

Microsoft Power BI



**Power BI**

# Microsoft Power BI

## **INSTRUCTOR INFORMATION**

Loy Vanich  
084 007 5544  
Line ID: laployv  
laploy@gmail.com  
www.laploy.com



# Microsoft Power BI

## **TIME FRAME**

- Course duration
- Start time
- Coffee break
- Lunch break
- Course end

Microsoft Power BI

## **REPOSITORY**

<https://github.com/laploy/BI2018>



# Microsoft Power BI

## **SOFTWARE REQUIREMENT**

- Windows 10
- Microsoft Office latest version

# Introducing Power BI

# Microsoft Power BI

What is Power BI?

- A business analytics service provided by Microsoft.
- It provides interactive visualizations with self-service business intelligence capabilities
- End users can create reports and dashboards by themselves
- Without having to depend on information technology staff or database administrators.

Power BI VS SSRS

## Overview

Loy Vanich (laplo

	Reporting Services	Power View / Power BI
Primary purpose	Traditional structured reporting (pre-defined queries and drill paths)	Data discovery / interactive exploration
Architectural mode	Native Mode	Power View for Excel

# Microsoft Power BI

## Deployment and Delivery

	Reporting Services	Power View / Power BI
Delivery approach	On-premises (or IaaS)	Hybrid (full functionality) or On-premises (subset of functionality)
Access types	Report Manager web app (Native mode) or SharePoint	Excel (client) or SharePoint or Power BI portal (SaaS cloud app)

# Microsoft Power BI

## Development

	Reporting Services	Power View / Power BI
Design approach	Data-First (report connects to an embedded or shared dataset query)	Data-First (report connects to an existing model or data source)
Development environment	Report Designer (Visual Studio/SSDT/BIDS) or Report Builder (click-once app)	Power BI Designer or Power View for Excel or Power View for SharePoint (web)
Typical content creator	IT developer or Proficient power user	Data analyst (created purposely to have a minimal learning curve)
Creation of underlying report query	Need to create query which is contained within a dataset (can write syntax or use a UI)	Drag and drop (cannot write specific underlying query)
Designer	Free-form layout (with precise alignment ability in body, header, and footer)	Free-form layout (without precise alignment ability)
File extension	.RDL	.XLSX (Excel) or .PBIX (Power BI Designer) or .RDLX (Power View for SharePoint)

# Microsoft Power BI

## Features

	Reporting Services	Power View / Power BI
Parameterization	Parameter pane	Slicers (placed on the report body) or Filters pane (page level or for individual table/chart)
Color palette	Standard color selections for individual charts  Can customize colors using custom color palettes, expressions, or custom code	Style selections applicable to entire report
Pixel-perfect formatting control	Yes	No
Switch chart types on the fly	No (potential workaround with parameterization and show/hide properties)	Yes
Interactive cross-filtering and highlighting behavior	No	Yes
Calculations and expressions	Many options within the dataset, expressions, and custom code	Straightforward options (Sum, Avg, Min, Max, Count)
Built-in maps	Bubble map, Filled map, Line map, Marker map, Custom ESRI shapefile	Bubble map, Filled map  Uses Bing Maps API
Multiple data sources allowed per individual report / dashboard	Yes (one data source per dataset is general rule, though a tablix expression can reference another dataset and/or lookups can be utilized)	No (workaround is to integrate data first in underlying data model)

# Microsoft Power BI

Shared datasets (i.e., reusable queries across multiple reports / dashboards)	Yes (embedded dataset can be promoted to be a shared dataset)	Yes (In V2, datasets published to the Power BI service are independent objects from reports and dashboards)
Shared report elements (i.e., reusable charts and tables across multiple reports / dashboards)	Yes (report parts which are elements such as tables, charts, gauges, images, maps, parameters, etc. published for reuse)	Yes (Power BI v2 portal supports the ability to 'pin' a report element onto one or more dashboards after the report has been published to the Power BI site)
KPI repository	Indirectly (a KPI can be used from the underlying SSAS or Power Pivot data model, or an indicator can be defined inside of an individual report)	Indirectly (a KPI can be referenced from the underlying SSAS or Power Pivot data model)
Drill-down (additional detail on the same report)	Yes	Yes (basic; affects single object on page only)
Drill-through (additional detail on a different report)	To another report or To custom URL (incl to other reporting tools)	Custom URL (only on Dashboard tiles)




# Microsoft Power BI

Alerts	Yes (data-driven alerts in SharePoint mode only)	Yes (simple high/low alerting on a single numeric tile - available in v2 mobile app only)
Subscriptions / automated report delivery	Yes (E-mail, file share, SharePoint doc library, preload a cache)	No
Snapshot reporting	Yes (report execution snapshot to improve performance, or report history snapshot to store report as of a point in time)	No (even a Power Point export from SharePoint retains a live connection so it's not an ideal tool for a point-in-time snapshot)
Pinning of report elements	No	Yes (in Power BI v2 portal, an item on a report can be pinned to one or more dashboard pages)
Support for Analysis Services Multidimensional	Yes (requires a flattened dataset with only two axes)	Yes if data brought into embedded model first (i.e., not direct connect in Power BI V2). Live connectivity supported in Power View for SharePoint
Support for Analysis Services Tabular	Yes	Yes



# Microsoft Power BI

Power BI editions

	SQL Server Reporting Services 	Power BI Report Server 	Power BI Service 
Deployment	On-premises	On-premises	Cloud
Power BI dashboards			✓
Power BI apps			✓
Natural language query (Q&A)			✓
Power BI reports		✓	✓
Paginated reports (RDL)	✓	✓	
Mobile reports (Datazen-based)	✓	✓	
How to buy	SQL Server <sup>[1]</sup>	Power BI/SQL Server <sup>[2]</sup>	Power BI
Feature updates	SQL Server release cycle	Rapid release cycle	Rapid release cycle
Support lifecycle	SQL Server support policy	Modern Lifecycle Policy	Managed service












1. SQL Server Standard or Enterprise.

2. Power BI Premium (or SQL Server Enterprise with Software Assurance) per core + Power BI Pro per report publisher












# Microsoft Power BI

## Power BI Free vs Pro

### FREE

-  Create, View & Share Personal Dashboards & Reports
-  Data Limit 1 GB/User
-  Publish to Web
-  Curated Content Packs
-  Mobile Devices (iOS, Windows, Android)  
Mobile Tablet
-  Ask a question about your data  
Natural Language Query (Q&A)
-  Data Alerts
-  Analyze in Excel
-  Consume streaming data 10K rows/Hour  
CUSTOM STREAMING DATA
-  Export Data
-  Microsoft SQL Server Reporting Services  
Tiles pinned from SSRS

### PRO <sup>1</sup>

-  Data Limit 10 GB/User <sup>1</sup>
-  Control data access with Row Level Security for Users & Groups <sup>1</sup>
-  Consume live data sources (DirectQuery) <sup>1</sup>
-  Consume Content that's scheduled to refresh Hourly (Can schedule 8 refreshes) <sup>1</sup>
-  SharePoint Modern Web Parts <sup>1</sup>
-  Email Subscriptions <sup>1</sup>
-  Consume streaming data 1M rows/Hour <sup>1</sup>  
CUSTOM STREAMING DATA
-  Create, publish & View Organizational Content Packs <sup>1</sup>
-  Access Datasets in Power BI Service <sup>1</sup>
-  Access On-Premise data using Personal or On-Premise Data Gateway <sup>1</sup>
-  Collaborate using Group Workspaces <sup>1</sup>

# Example Scenario

# Microsoft Power BI

## Example scenario

- manager of budgeting
- Company = Contoso
- Sells = electronic products
- Where = worldwide
- Channel = retail shops and a website
- Scenario = David aggregates budget data from country/region managers around the globe
- Target = produce the big picture to show to his boss.

## Report scenario

- Work start = October 2015

## Microsoft Power BI

- Job = 2016 budget
- Data Tool = Microsoft Excel workbook
- Presentation tool = Microsoft PowerPoint
- Where = internal meetings
- New approach = This year, however, David wants to take advantage of the new Power BI service provided by Microsoft

### Topic Scope

- This course = walkthrough with Power BI can help to build a rather sophisticated reporting solution

## Microsoft Power BI

- Out of scope = budget building technique
- In scope = teamwork, data modeling, and reporting
- To do = replicate activities

# Microsoft Power BI

Data file

- Data file = 2015 Sales.xlsx
- Data = sales for the past three years
- Divided = country/region, brand, and month

CountryRegion	Brand	Month	Sale 2013	Sale 2014	Sale 2015
China	A. Datum	January	3,234.00		1,935.00
China	A. Datum	February	6,270.00	7,059.00	
China	A. Datum	March	4,352.00		
China	A. Datum	April	3,814.00		
China	A. Datum	May	6,234.00		
China	A. Datum	June	5,571.00	3,216.00	
China	A. Datum	July	7,424.00		
China	A. Datum	August			800.00

# Microsoft Power BI

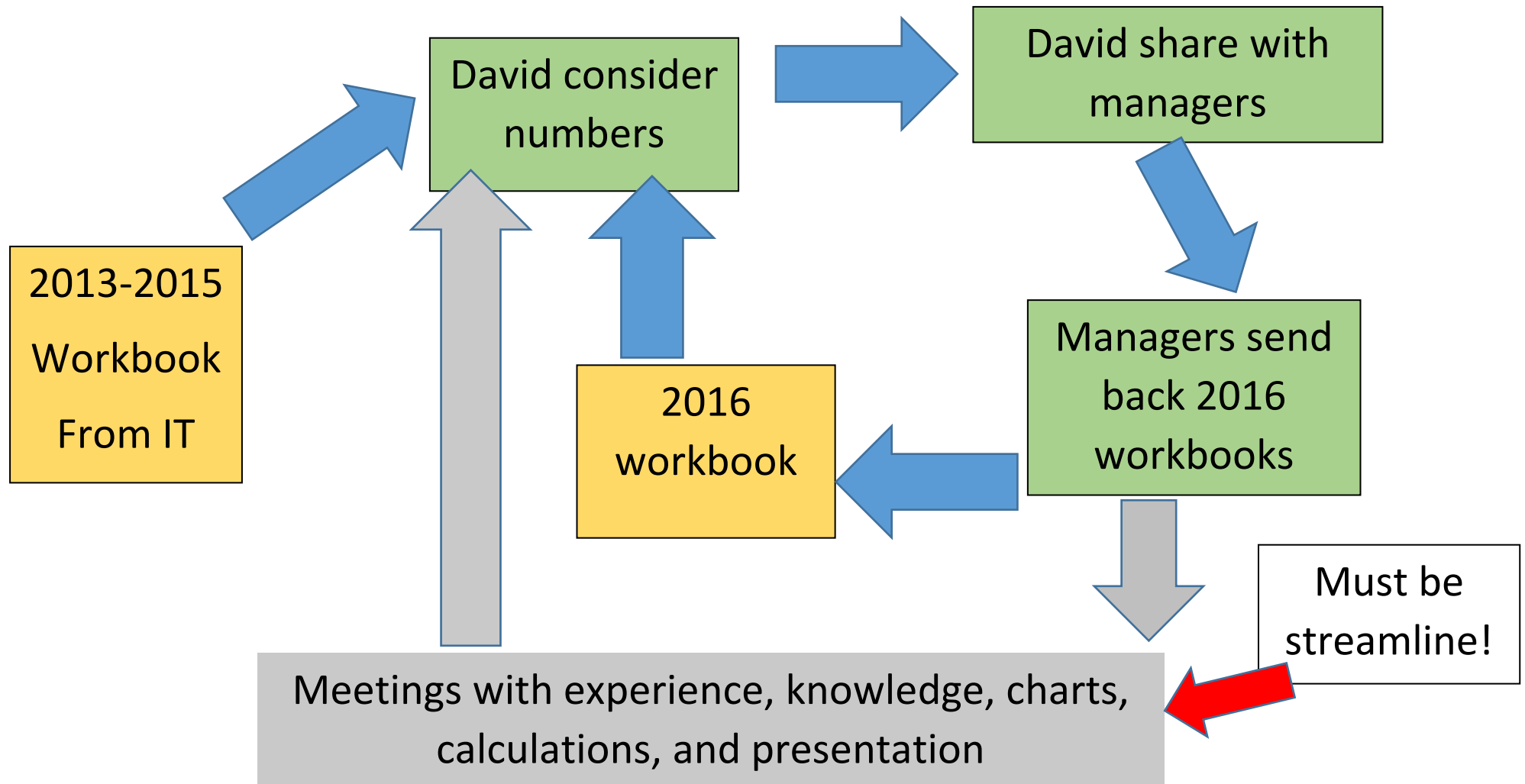
Some brands are prone to seasonal effects

		<u>Adventure Works</u>	<u>Contoso</u>
<u>United States</u>	<u>January</u>	<u>8,459.46</u>	<u>8,506.88</u>
<u>United States</u>	<u>February</u>	<u>11,749.25</u>	<u>5,629.26</u>
<u>United States</u>	<u>March</u>	<u>16,598.22</u>	<u>6,733.86</u>
<u>United States</u>	<u>April</u>	<u>22,067.57</u>	<u>17,433.79</u>
<u>United States</u>	<u>May</u>	<u>9,869.37</u>	<u>7,133.14</u>
<u>United States</u>	<u>June</u>	<u>10,757.16</u>	<u>5,356.89</u>
<u>United States</u>	<u>July</u>	<u>9,869.37</u>	<u>4,770.20</u>
<u>United States</u>	<u>August</u>	<u>939.94</u>	<u>15,159.15</u>
<u>United States</u>	<u>September</u>	<u>3,759.76</u>	<u>6,232.99</u>
<u>United States</u>	<u>October</u>		<u>18,206.65</u>
<u>United States</u>	<u>November</u>	<u>4,699.70</u>	<u>8,218.20</u>
<u>United States</u>	<u>December</u>	<u>19,734.89</u>	<u>42,184.42</u>



# Microsoft Power BI

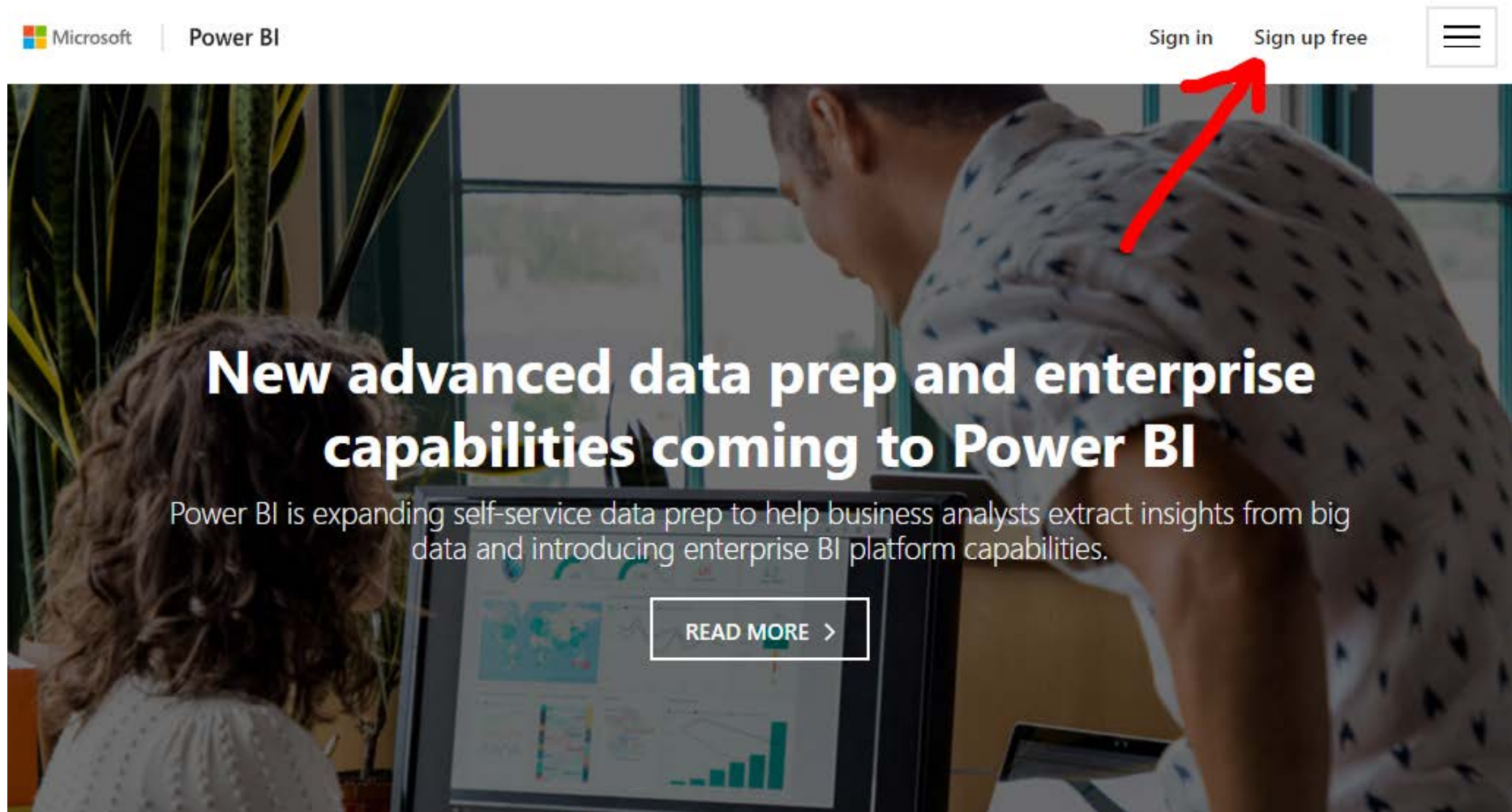
Budget plan's Workflow



# Setting up Power BI

# Microsoft Power BI

Go to Microsoft Power BI home page  
<https://powerbi.microsoft.com/en-us/>



# Microsoft Power BI



## Getting started with Power BI Desktop

Less data prep, more data wow

Visually explore your data with a freeform drag-and-drop canvas, modern data visualizations, and simple report authoring.

DOWNLOAD FREE >



Start sharing your data visualizations and insights

### POWER BI

## Cloud collaboration and sharing

Use Power BI Pro to share and distribute reports with others, without any complicated setup. Get started now with a free 60-day trial of Power BI Pro.

TRY FREE >

### POWER BI REPORT SERVER

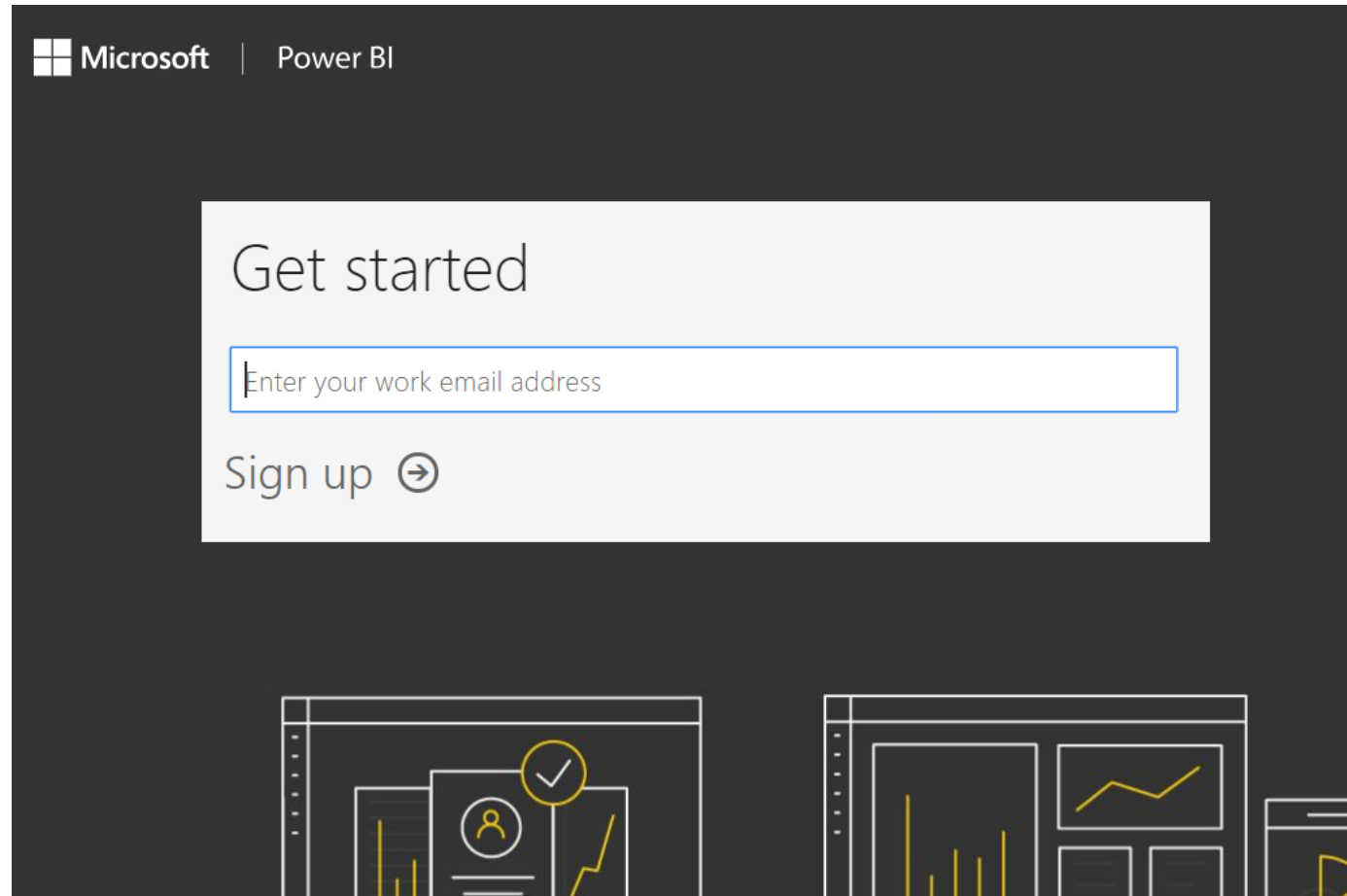
## On-premises report deployment

Deploy and distribute interactive Power BI reports—and traditional paginated reports—within the boundaries of your organization's firewall.

LEARN MORE >

# Microsoft Power BI

## Sign up using Cooperate or Academic email



Microsoft | Power BI

### Get started

Sign up →

# Microsoft Power BI

## Get Data

Need more guidance? [Try this tutorial](#) or [watch a video](#)

### Discover content

#### My organization

Discover apps published by other people in your organization.

Get

#### Services

Choose apps from online services that you use.

Get

### Create new content

#### Files

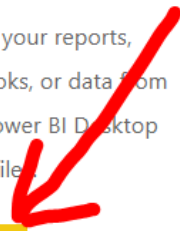
Bring in your reports, workbooks, or data from Excel, Power BI Desktop or CSV file.

Get

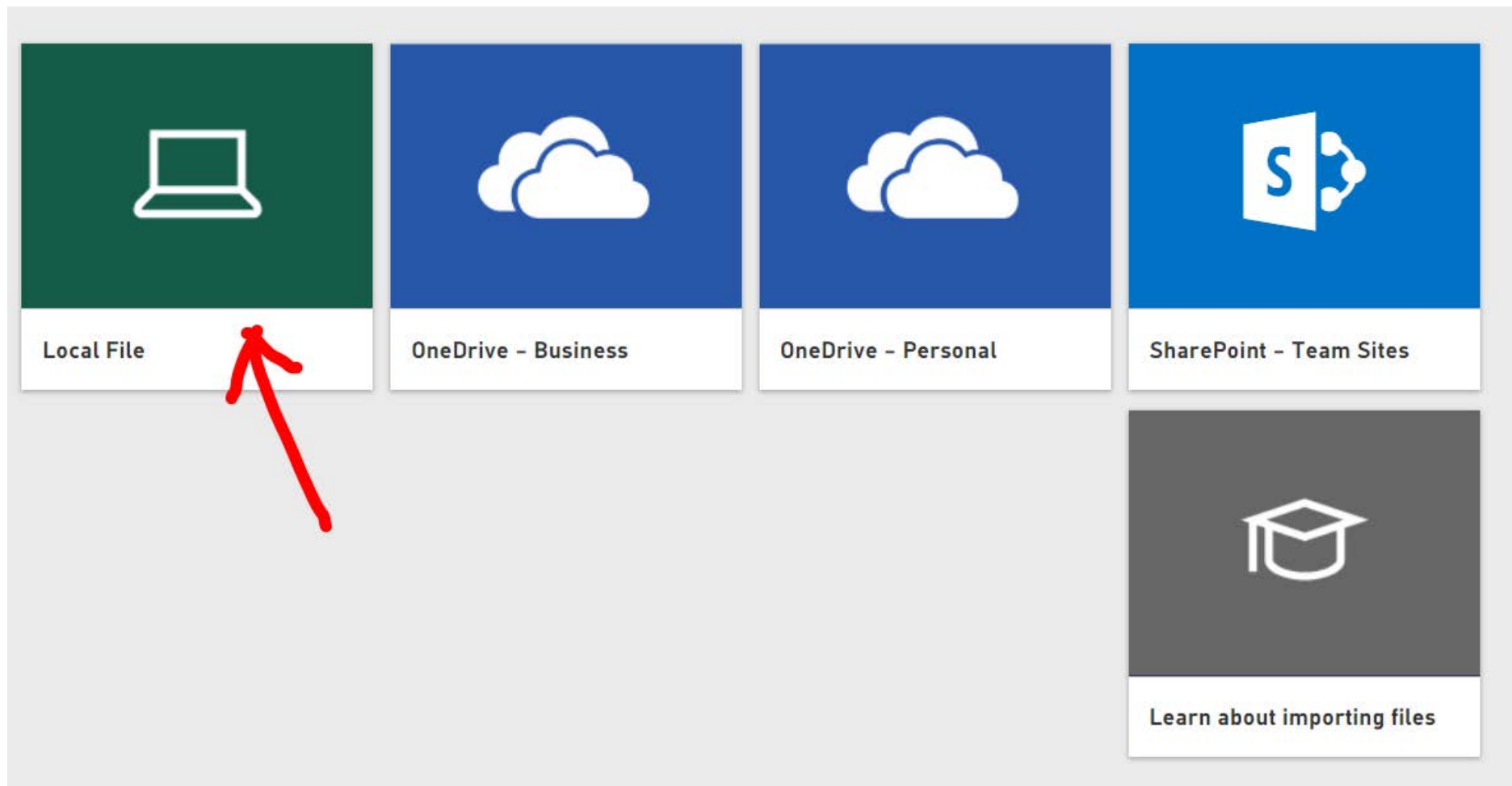
#### Databases

Use Power BI Desktop to connect to data in Azure SQL Database and more.

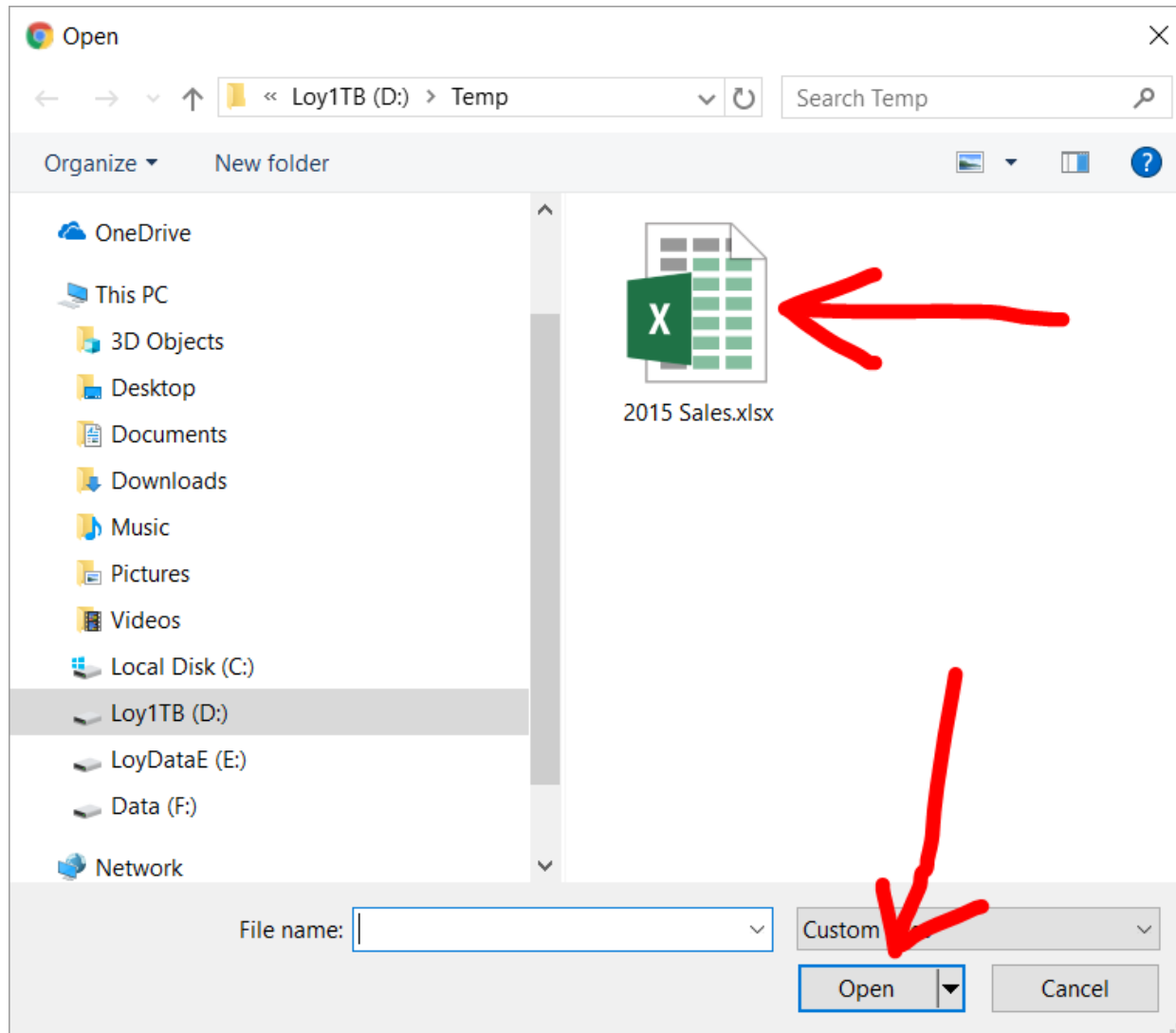
Get



# Microsoft Power BI



# Microsoft Power BI





# Microsoft Power BI

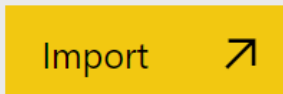
## Local File

Choose how to connect to your Excel workbook

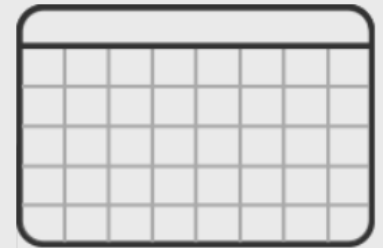


### Import Excel data into Power BI

Connect to the data in your workbook so you can create Power BI reports and dashboards for it.



or



### Upload your Excel file to Power BI

Bring your Excel file into Power BI to view and interact with it just as you would in Excel Online. Pin ranges to dashboards.



# Supplier Quality Analysis sample

# Microsoft Power BI

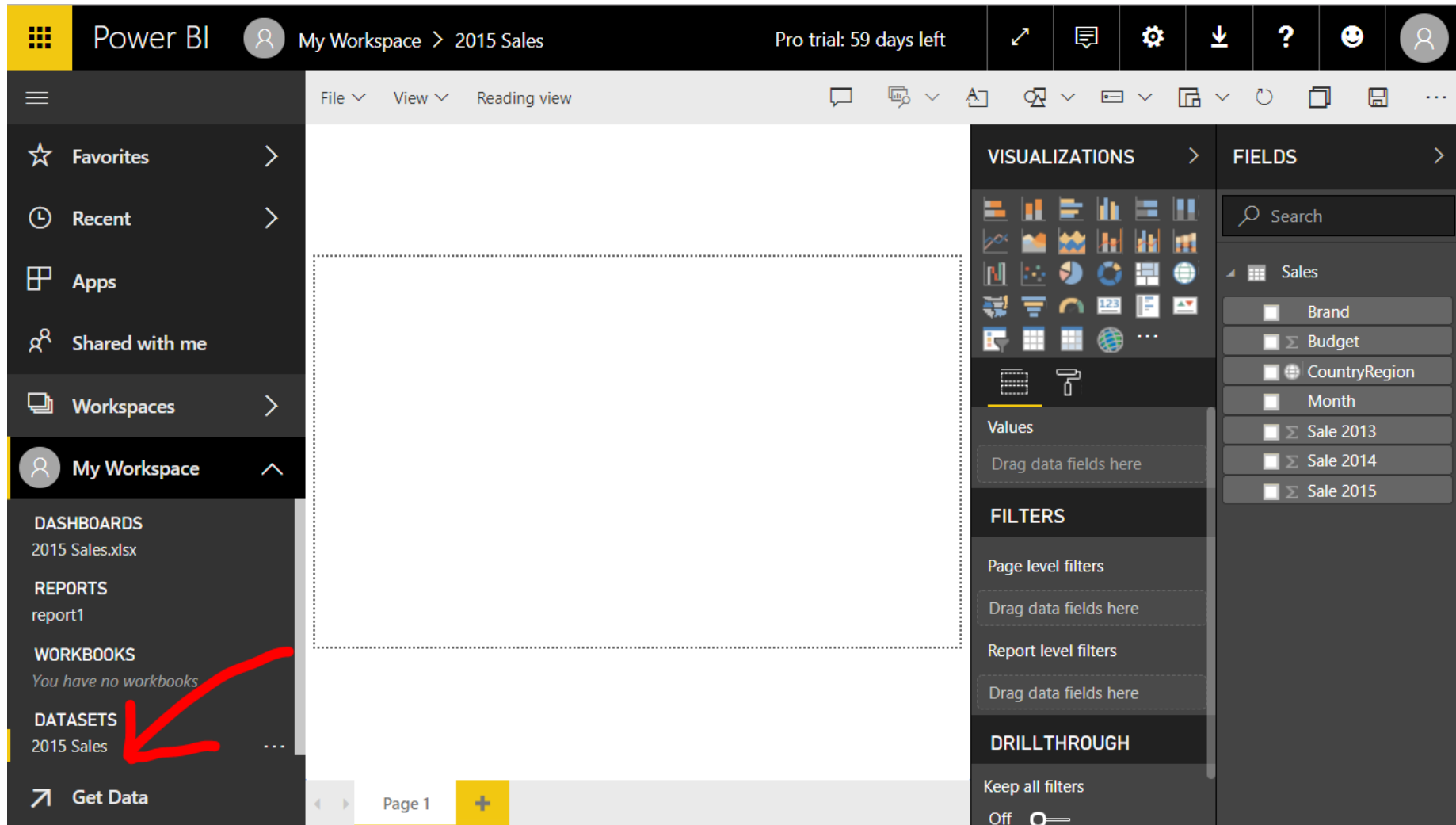
## Supplier Quality Analysis

- Understand who the best and worst suppliers are, with respect to quality
- Identify which plants do a better job finding and rejecting defects, to minimize downtime

Vendor	Plant	Material Type	Defect Type	Defect	Date	Category
acequote	Detriot, MI	Raw Materials	Impact	Misc	7/17/2014 12:00:00 AM	Packaging
Alphadax	Skokie, IL	Film	Impact	Foreign Material	4/12/2014 12:00:00 AM	Mechanicals
Alphadax	Skokie, IL	Film	Impact	Incorrect Material	4/1/2014 12:00:00 AM	Mechanicals
Alphadax	Skokie, IL	Film	Impact	Splice	6/18/2014 12:00:00 AM	Mechanicals
Anmedia	Gary, IN	Raw Materials	Rejected	Misc	7/3/2013 12:00:00 AM	Mechanicals
Anzammedia	Monon, IN	Raw Materials	Rejected	Dimensions Wrong	4/20/2014 12:00:00 AM	Goods & Services
Anzammedia	Monon, IN	Raw Materials	No Impact	Not Certified	11/16/2014 12:00:00 AM	Goods & Services
Aptaxon	Chicago, IL	Corrugate	No Impact	Corrugate Falling Apart	10/28/2014 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	Rejected	Foreign Material	3/6/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	Rejected	Foreign Material	11/6/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	Rejected	Foreign Material	2/14/2014 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Damaged Secondary Packaging	4/24/2014 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Foreign Material	2/6/2014 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Incorrect Labeling	3/21/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Incorrect Labeling	4/3/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Incorrect Labeling	11/21/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	Incorrect Labeling	12/3/2013 12:00:00 AM	Materials & Components
Aptaxon	Chicago, IL	Raw Materials	No Impact	No Slip Sheets	2/2/2013 12:00:00 AM	Materials & Components

# Microsoft Power BI

## Get Data



# Microsoft Power BI Sample

The screenshot displays the Microsoft Power BI interface, divided into two main sections: "Discover content" and "Create new".

**Discover content**

- My organization**: Discover apps published by other people in your organization. A yellow "Get" button is located at the bottom of this card.
- Services**: Choose apps from online services that you use. A yellow "Get" button is located at the bottom of this card.

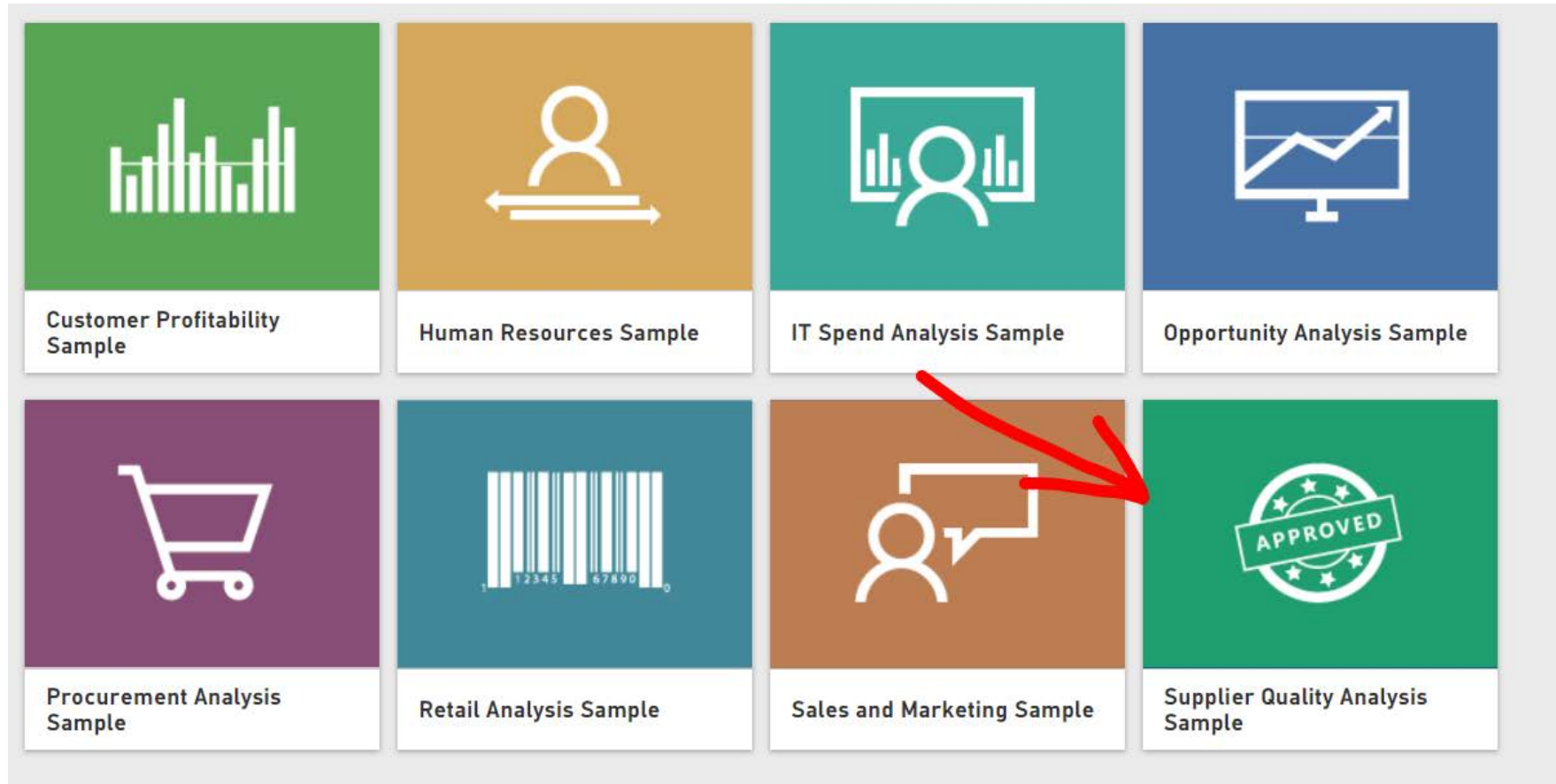
**Create new**

- Files**: Bring in your reports, workbooks, or data from Excel, Power BI Desktop, or CSV files. A yellow "Get" button is located at the bottom of this card.

Below these cards, a red arrow points to the text "More ways to create your own content". Underneath this text are five blue hyperlinks:

- [Samples](#)
- [Organizational Content Packs](#)
- [Solution Templates](#)
- [Service Content Packs](#)
- [Partner Showcase](#)

# Microsoft Power BI Supplier Quality Analysis Sample



# Microsoft Power BI

## Connect

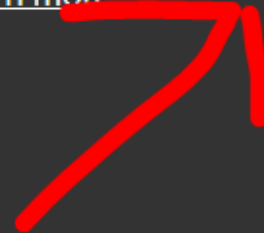
### Supplier Quality Analysis Sample

This industry sample dashboard and underlying report focus on one of the typical supply chain challenges — supplier quality analysis. Two primary metrics are at play in this analysis: total number of defects and the total downtime that these defects caused. This sample has two main objectives. The first is to understand who the best and worst suppliers are, with respect to quality. The second is to identify

Connect



Learn more



# Microsoft Power BI

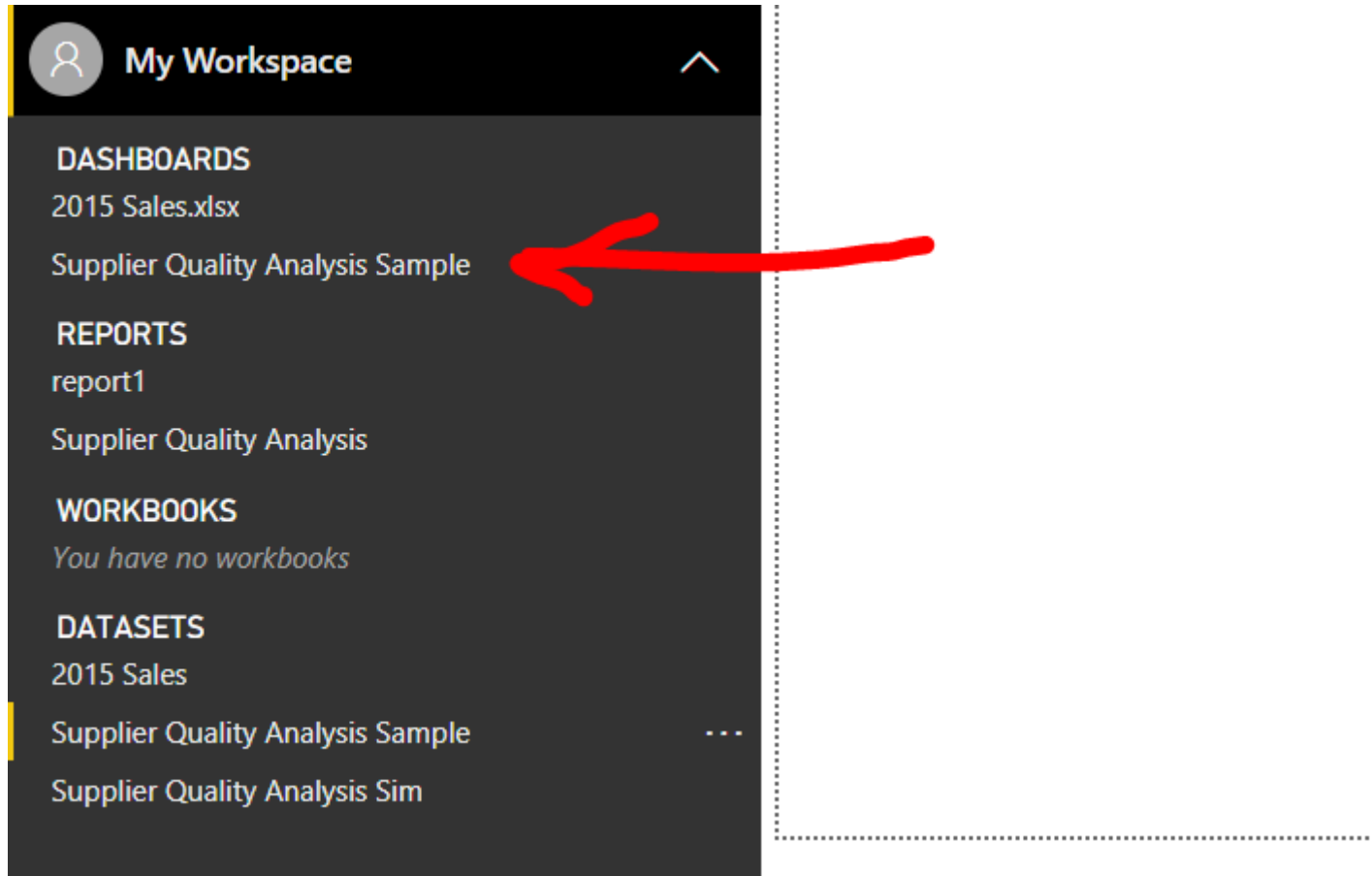
## Successfully connected

The screenshot displays the Microsoft Power BI interface. On the left is a dark sidebar menu titled "My Workspace" with a user icon. The menu is organized into sections: "DASHBOARDS" (containing "2015 Sales.xlsx" and "Supplier Quality Analysis Sample"), "REPORTS" (containing "report1" and "Supplier Quality Analysis"), "WORKBOOKS" (with the message "You have no workbooks"), and "DATASETS" (containing "2015 Sales" and "Supplier Quality Analysis Sample"). A red arrow points from the "Supplier Quality Analysis Sample" dataset in the sidebar to a data table on the right. The table has three columns: "Supplier", "Location", and "Material".

