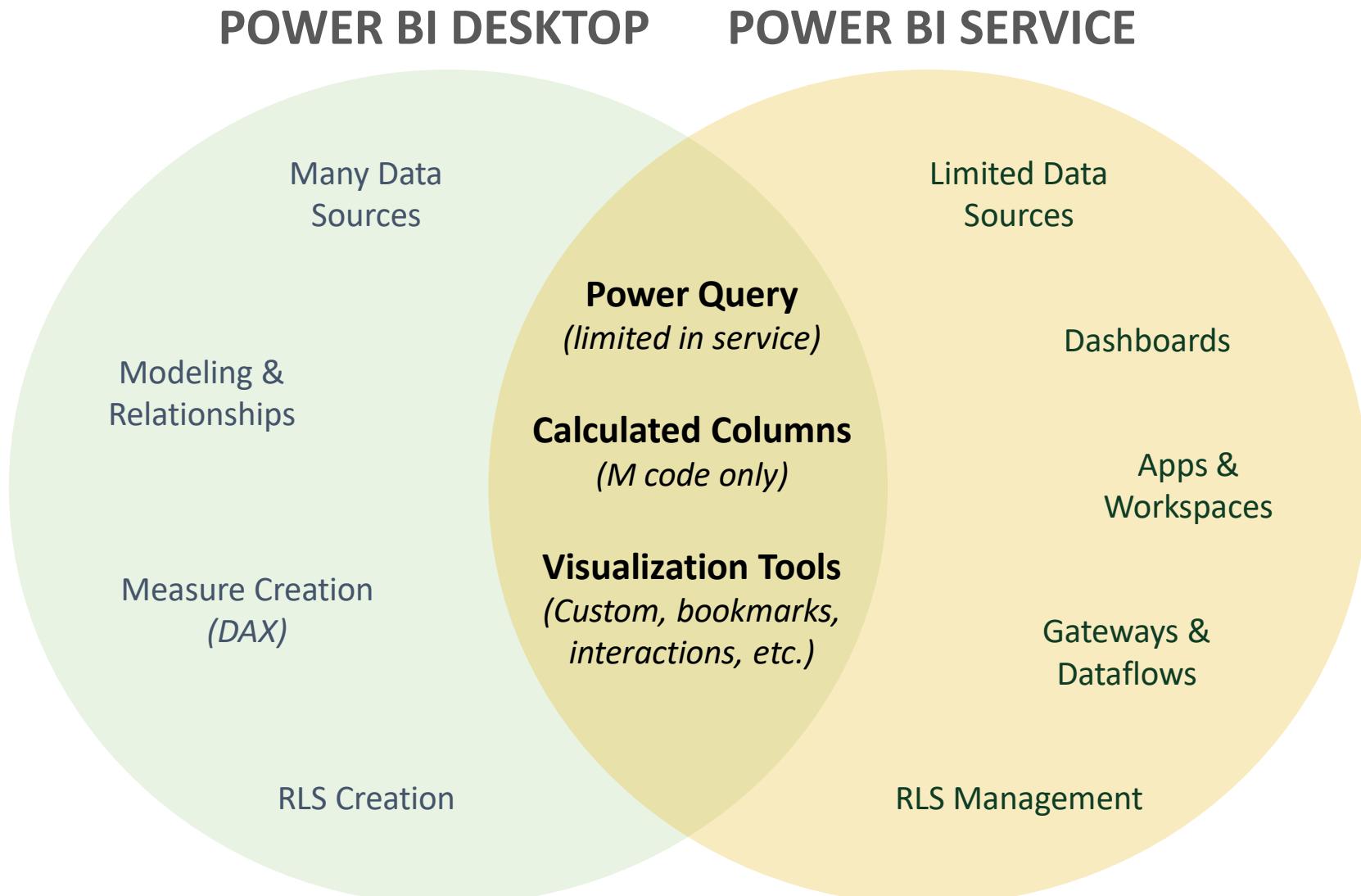
Power BI Service



Power BI Mobile



# POWER BI: DESKTOP VS. SERVICE



# FREE vs. PRO vs. PREMIUM

## Individual & Team Use

### Power BI FREE

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

#### ***Free tier capabilities:***

- No license required
- Connect to 70+ data sources (*desktop & service*)
- Publish to Web
- Export to PowerPoint, Excel, CSV

### Power BI PRO

*Individually licensed and can leverage all content creation and interaction features*

#### ***Pro License Capabilities:***

- All from *Free tier* +
- User-based license
- App creation
- Email Subscriptions
- Peer-to-Peer Sharing
- App Workspaces
- Analyze in Excel & Power BI Desktop

## Enterprise Distribution

### Power BI PREMIUM

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

#### ***Premium Capacity Capabilities:***

- Capacity-based license
- Publish reports across a company without need for individual user licenses
- Greater scale & performance than shared capacity
- Works with on-premise Power BI Report Server

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

# COMMON USER PERSONAS

**Power BI Service** can be used in many different ways, and serve many different types of users. Some common personas include:



## THE CREATOR – Creators **design, build and maintain reports and dashboards**.

These users play a key role in the entire BI workflow – from data wrangling to modeling and visualization – and must have a deep, well-rounded Power BI skillset.



## THE ANALYZER – Analyzers **explore and manipulate data to extract key insights**.

These users often create and edit visuals, define calculated measures and columns with DAX, and use features like Q&A, interactions, report filters and bookmarks.



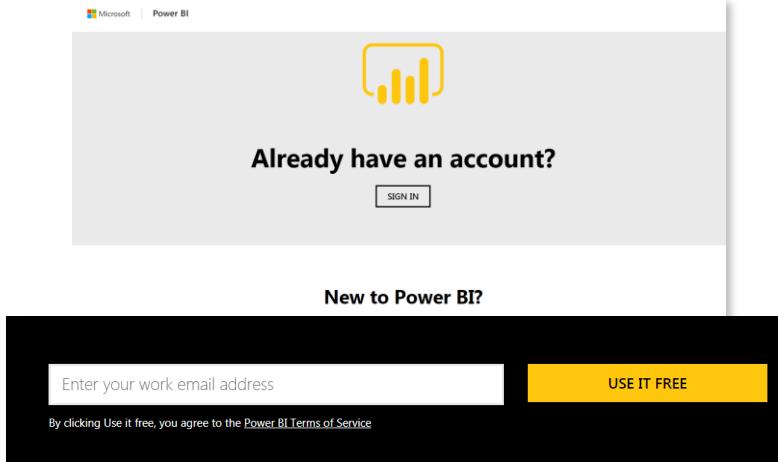
## THE COLLABORATOR – Collaborators **publish and share reports, apps and workspaces** to ensure that everyone has access to the data they need. Collaborators should be familiar with configuring user roles, row-level security (RLS), and app/workspace environments.

# CREATING A NEW ACCOUNT

1

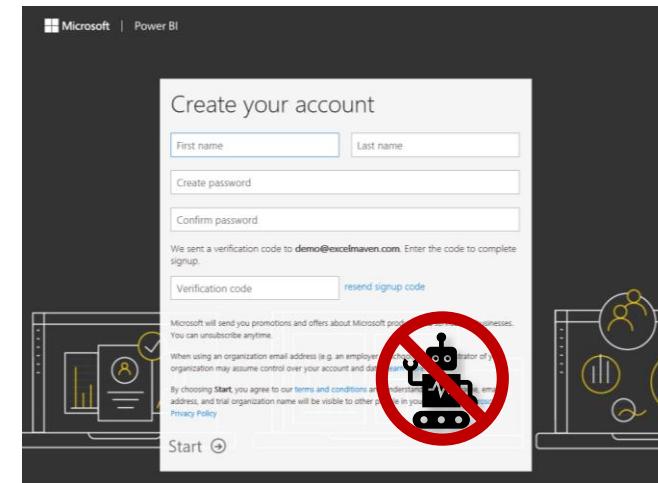
Head to [powerbi.microsoft.com/landing/signin](https://powerbi.microsoft.com/landing/signin) and scroll down to enter your e-mail address and create a new account

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



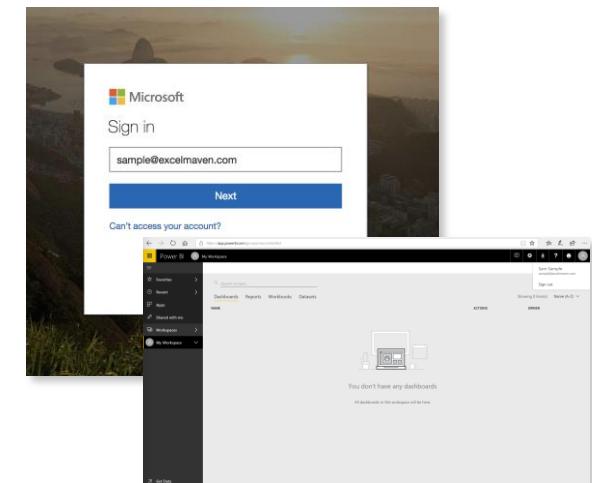
2

Enter your name, create a password, verify your e-mail, and confirm you're not a robot ☺



3

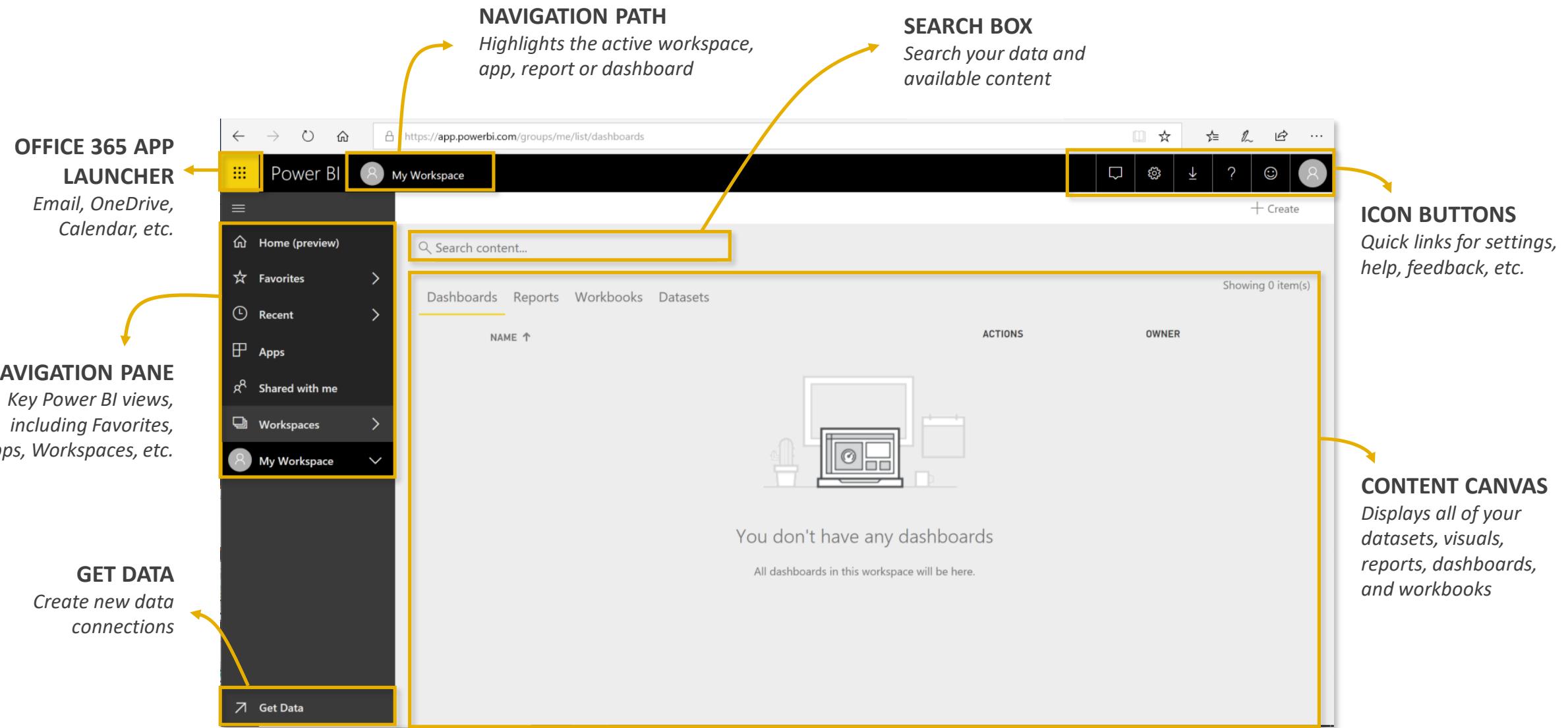
Once you've created your account, navigate directly to [app.powerbi.com](https://app.powerbi.com) to log in



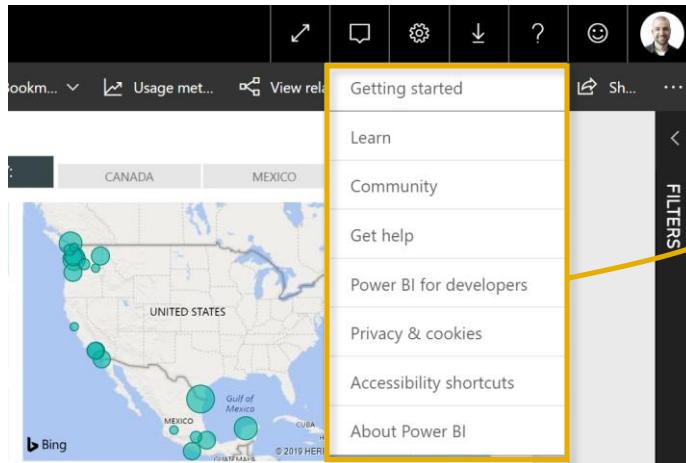
## HEY THIS IS IMPORTANT!

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

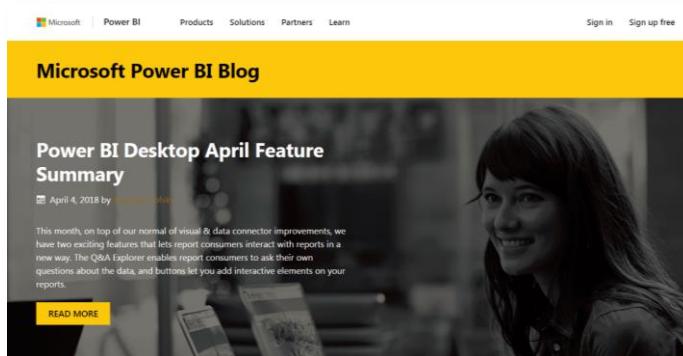
# QUICK TOUR OF THE INTERFACE



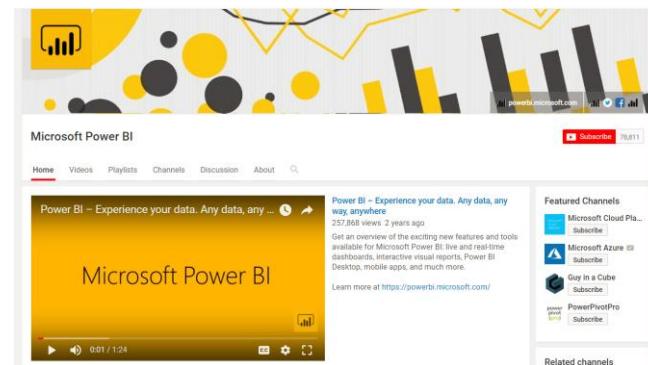
# HELPFUL RESOURCES



The “**Help & Support**” menu (accessible from the “?” icon in the top navigation) provides access to documentation and training videos from Microsoft support, as well as links to blogs, Power BI communities, and service outage/degradation updates



The **Microsoft Power BI blog** ([powerbi.microsoft.com/blog](https://powerbi.microsoft.com/blog)) publishes monthly summaries of new features



The **Power BI YouTube Channel** publishes demos, feature summaries, and advanced tutorials (check out “**Guy in a Cube**” too!)



**Power BI User Groups (PUG)** are communities of users, which include both local meet-ups and helpful online forums ([pbiusergroup.com](http://pbiusergroup.com))

# CONNECTING TO DATA

# DATA CONNECTION OPTIONS

**Power BI Service** allows you to connect to **files** (*Excel, Power BI, csv*), **content packs** (*Github, Google Analytics, Bing, Salesforce, etc.*) or **databases** (*Azure SQL database, SSAS, Spark*)

FILES



CONTENT PACKS

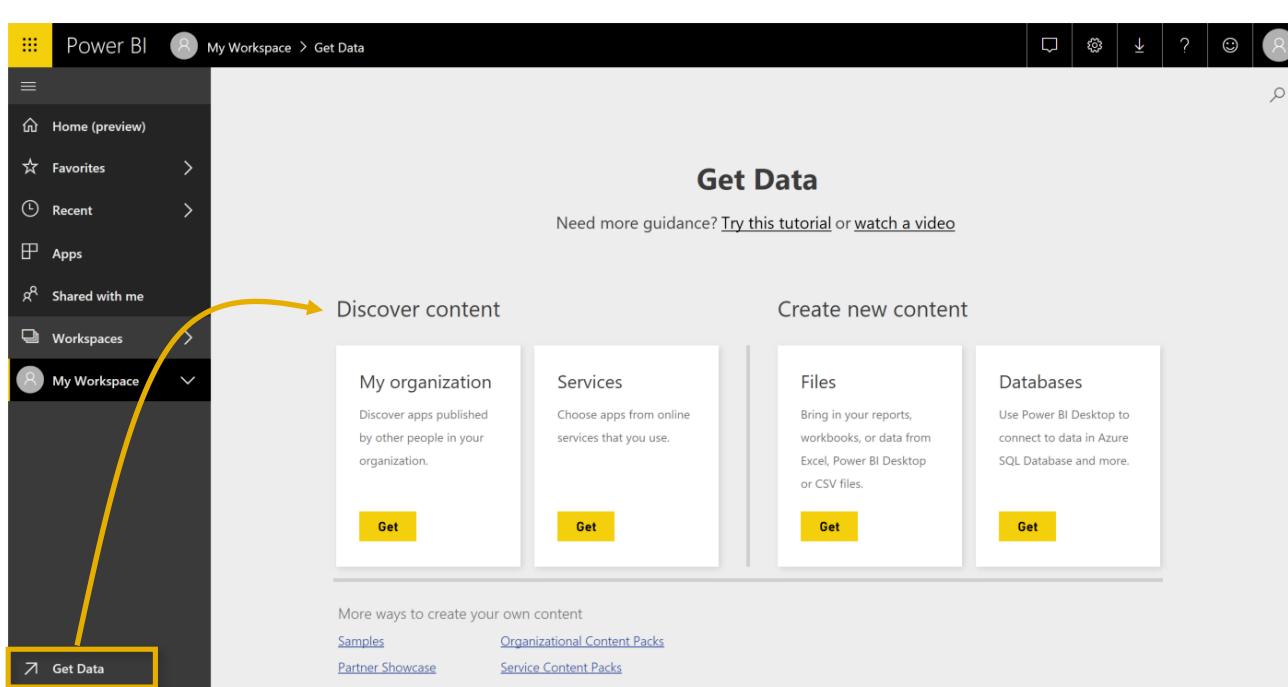


DATABASES



Power BI

# DATA CONNECTION OPTIONS (cont.)



Power BI service can connect to many types of data sources but is not as robust as the Desktop environment

