

# Power BI Mission Possible

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RADACAD



# About Reza Rad

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Microsoft Certified Professional



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[www.radacad.com/blog](http://www.radacad.com/blog)



[www.linkedin.com/in/rezarad](http://www.linkedin.com/in/rezarad)

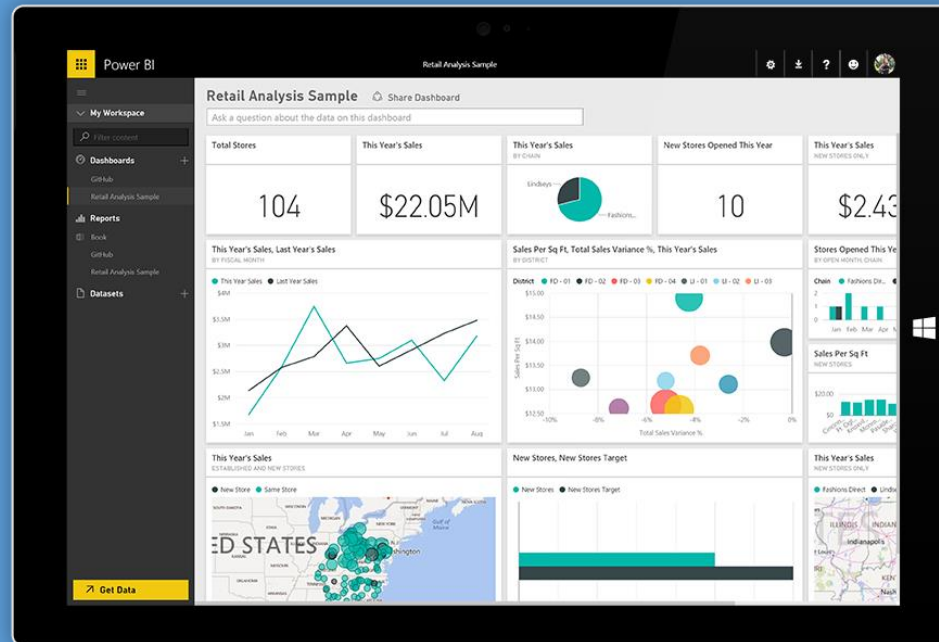


**RADACAD**

# Agenda

- Power BI Introduction
- What Is Power BI Desktop
- Power BI Website
- New Features in Power BI

# Power BI Introduction



# Power BI

Power Query



```
graph TD; A[Power Query] --> B[Power Pivot]; B --> C[Power View]; C --> D[Power Map]; D --> E[Power Q&A];
```

Power Pivot

Power View

Power Map

Power Q&A

# Power Query: ETL

Self-Service ETL

Functional Language

Online Search

Share Queries

The screenshot displays the Microsoft Power Query Editor interface. The main window shows a table with 10 columns and 32 rows of soccer team statistics. The columns are: Teams, Teams Abrv, Matches Played, Goals for, Goals scored, Goals Against, Penalty goal, Own goals For, Open Play Goals, and Set Piece Goals. The rows list various national teams such as Germany, Netherlands, Colombia, Brazil, France, Argentina, Algeria, Switzerland, Croatia, Chile, Belgium, Mexico, USA, Costa Rica, Bosnia and Herzegovina, Côte d'Ivoire, Ghana, Spain, Portugal, Uruguay, Ecuador, Korea Republic, Australia, Greece, Nigeria, Italy, Russia, England, Japan, Iran, and Honduras.

The interface includes a ribbon with tabs for File, Home, Transform, Add Column, and View. The Transform tab is active, showing options like Remove Duplicates, Sort, Split Column, Group By, and Replace Values. The bottom status bar indicates "10 COLUMNS, 32 ROWS".

	Teams	Teams Abrv	Matches Played	Goals for	Goals scored	Goals Against	Penalty goal	Own goals For	Open Play Goals	Set Piece Goals
1	Germany	GER	7	18	18	4	1	0	15	3
2	Netherlands	NED	7	15	15	4	2	0	13	2
3	Colombia	COL	5	12	12	4	2	0	9	3
4	Brazil	BRA	7	11	11	14	1	0	8	3
5	France	FRA	5	10	8	3	1	2	8	2
6	Argentina	ARG	7	8	7	4	0	1	7	1
7	Algeria	ALG	4	7	7	7	1	0	4	3
8	Switzerland	SUI	4	7	7	7	0	0	5	2
9	Croatia	CRO	3	6	5	6	0	1	5	1
10	Chile	CHI	4	6	6	4	0	0	6	0
11	Belgium	BEL	5	6	6	3	0	0	6	0
12	Mexico	MEX	4	5	5	3	0	0	4	1
13	USA	USA	4	5	5	6	0	0	4	1
14	Costa Rica	CRC	5	5	5	2	0	0	4	1
15	Bosnia and Herzegovina	BIH	3	4	4	4	0	0	4	0
16	Côte d'Ivoire	CIV	3	4	4	5	0	0	4	0
17	Ghana	GHA	3	4	4	6	0	0	4	0
18	Spain	ESP	3	4	4	7	1	0	3	1
19	Portugal	POR	3	4	3	7	0	1	4	0
20	Uruguay	URU	4	4	4	6	1	0	2	2
21	Ecuador	ECU	3	3	3	3	0	0	1	2
22	Korea Republic	KOR	3	3	3	6	0	0	3	0
23	Australia	AUS	3	3	3	9	1	0	2	1
24	Greece	GRE	4	3	3	5	1	0	2	1
25	Nigeria	NGA	4	3	3	5	0	0	3	0
26	Italy	ITA	3	2	2	3	0	0	2	0
27	Russia	RUS	3	2	2	3	0	0	2	0
28	England	ENG	3	2	2	4	0	0	2	0
29	Japan	JPN	3	2	2	6	0	0	2	0
30	Iran	IRN	3	1	1	4	0	0	1	0
31	Honduras	HON	3	1	1	8	0	0	1	0

