

**NAV  
TECH  
DAYS  
2016**

mibuso.com

# THE POWER OF POWER BI AND DYNAMICS NAV

STEVEN RENDERS – think about IT

WHEN YOU ARE PASSIONATE ABOUT MICROSOFT DYNAMICS NAV | [www.navtechdays.com](http://www.navtechdays.com)

**NAV  
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# An overview of the Power BI toolset



The Power BI Toolset

# The Self Service Revolution

## Analytics solutions for your whole organization



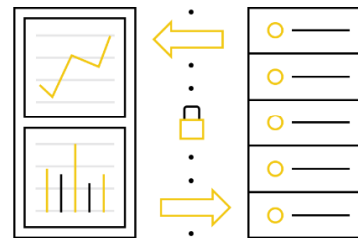
### Your whole business on one dashboard

With **Power BI on the web**, monitor your important data from across your organization and from all of the apps you rely on.



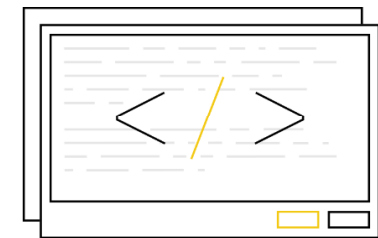
### Create stunning interactive reports

**Power BI Desktop** gives you tools to transform, analyze, and visualize data. Share reports in seconds with your organization using Power BI on the web.



### Consistent analysis across your organization

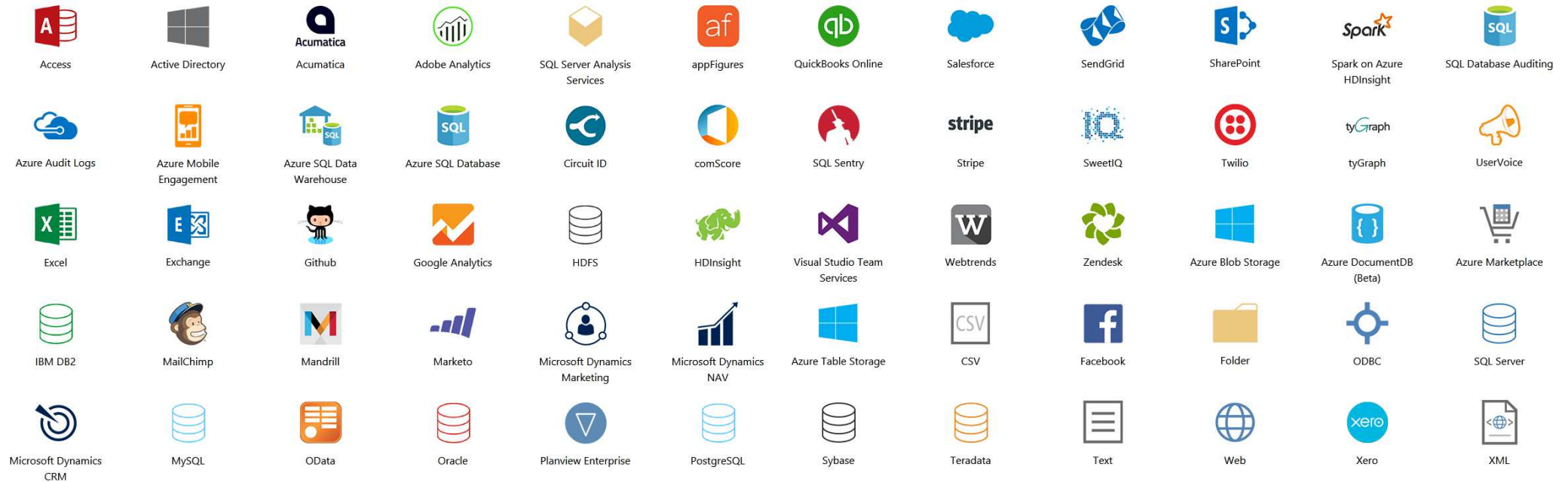
With **SQL Server Analysis Services** you can easily build robust, reusable models over your data to provide consistency across reporting and analysis in your organization.



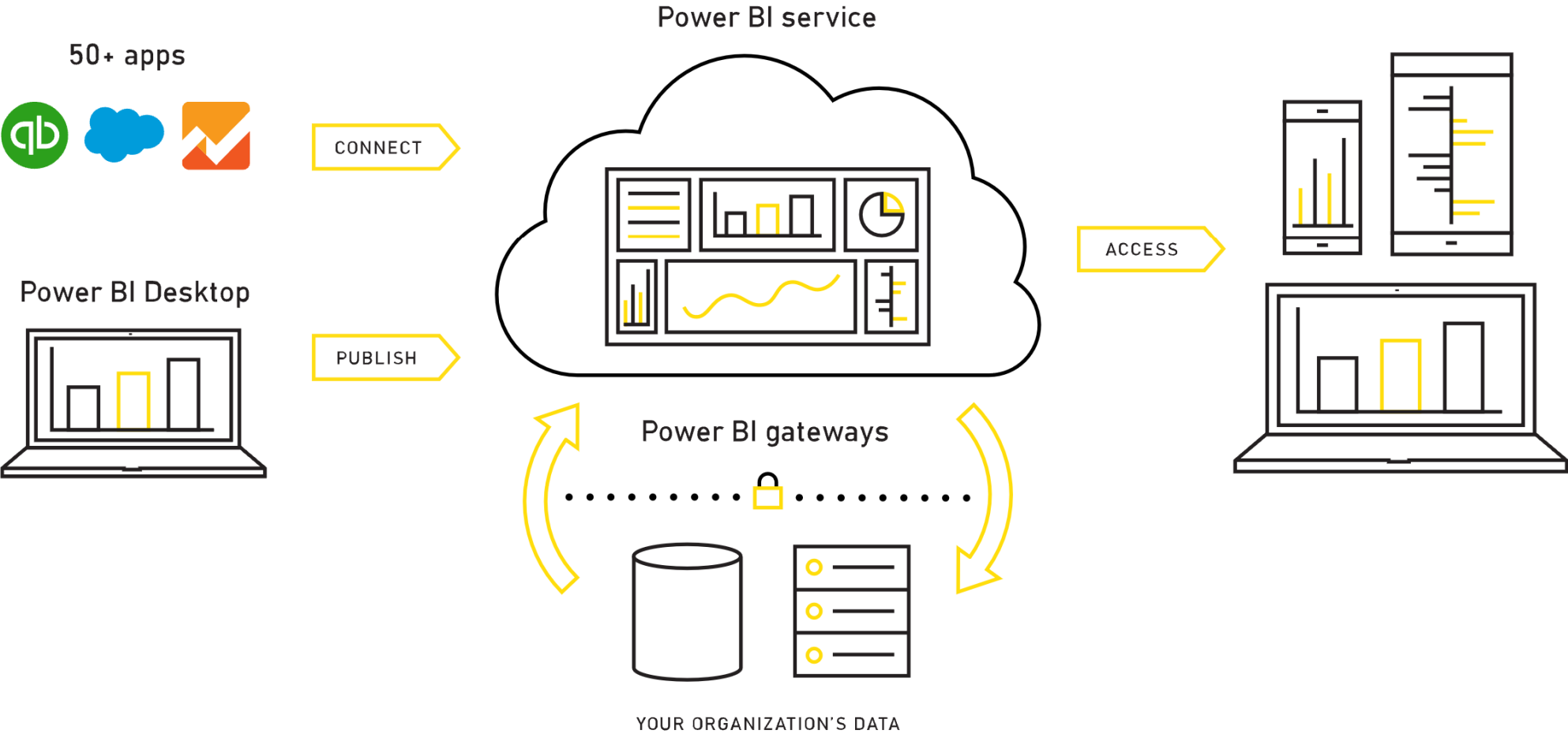
### Easily embed BI and analytics in your app

Deliver stunning interactive reports in your app with the **Power BI Embedded** service.