- **My Organization** (*apps created by your org*)
- **Services** (*Github, Google Analytics, JIRA, etc.*)
- **Files** (*Excel, CSV, Power BI Desktop*)
- **Databases** (*Azure SQL, SSAS, Spark on Azure*)

## PRO TIP:

*Use Power BI **Desktop** to connect to database sources and build your relational models, then publish the file or create a live connection from Power BI **Service** to make your reports available on the cloud*

# DATA CONNECTION OPTIONS (cont.)

**Discover content**

- My organization
- Services
- Samples

**Create new content**

- Files
- Databases & More

## MY ORGANIZATION

You don't have any content from your organization yet.  
[Learn how to create and populate content for your organization.](#)

## FILES

Local File	OneDrive – Business	OneDrive – Personal
SharePoint – Team Sites	Learn about importing files	

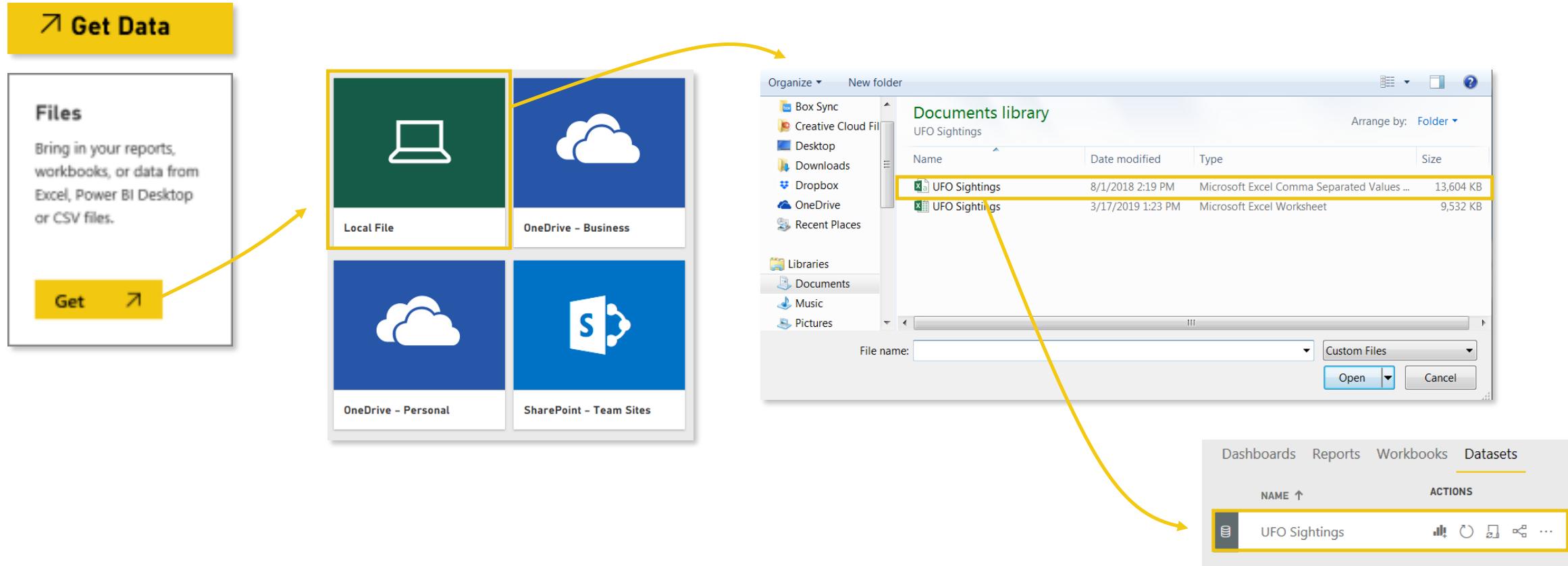
## SERVICES

Office 365 Adoption Preview By Microsoft Power BI Analyze usage and adoption trends of Office 365 services in your organization <a href="#">Get it now</a>	Google Analytics By Microsoft Power BI Visualize data and gain insights from sites tracked by Google Analytics directly in Power BI <a href="#">Get it now</a>	JIRA By Microsoft Power BI Visualize development velocity, software quality, and everything else you plan and track in JIRA <a href="#">Get it now</a>	Sales Analytics for Dynamics 365 By Microsoft Power BI Explore your past sales performance, activities, sales pipeline and more <a href="#">Get it now</a>

## DATABASES

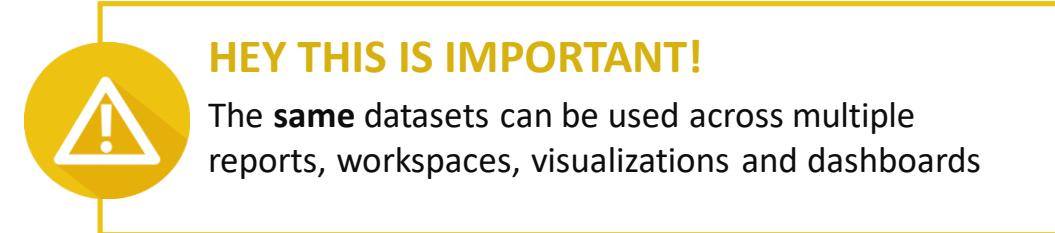
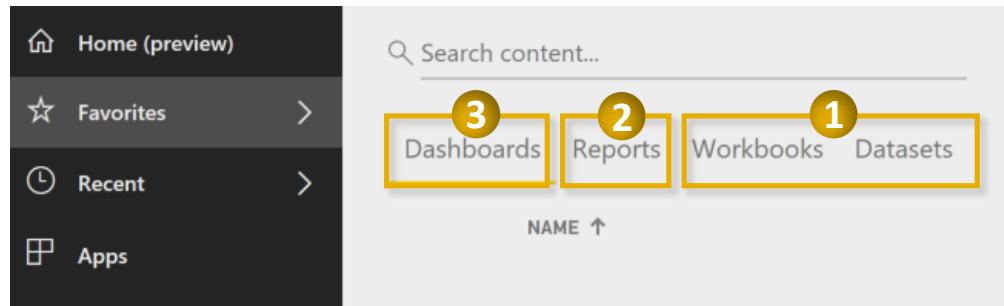
Azure SQL Database	Azure SQL Data Warehouse	SQL Server Analysis Services
Spark on Azure HDInsight		

# DEMO: LOADING A CSV FILE

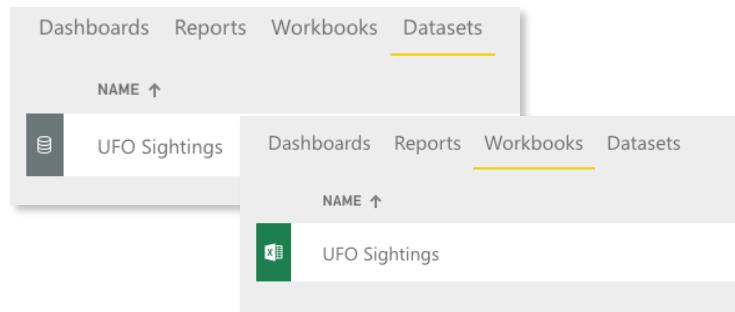


# THE BUILDING BLOCKS OF POWER BI SERVICE

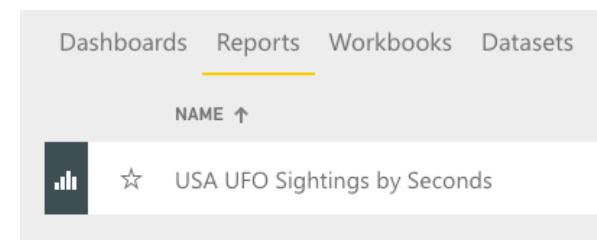
The core building blocks of Power BI Service include **datasets**, **workbooks**, **reports**, and **dashboards**, which together form something called a **workspace**:



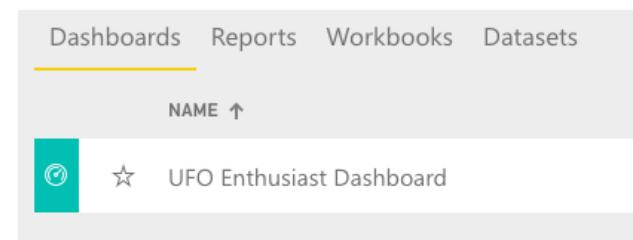
**1** **DATASETS & WORKBOOKS**  
*contain the data sources you've imported or connected to*