Anzammedia	Monon, IN	Raw Materials
Anzammedia	Monon, IN	Raw Materials
Aptaxon	Chicago, IL	Corrugate
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
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Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials
Aptaxon	Chicago, IL	Raw Materials



# Microsoft Power BI View Dashboard



# Microsoft Power BI

## Click Total Defect Quantity

+ Add tile Usage metrics View related Set as featured Favorite Subscribe Share

Ask a question about your data

Total Defect Quantity

33M

Total Downtime Minutes

77K

Total Defect Qty  
WITH NO IMPACT

17M

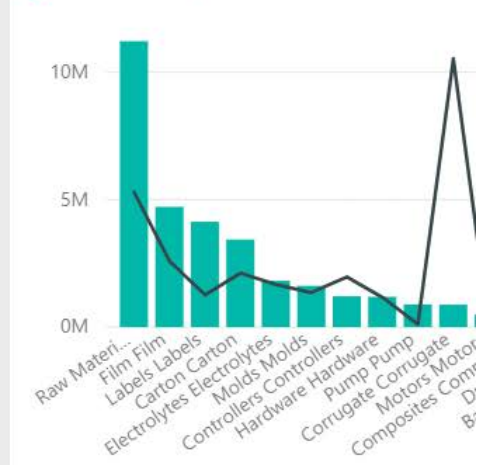
Total Defect Reports  
BY PLANT, DEFECT TYPE

Defect Type Rejected Impact No Impact



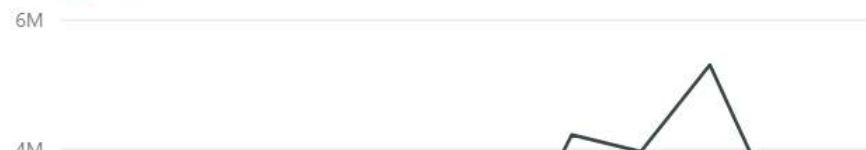
Total Defect Qty, Total Downtime Minu  
BY MATERIAL TYPE

Total Defect Qty Total Downtime Minutes



Total Defect Quantity  
BY MONTH, YEAR

Year 2013 2014



Total Defect: Reports, Quantity, Downti  
BY CATEGORY

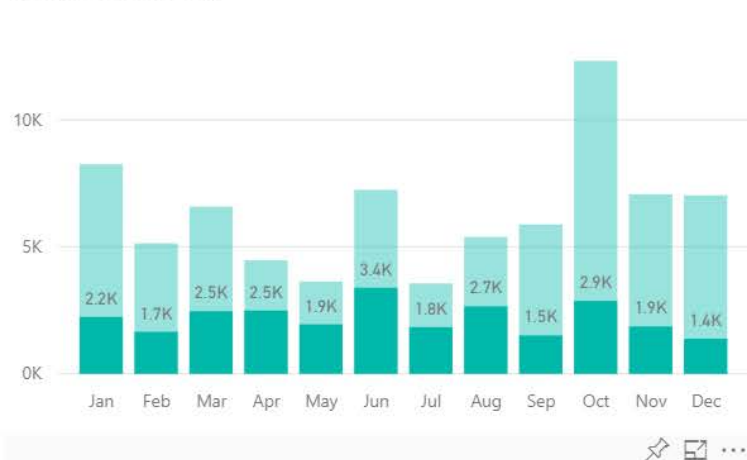
Category Electrical Goods & Services Logistic



# Microsoft Power BI

## View Downtime caused by defective materials

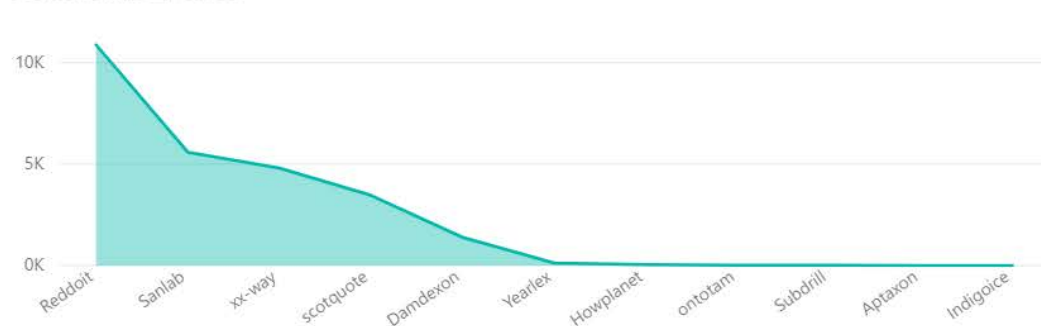
Monthly Downtime (min)



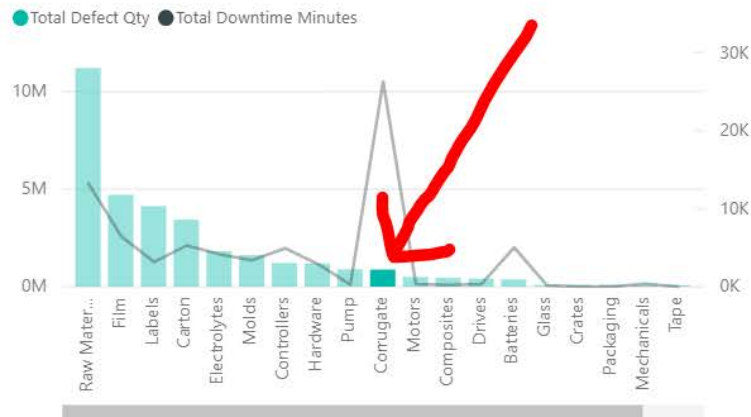
### Downtime

880K Total Defect Qty  
26K Total Downtime Minutes

Downtime (min) by Vendor



Defects and Downtime (min) by Material Type



Downtime (min) by Plant



Supplier Quality | Top Bottom Analysis | Downtime Analysis

# Introducing Quick Insights

# Microsoft Power BI

## Introducing Quick Insights

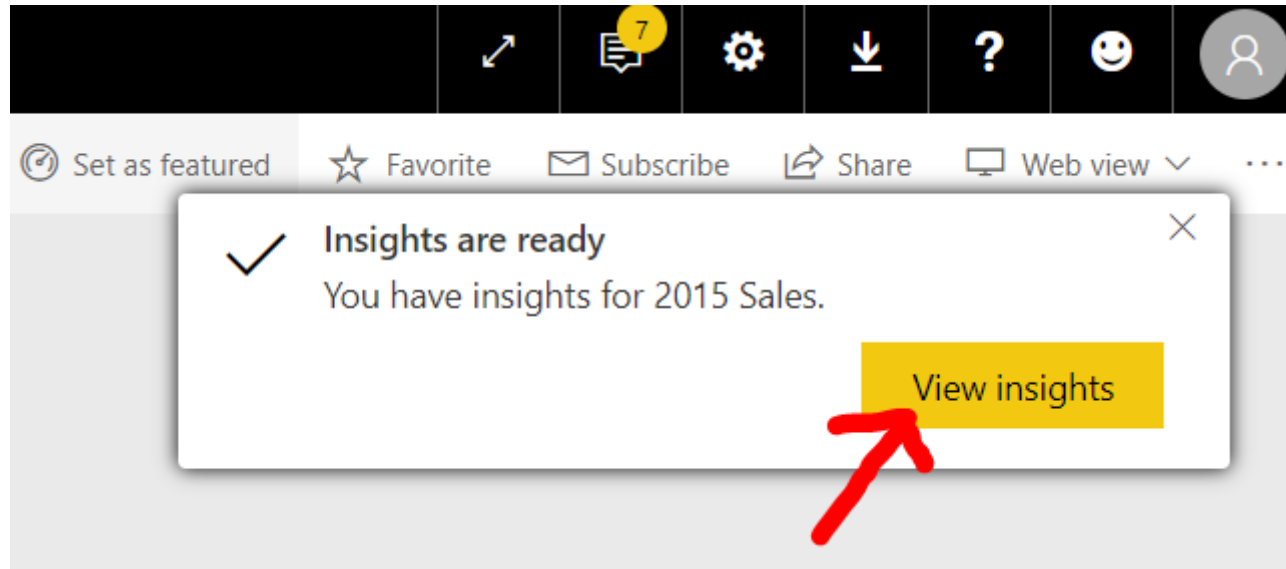
The screenshot displays the Microsoft Power BI interface. At the top, the header shows 'Power BI' and 'My Workspace'. The left sidebar contains navigation options: Favorites, Recent, Apps, Shared with me, Workspaces, and My Workspace. The main area shows a search bar with 'show' and tabs for Dashboards, Reports, Workbooks, and Datasets. A context menu is open for the '2015 Sales' dataset, displaying the following information:

- 2015 Sales** (with a close button)
- LAST REFRESH SUCCEEDED:
- Fri Aug 10 2018 04:14:19 GMT+0700 (Indochina Time)
- Refresh schedule is not enabled.
- Actions: RENAME, REMOVE, SCHEDULE REFRESH, REFRESH NOW, ANALYZE IN EXCEL, and QUICK INSIGHTS.

Red arrows point to the '2015 Sales' dataset in the left sidebar and the 'QUICK INSIGHTS' option in the context menu.

# Microsoft Power BI

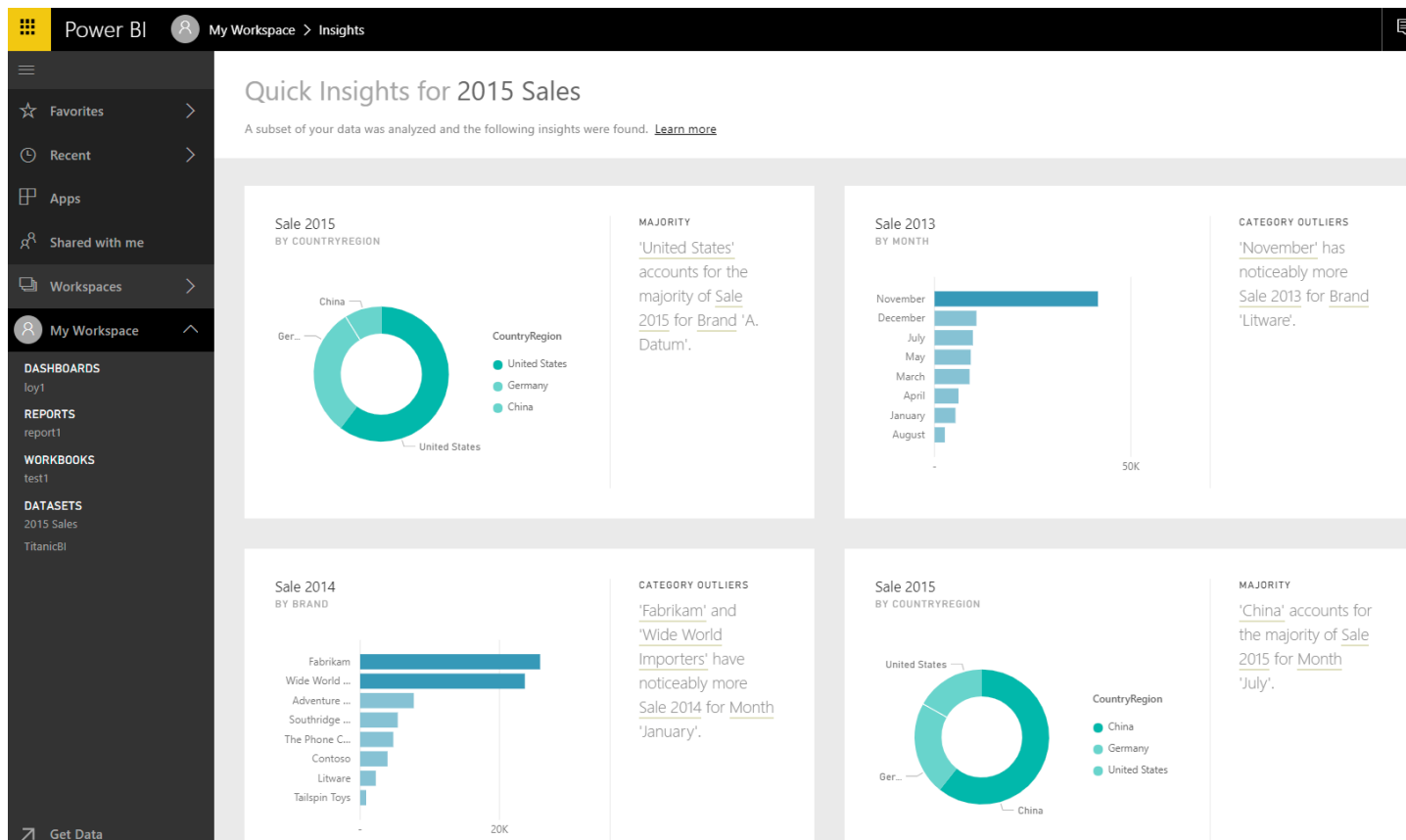
## Insights are ready



# Microsoft Power BI

## What is insight?

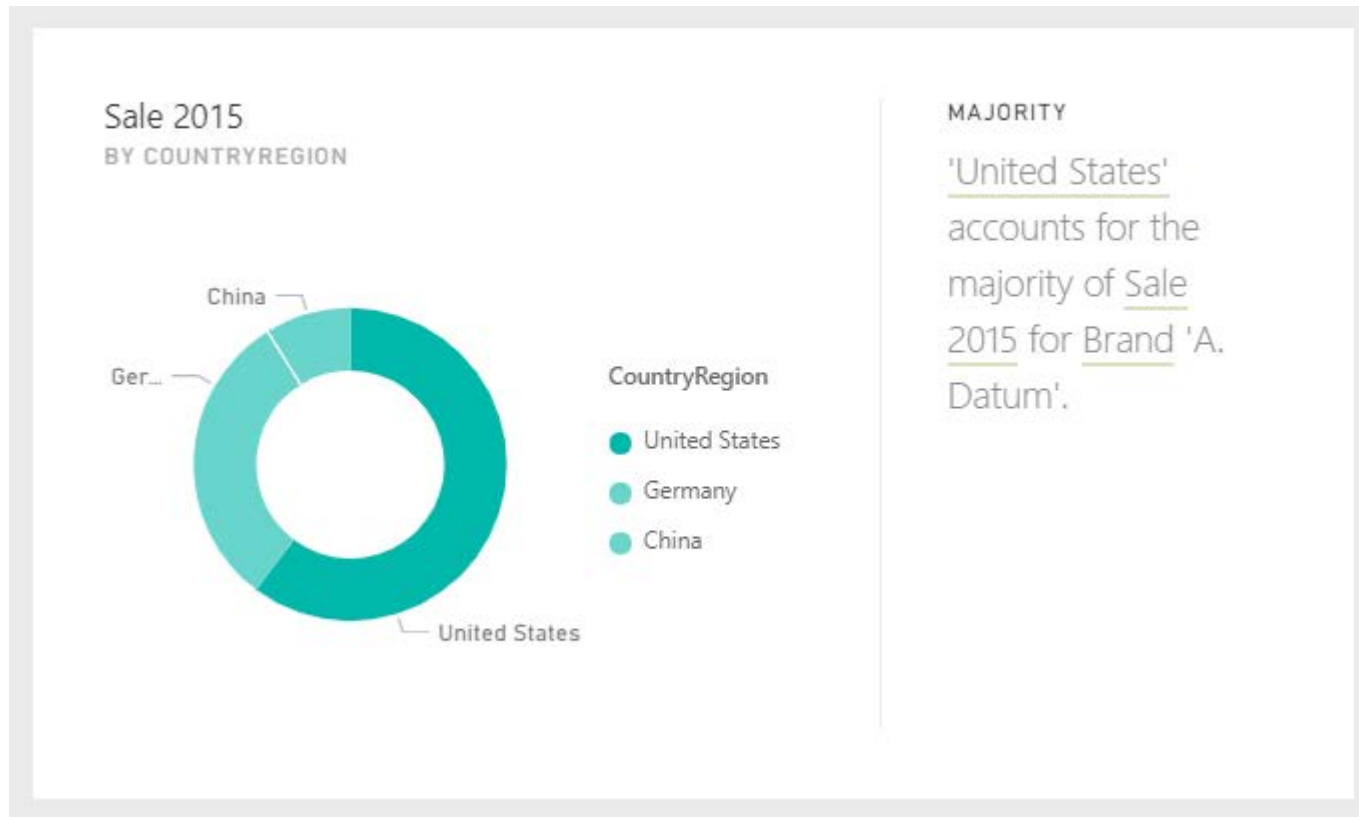
- Use artificial intelligence to analyze your data
- Searching for some useful or interesting patterns
- Very sophisticated algorithms



# Microsoft Power BI

The first insight shows

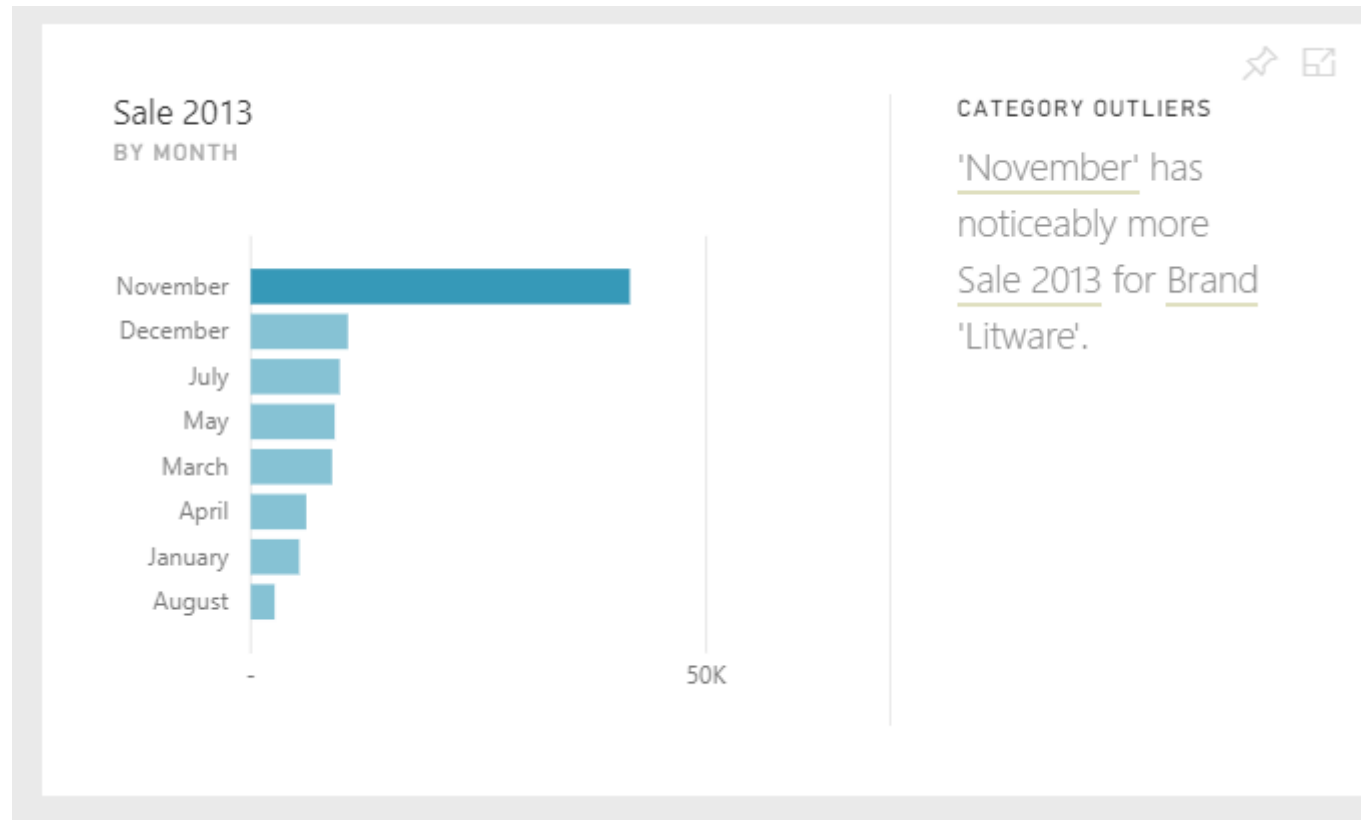
United States accounts for most of the sales of the A. Datum brand  
Compared with China and Germany





# Microsoft Power BI

The second insight reveals a substantial seasonal-effect increase in sales for the month of November 2013 for Litware

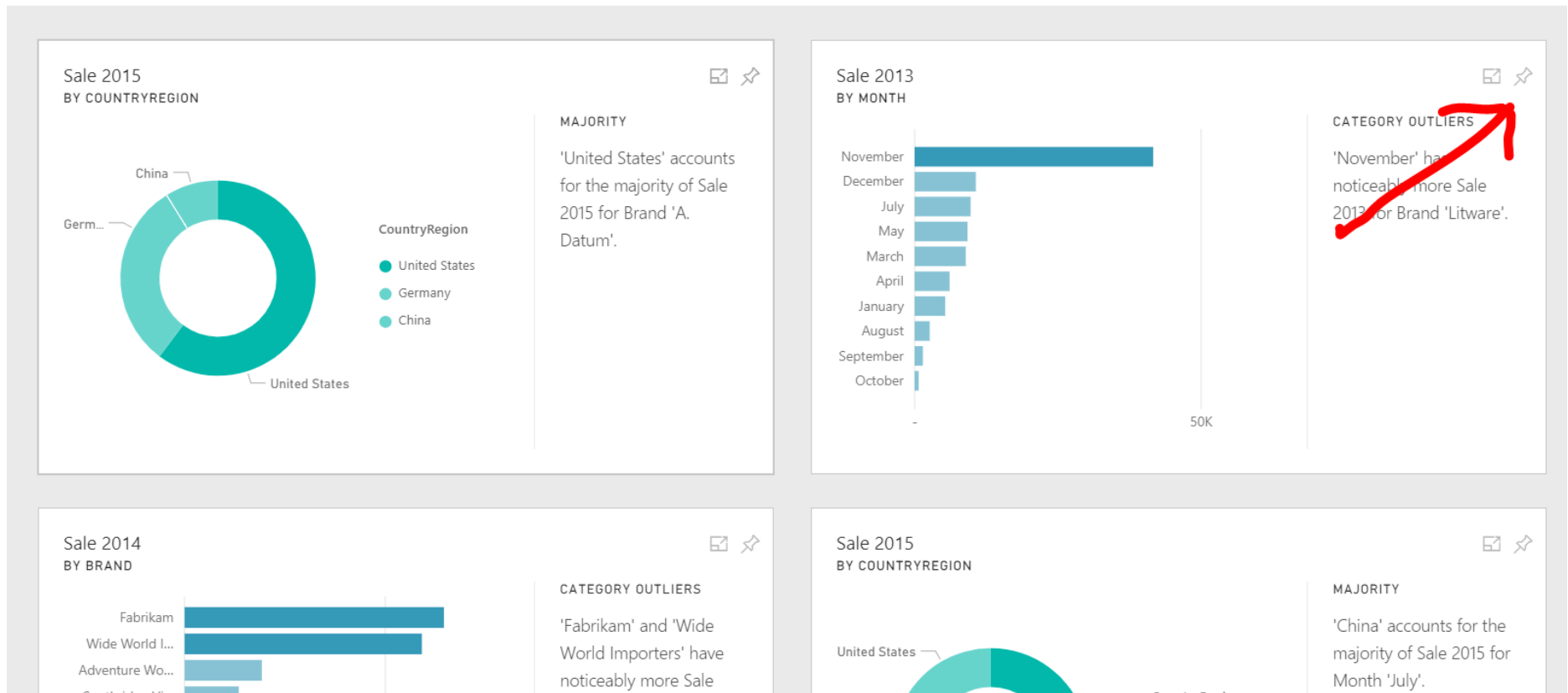


# Microsoft Power BI

## Pin Sale 2013 by month to dashboard

### Quick Insights for 2015 Sales

A subset of your data was analyzed and the following insights were found. [Learn more](#)



# Microsoft Power BI

## Click Pin

Sale 2013  
BY MONTH

Month	Sales (K)
November	~45
December	~10

Pin to dashboard

Select an existing dashboard or create a new one.

Where would you like to pin to?

Existing dashboard

New dashboard

2015 Sales.xlsx

Pin Cancel

# Microsoft Power BI

## Click DASHBOARDS

The screenshot shows the Microsoft Power BI interface. The top navigation bar includes the Power BI logo, a user profile icon, and the text "My Workspace > 2015 Sales.xlsx". The left sidebar menu is expanded, showing categories: Favorites, Recent, Apps, Shared with me, Workspaces, My Workspace, DASHBOARDS (with a red arrow pointing to "2015 Sales.xlsx"), REPORTS (with the note "You have no reports"), WORKBOOKS (with the note "You have no workbooks"), and DATASETS (with "2015 Sales"). The main content area features a search bar "Ask a question about your data" and a dashboard titled "2015 Sales.xlsx" containing a bar chart "Sale 2013 BY MONTH". The chart shows sales by month, with November having the highest sales (around 42K) and February the lowest (around 1K). A red arrow points to the bottom of the chart area.

Month	Sales (K)
November	42
December	11
July	10
May	9
March	9
April	7
January	6
August	3
September	2
October	1
February	1

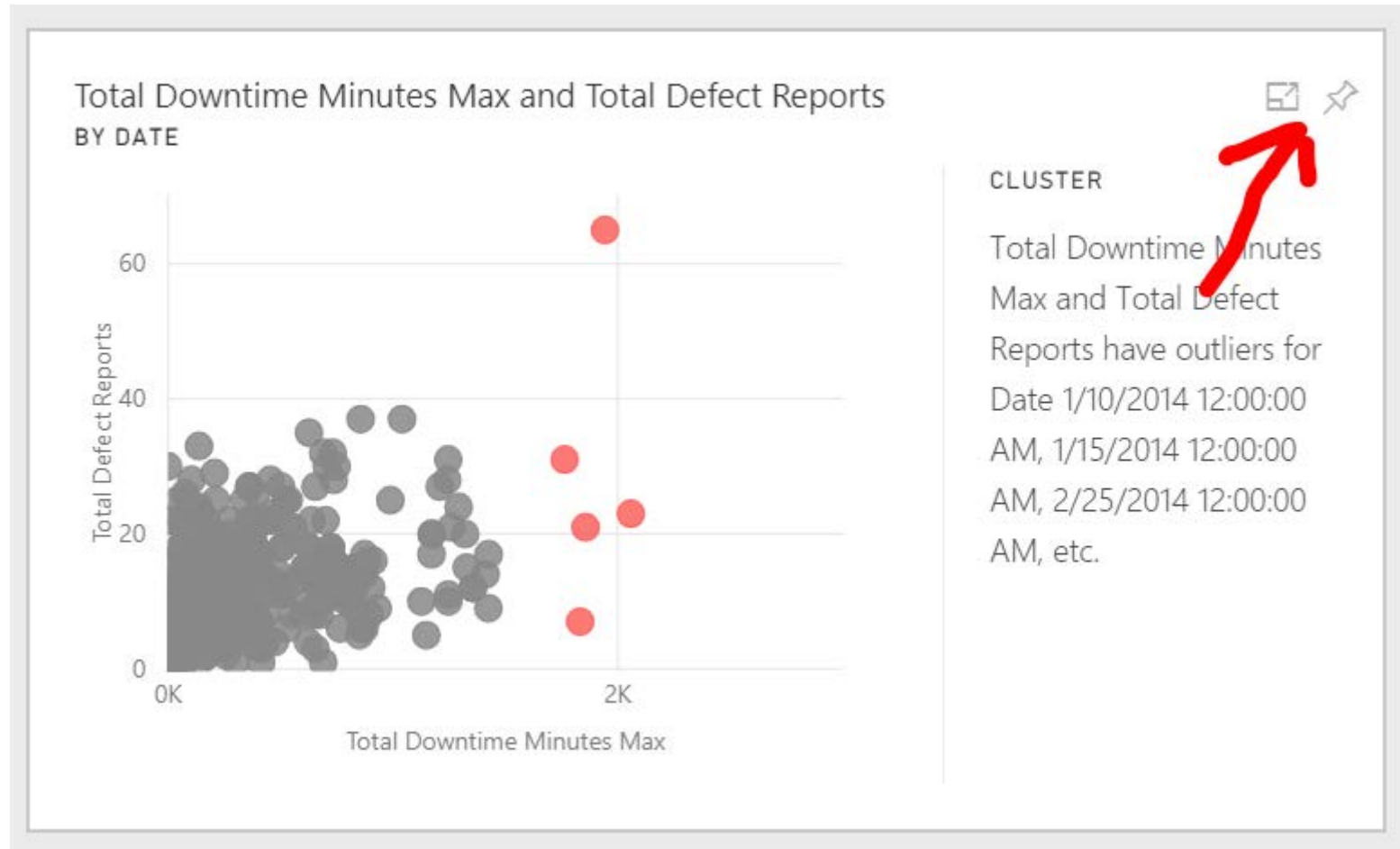
# Microsoft Power BI

## Get Quick Insights from Supplier Quality Analysis sample

The screenshot displays the Microsoft Power BI 'My Workspace' interface. On the left, a dark sidebar lists categories: DASHBOARDS (2015 Sales.xlsx, Supplier Quality Analysis Sample), REPORTS (report1, Supplier Quality Analysis), WORKBOOKS (You have no workbooks), and DATASETS (2015 Sales, Supplier Quality Analysis Sample). A red arrow points to the 'Supplier Quality Analysis Sample' dataset. On the right, a context menu is open for this dataset, showing options: RENAME, REMOVE, SCHEDULE REFRESH, REFRESH NOW, ANALYZE IN EXCEL, and QUICK INSIGHTS. A second red arrow points to the 'QUICK INSIGHTS' option. The menu also displays refresh status: 'LAST REFRESH SUCCEEDED: Sat Aug 11 2018 15:44:24 GMT+0700 (Indochina Time)' and 'Refresh schedule is not enabled.' A 'Get Data' button is visible at the bottom of the sidebar.

# Microsoft Power BI

## Pin insight to new dashboard



# Microsoft Power BI

## Create New dashboard

OK 50K

DOWN

Total Downtime Minutes Max and Total Downtime Minutes  
BY DATE

Total Def...  
50  
0  
0K 2K

Total Downtime Minutes Max

Pin to dashboard

Select an existing dashboard or create a new one.

Where would you like to pin to?

Existing dashboard

New dashboard

Total Downtime

Pin Cancel

< 2K

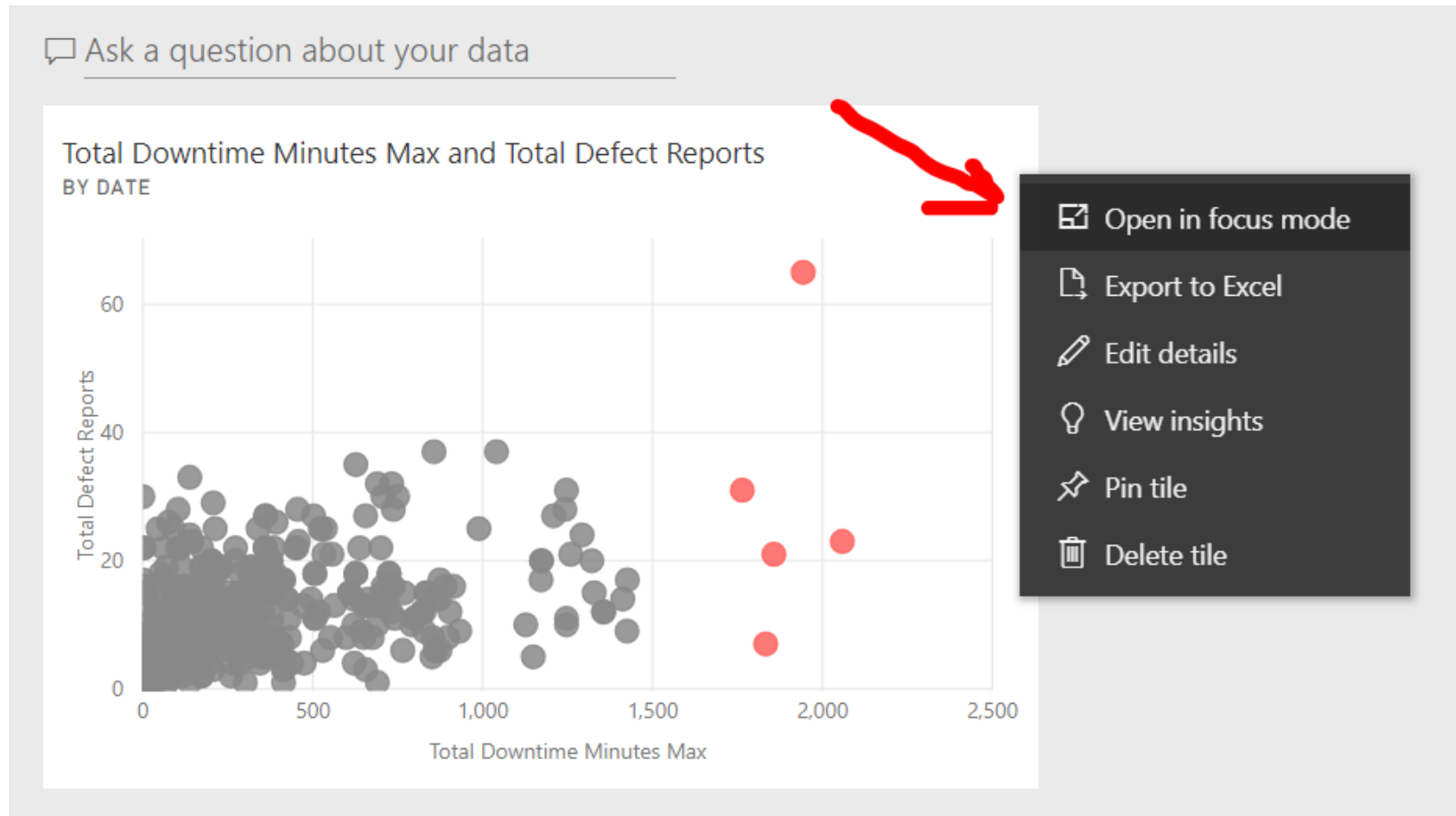
# Microsoft Power BI

## Click Total Downtime dashboard

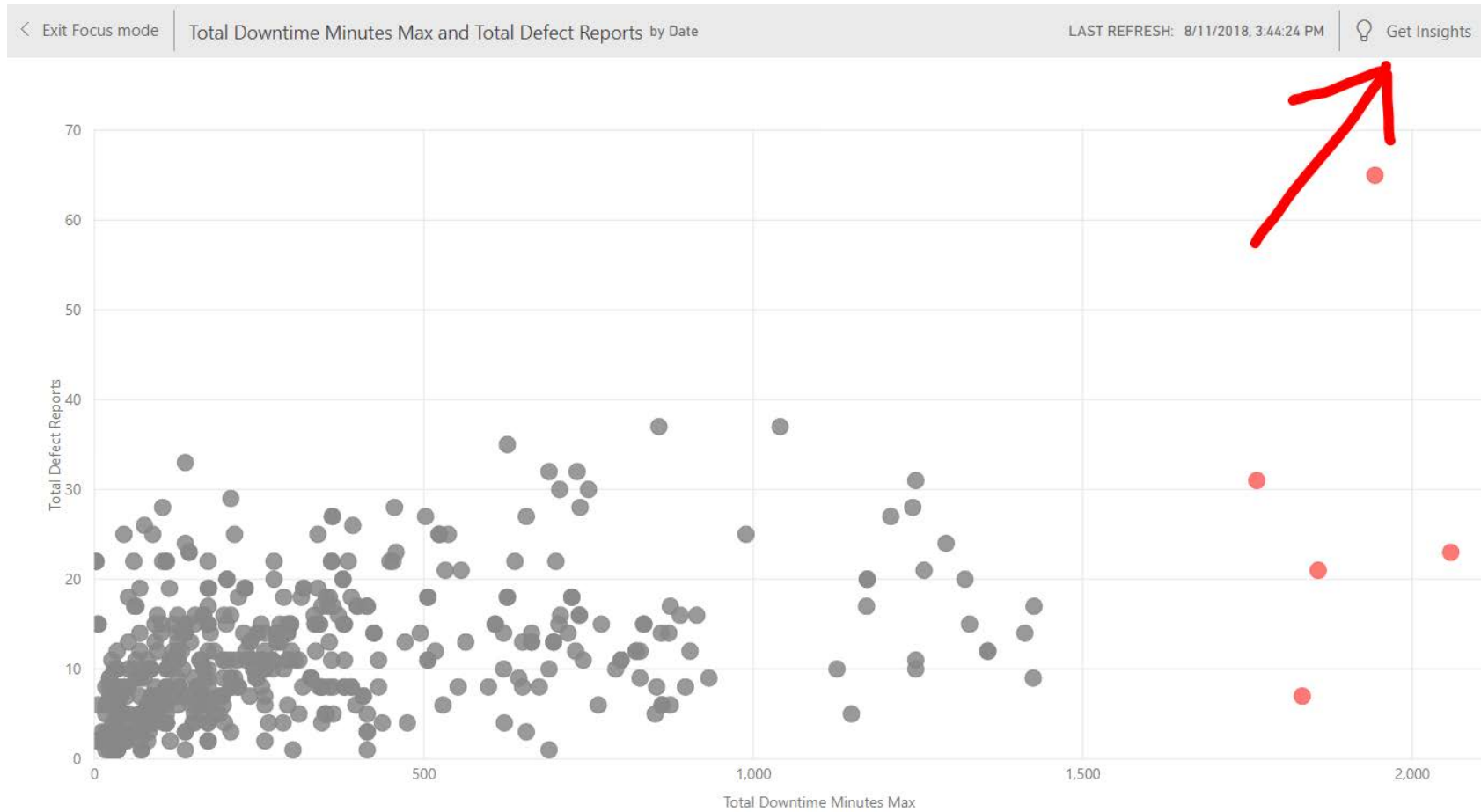
The screenshot shows the Microsoft Power BI interface. The top navigation bar includes the Power BI logo, the text 'Power BI', and a user profile icon with 'My Workspace > Insights'. The left-hand navigation pane is expanded to show 'My Workspace', which contains sections for 'DASHBOARDS', 'REPORTS', and 'WORKBOOKS'. Under 'DASHBOARDS', the item 'Total Downtime' is highlighted with a red arrow. The main content area displays a dashboard titled 'Quick Insights for Supplier Quality Analysis'. Below the title, there is a subtitle: 'A subset of your data was analyzed and the following insights were found. [Learn more](#)'. The dashboard features a horizontal bar chart at the top with markers for '0K' and '50K'. Below this is a scatter plot titled 'Total Downtime Minutes Max and Total Defect Reports BY DATE'. The scatter plot has 'Total Defect Reports' on the y-axis (ranging from 0 to 60) and 'Total Downtime Minutes Max' on the x-axis (ranging from 0K to 2K). Most data points are grey, but several are highlighted in red. To the right of the scatter plot, there is a 'CLUSTER' section with text: 'Total Downtime Max and Total Defect Reports by Date 1/10, 1/15, 2/25, etc.'



# Microsoft Power BI Open in focus mode



# Microsoft Power BI Get Scoped Insights



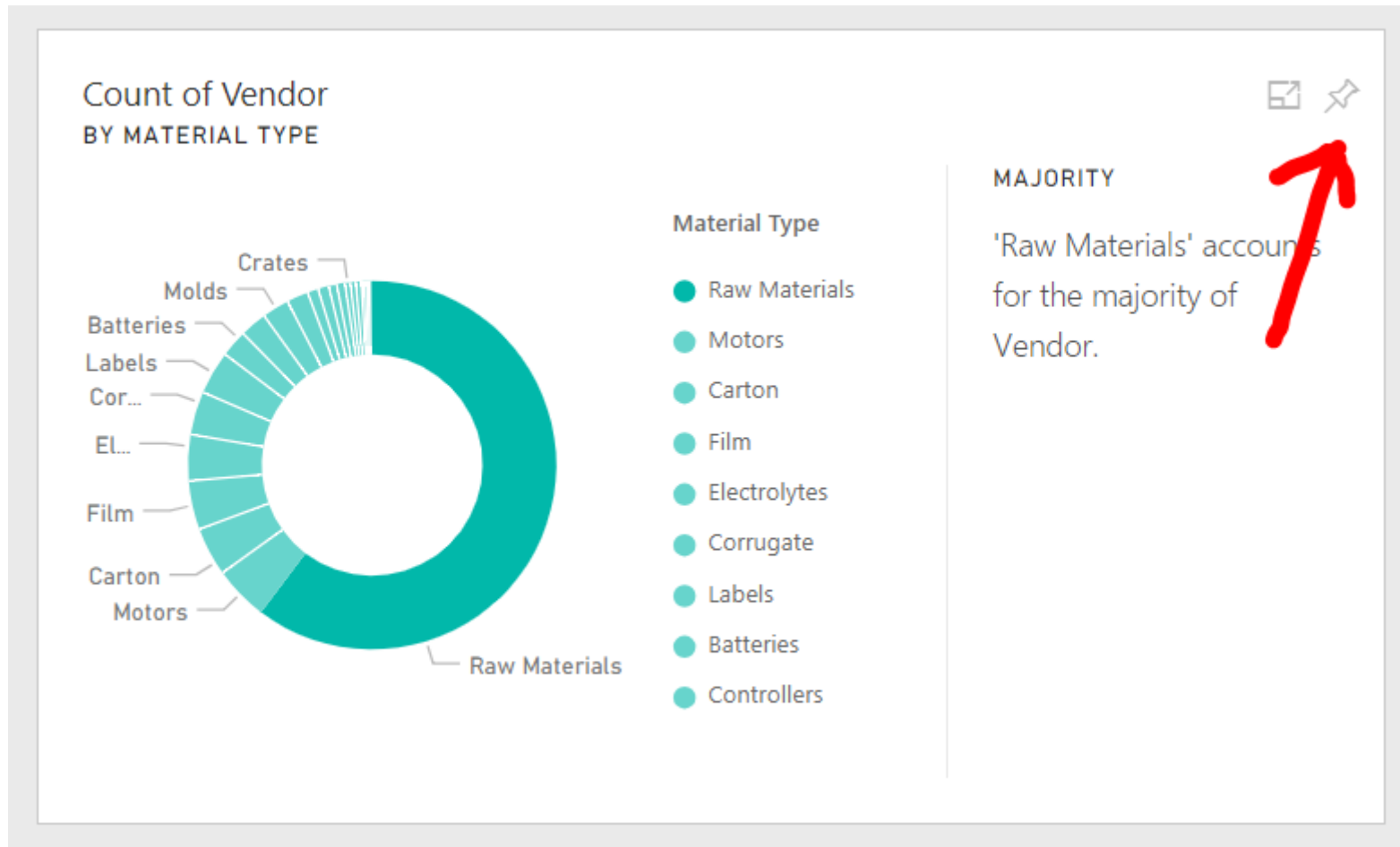
# Microsoft Power BI

## Pin More Quick insight

The screenshot displays the Microsoft Power BI 'My Workspace' interface. On the left, a dark sidebar lists categories: DASHBOARDS (2015 Sales.xlsx, Supplier Quality Analysis Sample, Total Downtime), REPORTS (report1, Supplier Quality Analysis), WORKBOOKS (You have no workbooks), and DATASETS (2015 Sales, Supplier Quality Analysis Sample). A red arrow points to the three-dot menu icon next to 'Supplier Quality Analysis Sample' in the DATASETS section. A context menu is open over this item, titled 'Supplier Quality Analysis Sa...'. The menu contains the following items: 'LAST REFRESH SUCCEEDED:' (with a timestamp: Sat Aug 11 2018 15:44:24 GMT+0700 (Indochina Time)), 'Refresh schedule is not enabled.', 'RENAME', 'REMOVE', 'SCHEDULE REFRESH', 'REFRESH NOW', 'ANALYZE IN EXCEL', and 'VIEW INSIGHTS'. A second red arrow points to the 'VIEW INSIGHTS' option. The background shows a blurred report with a chart and the text 'Total Defec' and '1,500 minutes Ma'.

# Microsoft Power BI

## Pin Count of vendor by material type



# Microsoft Power BI

## Pin to Total Downtime

Count of Vendor  
BY MATERIAL TYPE

Material T...

- Raw Ma...
- Motors
- Carton

Where would you like to pin to?