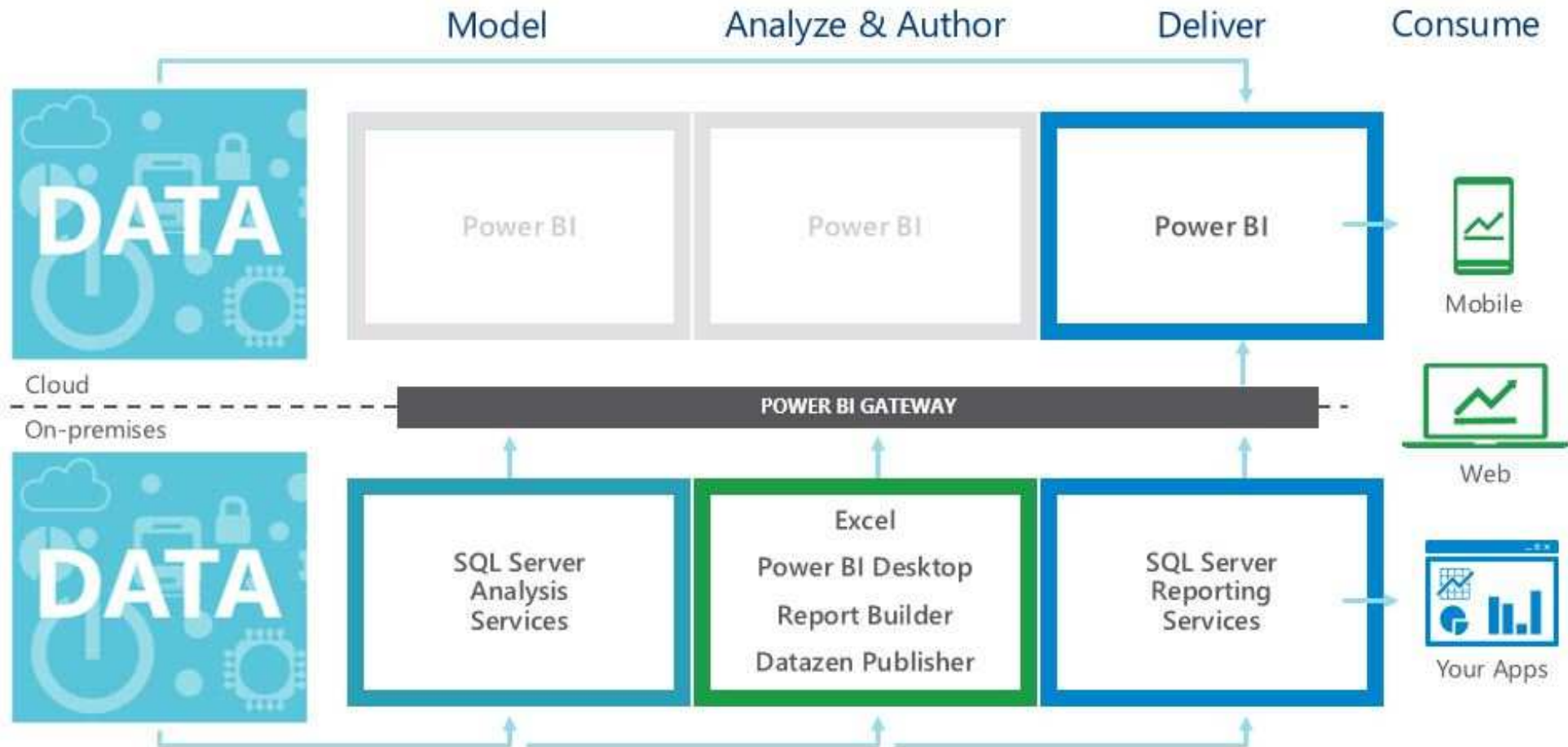
# Connect to what matters to you



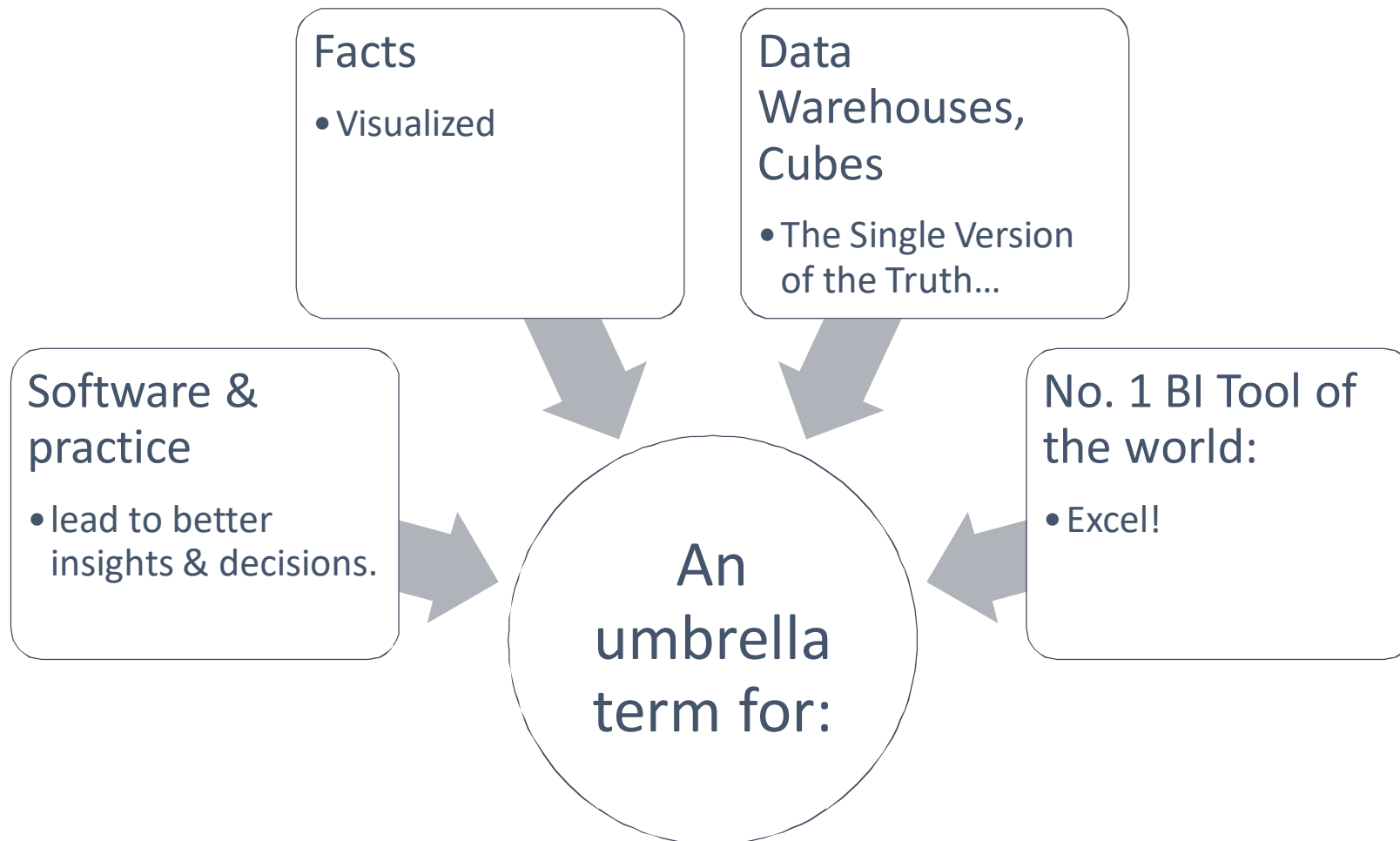
# The Self Service Revolution



# The Self Service Revolution



# What is Business Intelligence?



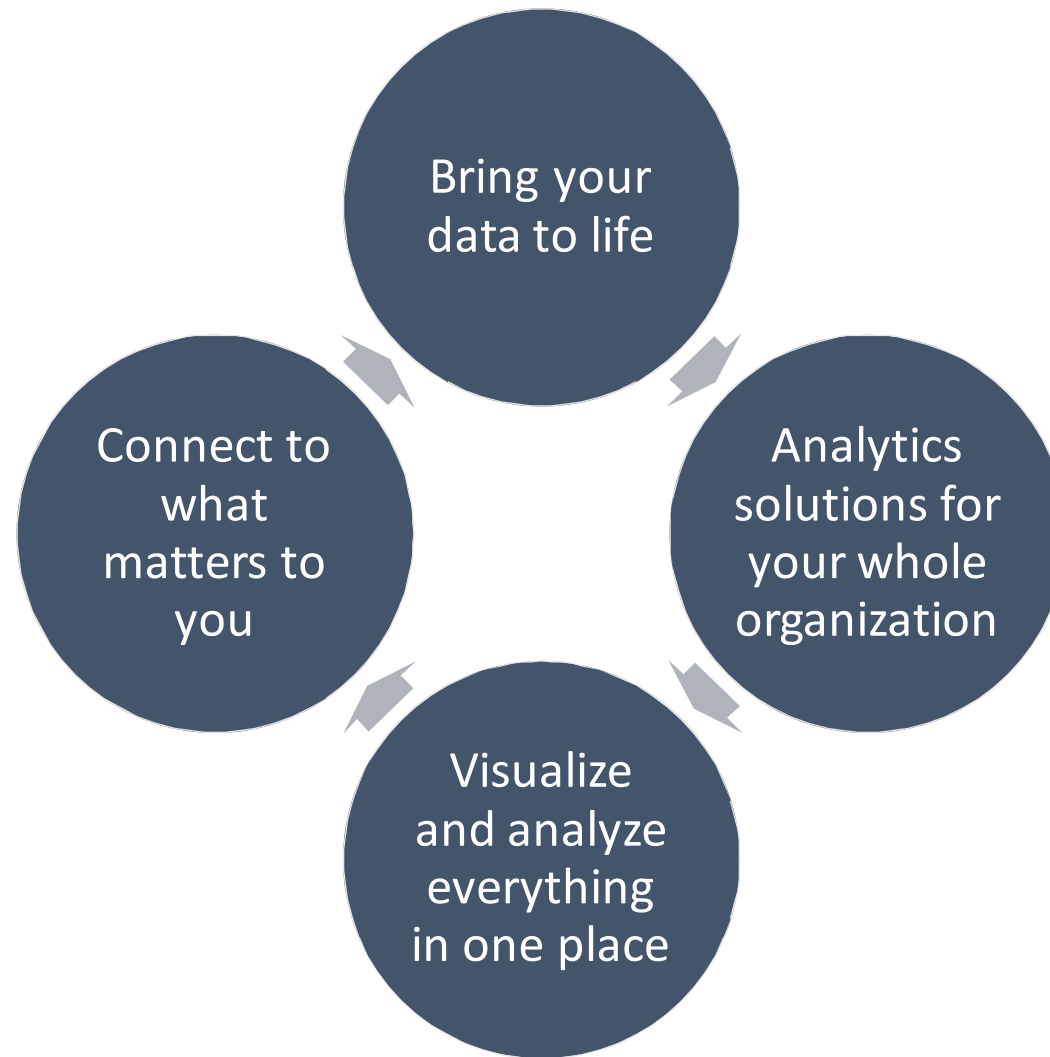


# How Determine What Information to Show?

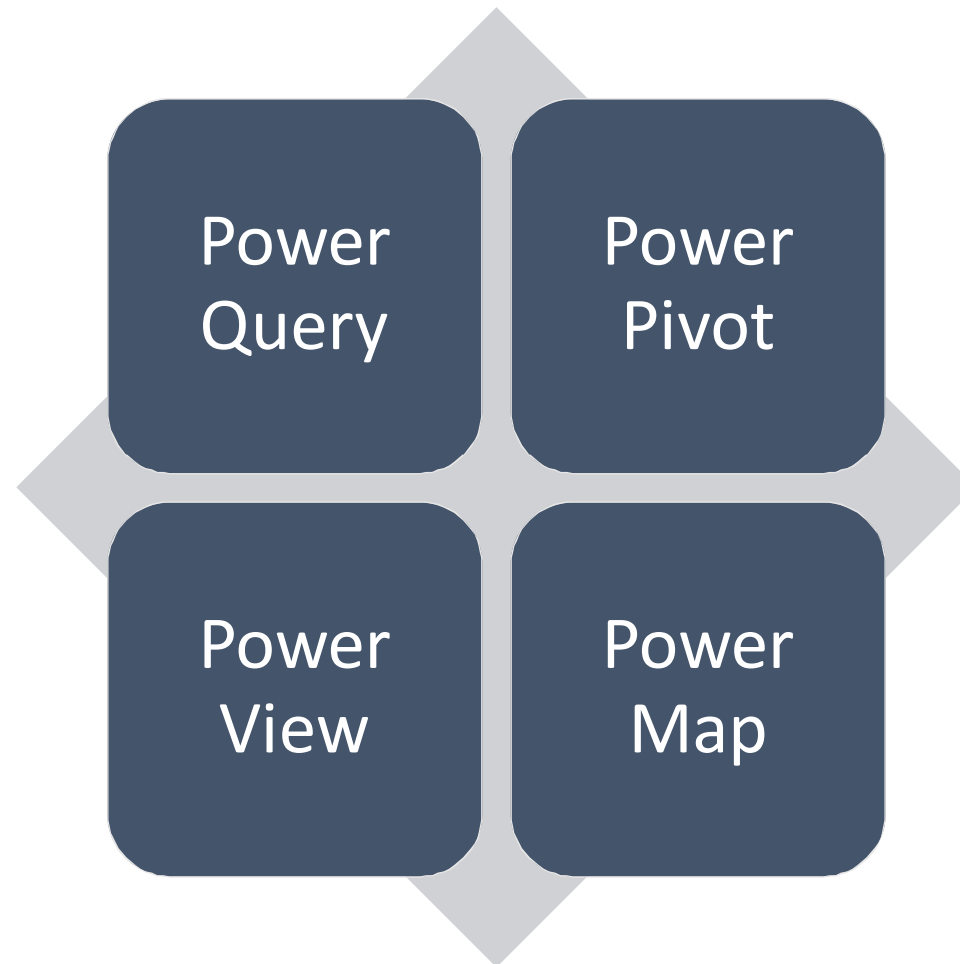




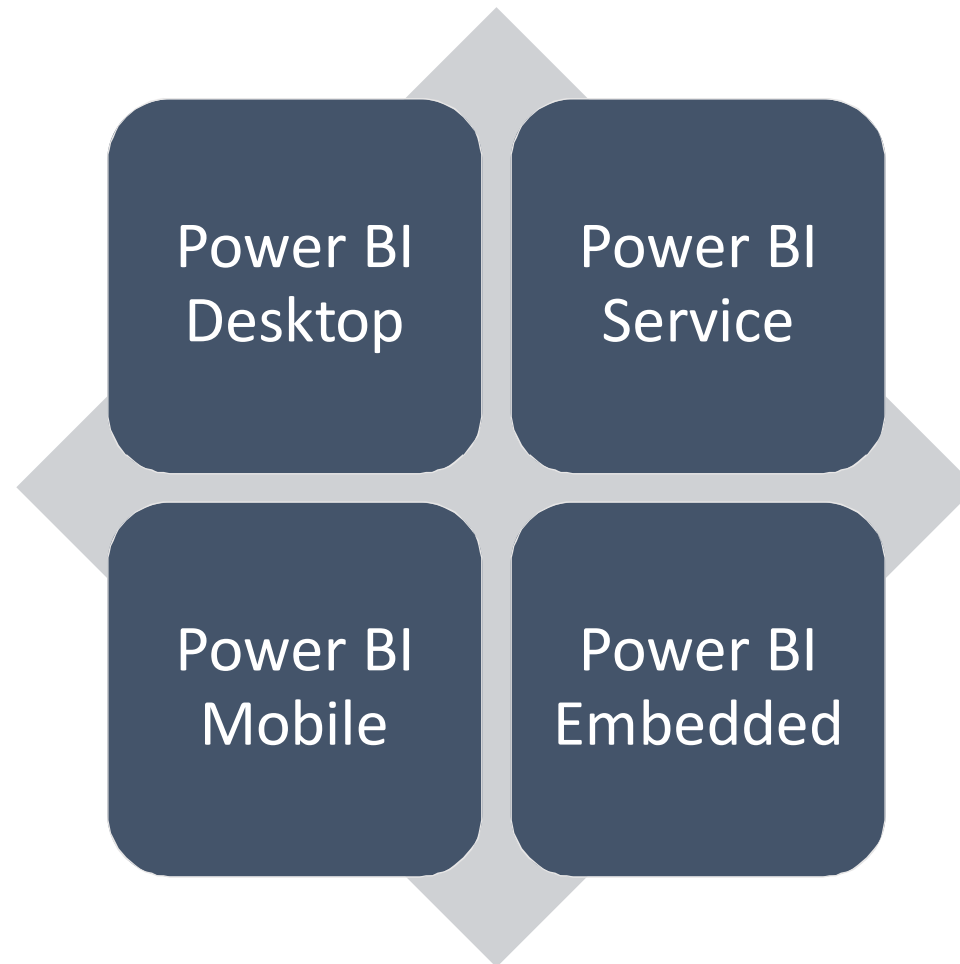
# What is Power BI?



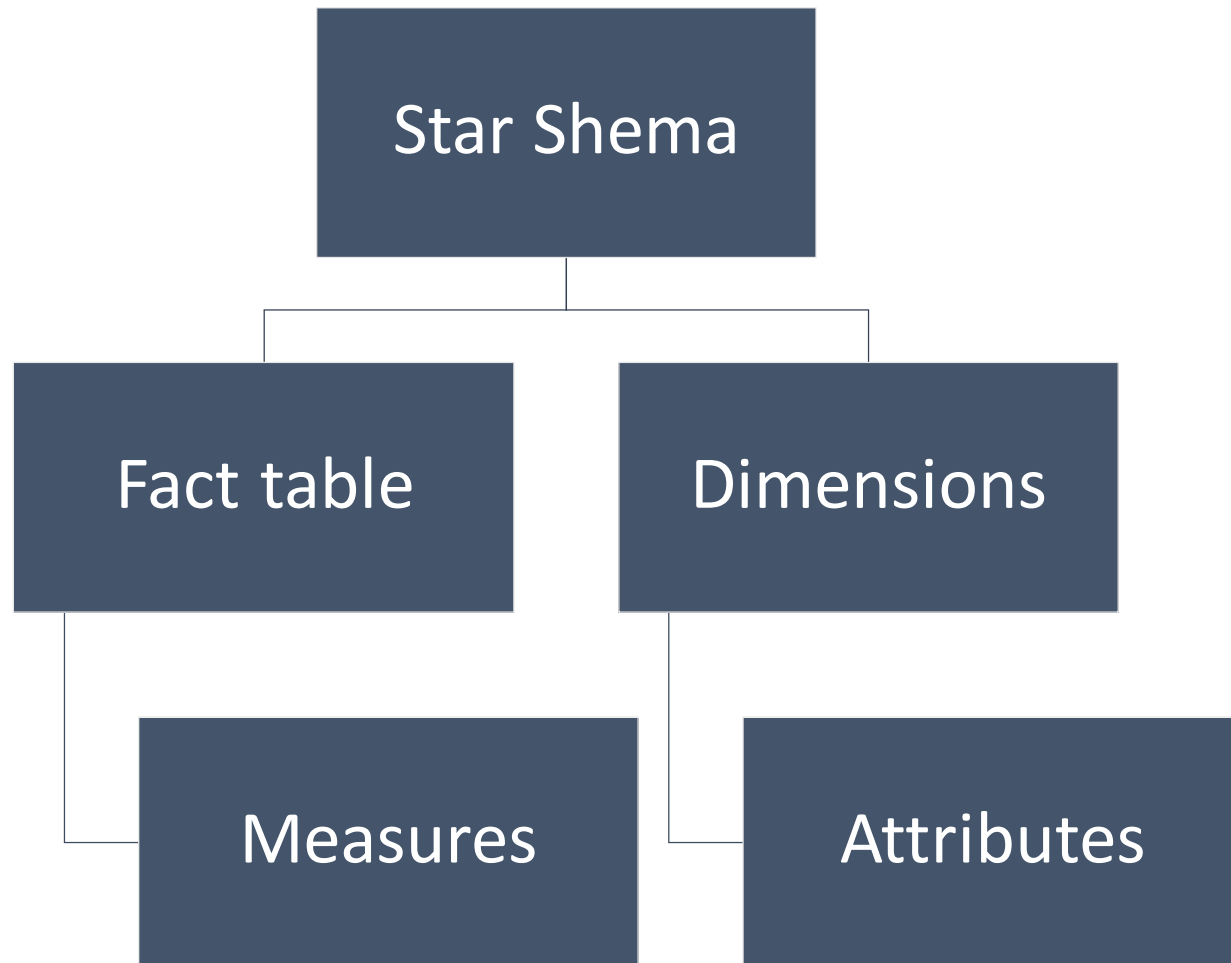
# An overview of the Power BI toolset



# An overview of the Power BI toolset



# Creating the Data Model



# Languages

- **SQL**
  - SQL Server
  - Power Query in Excel
  - Power Query in Power BI Desktop
- **M**
  - Power Query in Excel
  - Power Query in Power BI Desktop
- **DAX**
  - Power Pivot
  - Power BI Desktop
  - SQL Server Analysis Services Tabular
- **MDX**
  - SQL Server Analysis Services
  - Excel
  - Power Query in Power BI Desktop
- **R**
  - SQL Server
  - Power Query
  - Power BI Designer