**2** **REPORTS** contain one or more visuals typically built from individual datasets or workbooks

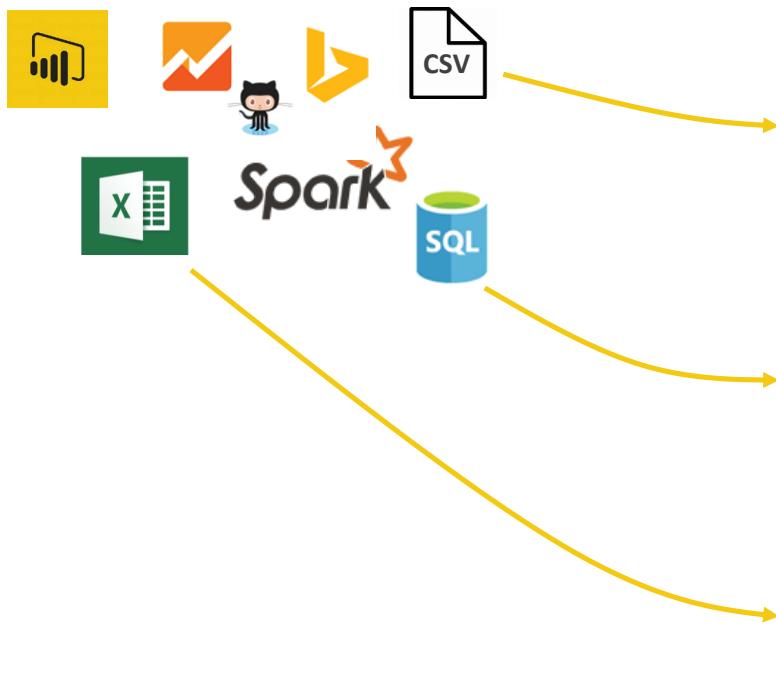


**3** **DASHBOARDS** contain collections of reports and tiles, which can come from multiple datasets

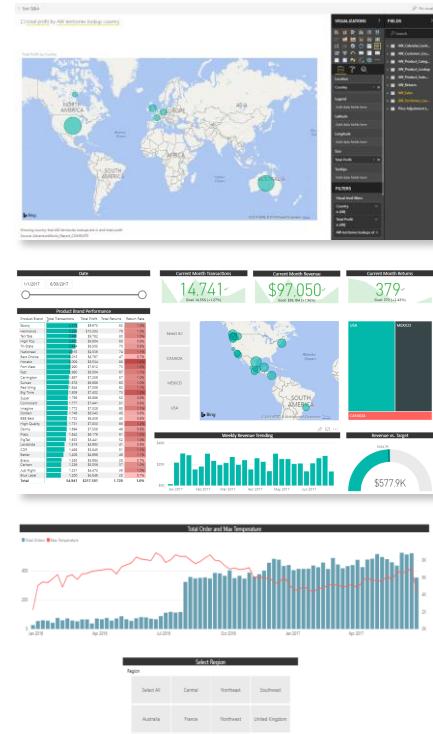


# THE BUILDING BLOCKS OF POWER BI SERVICE (cont.)

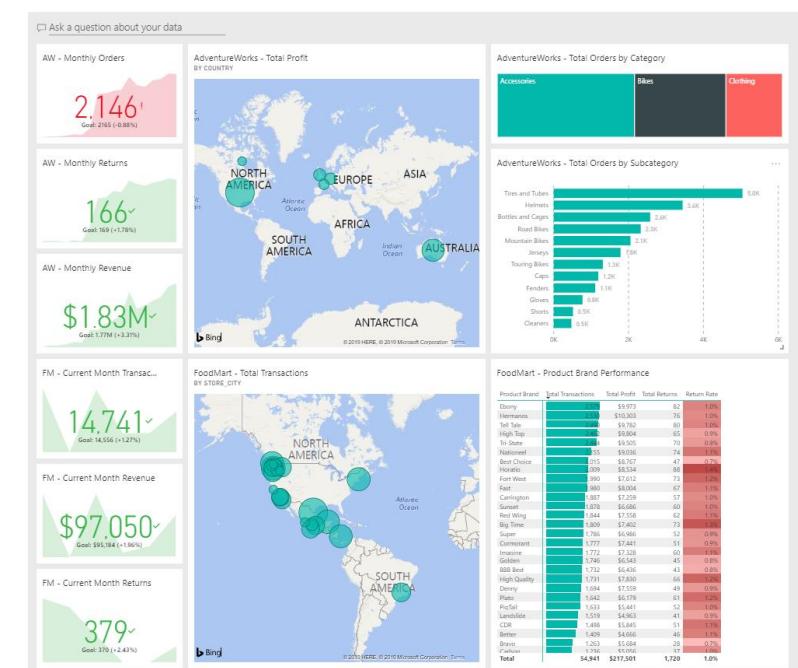
## DATASETS & WORKBOOKS



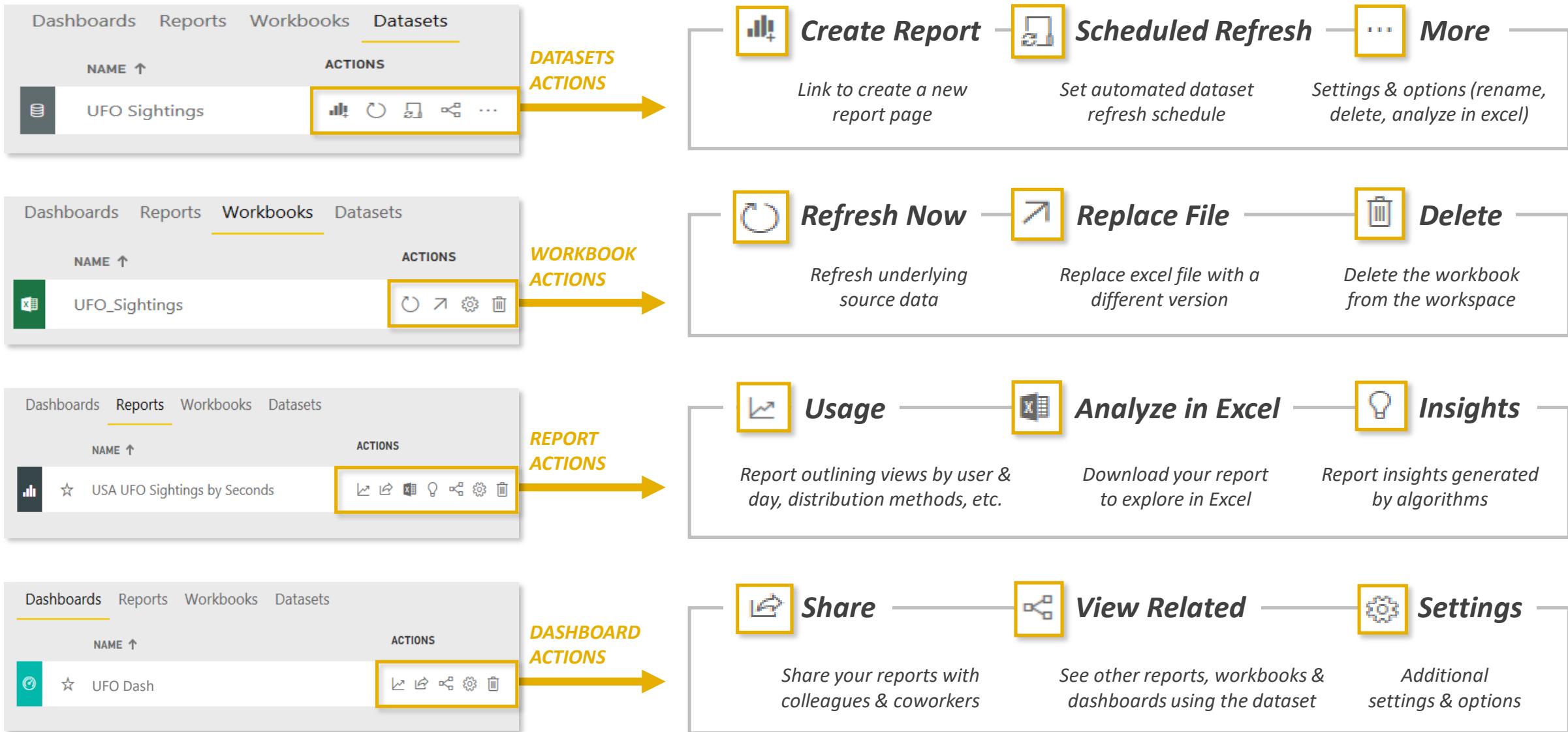
## REPORTS



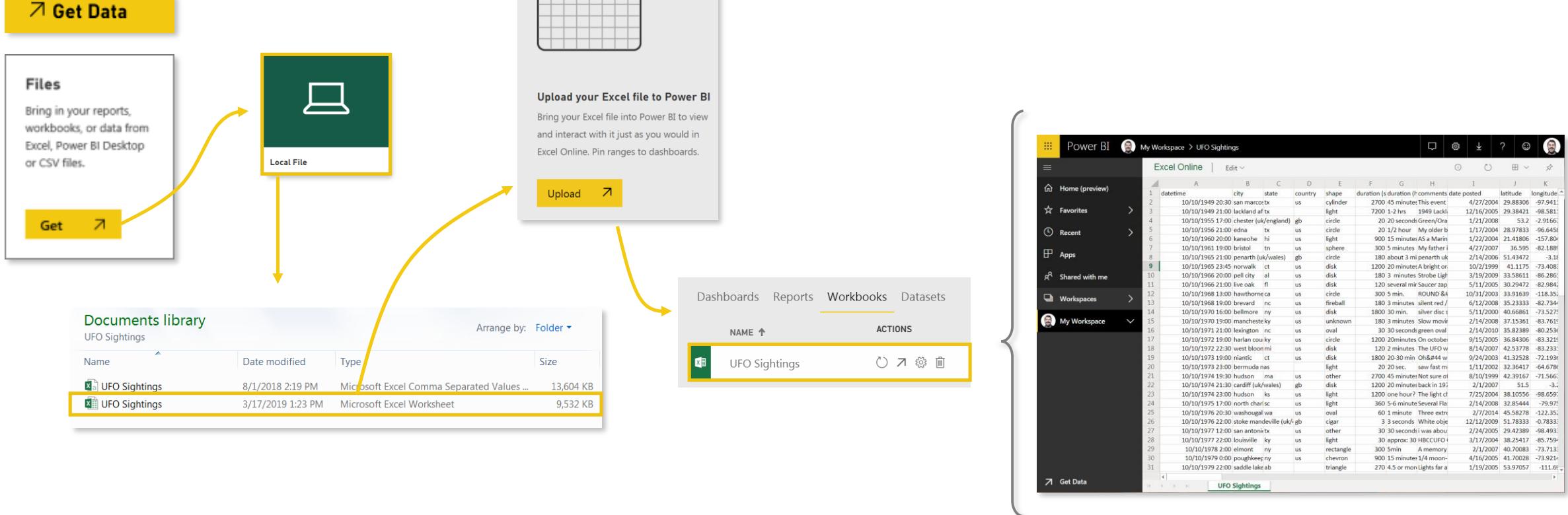
## DASHBOARDS



# COMMON WORKSPACE ACTIONS



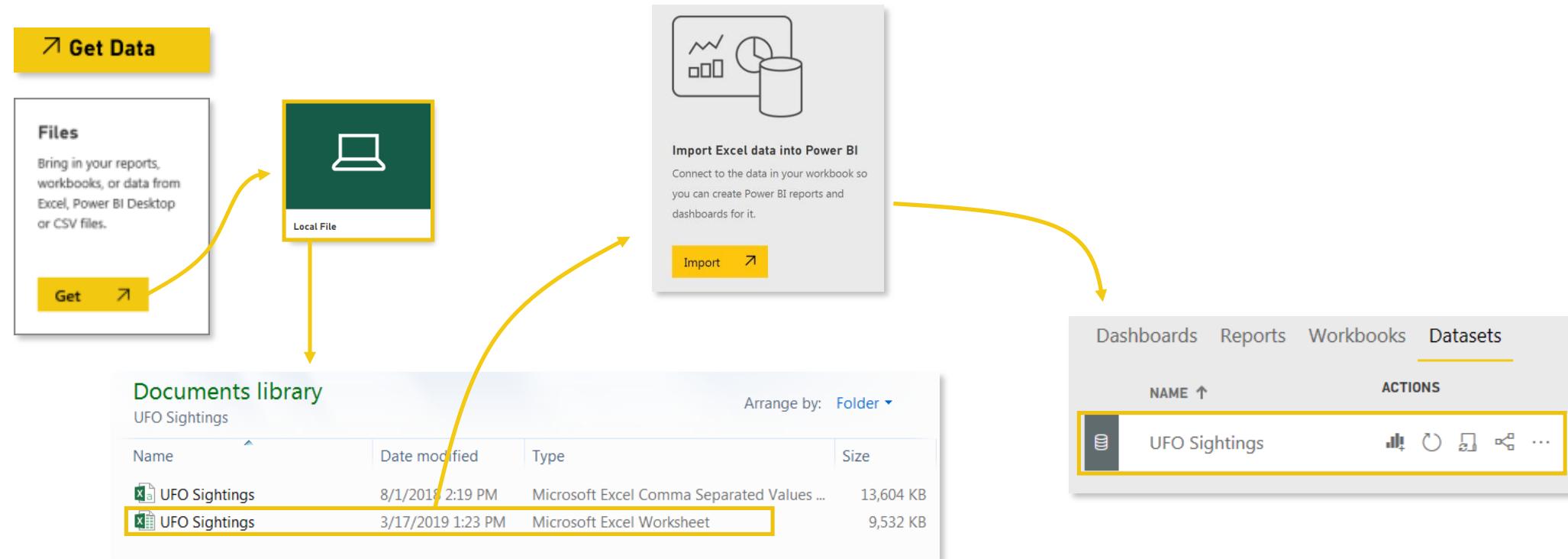
# DEMO: LOADING EXCEL WORKBOOKS



## PRO TIP:

When it comes to Excel workbooks, recommend performing your data prep and transformation in **Excel** rather than **Power BI Service**, as the Excel Online functionality in Power BI Service is much more limited

# DEMO: LOADING TABLES FROM EXCEL



## HEY THIS IS IMPORTANT!

When you connect to an Excel file and choose “**Import Excel Data into Power BI**” (vs. “*Upload your Excel File*”), Power BI will search for data formatted as **tables** and create a new **Dataset** in your workspace, *not* a new **Workbook**. Remember, your file must include at least one table!

# MY WORKSPACE VS. APP WORKSPACES

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

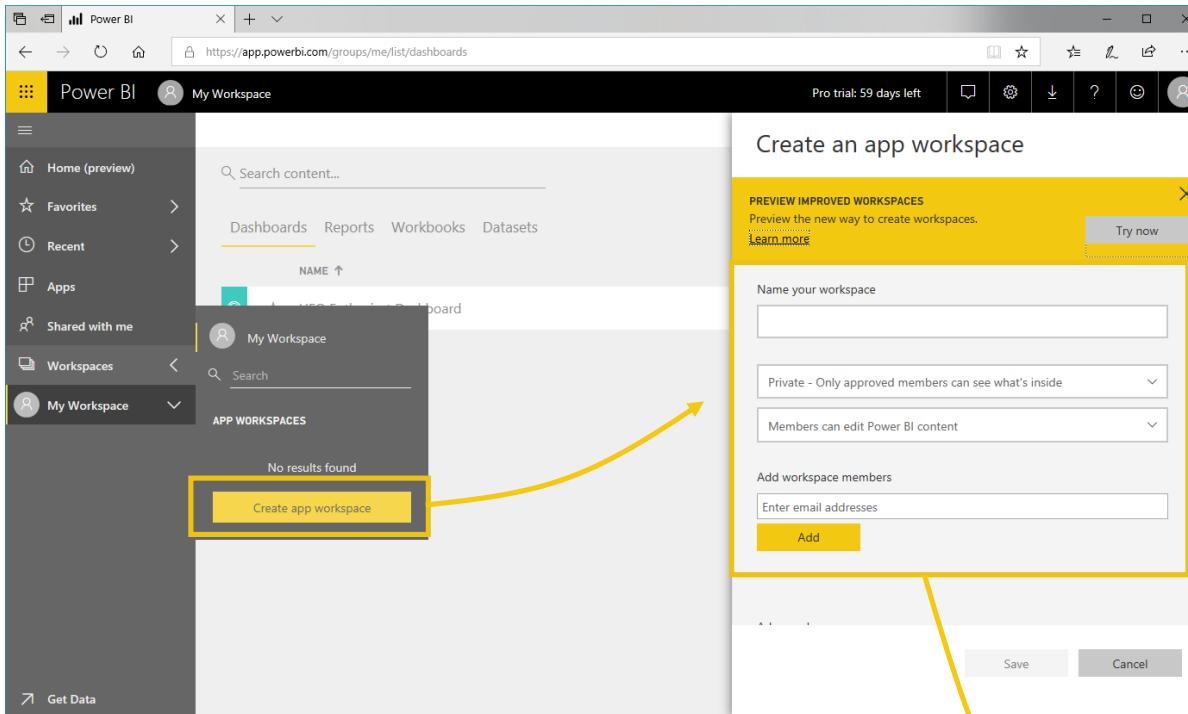
## My Workspace

- **Personal workspace** for a single user (*Free or Pro*)
- By default, **only you** can access content in this workspace (*can't collaborate with others*)
- Content can be shared with **individual Pro users** (*shared with me*)
- Contains core **building blocks** (*datasets, workbooks, reports & dashboards*)

## App Workspaces

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

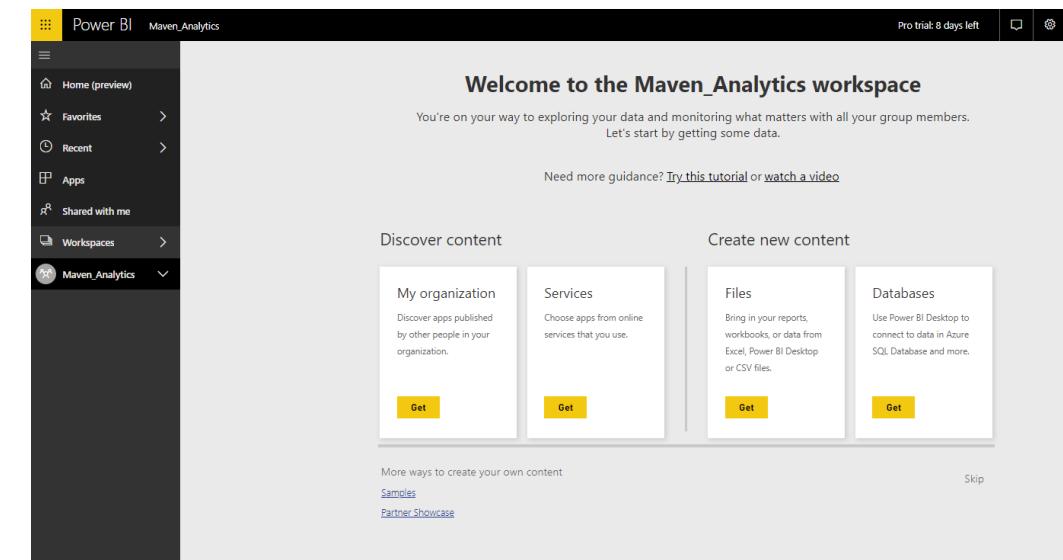
# CREATING AN APP WORKSPACE



**OPTION 1:** Add a **Name**, adjust settings for **privacy** and **permissions**, and **add members** (or add them later)

A screenshot of the 'Create an app workspace' dialog box, which is also highlighted with a yellow border. It shows the same fields as the previous screenshot: 'Name your workspace' (Maven Analytics), 'Privacy' (Private), 'Permissions' (Members can edit), and 'Add workspace members' (empty). There are also sections for 'Image' (with 'Upload image' and 'Delete image' buttons) and 'Description' (an empty text area).

**OPTION 2:**  
Add a **Name** (required) and optional **Description** for your app workspace



# ACTIVATING YOUR PRO TRIAL

1

## Upgrade to Power BI Pro

This feature is only available to users with a Power BI Pro license. When you upgrade, you get access to collaborate with others and distribute content. Upgrade today or try it free for 60 days. [Learn more](#)

Try Pro for free

Upgrade account

Cancel

2

## Start 60-day free Pro trial

Here's your chance to try the many features of Power BI Pro, such as groups and scheduled data refreshes. [Learn more](#)

By clicking "Start trial" you agree to the [terms and conditions](#).

Start trial

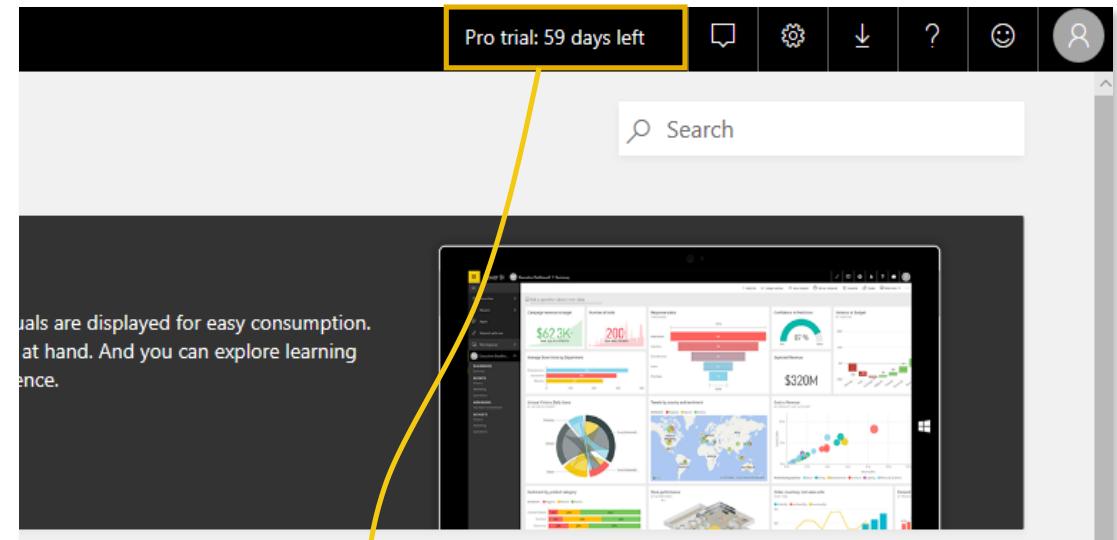
Cancel

3

## Success! Trial extended

You have started your 60-day Power BI Pro trial. To purchase, contact your Office 365 tenant administrator.

Close



### HEY THIS IS IMPORTANT!

Your **Pro trial** lasts for **60 days**, and you'll see your remaining time in the header bar each time you log in. Refer to Microsoft's site for post-trial pricing: [powerbi.microsoft.com](http://powerbi.microsoft.com)

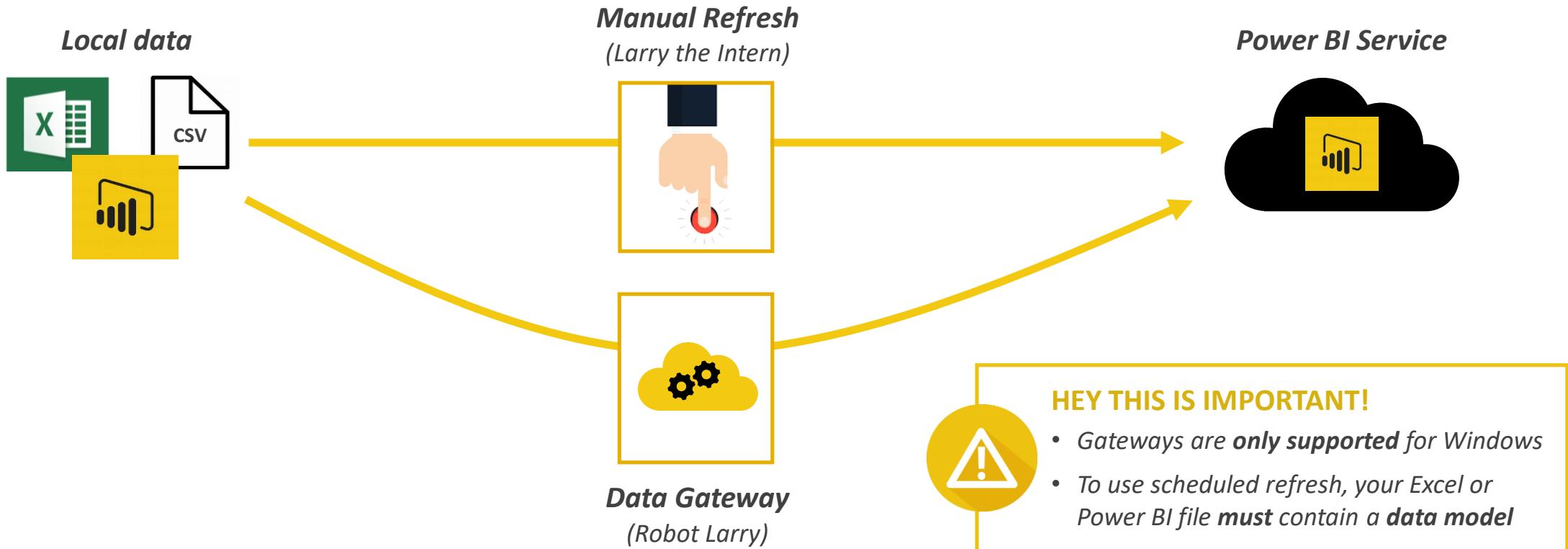


# GATEWAYS, REFRESH & DATAFLOWS

# UNDERSTANDING GATEWAYS

**Data Gateways** basically act like a *bridge*, creating a connection between data on your **local machine or server** (not on the cloud) and **Power BI Service** (in the cloud)

- This allows you to keep data securely on your own network, and enables options like **scheduled refresh**



# GATEWAY TYPES

There are two types of gateways in Power BI: **Personal Mode** gateways and **Enterprise Mode** gateways

## Personal Mode Gateway

- Can only be used by **you**
- Can't be used with other apps or services
- Only supports scheduled refresh in **Power BI**

## Enterprise Mode Gateway

- Can be shared and used by **multiple users**
- Can be used by **Power BI, PowerApps, Flow, etc.**
- Supports **scheduled refresh** and live query (**Dataflows**) for Power BI



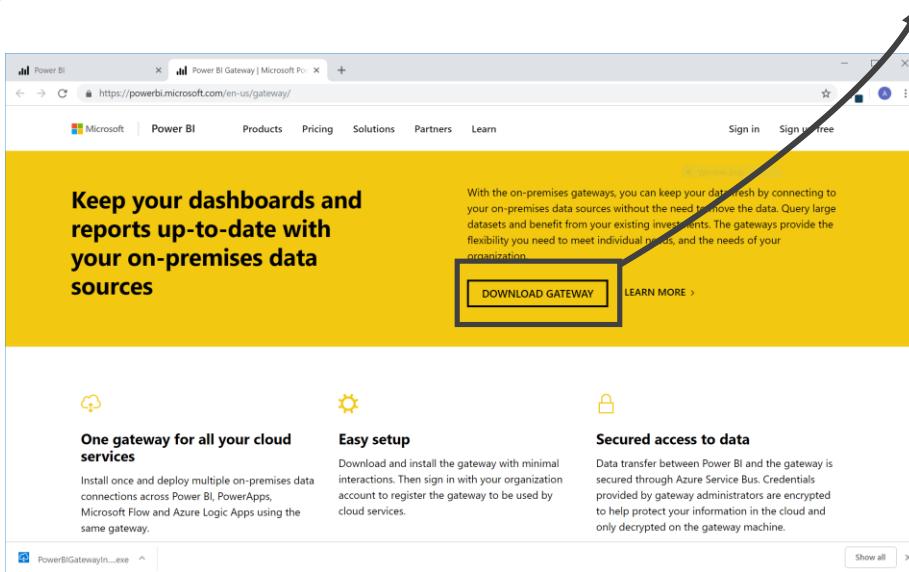
### PRO TIP:

*As a rule of thumb, only use **Personal Mode** when you're the only one who needs to refresh your on-prem source data, or when you need to enable automatic refresh for Power BI reports that you personally manage.*

# SETTING UP A PERSONAL GATEWAY

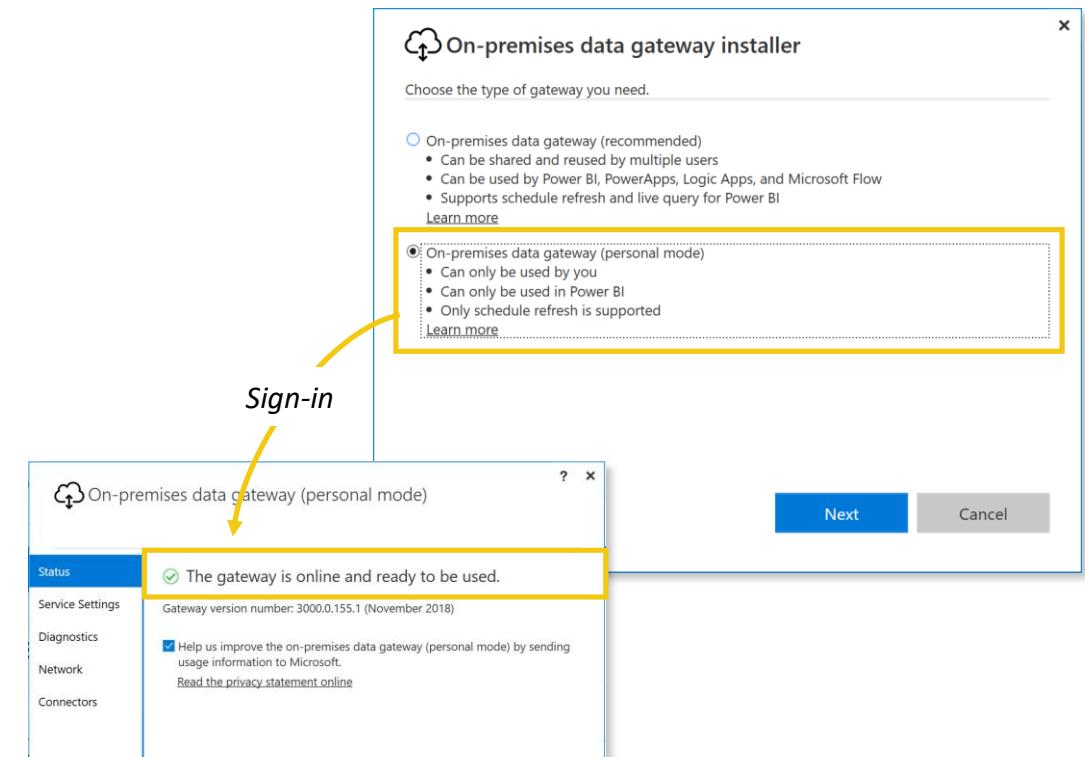
1

Head to [powerbi.microsoft.com/gateway](https://powerbi.microsoft.com/gateway) and click “Download Gateway”



2

Follow the prompts and select “On-premises data gateway (personal mode)” to continue the installation



## HEY THIS IS IMPORTANT!

Make sure to use the **SAME ACCOUNT** to set up the data gateway that you use to sign into Power BI Service

# ENABLING SCHEDULED REFRESH (PERSONAL MODE)

1

Select the dataset that you'd like to refresh, click the ellipsis to select **Settings**, and navigate to the **Datasets** menu to ensure that your gateway is running

The screenshot shows the Power BI Datasets page. A yellow box highlights the 'AdventureWorks\_Report\_COMPLETE' dataset. An arrow points from this dataset to its settings page, which is titled 'Settings for AdventureWorks\_Report\_COMPLETE'. The settings page includes sections for 'Gateway connection' (using a 'Personal Gateway' which is 'Running on LAPTOP-T5HN6FO'), 'Scheduled refresh' (which is currently 'On' with 'Daily' frequency, 'Eastern Time (US and Canada)' time zone, and '5:30 AM' run time), and 'Data source credentials' and 'Parameters' sections.