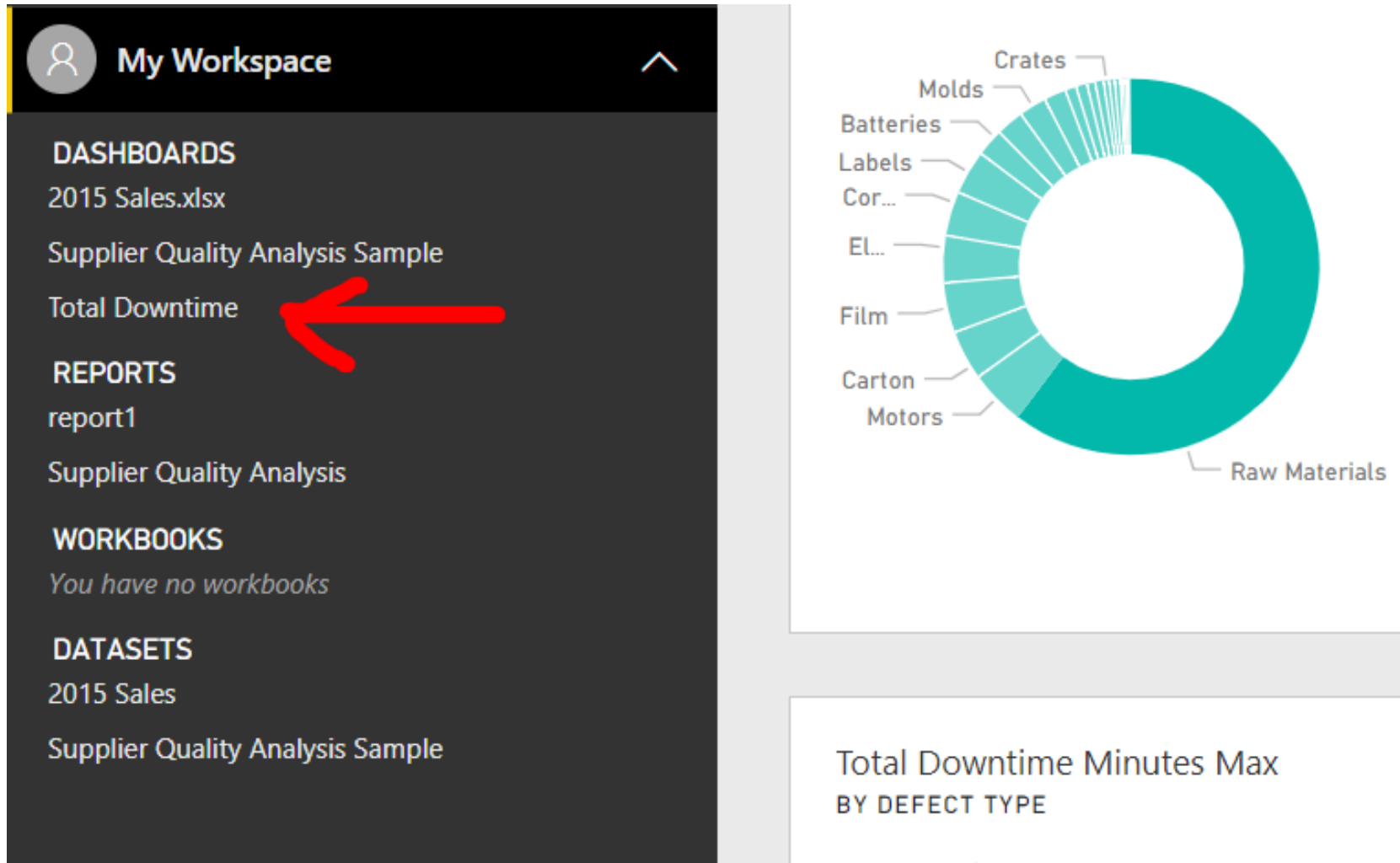
Existing dashboard

New dashboard

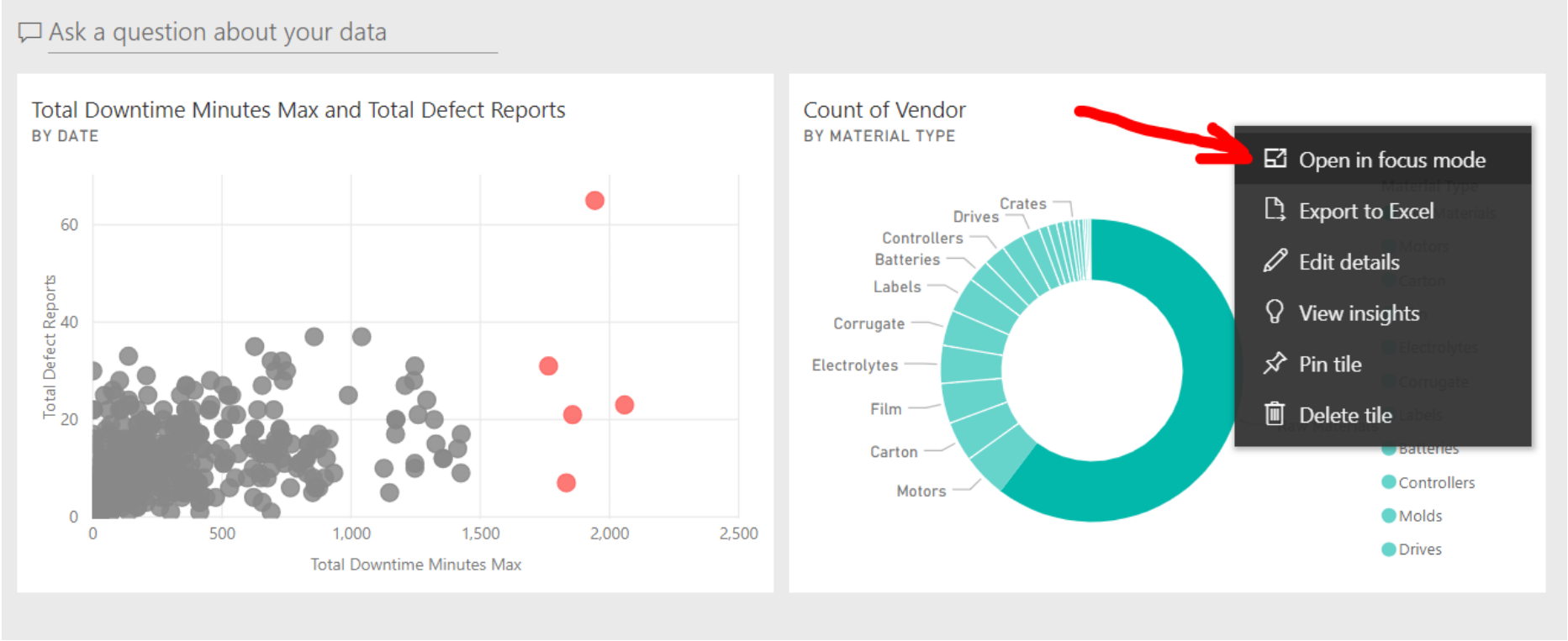
Total Downtime

Pin Cancel

# Microsoft Power BI Open Total Downtime

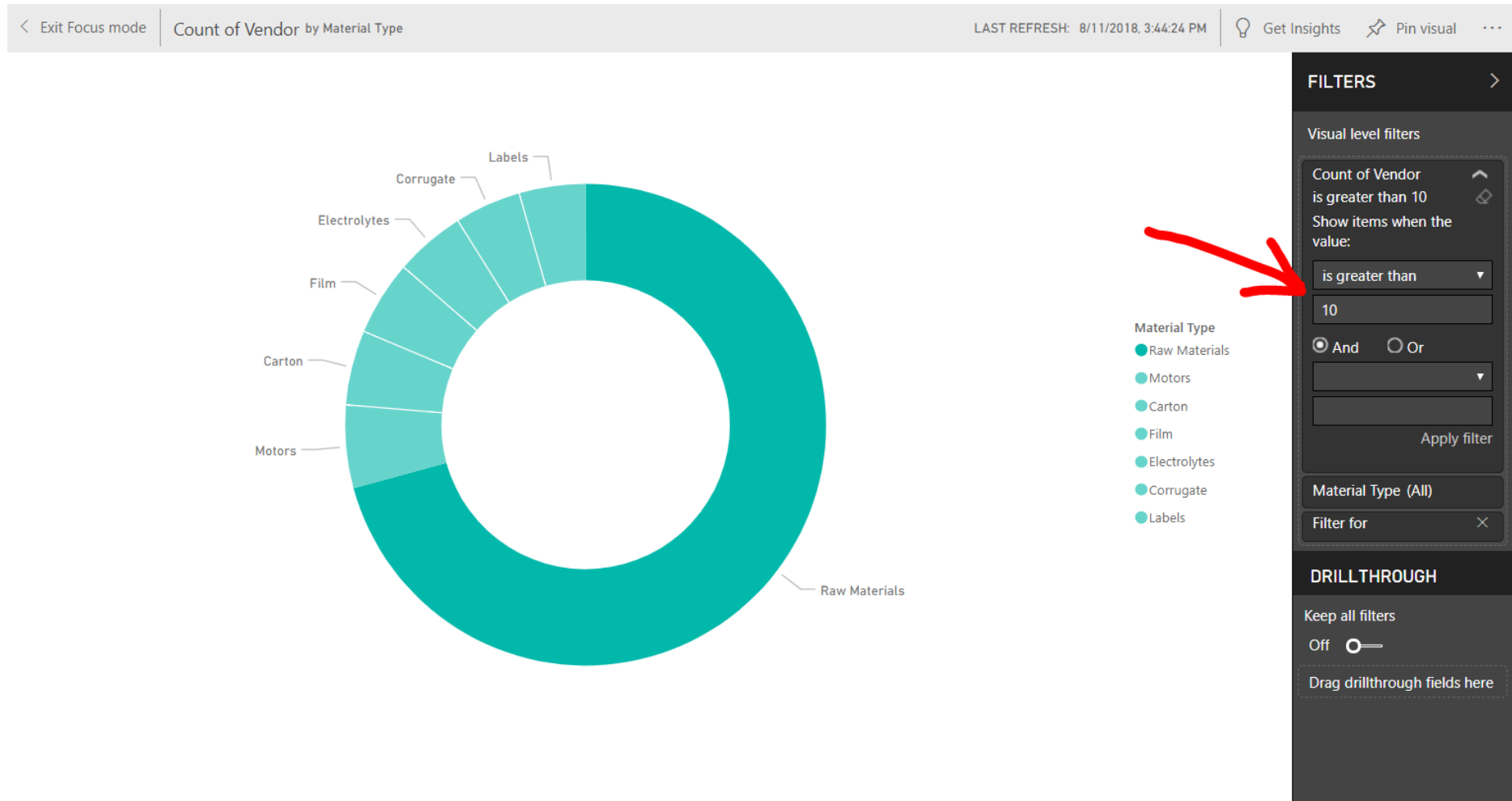


# Microsoft Power BI Open in focus mode



# Microsoft Power BI

## Filter Count of Vendor is greater than 10





# Microsoft Power BI

## Exercise

- New and Repeat all steps
- Pin multiple quick insights

# Introduction to reports

# Microsoft Power BI

## Introduction to reports

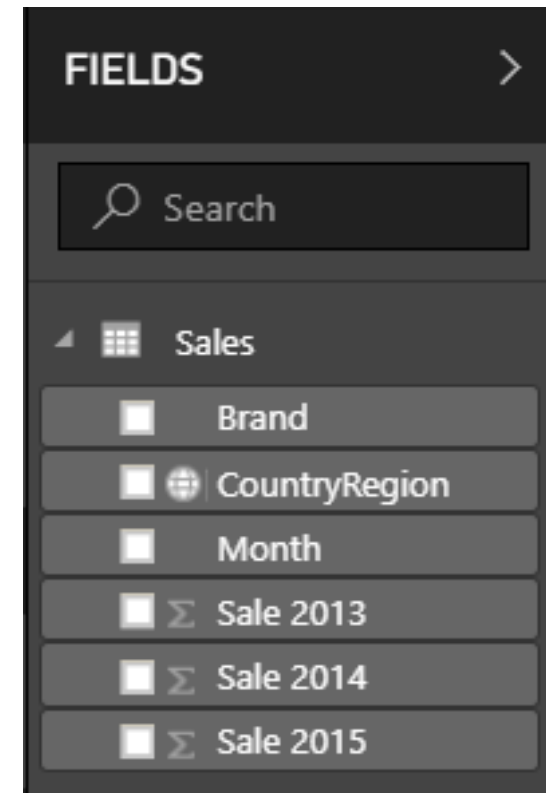
Click 2015 sales dataset

The screenshot shows the Microsoft Power BI interface. The top navigation bar includes the Power BI logo, the user profile, and the workspace path 'My Workspace > 2015 Sales'. The left sidebar contains navigation options: Favorites, Recent, Apps, Shared with me, Workspaces, My Workspace, DASHBOARDS, REPORTS, WORKBOOKS, and DATASETS. The 'DATASETS' section is highlighted with a red dashed box, and the '2015 Sales' dataset is selected. The main canvas area is currently blank. The right-hand pane is divided into 'VISUALIZATIONS' and 'FIELDS' sections. The 'VISUALIZATIONS' section shows various chart and table icons. The 'FIELDS' section shows a search bar and a list of fields: Sales, Brand, CountryRegion, Month, Sale 2013, Sale 2014, and Sale 2015. Below the 'FIELDS' section is the 'FILTERS' section, which includes 'Page level filters', 'Drillthrough filters', and 'Report level filters'. Four blue arrows point from the text labels 'Canvas', 'Visualizations', 'Fields', and 'Filters' to their respective components in the interface.

# Microsoft Power BI

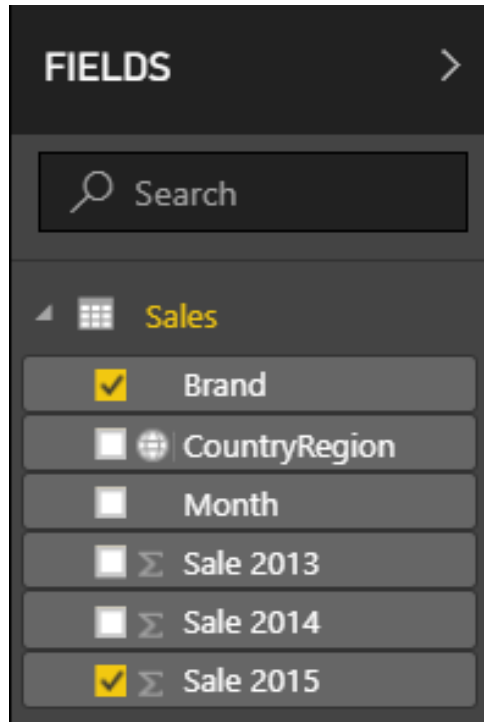
## FIELDS

- Some of them have a small icon beside their names.
- This icon identifies the main usage of the field.
- For example, the fields Sale 2013, Sale 2014, and Sale 2015 each
- have a summarization icon (a Greek sigma), indicating that the total for each column will be displayed if used in a report.
- The CountryRegion field shows a small globe, indicating that this field contains geographical data, and it will be used to draw data on maps.



# Microsoft Power BI

- Click Brand
- Click Sale 2015



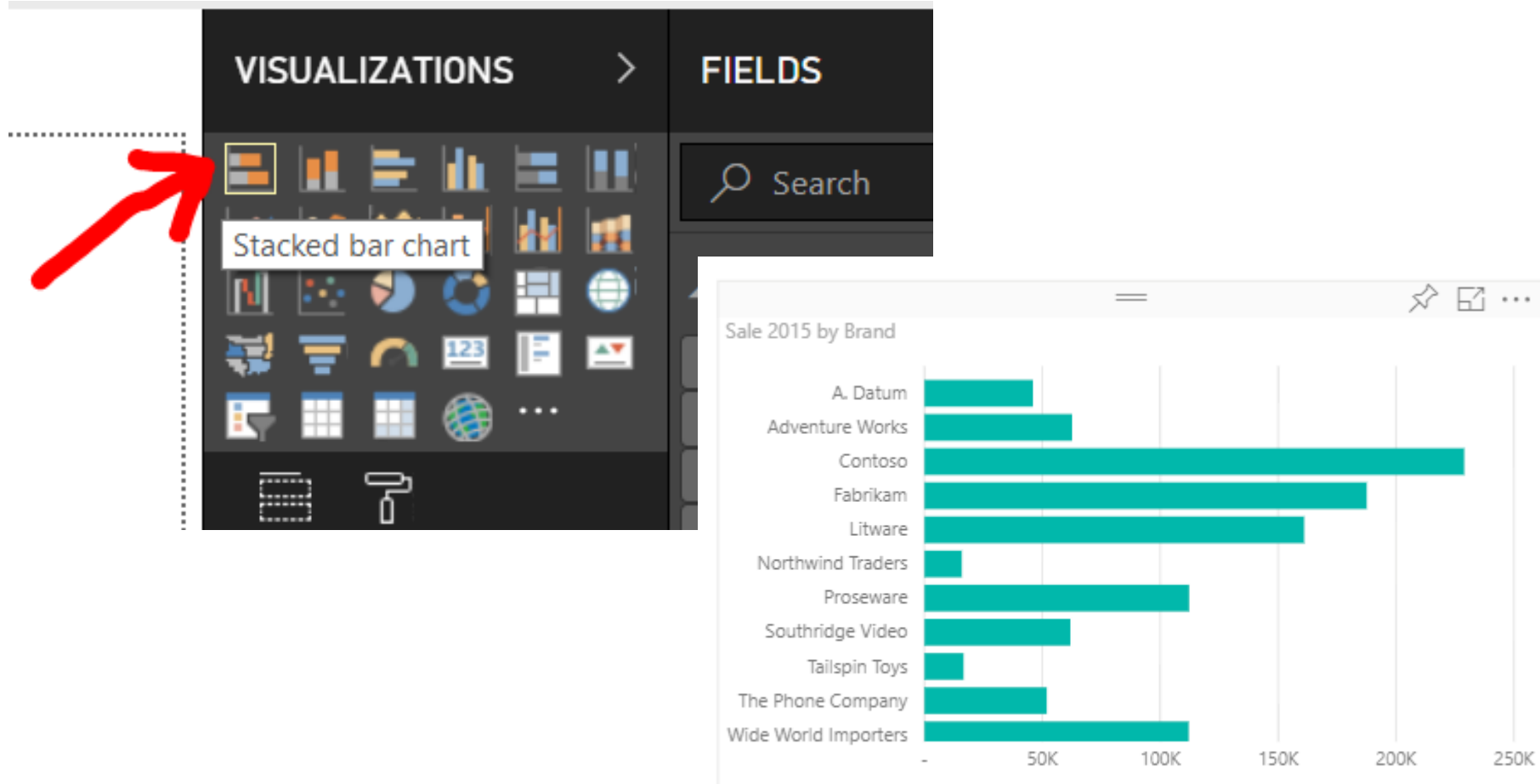
The image shows a table visualization in Power BI. The table has two columns: 'Brand' and 'Sale 2015'. The data is sorted by sales value in descending order. The 'Total' row is highlighted in blue.

Brand	Sale 2015
A. Datum	46,051.30
Adventure Works	62,641.73
Contoso	228,978.33
Fabrikam	187,597.45
Litware	161,097.75
Northwind Traders	15,901.55
Proseware	112,310.71
Southridge Video	61,924.16
Tailspin Toys	16,653.67
The Phone Company	51,919.00
Wide World Importers	112,151.40
<b>Total</b>	<b>1,057,227.05</b>

Table is default visualization

# Microsoft Power BI

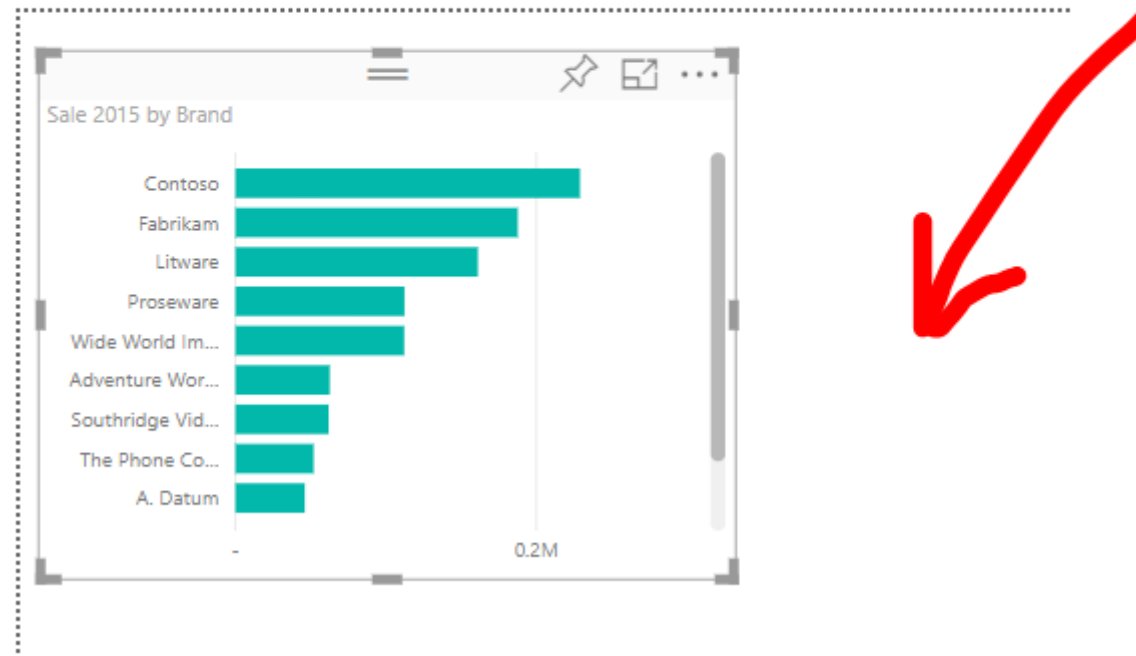
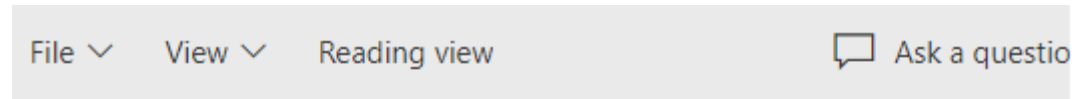
## Click Stacked bar chart



# Microsoft Power BI

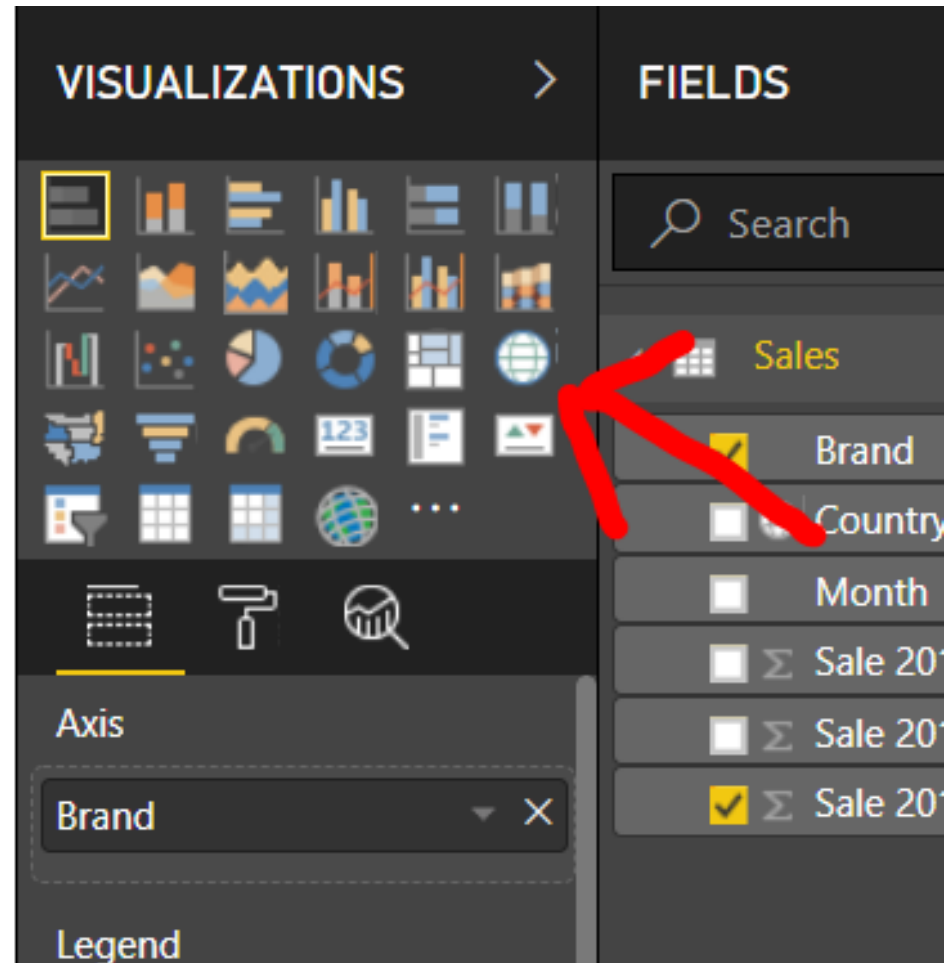
## Creating Map

Click empty space



# Microsoft Power BI

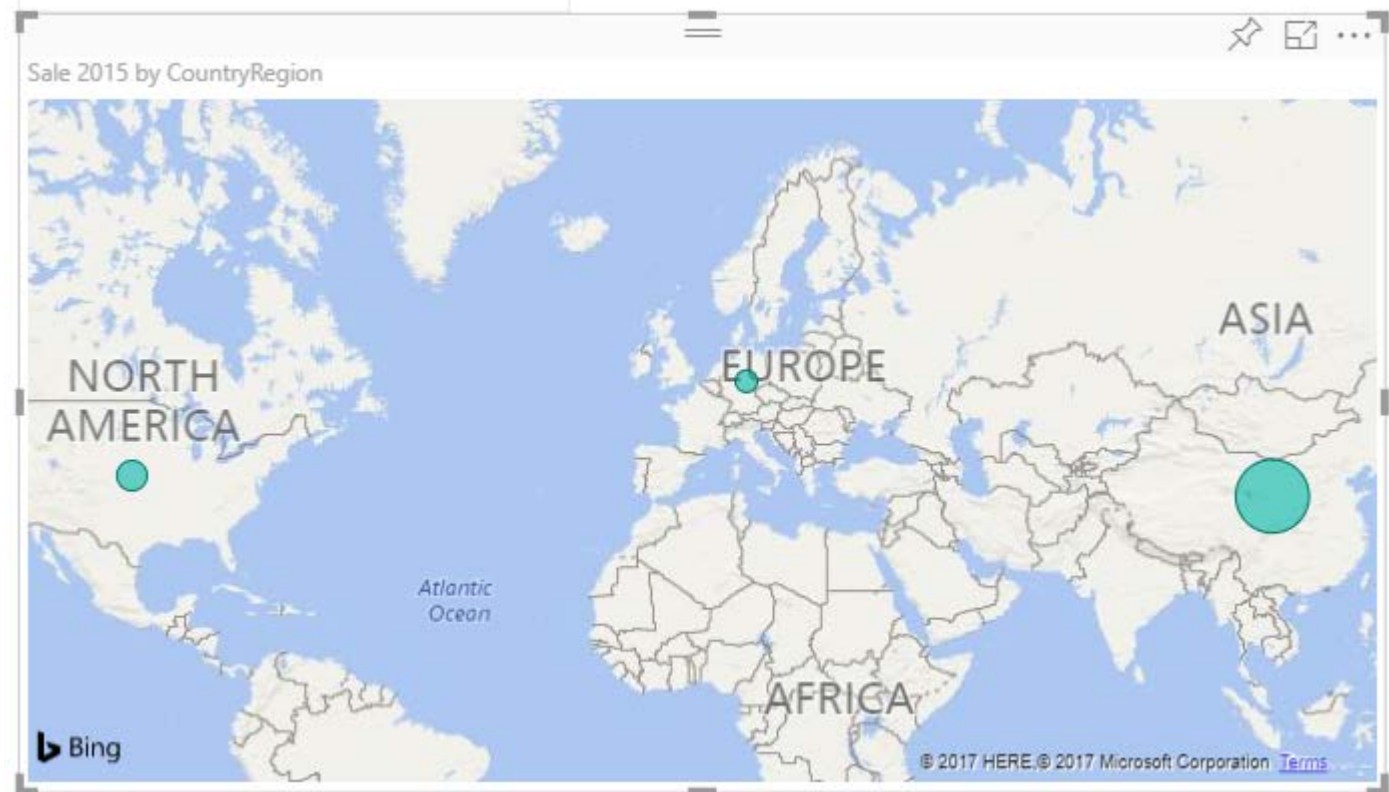
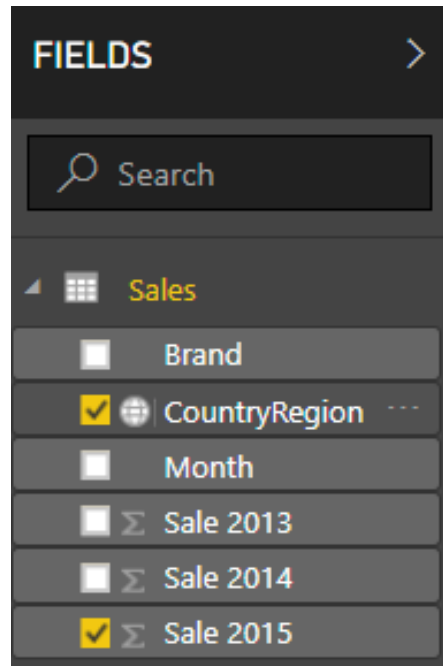
Click Map Icon





# Microsoft Power BI

## Click Field CountryRegion AND Sales 2015

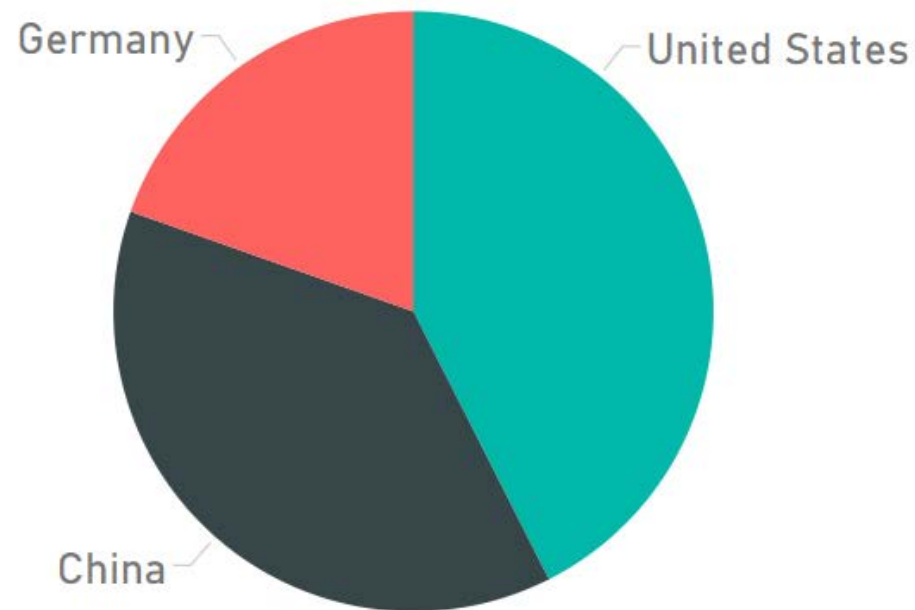


# Microsoft Power BI

## Exercise

- Remove data and repeat all steps
- Create report with pie chart

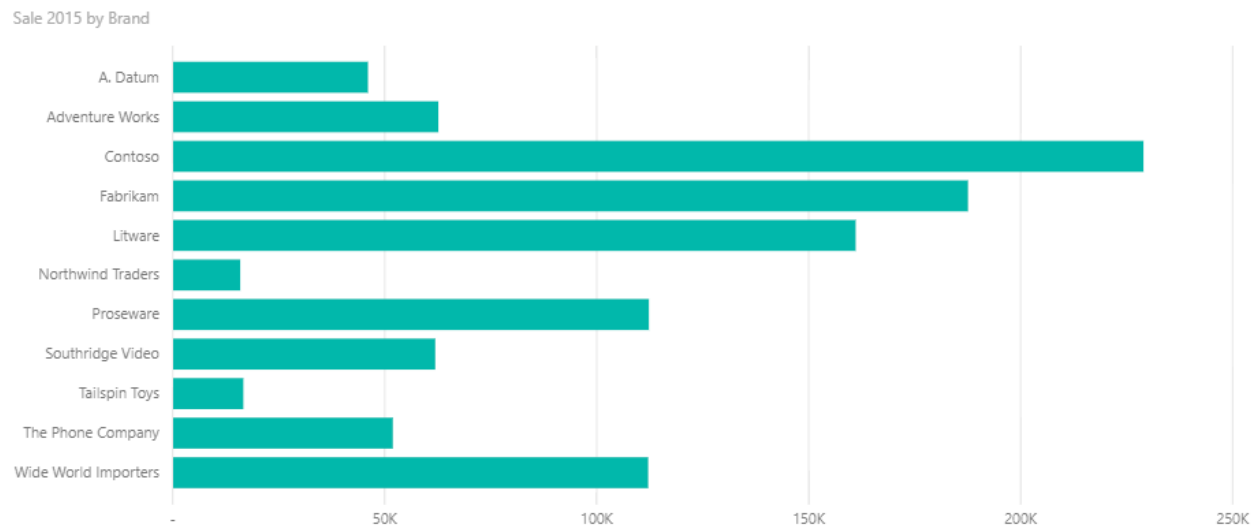
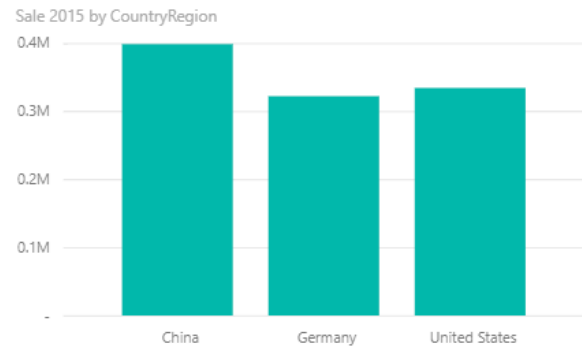
Sale 2014 by CountryRegion



# Introducing to Visual Interactions

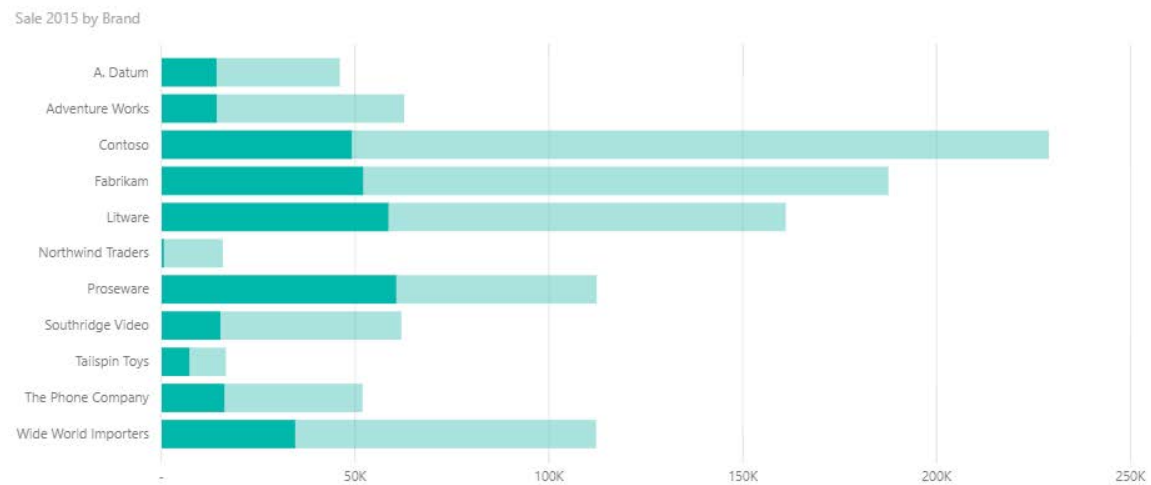
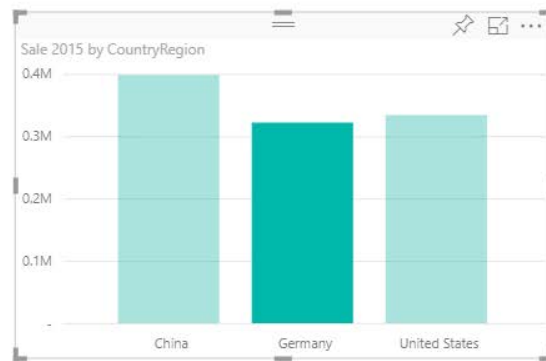
# Microsoft Power BI

1. Create Sale 2015 by ContryRegion / Stacked column chart
2. Create sale 2015 by Brand / Stacked bar chart



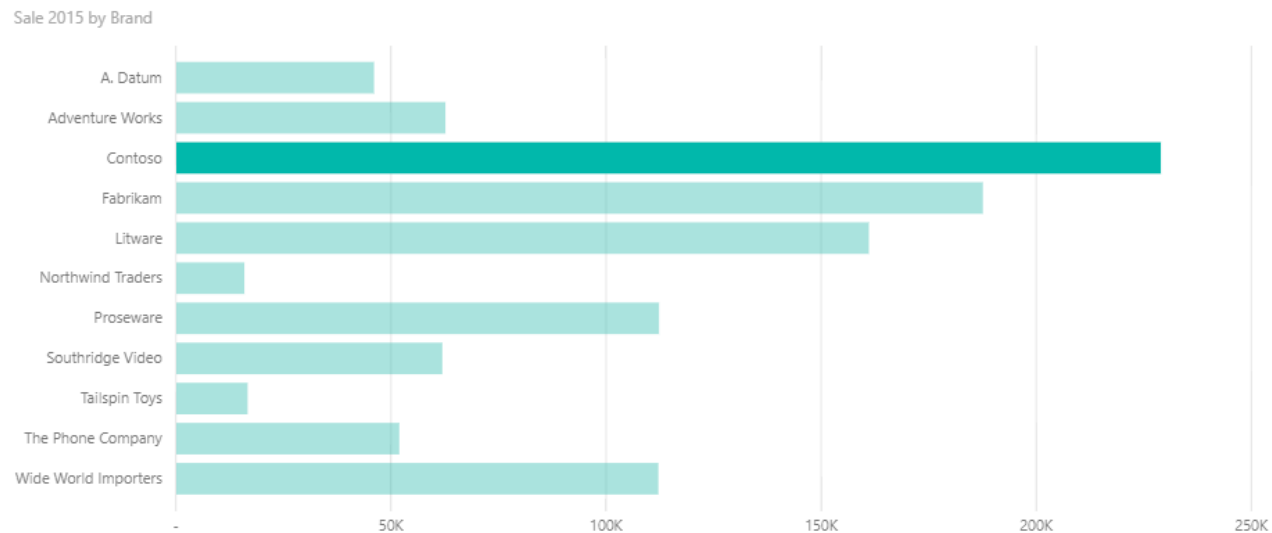
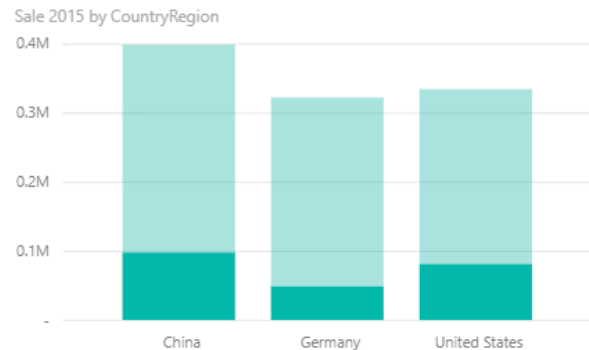
# Microsoft Power BI

- Click Germany column at the top chart
- Notice changing color of the below chart
- To select more than 1 column press and hold Ctrl key



# Microsoft Power BI

- Click Contoso bar at the below chart
- Notice changing color of the top chart
- To select more than 1 column press and hold Ctrl key



# Microsoft Power BI

## Turn on/off Visual Interactions

Interactions filters

Click to turn on Visual Interactions

The screenshot displays the Microsoft Power BI interface. At the top, the ribbon includes 'File', 'View', 'Reading view', 'Text Box', 'Shapes', 'Visual Interactions', 'Refresh', 'Duplicate this page', and 'Save'. The 'Visual Interactions' tab is active, and a red box highlights the 'Interactions filters' icons (funnel, pie, and circle with slash). A red arrow points to the 'Visual Interactions' tab with the text 'Click to turn on Visual Interactions'. Below the ribbon, there are two charts: 'Sale 2015 by CountryRegion' (a vertical bar chart) and 'Sale 2015 by Brand' (a horizontal bar chart). The 'Visual Interactions' panel on the right shows the 'Visualizations' pane with various chart types, the 'Fields' pane with a search bar and a list of fields (Sales, Brand, CountryRegion, Month, Sale 2013, Sale 2014, Sale 2015), and the 'Filters' pane with a 'Brand (All)' filter.

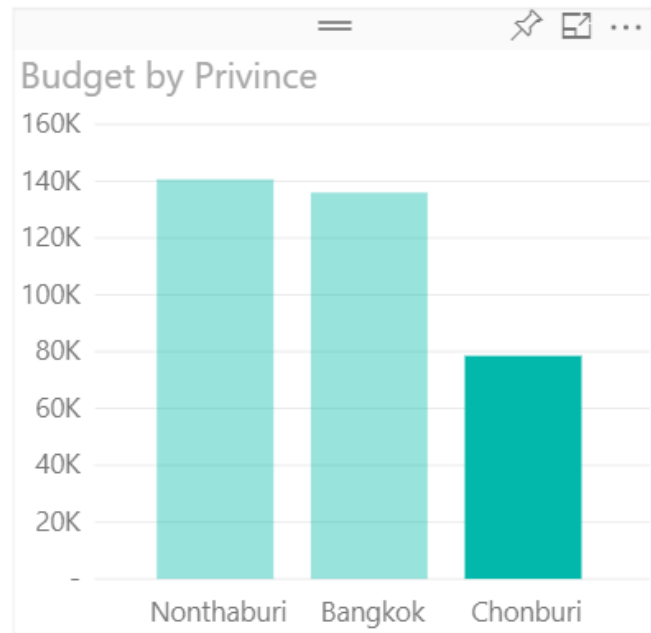
CountryRegion	Sale
China	0.4M
Germany	0.3M
United States	0.3M

Brand	Sale
A. Datum	0.1M
Adventure Works	0.2M
Contoso	0.4M
Fabrikam	0.35M
Litware	0.3M
Northwind Traders	0.05M
Proseware	0.25M
Southridge Video	0.15M

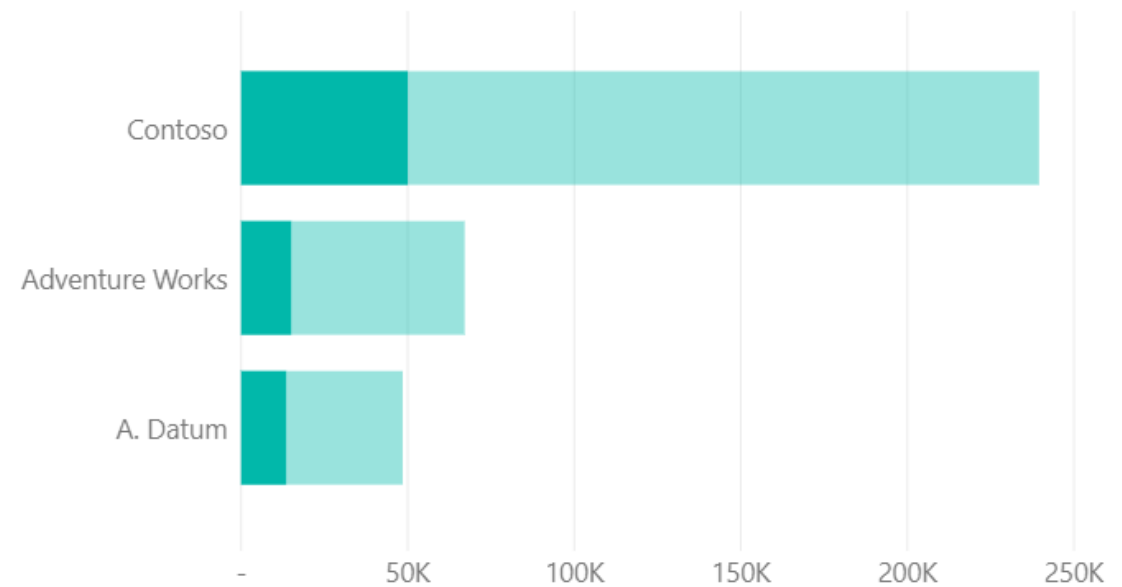
# Microsoft Power BI

## Exercise

### Thai Budget.xlsx



Budget by Brand



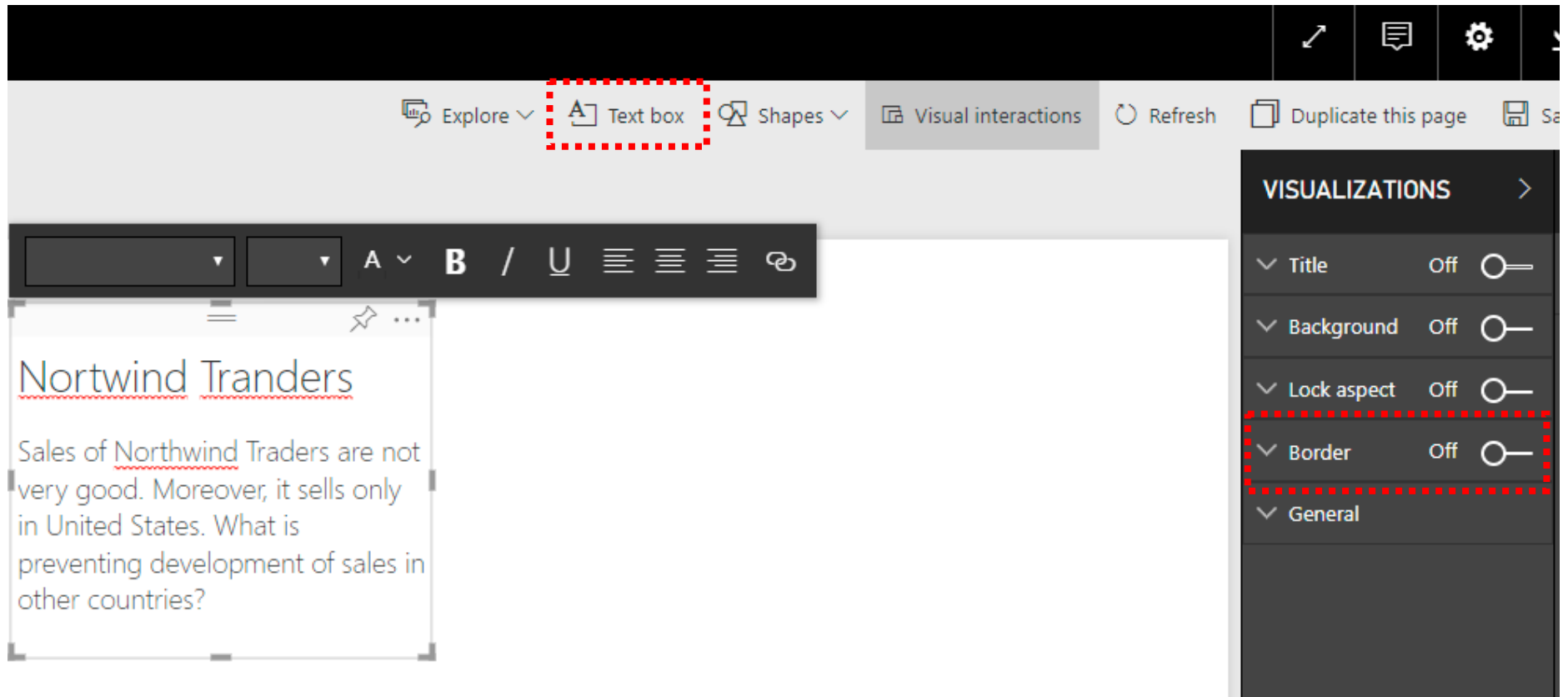


# Decorating the report

# Microsoft Power BI

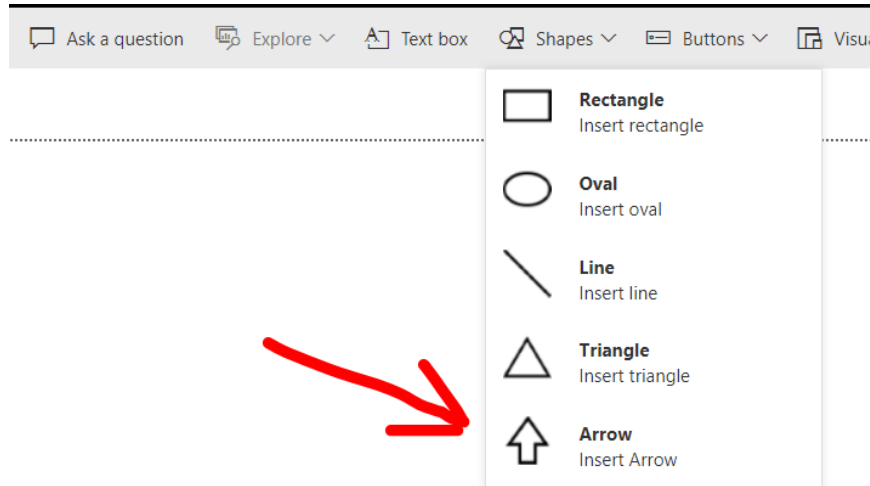
## Adding text box

- Change font size
- Add border and background color

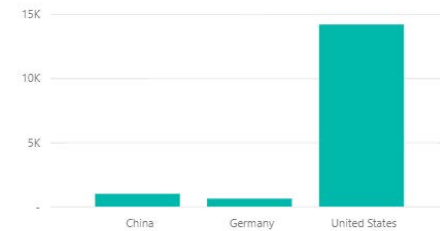


# Microsoft Power BI

## Adding arrow



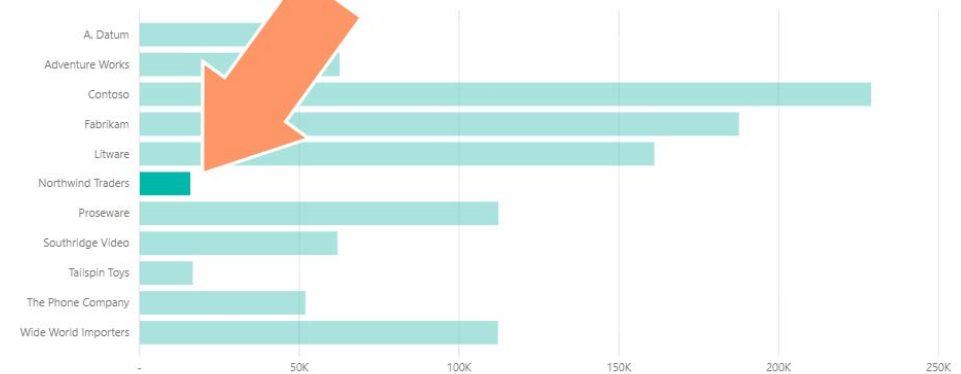
Sale 2015 by CountryRegion



### Nortwind Traders

Sales of Nortwind Traders are not very good. Moreover, it sells only in United States. What is preventing development of sales in other countries?

Sale 2015 by Brand



# Microsoft Power BI

## Saving the report

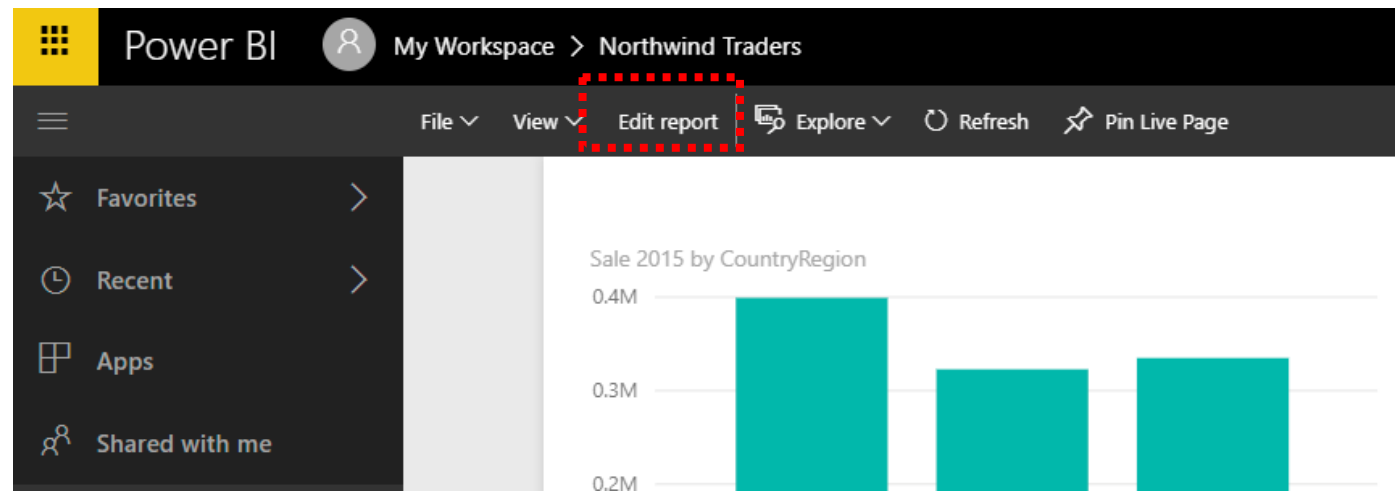
Report name = Northwind Trader

The screenshot shows the Microsoft Power BI interface. The top navigation bar includes 'Power BI', 'My Workspace', and 'report1'. The 'File' menu is open, with the 'Save' option highlighted by a red dashed box. The 'Save' option is labeled 'Save' and 'Save this report'. Other options in the menu include 'Save as', 'Print', 'Publish to web', 'Export to PowerPoint (Preview)', and 'Download report (Preview)'. The main content area displays a report titled 'Nortwind Traders' with a text box containing the text: 'Sales of Nortwind Traders are not very good. Moreover, it sells only in United States. What is preventing development of sales in other countries?'. Below the text box is a horizontal bar chart titled 'Sale 2015 by Brand' showing sales for various brands: A. Datum, Adventure Works, Contoso, Fabrikam, Litware, and Northwind Traders. An orange arrow points to the 'Northwind Traders' bar, which is the shortest, indicating the lowest sales.