# SQL

- **WHEN?**
  - SQL is used **before** your data import.
- **WHY?**
  - to **pre-filter**, **join** or **transform** your data before you start working with it.
- **HOW?**
  - SQL Statement
  - SQL View
  - SQL Stored Procedure
- **DIFFICULTY?**
  - 2 - SQL is fairly pervasive and has a long history so it is generally familiar to a lot of people

# M

- **WHEN?**
  - M is used **during** your data import.
- **WHY?**
  - Use M to **transform** and **cleanup** your data and create **custom columns** during data import.
- **HOW?**
  - M includes a common set of function definitions
  - M functions can be evaluated in the Query Editor in Power Query
- **DIFFICULTY?**
  - 3 - Unless you are already familiar with F# , and odds are you are not
  - You will likely find M a moderately challenging language to pickup and learn.
  - M simply isn't "like" a lot of other languages,
  - You have to think a little **differently** when using it rather than more traditional languages.



# DAX

- **WHEN?**
  - DAX is used **after** your data has been imported into your data model.
- **WHY?**
  - Use DAX to create **Custom Columns** and **Measures** within a data model.
- **HOW?**
  - The only real "tricky" thing about DAX is getting used to thinking about **context**.
  - In other words, the DAX formula or expression that you create may give different results depending upon the context in which that formula or expression runs.
  - This makes DAX very powerful but can add an element of confusion and forces a different way of thinking about solutions.
- **DIFFICULTY?**
  - 1 - Being very similar to Excel formulas, DAX has a sense of familiarity and is thus the easiest language for beginners to start using.

# MDX

- **WHEN?**
  - MDX is used **before** your data import.
- **WHY?**
  - Use SQL to **pre-filter** and **join** your data before you start working with it.
  - It will generally be more efficient to perform a **complex join** or selection of columns using MDX versus in M or within the data model.
- **HOW?**
  - Multi-Dimensional Expressions (MDX) is the standard language to query multidimensional cubes, such as those created with Microsoft SQL Server Analysis Services.
  - MDX was designed to query OLAP cubes where data is organized in terms of measures, dimensions, hierarchies, and levels.
- **DIFFICULTY?**
  - 3 - MDX is more difficult to wrap your head around than SQL and is somewhat of a **unique** language as far as languages go.

# R

- **WHEN?**

- R is unique within Power BI as it can be used **before**, **during** and **after** your import of data into your data model.

- **WHY?**

- The R language has a huge number of **modules** that add a **tremendous** amount of **capabilities** to Power BI.
- Connecting Power BI to Azure **Machine Learning** can be done in R.
- R's library of **visualizations** adds hundreds of possible visuals to Power BI's core set of 27 visuals.
- The uses for R are nearly **endless**.

- **HOW?**

- As a full fledged programming language, R has its own runtime and environment for coding.

- **DIFFICULTY?**

- 4 - R gets the highest ranking of the programming languages listed here
- Based largely upon the facts that it is a **full-fledged** programming language as well as the **vastness** of the language itself when including all of the possible custom **modules**.

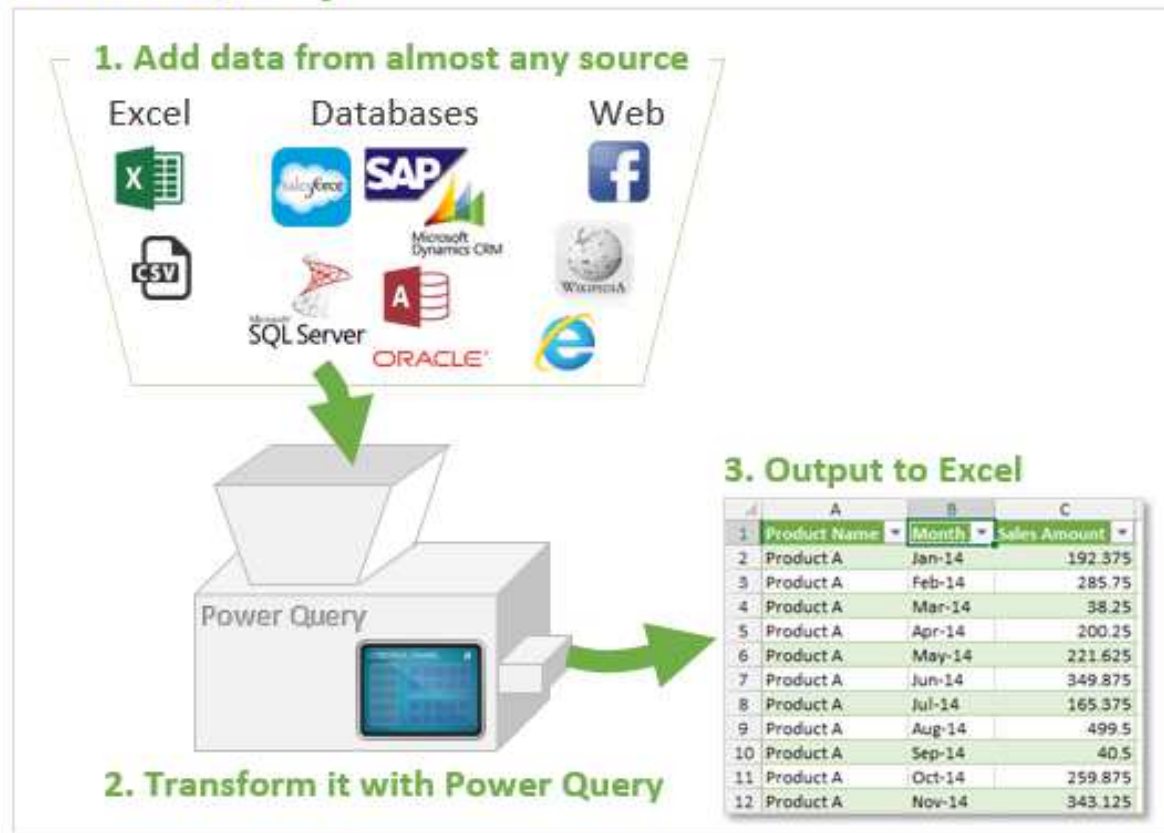
# Power Query



Power Query

# Power Query

## Power Query Transforms Your Data



# Power Query

Close & Load outputs data to a table in your workbook.

PO#	Vendor	Warehouse	Product	Qty
100203	Vend A	Atlanta	Apples	10
100203	Vend A	Atlanta	Pears	94
100203	Vend A	Atlanta	Oranges	49
100204	Vend A	New York	Apples	49
100204	Vend A	New York	Pears	100
100204	Vend A	New York	Oranges	60
100205	Vend B	Atlanta	Coffee	
100206	Vend C	New York	Apples	
100207	Vend B	New York	Apples	
100208	Vend B	Los Angeles	Apples	
100209	Vend C	Los Angeles	Apples	
100210	Vend A	Atlanta	Pears	78
100211	Vend B	Seattle	Coffee	16
100212	Vend A	Los Angeles	Apples	49
100212	Vend A	Los Angeles	Oranges	73
100213	Vend C	Los Angeles	Tea	59

Power Query ribbon options:

- File: Close & Load, Refresh Preview, Close
- Home: Properties, Advanced Editor
- Transform: Remove Duplicates, Remove Errors, Reduce Rows, Sort
- Send Feedback, Help, About
- Expand, Aggregate, Column, Pivot Columns, Column
- Trigonometry, Rounding, Information, Date, Time, Duration, Date & Time Columns



# Power Query

Before: Data Exported to Excel

	A	B	C	D
1	Sales Report 2014			
2	Sales Rep: Jeff Smith			
3				
4	Product Name	Jan-14	Feb-14	Mar-14
5	Product A	192.38	285.75	382.5
6	Product B	280.13	435.38	382.5
7	Product C	498.38	151.88	424.5
8	Product D	214.88	356.63	562.5
9	Product E	383.63	500.63	312.5
10	Product F	158.63	87.75	60.0
11	Product G	506.25	104.63	138.0
12	Product H	45.00	505.13	396.0
13	Product I	222.75	60.75	492.0
14	Product J	456.75	400.50	72.0
15	Product K	409.50	81.00	169.5
16	Product L	92.25	110.25	129.0
17	Total	3,460.50	3,080.25	3,179.25
18				
19	Export Date: 2/1/2015			
20				

After: Use **Power Query** to Unpivot Data

	A	B	C
1	Product Name	Month	Sales Amount
2	Product A	Jan-14	192.375
3	Product A	Feb-14	285.75
4	Product A	Mar-14	38.25
5	Product A	Apr-14	200.25
6	Product A	May-14	221.625
7	Product A	Jun-14	349.875
8	Product A	Jul-14	165.375
9	Product A	Aug-14	499.5
10	Product A	Sep-14	40.5
11	Product A	Oct-14	259.875
12	Product A	Nov-14	343.125
13	Product A	Dec-14	118.125
14	Product B	Jan-14	280.125
15	Product B	Feb-14	435.375
16	Product B	Mar-14	382.5
17	Product B	Apr-14	191.25

Can be used for  
the source of a  
Pivot Table.



# Power Query

## Append Multiple Files to One Table with Power Query

	A	B	C
1	Ship Date	Product	Amount
2	4/1/2014	Coffee	55.00
3	4/2/2014	Coffee	85.00
4	4/3/2014	Coffee	65.00
5	4/4/2014	Coffee	48.00
6	4/5/2014	Wine	54.00
7	4/6/2014	Coffee	15.00
8	4/7/2014	Tea	14.00

File #1

	A	B	C
1	Ship Date	Product	Amount
2	5/1/2014	Tea	648.00
3	5/2/2014	Beer	54.00
4	5/3/2014	Tea	15.00
5	5/4/2014	Tea	45.00
6	5/5/2014	Tea	23.00
7	5/6/2014	Coffee	411.00
8	5/7/2014	Tea	41.00

File #2

	A	B	C
1	Ship Date	Product	Amount
2	6/1/2014	Tea	540.00
3	6/2/2014	Beer	78.00
4	6/3/2014	Tea	55.00
5	6/4/2014	Beer	88.00
6	6/5/2014	Beer	51.00
7	6/6/2014	Wine	51.00
8	6/7/2014	Tea	67.00
9	6/8/2014	Coffee	95.00

File #3

	A	B	C	D
1	File	Ship Date	Product	Amount
2	File 1	4/1/2014	Coffee	55
3	File 1	4/2/2014	Coffee	485
4	File 1	4/3/2014	Tea	65
5	File 1	4/4/2014	Beer	248
6	File 1	4/5/2014	Wine	54
7	File 1	4/6/2014	Coffee	15
8	File 1	4/7/2014	Tea	14
9	File 2	5/1/2014	Tea	648
10	File 2	5/2/2014	Beer	54
11	File 2	5/3/2014	Tea	15
12	File 2	5/4/2014	Coffee	445
13	File 2	5/5/2014	Coffee	123
14	File 2	5/6/2014	Coffee	411
15	File 2	5/7/2014	Tea	41
16	File 3	6/1/2014	Tea	540
17	File 3	6/2/2014	Beer	78
18	File 3	6/3/2014	Tea	55
19	File 3	6/4/2014	Beer	488
20	File 3	6/5/2014	Beer	451
21	File 3	6/6/2014	Wine	51
22	File 3	6/7/2014	Tea	67
23	File 3	6/8/2014	Coffee	95

# Power Query

## Merge (join) Tables with Power Query

A	B	C	D	E	F	G
1						
2	<b>Sales Table</b>				<b>Product Table</b>	
3	Date	Product Name			Product Name	Product Group
4	1/10/2014	Coffee			Coffee	Beverages
5	1/10/2014	Tea			Tea	Beverages
6	1/10/2014	Cookies	1,102.00		Cookies	Pastries
7	1/12/2014	Bread	342.00		Bread	Pastries
8	1/12/2014	Cookies	1,950.00		Carrots	Vegetables
9	1/13/2014	Carrots	1,454.00		Potatoes	Vegetables
10	1/13/2014	Potatoes	669.00			
11	1/13/2014	Coffee	1,288.00			
12	1/13/2014	Carrots	808.00			
13	1/14/2014	Cookies	1,115.00			
14	1/14/2014	Coffee	890.00			
15	1/14/2014	Potatoes	1,674.00			
16						
17						
18	<b>Merged Table from Power Query</b>					
19	Date	Product Name	Amount	Product Group		
20	1/10/2014	Coffee	1,069.00	Beverages		
21	1/10/2014	Tea	1,470.00	Beverages		
22	1/10/2014	Cookies	1,102.00	Pastries		
23	1/12/2014	Cookies	1,950.00	Pastries		
24	1/12/2014	Bread	342.00	Pastries		
25	1/13/2014	Carrots	1,454.00	Vegetables		
26	1/13/2014	Potatoes	669.00	Vegetables		
27	1/13/2014	Coffee	1,288.00	Beverages		
28	1/13/2014	Carrots	808.00	Vegetables		
29	1/14/2014	Cookies	1,115.00	Pastries		
30	1/14/2014	Coffee	890.00	Beverages		
31	1/14/2014	Potatoes	1,674.00	Vegetables		