# Power Pivot: Tabular Model

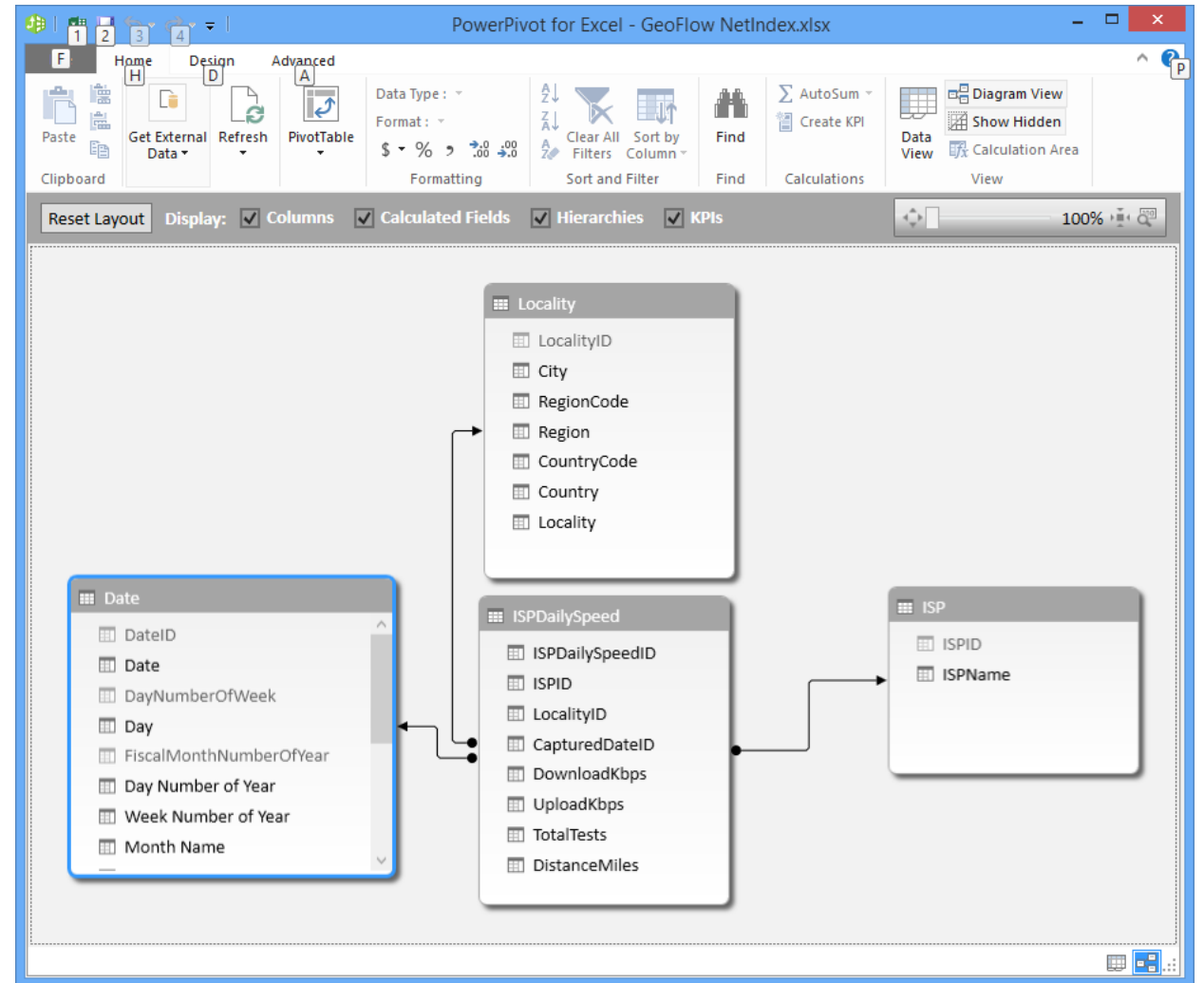
Tabular Model

Calculated Measures

Hierarchies

DAX

xVelocity In-Memory



# Power View: Visualization

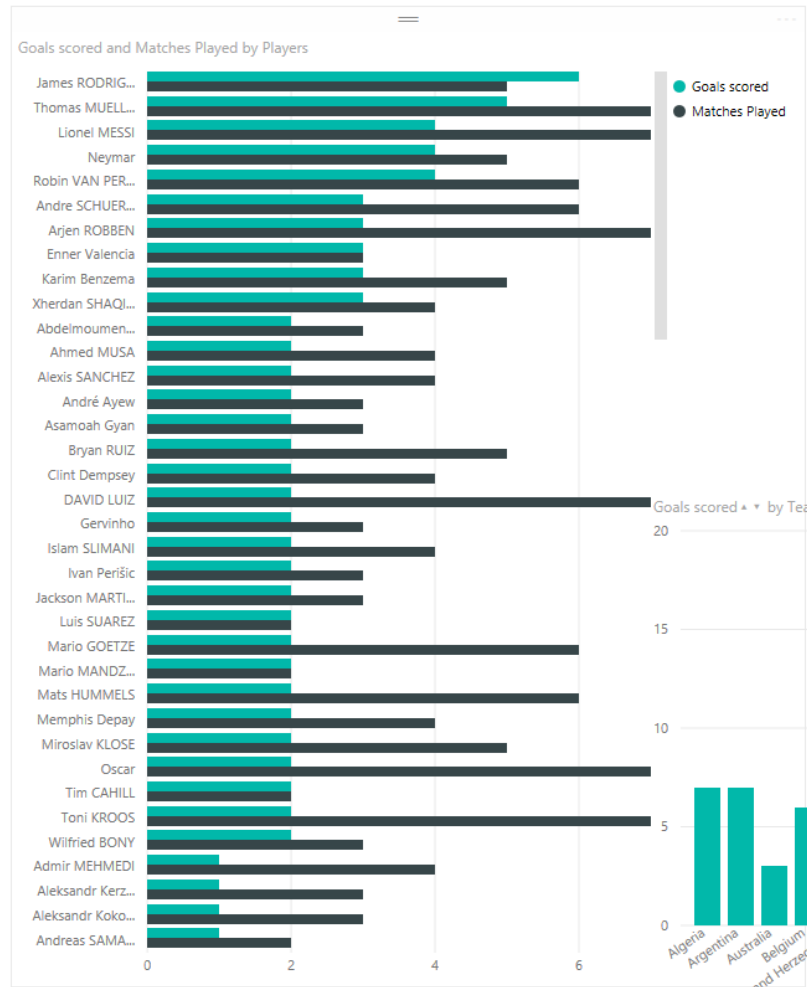
Dashboards

Reports

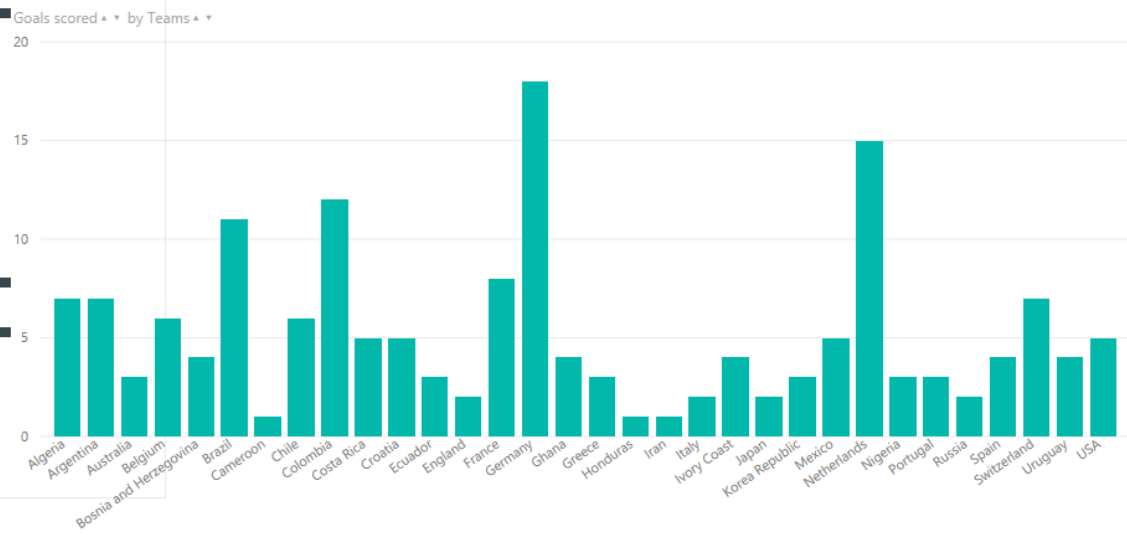
Interactive UI

Filters

Scatter with Play Axis



Goals scored with the left foot, Goals scored with the right foot and Headed goals