Brand	Sales (Relative)
A. Datum	Low
Adventure Works	Low
Contoso	High
Fabrikam	Medium-High
Litware	Medium
Northwind Traders	Lowest

# Microsoft Power BI

- After you save the report, it appears in the My Workspace pane, in the Reports section.
- You can now access it any time you sign in to Power BI.
- When you select a saved report, it opens and remains in read-only mode until you explicitly activate it for editing by clicking the Edit Report button.



# Microsoft Power BI

## Pinning a report

Click to pin a report as a live page

The screenshot shows the Microsoft Power BI interface. At the top, the navigation bar includes the Power BI logo, the user profile, and the workspace path 'My Workspace > Northwind Traders'. Below this is a ribbon with options: 'File', 'View', 'Edit report', 'Explore', 'Refresh', and 'Pin Live Page'. The 'Pin Live Page' button, which features a pushpin icon, is highlighted with a red dashed border. On the left side, there is a navigation pane with options: 'Favorites', 'Recent', 'Apps', 'Shared with me', and 'Workspaces'. The main content area displays a bar chart titled 'Sale 2015 by CountryRegion'. The y-axis represents sales in millions, ranging from 0.1M to 0.4M. The chart shows three bars of varying heights. To the right of the chart, there is a text box with the heading 'Nortwind' and some descriptive text.

CountryRegion	Sales (M)
USA	0.40
Canada	0.32
France	0.34

# Microsoft Power BI

## Pin Visual VS Pin Live Page

### Pinning a visualization

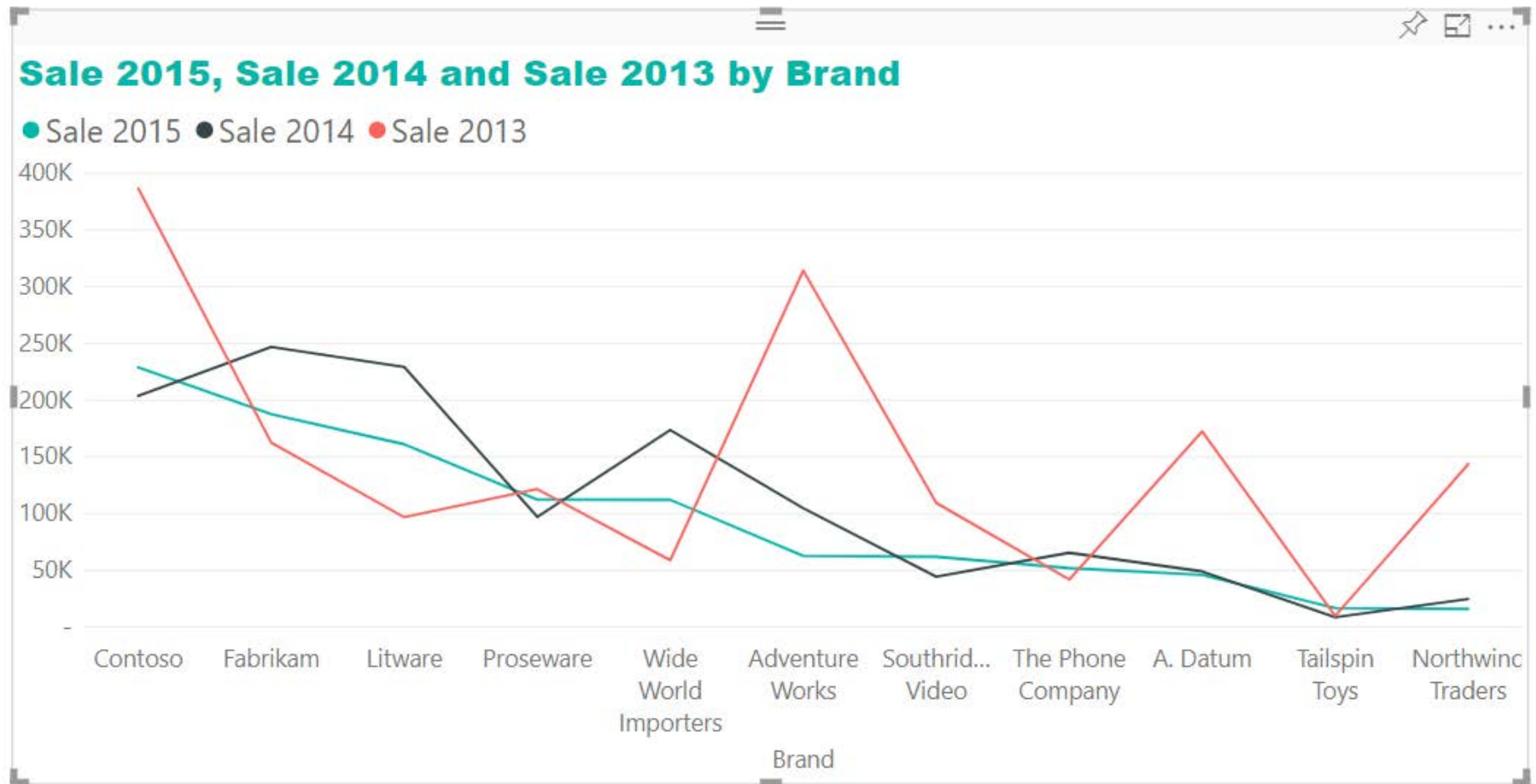
- Power BI saves it as it is
- Not include the visual interactions
- Click a visualization to open the source report

### Pinning Live Page

- Keep visual interactions between components
- Click Live Page will not open the source report

# Microsoft Power BI

## Exercise





# Refreshing the budget workbook

# Microsoft Power BI

## Refreshing the budget workbook

- How he will refresh his data when new figures become available
- He began building the budget in October
- New data will be arriving over time
- Sales and the country/region managers will provide new forecasts
- David will need to add to his workbook
- How will he upload new data to refresh the existing data?

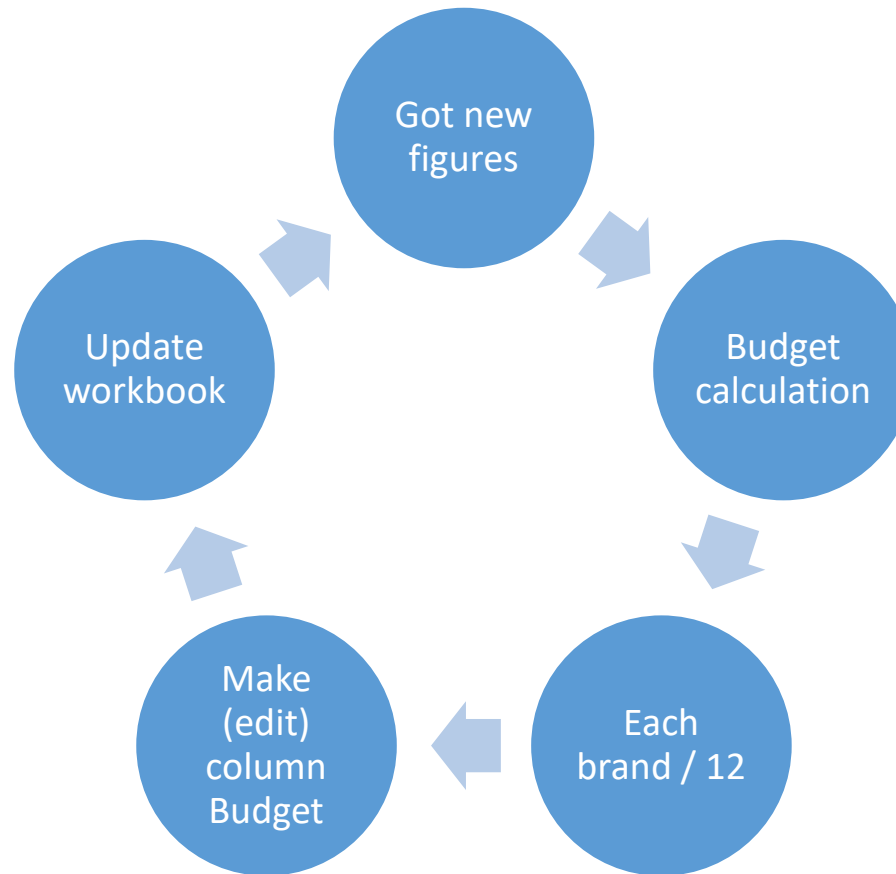
## Microsoft Power BI

- Country/region managers send update data
- Forecast base on the brand
- No monthly detail
- This forecast is at year level

CountryRegion	Brand	Budget
China	A. Datum	5,000.00
China	Adventure Works	36,500.00
China	Contoso	94,500.00
China	Fabrikam	90,800.00
China	Litware	65,000.00
China	Northwind Traders	12,000.00
China	Proseware	20,000.00
China	Southridge Video	22,500.00
China	Tailspin Toys	8,000.00
China	The Phone Company	30,000.00
China	Wide World Importers	45,000.00

# Microsoft Power BI

## Make budget with forecast



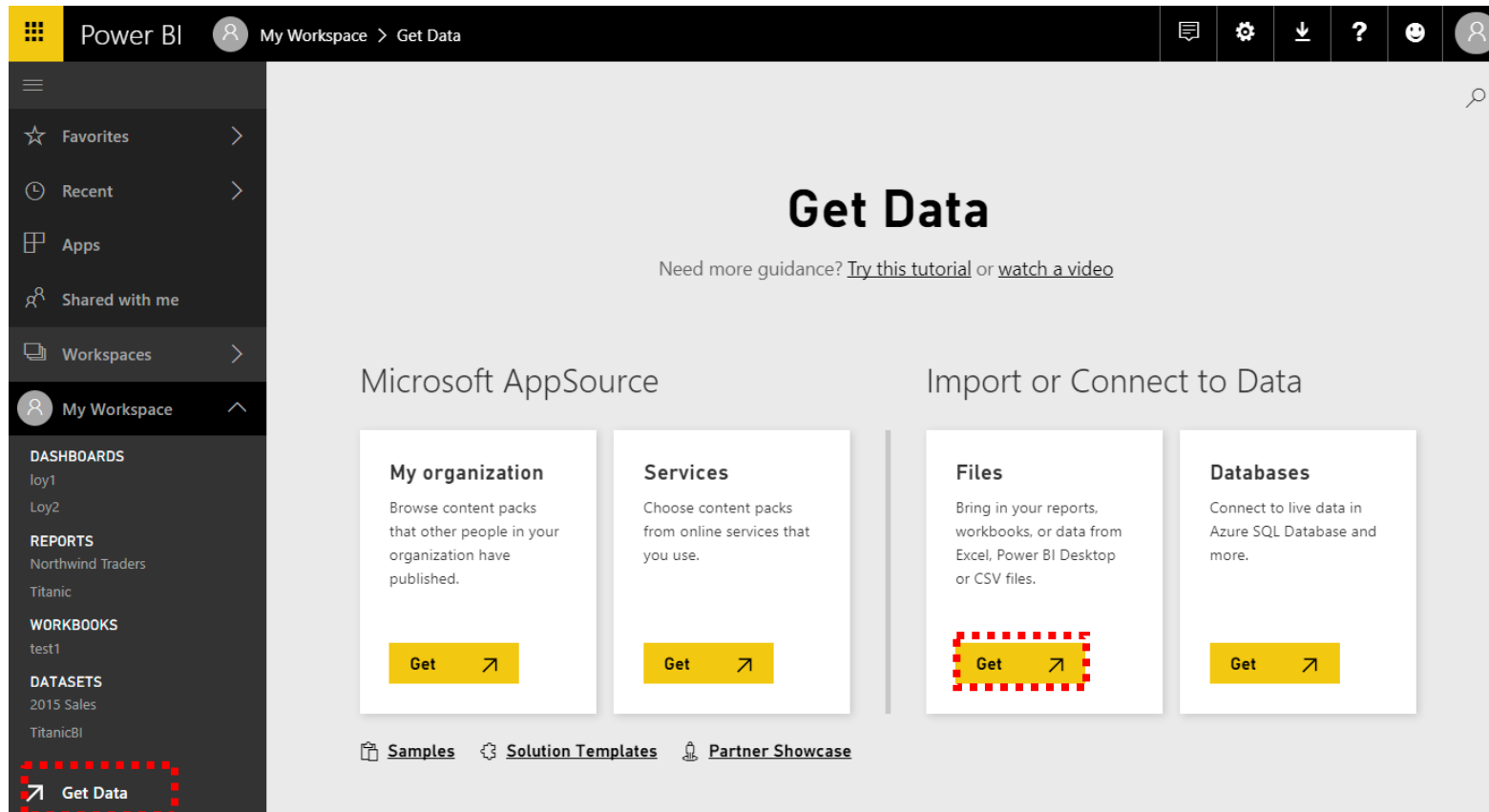
## Microsoft Power BI

- The workbook with the new Budget column
- Numbers do not reflect the seasonal nature of sales
- Number are not correct.
- We will fix this and use a better technique later

CountryRegion	Brand	Month	Sale 2013	Sale 2014	Sale 2015	Budget
China	A. Datum	January	3,234.00		1,935.00	416.67
China	A. Datum	February	6,270.00	7,059.00		416.67
China	A. Datum	March	4,352.00			416.67
China	A. Datum	April	3,814.00			416.67
China	A. Datum	May	6,234.00			416.67
China	A. Datum	June	5,571.00	3,216.00		416.67
China	A. Datum	July	7,424.00			416.67
China	A. Datum	August			800.00	416.67
China	A. Datum	September	1,254.00	1,617.00	396.00	416.67
China	A. Datum	October	1,881.00	3,042.00	936.00	416.67
China	A. Datum	November		3,653.00		416.67
China	A. Datum	December	6,135.00	2,810.00		416.67
China	Adventure Works	January	12,418.26	5,735.48	1,559.87	3,041.67
China	Adventure Works	February	31,770.26		2,937.90	3,041.67
China	Adventure Works	March	3,689.85	5,489.23	11,163.94	3,041.67

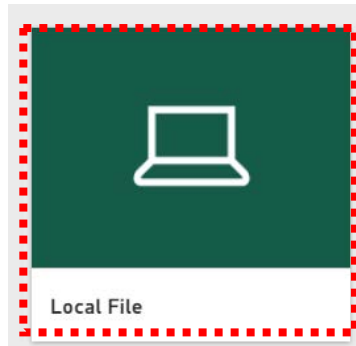
# Microsoft Power BI

- Download file : Sales and Budget Manually Combined.xlsx
- Change name to 2015 Sales.xlsx



# Microsoft Power BI

## Local File, Import, Replace it



**Local File**

Choose how to connect to your Excel workbook

An icon showing a laptop screen with a line graph and a pie chart, and a 3D cylinder representing a database or data source.

**Import Excel data into Power BI**

Connect to the data in your workbook so you can create Power BI reports and dashboards for it.

**Import** ↗

**A dataset with the same name exists**

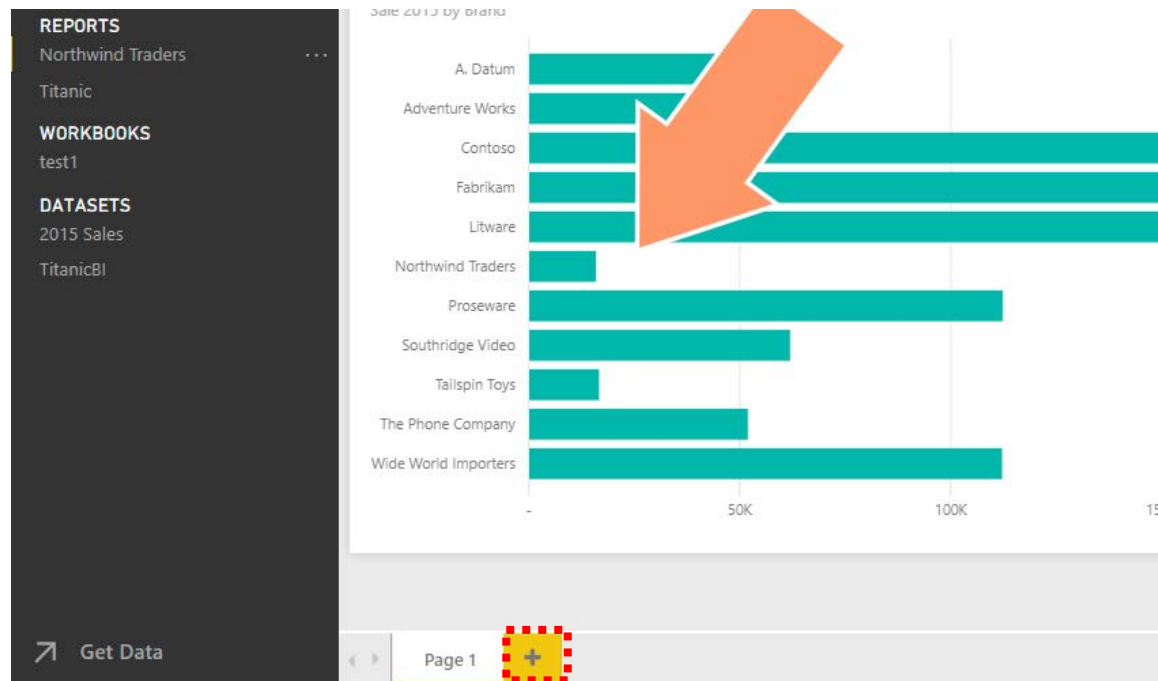
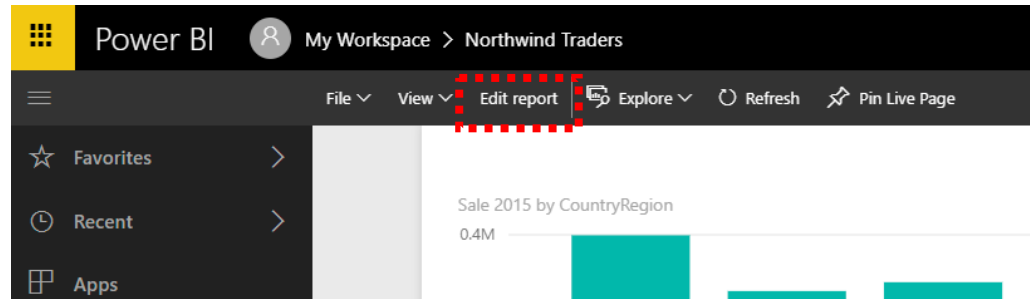
You already have a file named "2015 Sales.xlsx". If you replace the existing file, some tiles might be impacted. Do you want to replace the existing file with this one? [Learn more](#)

**Replace it** Cancel

# Microsoft Power BI

## Add new page to report

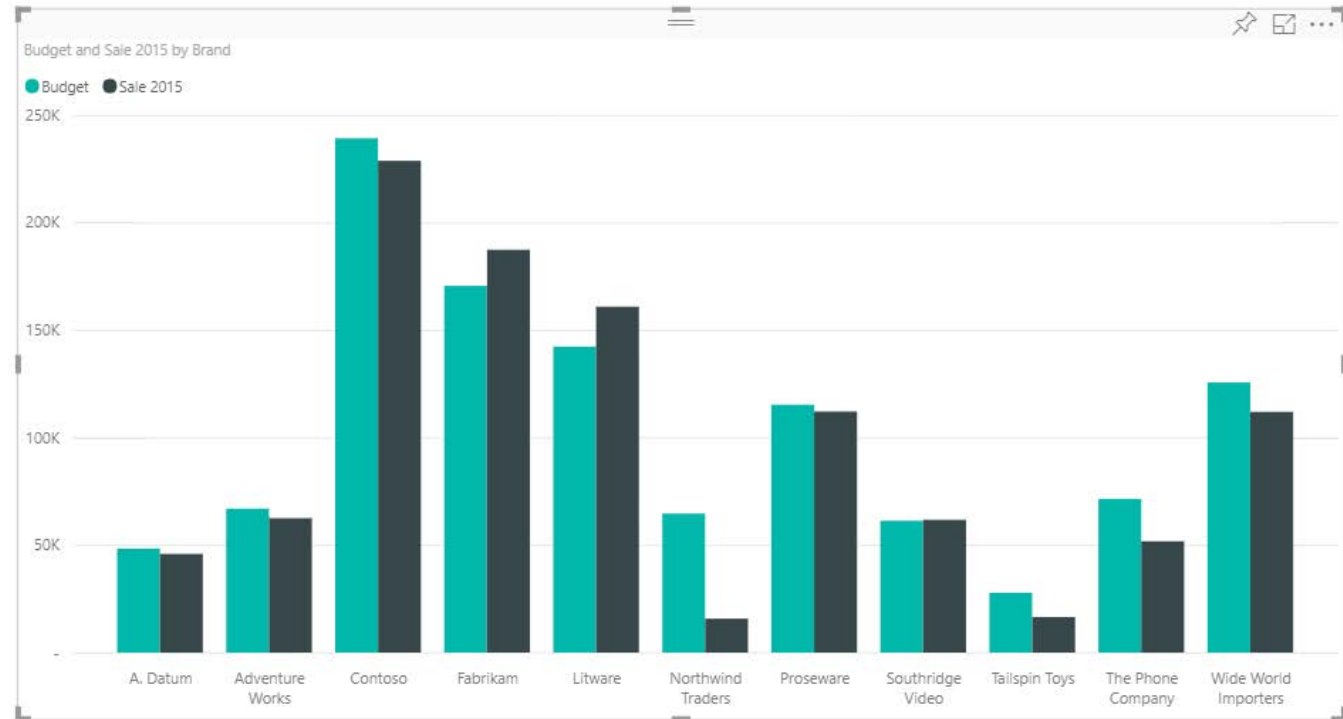
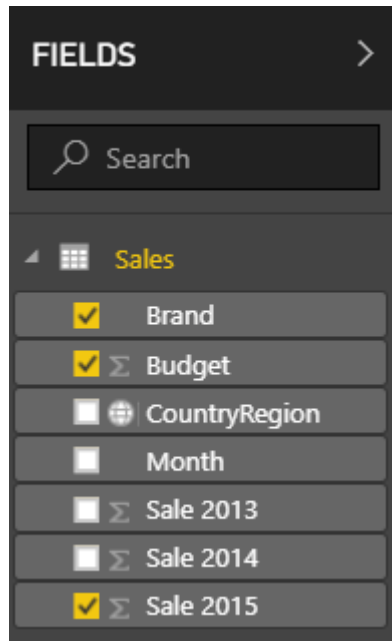
- Click report
- Click Edit report
- Click + to add Page 2





# Microsoft Power BI

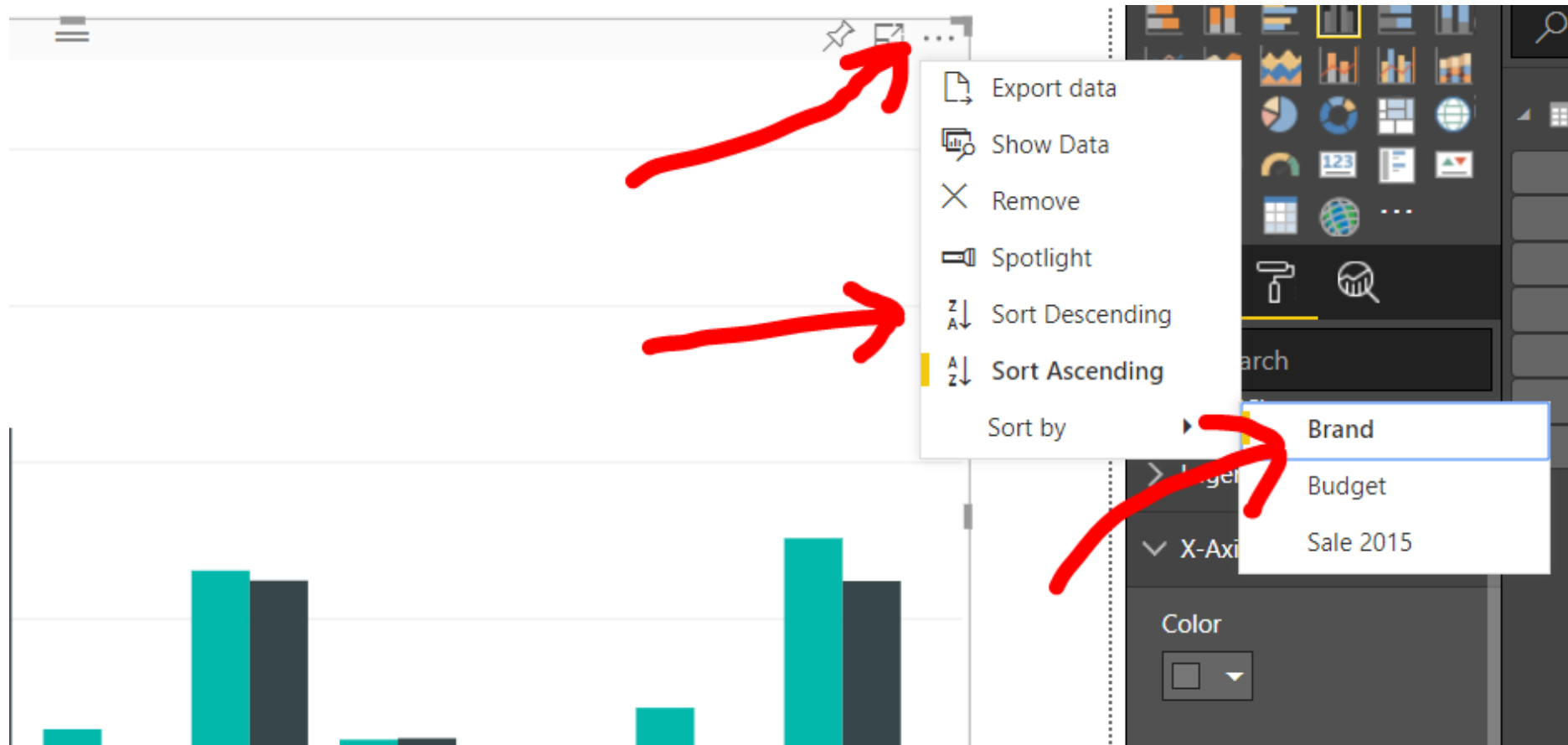
## Budget and Sale 2015 by Brand



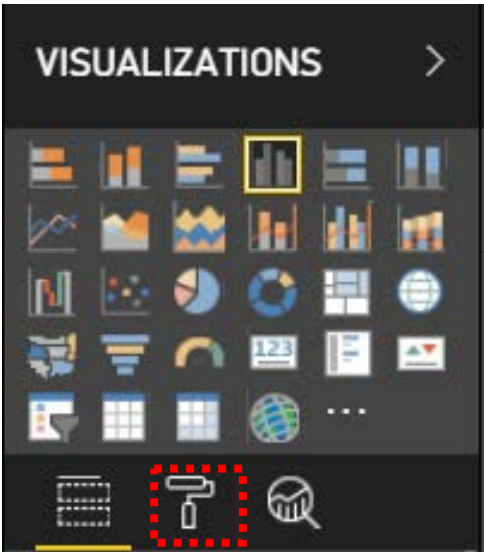
Clustered column chart

# Microsoft Power BI

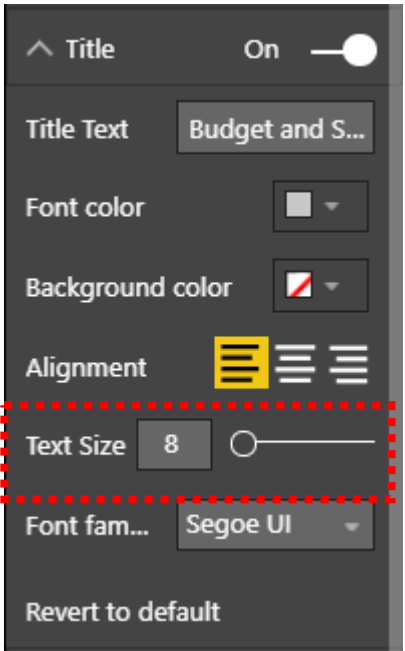
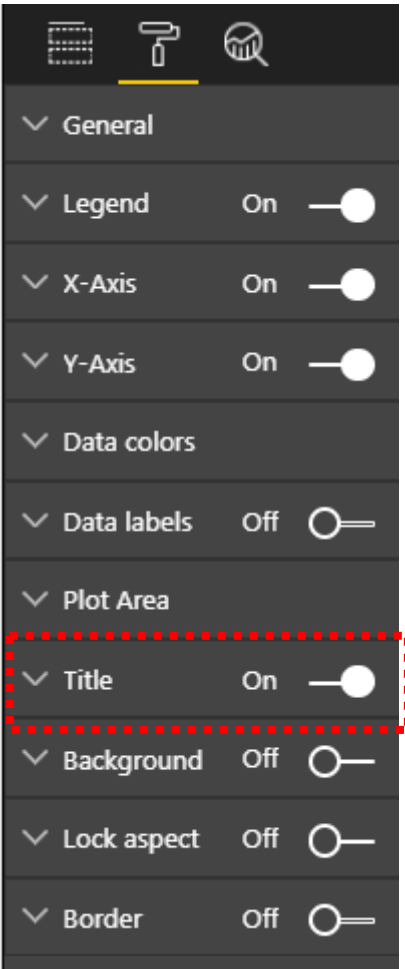
## Sorting



# Microsoft Power BI Change Title font size

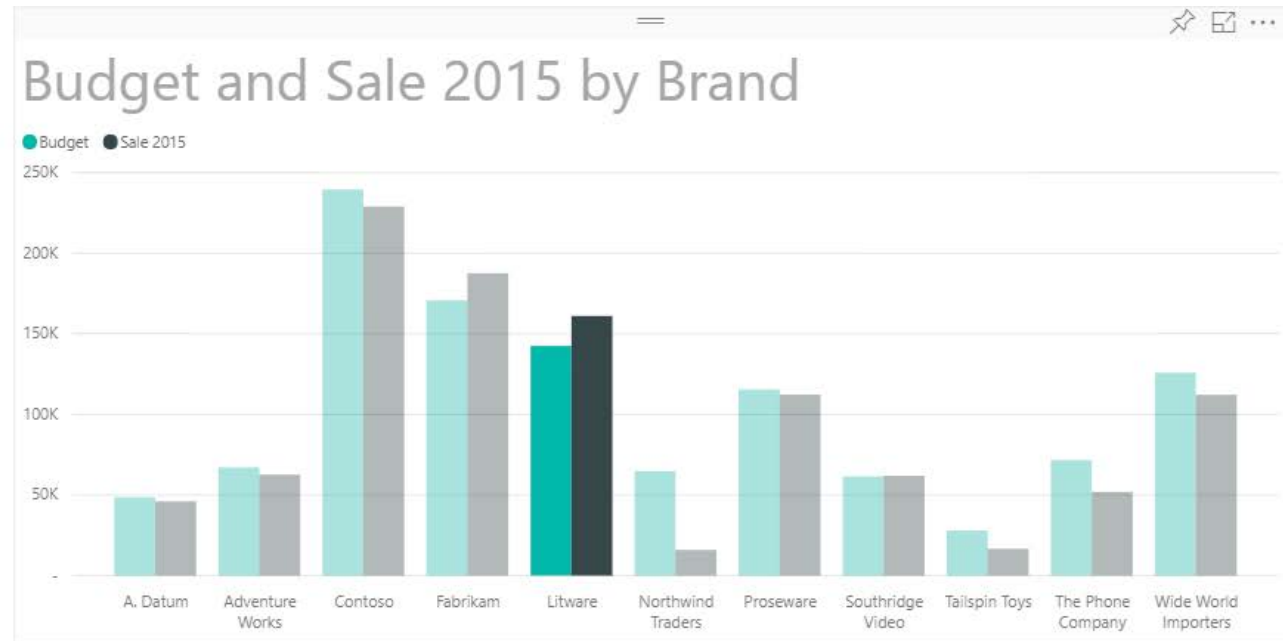


Click format



# Microsoft Power BI

## Add Budget and Sale 2015 by CountryRegion



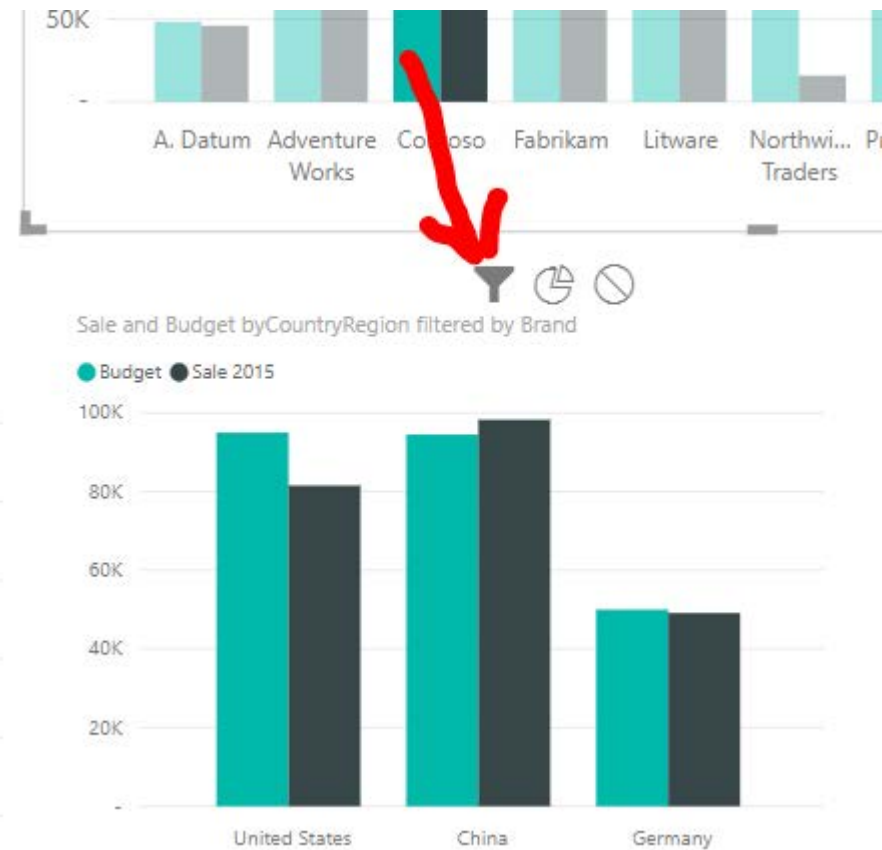
Budget and Sale 2015 by CountryRegion



# Microsoft Power BI

## Add filter by brand

- Copy and pastes to create new chart
- Change title to Sale and Budget byCountryRegion filtered by Brand
- Change Visual Interaction to Filter



# Microsoft Power BI

## Filtering a report

### Visual interactions:

- The filter is not saved as part of the report
- The filter is always visible

### Standard filters:

- Visual-level filters: work on only an individual visualization
- Page-level filters: work at the report-page level
- Report-level filters: works on the entire report

# Microsoft Power BI

## Add page level filter to show only China and Germany

**FILTERS**

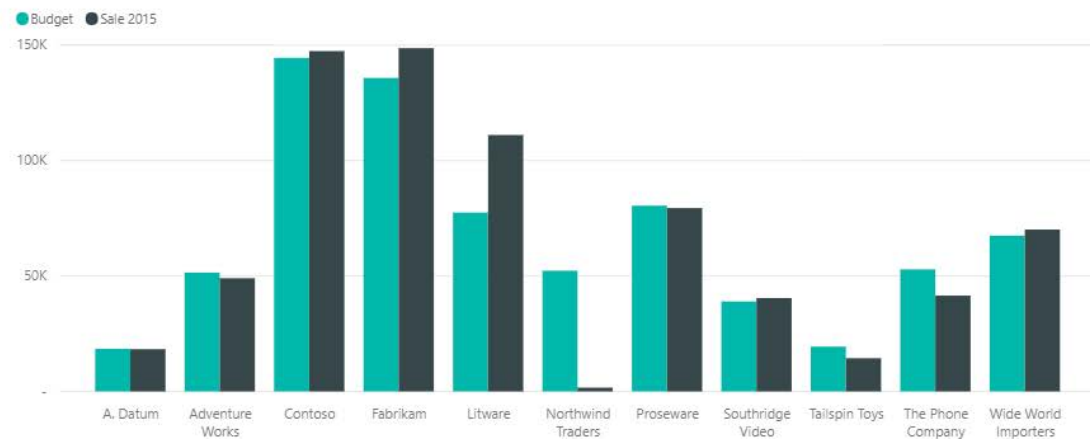
Page level filters

CountryRegion ^ ×  
is China or Germany ◇  
Filter Type

Basic filtering ▾

- Select All
- China 127
- Germany 126
- United States 129

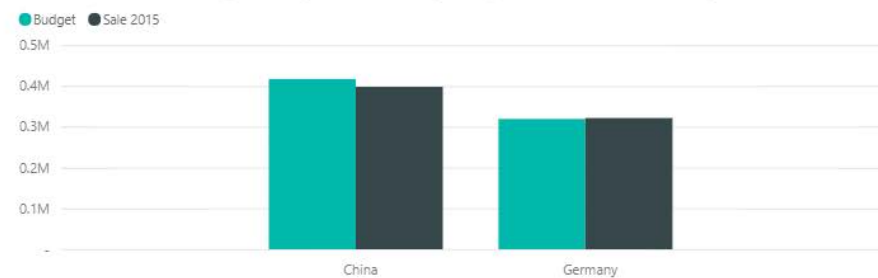
### Budget and Sale 2015 by Brand



### Budget and Sale 2015 by CountryRegion



### Sale and Budget by CountryRegion filtered by Brand



# Microsoft Power BI

Add Visual-level filters to show only Sale greater than 50,000

**FILTERS**

Visual level filters

Brand(All)

Budget(All)

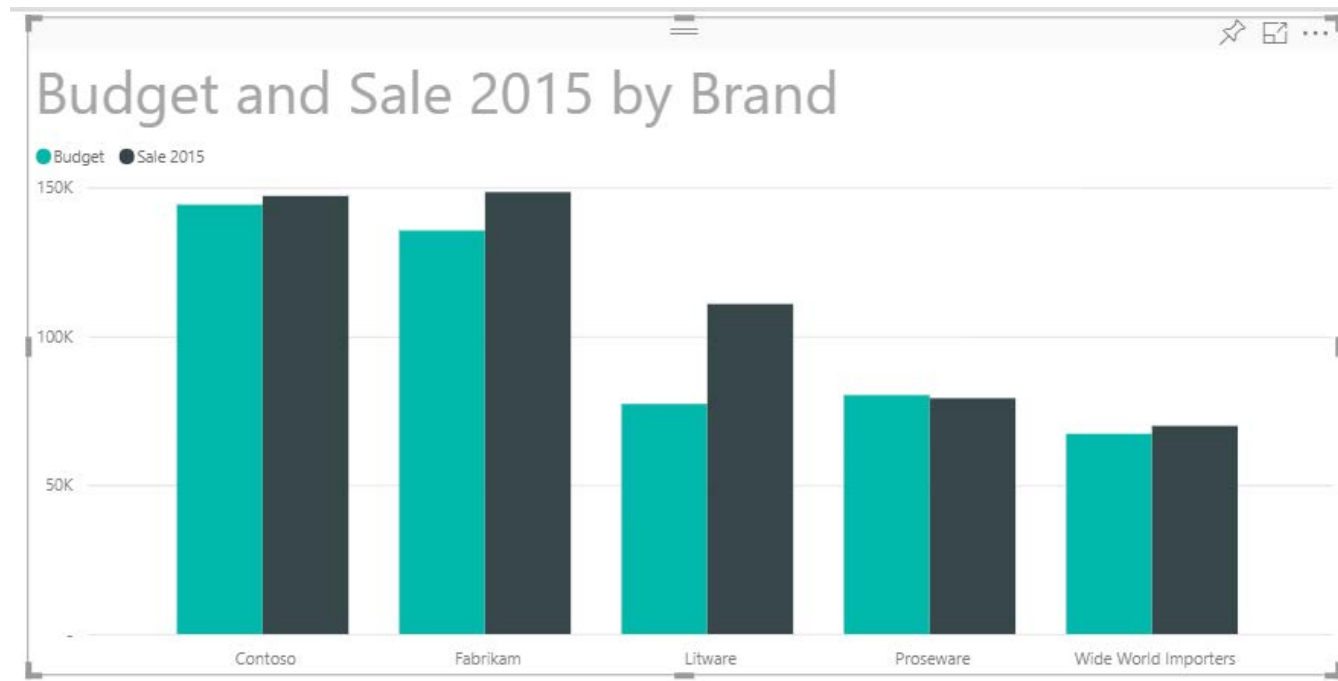
Sale 2015  
is greater than 50,000...  
Show items when the value:

is greater than

50000

And  Or

Apply filter



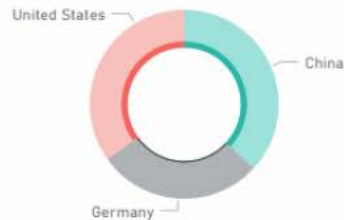


# Microsoft Power BI

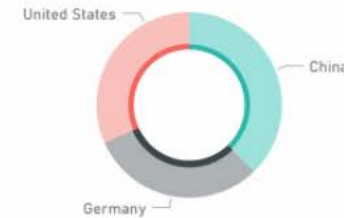
## Exercise

### Add Donut charts to the report

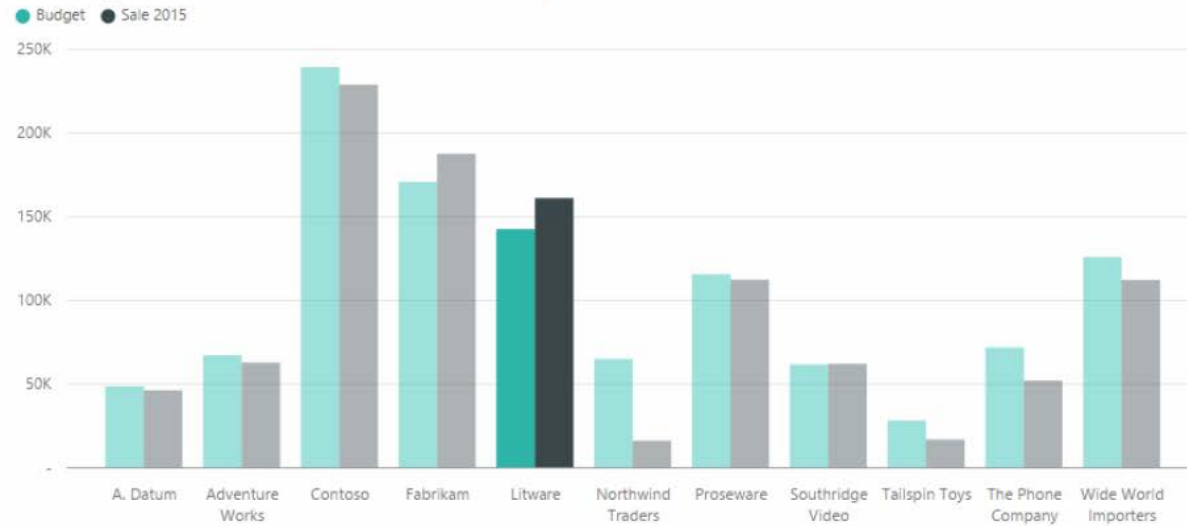
Budget by CountryRegion



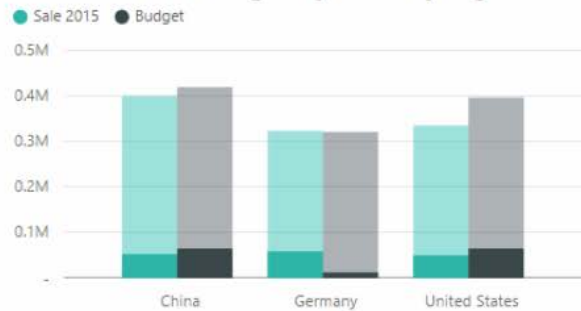
Sale 2015 by CountryRegion



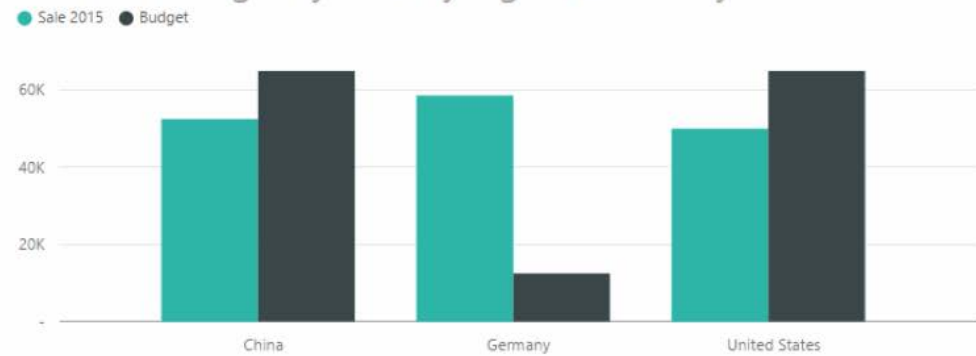
Budget and Sale 2015 by Brand



Sale 2015 and Budget by CountryRegion



Sales and Budget by CountryRegion filtered by Brand



# Sharing and Publish Report

# Microsoft Power BI

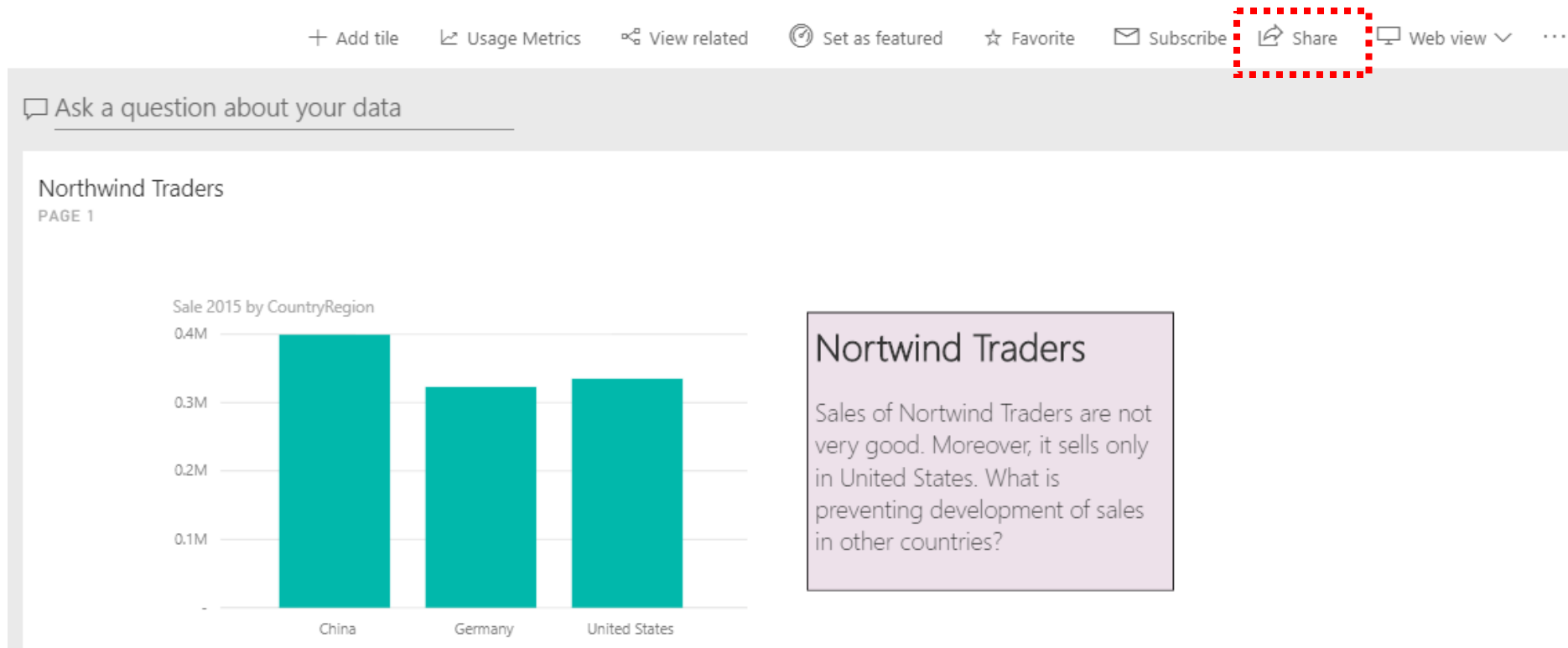
## **Sharing the dashboard**

- Inviting a user to see a dashboard
- Creating a group workspace in Power BI
- Turning on sharing with Microsoft OneDrive for Business
- Viewing reports and dashboards on mobile devices

# Microsoft Power BI

## Inviting a user to see a dashboard

Click dashboard and Share



# Microsoft Power BI

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

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

Success! Trial extended

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

Close

# Microsoft Power BI

## Share dashboard

2015 SALES.XLSX

Share Access

Recipients will have the same access as you unless row-level security on the dataset further restricts them. [Learn more](#)

Grant access to

loy1@tactechthai.com X Enter email addresses

Hello, get your report here

Allow recipients to share your dashboard

Send email notification to recipients

Dashboard Link ⓘ

https://app.powerbi.com/groups/me/dashboards/d4420f39-11c-4a30-b301-b51




Share


Cancel


# Microsoft Power BI

Check mail

**loy vanich has shared Power BI Dashboard '2015 Sales.xlsx'**

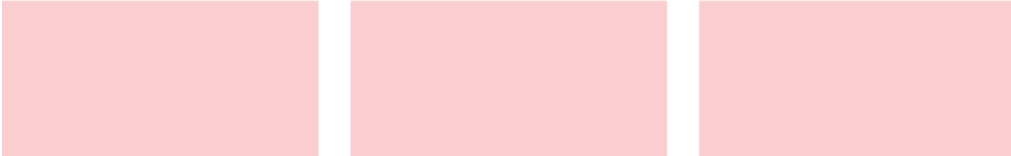
ผู้ส่ง Microsoft Power BI   
ผู้รับ loy1@tactechthai.com   
ตอบกลับ no-reply-powerbi@microsoft.com   
วันที่ วันนี้ 04:32

 เพื่อปกป้องความเป็นส่วนตัว รูปจากภายนอกในจดหมายนี้จะถูกปิดบังไว้ [แสดงรูป](#)

**Hello, get your report here** 

[View 2015 Sales.xlsx in Power BI](#)

Take your dashboards and reports with you—download the app.