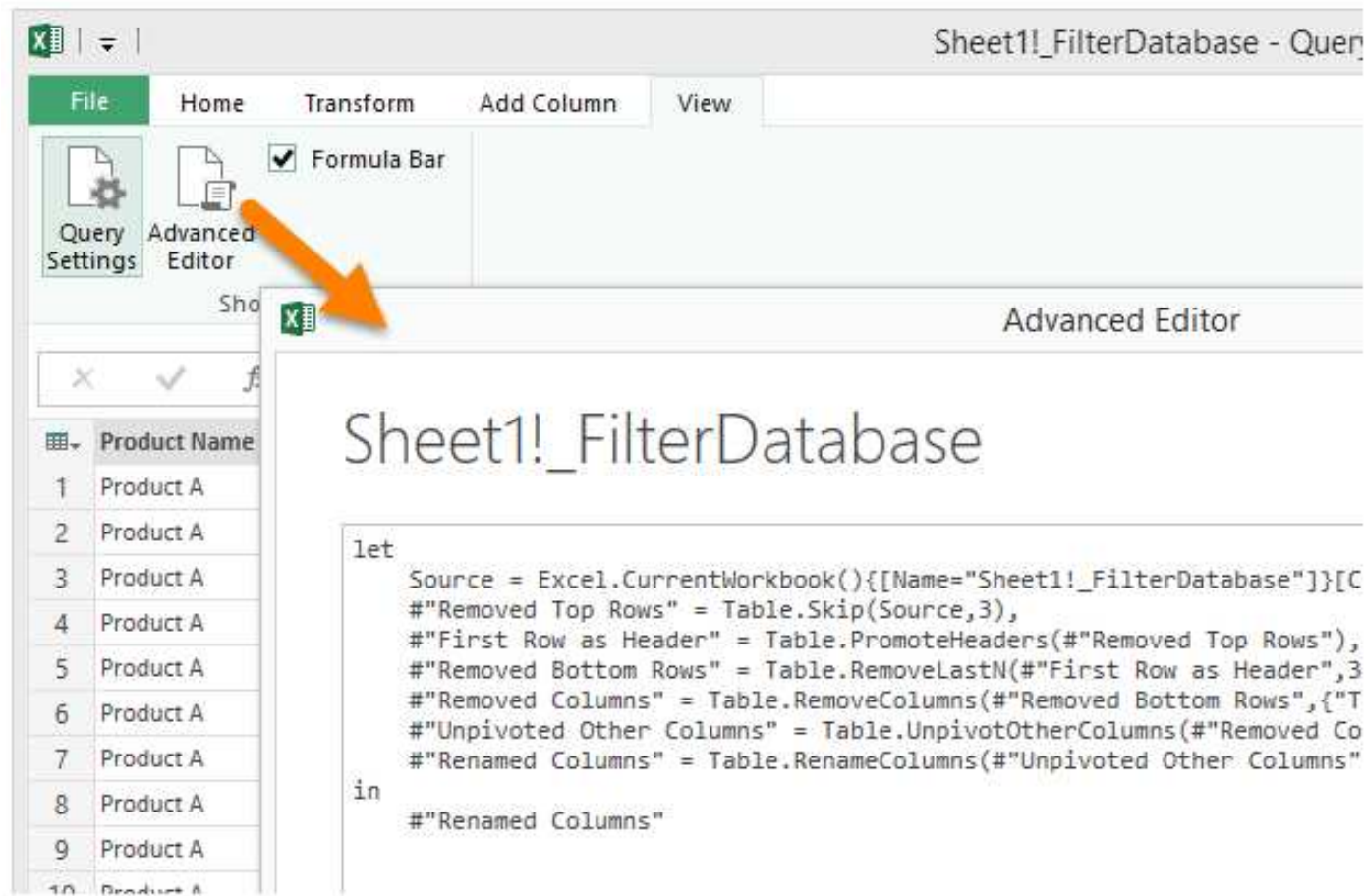
Join (merge) matching fields

Add "lookup" field to table.

NO Formulas Required!

# Power Query

## Advanced Editing Capabilities with the M Code Language



The screenshot displays the Power Query Advanced Editor interface. The top ribbon includes tabs for File, Home, Transform, Add Column, and View. The 'Advanced Editor' tab is active, showing the 'Query Settings' icon and a checked 'Formula Bar' option. An orange arrow points to the 'Advanced Editor' window, which is titled 'Sheet1!\_FilterDatabase - Query'. The main area of the editor shows the title 'Sheet1!\_FilterDatabase' and the following M code:

```
let
    Source = Excel.CurrentWorkbook(){[Name="Sheet1!_FilterDatabase"]}[C
    #"Removed Top Rows" = Table.Skip(Source,3),
    #"First Row as Header" = Table.PromoteHeaders(#"Removed Top Rows"),
    #"Removed Bottom Rows" = Table.RemoveLastN(#"First Row as Header",3
    #"Removed Columns" = Table.RemoveColumns(#"Removed Bottom Rows",{T
    #"Unpivoted Other Columns" = Table.UnpivotOtherColumns(#"Removed Co
    #"Renamed Columns" = Table.RenameColumns(#"Unpivoted Other Columns"
in
    #"Renamed Columns"
```

On the left side of the editor, a preview of the data is visible, showing a table with 10 rows and 2 columns: 'Product Name' and 'Product A'.

# Power Query

## Power Query Records Your Steps & Automates Processes

Each button press is recorded as a step that can be modified or deleted.

Refreshing the query applies all the steps without modifying the source data.

Month	Sales Amount
Jan-14	192.375
Feb-14	285.75
Mar-14	38.25
Apr-14	200.25
May-14	221.625
Jun-14	
Jul-14	
Aug-14	
Sep-14	
Oct-14	
Nov-14	
Dec-14	
Jan-14	
Feb-14	

Query Settings

PROPERTIES

Name: Sheet1!\_FilterDatabase

APPLIED STEPS

- Source
- Removed Top Rows
- First Row as Header
- Removed Bottom Rows
- Removed Columns
- Unpivoted Other Columns
- Renamed Columns

# Power Query

Excel's **Power BI** Solution is like Baking Cookies... Yum!

Power Query



1. Prepare the cookies...

Power Pivot  
Pivot Tables



2. Bake them...

Power View  
Power Map



3. Present & share

# Power Query

## DEMO

(Generating A Date Dimension Table In Power Query,  
DateTablePowerQuery.xlsx,  
DateTablePowerQuery.bit)



# Power Pivot

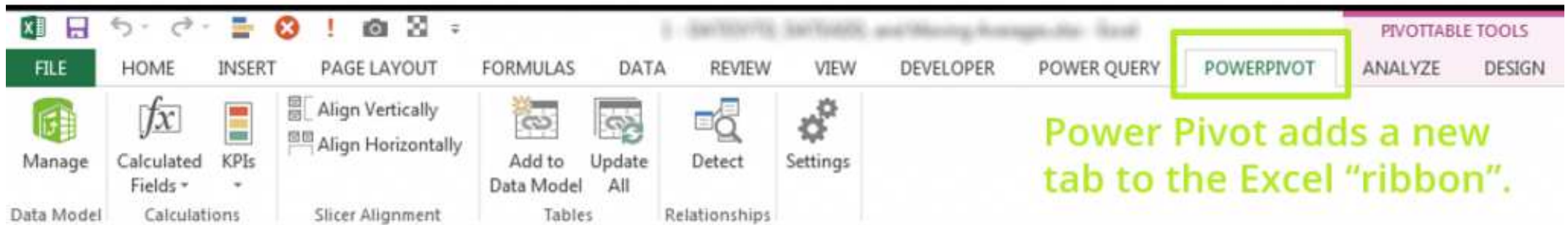


Power Pivot



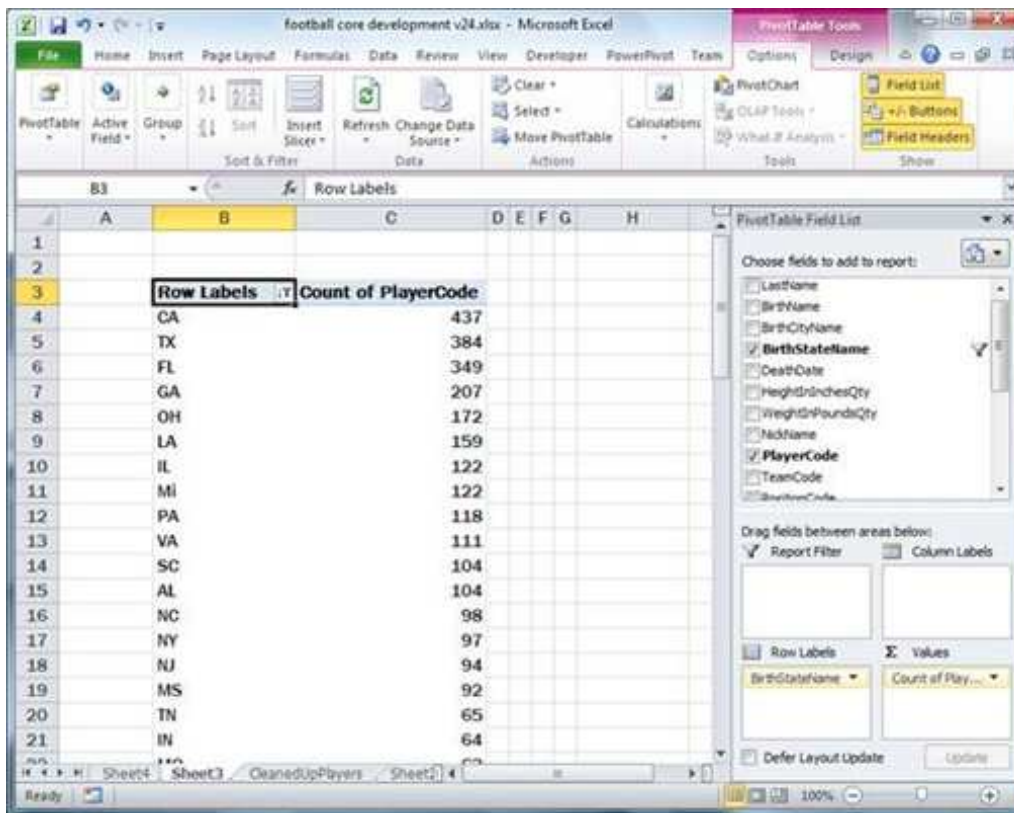
# Power Pivot

Power Pivot is the best new feature to happen to Excel in twenty years!  
(Bill Jelen, founder of MrExcel.com)



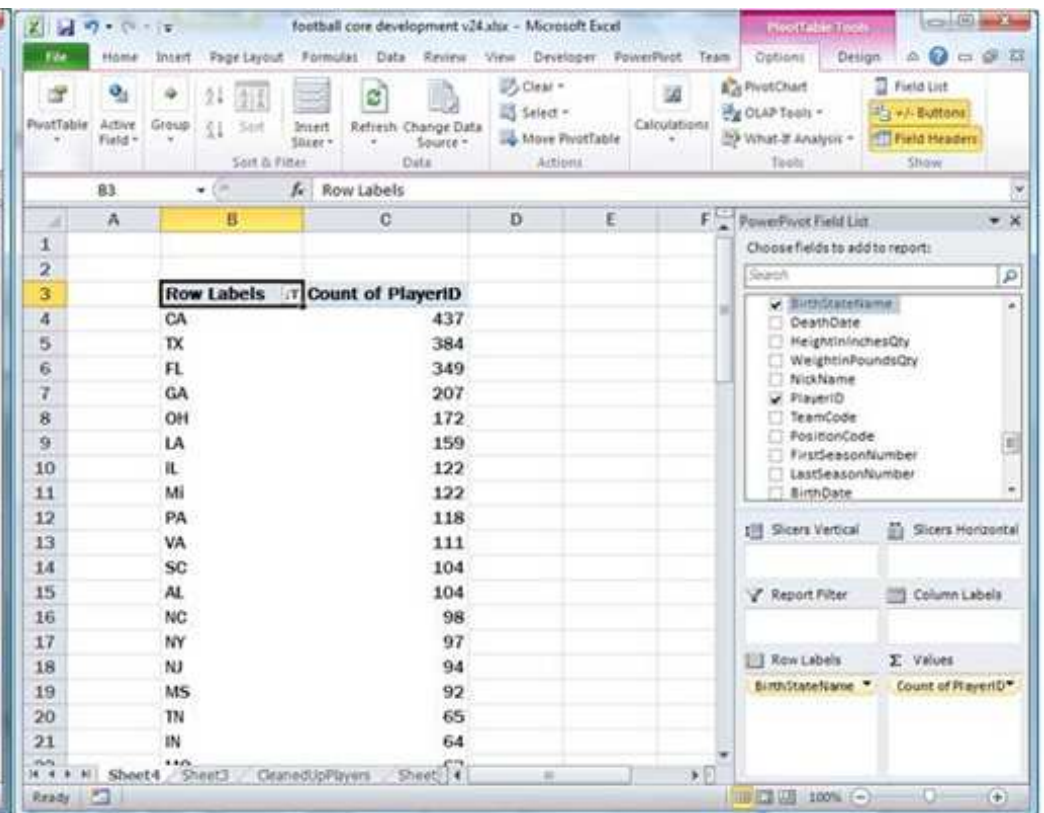
# Power Pivot

## Normal Pivot Table



Row Labels	Count of PlayerCode
CA	437
TX	384
FL	349
GA	207
OH	172
LA	159
IL	122
MI	122
PA	118
VA	111
SC	104
AL	104
NC	98
NY	97
NJ	94
MS	92
TN	65
IN	64

## Power Pivot Table



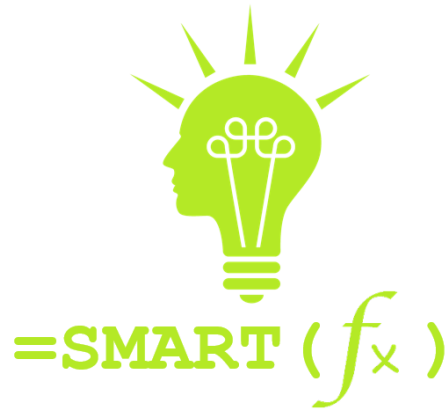
Row Labels	Count of PlayerID
CA	437
TX	384
FL	349
GA	207
OH	172
LA	159
IL	122
MI	122
PA	118
VA	111
SC	104
AL	104
NC	98
NY	97
NJ	94
MS	92
TN	65
IN	64

# Power Pivot



## INSTANT LINKING & SPLICING OF DATA SETS

- Never write a VLOOKUP() again.
- Link entire tables in seconds.
- Produce integrated views of your business that were not feasible before.
- Solve complex problems like “budget vs. actuals” in seconds.