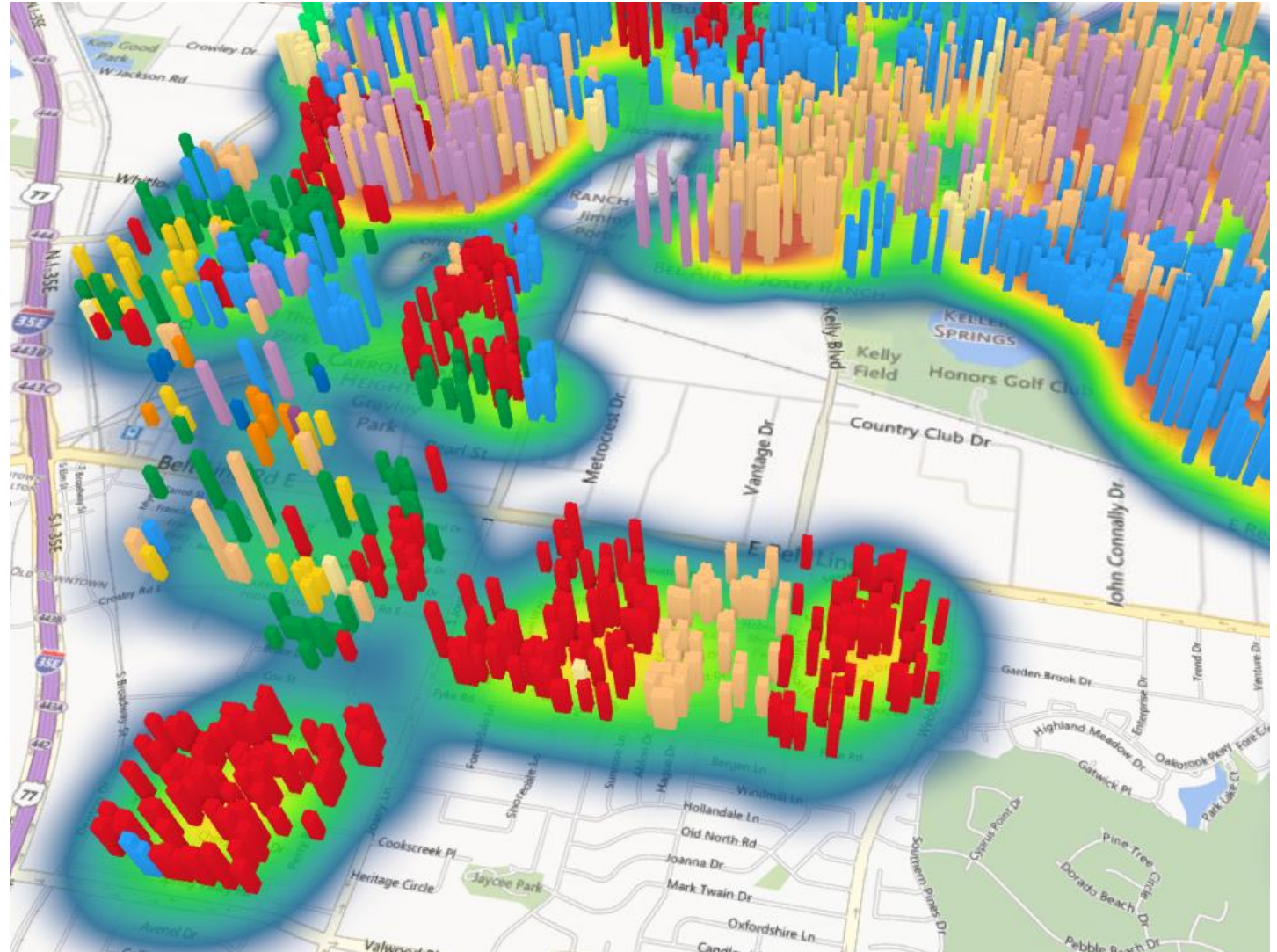
# Power Map: Geographical Visualization

Geospatial

Multiple Layers

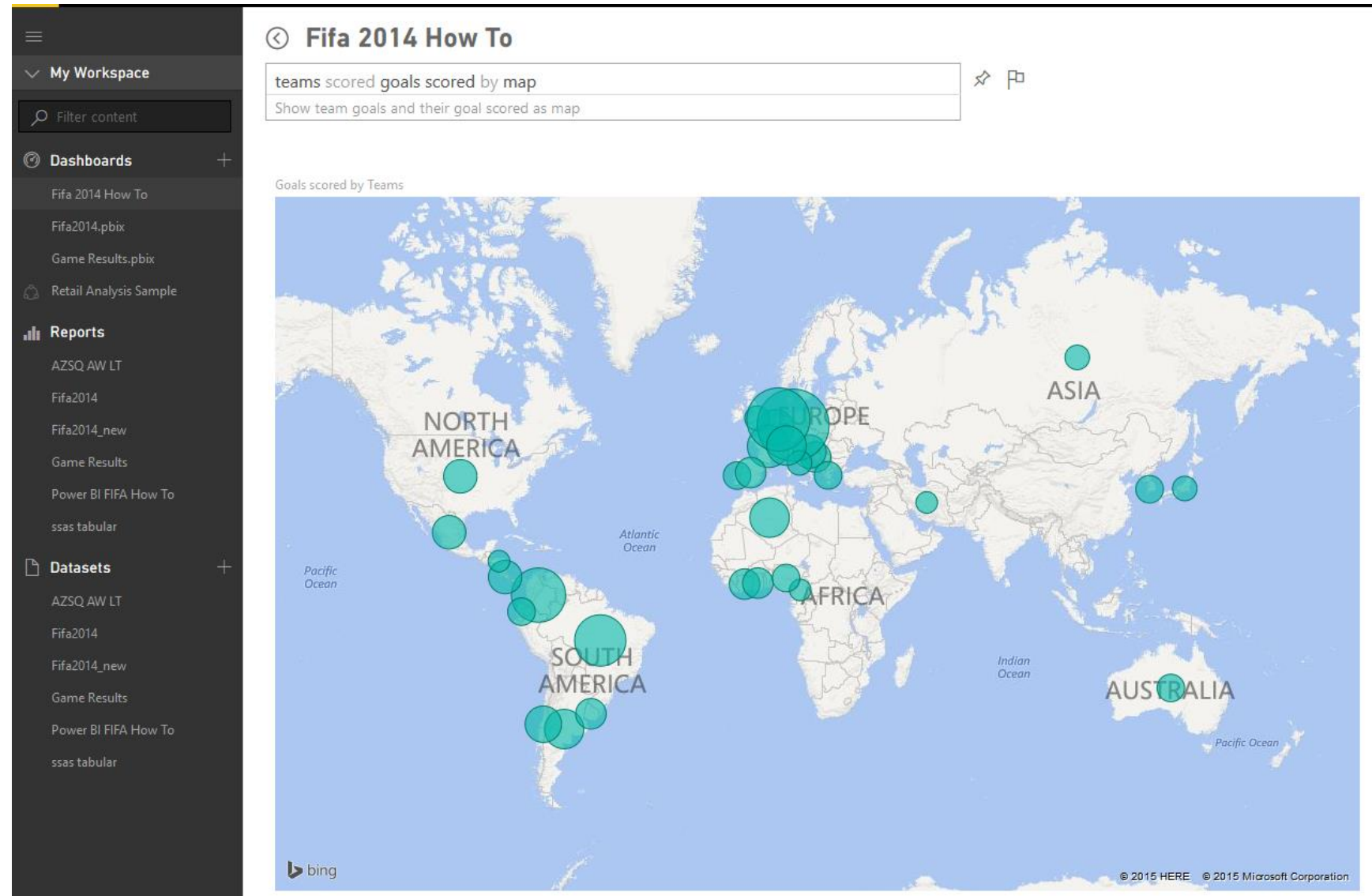
3D Visualization

Tours

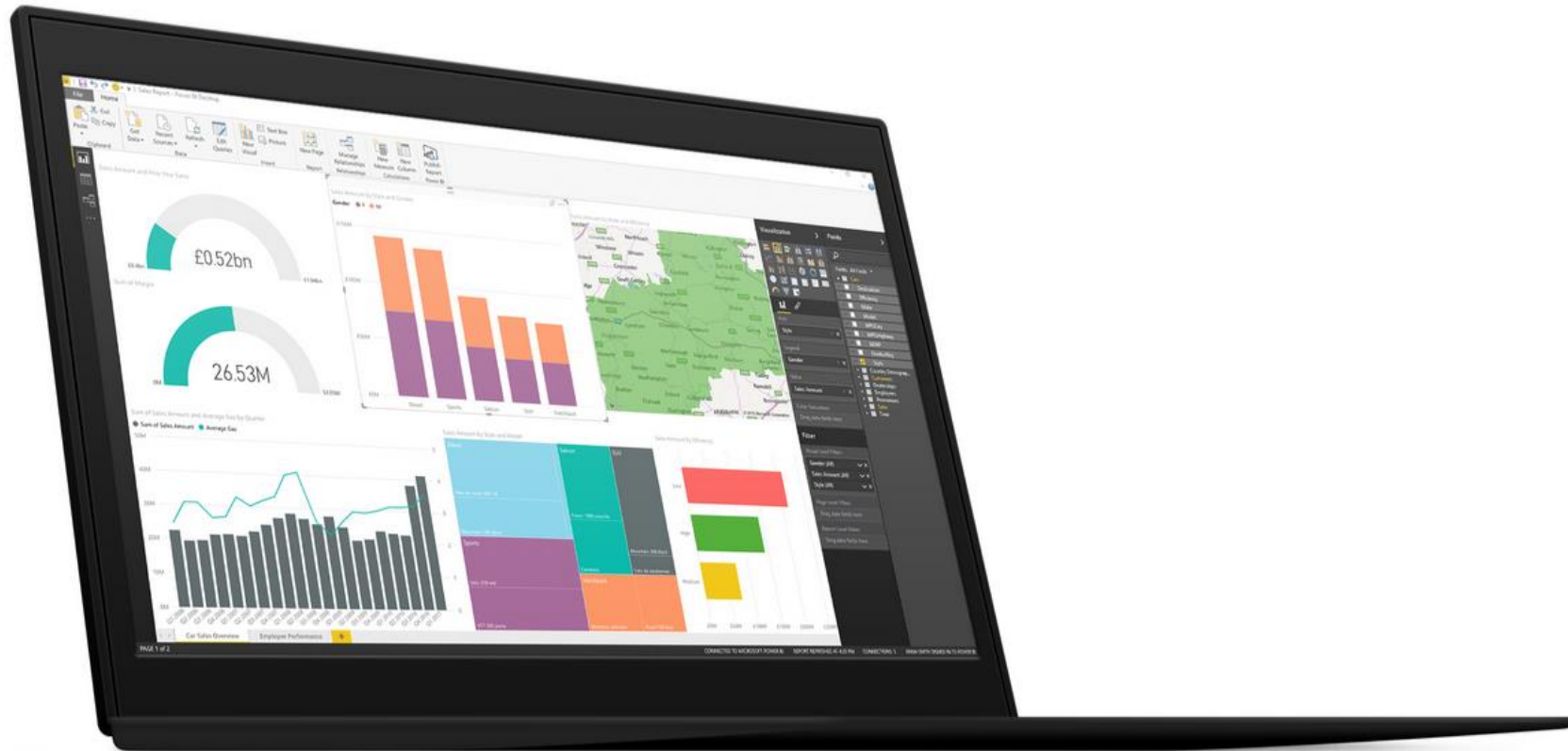


# Power Q&A

Ask Questions  
Response on  
Visualization  
Tools



# Power BI Desktop

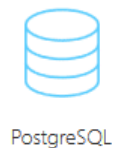
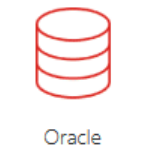
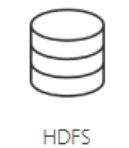