# Microsoft Power BI

## You don't have access to this dashboard ✕

This invitation was not intended for the current signed in user. Only the intended recipient can access this dashboard

Please try again later or contact support. If you contact support, please provide these details.

[Show technical details](#)

[Get help](#)

Close



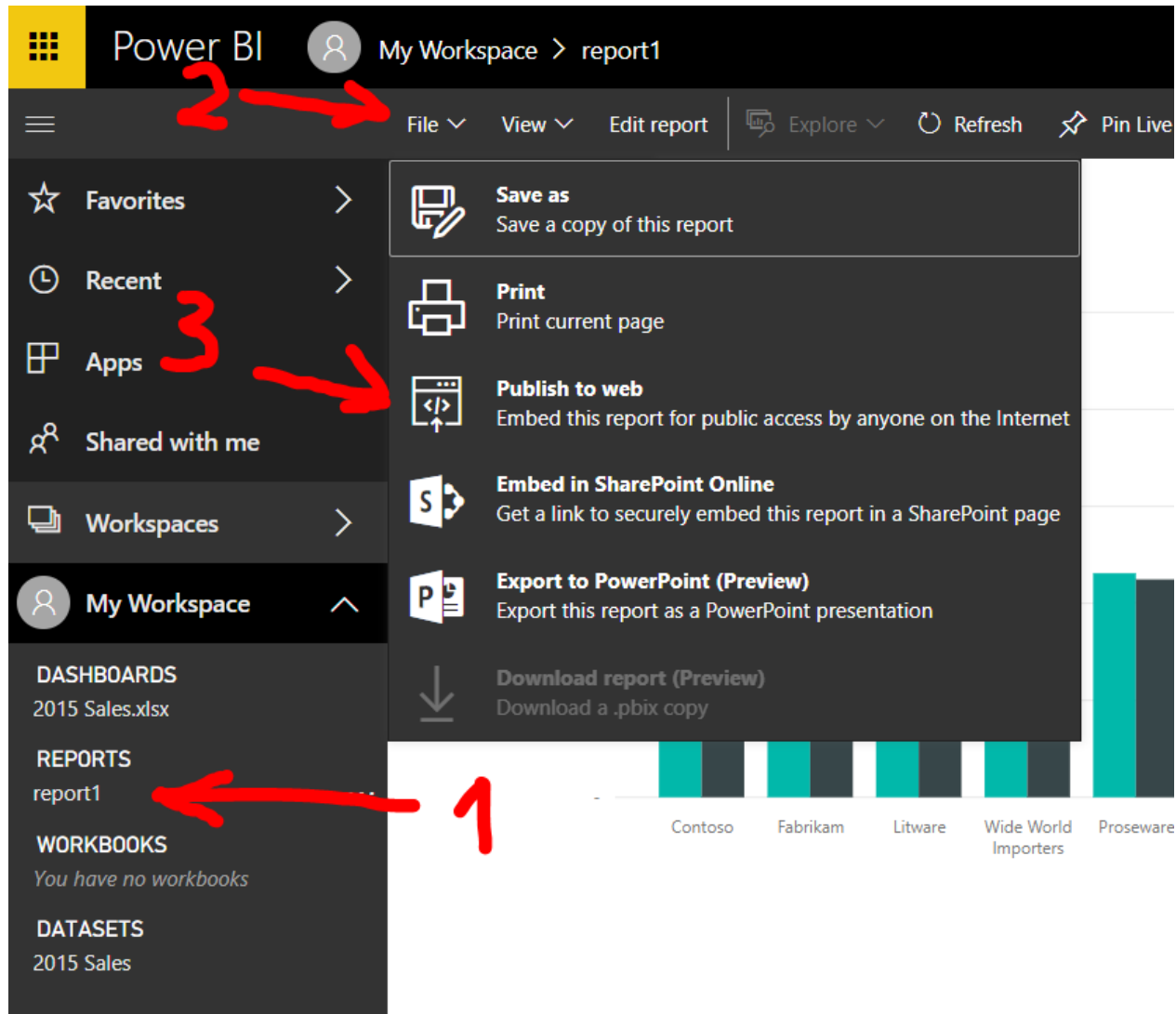
# Microsoft Power BI

## Inviting users outside your organization

- **Internal users** You can invite internal users to share a dashboard by email or by sending them the URL of the dashboard. In the latter case, users must be authorized. If a user does not have authorization, she can ask for permission when she clicks the dashboard URL.
- **External users** You can share a dashboard with external users only by inviting them by email. When an external user receives the email, she must sign in to Power BI using the same email account used in the invitation. If she never previously used Power BI, she can create a free account the first time she signs in.

# Microsoft Power BI

## Publish a report



# Microsoft Power BI

Embed in a public website

Get a link or embed code that you can include on a public website.

You may use the publish to web functionality to share content on a publicly available website. You may not use this functionality to share content internally, including through email, your internal network, or intranet site.

Publish a live version that will remain synchronized with the source report in Power BI. Any changes you make to the report will immediately be reflected in the published public version.

Create embed code Close

Embed in a public website

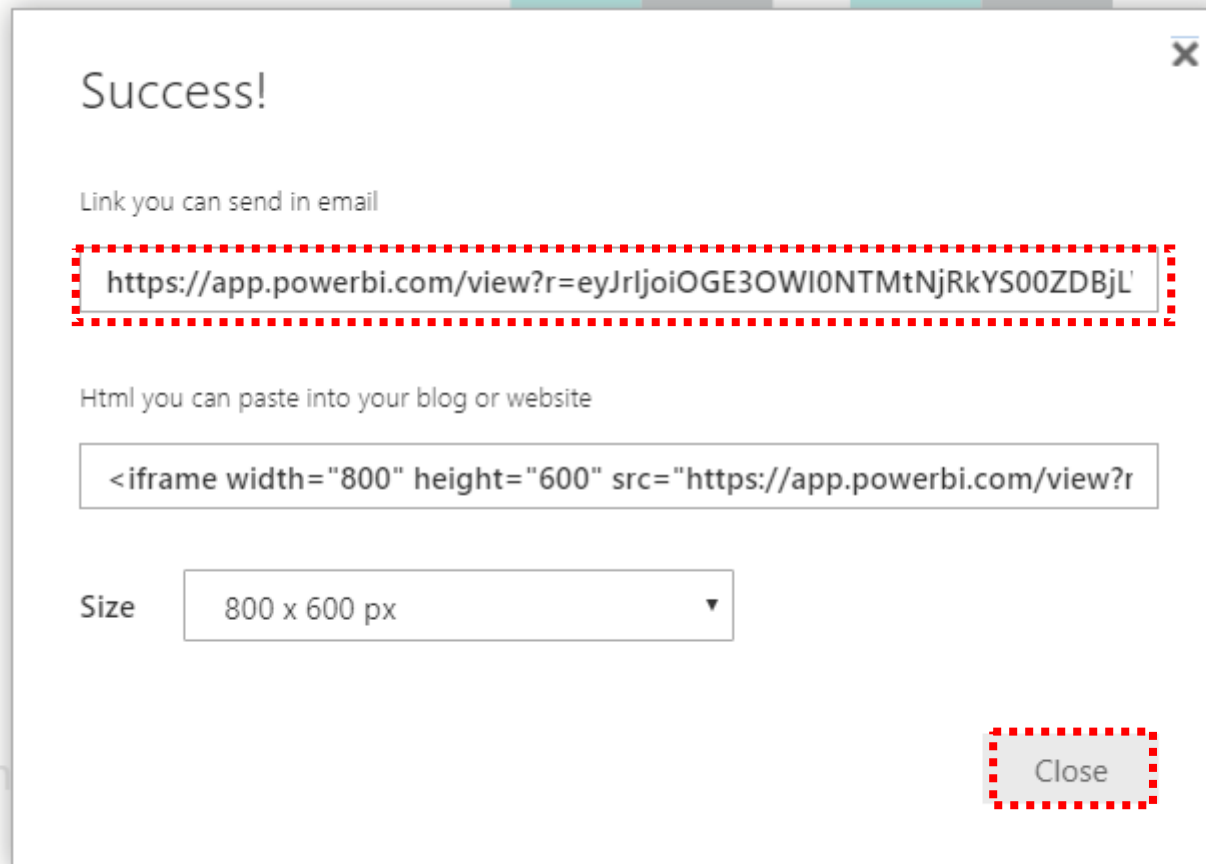
You are about to create an embed code for this report. Once published, anyone on the Internet will be able to access the report and the data it contains, and Microsoft may display the report on a public website or a public gallery.

Before publishing this report, ensure you have the right to share the data and visualizations publicly. Do not publish confidential or proprietary information, or an individual's personal data. If in doubt, check your organization's policies before publishing.

Publish Close

# Microsoft Power BI

Copy Link and open in new browser tab to view report



Success! ✕

Link you can send in email

<https://app.powerbi.com/view?r=eyJrljoiOGE3OWI0NTMtNjRkYS00ZDBjL'>

Html you can paste into your blog or website

```
<iframe width="800" height="600" src="https://app.powerbi.com/view?r
```

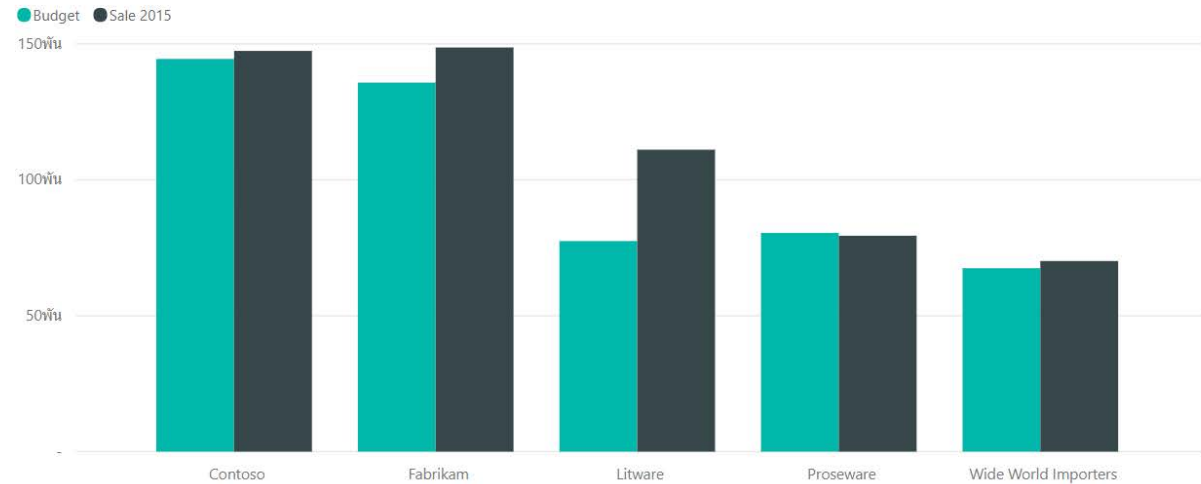
Size

0.5M

# Microsoft Power BI

Anyone who has the URL can view your data

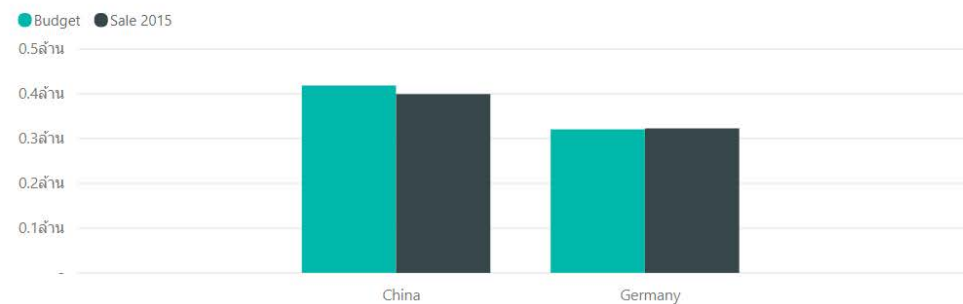
## Budget และ Sale 2015 โดย Brand



## Budget และ Sale 2015 โดย CountryRegion



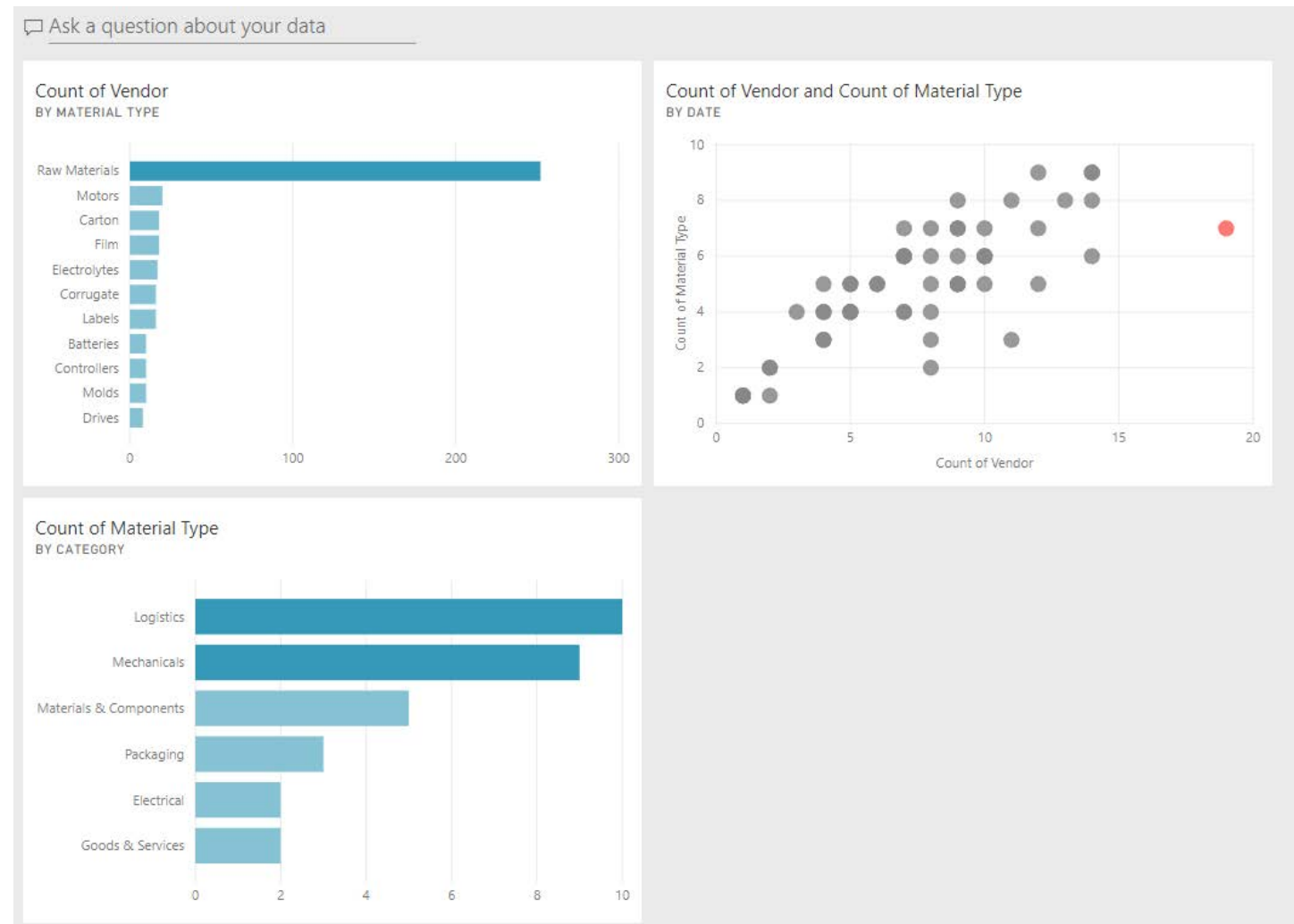
## Sale and Budget by CountryRegion filtered by Brand



# Microsoft Power BI

## Exercise

- Create this report from Supplier Quality Analysis Sim.xlsx
- Pin to dashboard
- Publish



# Creating a group workspace

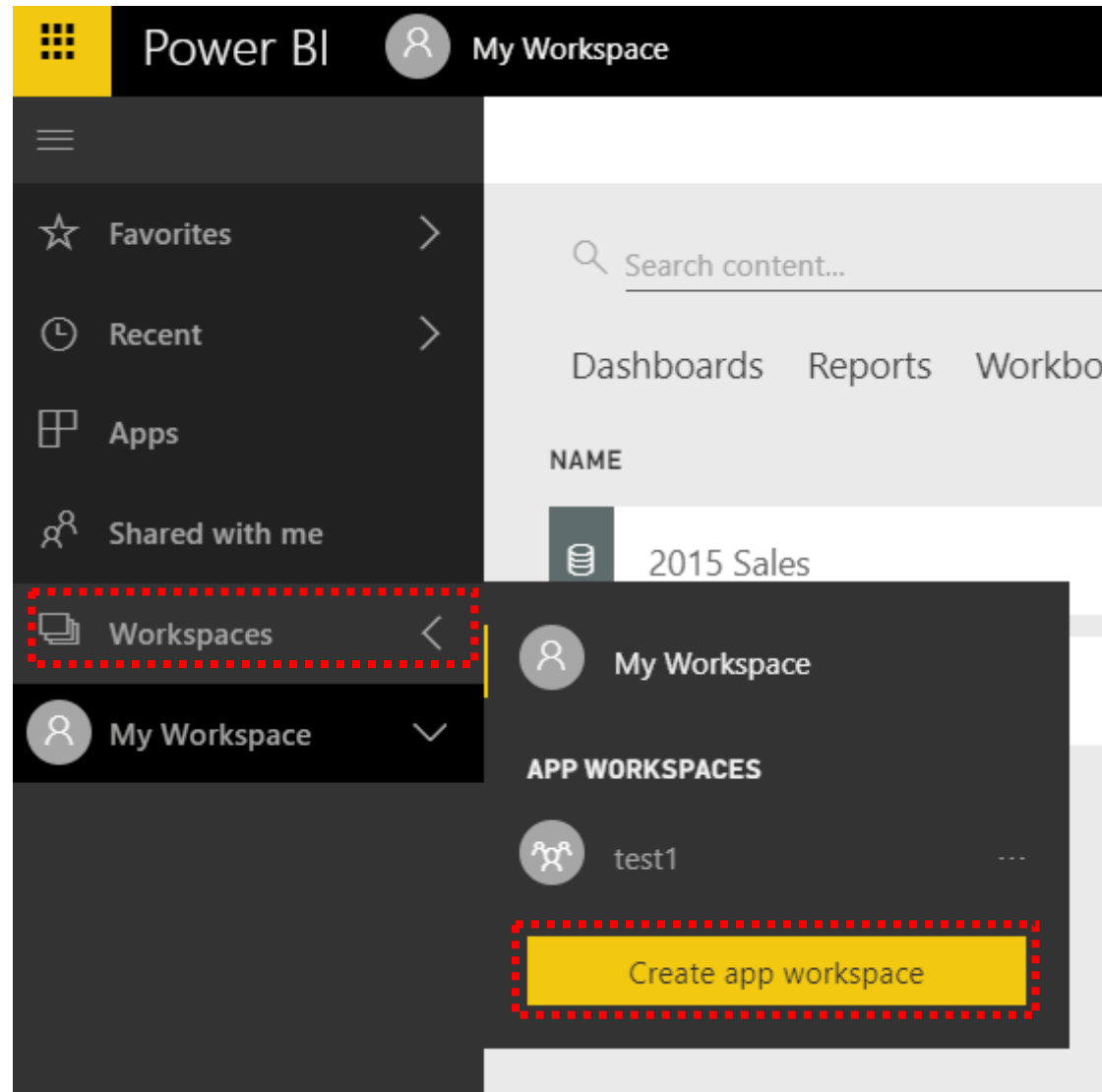
# Microsoft Power BI

## Creating a group workspace in Power BI

- He will need to repeat the same share operation for every dashboard he creates
- When new person join. He will need to send the invitation for all of the dashboards he shares with the group.
- Good news. He can create a group of users with whom he can automatically share all of his dashboards
- And also provide editing rights to certain users within that group.
- By creating groups of users in Power BI, you increase the level of collaboration among them.
- You must have a Power BI Pro license to create group workspace



# Microsoft Power BI




# Microsoft Power BI

## Create an app workspace

Name your workspace

Workspace ID


 Available


Public - Anyone can see what's inside

Members can edit Power BI content

Add workspace members

**Add**

Advanced 

**Save** Cancel

# Microsoft Power BI

- We must create group before import and create report
- Import data to this group
- Create Report for this group

**Welcome to the Budget 2016 workspace**

You're on your way to exploring your data and monitoring what matters with all your group members.  
Let's start by getting some data.

Need more guidance? [Try this tutorial](#) or [watch a video](#)

### Microsoft AppSource

- My organization**  
Browse content packs that other people in your organization have published.  
[Get](#)
- Services**  
Choose content packs from online services that you use.  
[Get](#)

### Import or Connect to Data

- Files**  
Bring in your reports, workbooks, or data from Excel, Power BI Desktop or CSV files.  
[Get](#)
- Databases**  
Connect to live data in Azure SQL Database and more.  
[Get](#)

[Samples](#) [Solution Templates](#) [Partner Showcase](#) [Skip for now](#)

# Power BI Desktop

# Microsoft Power BI

## Download Power BI Desktop

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

Microsoft | Power BI | Products | Pricing | Solutions | Partners | Learn

# Go from data to insight to action with Power BI Desktop

Create rich, interactive reports with visual analytics  
at your fingertips—for free.

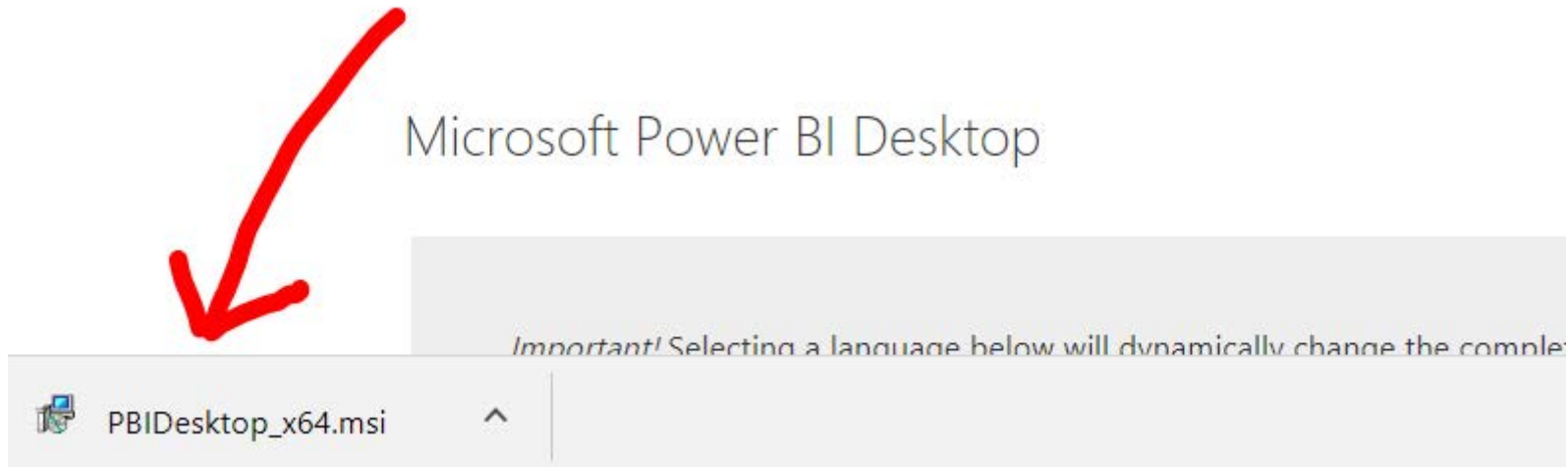
DOWNLOAD FREE >

ADVANCED DOWNLOAD OPTIONS >

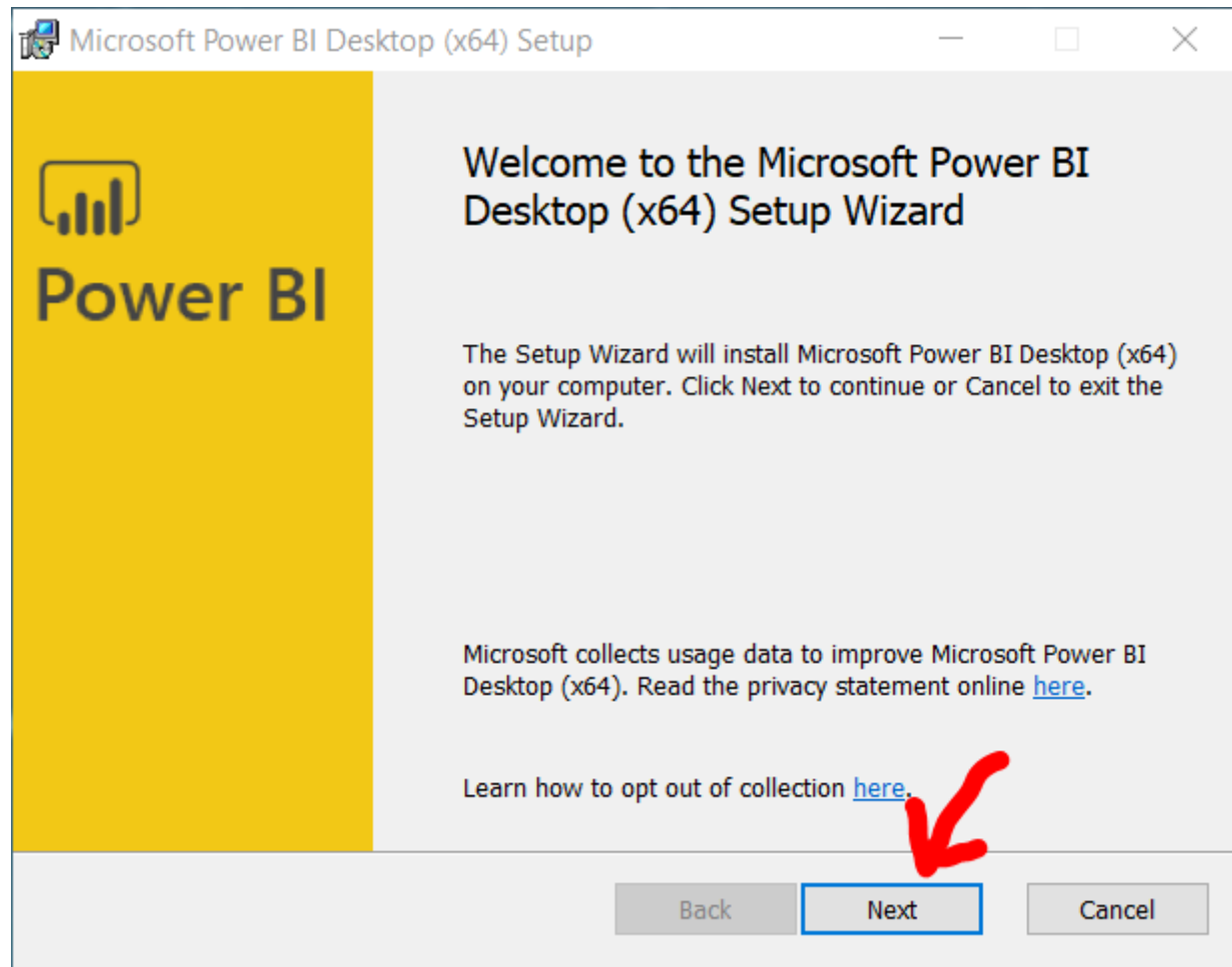


# Microsoft Power BI

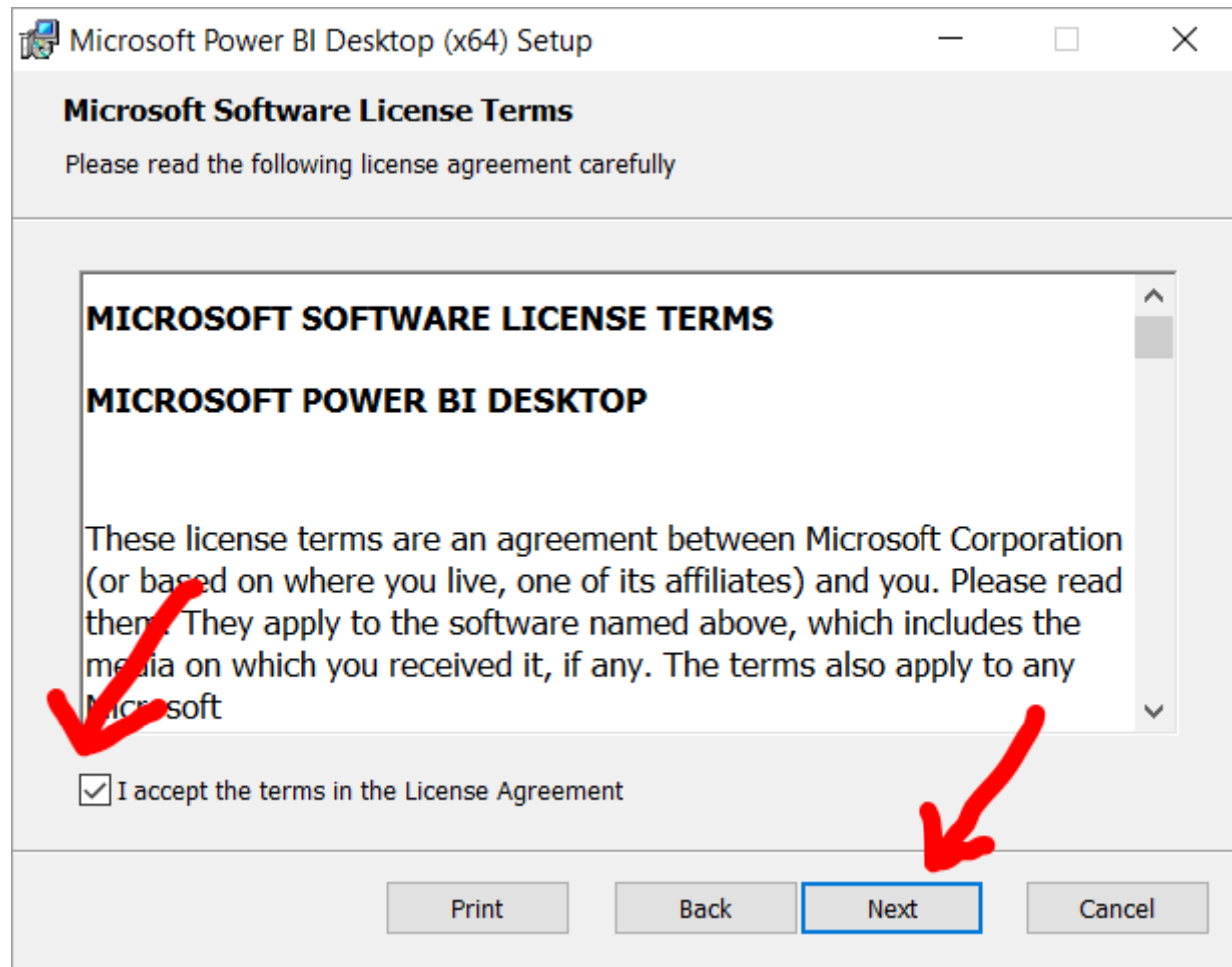
Click to install



# Microsoft Power BI

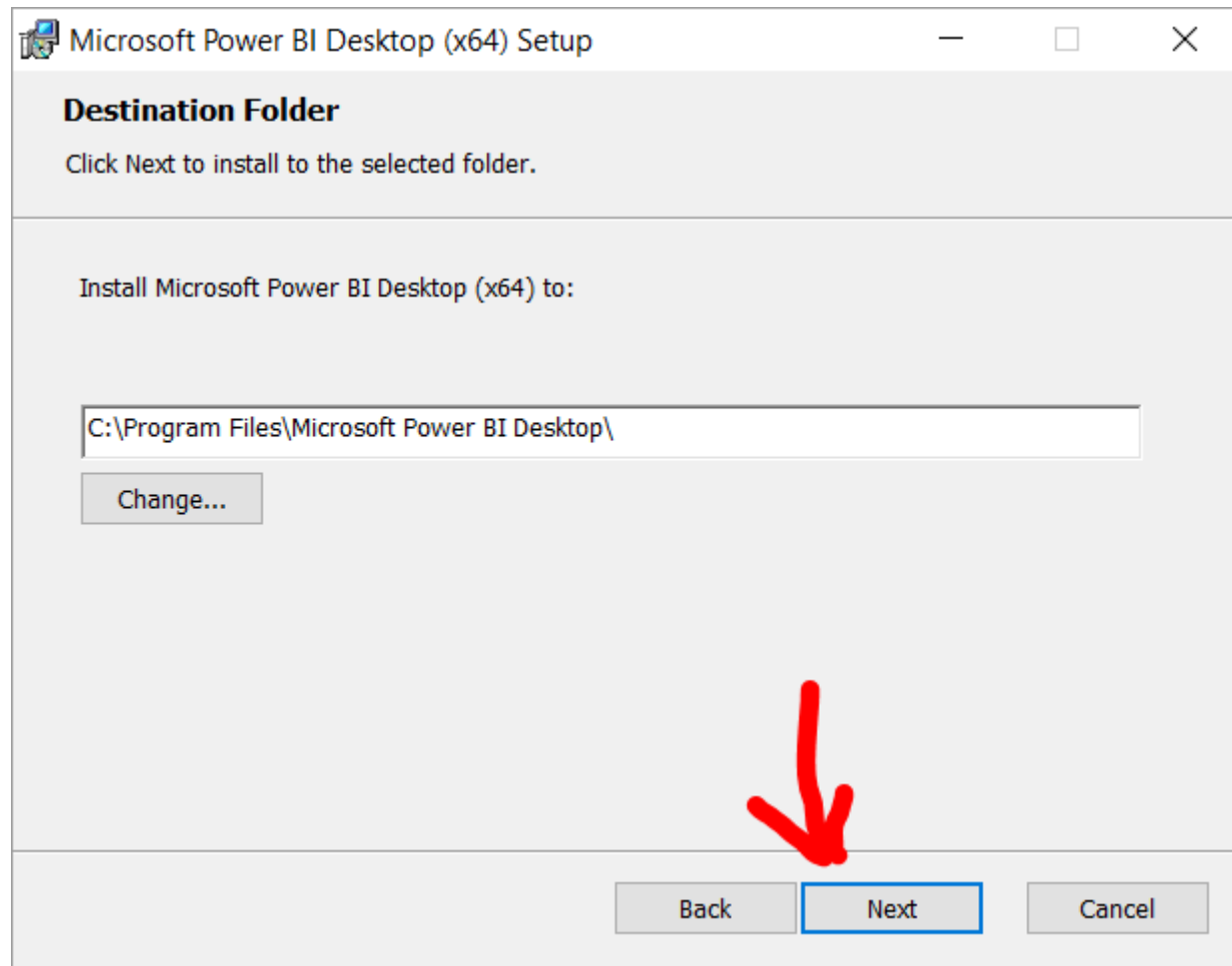


# Microsoft Power BI

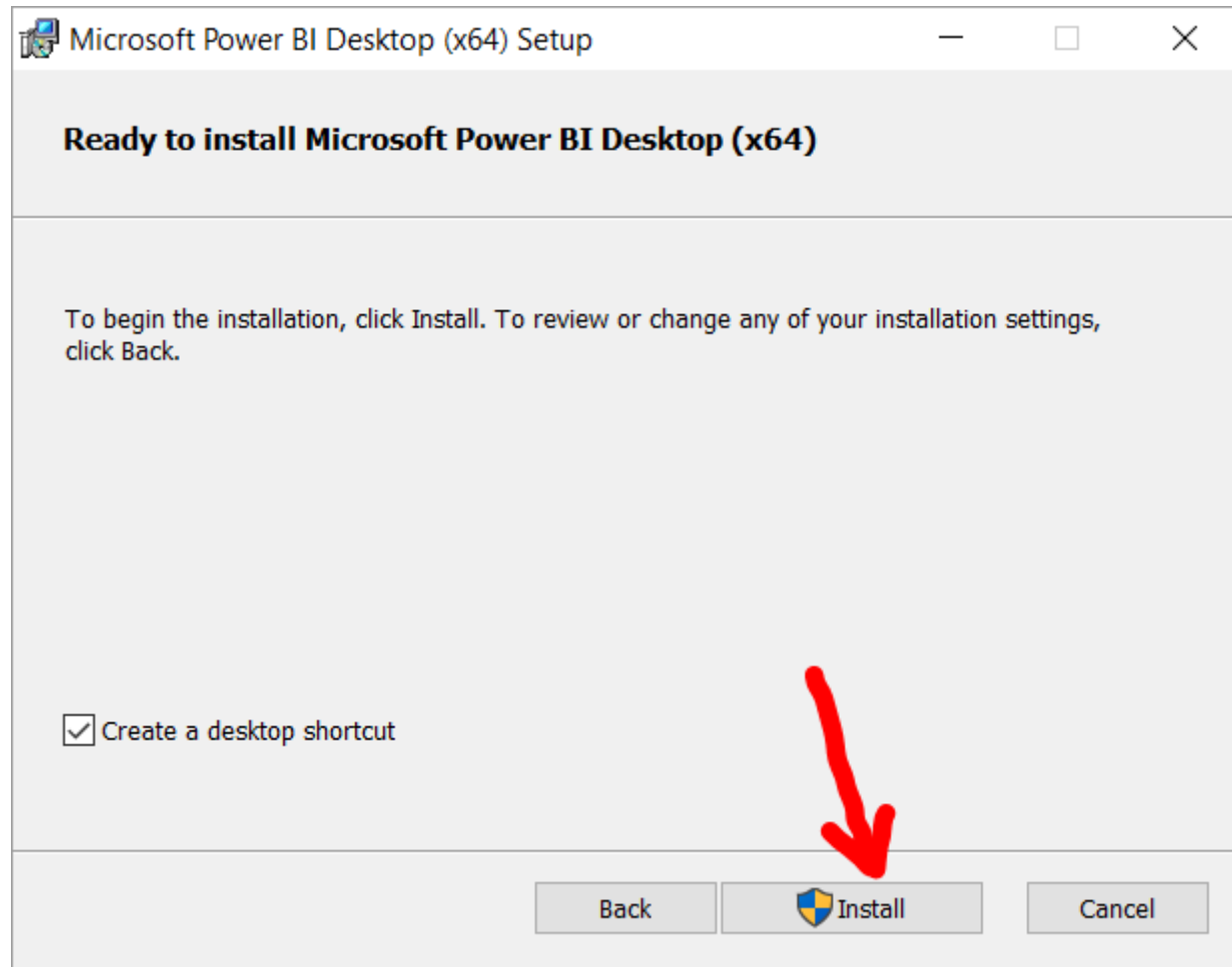




# Microsoft Power BI



# Microsoft Power BI



# Microsoft Power BI



# Microsoft Power BI

Already have a Power BI account? Sign in

Welcome to Power BI Desktop

Where can we send you the latest tips and tricks for Power BI?

First Name \*

Last Name \*

Email Address \*

Enter your phone number \*

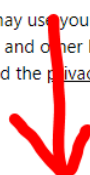
Country/region \*

Company name \*

Company size... \*

Job Title\*

Microsoft may use your contact information to provide updates and special offers about Business Intelligence and other Microsoft products and services. You can unsubscribe at any time. To learn more you can read the [privacy statement](#).

 Done

[Already have a Power BI account? Sign in](#)

# Microsoft Power BI

Sign in

Power BI Desktop and the Power BI service work seamlessly when you're signed in.

loy1@tactechthai.com

Sign in

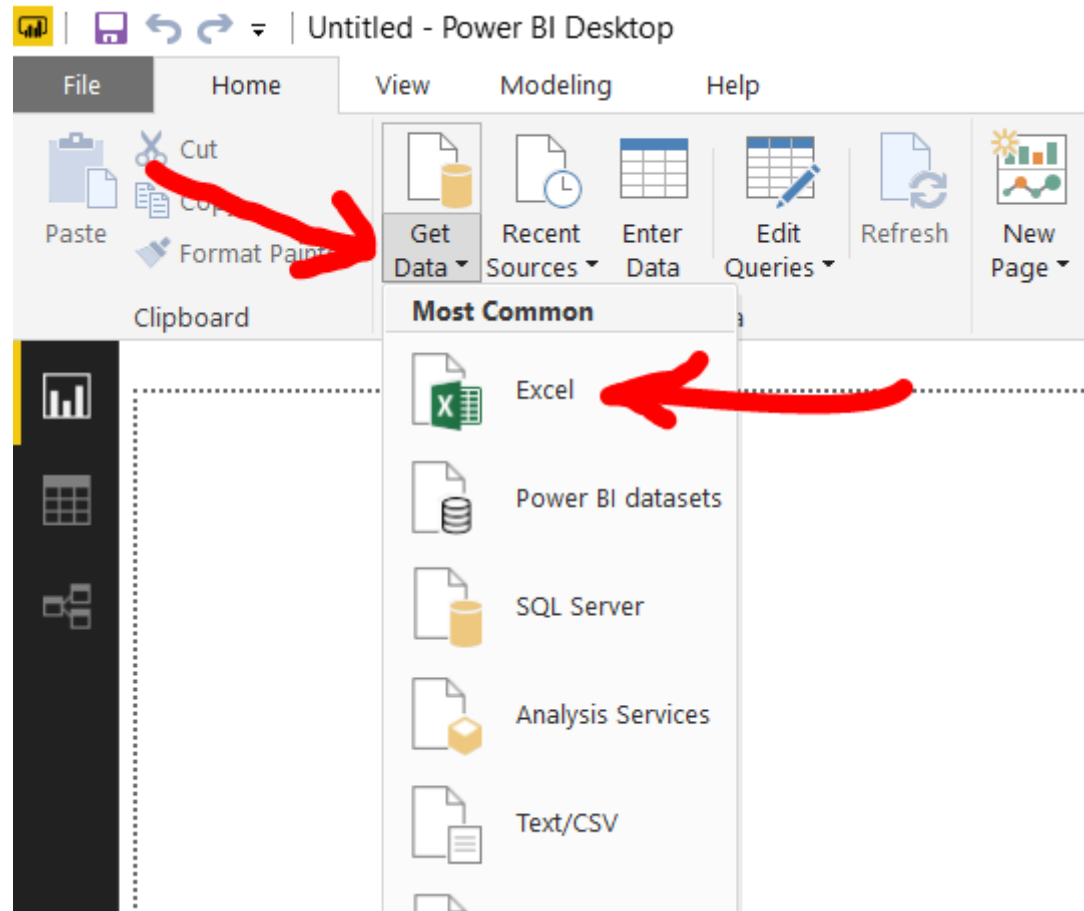
[Need a Power BI account? Try for free](#)

# Microsoft Power BI

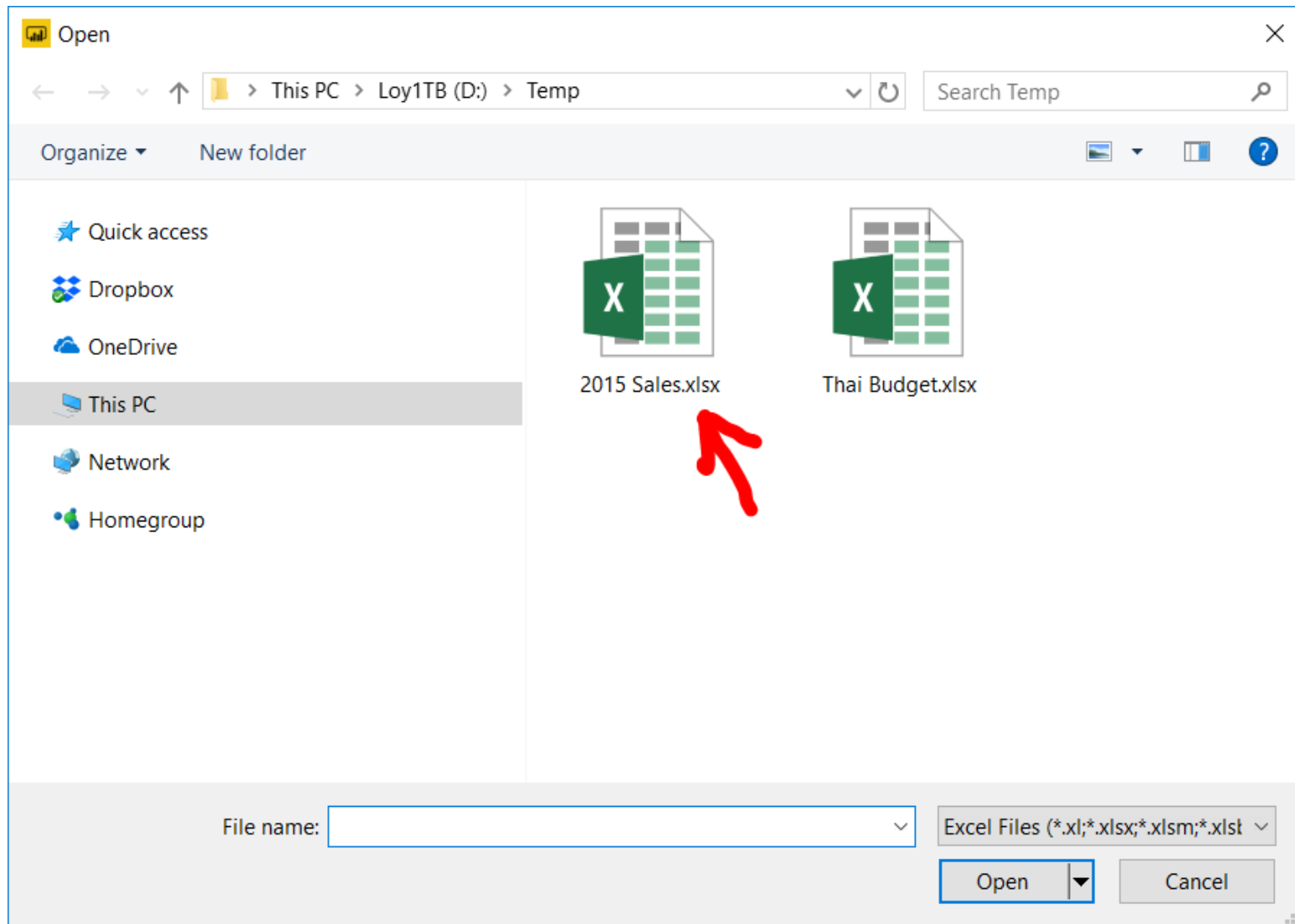
The screenshot shows the Microsoft Power BI Desktop interface. At the top is the ribbon with tabs for File, Home, View, Modeling, and Help. The Home tab is active, showing various icons for data operations like Get Data, Recent Sources, Enter Data, Edit Queries, Refresh, New Page, New Visual, Ask a Question, Buttons, Image, Shapes, Text box, From Marketplace, From File, Switch Theme, Manage Relationships, New Measure, New Column, and New Quick Measure. A Publish button is also visible. On the left is a navigation pane with icons for Reports, Datasets, and My Recent Reports. A large yellow help overlay is positioned in the center-right, featuring the text "Power BI Desktop" and three main options: "Get data", "Recent sources", and "Open other reports". Below this, there's a section for "Getting started with Power BI Desktop" with four video thumbnails: "Building reports", "Query view concepts", "Uploading your reports", and "Create a Phone report". A "VIEW ALL VIDEOS" link is at the bottom right of this section. To the right of the videos, there are sections for "WHAT'S NEW", "FORUMS", and "POWER BI BLOG", each with a brief description. A "TUTORIALS" section follows, with the text "Ready to learn more about Power BI?" and a list of links: "Get started with Power BI Desktop", "Download a sample", "Watch our training videos", "See what others have built", and "All guided learning". A red arrow points to the top right corner of the yellow overlay, where the name "Loy Vanich" is written next to a close button (X).