## “SMART” FORMULAS: FAST, POWERFUL, PORTABLE

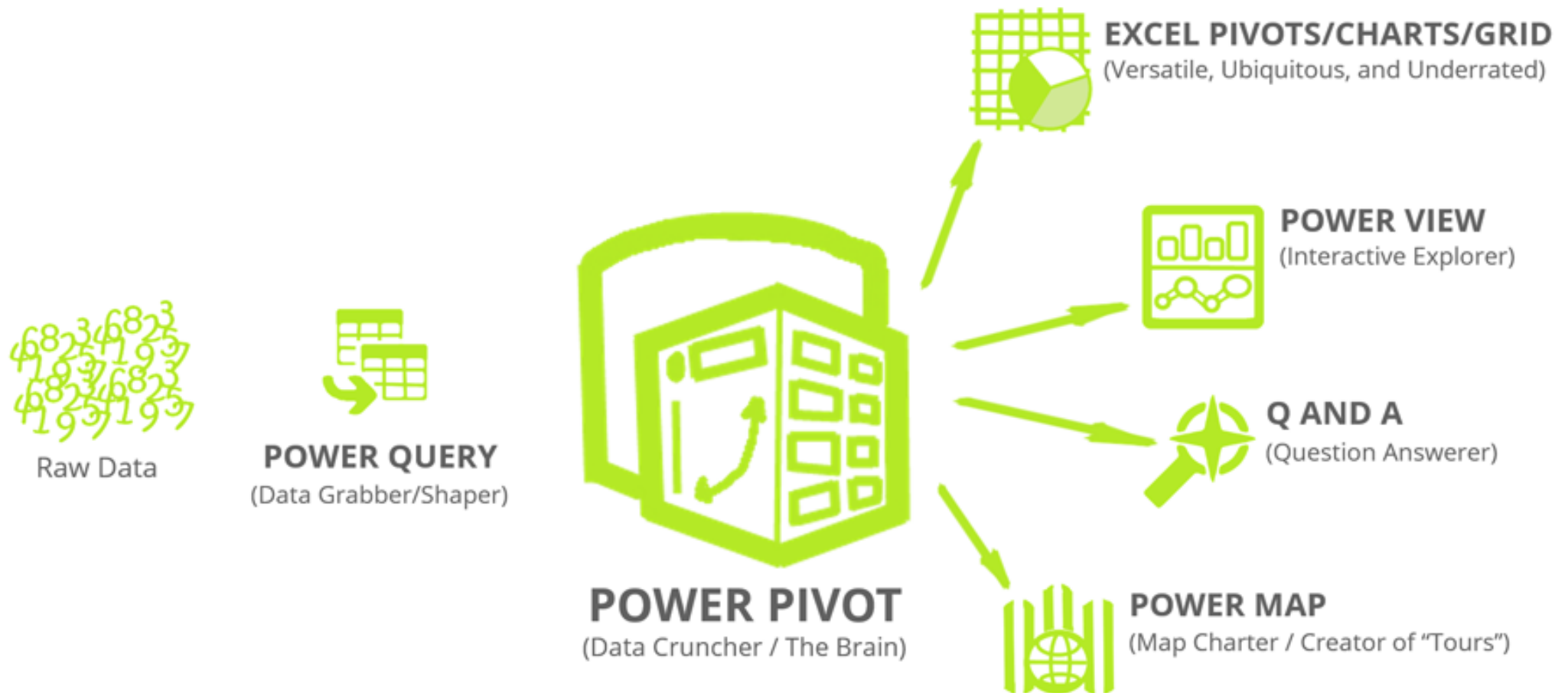
- 100+ new functions (ex: COUNTROWS, SWITCH, TOPN) join old favorites SUM, IF, etc.
- All functions now work in pivots, and auto-adjust as pivots change size & shape.
- Write a formula ONCE, and re-use it everywhere – no more re-writes.



## VIRTUALLY LIMITLESS DATA CAPACITY

- Big, Small, or Medium Data are welcome.
- Work with hundreds of rows or hundreds of MILLIONS of rows the same way.
- Fast calculations, even with multiple, massive, and linked tables.

# Power Pivot



# Power Pivot

DEMO

(Create a date table & data model in PowerPivot)

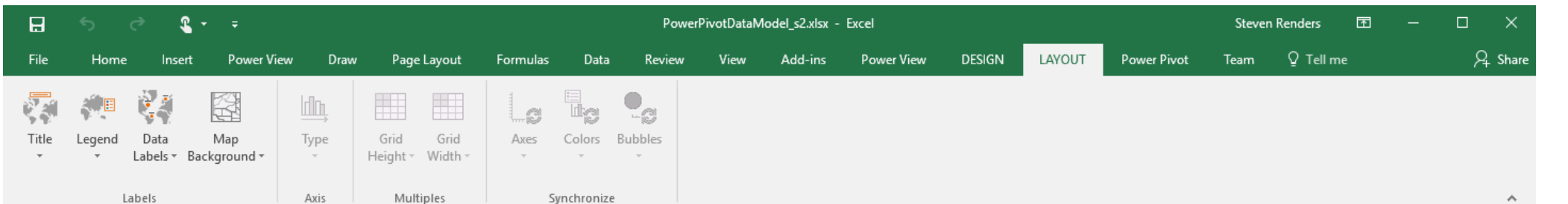
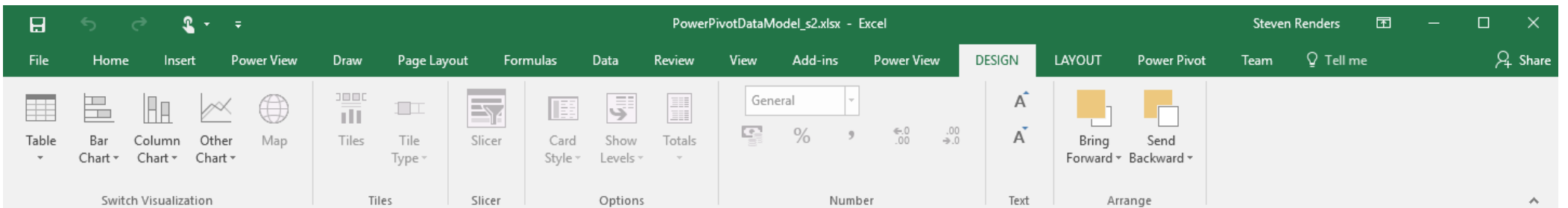
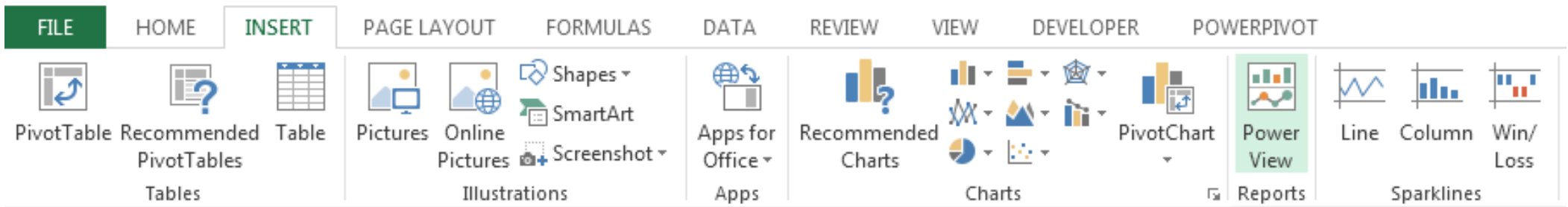
# Power View



Power View

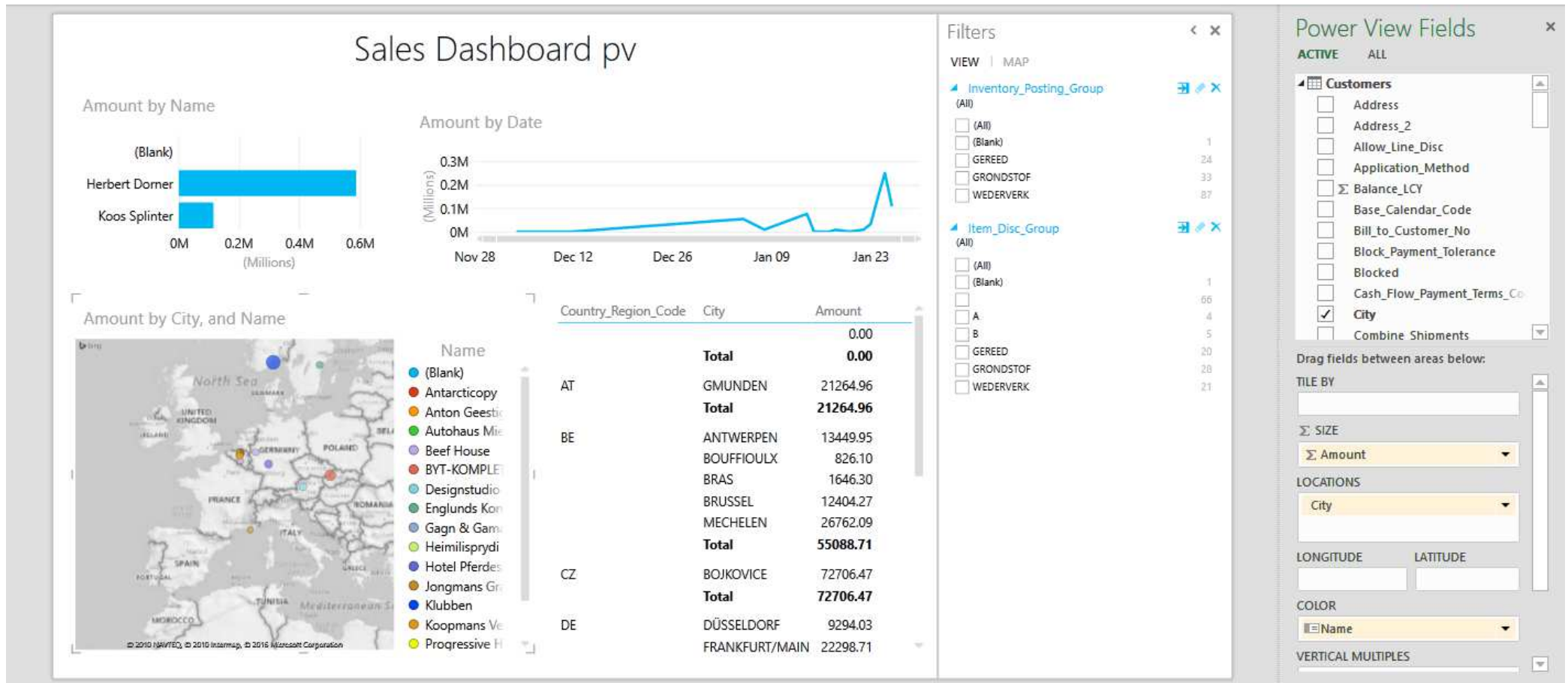
# Power View

Explore, visualize, and present your data





# Power View



# Power View

DEMO

(PowerView.xlsx)