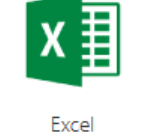
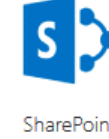
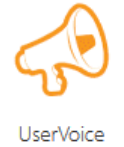
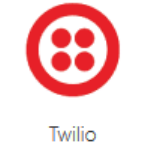
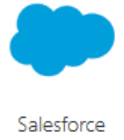
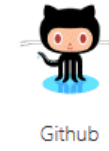


# What Is Power BI Desktop

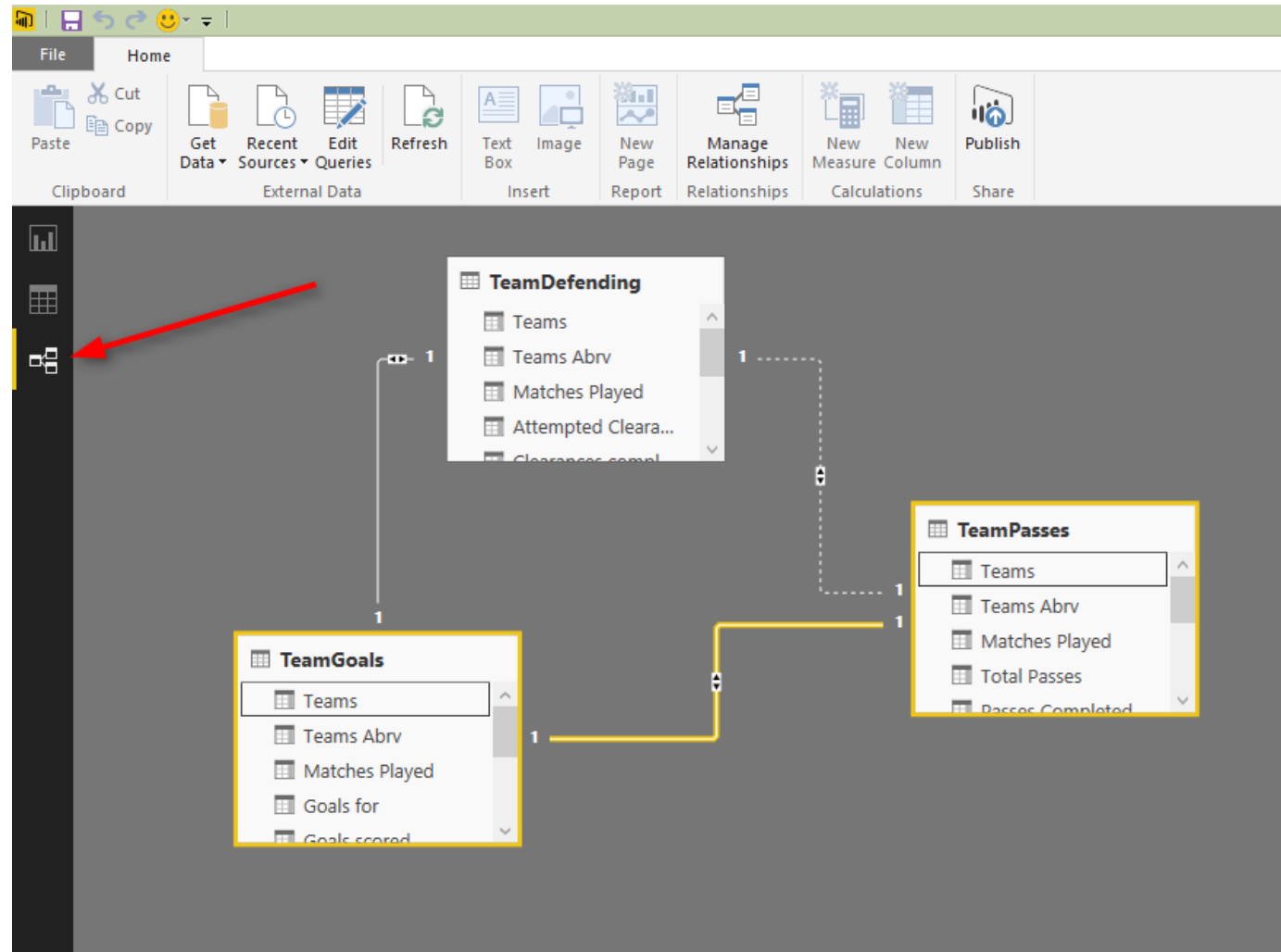
- Integration of Three Components
  - Power Query
  - Power Pivot
  - Power View