# Microsoft Power BI

## Get Data



# Microsoft Power BI





# Microsoft Power BI

Navigator

2015 Sales.xlsx [2]

- Sales
- Sales Worksheet**

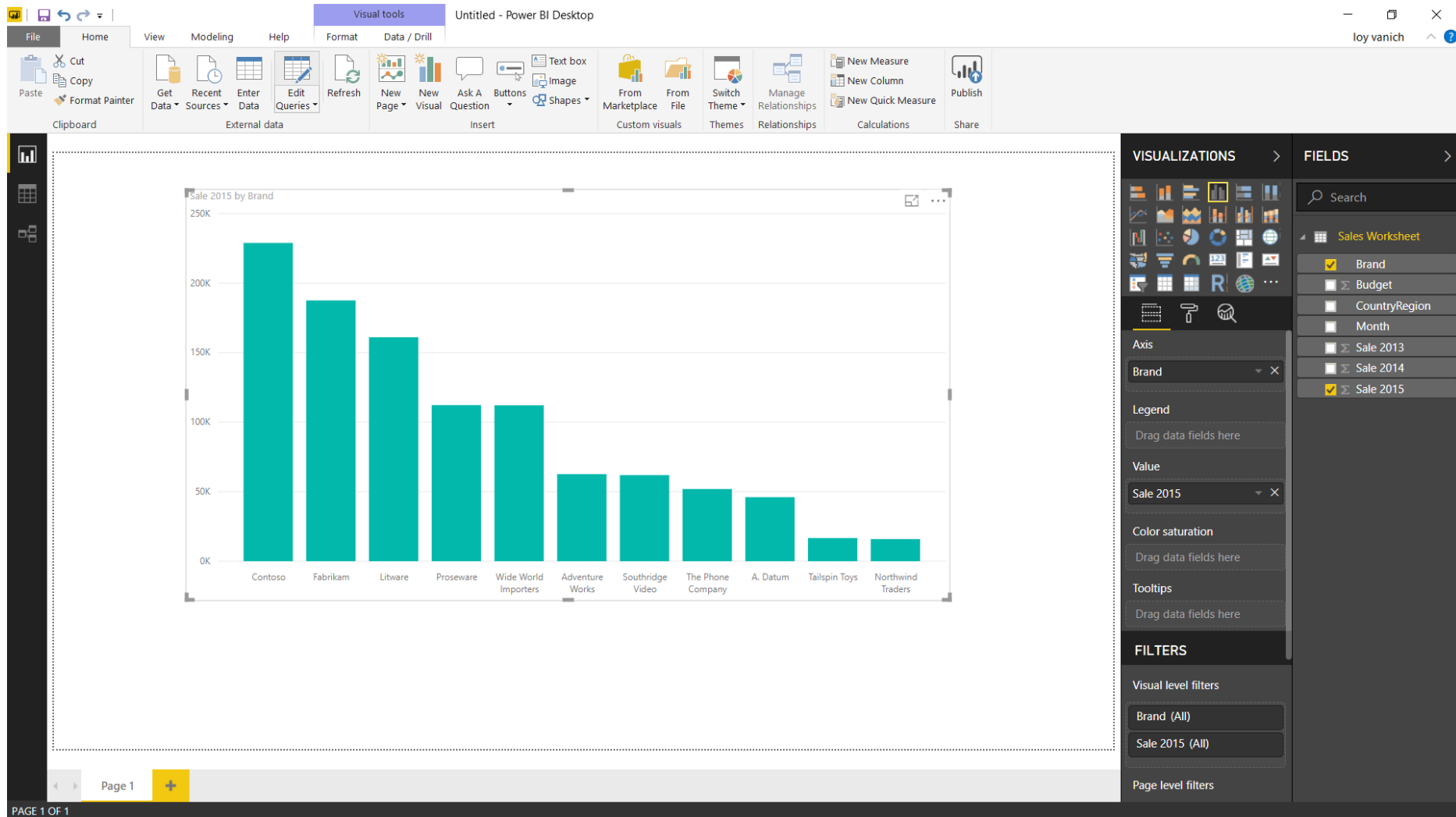
Sales Worksheet

CountryRegion	Brand	Month	Sale 2013	Sale 2014
China	A. Datum	January	3234	
China	A. Datum	February	6270	
China	A. Datum	March	4352	
China	A. Datum	April	3814	
China	A. Datum	May	6234	
China	A. Datum	June	5571	
China	A. Datum	July	7424	
China	A. Datum	August	null	
China	A. Datum	September	1254	
China	A. Datum	October	1881	
China	A. Datum	November	null	
China	A. Datum	December	6135	
China	Adventure Works	January	12418.26	
China	Adventure Works	February	31770.26	
China	Adventure Works	March	3689.85	
China	Adventure Works	April	499.9	
China	Adventure Works	May	null	
China	Adventure Works	June	15790	
China	Adventure Works	July	9938.12	
China	Adventure Works	August	14035.71	
China	Adventure Works	September	16638.85	
China	Adventure Works	October	11864.76	
China	Adventure Works	November	2819.82	

Load Edit Cancel

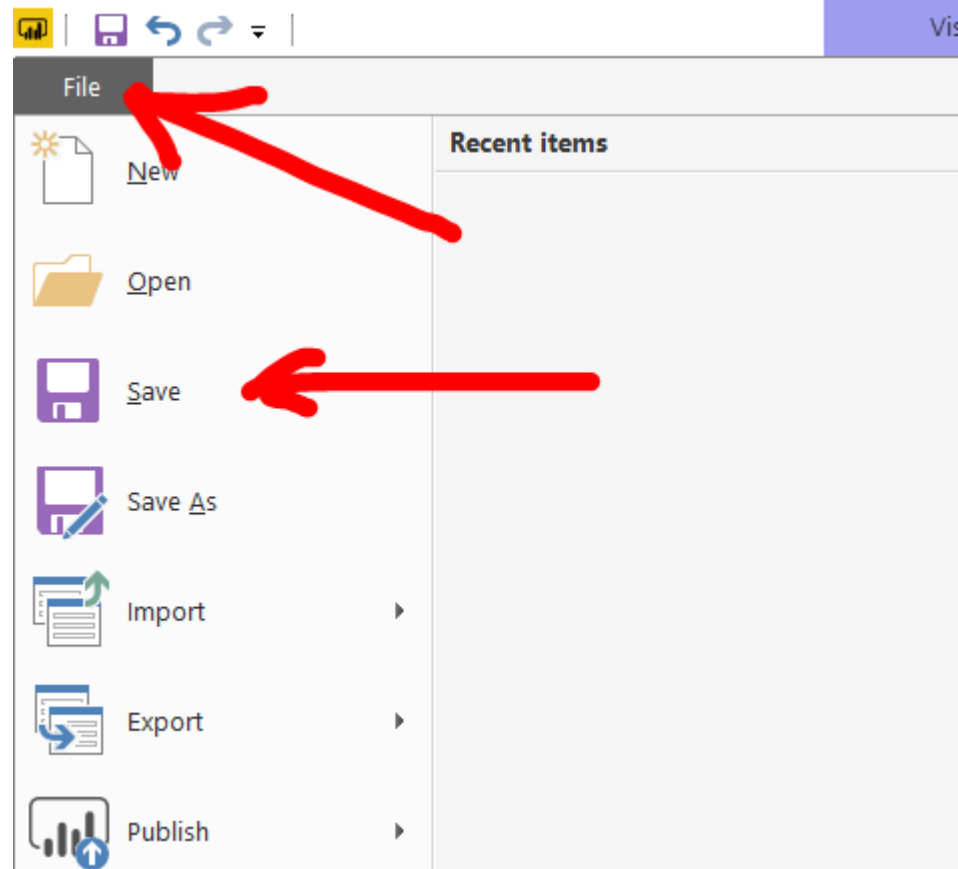
# Microsoft Power BI

## Sale 2015 by Brand



# Microsoft Power BI

## Save Report



# Microsoft Power BI

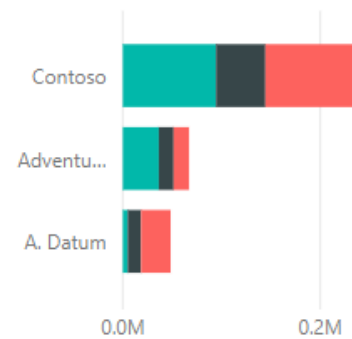
## Exercise

Create this report from Thai Budget.xlsx in Desktop Power BI and Save to C:\temp\ThaiReport2.pbix

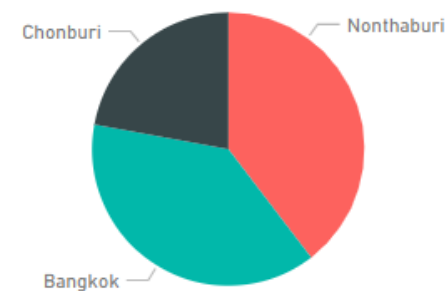
Brand	Budget	Prvince
A. Datum	5000	Bangkok
A. Datum	13500	Chonburi
A. Datum	30000	Nonthaburi
Adventure Works	36500	Bangkok
Adventure Works	15000	Chonburi
Adventure Works	15600	Nonthaburi
Contoso	94500	Bangkok
Contoso	50000	Chonburi
Contoso	95000	Nonthaburi
<b>Total</b>	<b>355100</b>	

Budget by Brand and Prvince

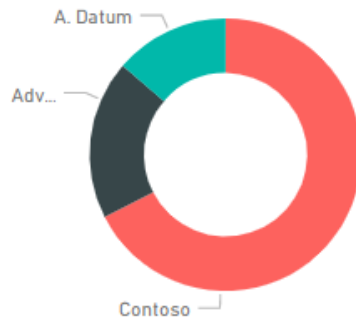
Prvince ● Bangkok ● Chonburi ● Nonthaburi



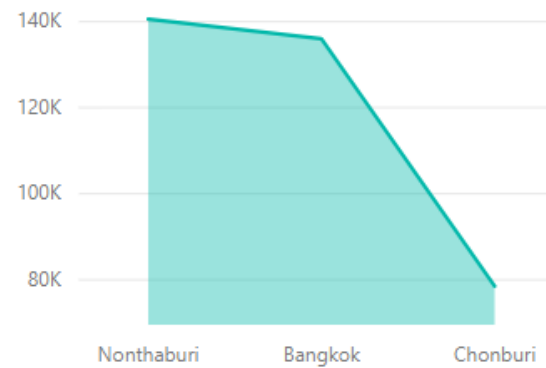
Budget by Prvince



Budget by Brand



Budget by Prvince



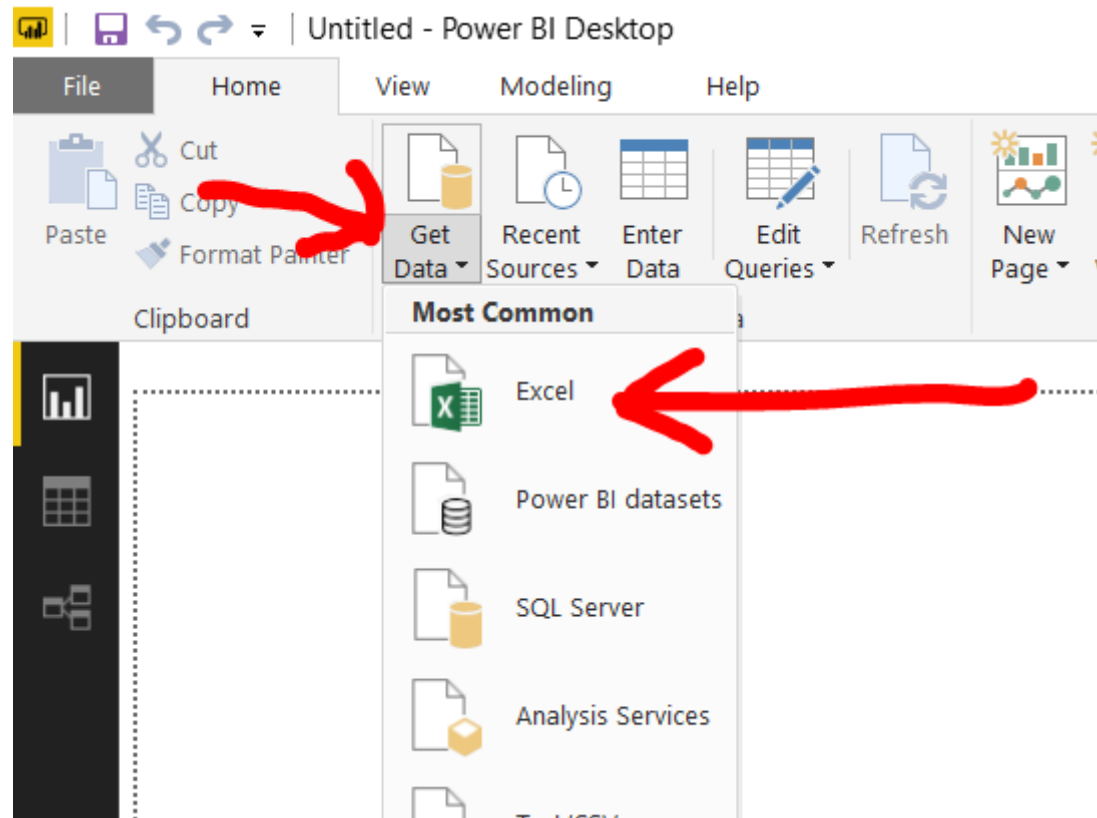
Budget



# Map

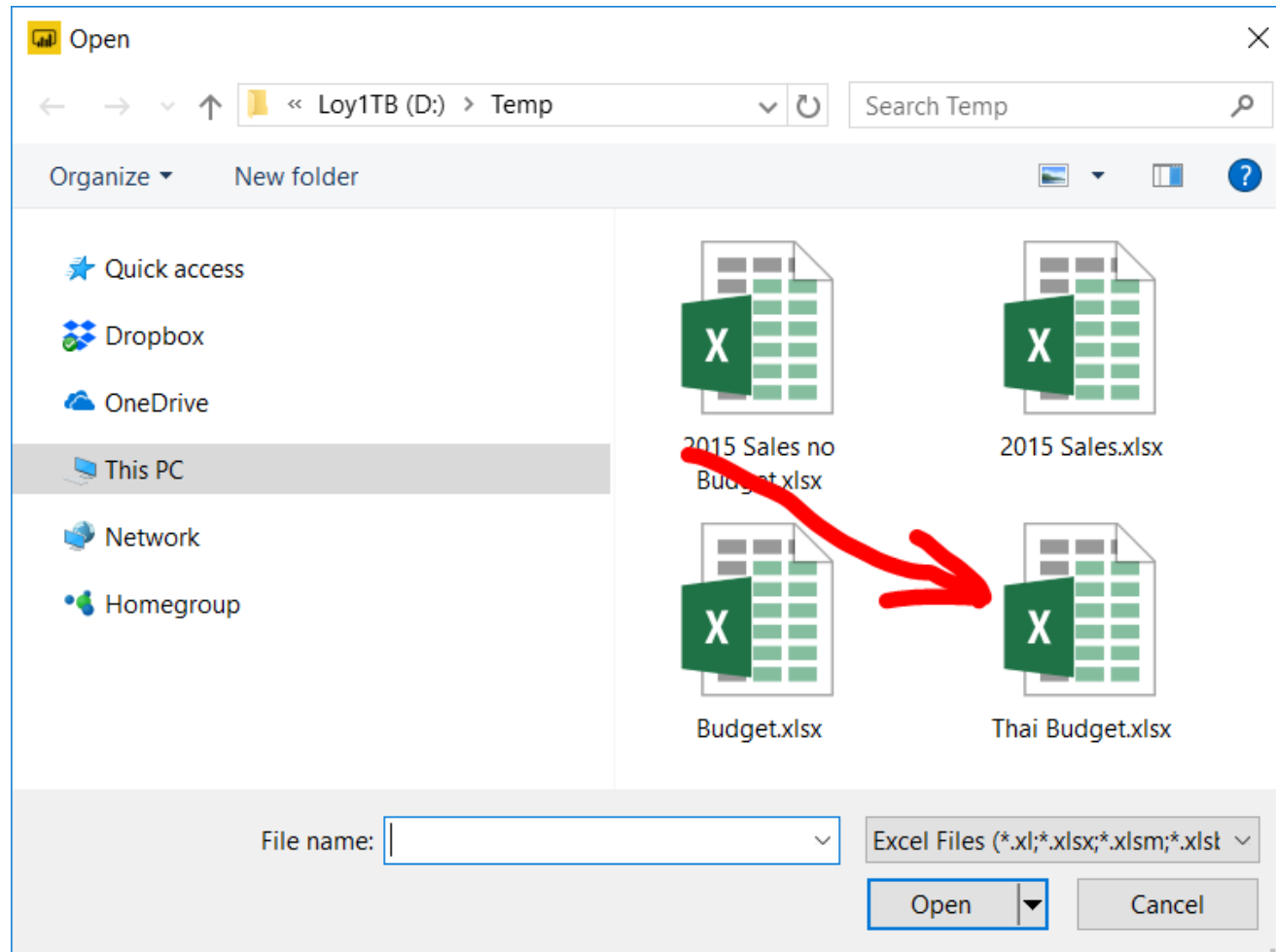
# Microsoft Power BI

## Get Data / Excel



# Microsoft Power BI

## Thai Budget.xlsx



# Microsoft Power BI

Sales / Load

## Navigator

Display Options ▾

▾  Thai Budget.xlsx [2]

 Sales

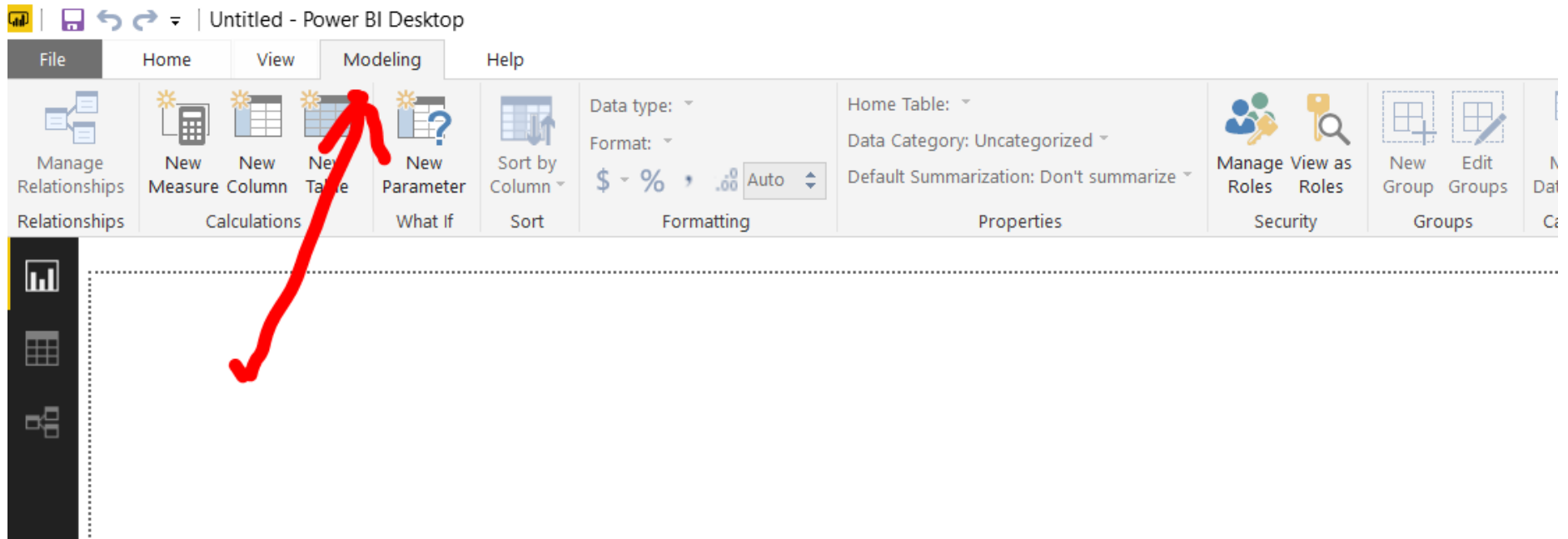
 Sheet1





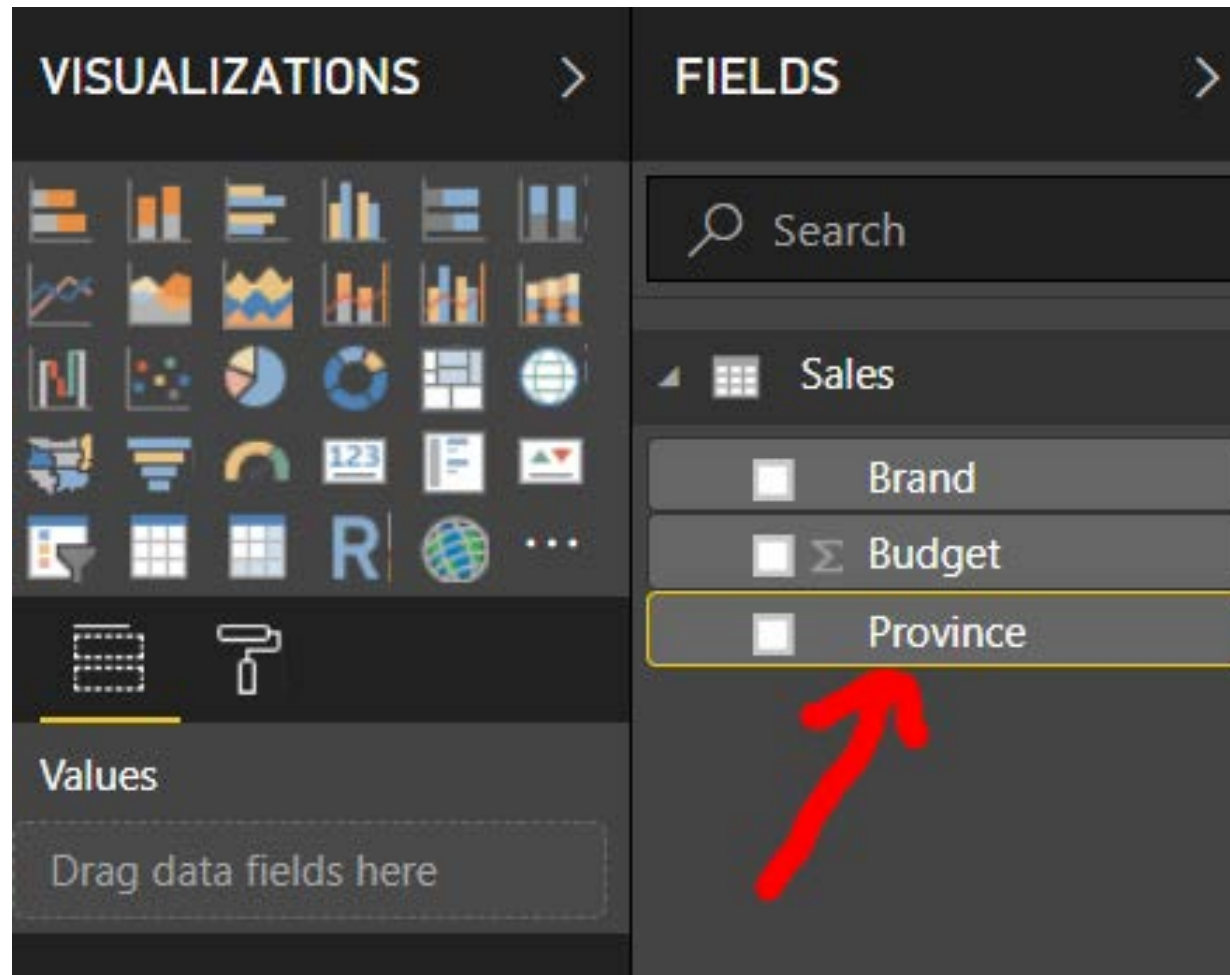
# Microsoft Power BI

Click tab Modeling



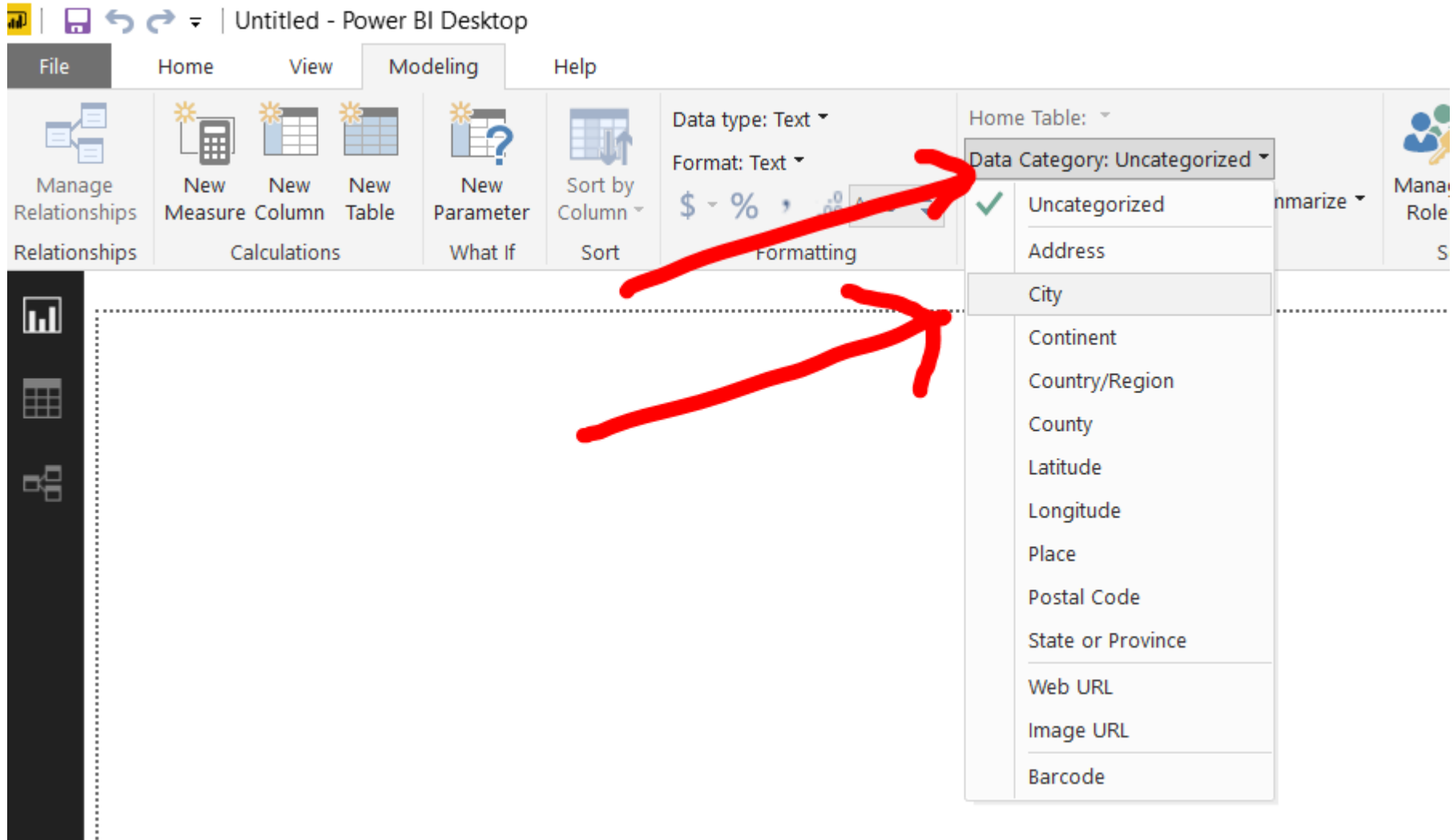
# Microsoft Power BI

Click Province



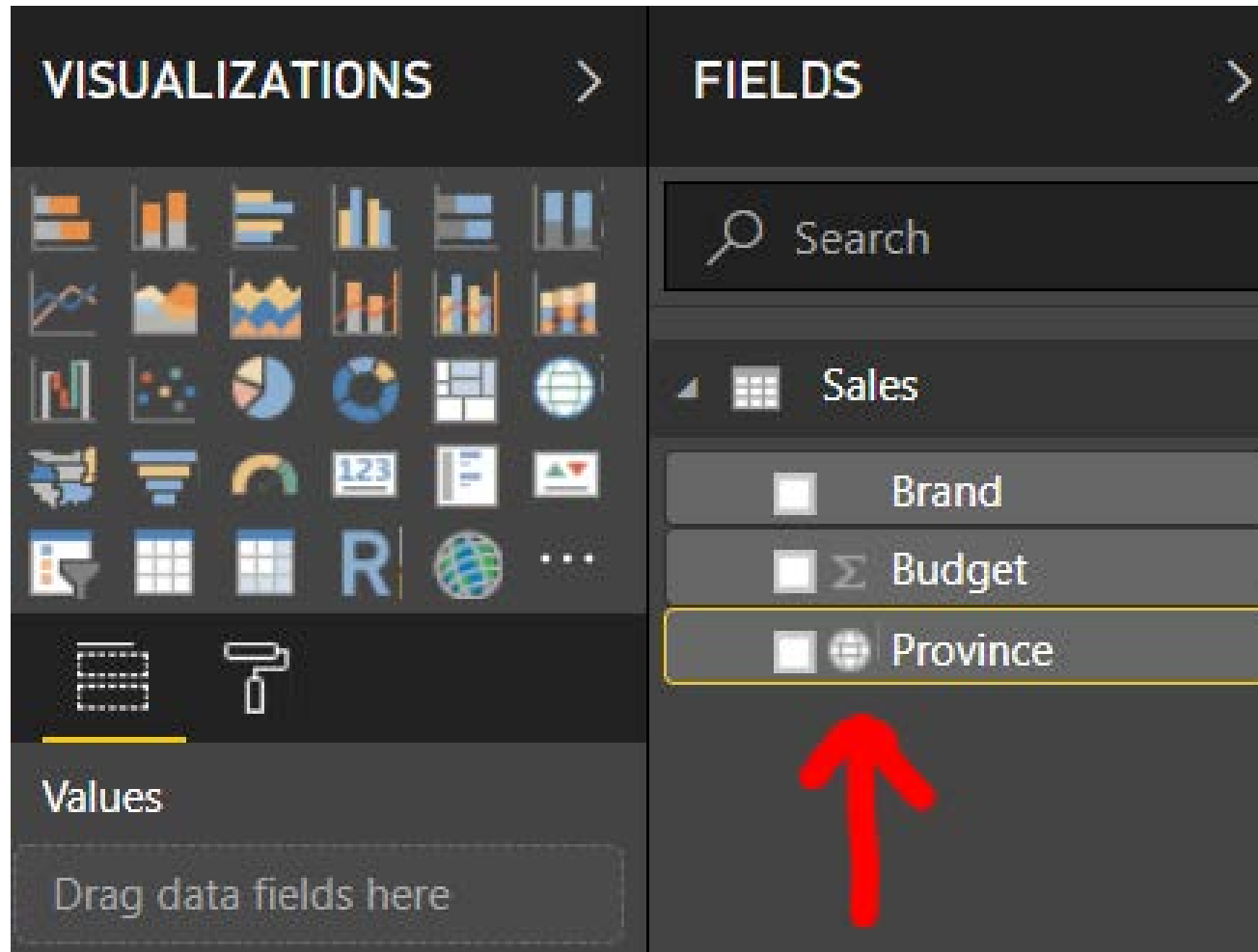
# Microsoft Power BI

## Data Category / City



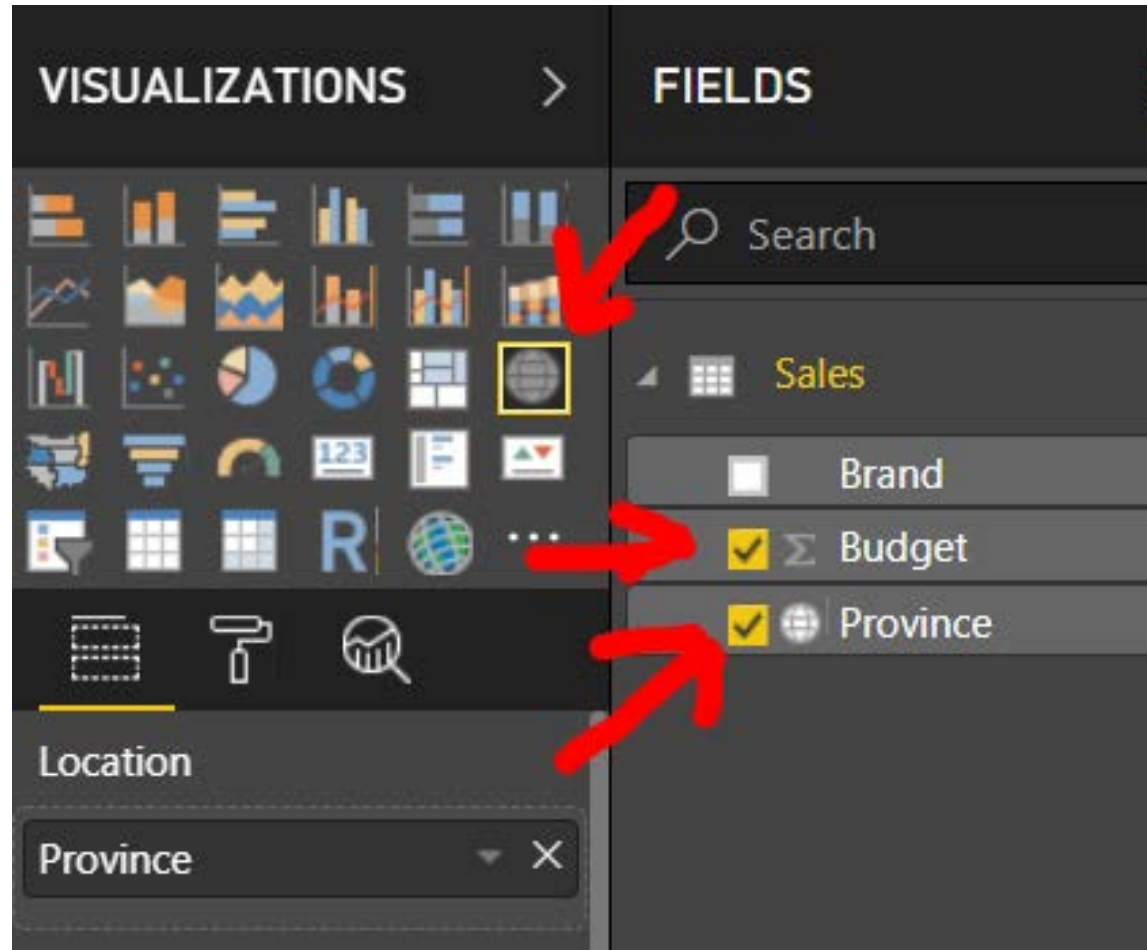
# Microsoft Power BI

Notice Globe icon



# Microsoft Power BI

Province / Budget / Map



# Microsoft Power BI

## Adjust Map's size

The screenshot displays the Microsoft Power BI Desktop interface. The main workspace shows a map visualization titled "Budget by Province" centered on Bangkok, Thailand. The map includes labels for various districts such as Nonthaburi, Bangkok, and Samut Prakan. The interface includes a ribbon with tabs for File, Home, View, Modeling, Help, Format, and Data / Drill. The Visual tools tab is active, showing options for Data type, Format, and Home Table. The right-hand side features two panes: "VISUALIZATIONS" and "FIELDS". The "FIELDS" pane shows a hierarchy of fields: Sales, Brand, Budget, and Province. The "VISUALIZATIONS" pane shows various visualization options, with the map icon selected. The "Location" field is set to "Province", and the "Budget" field is selected for the size property.



# Microsoft Power BI

## Add Filled Map

The screenshot displays the Microsoft Power BI interface. On the left, a map visualization titled "Budget by Province" is shown. The map highlights two provinces: Nonthaburi (colored green) and Samut Prakan (colored red). A red arrow points from the map to the visualization pane on the right. The visualization pane is divided into two sections: "VISUALIZATIONS" and "FIELDS".

**VISUALIZATIONS**

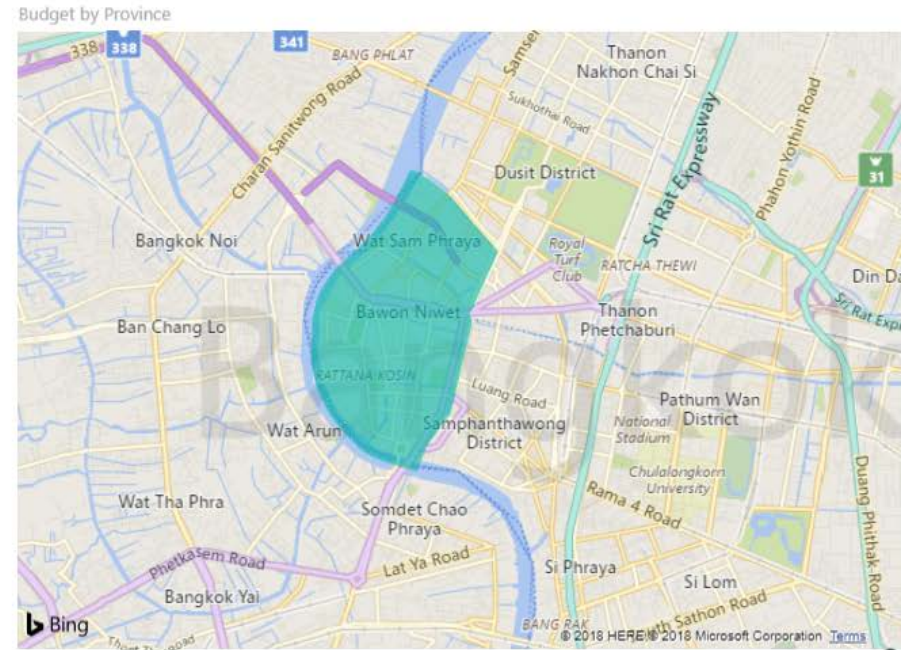
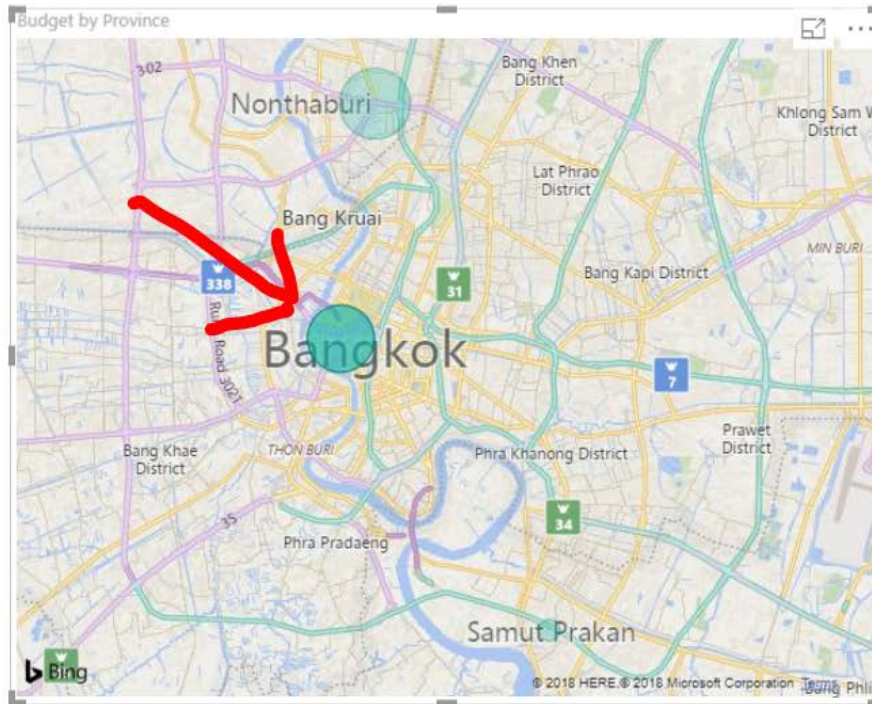
- Location: Province
- Legend: Drag data fields here
- Latitude: Drag data fields here
- Longitude: Drag data fields here

**FIELDS**

- Search
- Sales
- Brand
- Budget
- Province

# Microsoft Power BI

Click each province to see interaction

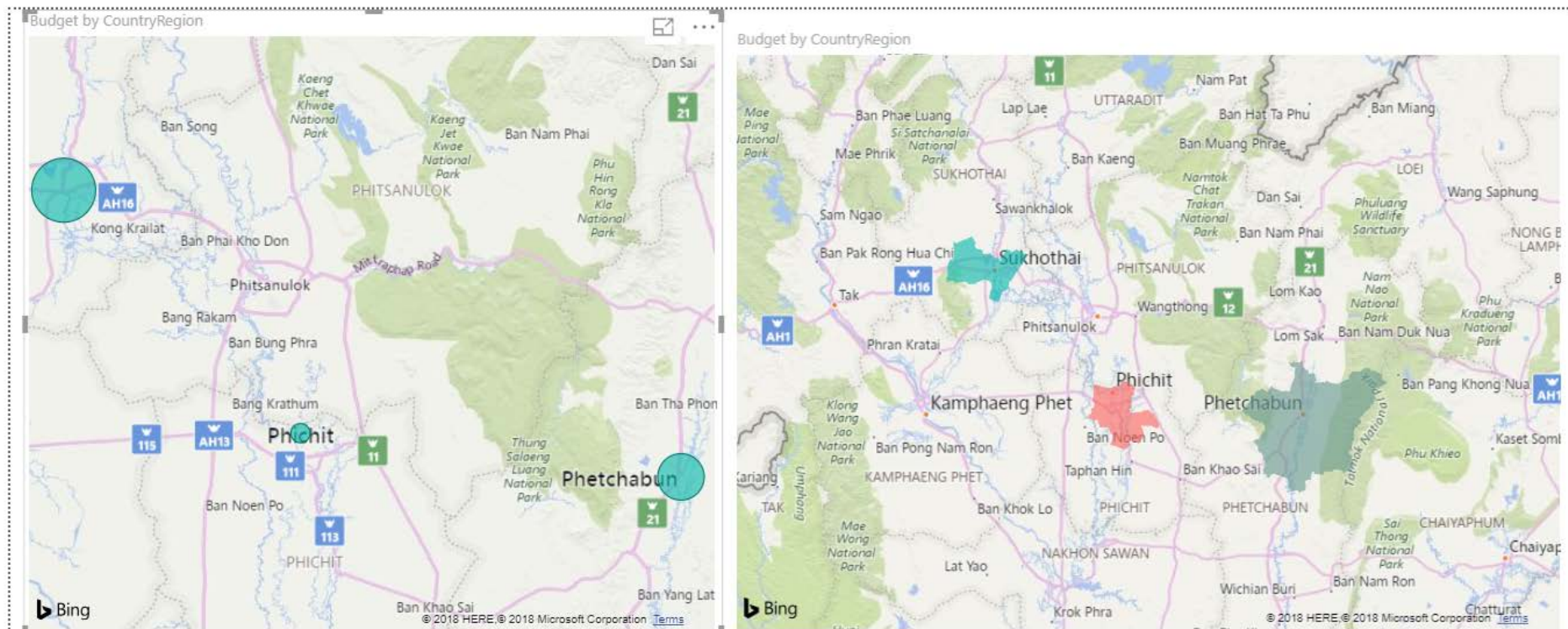




# Microsoft Power BI

## Exercise

Use North Budget.xlsx to create map as shown below



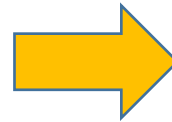
# Query Editor Introduction

# Microsoft Power BI

Join two data source

## Budget

	CountryRegion	Brand	Budget
1	China	A. Datum	5000
2	China	Adventure Works	36500
3	China	Contoso	94500
4	China	Fabrikam	90800
5	China	Litware	65000
6	China	Northwind Traders	12000
7	China	Proseware	20000
8	China	Southridge Video	22500
9	China	Tailspin Toys	8000
10	China	The Phone Company	30000
11	China	Wide World Importers	45000
12	Germany	A. Datum	13500