# Power Map



Power Map

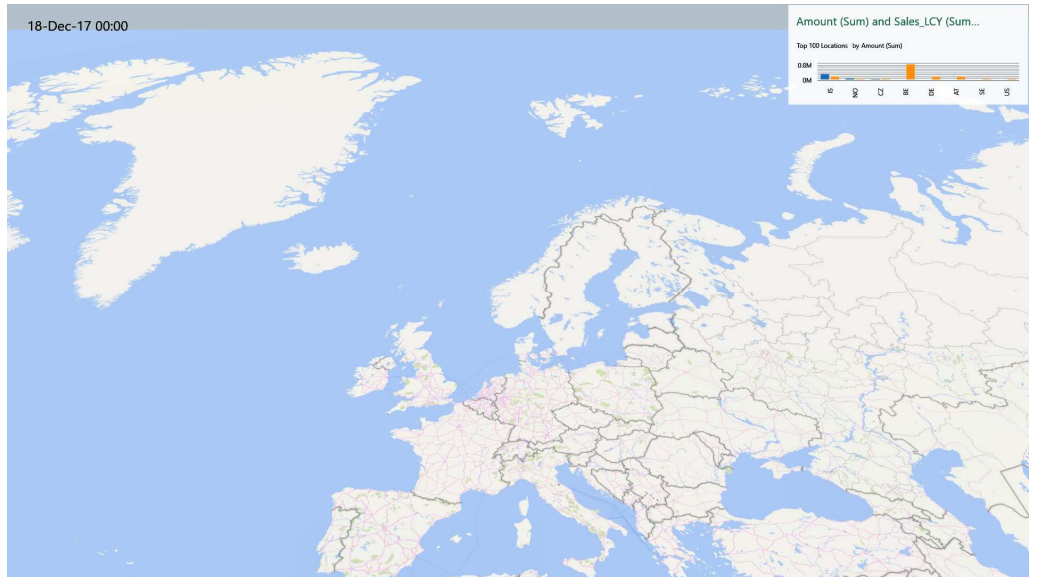
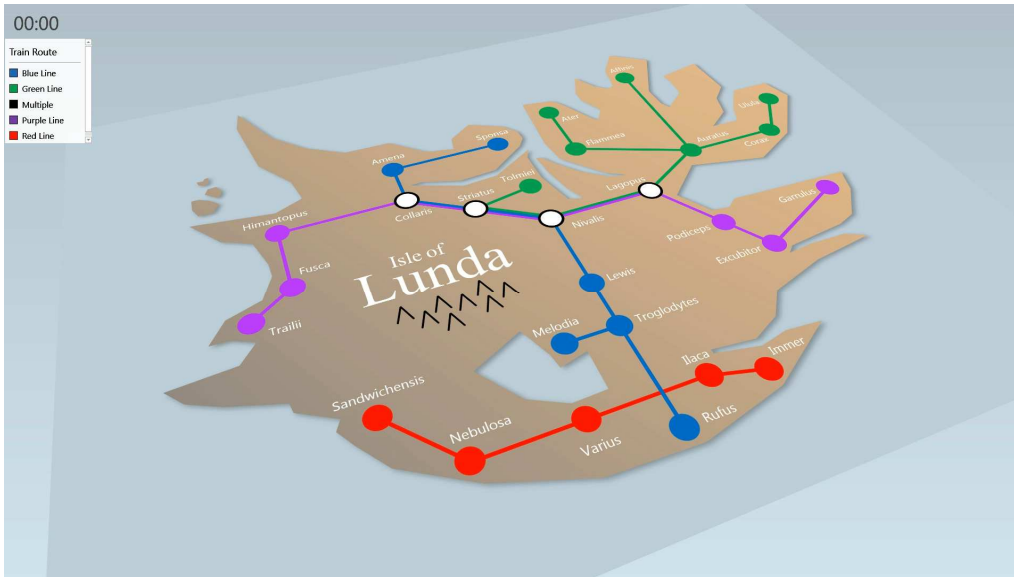
# Power Map

- Creating a story about geographic data.
- A **3D** visualization add-in for Excel for
  - Mapping
  - Exploring
  - Interacting
  - with geographical data.
- Enabling people to:
  - discover and share new insights.

# Power Map

- **Tour**
  - made up of one or more **scenes**
- **Scene**
  - displays a **map**
  - contains one or more layers
- **Layer**
  - a geographic mapping with a specific type of **visualization**
  - can be bound to a **date** field

# Power Map



# Power Map

DEMO

(PowerMap.xlsx)

# Power BI Desktop



Power BI Desktop



# Power BI Desktop

Power BI Desktop puts visual analytics at your **fingertips** with **intuitive** report authoring.

**Drag-and-drop** to place content exactly where you want it on the **flexible** and fluid canvas.

**Quickly** discover patterns as you explore a single unified view of linked, **interactive visualizations**.

# Power BI Desktop



# Connect to Data Sources

The screenshot shows the 'Navigator' window in Microsoft Power BI Desktop. On the left, a list of data sources is shown under 'PowerBI.acddb [6]'. The 'bi\_date' source is selected. Below this list, there are three buttons: 'Load' (yellow), 'Edit' (grey), and 'Cancel' (grey). A mouse cursor is hovering over the 'Edit' button. The main area of the window displays a table with data from the 'bi\_date' source. The table has five columns: 'Date', 'Day', 'Month', 'Year', and 'Quarter'. The data rows show dates from 1999-01-13 to 1999-01-23, all in January 1999, with the quarter being Q1. At the bottom of the window, there are three buttons: 'Load', 'Edit', and 'Cancel'.

Date	Day	Month	Year	Quarter
1999-01-13	1	Jan	1999	Q1
1999-01-14	1	Jan	1999	Q1
1999-01-15	1	Jan	1999	Q1
1999-01-16	1	Jan	1999	Q1
1999-01-17	1	Jan	1999	Q1
1999-01-18	1	Jan	1999	Q1
1999-01-19	1	Jan	1999	Q1
1999-01-20	1	Jan	1999	Q1
1999-01-21	1	Jan	1999	Q1
1999-01-22	1	Jan	1999	Q1
1999-01-23	1	Jan	1999	Q1

# Clean and Transform Your Data

The screenshot displays the Power BI Query Editor interface. A pink arrow points to the 'Transform' tab in the ribbon, which is labeled with a pink circle '1'. The ribbon includes options like 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Refresh Preview', 'Properties', 'Advanced Editor', 'Choose Columns', 'Remove Columns', 'Reduce Rows', 'Sort', 'Split Column', 'Group By', 'Data Type: Text', 'Use First Row As Headers', 'Replace Values', and 'Combine'. The main area shows a table with 9 columns and 50 rows. The columns are 'Header', 'Overall rank', and 'State'. The 'Header' column contains the text 'Check out how your state ranks for retirement'. The 'Overall rank' column contains numbers from 1 to 19. The 'State' column contains state names. A pink circle '2' is next to the 'Table 0' tab. A pink circle '3' is next to the 'Overall rank' column. A pink circle '4' is next to the 'Name' field in the 'Query Settings' pane, which is set to 'Table 0'. The 'Query Settings' pane also shows 'APPLIED STEPS' with 'Source', 'Navigation', and 'Changed Type' listed. The status bar at the bottom indicates '9 COLUMNS, 50 ROWS' and 'PREVIEW DOWNLOADED AT 10:14 AM'.

Header	Overall rank	State
Check out how your state ranks for retirement	1	Wyoming
Check out how your state ranks for retirement	2	Colorado
Check out how your state ranks for retirement	3	Utah
Check out how your state ranks for retirement	4	Idaho
Check out how your state ranks for retirement	5	Virginia
Check out how your state ranks for retirement	6	Iowa
Check out how your state ranks for retirement	7	Montana
Check out how your state ranks for retirement	8	South Dakota
Check out how your state ranks for retirement	9	Arizona
Check out how your state ranks for retirement	10	Nebraska
Check out how your state ranks for retirement	11	Minnesota
Check out how your state ranks for retirement	12	Maine
Check out how your state ranks for retirement	13	North Dakota
Check out how your state ranks for retirement	14	Kansas
Check out how your state ranks for retirement	15	Vermont
Check out how your state ranks for retirement	16	New Hampst
Check out how your state ranks for retirement	17	Wisconsin
Check out how your state ranks for retirement	18	Massachuset
Check out how your state ranks for retirement	19	Delaware

# Clean and Transform Your Data

The screenshot shows the Power Query Editor interface. The 'Editor' tab is active, displaying a data table with columns: 'being', 'Health care quality', 'Tax rate', and 'Weather'. A right-click context menu is open over the 'Health care quality' column. The 'Change Type' option is selected, which has opened a sub-menu. In this sub-menu, 'Whole Number' is highlighted by the mouse. Other options in the sub-menu include 'Decimal Number', 'Fixed Decimal Number', 'Date/Time', 'Date', 'Time', 'Date/Time/Timezone', 'Duration', 'Text' (which is currently selected with a green checkmark), 'True/False', 'Binary', and 'Using Locale...'. The 'Query Settings' pane on the right shows the query name 'RetirementStats' and a list of applied steps: 'Source', 'Navigation', 'Changed Type', and 'Removed Columns'. The 'Changed Type' step is currently selected.

This screenshot shows the 'Query Settings' pane in the Power Query Editor. The 'Properties' section shows the query name 'RetirementStats'. The 'Applied Steps' list includes 'Source', 'Navigation', 'Changed Type', and 'Removed Columns'. The 'Changed Type1' step is selected, and its context menu is open. The menu options are: 'Edit Settings', 'Rename' (highlighted by the mouse), 'Delete', 'Delete Until End', 'Move Up', and 'Move Down'.

# Clean and Transform Your Data

The screenshot shows the Power BI Query Editor interface. On the left, the 'File' menu is open, displaying options: 'Close & Apply' (with a tooltip that reads 'Close the Query Editor window and apply any pending changes.'), 'Apply', 'Close', 'Save', 'Save As', 'Options and settings', 'Send feedback', and 'Help'. The main area shows a table with data. On the right, the 'Apply Query Changes' dialog box is open, listing the following data sources and row counts:

- 99,016 rows from C:\Users\mslstud\Desktop\DIAD\Data\Access DB Backup\PowerBI.accdb.
- Manufacturer: 14 rows from C:\Users\mslstud\Desktop\DIAD\Data\Access DB Backup\PowerBI.accdb.
- Product: 2,412 rows from C:\Users\mslstud\Desktop\DIAD\Data\Access DB Backup\PowerBI.accdb.
- SalesFact: 4,800,216 rows from C:\Users\mslstud\Desktop\DIAD\Data\Access DB Backup\PowerBI.accdb.

A 'Cancel' button is visible at the bottom right of the dialog box.

15		5
3		28
10		23
32		13
1		3

# Power BI Desktop

## DEMO

- 01 Inventory Stock (SQL Query)
- 02 Sales Sql (SQL View)
- 03 NoOfCustomersByAgent (STP)
- 04 Posted Sales (ODATA)
- 05 CustomerSalesCube (Cube)
- 06 ABC Pattern (Patterns)
- 07 R ExponentialSmoothing (R)