2

Scroll down to set a **frequency (daily or weekly)**, **time zone**, and **run time**

This screenshot shows the 'Scheduled refresh' settings for the dataset. It includes fields for 'Refresh frequency' (set to 'Daily'), 'Time zone' (set to '(UTC-05:00) Eastern Time (US and Canada)'), and 'Time' (set to '5:30 AM'). There is also a checkbox for 'Send refresh failure notification emails to me' and two buttons at the bottom: 'Apply' and 'Discard'.

3

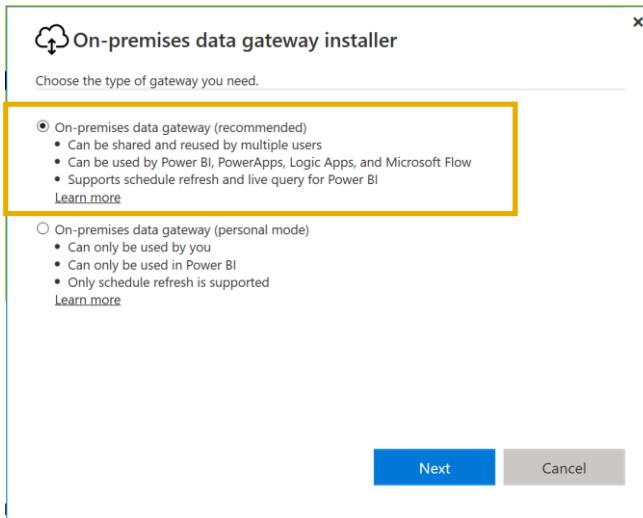
Check back later to see when your dataset refreshed **last**, and when it's scheduled to refresh **next**

The screenshot shows the Power BI Datasets page again. The 'AdventureWorks\_Report\_COMPLETE' dataset is selected, and its details are shown in a modal. A yellow box highlights the 'REFRESHED' and 'NEXT REFRESH' columns, which show the last refresh date and time (3/5/2019, 5:31:26 AM) and the next scheduled refresh date and time (3/6/2019, 5:30:00 AM).

# SETTING UP AN ENTERPRISE DATA GATEWAY

1

Relaunch the data gateway installer (or *download a new one from powerbi.microsoft.com/gateway*) and select “On-premises data gateway (recommended)”



2

Sign in using your Power BI Service credentials, then click **Configure** to create a **gateway name** and **recovery key (password)**

# SETTING UP AN ENTERPRISE DATA GATEWAY (cont.)

The screenshot shows the Power BI Service interface. On the left is a navigation bar with options like Home (preview), Favorites, Recent, Apps, Shared with me, Workspaces, and a user profile for 'UFO Enthusiast'. The main area is titled 'Welcome to the UFO Enthusiast' and includes sections for Discover content (My organization, Services, Files, Databases) and Create new content. A gear icon in the top right opens a context menu with options: Manage group storage, Create content pack, View content pack, Admin portal, Manage gateways (which is highlighted with a yellow box), Settings, and Manage embed codes.

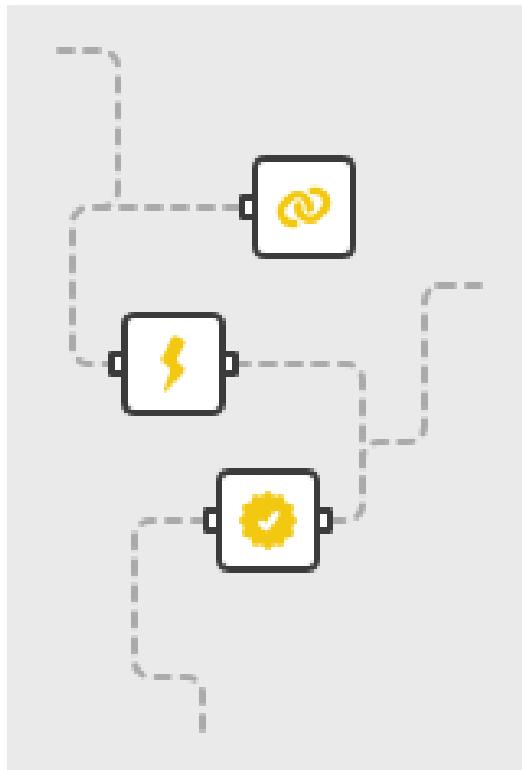
3

To confirm that your gateway is active, click the gear icon in the Power BI Service menu and select **Manage Gateways**, where you should see it listed as a **Gateway Cluster** (*don't worry about the additional settings or admin menu for now*)

This screenshot shows the 'Gateways' section of the Power BI Service. It displays a list of gateway clusters, with 'Sam's BI Data Gateway' selected. The interface includes tabs for 'ADD DATA SOURCE' and 'GATEWAY CLUSTERS'. Under 'GATEWAY CLUSTERS', there is a 'Test all connections' button. The 'Gateway Cluster Settings' tab is active, showing details for 'Sam's BI Data Gateway'. The 'Administrators' tab is also visible. A large yellow arrow points from the 'Manage gateways' menu item in the first screenshot to the 'Sam's BI Data Gateway' entry in this screenshot.

# UNDERSTANDING DATAFLOWS

**Dataflows** are essentially Power Query processes that run *independently* within Power BI Service, and are used to ingest, transform, integrate, and enrich your 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. **Schedule refresh settings** in Power BI Service
3. **Connect to dataflows** as a data source in Power BI Desktop

# COMMON DATAFLOW USE CASES

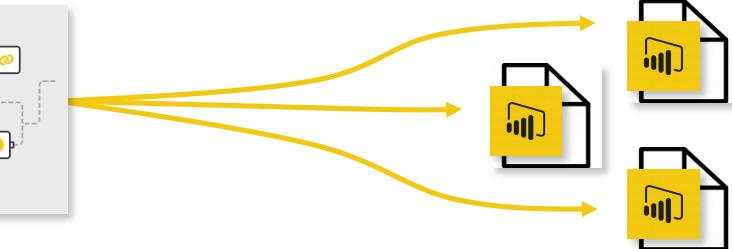
## USE CASE #1 Recycling common queries across multiple Power BI reports

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.

### Single Dataflow



### Multiple .pbix Reports



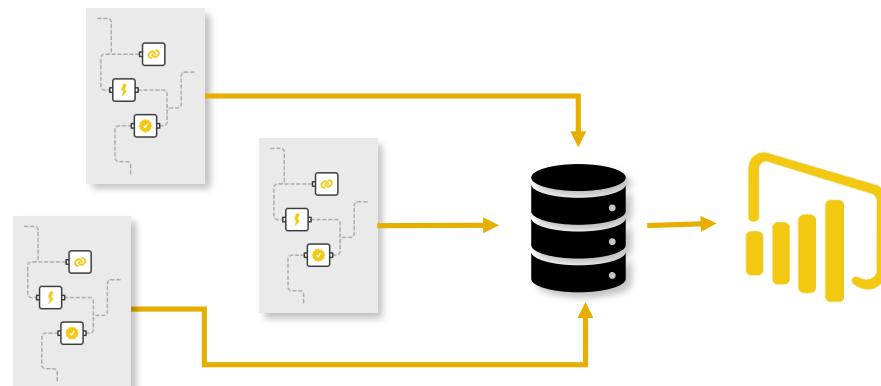
## USE CASE #2 Creating refresh schedules to align with reporting cadence

For example, schedule one dataflow to refresh at **8:00 am** for your internal KPI report, and another to refresh **monthly** for your executive client dashboard

Showing 3 item(s)			
NAME ↑	ACTIONS	LAST REFRESH	NEXT REFRESH
Regional_Weather_Data	...	2/28/2019, 12:32:48 PM	3/1/2019, 4:00:00 AM
Regional_Weather_Data_Group2	...	N/A	3/1/2019, 5:00:00 AM
Regional_Weather_Data_Group3	...	N/A	3/1/2019, 6:00:00 AM

## USE CASE #3 Centralizing critical ETL processes to ensure data quality

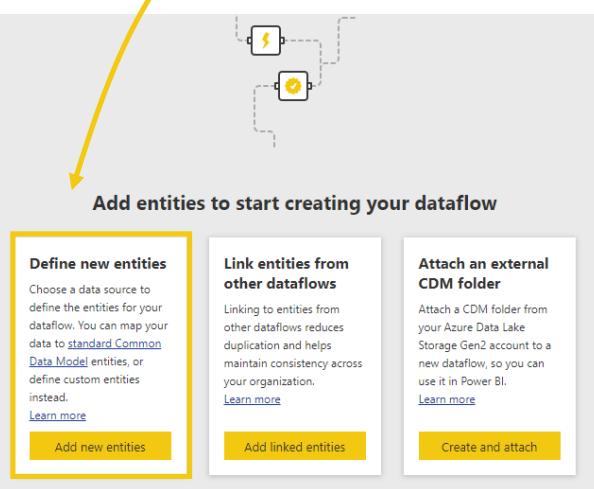
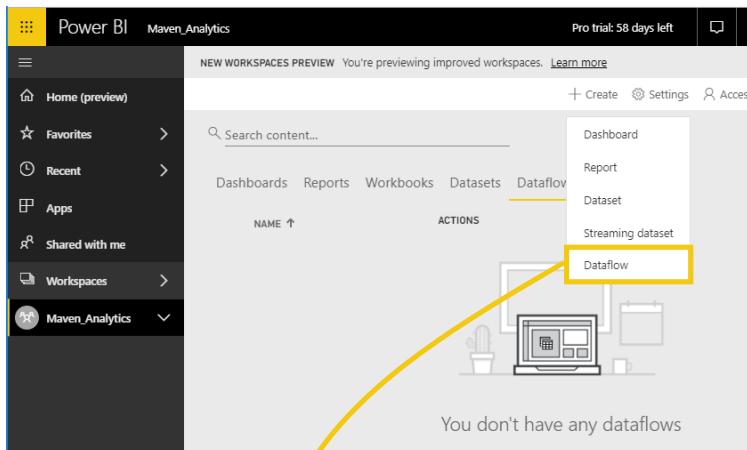
Maintaining separate ETL processes across reports sourcing the same data is tedious, inefficient, and error-prone. Dataflows allow you to create, manage, and QA those processes in **one central place**



# CREATING A NEW DATAFLOW

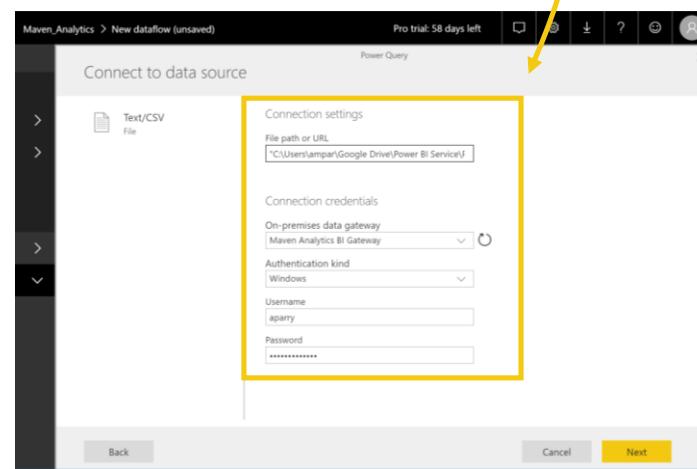
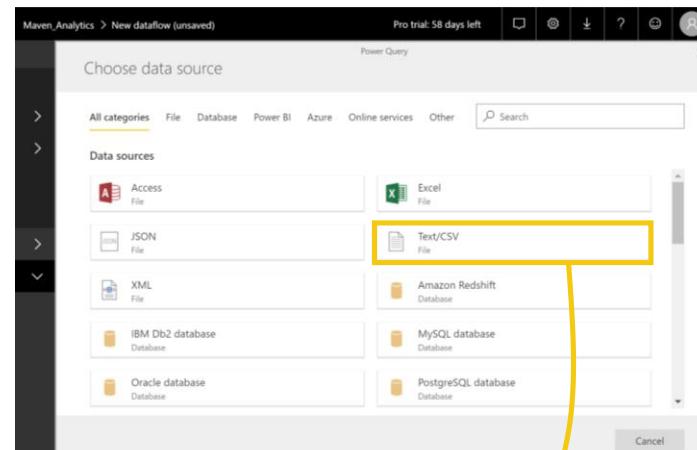
1

Create new Dataflow & select Add New Entities



2

Choose a data source (*in this case a csv*) and configure connection



3

Clean & Transform your data by adding applied steps (*just like Power Query!*)

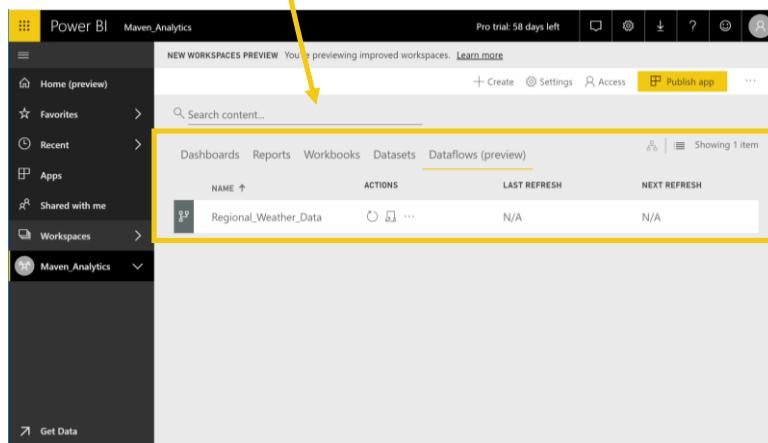
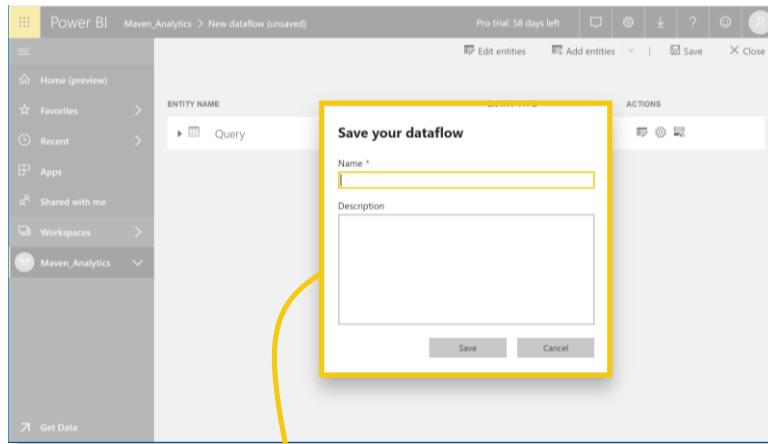
A screenshot of the Power Query editor showing a table named 'Weather\_Data\_by\_R...'. The table has columns 'Date', 'Region', and 'Sales Territory Key'. The 'Region' column has a 'Changed column type' step applied. The 'Applied steps' pane on the right shows this step. A yellow box highlights the 'Changed column type...' step.