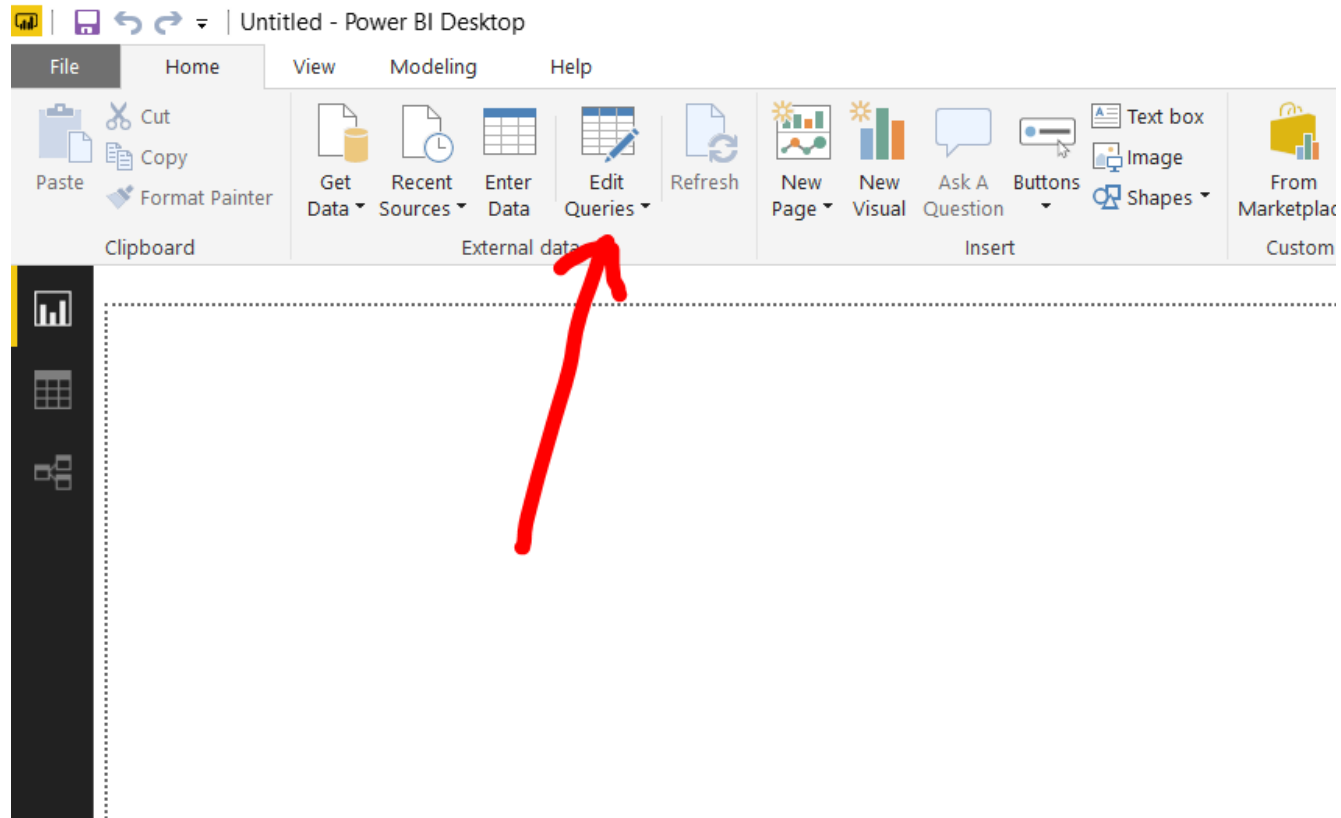


## Sales 2015

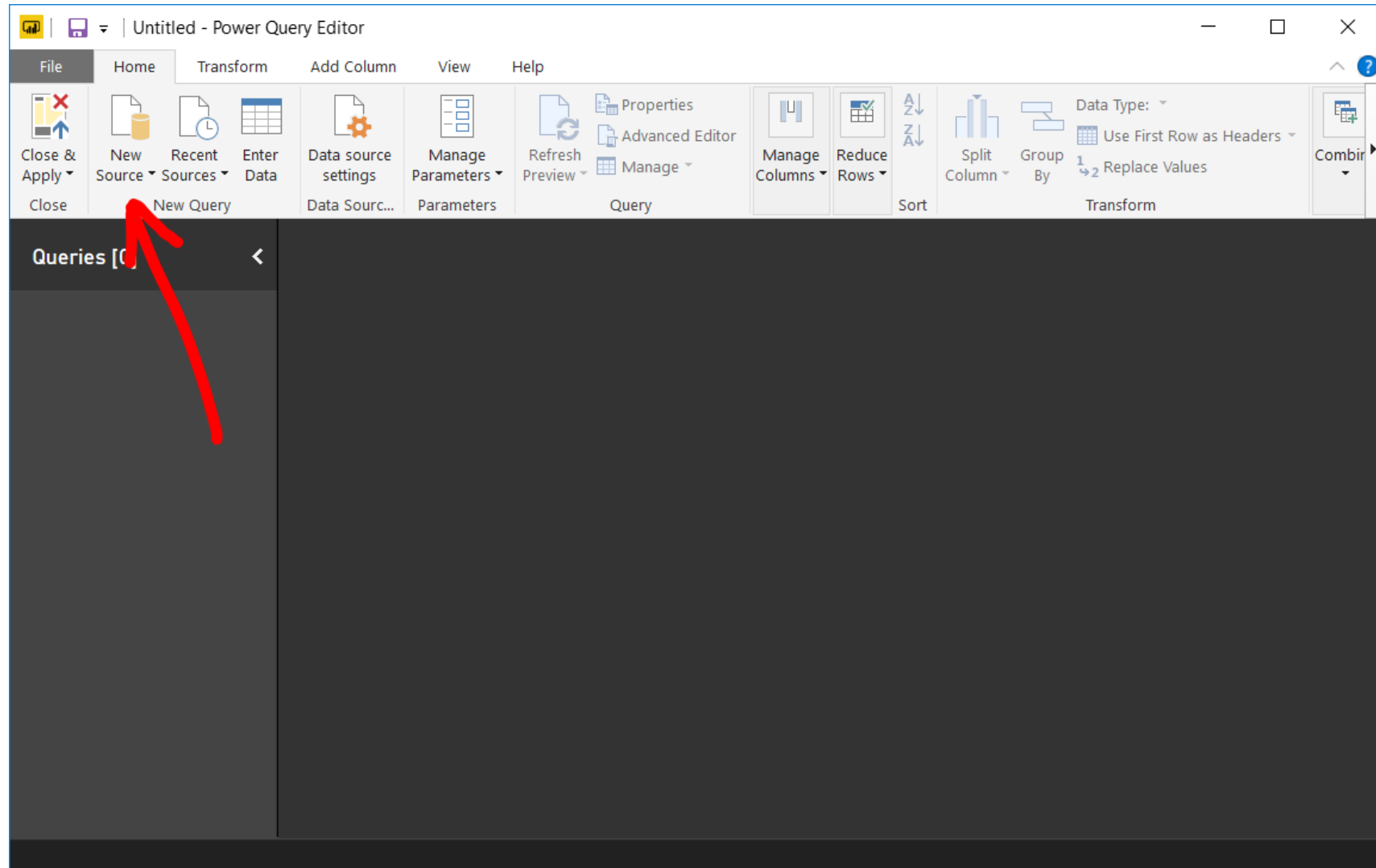
	CountryRegion	Brand	Month	Sale 2013	Sale 2014	Sale 2015
1	China	A. Datum	January	3234	NULL	1935
2	China	A. Datum	February	6270	7059	NULL
3	China	A. Datum	March	4352	NULL	NULL
4	China	A. Datum	April	3814	NULL	NULL
5	China	A. Datum	May	6234	NULL	NULL
6	China	A. Datum	June	5571	3216	NULL
7	China	A. Datum	July	7424	NULL	NULL
8	China	A. Datum	August	NULL	NULL	800
9	China	A. Datum	September	1254	1617	396
10	China	A. Datum	October	1881	3042	936
11	China	A. Datum	November	NULL	3653	NULL
12	China	A. Datum	December	6135	2810	NULL
13	China	Adventure Works	January	12418.26	5735.48	1559.87

# Microsoft Power BI

## File / New / Edit Queries

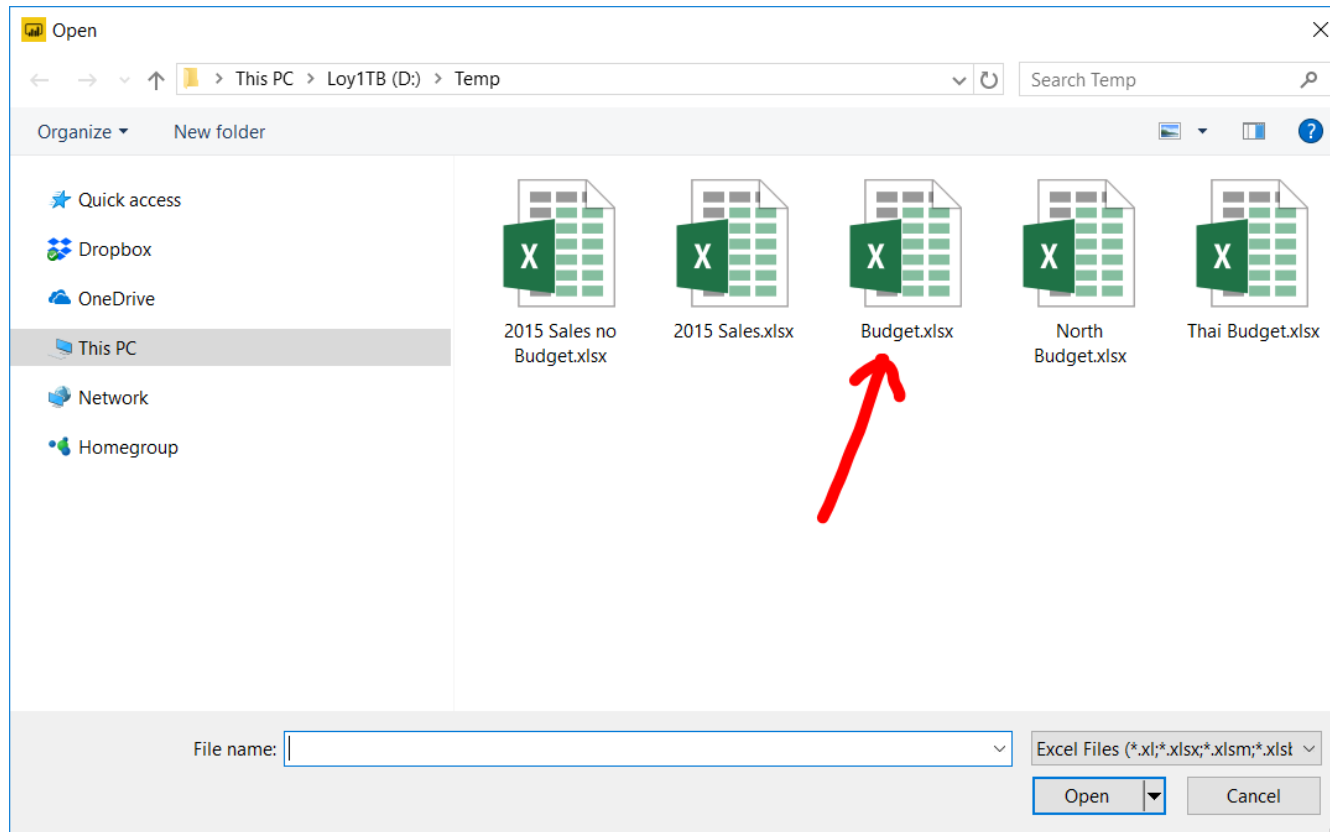


# Microsoft Power BI Query Editor / New Source



# Microsoft Power BI

## Budget.xlsx




# Microsoft Power BI



## Sales


### Navigator

Search bar with magnifying glass icon

Display Options ▾ 

◀ Budget.xlsx [2]

-  Sales
-  Sheet1



### Sales

Country
China
China
China
China
China
China
China
China

# Microsoft Power BI

## Rename Budget to Budget YTD

	CountryRegion	Brand	Budget
1	China	A. Datum	
2	China	Adventure Works	
3	China	Contoso	
4	China	Fabrikam	
5	China	Litware	
6	China	Northwind Traders	
7	China	Proseware	
8	China	Southridge Video	
9	China	Tailspin Toys	
10	China	The Phone Company	
11	China	Wide World Importers	
12	Germany	A. Datum	
13	Germany	Adventure Works	
14	Germany	Contoso	
15	Germany	Fabrikam	
16	Germany	Litware	
17	Germany	Northwind Traders	
18	Germany	Proseware	
19	Germany	Southridge Video	
20	Germany	Tailspin Toys	
21	Germany	The Phone Company	
22	Germany	Wide World Importers	30000
23	United States	A. Datum	30000



# Microsoft Power BI

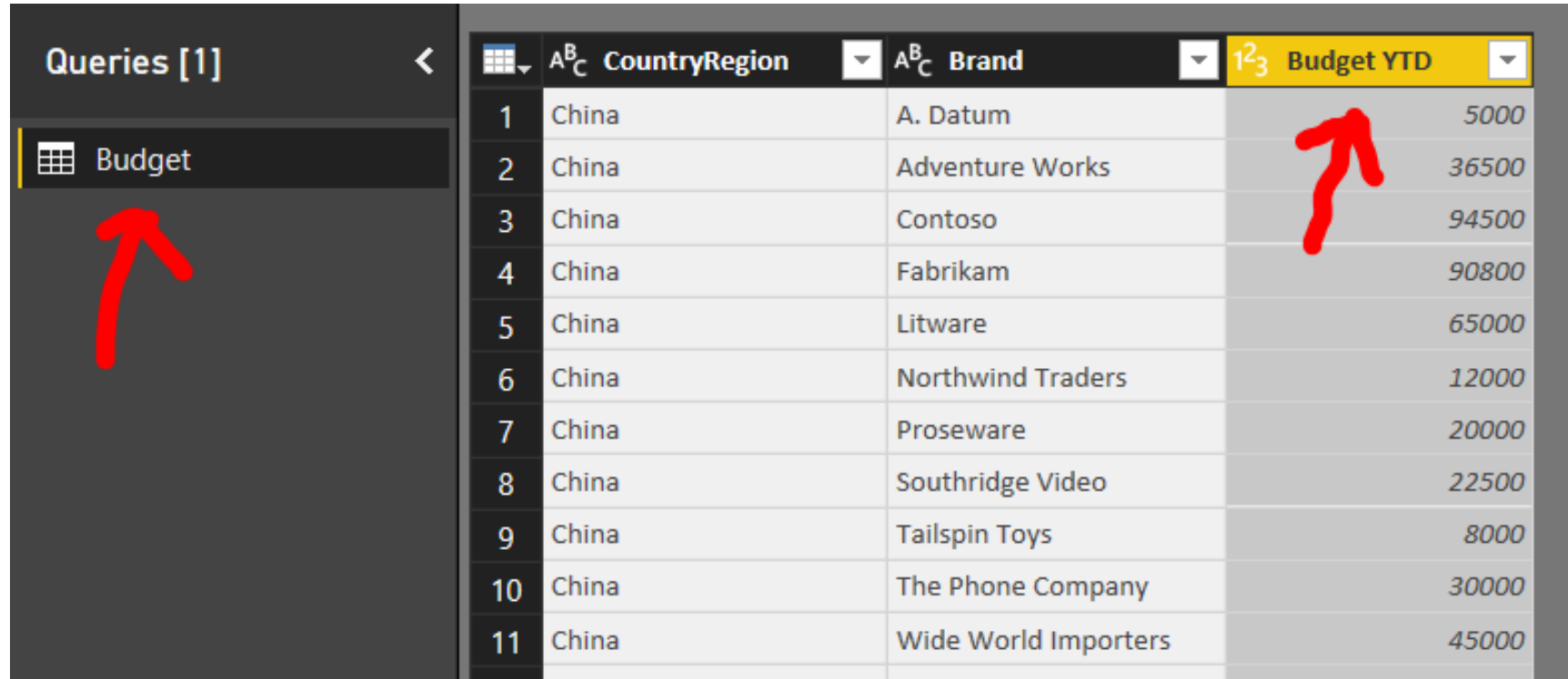
## Rename Sales to Budget

The screenshot shows the Microsoft Power BI Power Query Editor interface. The title bar indicates the file is 'Untitled - Power Query Editor'. The ribbon includes tabs for File, Home, Transform, Add Column, View, and Help. The Queries pane on the left shows a list of queries, with 'Sales' selected. A context menu is open over the 'Sales' query, with the 'Rename' option highlighted by a red arrow. The main data table displays the following data:

	CountryRegion	Brand	Budget YTD
1	China	A. Datum	5000
2	China	Adventure Works	36500
		Contoso	94500
		Fabrikam	90800
		Litware	65000
		Northwind Traders	12000
		Proseware	20000
		Southridge Video	22500
		Tailspin Toys	8000
		The Phone Company	30000
		Wide World Importers	45000
		A. Datum	13500
		Adventure Works	15000
		Contoso	50000
		Fabrikam	45000
		Litware	12500
		Northwind Traders	65000
		Proseware	60500
19	Germany	Southridge Video	16500

# Microsoft Power BI

Result after renaming

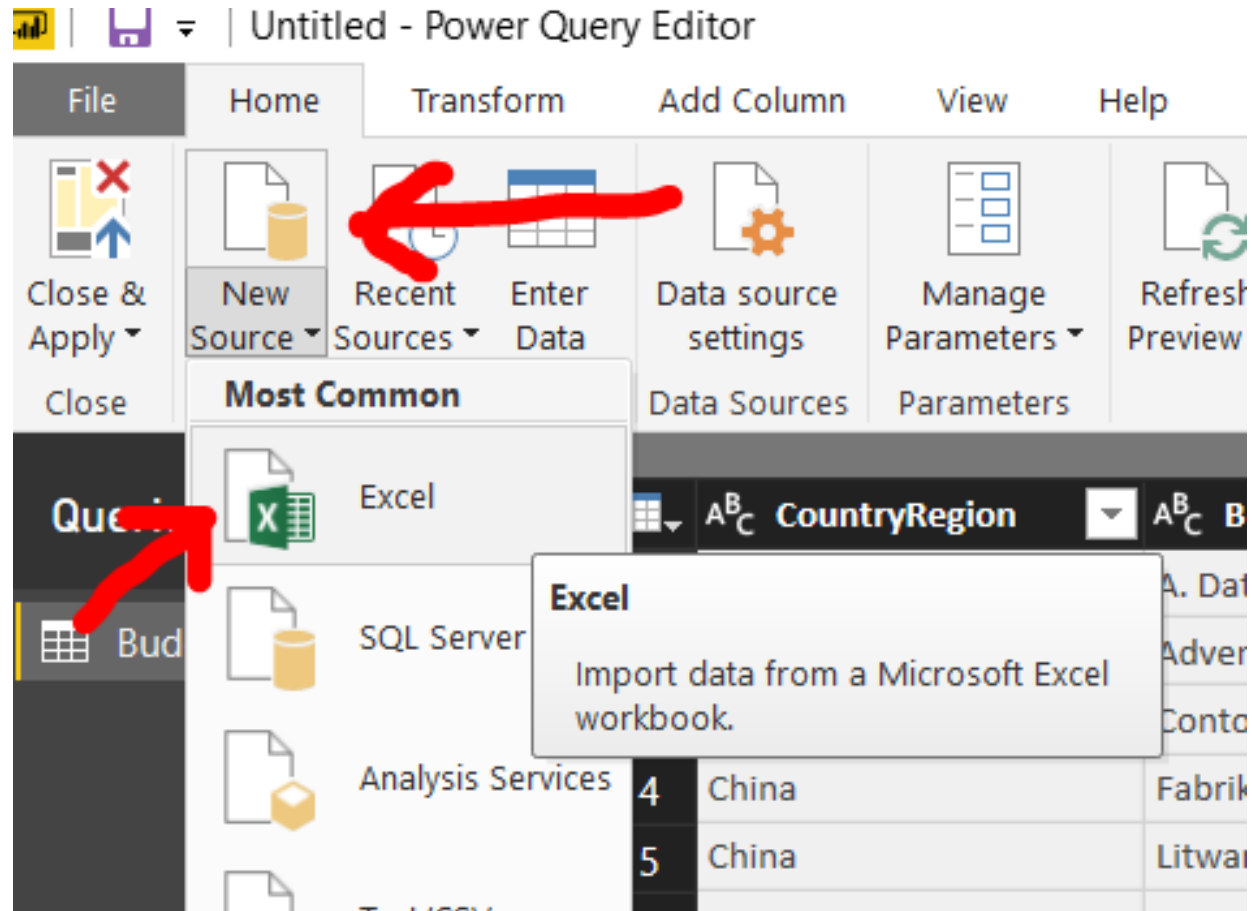


The screenshot displays the Microsoft Power BI interface. On the left, the 'Queries [1]' pane shows a query named 'Budget' with a red arrow pointing to it. The main area shows a table with the following columns: 'CountryRegion' (with a dropdown arrow), 'Brand' (with a dropdown arrow), and 'Budget YTD' (highlighted in yellow with a dropdown arrow). The table contains 11 rows of data, with the first row being a header row. A red arrow points to the 'Budget YTD' column header.

	CountryRegion	Brand	Budget YTD
1	China	A. Datum	5000
2	China	Adventure Works	36500
3	China	Contoso	94500
4	China	Fabrikam	90800
5	China	Litware	65000
6	China	Northwind Traders	12000
7	China	Proseware	20000
8	China	Southridge Video	22500
9	China	Tailspin Toys	8000
10	China	The Phone Company	30000
11	China	Wide World Importers	45000

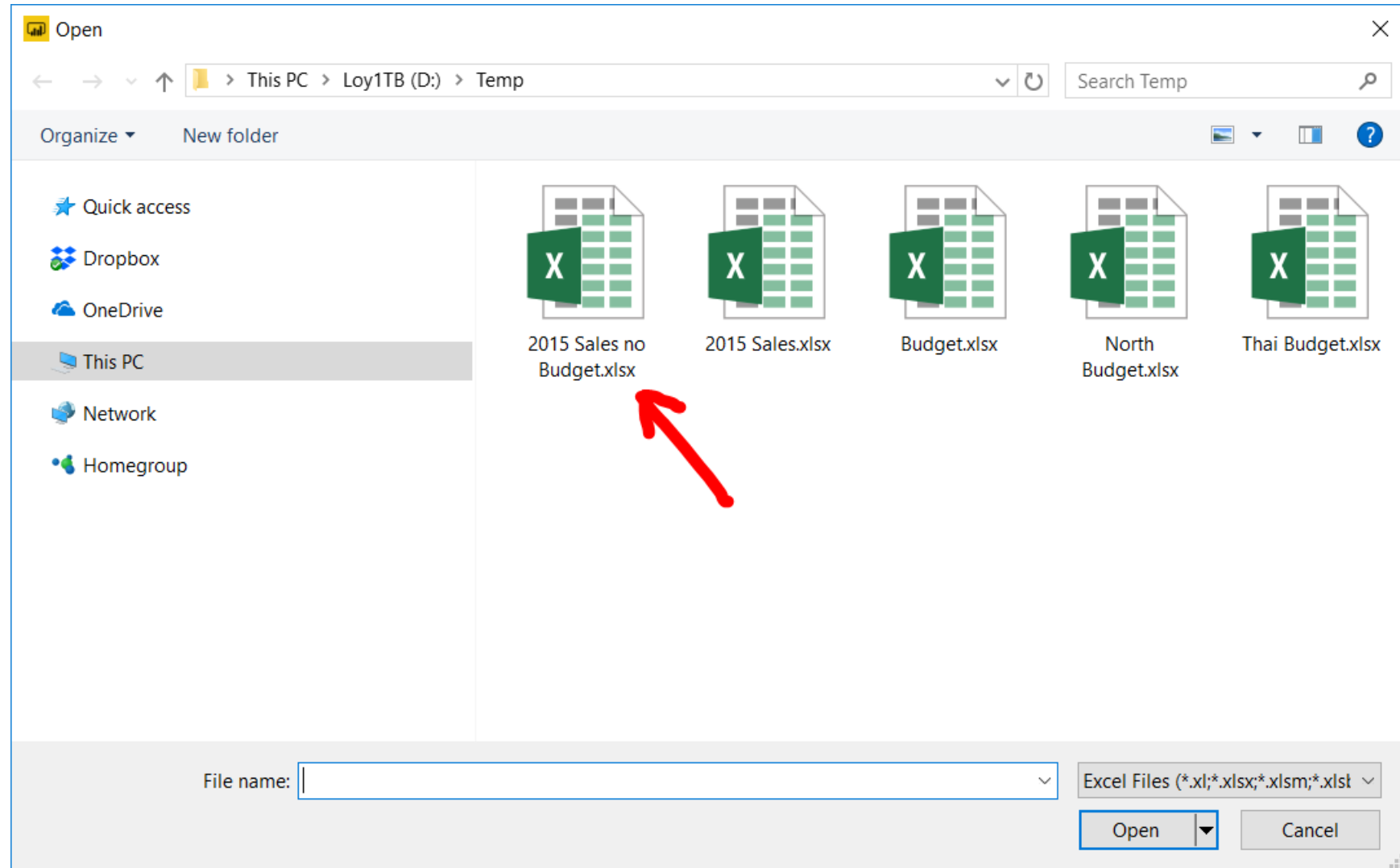
# Microsoft Power BI

## New Source / Excel



# Microsoft Power BI

## 2015 Sales no Budget.xlsx



# Microsoft Power BI

## Sales / Load

### Navigator

Search bar


Display Options ▾

2015 Sales no Budget.xlsx [2]

- Sales
- Sales Worksheet

Sales

CountryRegion
China
China
China
China
China
China
China
China



# Microsoft Power BI

Make sure that you have two data source

The screenshot shows the Microsoft Power BI Power Query Editor interface. The title bar reads "Untitled - Power Query Editor". The ribbon includes tabs for File, Home, Transform, Add Column, View, and Help. The Home tab is active, showing options like Close & Apply, New Source, Recent Sources, Enter Data, Data source settings, Manage Parameters, Refresh Preview, Properties, Advanced Edit, and Manage. The Queries pane on the left shows two queries: Budget and Sales. A red arrow points to the Sales query. The main area displays a table with columns CountryRegion, Brand, and a date column. The data rows show 12 entries for China, with dates from January to December.

	CountryRegion	Brand	
1	China	A. Datum	Jan
2	China	A. Datum	Feb
3	China	A. Datum	Ma
4	China	A. Datum	Apr
5	China	A. Datum	Ma
6	China	A. Datum	Jun
7	China	A. Datum	July
8	China	A. Datum	Aug
9	China	A. Datum	Sep
10	China	A. Datum	Oct
11	China	A. Datum	Nov
12	China	A. Datum	Dec

# Microsoft Power BI

## Click Merge Queries

The screenshot shows the Microsoft Power BI Power Query Editor interface. The ribbon is set to the 'Merge' tab, and the 'Merge Queries' option is highlighted with a red arrow. The main area displays a table with the following data:

	CountryRegion	Brand	Month	1.2 Sale 2013	1.2 Sale 2014	1.2 Sale 2015
1	China	A. Datum	January	3234	null	1935
2	China	A. Datum	February	6270	7059	null
3	China	A. Datum	March	4352	null	null
4	China	A. Datum	April	3814	null	null
5	China	A. Datum	May	6234	null	null
6	China	A. Datum	June	5571	3216	null
7	China	A. Datum	July	7424	null	null
8	China	A. Datum	August	null	null	800
9	China	A. Datum	September	1254	1617	396
10	China	A. Datum	October	1881	3042	936
11	China	A. Datum	November	null	3653	null
12	China	A. Datum	December	6135	2810	null
13	China	Adventure Works	January	12418.26	5735.48	1559.87
14	China	Adventure Works	February	31770.26	null	2937.9
15	China	Adventure Works	March	3689.85	5489.23	11163.94
16	China	Adventure Works	April	499.9	9087	2298.7
17	China	Adventure Works	May	null	9203.92	null
18	China	Adventure Works	June	15790	119.99	1948.5
19	China	Adventure Works	July	9938.12	2819.82	null
20	China	Adventure Works	August	14035.71	6881	12775.4
21	China	Adventure Works	September	16638.85	null	null
22	China	Adventure Works	October	11864.76	null	2085

# Microsoft Power BI

## Join two data sources

Merge

Select a table and matching columns to create a merged table.

Sales

CountryRegion	1	Brand	2	Month	Sale 2013	Sale 2014	Sale 2015
China		A. Datum		January	3234	null	1935
China		A. Datum		February	6270	7059	null
China		A. Datum		March	4352	null	null
China		A. Datum		April	3814	null	null
China		A. Datum		May	6234	null	null

Budget

CountryRegion	1	Brand	2	Budget YTD
China		A. Datum		5000
China		Adventure Works		36500
China		Contoso		94500
China		Fabrikam		90800
China		Litware		65000

Join Kind

Left Outer (all from first, matching from second)

The selection has matched 362 out of the first 382 rows.

OK Cancel



# Microsoft Power BI

## Select Budget YTD

The screenshot shows the Microsoft Power BI interface with the 'Expand' dialog box open. The dialog box is titled 'Search Columns to Expand' and has two radio buttons: 'Expand' (selected) and 'Aggregate'. Below the radio buttons is a list of columns to expand, with 'Budget YTD' checked. The 'Use original column name as prefix' checkbox is also checked. The 'OK' button is highlighted in yellow. Red arrows point to the 'Combine' button in the ribbon, the 'Budget YTD' checkbox, and the 'OK' button.

Month	1.2 Sale 2013	1.2 Sale 2014	1.2 Sale 2015	Budget
January	323			
February	627			
March	435			
April	381			
May	623			
June	557			
July	742			
August	nt			
September	125			
October	188			
November	nt			
December	6135	2810	null	Table
January	12418.26	5735.48	1559.87	Table

# Microsoft Power BI

## Rename Budget.Budget YTD to Budget YTD

2015	1 <sup>2</sup> <sub>3</sub> Budget.Budget YTD
1935	5000
null	5000
null	5000
null	5000
null	5000
null	5000
null	5000
null	5000

1.2 Sale 2015	1 <sup>2</sup> <sub>3</sub> Budget YTD	
null	1935	5000
059	null	5000
null	null	5000
null	null	5000
null	null	5000
216	null	5000
null	null	5000
null	800	5000

# Microsoft Power BI

## Add Column / Custom Column

The screenshot displays the Microsoft Power Query Editor interface. The title bar reads "Untitled - Power Query Editor". The ribbon is set to "Add Column", which includes options like "Conditional Column", "Index Column", "Duplicate Column", "Format", "Merge Columns", "Extract", and "Parse". A red arrow points to the "Custom Column" button in the ribbon. Another red arrow points to the "Sales" query in the "Queries" pane on the left. The main area shows a data table with columns "CountryRegion" and "Brand".

	CountryRegion	Brand
1	China	A. Datum
2	China	A. Datum
3	China	A. Datum
4	China	A. Datum
5	China	A. Datum
6	China	A. Datum

# Microsoft Power BI

## Budget YTD / << Insert

### Custom Column

New column name

Custom column formula:

```
= [Budget YTD]
```

Available columns:

- CountryRegion
- Brand
- Month
- Sale 2013
- Sale 2014
- Sale 2015
- Budget YTD**

<< Insert

[Learn about Power BI Desktop formulas](#)

✓ No syntax errors have been detected.

OK Cancel

# Microsoft Power BI


Type / 12 press OK

## Custom Column

New column name

Custom column formula:

```
= [Budget YTD] / 12
```



Available columns:

- CountryRegion
- Brand
- Month
- Sale 2013
- Sale 2014
- Sale 2015
- Budget YTD**

<< Insert

[Learn about Power BI Desktop formulas](#)


✓ No syntax errors have been detected.

OK Cancel

# Microsoft Power BI

Make sure you have new column name Custom / Rename to Budget

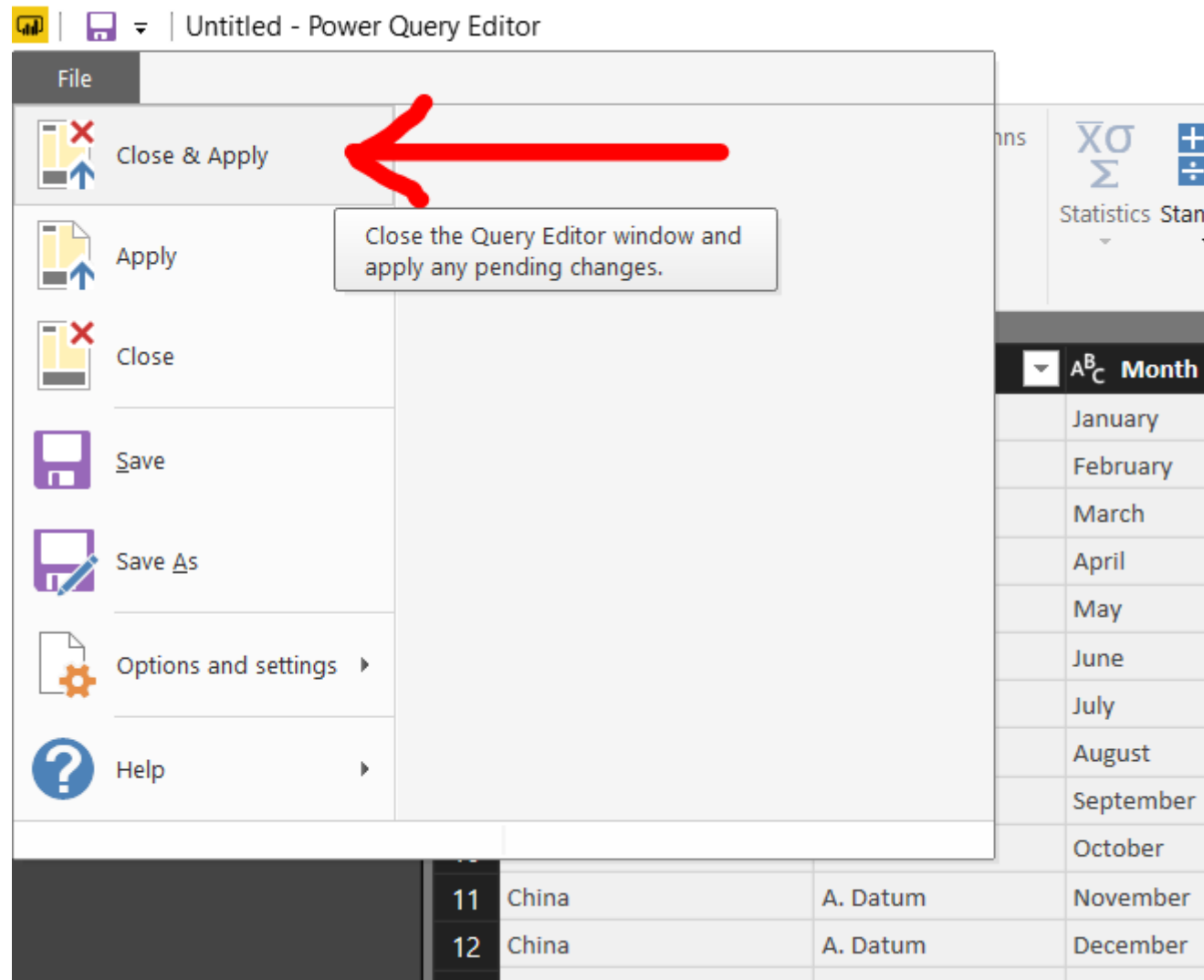
2015	1 <sup>2</sup> <sub>3</sub>	Budget YTD	ABC 123 Custom
1935		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
800		5000	416.6666667
396		5000	416.6666667



2015	1 <sup>2</sup> <sub>3</sub>	Budget YTD	ABC 123 Budget
1935		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
null		5000	416.6666667
800		5000	416.6666667
800		5000	416.6666667

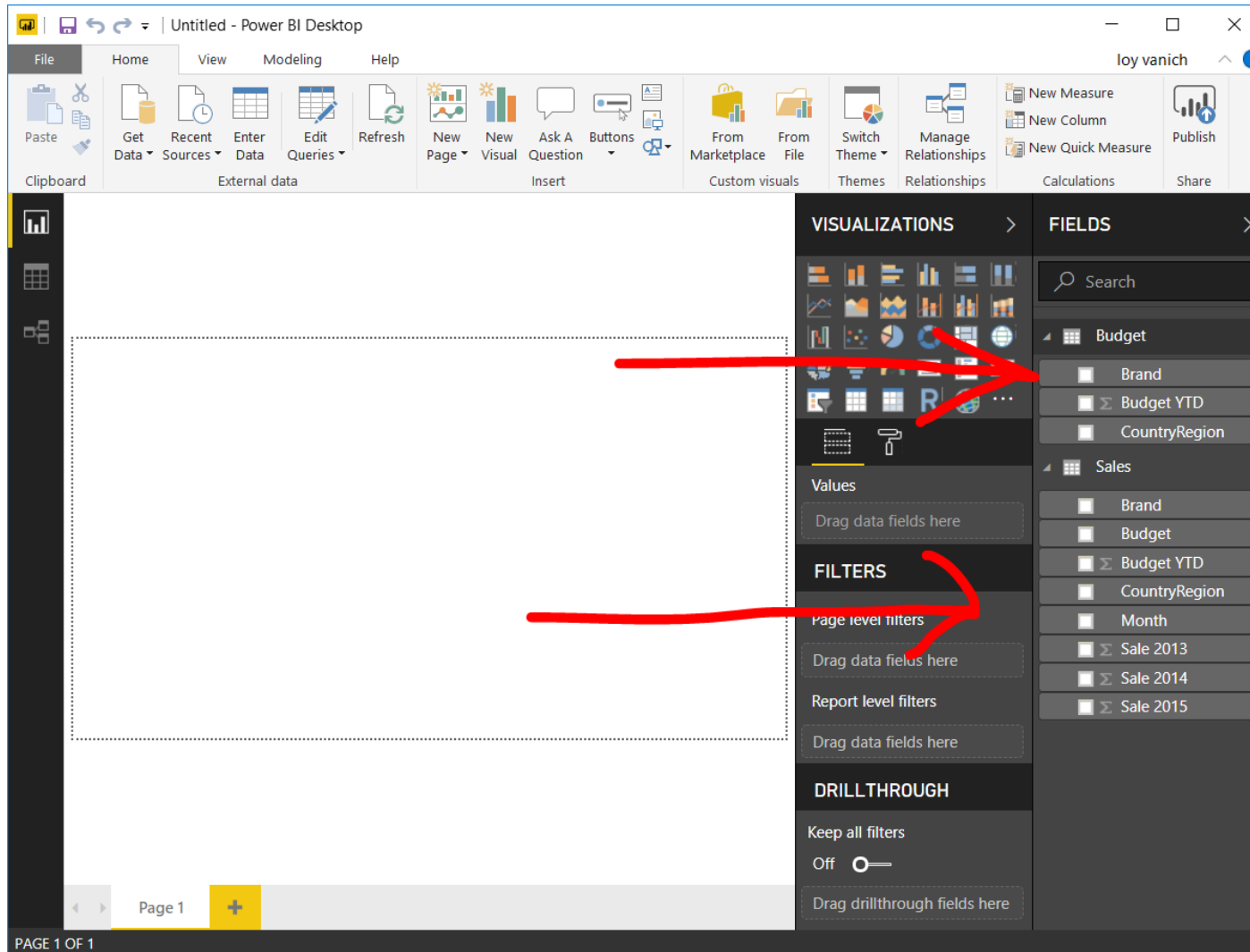
# Microsoft Power BI

## File / Close & Apply



# Microsoft Power BI

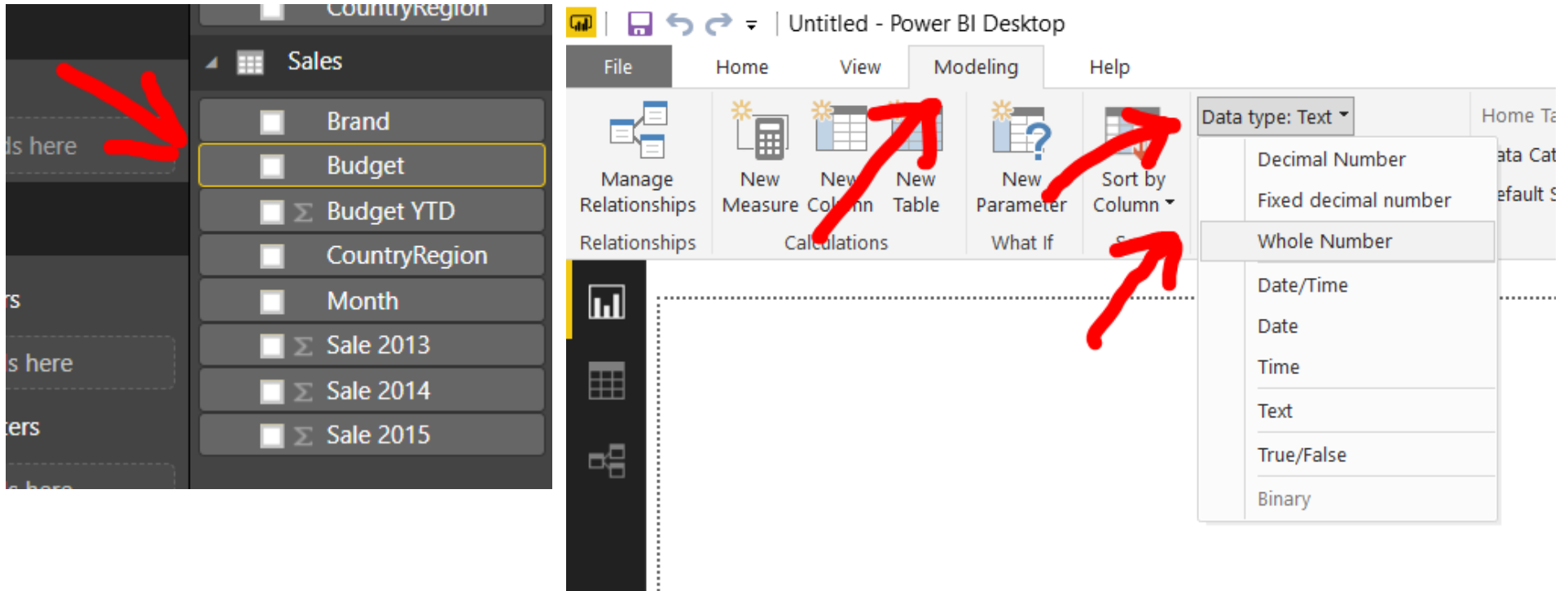
Make sure you have two data source / Sale have column Budget





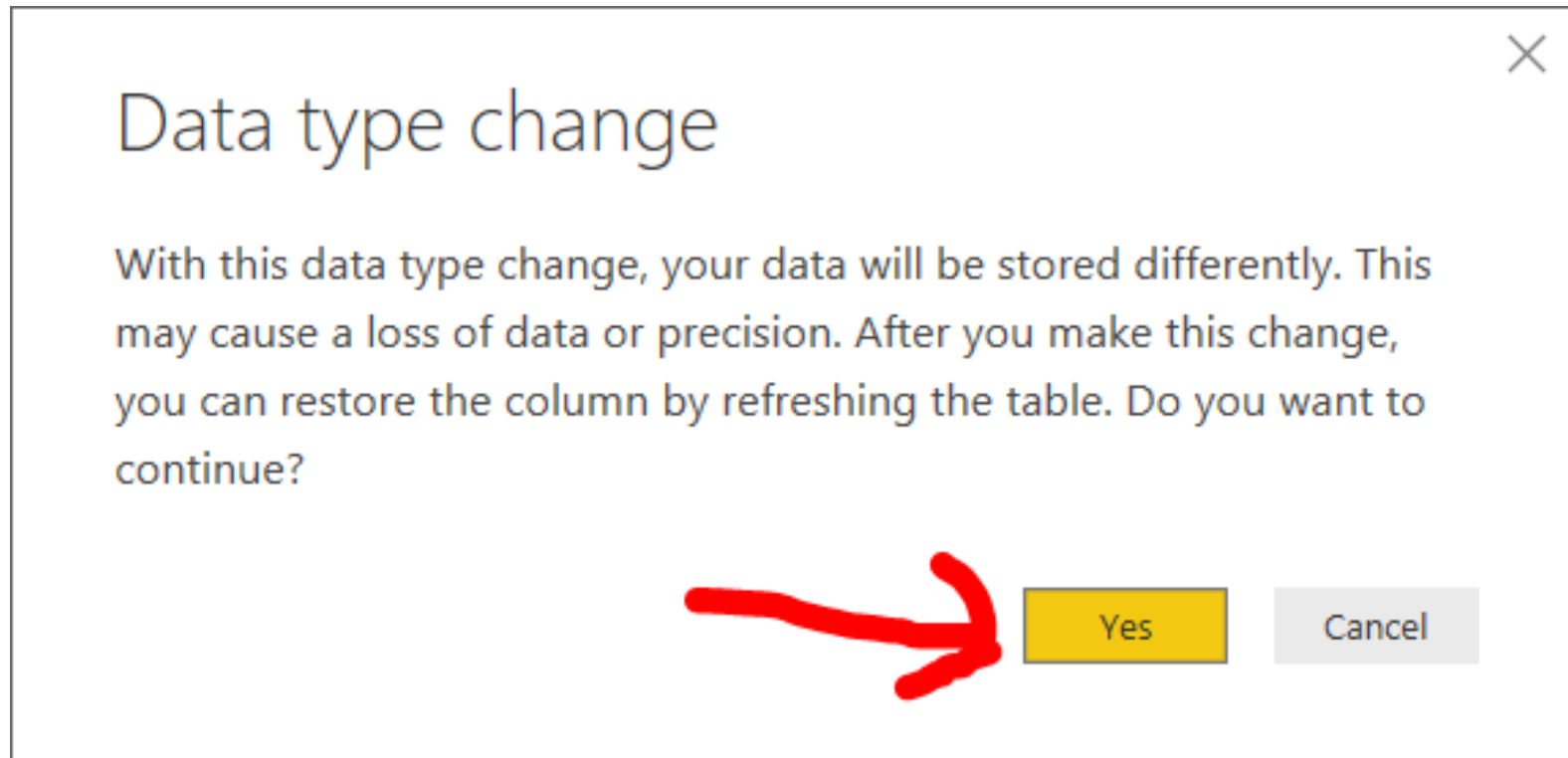
# Microsoft Power BI

Click Budget / Modeling, Data type, Whole Number



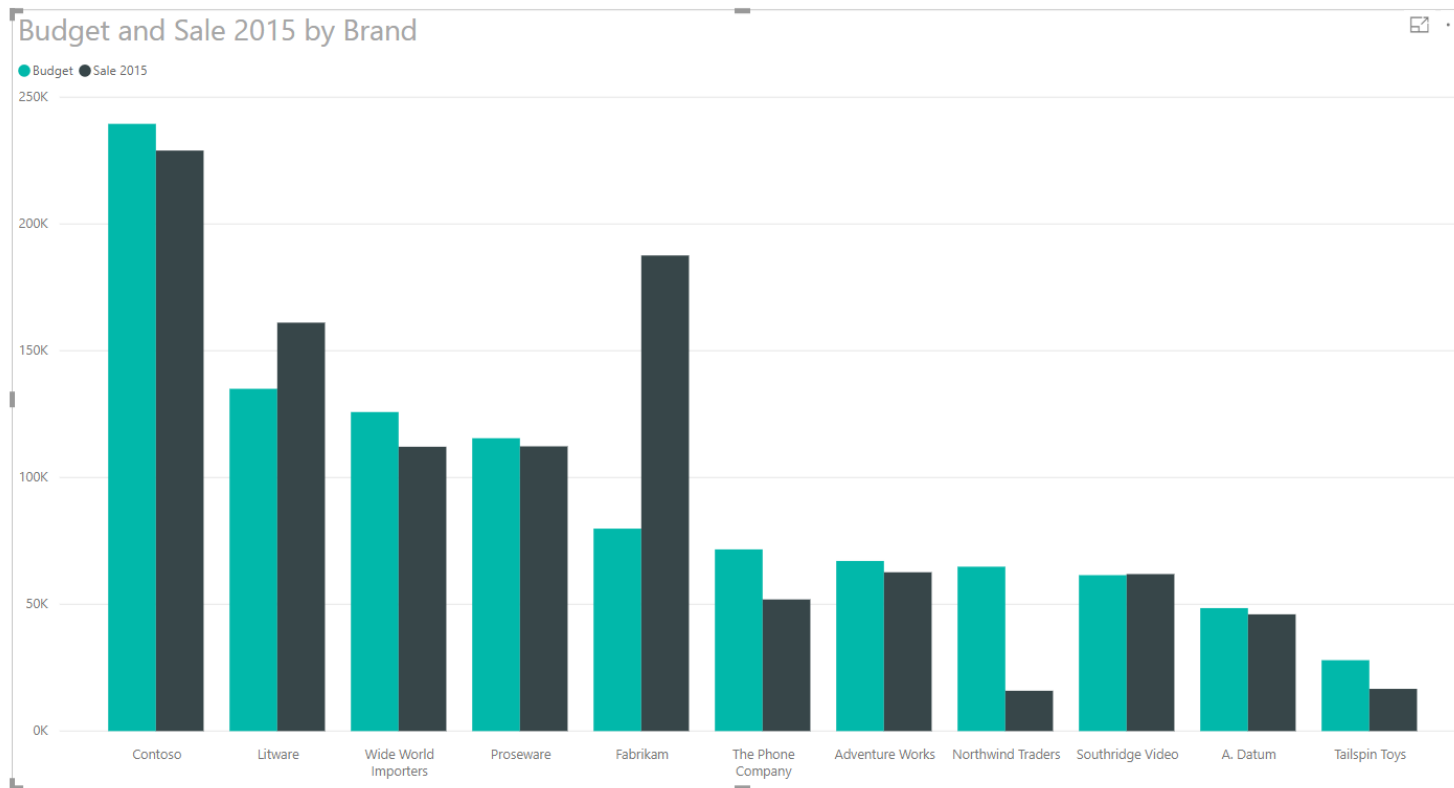
# Microsoft Power BI

## Confirm data type change



# Microsoft Power BI

Make Clustered column chart Budget and Sale 2015 by Brand



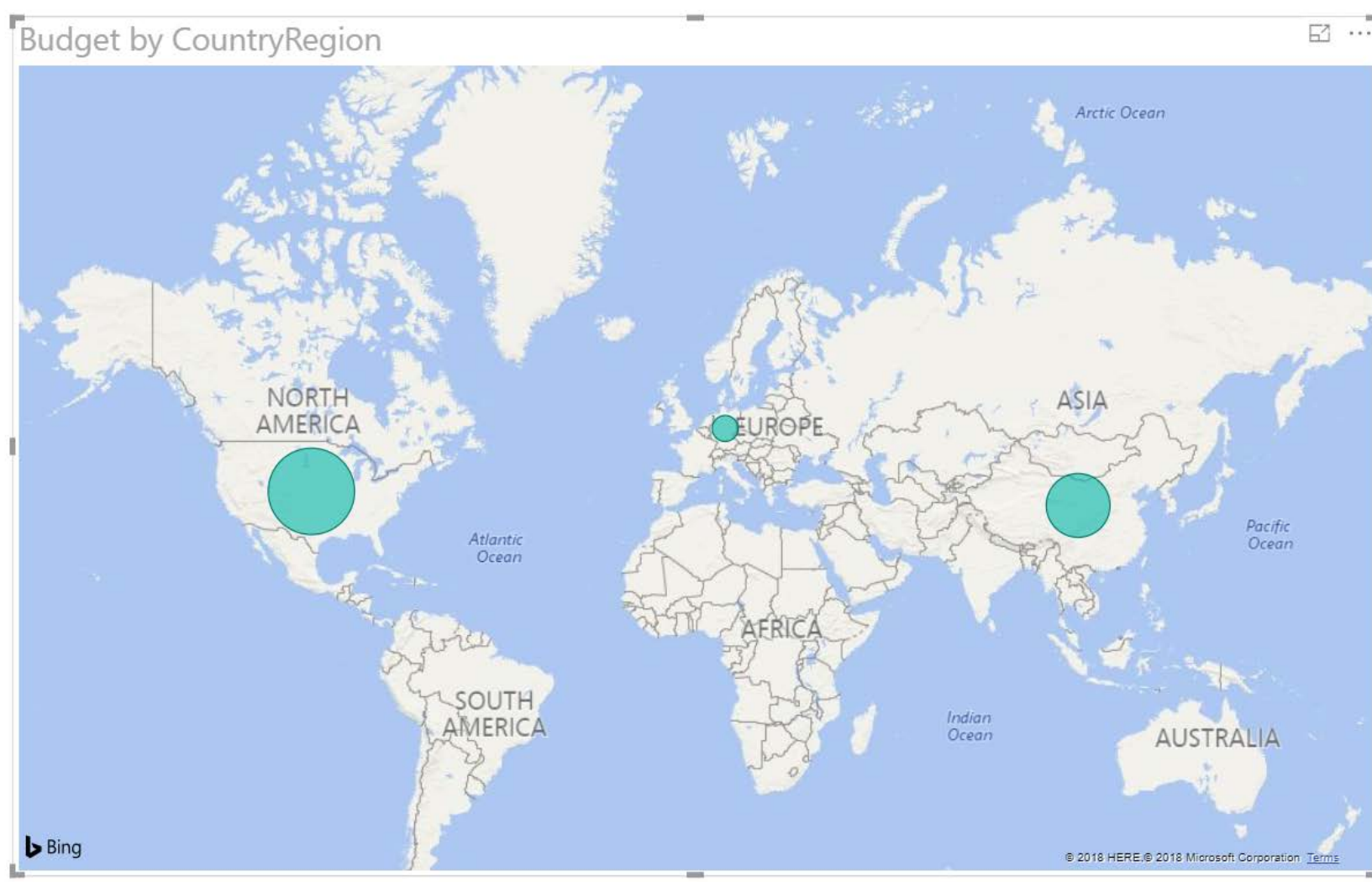
The Fields pane shows the configuration for the chart. It is divided into two sections: VISUALIZATIONS and FILTERS. The VISUALIZATIONS section includes Budget, Brand, Budget YTD, and CountryRegion. The FILTERS section includes Sales, Brand, Budget, Budget YTD, CountryRegion, Month, Sale 2013, Sale 2014, and Sale 2015. The Sale 2015 filter is checked.