# Power BI Patterns

A pattern is a general re

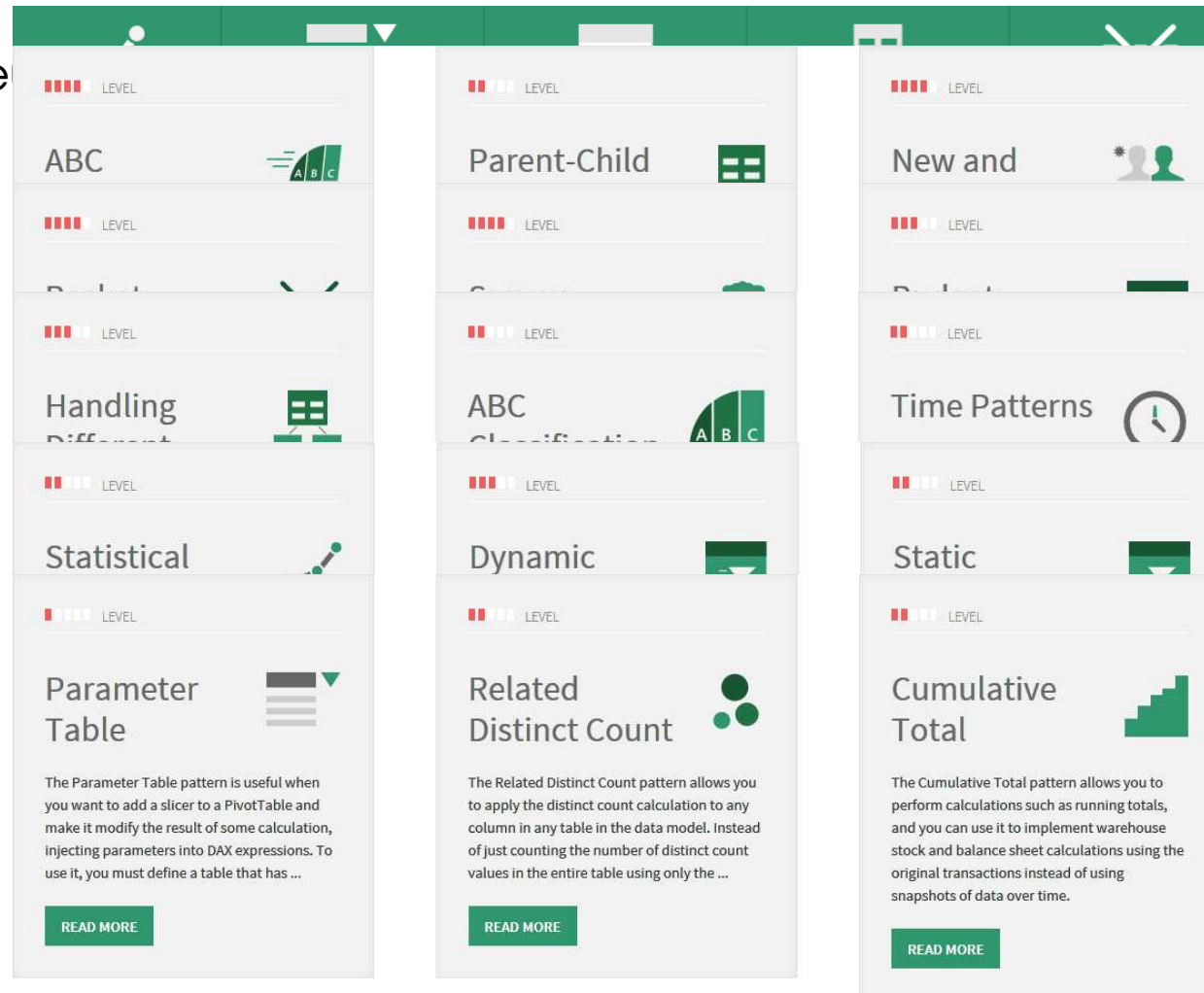
DAX Patterns

Power Pivot

Power BI Desktop



<http://www.daxpatterns.com>



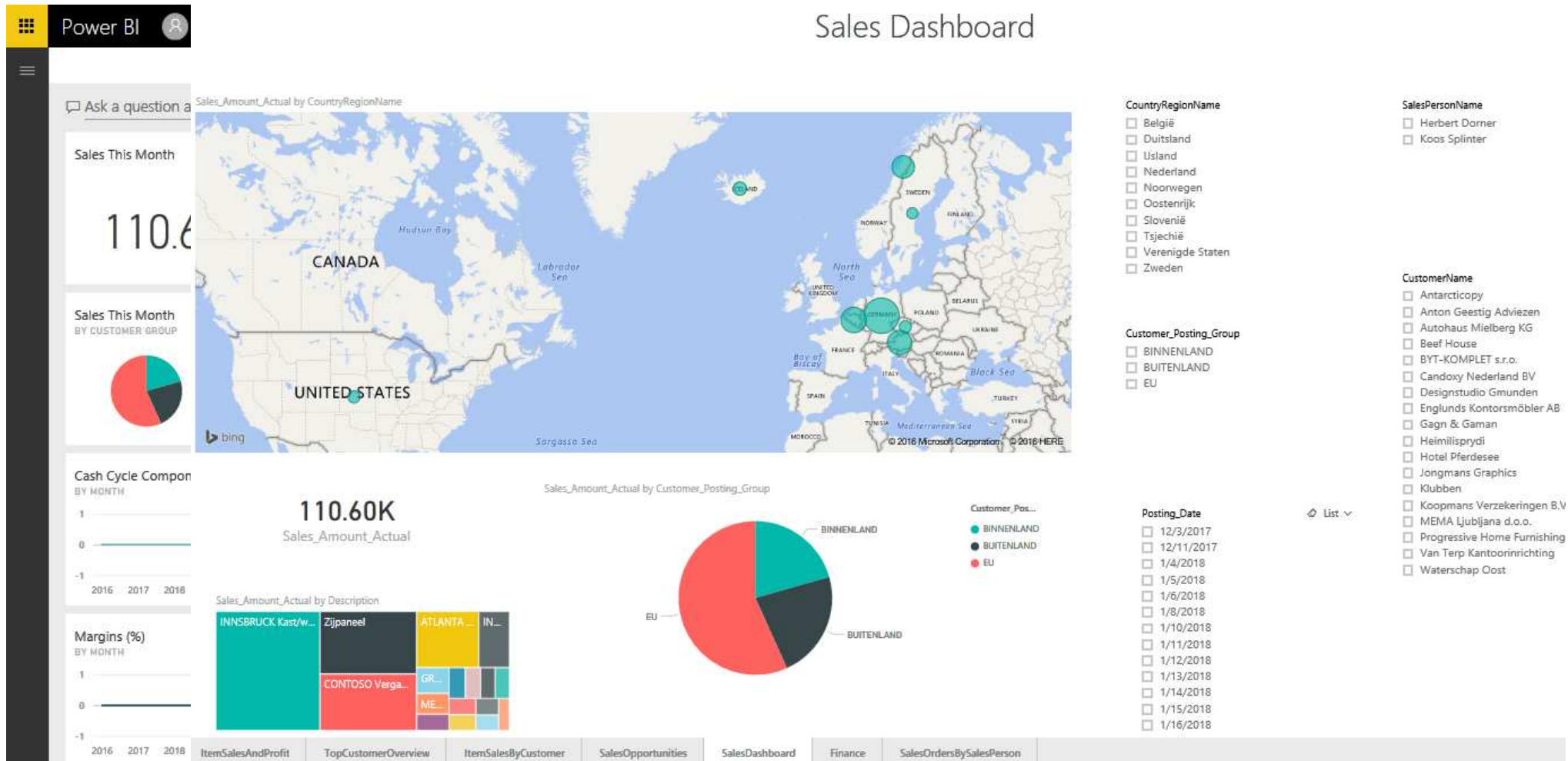


# Power BI Service

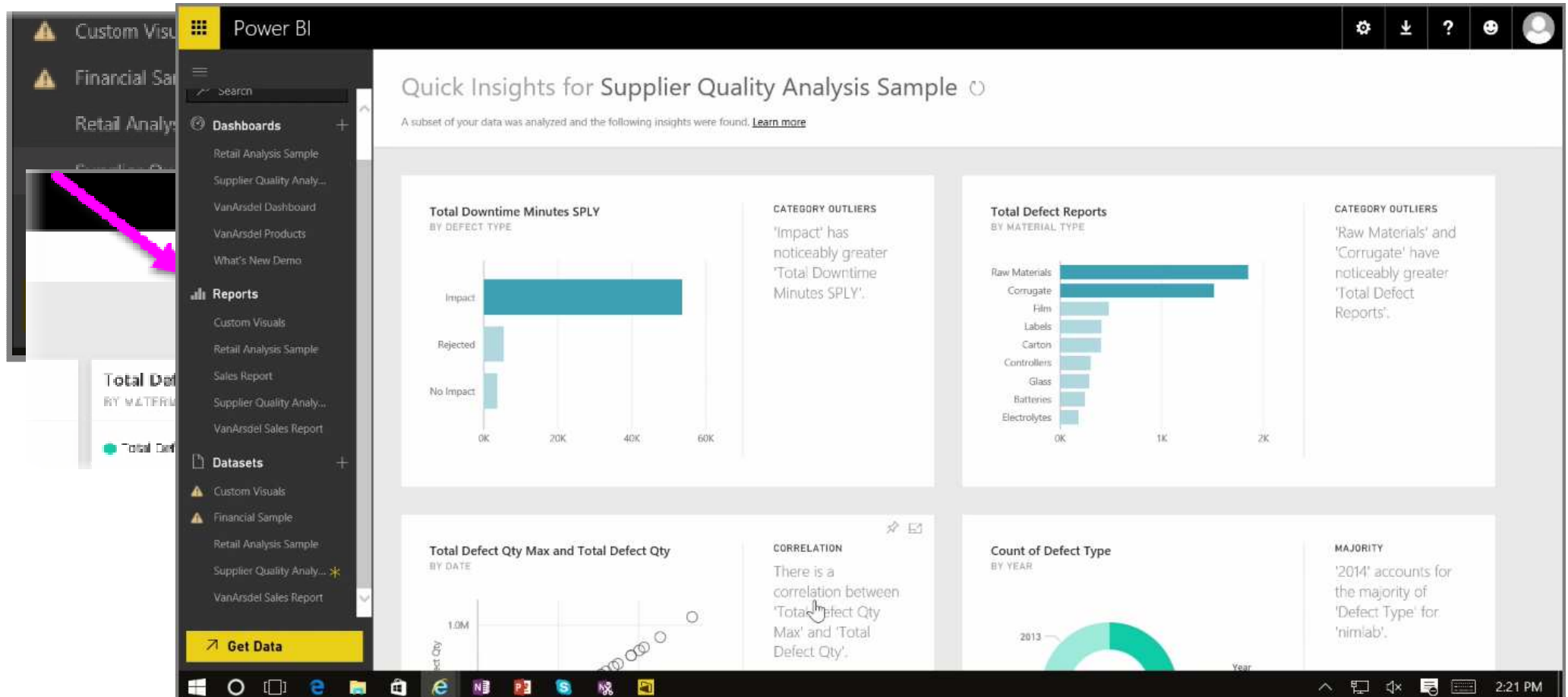


Power BI Service

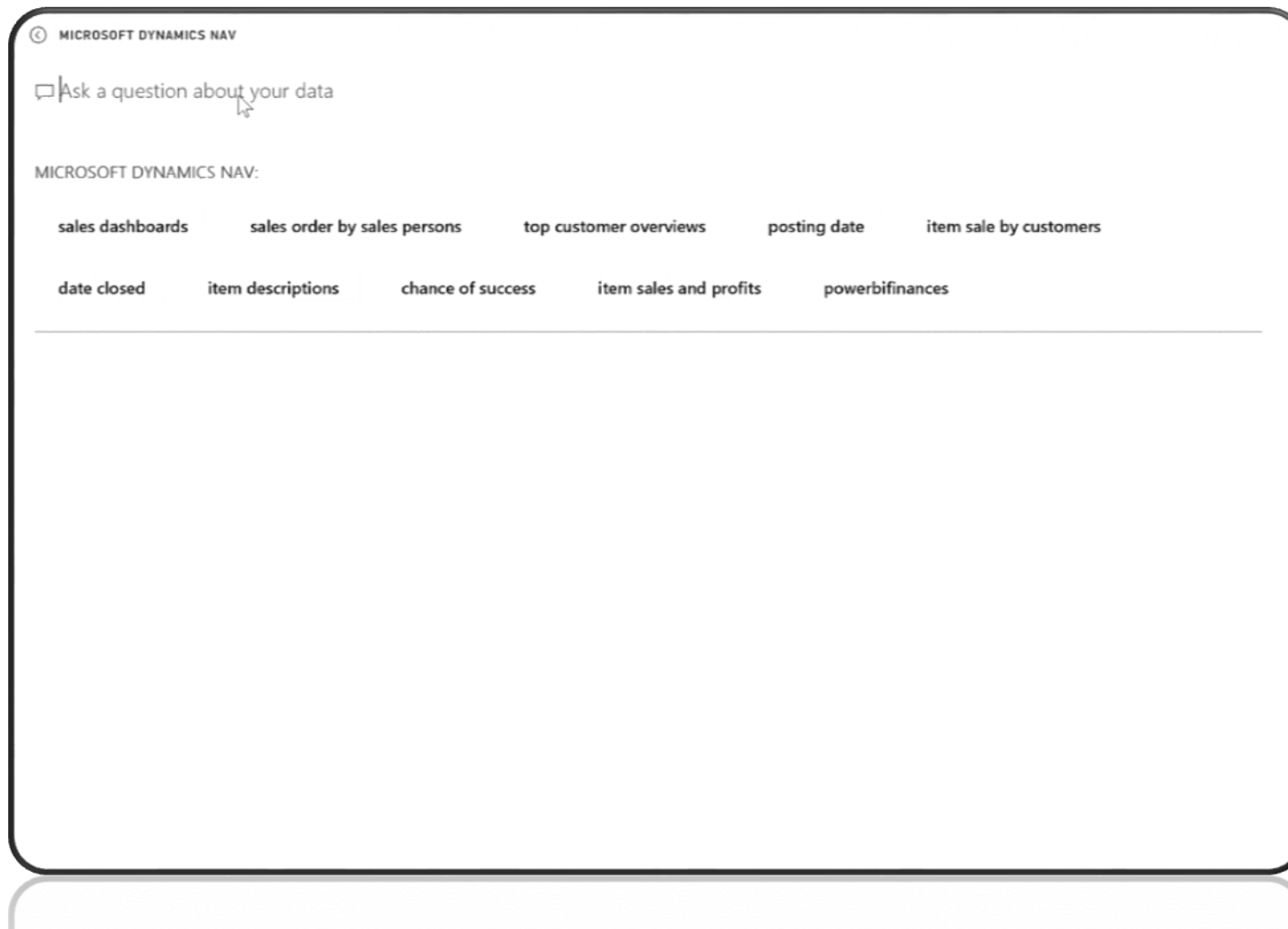
# Power BI Service



# Quick Insights in Power BI



# Ask Questions



# Power BI Service

DEMO

# Power BI Mobile

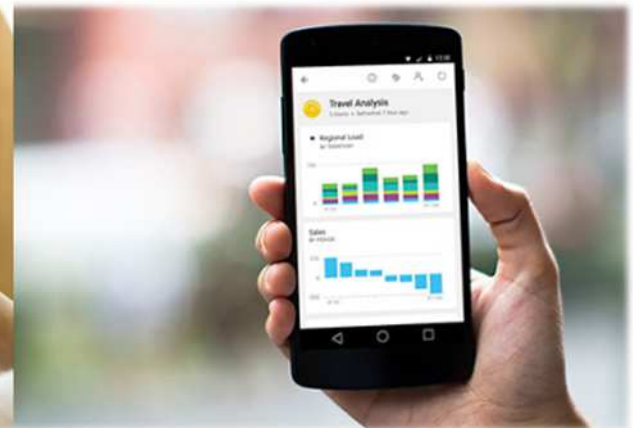
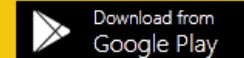
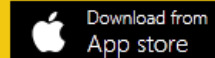
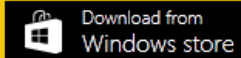


Power BI Mobile

# Power BI Mobile

**Make sure your data travels  
as well as you do**

Stay connected to your data from anywhere, anytime with the Power BI app for Windows, iOS, and Android. Get a 360° view of your business data on the go - at the touch of your fingertips.



# Power BI Mobile





# Power BI Embedded



Power BI Embedded

# Power BI Embedded

DEMO

# Power BI Embedded

## Power BI Reports ✓

There are no enabled reports. Choose Select Report to see a list of reports that you can display.

VIEW - ASSISTED SETUP

Name	Status
<a href="#">Migrate business data</a>	... Not Completed
<a href="#">Set up Cash Flow Forecast</a>	... Not Completed
<a href="#">Set up approval workflows</a>	... Not Completed
<a href="#">Set up a customer approval workflow</a>	... Not Completed
<a href="#">Set up email</a>	... Not Completed
<a href="#">Set up Email Logging</a>	... Not Completed
<a href="#">Set up Outlook for Financials</a>	... Not Completed
<a href="#">Set up reporting</a>	... Not Completed
<a href="#">Set up an item approval workflow</a>	... Not Completed
<a href="#">Set up Azure Active Directory</a>	... <b>Completed</b>
<a href="#">Set up a payment approval workflow</a>	... Not Completed
<a href="#">Set up Dynamics CRM connection</a>	... Not Completed

# Power BI Embedded

SETUP AZURE ACTIVE DIRECTORY



## Welcome to Azure Active Directory (Azure AD) Setup

When you register an application in the Azure Portal, it enables on premise applications to communicate with Power BI Services, Office 365 Exchange Online and other Azure services directly.