Date	Region	Sales Territory Key
1/1/2016	Australia	9 Clear
1/1/2016	Australia	9 Rain
1/1/2016	Canada	6 Clear
1/1/2016	Canada	6 Rain
1/1/2016	Canada	6 Snow
1/1/2016	Central	3 Clear
1/1/2016	France	7 Clear
1/1/2016	France	7 Rain
1/1/2016	Germany	8 Clear
1/1/2016	Northeast	2 Clear
1/1/2016	Northeast	2 Rain
1/1/2016	Northeast	7 Clear
1/1/2016	Northwest	1 Rain
1/1/2016	Southeast	5 Clear
1/1/2016	Southeast	5 Rain
1/1/2016	Southwest	4 Clear
1/1/2016	Southwest	4 Rain

# CREATING A NEW DATAFLOW (cont.)

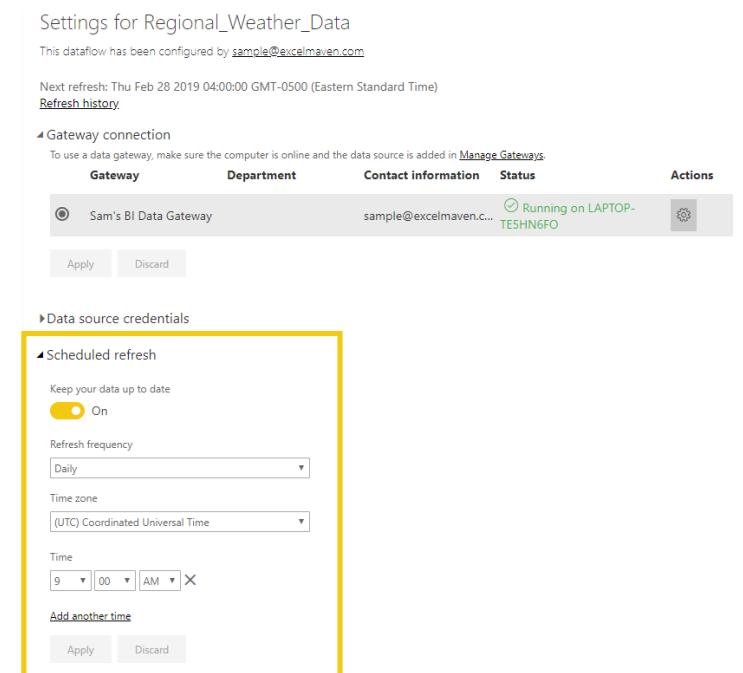
4

Name, describe, and save your Dataflow



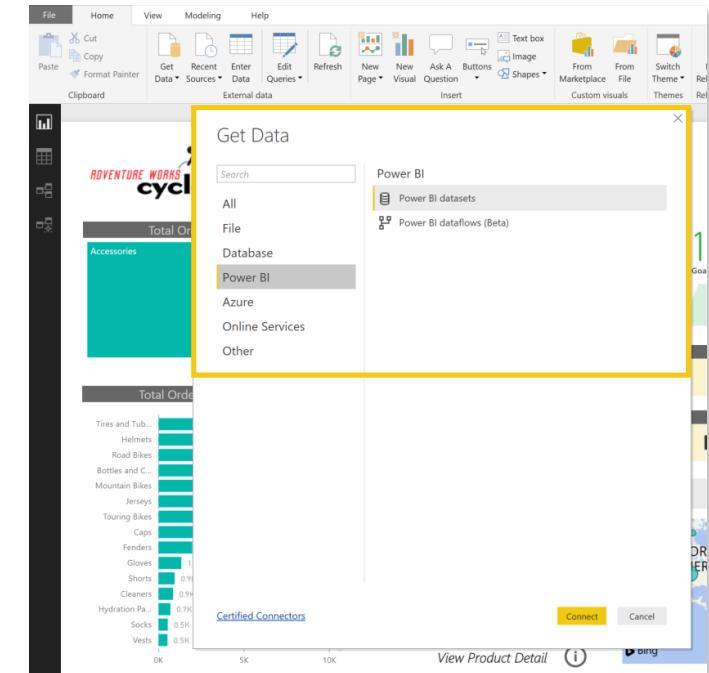
5

Configure scheduled refresh settings (frequency & time)



6

Connect to your dataflow as a data source from Power BI Desktop

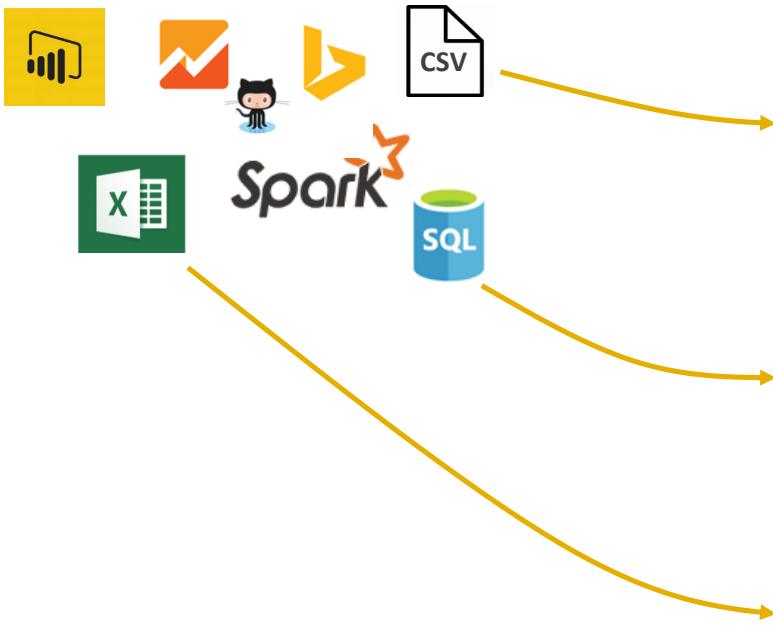


# REPORTS & DASHBOARDS

# UNDERSTANDING REPORTS & DASHBOARDS

## DATASETS & WORKBOOKS

Contain the data sources you've imported or connected to



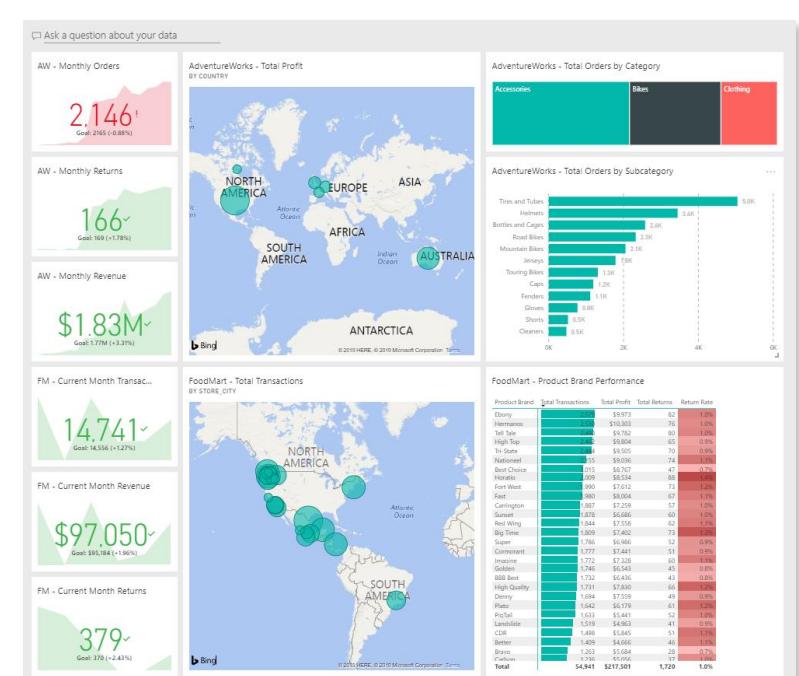
## REPORTS

Contain one or more visuals typically built from individual datasets or workbooks



## DASHBOARDS

Contain collections of reports and tiles, which can come from multiple datasets



# THE REPORT INTERFACE: READING VS. EDITING

## *Report Reading View*

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

This screenshot shows the Power BI Report Reading View. The interface includes a top navigation bar with file, view, and explore options, and a sidebar for favorites, recent, apps, workspaces, and Maven Analytics. The main area displays a dashboard titled "Adventure Works Cycles" with several visualizations: a stacked bar chart for "Total Orders by Category" (Accessories, Bikes, Clothing), a line chart for "Monthly Revenue" (\$1.83M), a card for "Monthly Orders" (2,146), a card for "Monthly Returns" (166), a table for "Top Product (Orders)" (Water Bottle - 30 oz.), a table for "Top Product (Profit)" (Mountain-200 Silver, 46), and a world map showing regional distribution. A filters pane on the right side allows setting report-level filters for the year (2016 or 2017) and drillthrough options. At the bottom, there are tabs for "Exec Summary", "Product Detail", and "Customer Detail".

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

Filters Pane (Visual-Level, Page-Level, Report-Level, and Drillthrough Filters)

## *Report Editing View*

Tools & Options for editing, modifying, and creating report visuals and dashboards

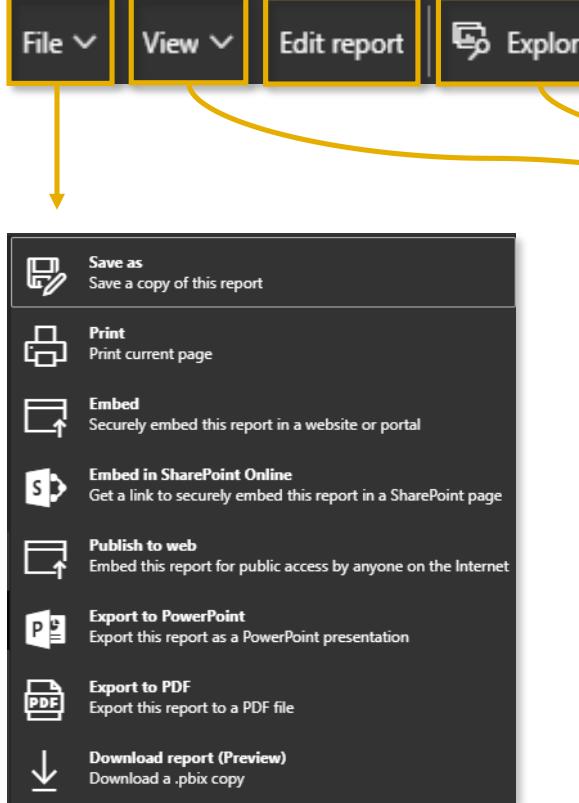
This screenshot shows the Power BI Report Editing View. The interface is similar to the reading view but includes additional editing tools in the ribbon: File, View, Reading view, Mobile Layout, Ask a question, Explore, Text box, Shapes, Buttons, Visual interactions, Refresh, Duplicate this page, Save, and Pin Live Page. The sidebar also includes options for Favorites, Recent, Apps, Workspaces, and Maven Analytics. The main dashboard area is identical to the reading view. On the right side, there is a "VISUALIZATIONS" pane with a "FIELDS" section containing a search bar and a list of fields from the "Adventure Works" database, such as AW\_Calendar\_Logo, AW\_Customer\_Lookup, AW\_Product\_Cat..., AW\_Product\_Lookup, AW\_Returns, AW\_Sales, AW\_Territories\_Lo..., and Price Adjustment. A "FILTERS" pane is also present, showing visual level filters for "Prev Month Revenue" (is (All)), "Start of Month" (is (All)), and "Total Revenue" (is (All)). The bottom navigation tabs remain the same: Exec Summary, Product Detail, Customer Detail.

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

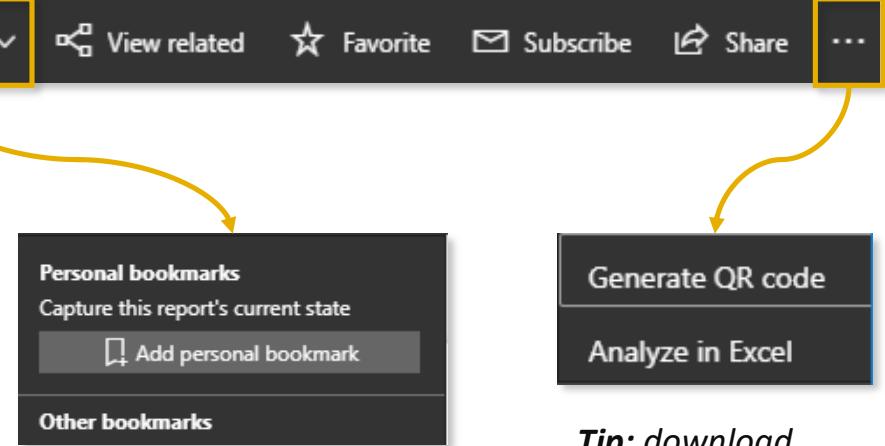
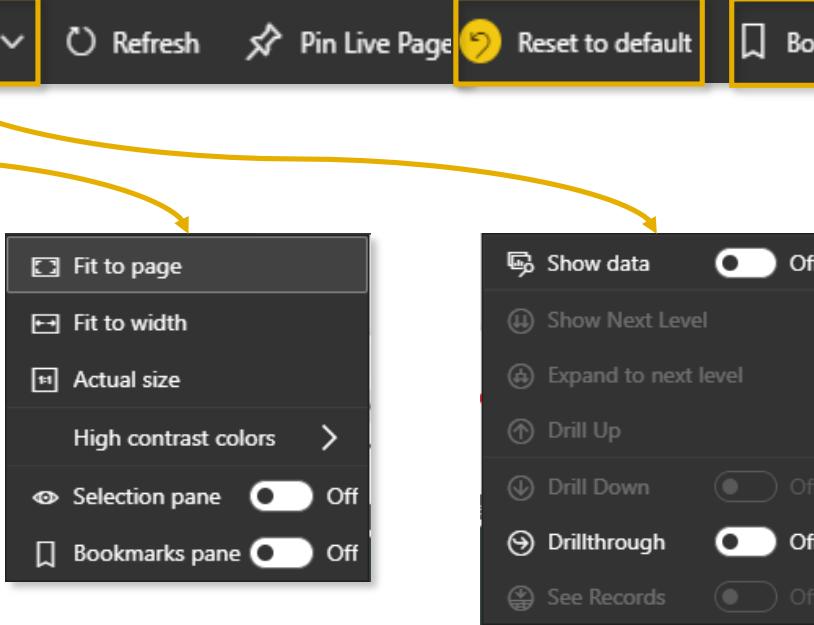
Visualization & Formatting Options (Charts, Slicers, Maps, Matrices, etc)  
Filters Pane (Visual-Level, Page-Level, Report-Level, and Drillthrough Filters)

# REPORT READING TOOLS

Navigate to report editing view



Reset all filters to default view



**Tip:** Use PDF & PowerPoint options to quickly export presentation handouts

**Tip:** Use personal bookmarks to save important or interesting views

**Tip:** download, email, or print the QR code for direct mobile access

# REPORT EDITING TOOLS

**File & Explore tools are the same as in Reading view**

The screenshot shows the Power BI ribbon with several tools highlighted:

- File & View**: Standard navigation tools.
- Ask a question**: A button that triggers a tooltip "Ask a question about your data".
- Explore**: A button that triggers a tooltip "Edit interactions".
- Shapes**, **Buttons**, **Visual interactions**: Drop-down menus for inserting various shapes and buttons.
- Refresh**: Refreshes the report.
- Duplicate this page**: Duplicates the current page.
- Save**: Saves the report.
- Pin Live Page**: Pins the live page.
- ...**: More options.

**Ask a question about your data**

**Tip:** Ask a question of your data to automatically generate relevant visuals

**Shapes** menu (expanded):

- Rectangle
- Oval
- Line
- Triangle
- Arrow

**Visual interactions** menu (expanded):

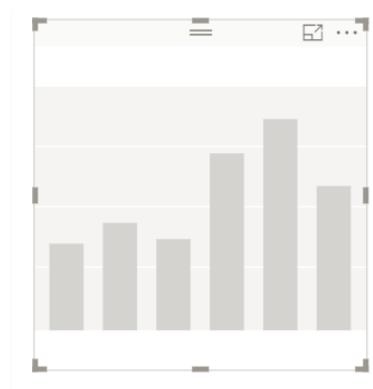
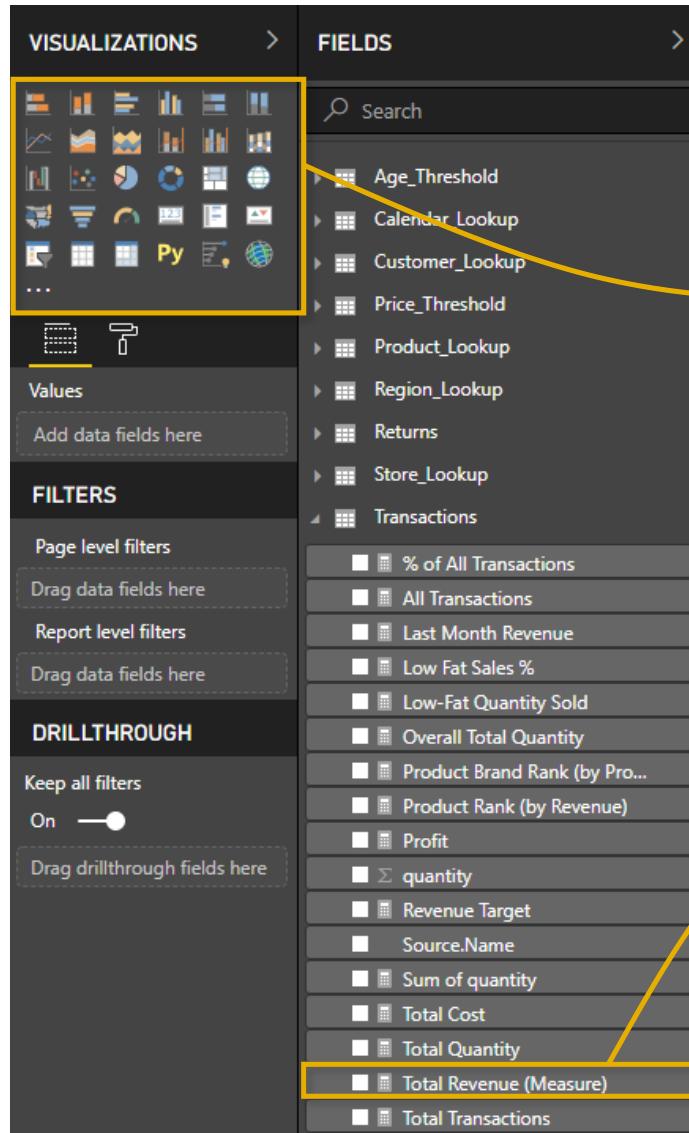
- Left arrow
- Right arrow
- Reset
- Back
- Information
- Help
- Q&A
- Bookmark
- Blank

**Edit interactions** (tooltip):

- Drilling filters other visuals (Off)

**Tip:** Add shapes and buttons that allow users to “jump” between report pages

# INSERTING & FORMATTING BASIC VISUALS



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

(or)



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

# FORMATTING OPTIONS

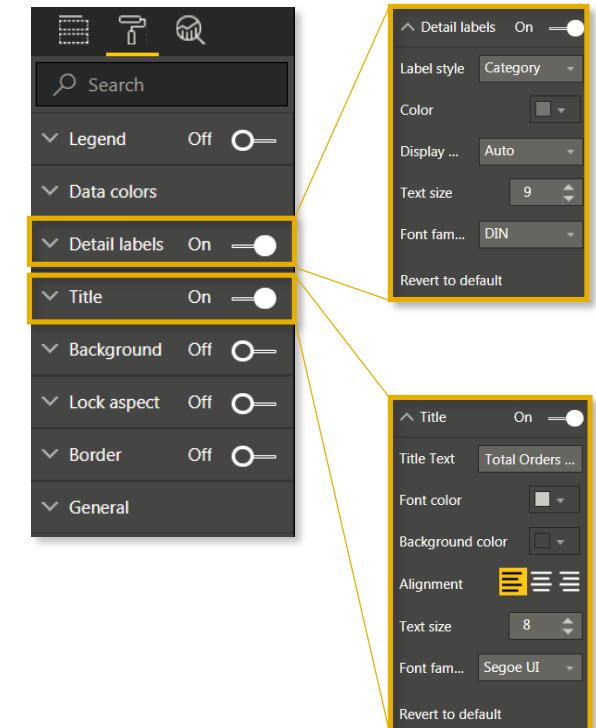
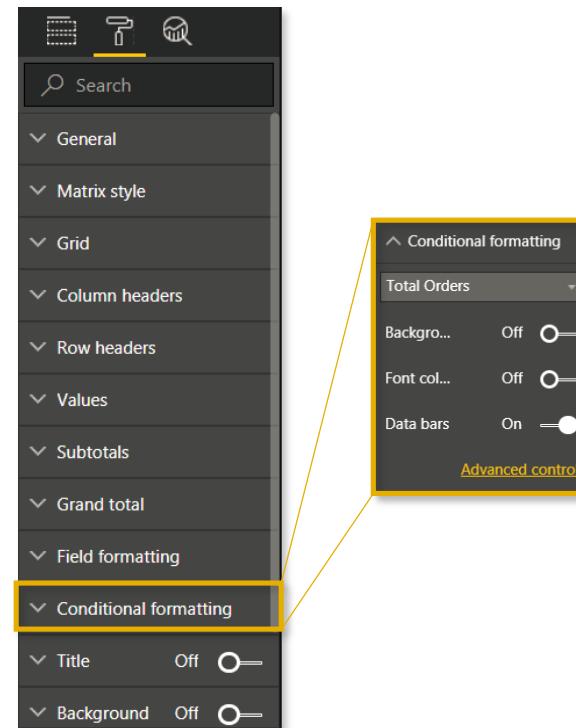
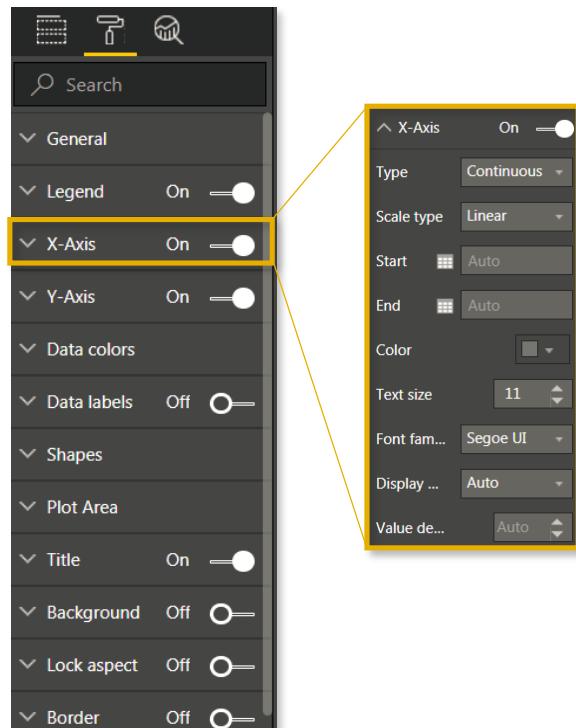
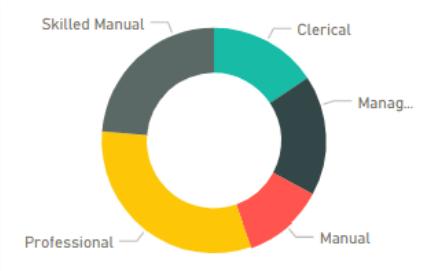
*Example: Line & Column Chart*