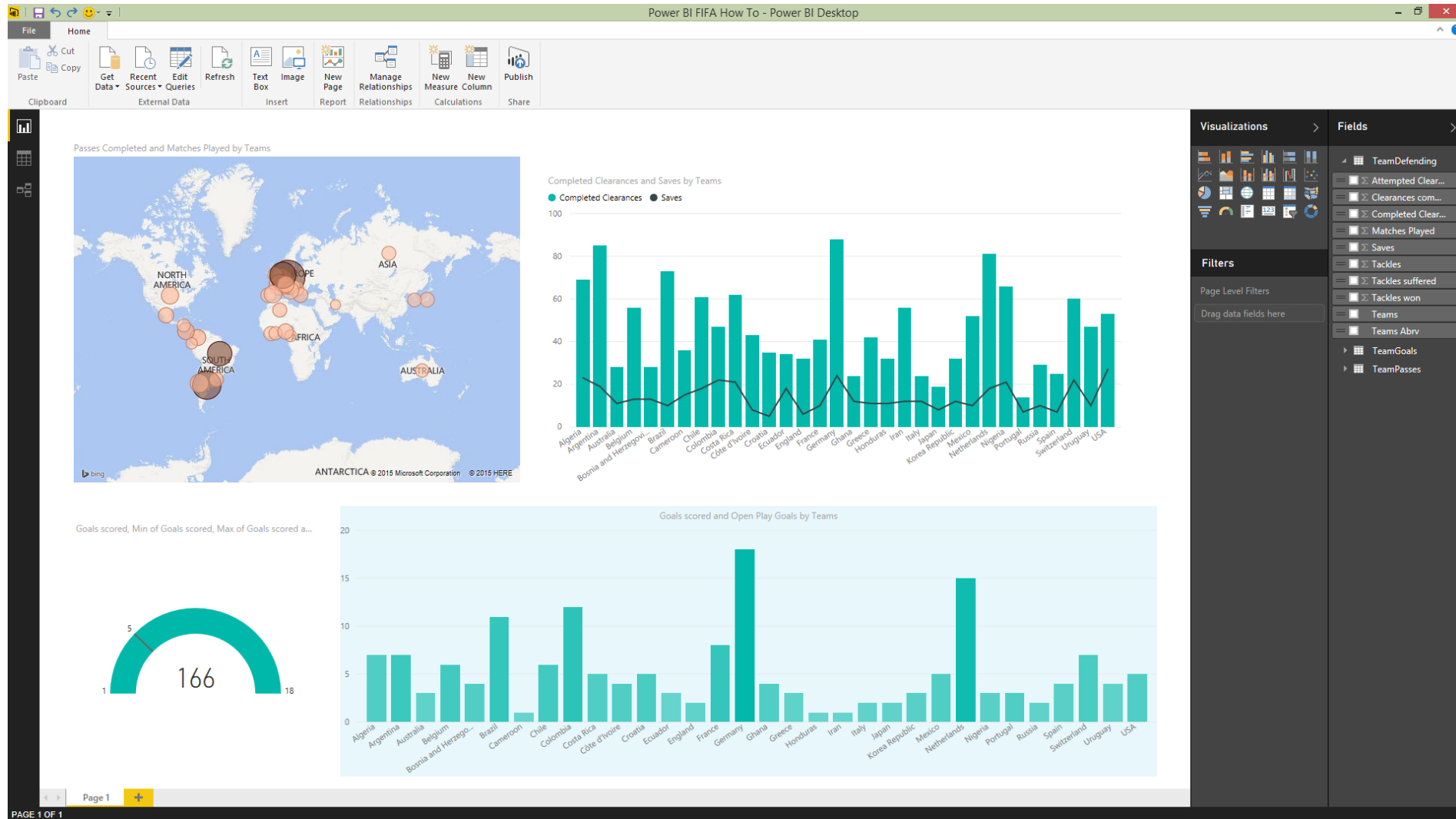
# Get Data



# Model Data



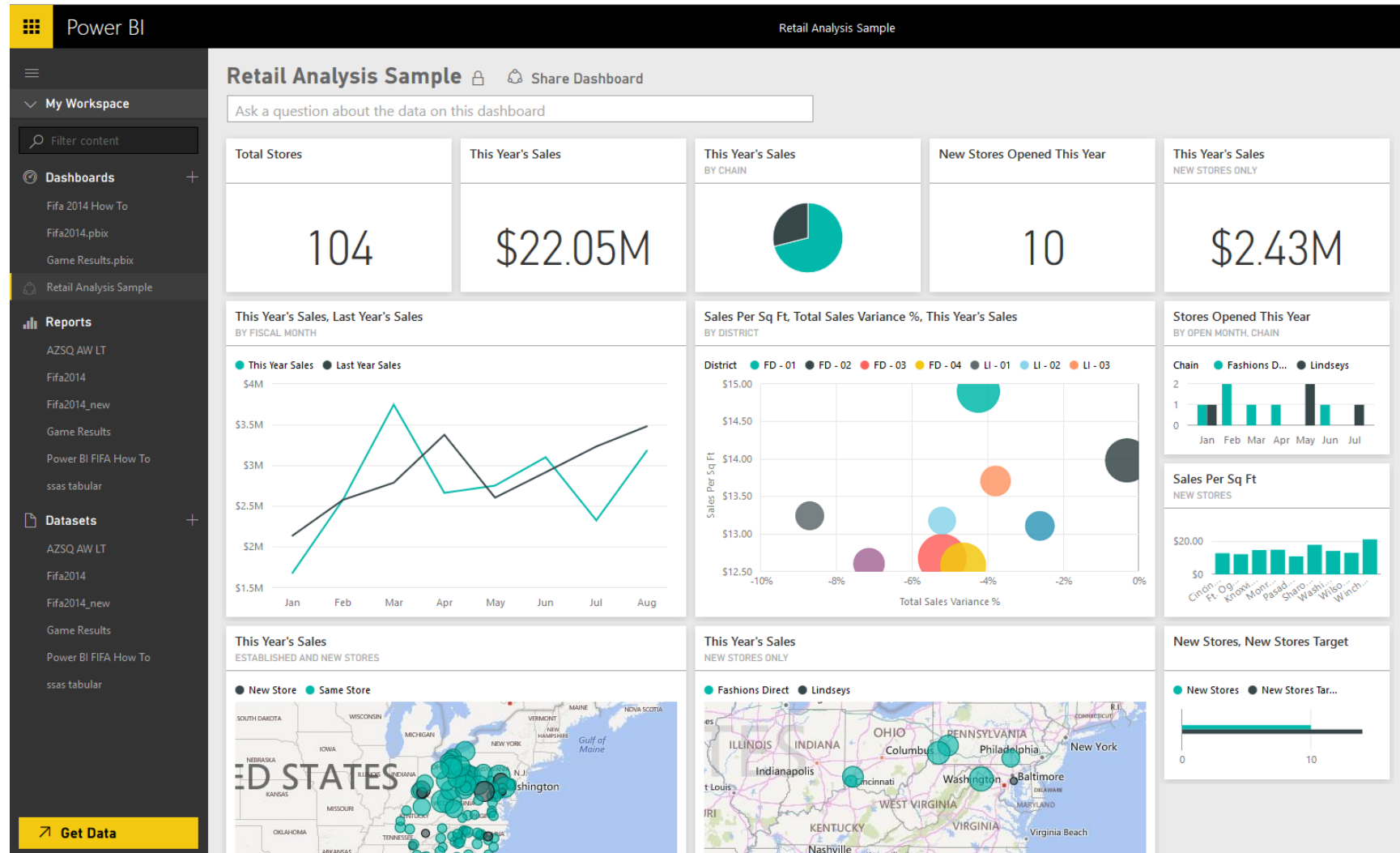
# Visualize Data



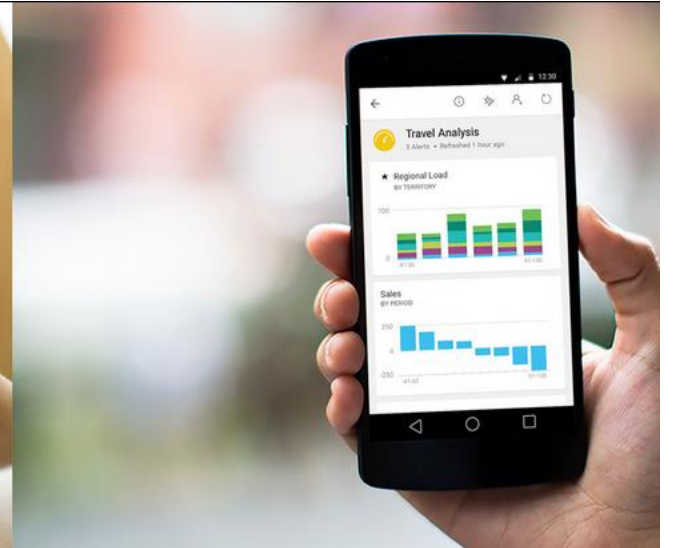
# Power BI Desktop Demo



# Power BI Website



# Power BI: Mobile Apps



# What's New In Power BI

- New Data Connectors
- New Transformations
- Visualization Improvements
- SSAS Tabular Live Connection
- Data Modelling Enhancements
- Publish to Power BI Site
- Import Excel Contents
- Query Editor Enhancements

# New Data Connectors

## Get Data

- All
- File
- Database
- Azure
- Other

### Azure

- Microsoft Azure SQL Database
- Microsoft Azure SQL Data Warehouse
- Microsoft Azure Marketplace
- Microsoft Azure HDInsight
- Microsoft Azure Blob Storage
- Microsoft Azure Table Storage
- Azure HDInsight Spark (Beta)

## Get Data

- All
- File
- Database
- Azure
- Other

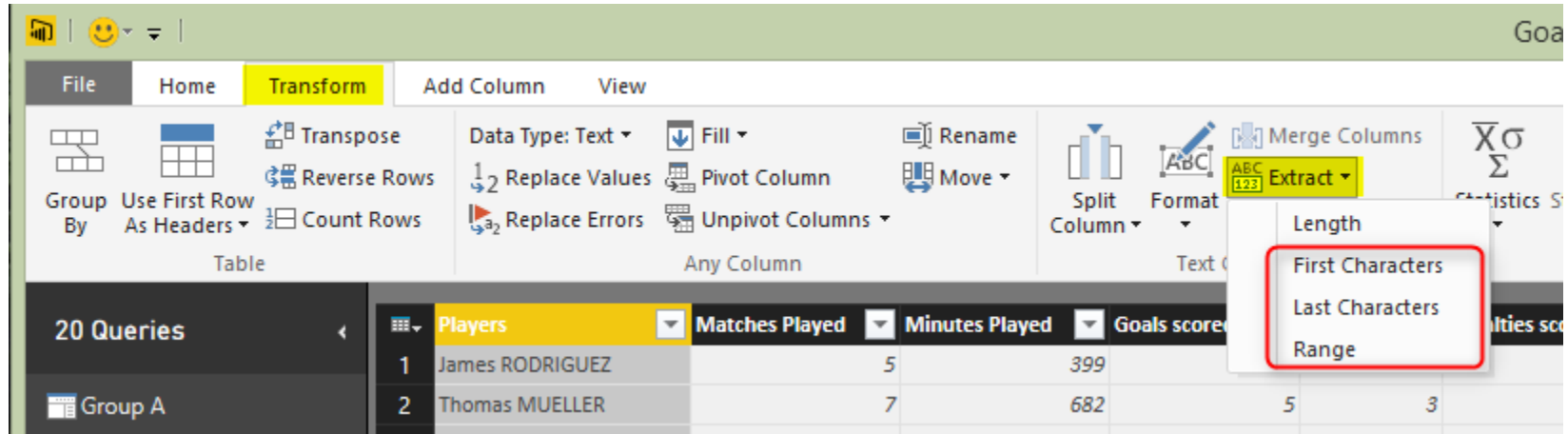
### Other

- Hadoop File (HDFS)
- Active Directory
- Microsoft Exchange
- Dynamics CRM Online
- Facebook
- Google Analytics
- Salesforce Objects
- Salesforce Reports
- ODBC
- appFigures (Beta)
- GitHub (Beta)
- QuickBooks Online (Beta)
- SweetIQ (Beta)
- Twilio (Beta)
- Zendesk (Beta)
- Blank Query

Connect

Cancel