Section	Field	Selected
VISUALIZATIONS	Budget	
	Brand	
	Budget YTD	
	CountryRegion	
FILTERS	Sales	
	Brand	<input checked="" type="checkbox"/>
	Budget	<input checked="" type="checkbox"/>
	Budget YTD	<input type="checkbox"/>
	CountryRegion	<input type="checkbox"/>
	Month	<input type="checkbox"/>
	Sale 2013	<input type="checkbox"/>
	Sale 2014	<input type="checkbox"/>
Sale 2015	<input checked="" type="checkbox"/>	

# Microsoft Power BI

## Exercise

New / Create all steps / Make Budget by CountryRegion map

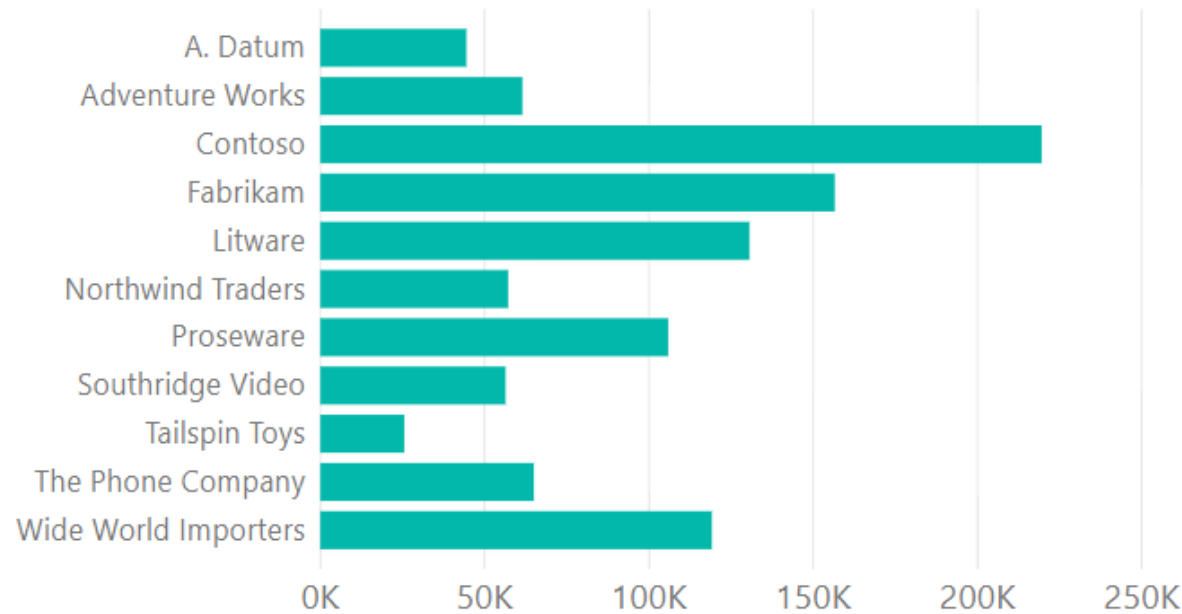


# Sorting

# Microsoft Power BI

Create this visual from 2015 Sales for Sort.xlsx

Budget by Brand



Month	Sale 2015	Budget
April	116,320.35	97,616.67
August	104,985.34	88,866.67
December		95,950.00
February	65,389.24	97,616.67
July	148,100.26	92,200.00
June	96,737.46	96,616.67
March	78,959.30	95,533.33
May	163,396.26	96,366.67
November	10,788.00	94,325.00
October	93,229.21	89,116.67
September	96,717.64	97,616.67
<b>Total</b>	<b>974,623.06</b>	<b>1,041,825.00</b>

# Microsoft Power BI

## Enter Data / Month Number

The screenshot shows the Microsoft Power BI Desktop interface. The ribbon is set to 'Data / Drill'. The 'Enter Data' button is highlighted with a red arrow. The 'Create Table' dialog box is open, showing a table with the following data:

	Month	Month Num...	*
1	January	1	
2	February	2	
3	March	3	
4	April	4	
5	May	5	
6	June	6	
7	July	7	
8	August	8	
9	September	9	
10	October	10	
11	November	11	
12	December	12	
*			

The 'Name' field is set to 'Month Number'. The 'Load' button is highlighted with a red arrow. A red arrow also points to the table content, and another points to the 'Name' field.

# Microsoft Power BI

Make sure you have this new Data set

The image shows a screenshot of the Microsoft Power BI interface. On the left, a table displays the following data:

Month	Month Number
April	4
August	8
December	12
February	2
January	1
July	7
June	6
March	3
May	5
November	11
October	10
September	9

On the right, the 'FIELDS' pane is visible, showing a search bar and a list of fields. A red arrow points to the 'Month Number' field under the 'Month Number' category. The 'Month Number' category is expanded, showing 'Month' and 'Month Number' with checked checkboxes. The 'Sales' category is also expanded, showing 'Brand', 'Budget', 'CountryRegion', 'Month', 'Sale 2013', 'Sale 2014', and 'Sale 2015' with unchecked checkboxes.



# Microsoft Power BI

## Sort by Month Number

The screenshot shows a table with two columns: 'Month' and 'Month Number'. The data is as follows:

Month	Month Number
January	1
Febuary	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

A context menu is open over the table, showing the following options:

- Export data
- Show Data
- Remove
- Automatically find clusters
- Spotlight
- Sort Descending
- Sort Ascending
- Sort by

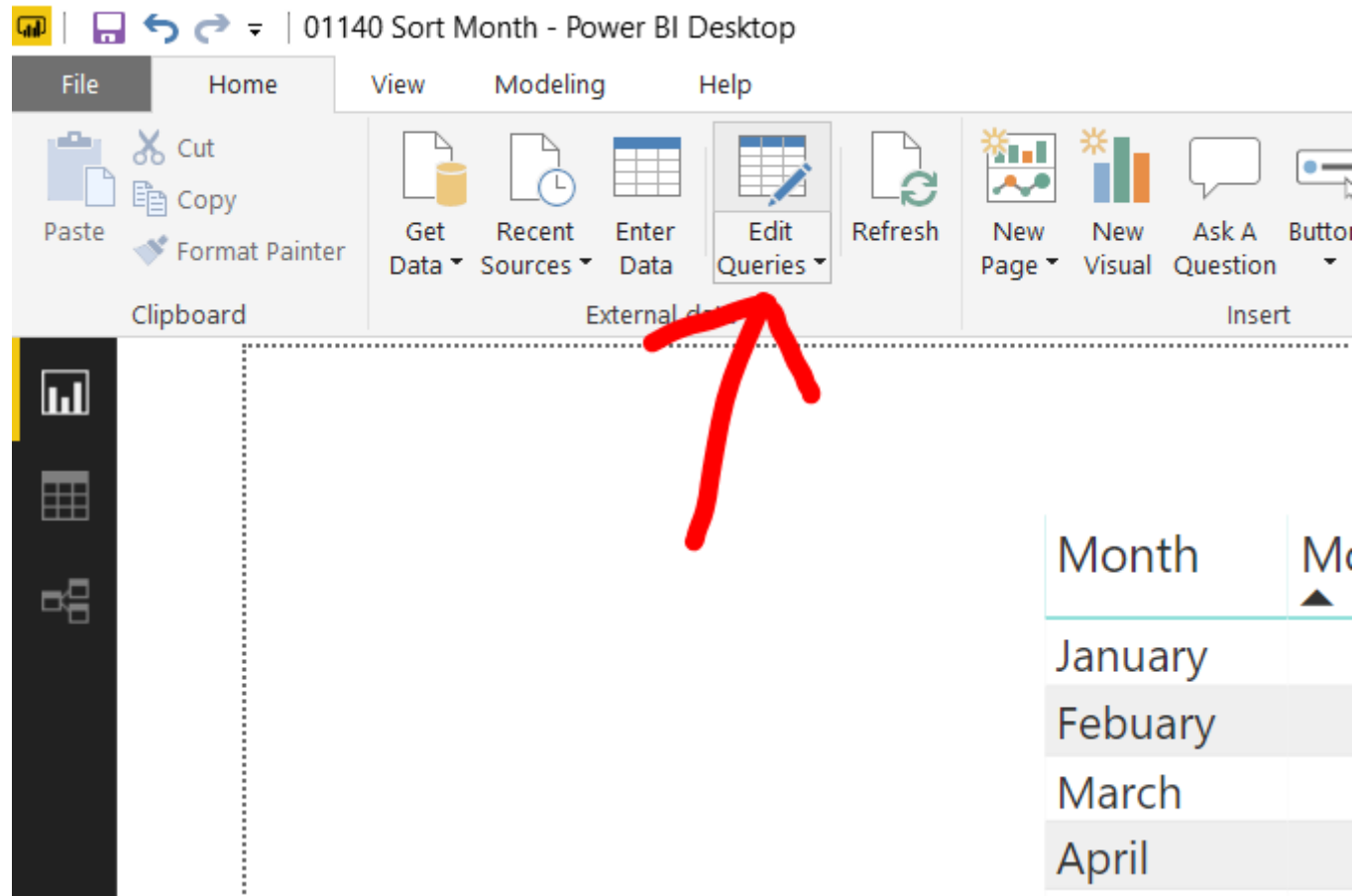
The 'Sort by' option is selected, and a dropdown menu is open showing the following options:

- Month
- Month Number

Red arrows point to the menu icon, the 'Sort by' option, and the 'Month Number' option.

# Microsoft Power BI

## Edit Queries



# Microsoft Power BI

Make sure you have both Sales and Month Number in Query Editor

The screenshot shows the Microsoft Power BI Query Editor interface. The title bar indicates the file name is "01140 Sort Month - Power Query Editor". The ribbon includes tabs for File, Home, Transform, Add Column, View, and Help. The main area displays a table with the following data:

	CountryRegion	Brand	Month
1	China	A. Datum	January
2	China	A. Datum	February
3	China	A. Datum	March
4	China	A. Datum	April
5	China	A. Datum	May
6	China	A. Datum	June
7	China	A. Datum	July
8	China	A. Datum	August
9	China	A. Datum	September
10	China	A. Datum	October
11	China	A. Datum	November
12	China	A. Datum	December

In the left-hand pane, under "Queries [2]", there are two queries listed: "Sales" and "Month Number". A red arrow points to the "Sales" query, indicating that it should be selected to ensure both Sales and Month Number are present in the query editor.

# Microsoft Power BI

## Merge Sale to Month Number on Month

Merge

Select a table and matching columns to create a merged table.

Sales

CountryRegion	Brand	Month	Sale 2013	Sale 2014	Sale 2015	Budget
China	A. Datum	January	3234	null	1935	416.6666667
China	A. Datum	February	6270	7059	null	416.6666667
China	A. Datum	March	4352	null	null	416.6666667
China	A. Datum	April	3814	null	null	416.6666667
China	A. Datum	May	6234	null	null	416.6666667

Month Number

Month	Month Number
January	1
February	2
March	3
April	4
May	5

Join Kind

Left Outer (all from first, matching from second)

*i* The selection has matched 349 out of the first 382 rows.

OK Cancel

# Microsoft Power BI

## Select Month Number

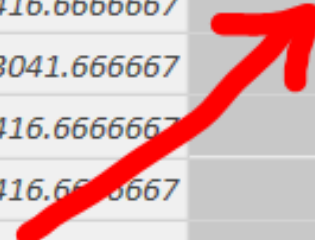
The screenshot shows the Microsoft Power BI interface with the 'Expand Columns' dialog box open. The dialog is positioned over a table with columns: '1.2 Sale 2013', '1.2 Sale 2014', '1.2 Sale 2015', '1.2 Budget', and 'Month Number'. The 'Month Number' column is highlighted in yellow. The dialog box has a search bar 'Search Columns to Expand' and two radio buttons: 'Expand' (selected) and 'Aggregate'. Below, there is a list of columns to expand: '(Select All Columns)' (checked), 'Month' (unchecked), and 'Month Number' (checked). At the bottom, the checkbox 'Use original column name as prefix' is checked. The 'OK' button is highlighted in yellow. Red arrows point to the 'Month Number' column in the table, the 'Month Number' checkbox in the dialog, and the 'OK' button.

1.2 Sale 2013	1.2 Sale 2014	1.2 Sale 2015	1.2 Budget	Month Number
3234	null			
6270	7059			
4352	null			
3814	null			
6234	null			
5571	321			
7424	null			
null	null			
1254	1617			
1881	3042			
null	3653			
6135	2810			
12418.26	5735.48	1559.87	3041.666667	Table
31770.26	null	2937.9	3041.666667	Table

# Microsoft Power BI

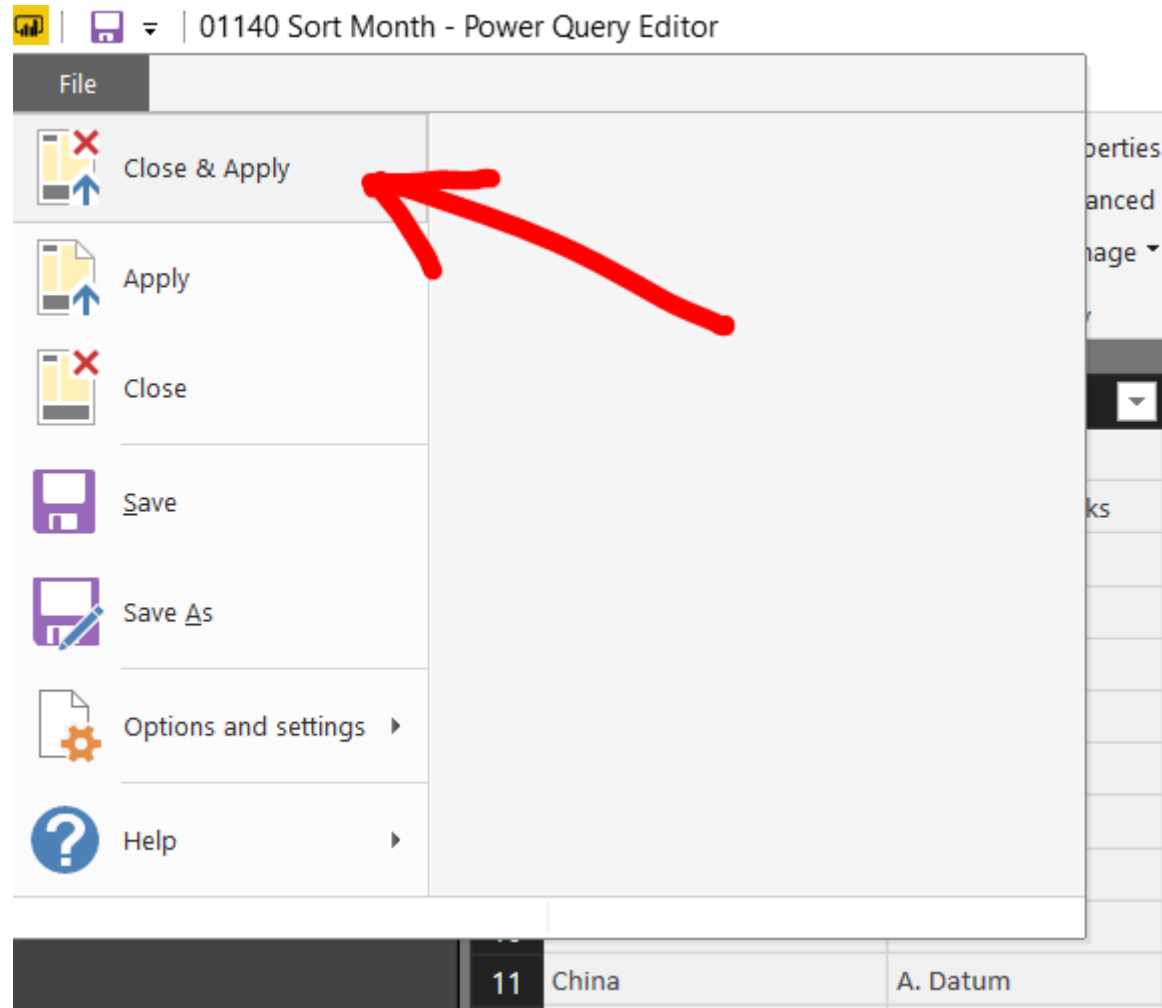
Rename the column

14	1.2 Sale 2015	1.2 Budget	1 <sup>2</sup> <sub>3</sub> Month Number
<i>null</i>	1935	416.6666667	1
5735.48	1559.87	3041.6666667	1
7059	<i>null</i>	416.6666667	<i>null</i>
<i>null</i>	<i>null</i>	416.6666667	3
<i>null</i>	<i>null</i>	416.6666667	4
<i>null</i>	<i>null</i>	416.6666667	5
3216	<i>null</i>	416.6666667	6
<i>null</i>	<i>null</i>	416.6666667	7
<i>null</i>	800	416.6666667	8
1617	396	416.6666667	9
3042	936	416.6666667	10
3653	<i>null</i>	416.6666667	11
2810	<i>null</i>	416.6666667	12
<i>null</i>	2937.9	3041.6666667	<i>null</i>



# Microsoft Power BI

## Close & Apply



# Microsoft Power BI

Click Visualize / Click Month

CountryRegion

- China
- Germany
- United States

Month	Sale 2015	Budget
July	89,990.85	35,775.00
October	60,055.80	34,775.00
April	55,446.94	35,775.00
August	44,855.46	35,775.00
September	34,111.58	35,775.00
May	32,589.83	35,775.00
June	32,526.40	34,775.00
January	18,997.53	32,025.00

1

2

Visualizations Panel:

- Month Number
  - Month
  - Month Number
- Sales
  - Brand
  - Budget
  - CountryRegion
  - Month
  - Month Number
  - Sale 2013
  - Sale 2014
  - Sale 2015



# Microsoft Power BI

Click Sort by Column / Month Number

The screenshot shows the Microsoft Power BI interface. The ribbon includes File, Home, View, Modeling, and Help. The 'Modeling' tab is active, showing 'Sort by Column' in the 'Visual tools' section. A red arrow points to the 'Sort by Column' dropdown menu, which is open. The dropdown menu lists the following options: Month (Default) (checked), Brand, Budget, CountryRegion, Month Number (highlighted with a red arrow), Sale 2013, Sale 2014, and Sale 2015. The chart area displays a bar chart titled 'Budget by Brand' with data for Adventure Works, Contoso, Fabrikam, and Litware. The bars are teal and represent budget values for each brand. The chart is sorted by 'Month Number'.

Brand	Budget
Adventure Works	~100
Contoso	~1000
Fabrikam	~1000
Litware	~800

# Microsoft Power BI

## Sort by Month

The screenshot displays a table in Microsoft Power BI with the following data:

Month	Sale 2015	Budget
February	11,875.41	35,775.00
January	18,997.53	32,025.00
March	18,939.07	35,775.00
April	55,446.94	35,775.00
May	32,589.83	35,775.00
June	32,526.40	34,775.00
July	89,990.85	35,775.00
August	44,855.46	35,775.00
September	34,111.58	35,775.00
October	60,055.80	34,775.00
November		34,775.00
December		32,025.00
<b>Total</b>	<b>399,388.87</b>	<b>418,800.00</b>

The context menu is open, showing the following options:

- Export data
- Show Data
- Remove
- Automatically find clusters
- Spotlight
- Sort Descending
- Sort Ascending
- Sort by

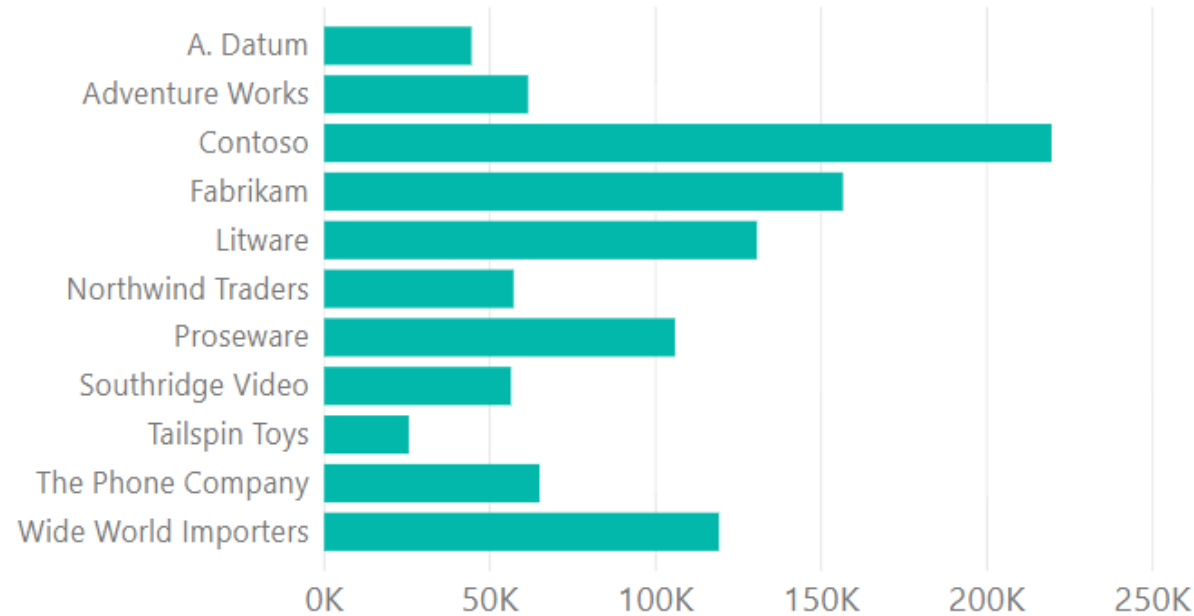
The 'Sort by' dropdown menu is open, showing the following options:

- Month
- Sale 2015
- Budget

# Microsoft Power BI

## Final Result

Budget by Brand



Month	Sale 2015	Budget
February	65,389.24	97,616.67
March	78,959.30	95,533.33
April	116,320.35	97,616.67
May	163,396.26	96,366.67
June	96,737.46	96,616.67
July	148,100.26	92,200.00
August	104,985.34	88,866.67
September	96,717.64	97,616.67
October	93,229.21	89,116.67
November	10,788.00	94,325.00
December		95,950.00
<b>Total</b>	<b>974,623.06</b>	<b>1,041,825.00</b>

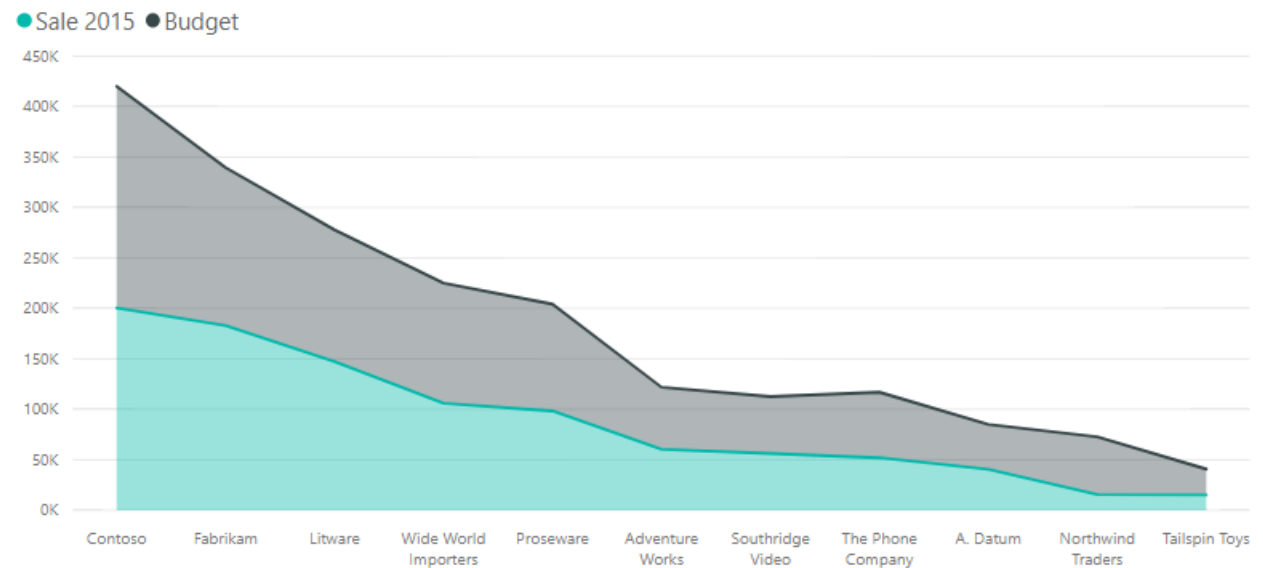
# Microsoft Power BI

## Exercise

New / Repeat all steps / Create below visuals

Month	Budget	Sale 2015
February	97,616.67	65,389.24
March	95,533.33	78,959.30
April	97,616.67	116,320.35
May	96,366.67	163,396.26
June	96,616.67	96,737.46
July	92,200.00	148,100.26
August	88,866.67	104,985.34
September	97,616.67	96,717.64
October	89,116.67	93,229.21
November	94,325.00	10,788.00
December	95,950.00	
<b>Total</b>	<b>1,041,825.00</b>	<b>974,623.06</b>

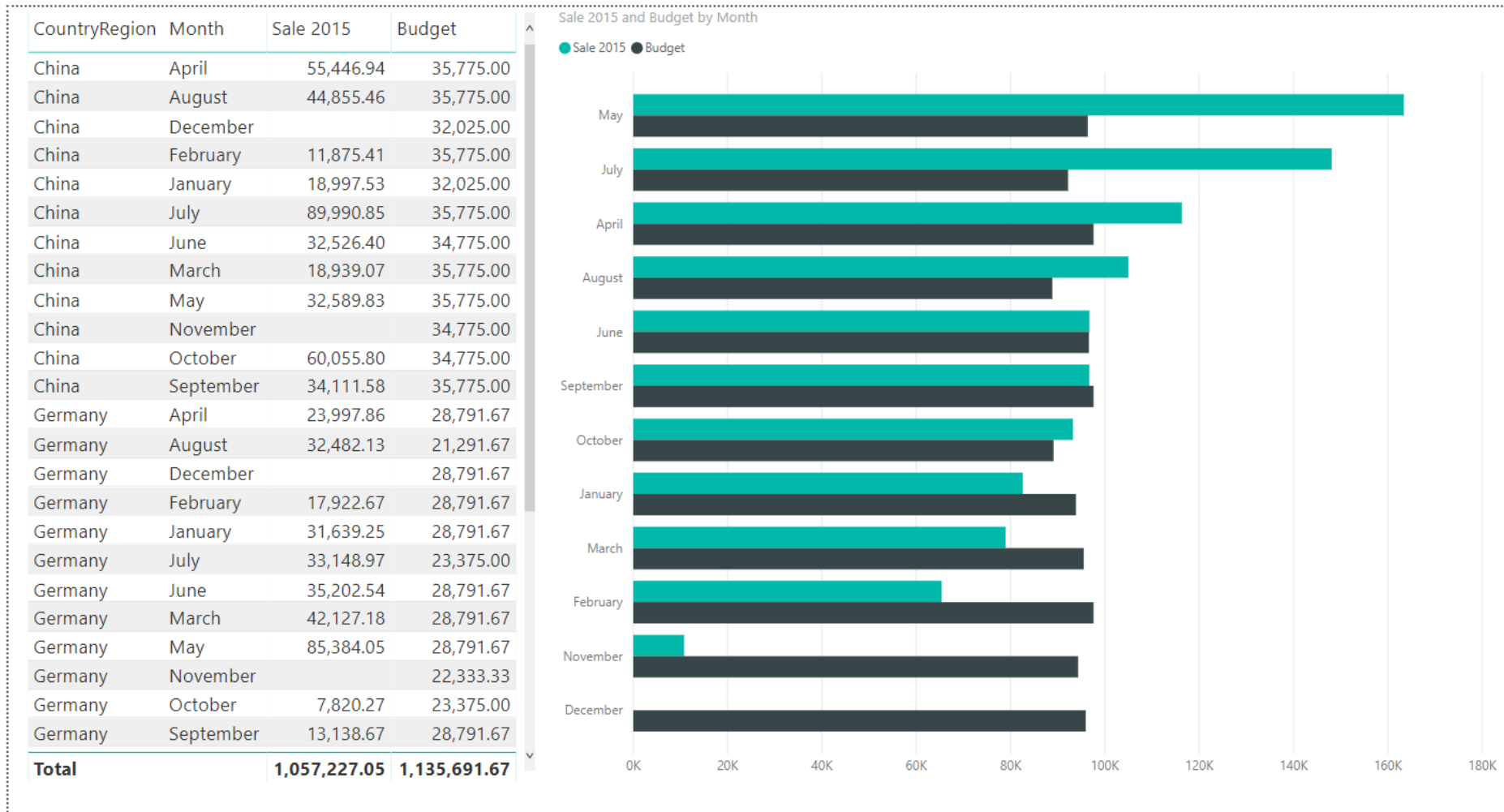
Sale 2015 and Budget by Brand



# Custom Column

# Microsoft Power BI


Create this visual from 2015 Sales.xlsx



# Microsoft Power BI

We want to clear Budget if Sale = 0

CountryRegion	Month	Sale 2015	Budget
China	April	55,446.94	35,775.00
China	August	44,855.46	35,775.00
China	December		32,025.00
China	February	11,875.41	35,775.00
China	January	18,997.53	32,025.00
China	July	89,990.85	35,775.00
China	June	32,526.40	34,775.00
China	March	18,939.07	35,775.00
China	May	32,589.83	35,775.00
China	November		34,775.00



# Microsoft Power BI

## Edit queries

The screenshot shows the Microsoft Power BI Desktop interface. The title bar indicates 'Untitled - Power BI Desktop'. The ribbon is set to the 'Edit Queries' tab, which is highlighted with a red arrow. The ribbon includes options for 'Get Data', 'Recent Sources', 'Enter Data', 'Edit Queries', 'Refresh', 'New Page', and 'New Visual'. Below the ribbon, a data table is displayed with the following columns: CountryRegion, Month, Sale 2015, and Budget. The table contains seven rows of data for China, with months ranging from April to July. A red arrow points to the 'Edit Queries' button in the ribbon.

CountryRegion	Month	Sale 2015	Budget
China	April	55,446.94	35,775.00
China	August	44,555.46	35,775.00
China	December		32,025.00
China	February	11,875.41	35,775.00
China	January	18,997.53	32,025.00
China	July	89,990.85	35,775.00



# Microsoft Power BI

## Add Column / Custom Column

The screenshot shows the Microsoft Power BI Power Query Editor interface. The ribbon is set to 'Add Column', which includes options like 'Conditional Column', 'Index Column', 'Duplicate Column', 'Merge Columns', 'Format', 'Extract', 'Parse', 'Statistics', 'Standard', 'Scientific', and 'Trigonometric'. The 'Custom Column' button is highlighted with a red arrow. Another red arrow points to the 'CountryRegion' column header in the data table below.

	CountryRegion	Brand	Month	Sale 2013
1	China	A. Datum	January	3
2	China	A. Datum	February	6
3	China	A. Datum	March	4
4	China	A. Datum	April	3
5	China	A. Datum	May	6
6	China	A. Datum	June	5
7	China	A. Datum	July	7
8	China	A. Datum	August	
9	China	A. Datum	September	1
10	China	A. Datum	October	1
11	China	A. Datum	November	
12	China	A. Datum	December	6
13	China	Adventure Works	January	12418

# Microsoft Power BI

Enter name and formula

Custom Column

New column name: Budget2

Custom column formula:

```
= if  
    [Sale 2015] <> null  
then  
    [Budget]  
else  
    0
```

Available columns:

- CountryRegion
- Brand
- Month
- Sale 2013
- Sale 2014
- Sale 2015
- Budget

<< Insert

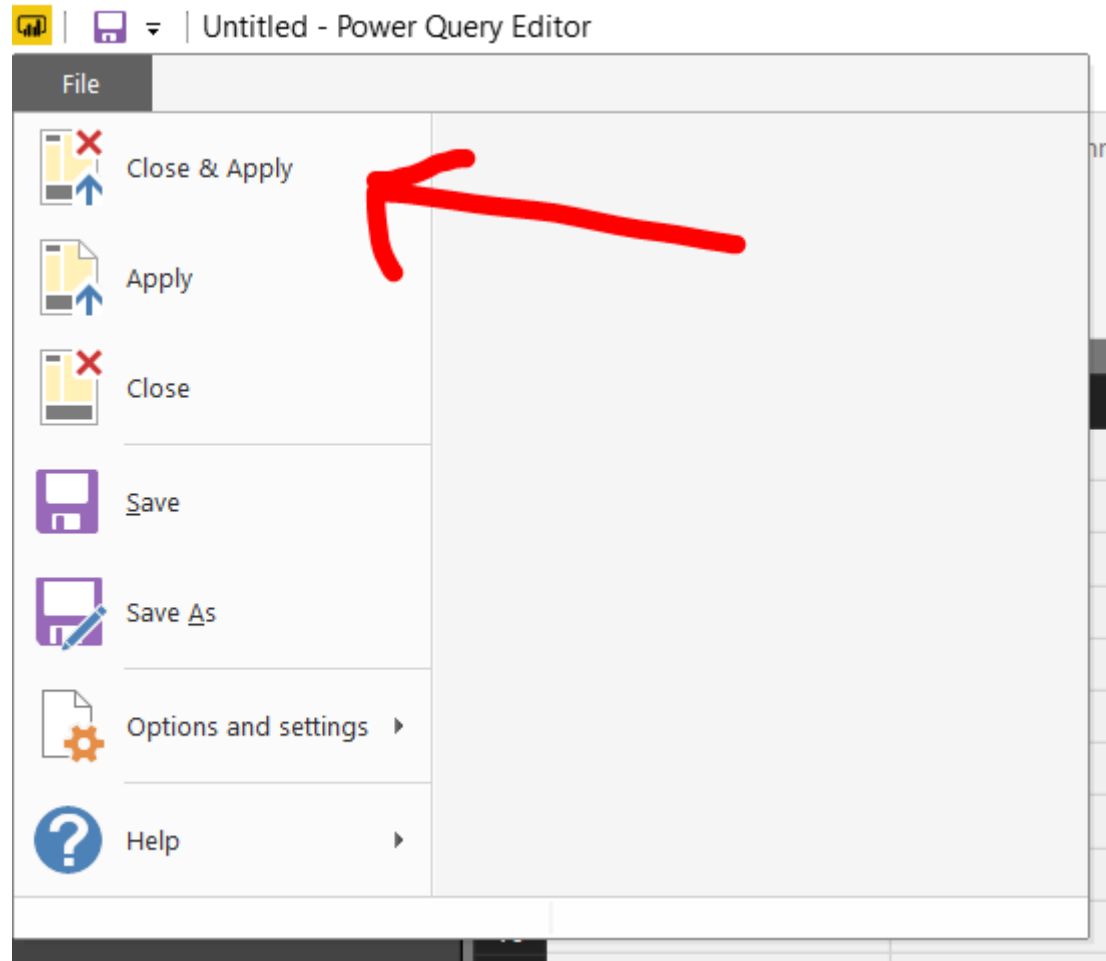
[Learn about Power BI Desktop formulas](#)

✓ No syntax errors have been detected.

OK Cancel

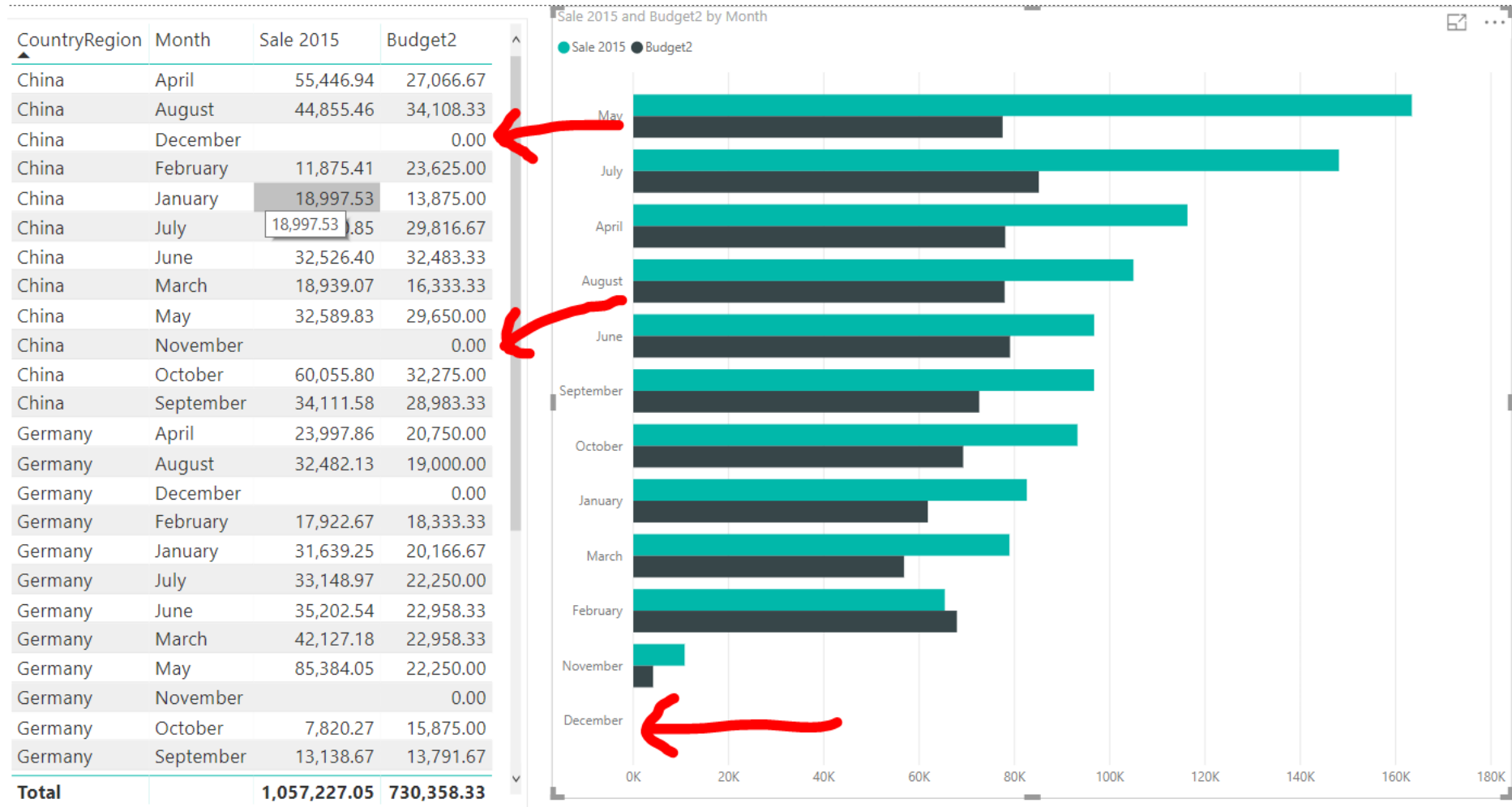
# Microsoft Power BI

## Close & Apply



# Microsoft Power BI

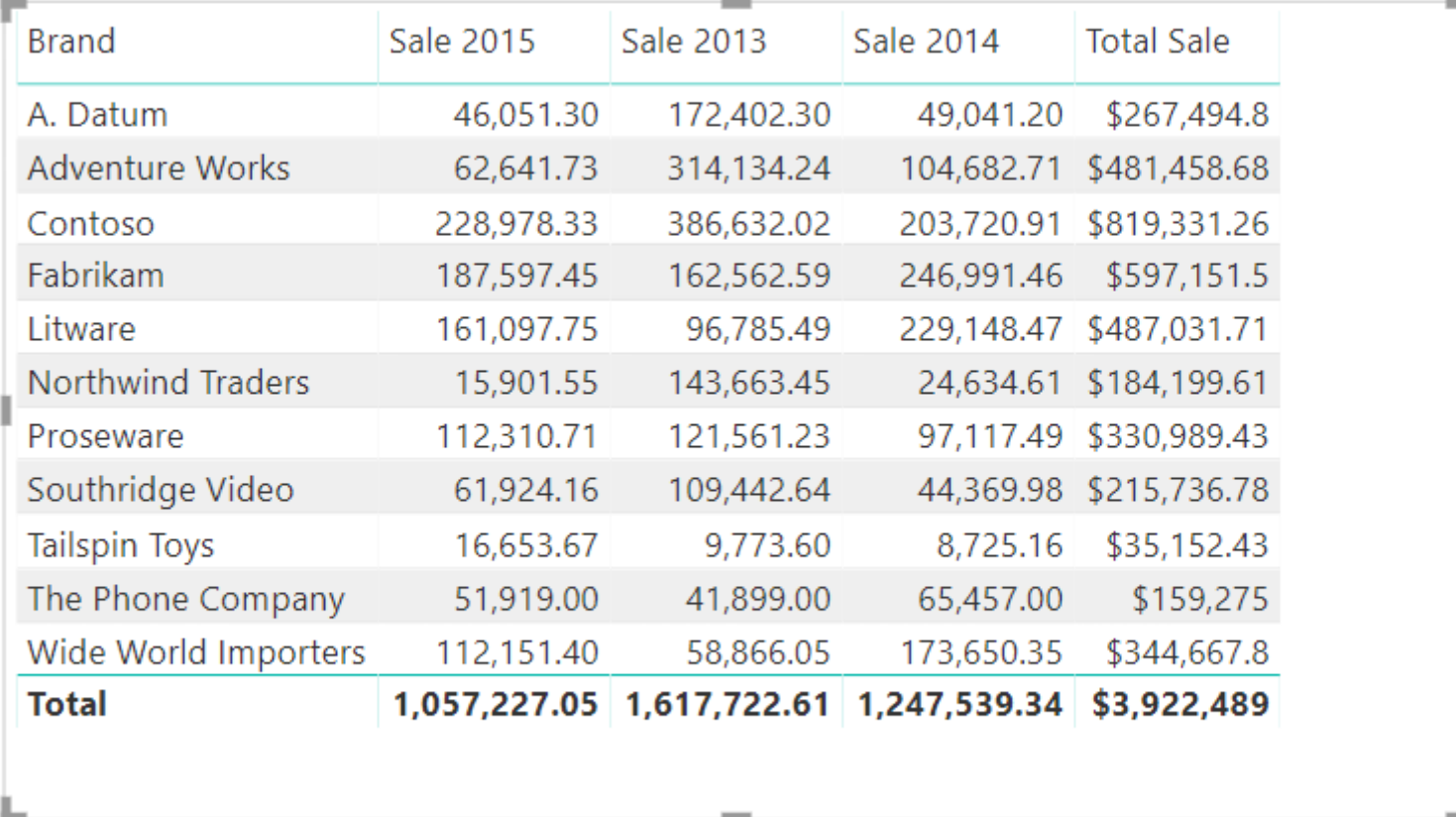
## Final result



# Microsoft Power BI

## Exercise

Add custom column Total Sale which the value come from 3 years sale of each brand



The image shows a screenshot of a table in Microsoft Power BI. The table has five columns: 'Brand', 'Sale 2015', 'Sale 2013', 'Sale 2014', and 'Total Sale'. The rows list various brands and their sales for each year, with a final row for 'Total' sales. The 'Total Sale' column is a custom column calculated as the sum of sales for 2013, 2014, and 2015 for each brand.

Brand	Sale 2015	Sale 2013	Sale 2014	Total Sale
A. Datum	46,051.30	172,402.30	49,041.20	\$267,494.8
Adventure Works	62,641.73	314,134.24	104,682.71	\$481,458.68
Contoso	228,978.33	386,632.02	203,720.91	\$819,331.26
Fabrikam	187,597.45	162,562.59	246,991.46	\$597,151.5
Litware	161,097.75	96,785.49	229,148.47	\$487,031.71
Northwind Traders	15,901.55	143,663.45	24,634.61	\$184,199.61
Proseware	112,310.71	121,561.23	97,117.49	\$330,989.43
Southridge Video	61,924.16	109,442.64	44,369.98	\$215,736.78
Tailspin Toys	16,653.67	9,773.60	8,725.16	\$35,152.43
The Phone Company	51,919.00	41,899.00	65,457.00	\$159,275
Wide World Importers	112,151.40	58,866.05	173,650.35	\$344,667.8
<b>Total</b>	<b>1,057,227.05</b>	<b>1,617,722.61</b>	<b>1,247,539.34</b>	<b>\$3,922,489</b>