*Example: Matrix*

ProductName	Total Orders	Return Rate
Water Bottle - 30 oz.	1,164	1.96 %
Road Tire Tube	829	1.63 %
AWC Logo Cap	803	0.93 %
Patch Kit/8 Patches	798	1.57 %
Sport-100 Helmet, Red	753	2.79 %
Touring Tire Tube	702	1.35 %
Sport-100 Helmet, Blue	666	3.15 %
Sport-100 Helmet, Black	626	3.67 %
Road Bottle Cage	560	1.58 %
Mountain Tire Tube	554	1.95 %
Mountain Bottle Cage	539	1.38 %

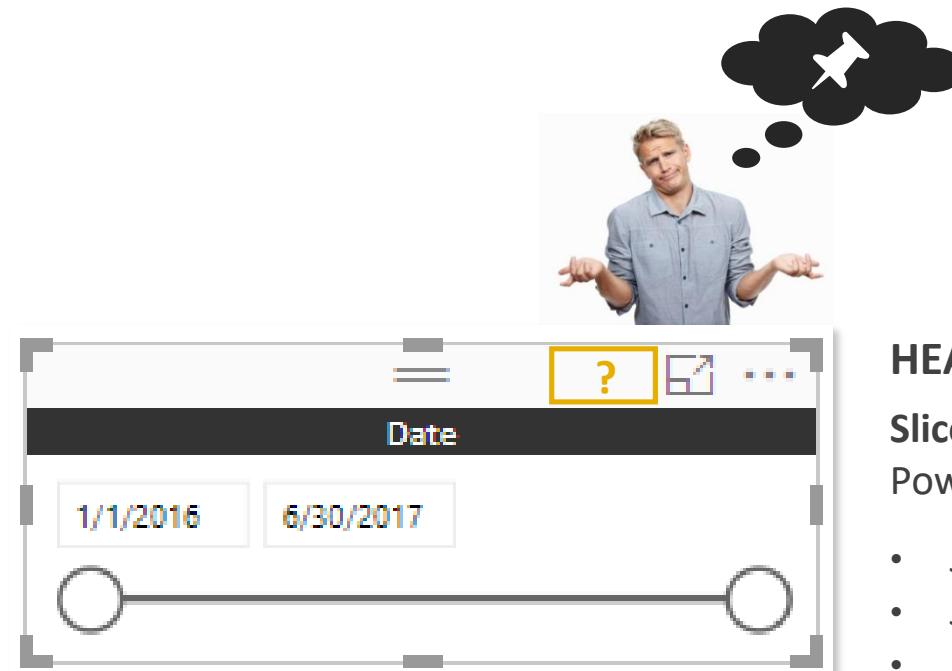
*Example: Donut Chart*



# PINNING TILES TO A DASHBOARD

Product Name	Total Transactions	Total Profit	Total Returns	Return Rate
Ebony	2,579	\$9,973	69	1.0%
Hermanos	2,530	\$10,303	67	1.0%
Tell Tale	2,490	\$9,782	69	1.0%
High Top	2,462	\$9,804	52	0.9%
Tri-State	2,444	\$9,505	60	0.9%
Nationeel	2,155	\$9,036	62	1.1%
Best Choice	2,015	\$8,767	44	0.7%
Horatio	2,009	\$8,534	76	1.4%
Fort West	1,990	\$7,612	63	1.2%
Fast	1,980	\$8,004	61	1.1%
Carrington	1,887	\$7,259	51	1.0%
Sunset	1,878	\$6,686	49	1.0%
Red Wing	1,844	\$7,558	51	1.1%
Big Time	1,809	\$7,402	61	1.3%
Super	1,786	\$6,986	46	0.9%
Cormorant	1,777	\$7,441	45	0.9%
Imagine	1,772	\$7,328	44	1.1%
Golden	1,746	\$6,543	41	0.8%
BBB Best	1,732	\$6,436	35	0.8%
High Quality	1,731	\$7,830	54	1.2%
Denny	1,694	\$7,559	44	0.9%
Plato	1,642	\$6,179	48	1.2%
PigTail	1,633	\$5,441	43	1.0%
Landslide	1,519	\$4,963	34	0.9%
CDR	1,498	\$5,845	45	1.1%
Better	1,409	\$4,666	36	1.1%
Bravo	1,263	\$5,684	26	0.7%
Carlson	1,236	\$5,056	32	1.0%
Just Right	1,231	\$4,474	37	1.0%
Blue Label	1,200	\$4,846	21	0.7%
<b>Total</b>	<b>54,941</b>	<b>\$217,501</b>	<b>1,466</b>	<b>1.0%</b>

Click on the pushpin icon to pin an individual report visual to a dashboard



## HEADS UP!

Slicers have some limitations in Power BI, and cannot:

- *Support drilldown*
- *Support visual level filters*
- *Be individually pinned to a dashboard (but they can as part of a live page)*

# PINNING ENTIRE REPORTS TO A DASHBOARD

The screenshot shows the Power BI desktop interface. On the left, there's a 'FoodMart' dashboard containing a date slicer, a table of product brand data, and a bar chart titled 'Weekly Revenue Trending'. On the right, a 'FIELDS' pane is open, listing various data fields like Age\_Threshold, Calendar\_Lookup, and Transactions. At the top of the screen, the 'Pin Live Page' button is highlighted with a yellow arrow.

## PRO TIP:

*Pinning a live page will import slicers and preserve functionality*

Use the **Pin Live Page** option to pin an entire report to a dashboard (*including multiple visuals*)

The screenshot shows the 'Pin to dashboard' dialog box. It includes a preview of the 'FoodMart Monthly Report' (FOODMART), a section to select a dashboard ('Existing dashboard' is selected), a 'Dashboard name' field ('FoodMart - Pin Live Page Test'), and a 'Pin live' button. A yellow arrow points from the 'Pin Live Page' button in the top-left screenshot to this dialog box. Another yellow arrow points from the dialog box to the pinned live page on the dashboard below. The pinned page contains the same date slicer, table, and bar chart as the original report.

# THE DASHBOARD INTERFACE

The screenshot shows the Power BI dashboard interface with a yellow border around the top navigation bar. The top bar includes buttons for 'Add tile', 'Comments', 'View related', 'Set as featured', 'Favorite', 'Subscribe', 'Share', 'Web view', and a 'More' button. A yellow box highlights the 'Ask a question about your data' button in the top left corner of the dashboard area. A yellow arrow points from this button to the 'Ask a question' button in the top navigation bar. Another yellow arrow points from the 'More' button in the top navigation bar to the 'More' button in the top right corner of the dashboard area. The dashboard itself displays a 'FoodMart Monthly Performance Report' with various visualizations including a date range selector, three KPI cards, a map of North America, a bar chart, and a gauge chart.

**Ask a Question** allows you to use natural language queries to generate new tiles from within your dashboard!

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

# DASHBOARD TOOLS

The screenshot shows the Power BI dashboard tools interface. At the top, there's a toolbar with several icons: 'Add tile' (highlighted with a yellow box), 'Comments' (highlighted with a yellow box), 'View related' (highlighted with a yellow box), 'Set as featured', 'Favorite', 'Subscribe', 'Share', 'Web view', and a 'More' icon (highlighted with a yellow box). Below the toolbar, there are three main sections: 'MEDIA' (containing 'Web content', 'Image', 'Text box', and 'Video'), 'REAL-TIME DATA' (containing 'Custom Streaming Data'), and a 'Comments' section for a 'MAVEN GROUP - EXECUTIVE SUMMARY'. The 'Comments' section includes a text input field, a 'Post' button, a 'Start a conversation' message, and a 'Get results by @mentioning key players' note. To the right, there's a 'Related content' panel for 'Maven Group - Executive Summary' showing 'Maven Analytics' (with a report for 'AdventureWorks\_Report\_COMPLETE') and 'DATASETS' (with datasets for 'AdventureWorks\_Report\_COMPLETE' and 'FoodMart-Data-Model-COMPLETE'). A callout from the 'View related' icon points to the 'Related content' panel. Another callout from the 'More' icon points to a sidebar with options: 'Dashboard theme', 'Duplicate dashboard', 'Print dashboard', 'Refresh dashboard tiles', 'Performance inspector', and 'Settings'. A tip at the bottom left says: 'Tip: Add images & videos with URLs'. A tip at the bottom right says: 'Tip: Use the "create report" icon to build a new report from a related dataset'.

**Add tile**

**Comments**

**View related**

**Set as featured**

**Favorite**

**Subscribe**

**Share**

**Web view**

**...**

**MEDIA**

- Web content
- Image
- Text box
- Video

**REAL-TIME DATA**

- Custom Streaming Data

**Comments**

MAVEN GROUP - EXECUTIVE SUMMARY

Start a conversation  
Share your feedback on dashboards or specific visuals.

Get results by @mentioning key players

**Related content**

Maven Group - Executive Summary

**Maven Analytics**

REPORTS

AdventureWorks\_Report\_COMPLETE

**DATASETS**

AdventureWorks\_Report\_COMPLETE

Last refresh: 2/28/2019, 9:50:27 PM

FoodMart-Data-Model-COMPLETE

Last refresh: 3/1/2019, 9:49:39 AM

**Dashboard theme**

Duplicate dashboard

Print dashboard

Refresh dashboard tiles

Performance inspector

Settings

**Tip:** Use the "create report" icon to build a new report from a related dataset

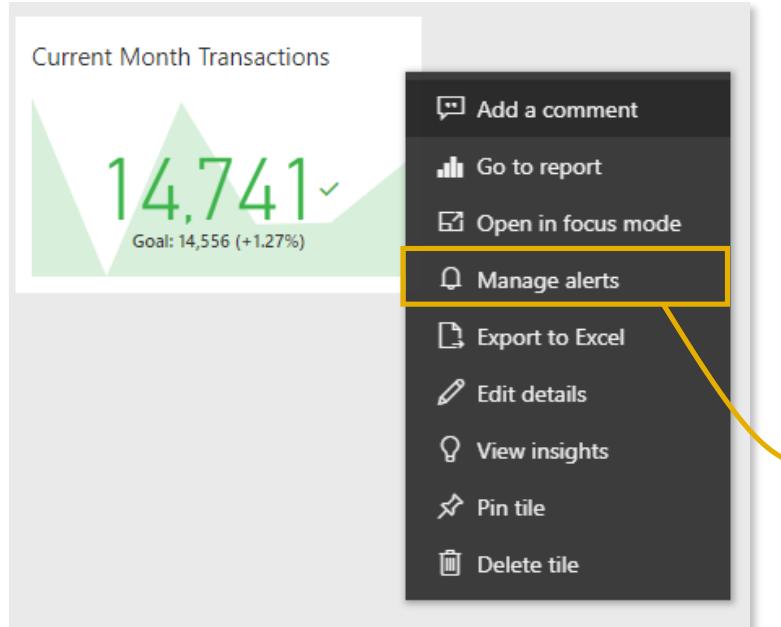
**Tip:** Use duplicate dashboard when creating multiple similar dashboard to save time

**Tip:** Add images & videos with URLs

# ADDING DATA DRIVEN ALERTS

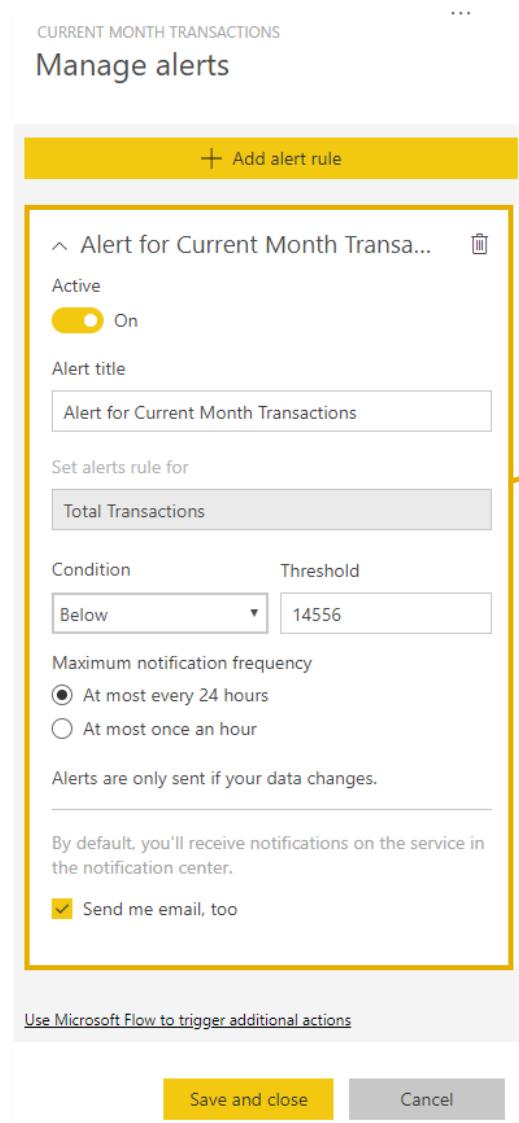
1

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



2

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

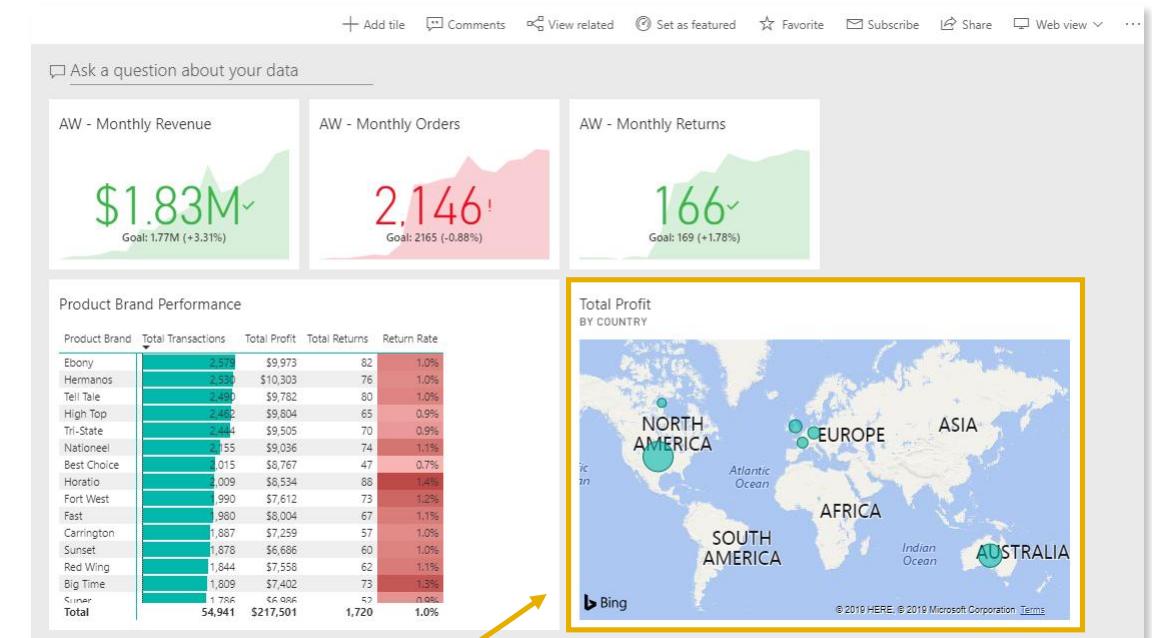
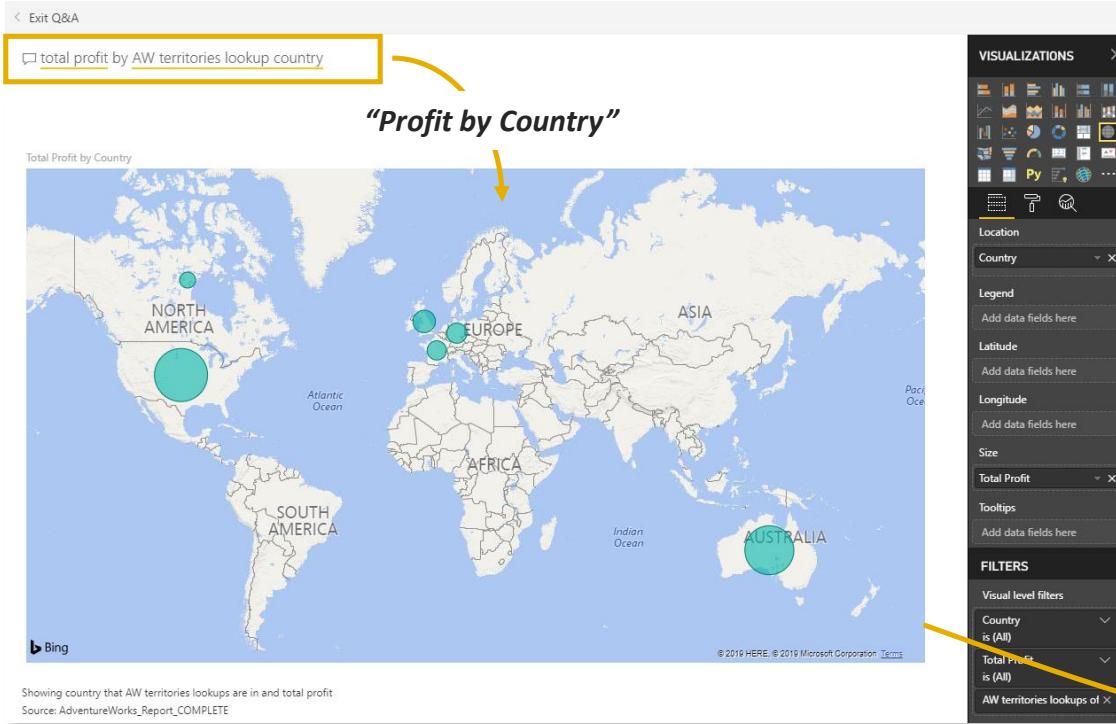