# New Data Transformations



## Insert First Characters

Enter how many starting characters to keep.

Count

OK

Cancel

# Join Type GUI

Merge

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

Venue	Stage	Match	Team 1	Result 1	Result 2	Team 2	Win	Loss	Draw	Resu
Arena Corinthians	Group A	1	Brazil	3	1	Croatia	1	0	0	Win
Arena das Dunas	Group A	2	Mexico	1	0	Cameroon	1	0	0	Win
Arena Fonte Nova	Group B	3	Spain	1	5	Netherlands	0	1	0	Loss
Arena Pantanal	Group B	4	Chile	3	1	Australia	1	0	0	Win
Estádio Mineirão	Group C	5	Colombia	3	0	Greece	1	0	0	Win

< >

TeamGoals

Teams	Teams	Matches Played	Goals for	Goals scored	Goals Against	Penalty goal
Germany	GER	7	18	18	4	
Netherlands	NED	7	15	15	4	
Colombia	COL	5	12	12	4	
Brazil	BRA	7	11	11	14	
France	FRA	5	10	8	3	

< >

Join Kind

- Left Outer (all from first, matching fr...
- Left Outer (all from first, matching from second)
- Right Outer (all from second, matching from first)
- Full Outer (all rows from both)
- Inner (only matching rows)
- Left Anti (rows only in first)
- Right Anti (rows only in second)

OK Cancel

Argen		1	0	0	Win
Nigeri	Herzegovina	1	0	0	Win
Germany	2	2	2	0	1 Draw

# Quote Style

## Split Column by Delimiter

Specify the delimiter used to split the text column.