This wizard will guide you through the steps required to register Microsoft Dynamics NAV in the Azure Portal, how to select the Azure services you want to use and what permissions to grant to each of the services you selected.

At the end of the registration process, the Azure Portal will provide you with an Application ID and Key that will be required to complete this setup.

### Let's go!

Choose Next to step through the process of registering Microsoft Dynamics NAV in the Azure Portal and obtaining the necessary information to complete this setup.

Back

Next

Finish

SETUP AZURE ACTIVE DIRECTORY



## Registering Microsoft Dynamics NAV

To complete the setup process, you will need to obtain an Application ID and Key from the Azure Portal. Choose the Help icon, or find the topic called "How to: Register Dynamics NAV in the Azure Management Portal" in Help. If the topic is not available in Help, verify that that this topic has been deployed to your Help server.

Before closing the Azure Management Portal, copy and paste the Application ID and Key into the associated fields provided below and choose Next.

Home page URL

https://mynav2017.cloudapp.net:443/NAV/...

Reply URL

https://mynav2017.cloudapp.net/NAV/Web...

Application ID

{1...}

Key

9DB...CH

Back

Next

Finish

# Power BI Embedded

Log into your account.

- <https://portal.azure.com>

Select More Services > **App registrations**

In the App registrations blade, choose **Add**

# Power BI Embedded

In the Create blade, enter:

- **Name**

- provide a name for your app. (NAV17)

- **Application Type**

- select **Web app / API**.

- **Sign-on URL**

- enter the URL for the **OAuthLanding.htm** page of your Dynamics NAV **Web Client**.
- Example: <http>://<webserver>(:<port>)/<webserverinstance>/WebClient/OAuthLading.htm

# Power BI Embedded

Select 'NAV17'

- Azure Portal will display the 'Essentials' and '**Settings**' blades to the right.

Select '**Required Permissions**'

- Select 'Add'

Choose the 'Select an **API**' option

- Choose 'Select' when completed.

# Power BI Embedded

Select '**Power BI Service**' option

- Chose the 'Select' command at the bottom of the blade.

Select the 'Select Permissions' option.

- Note: **View Reports** is the only permission required.

Choose 'Select' when completed.



# Power BI Embedded

Choose 'Done' and navigate back to the 'Settings' blade.

Select '**Keys**' from the Settings blade.

Copy the Key

# Power BI Embedded

Select 'Properties'

Highlight the '**Application ID**' key

Select copy

# Power BI Embedded

Page 9006 Order Processor Role Center - Page Designer

E.. Type	SubType	SourceExpr	Name	Caption
Container	RoleCenterArea		<Control1900000008>	<Control1900000008>
Group	Group		<Control1900724808>	<Control1900724808>
Part	Page		<SO Processor Activities>	<SO Processor Activities>
Part	Page		<Team Member Activities>	<Team Member Activities>
Part	Page		<My Customers>	<My Customers>
Part	Page		<Power BI Report Spinner Part>	<Power BI Report Spinner ...
Group	Group		<Control1900724708>	<Control1900724708>
Part	Page		<Trailing Sales Orders Chart>	<Trailing Sales Orders Cha...

Object Designer

Type	ID	Name	Modified	Version List
	6300	Azure AD App Setup Wizard		NAVW110.00
	6301	Azure AD App Setup Part		NAVW110.00
	6302	Azure AD Access Dialog		NAVW110.00
	6303	Power BI Report Spinner Part		NAVW110.00
	6304	Power BI Report Selection		NAVW110.00
	6305	Power BI Report Dialog		NAVW110.00
	6500	Item Tracking Summary		NAVW110.00
	6501	Item Tracking Entries		NAVW110.00
	6502	Item Tracking Codes		NAVW110.00
	6503	Avail. - Item Tracking Lines		NAVW110.00
	6504	Serial No. Information Card		NAVW110.00

Table  
Page  
Report  
Codeunit  
Query  
XMLport  
MenuSuite  
All

# How Do I Get Started?



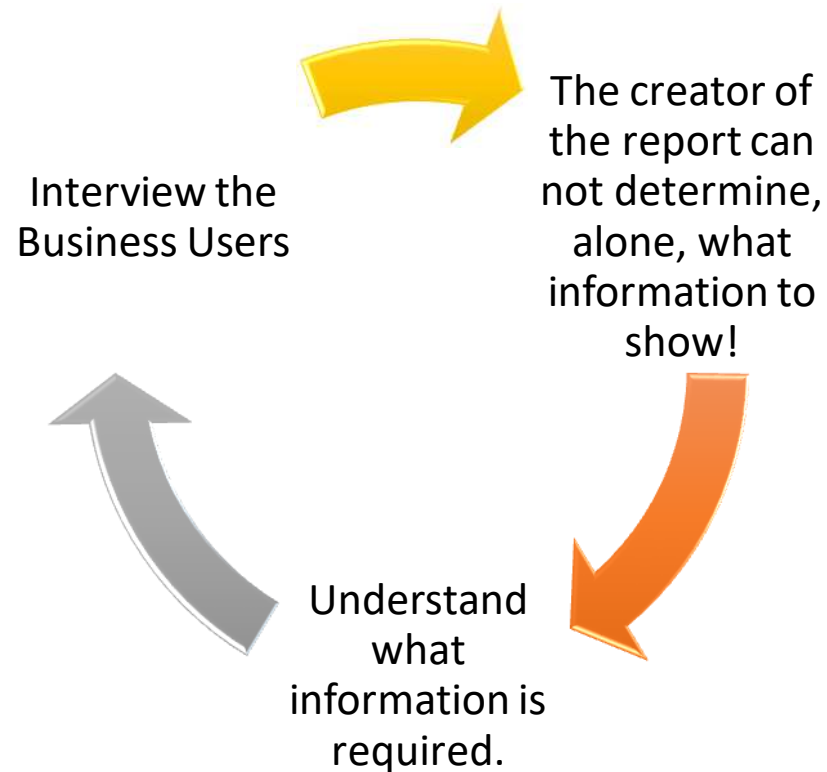
How Do I Get Started?

# Where to begin?

Interview the Business Users

Plan Dashboards & Reports

Obtain the Data



# Interviewing the Business Users

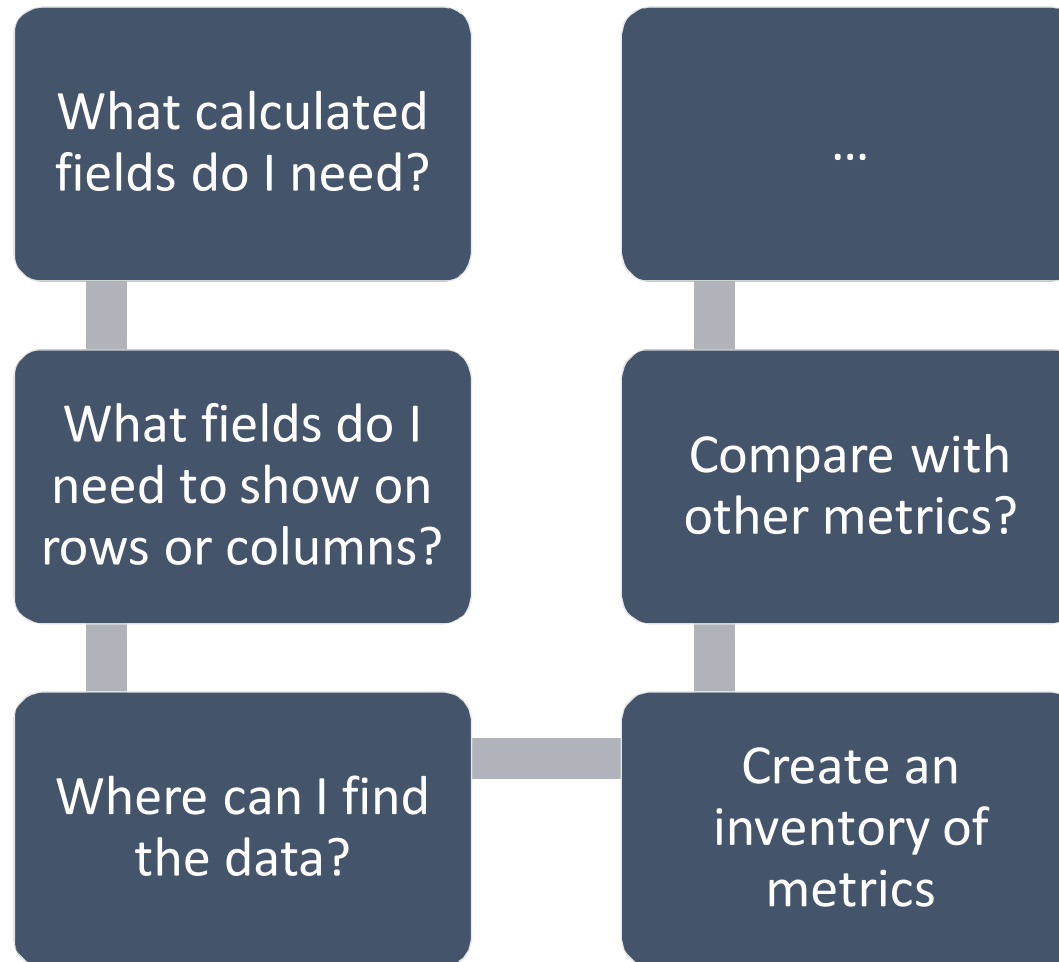
What are the core numbers?

- For example:
  - *Overall revenue*
  - *Numbers of units sold*
  - *Usage of devices*
  - *Number of subscribers*

Management wants to compare these with targets.

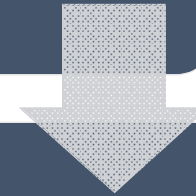
- Short term:
  - *To react immediately*
- Long term:
  - *To see trends and predict problems*

# Planning Dashboards & Reports

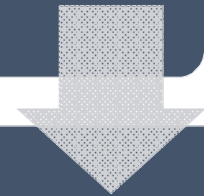


# Planning Dashboards & Reports

Data Model



Reports

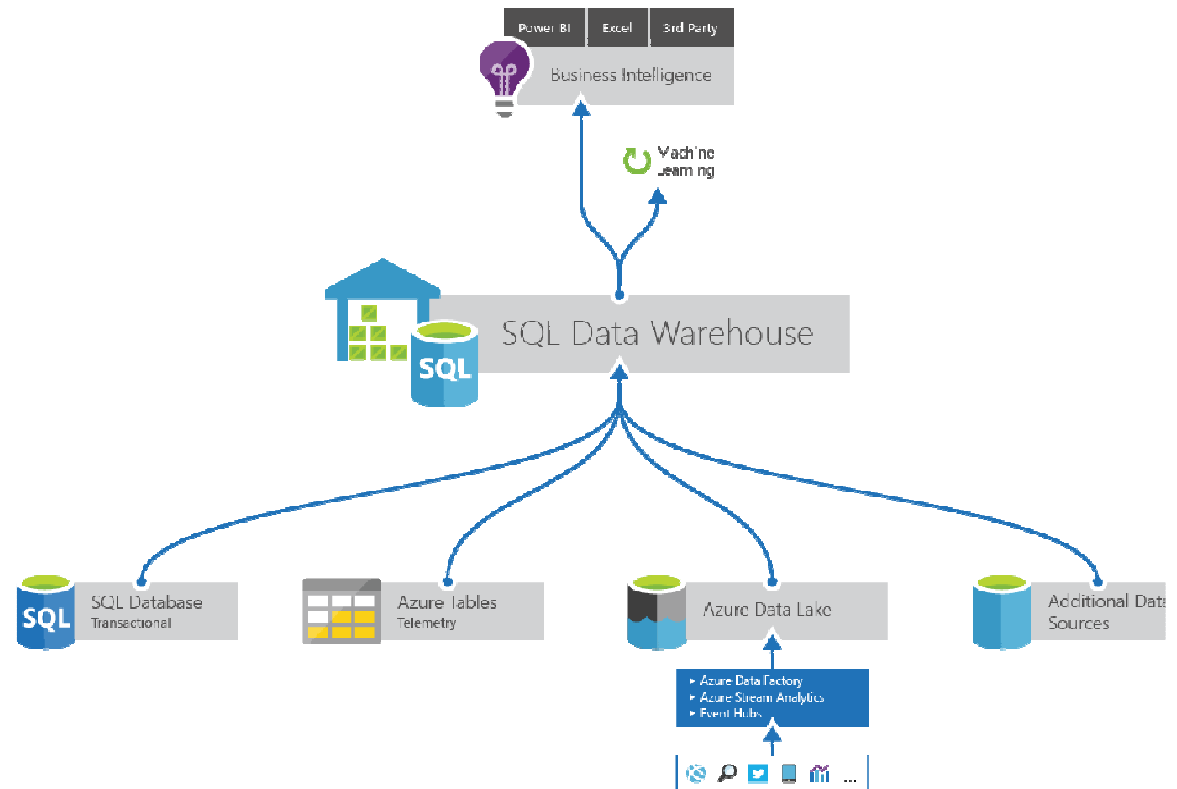


Dashboards



## Obtaining the Data

- The best practice is to create an **external** data repository.
- The **power** to report on **any** aspect of your operational system, **now** and in the **future**
- To **integrate** data from multiple systems



# The Power of Power BI

## Business User

- **Import** your own data
- Work with your **organization**

## Business Analyst

- Import, **reshape**, and **model** your data
- Create stunning reports and **visualizations**
- Create **content packs** to share your insights

## BI Professional

- Connect your **on-premises** Analysis Services Server
- **Empower** your colleagues to create their own reports

## Developer

- **Integrate** your applications with Power BI
- Create real-time **dashboards**

# The Power of Power BI

Whatever your role, Power BI brings all your data together!

**NAV  
TECH  
DAYS  
2016**

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# THE POWER OF POWER BI AND DYNAMICS NAV

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