## HEY THIS IS IMPORTANT!

Alerts can only be set on **gauge charts**, **KPI cards**, and **cards**. Alerts **do not** work with live pinned report pages

# EXPLORING DATA WITH Q&A

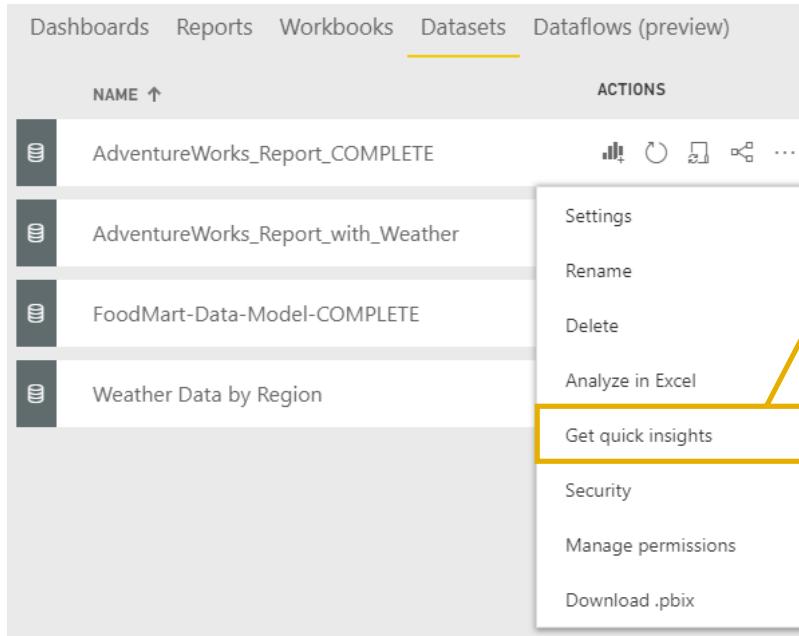
Q&A allows you to visualize and explore your data using **natural language questions** (*currently English only*)



For **tips** asking question in Power BI Q&A visit - <https://docs.microsoft.com/en-us/power-bi/consumer/end-user-q-and-a-tips>

# GENERATING QUICK INSIGHTS

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

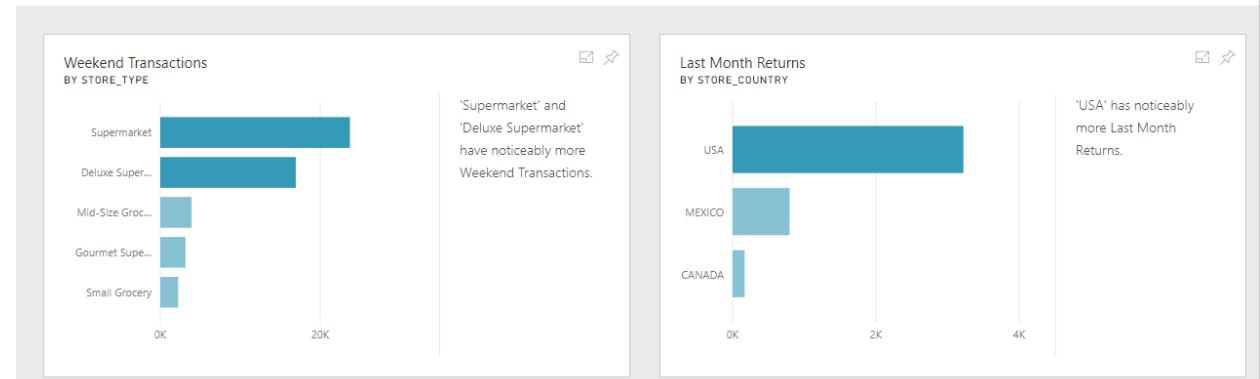


A screenshot of the Power BI service interface. In the top navigation bar, 'Datasets' is highlighted. Below it, a list of datasets is shown: AdventureWorks\_Report\_COMPLETE, AdventureWorks\_Report\_with\_Weather, FoodMart-Data-Model-COMPLETE, and Weather Data by Region. A context menu is open over the third dataset, listing options like 'Settings', 'Rename', 'Delete', 'Analyze in Excel', 'Get quick insights' (which is highlighted with a yellow box), 'Security', 'Manage permissions', and 'Download .pbix'. A yellow arrow points from this menu to a callout box.

**✓ Insights are ready**  
You have insights for FoodMart-Data-Model-COMPLETE.

**View insights**

**Quick Insights for FoodMart-Data-Model-COMPLETE**  
A subset of your data was analyzed and the following insights were found. [Learn more](#)



The 'Quick Insights' page displays two insights:

- Weekend Transactions BY STORE\_TYPE**: A horizontal bar chart comparing transaction volumes across different store types. The y-axis lists store types: Supermarket, Deluxe Super..., Mid-Size Groc..., Gourmet Supe..., and Small Grocery. The x-axis shows values 0K, 20K, and 40K. The chart indicates that 'Supermarket' and 'Deluxe Supermarket' have noticeably more Weekend Transactions.
- Last Month Returns BY STORE\_COUNTRY**: A horizontal bar chart comparing return volumes by country. The y-axis lists countries: USA, MEXICO, and CANADA. The x-axis shows values 0K, 2K, and 4K. The chart indicates that 'USA' has noticeably more Last Month Returns.

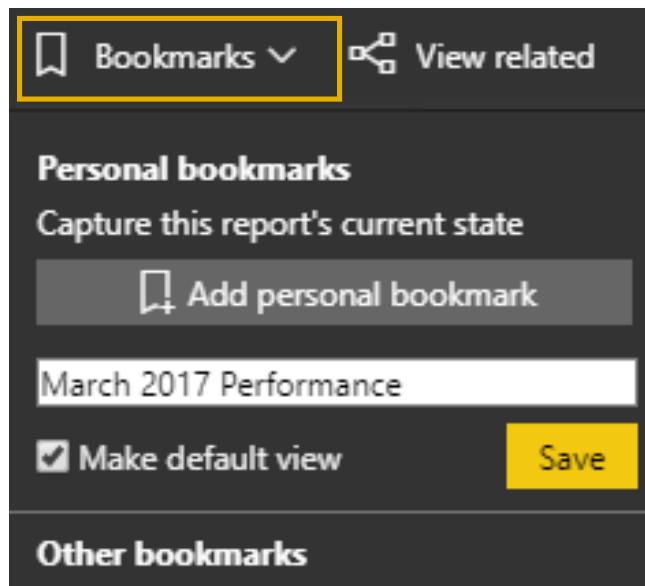
## HEY THIS IS IMPORTANT!

Roles (RLS) and Direct Query not supported.  
Quick insights will be grayed out in either case

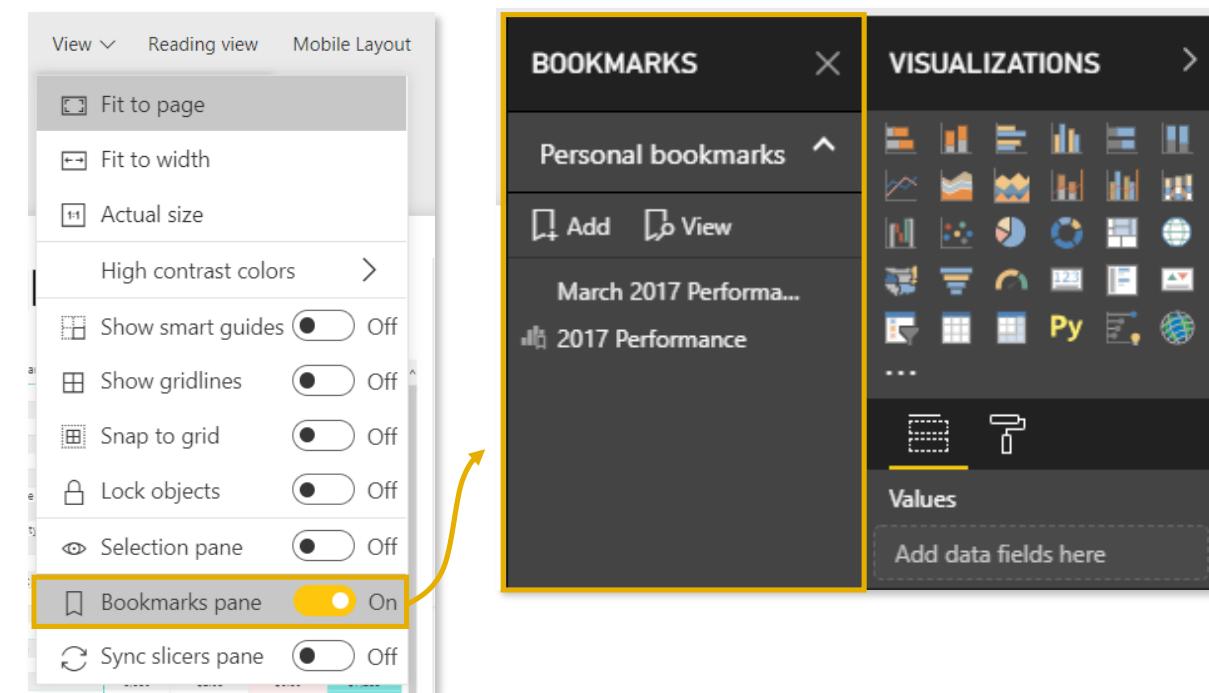
# ADDING PERSONAL BOOKMARKS

Personal Bookmarks capture static states of a visual or report page and work exactly like bookmarks in Power BI Desktop, except that they're accessible *only by you*

**Report Reading View**



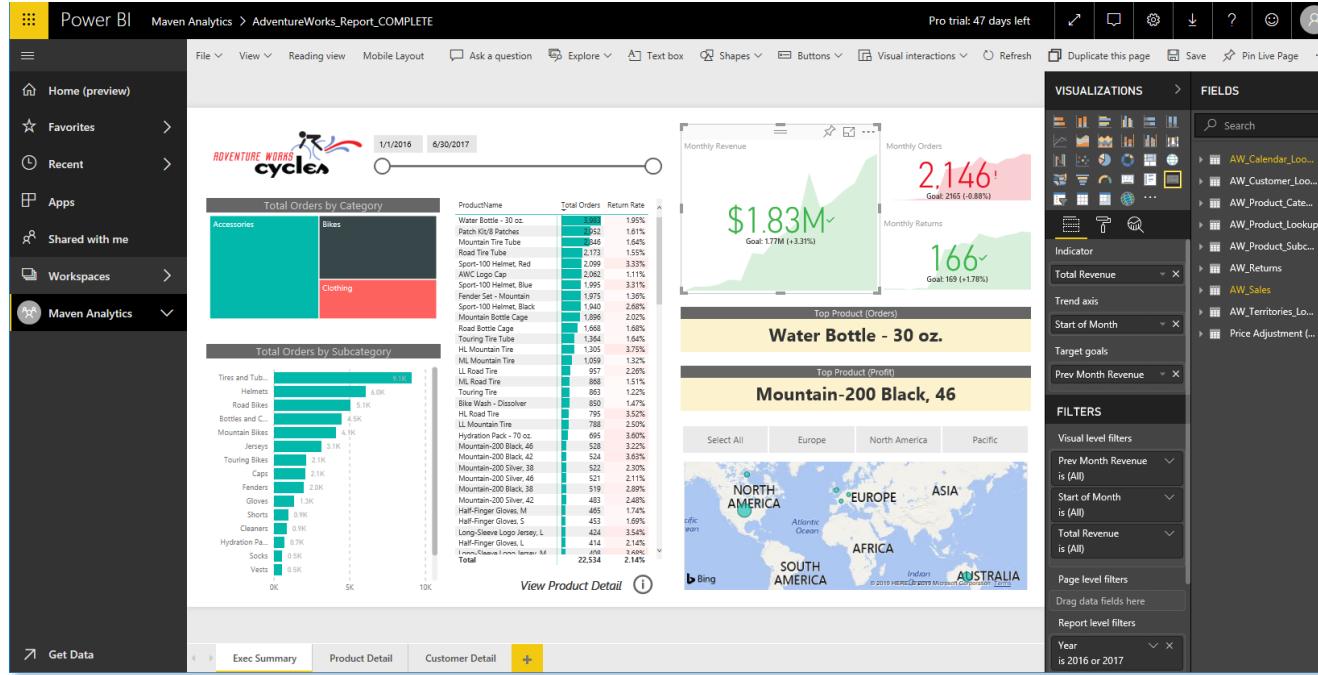
**Report Editing View**



# WEB VS. MOBILE LAYOUT

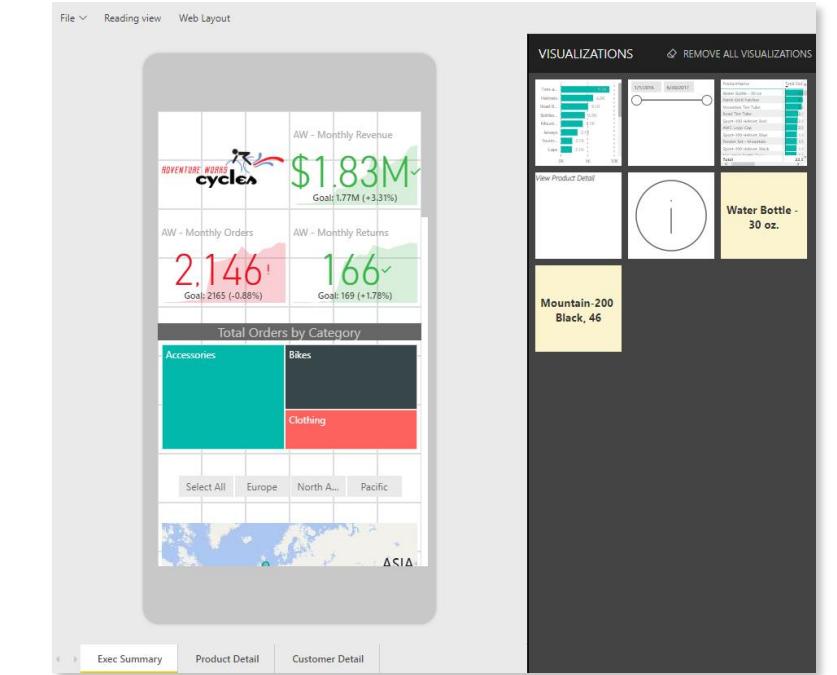
Reading view

Web Layout



Reading view

Mobile Layout



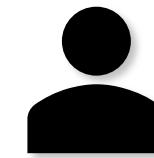
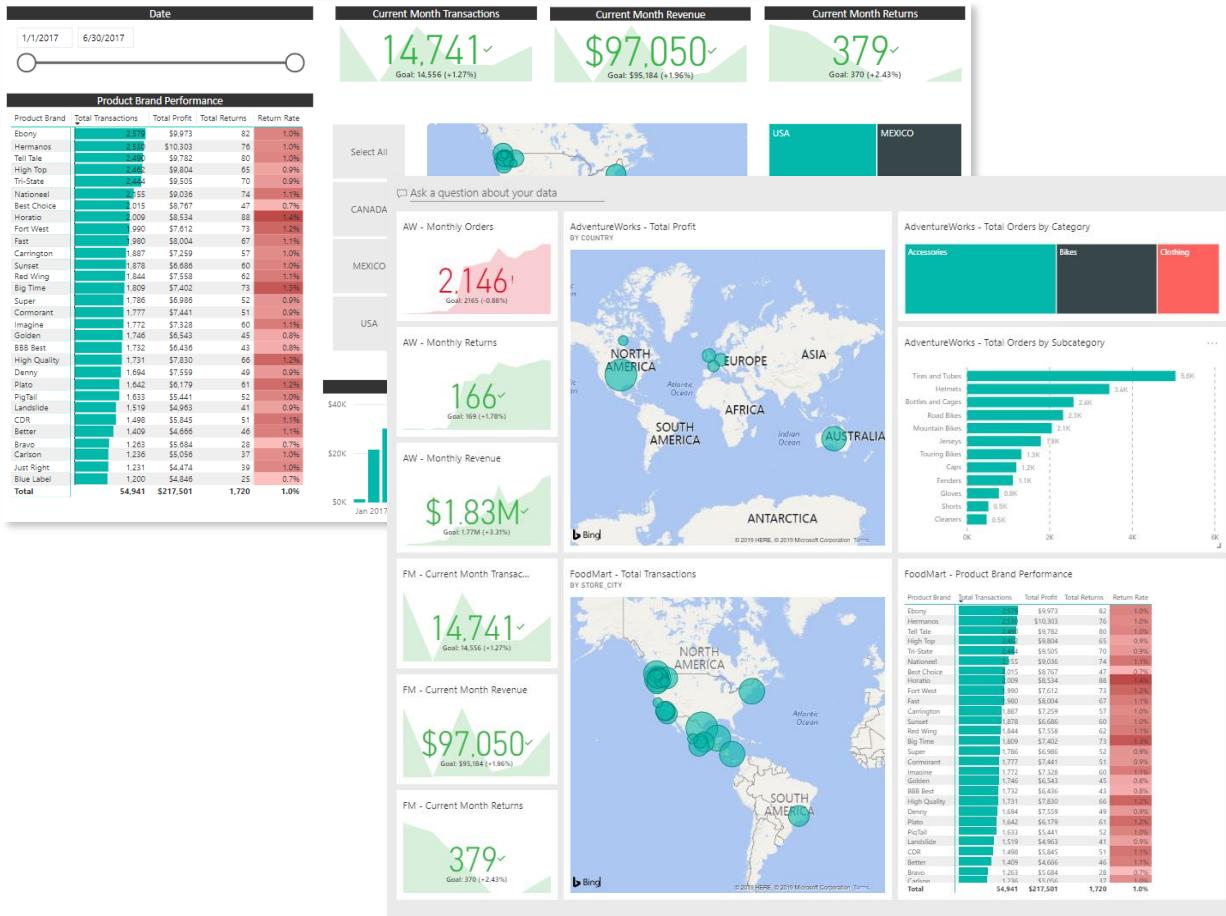
**Mobile Layout** allows you to design reports on a canvas size optimized for mobile viewing (vs. web)