Select or enter delimiter

Split

- At the left-most delimiter
- At the right-most delimiter
- At each occurrence of the delimiter

Advanced options

Number of columns to split into

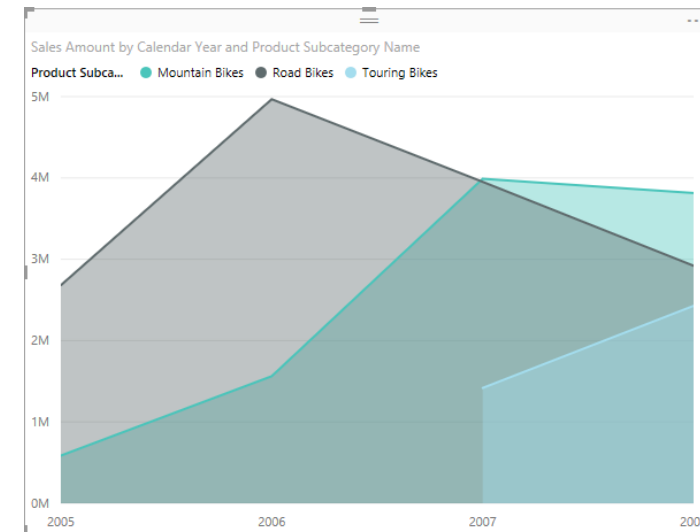
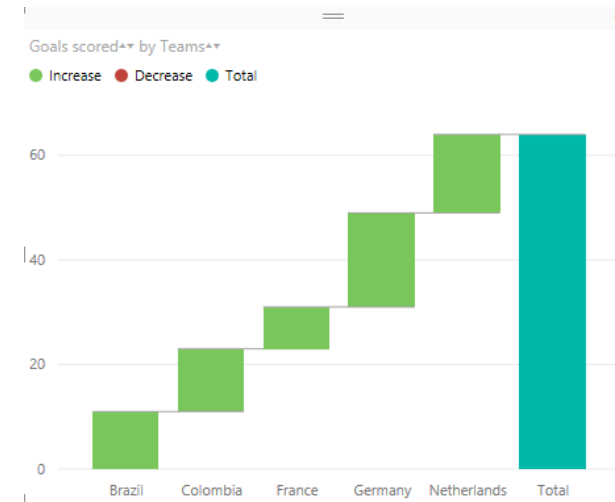
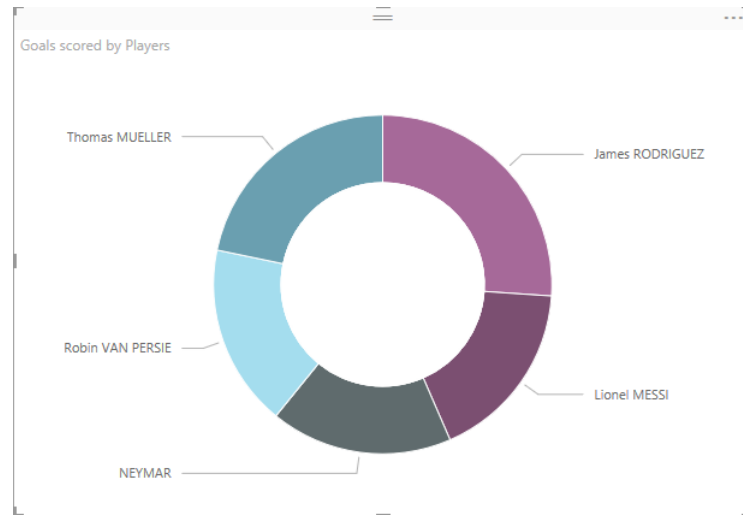
Quote Style

OK

Cancel

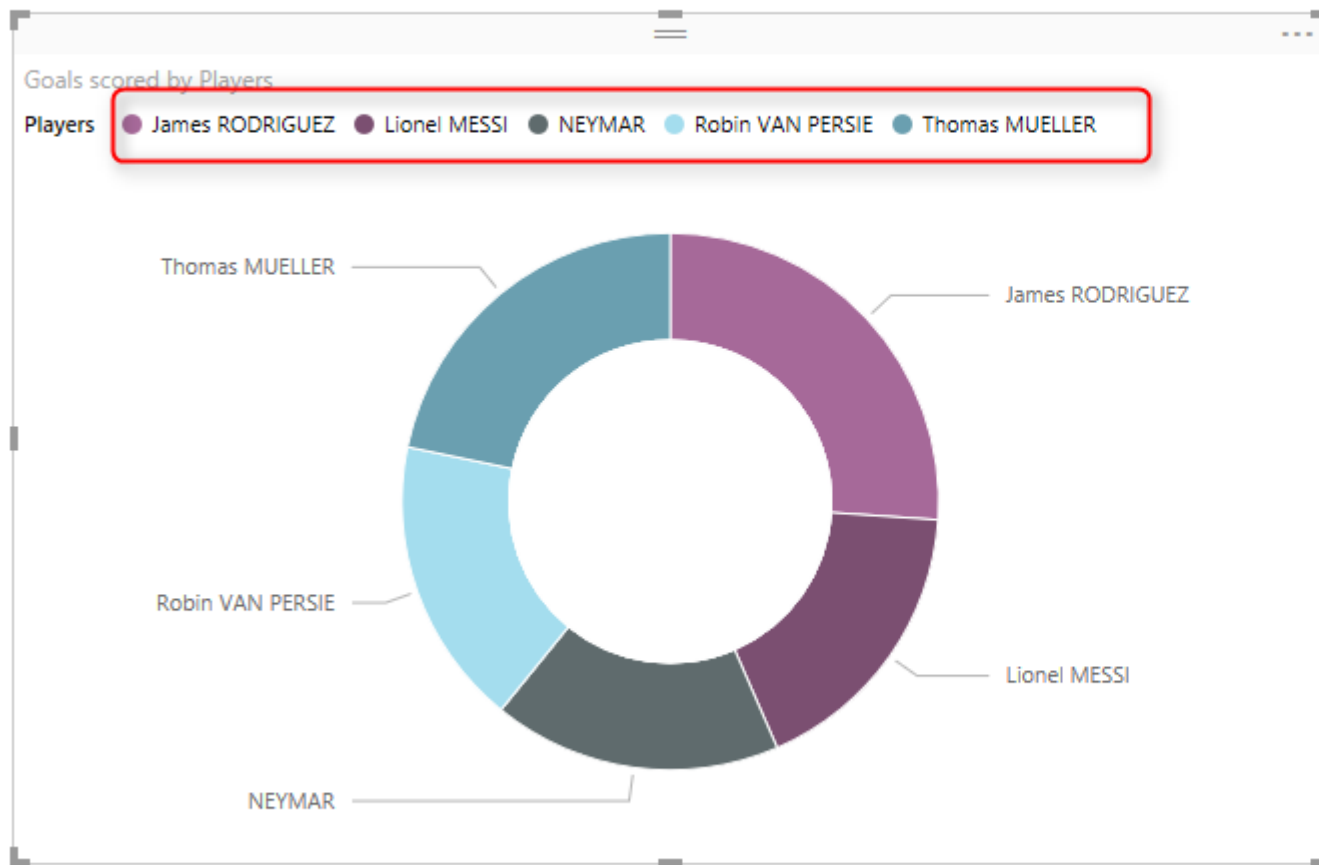
# New Visualizations



Team 1	Algeria	Argentina	Australia	Brazil	Cameroon	Chile	Colombia	Costa Rica	Croa
Brazil					0	1	0		
Colombia				0					
France									
Germany	0	0		0					
Netherlands		1	0	0		0		1	
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	



# New Formatting



Visualizations > Fields >

Legend On

Legend... Top

Title Top

Text Bottom

Left

Right

Revert To Default

Data Colors

Data Labels Off

Category La... On

Title On

Background On

AllMatches

Goals

Assists

Goals scored

Goals scored wit...