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

# SHARING & COLLABORATION

# SHARING & COLLABORATION OPTIONS

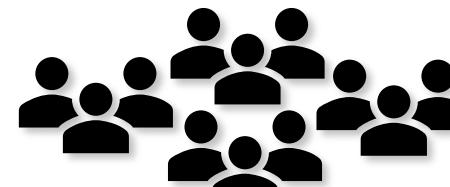
## DASHBOARDS & REPORTS



INDIVIDUALS



TEAMS

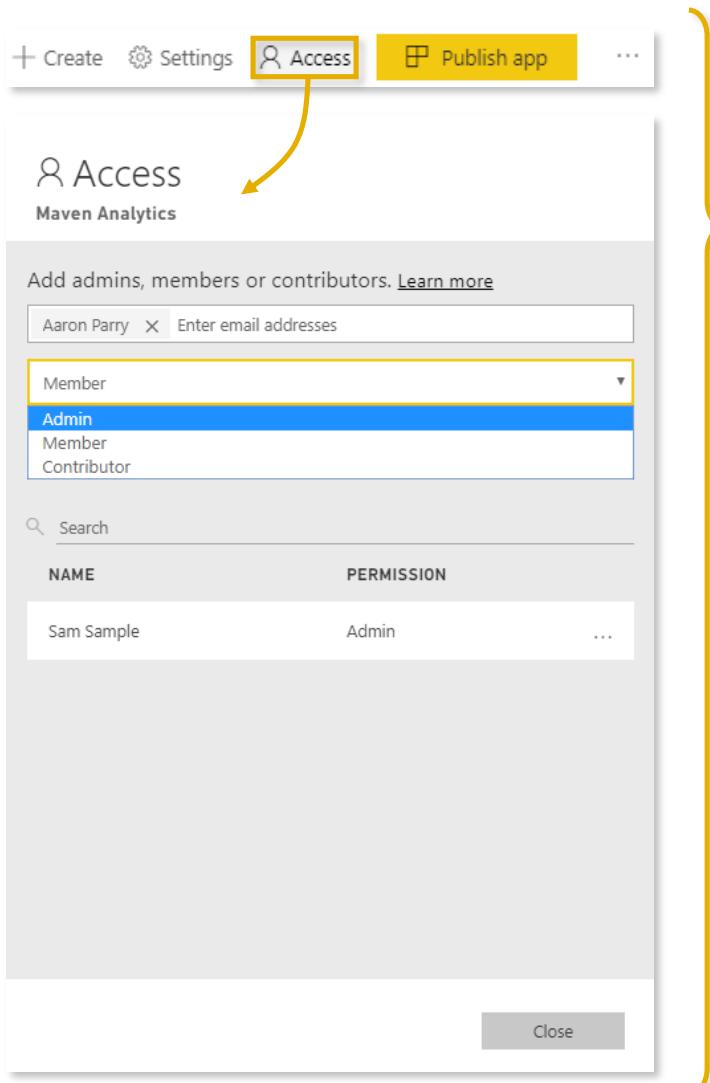


ORGANIZATIONS

# SHARING & COLLABORATION OPTIONS (cont.)

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

# APP WORKSPACE USER PERMISSIONS



When adding others to app workspaces, you can assign roles based on **three levels of permissions:**

## CONTRIBUTOR

- Publish, create, edit, and delete content in workspace
- 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

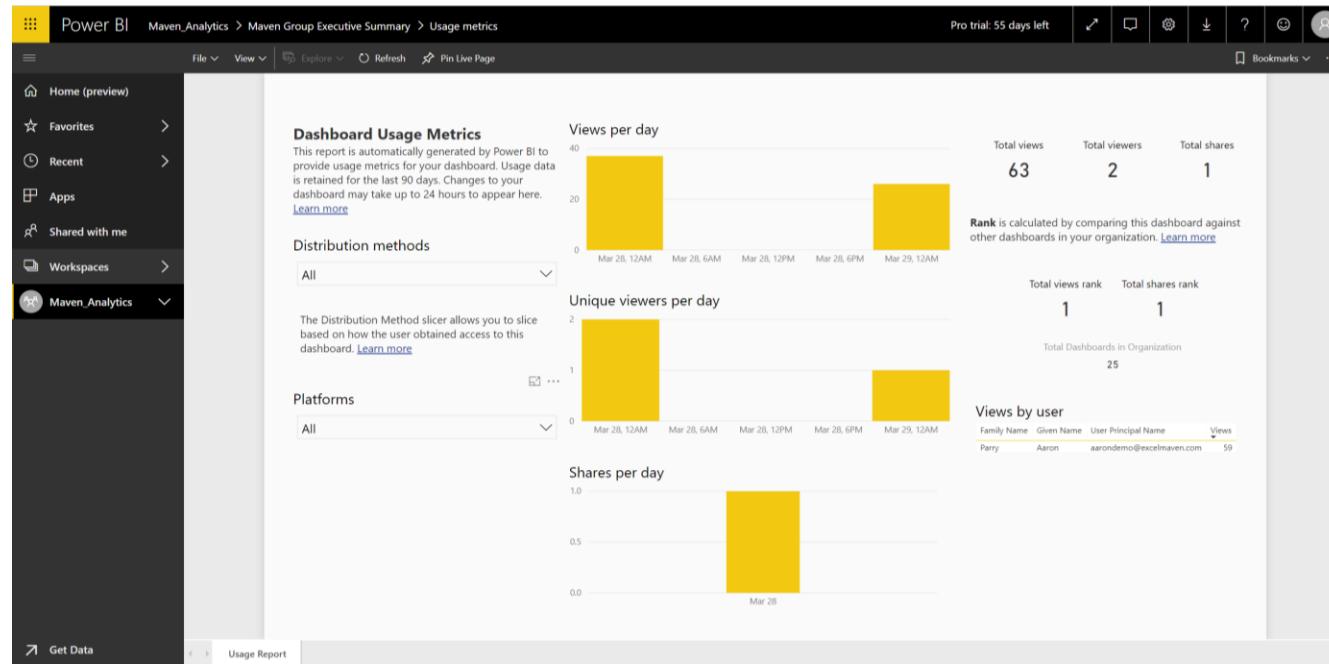
- All **Contributor rights, plus:**
- Add members or users with lower permission levels
- Publish and update apps
- Share an item or app
- Allow others to reshare

## ADMIN

- All **Member rights, plus:**
- Update/delete workspaces
- Add or remove other users (including admins)

# PRO TIP GENERATING USAGE REPORTS

Power BI Service offers a report called **usage metrics**, which you can use to view and monitor how your dashboards and reports are being used



## PRO TIP:

Choose “**save report as**” from the file menu to access the underlying data to **build and customize** your own usage metrics report!



# CONFIGURING ROW LEVEL SECURITY

## DESKTOP ENVIRONMENT

The screenshot shows the Power BI Desktop interface with the 'Manage roles' dialog open. In the ribbon, the 'Modeling' tab is selected. A yellow box highlights the 'Manage Roles' button in the ribbon, and a yellow arrow points from it to the 'Table filter DAX expression' input field in the dialog. The input field contains the DAX expression `[Continent] = "Europe"`. The dialog also includes sections for 'Roles' and 'Tables'.

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

- **NOTE:** This is *not* the same as bookmarks or pre-filtered views; roles actually **filter data out of your model** and limit what audiences can access

## SERVICE ENVIRONMENT

The screenshot shows the Power BI Service interface with the 'Row-Level Security' configuration page open. In the top navigation bar, the 'Datasets' tab is selected. A yellow box highlights the 'Actions' menu for a dataset, and a yellow arrow points from it to the 'Members' section. The 'Members' section lists 'Aaron Parry'.

# CONFIGURING & PUBLISHING AN APP

**Apps** combine related reports and dashboards that you can selectively publish from App Workspaces to large groups of people, both internal and external to your organization

NEW WORKSPACES PREVIEW You're previewing improved workspaces. [Learn more](#)

+ Create Settings Access Publish app ...

Search content...

Dashboards Reports Workbooks Datasets Dataflows (preview)

NAME ↑	ACTIONS	OWNER	INCLUDED IN APP
AdventureWorks_Report_COMPLETE	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	ON
AdventureWorks_Report_with_Weather	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	OFF
FoodMart Monthly Report	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	ON
Total Order with Avg Temperature	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	OFF

1 From within an App Workspace, select any **reports and dashboards** you want to include

2 Select **Publish App** to create a new App

NEW WORKSPACES PREVIEW You're previewing improved workspaces. [Learn more](#)

+ Create Settings Access Publish app ...

Search content...

Dashboards Reports Workbooks Datasets Dataflows (preview)

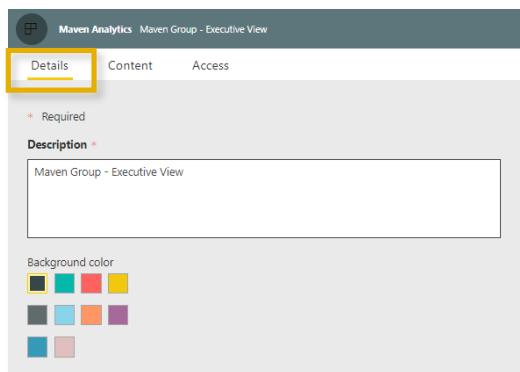
NAME ↑	ACTIONS	OWNER	INCLUDED IN APP
FoodMart - Individual Tiles Test	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	ON
FoodMart - Pin Live Page Test	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	ON
Maven Group - Executive Summary	⋮ ⚡ 🌟 🔍 🛡️ 🛡️	Maven Analytics	ON

# CONFIGURING & PUBLISHING AN APP (cont.)

After selecting Publish App, configure the **details**, **content**, and **user access**:

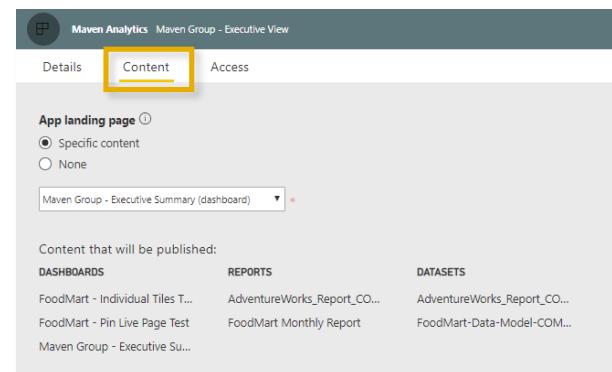
1

In the **DETAILS** tab, add a description & background color



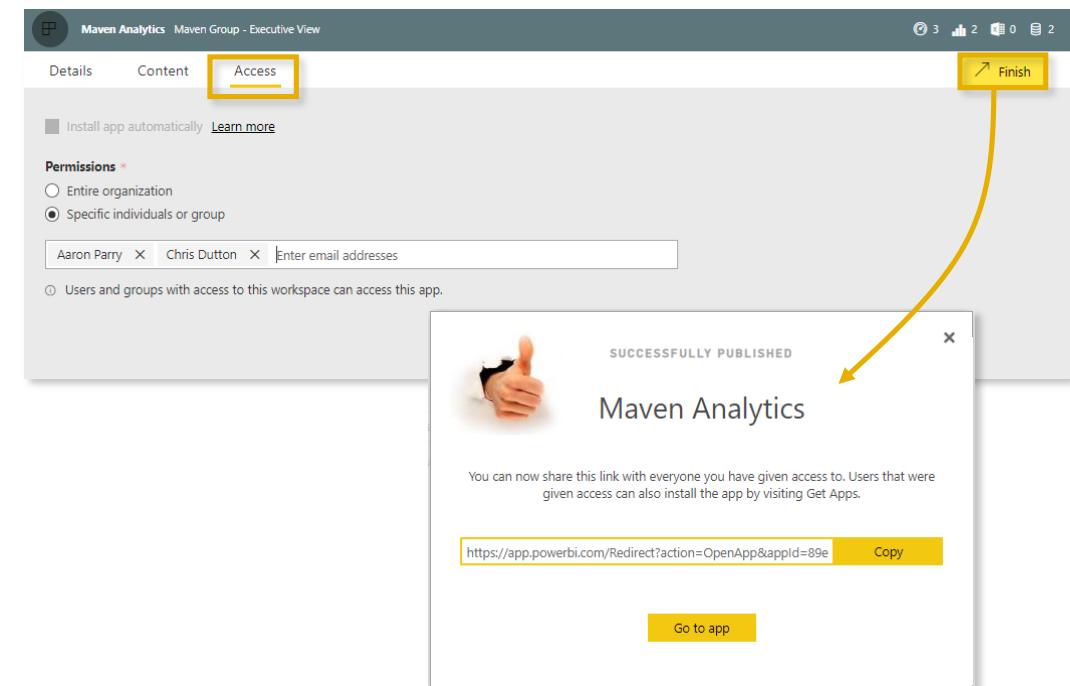
2

In the **CONTENT** tab, confirm the reports & dashboards to be published, and choose one to feature (optional)



3

In the **ACCESS** tab, add specific individuals, groups, or entire organizations to the App, then click **Finish** to publish!



# POWER BI MOBILE (PREVIEW)

# THE POWER BI MOBILE APP

Microsoft offers a set of **Power BI mobile apps** (*iOS, Android & Windows 10*), which you can use to view and interact with your Power BI Service reports and dashboards while you're on the go



# CORE MOBILE APP FUNCTIONALITY

---

1

## Interact with dashboard and report tiles

- *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 my workspace reports and dashboards to anyone else with a Pro account*

3

## Draw and comment, anywhere on your screen

- *Add annotations that you can share with your team, using text, drawings, icons and more*

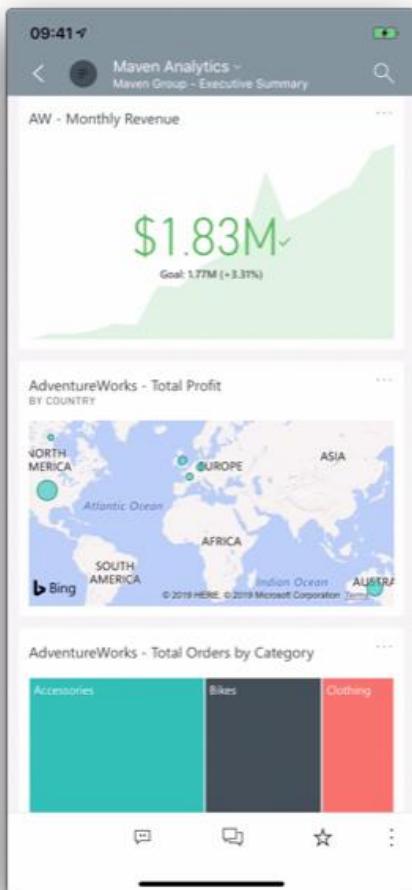
4

## Notify yourself based on data-driven alerts or mentions

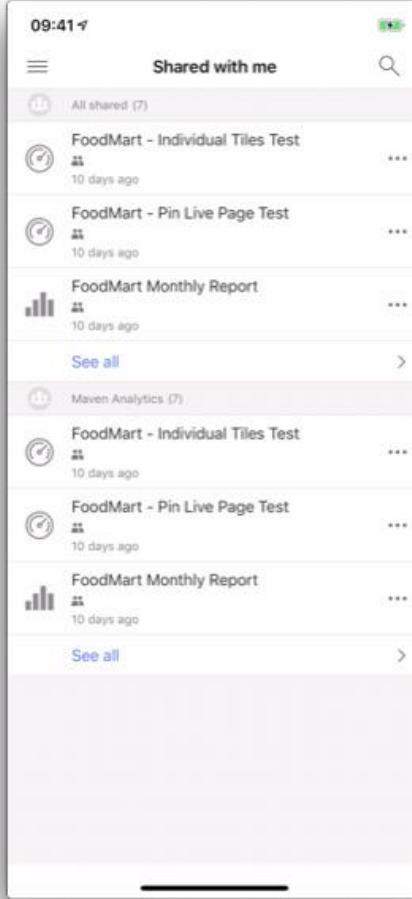
- *Get notifications based on any alerts you've configured, or when you've been @mentioned in a comment*

# CORE MOBILE APP FUNCTIONLITY (cont.)

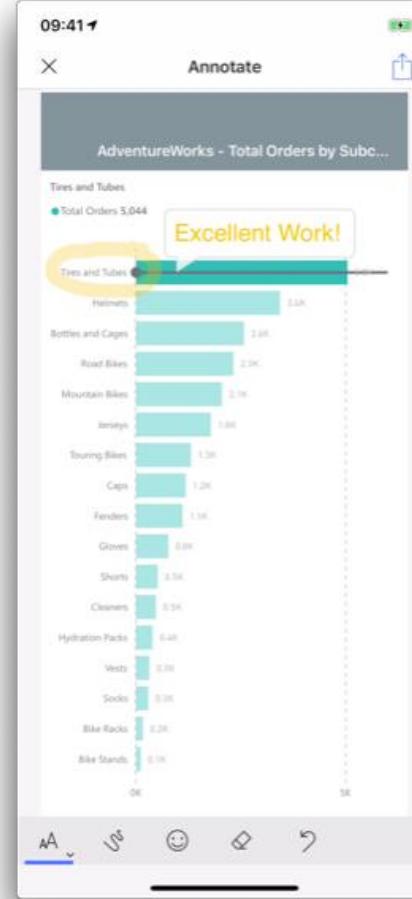
INTERACT



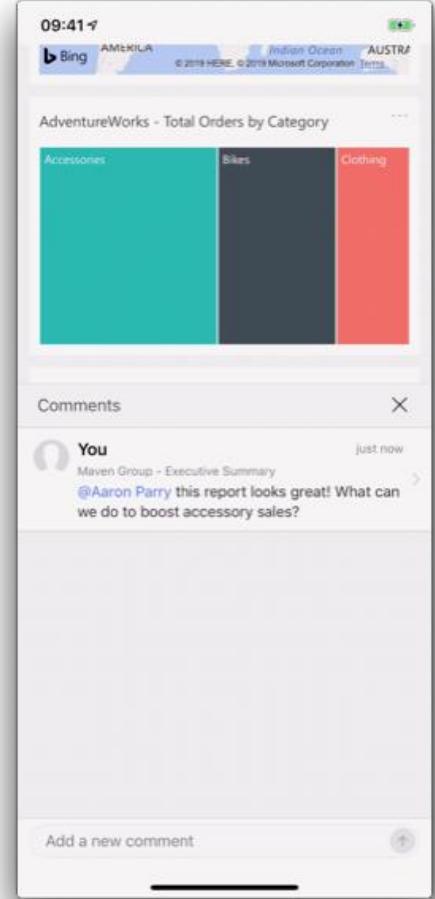
SHARE



DRAW



NOTIFY



# WRAPPING UP

Week Starting  
11/2/2014  
11/9/2014  
11/14/2014  
11/21/2014  
11/28/2014  
weekly A  
14/09  
12/09

\$10,000 100,000 400 0.40%  
\$12,000 125,000 600 0.48%  
\$9,000 112,000 440 0.37%  
\$11,000 135,000 360 0.30%  
\$8,000 105,000 320 0.30%  
-27.3% -22.2% -11.1% +4.3%  
1000 1000 1000 1000  
2000 2000 2000 2000

1.12 1.44 1.16  
1.35 0.98 1.14  
1.08 1.19 1.08  
1.14 1.02 1.05  
1.05 1.05 1.00  
0.91 1.08 0.97  
0.99 0.95 0.91  
0.96 0.86 0.82  
0.75 0.88 0.77  
0.66 1.09 0.75  
0.58 0.58 0.75  
1.10

# RESOURCES & NEXT STEPS

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-  Need to brush up on **Power BI Desktop** or round out your **Excel analytics** skills? Try a course from our business intelligence stack:
  - *Data Analysis with Excel PivotTables*
  - *Intro to Power Query, Power Pivot & DAX*
  - *Up & Running with Power BI Desktop*
  - *Excel Pro Tips for Power Users*
-  Remember to check out these **helpful resources** for additional support:
  - *[docs.microsoft.com/en-us/power-bi/sample-datasets](https://docs.microsoft.com/en-us/power-bi/sample-datasets)* for free sample datasets
  - *[powerbi.microsoft.com/blog](https://powerbi.microsoft.com/blog)* for great blog posts and tutorials from Microsoft
  - *[pbiusergroup.com](https://pbiusergroup.com)* for helpful forums and local meetup groups
  - *[Microsoft Power BI and Guy in a Cube](https://www.youtube.com/user/guyinacube)* YouTube channels for demos and advanced tutorials
-  Any feedback? Please take a moment to leave a rating or review!
  - *Please reach out if there's anything we can do to improve your experience – we're here to help!*

# THANK YOU