Goals scored wit...

Headed goals

Matches Played

Minutes Played

Penalties scored

PlayerID

Players

Groups

Matches1

Matches2

MatchesReverse

TeamAttacks

TeamGoals


TeamPasses

TeamsDefends


TeamShots

# Custom Colors


^ Data Colors


James R... 

Theme Colors

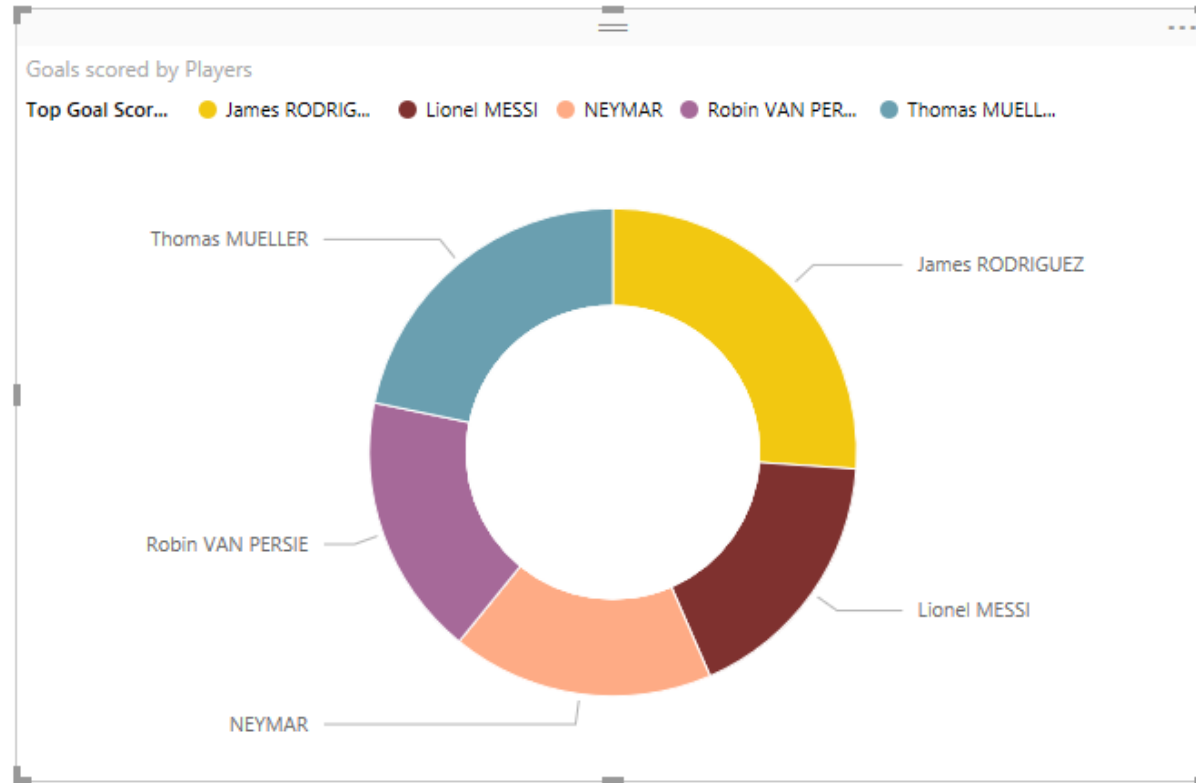


Recent Colors

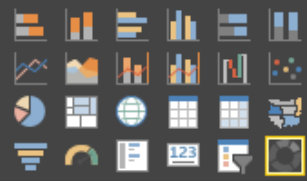


 Custom color

Revert to default





Visualizations >





Legend On


^ Data Colors

James R... 

Lionel M... 

NEYMAR 

Robin V... 

Thomas... 

Revert To Default

Data Labels Off

Category La... On

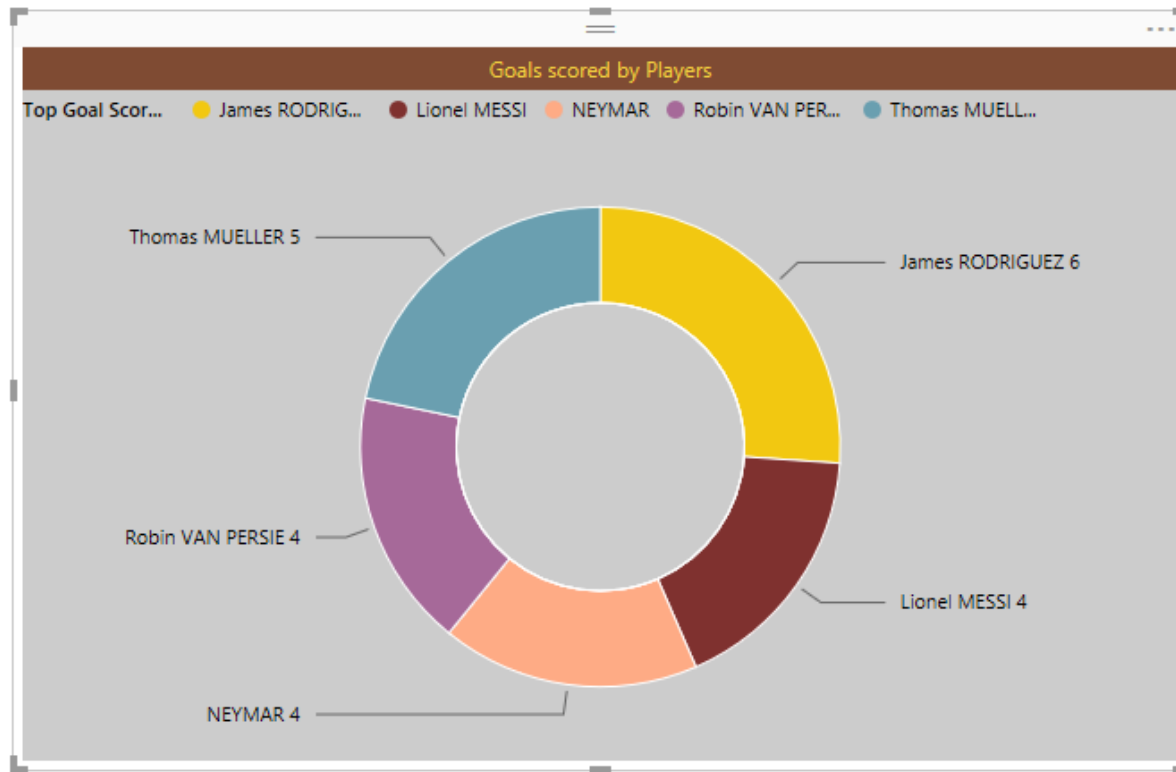
Title On

Background On

Fields >

- AllMatches
- Goals
- Assists
- Goals scored
- Goals scored wit...
- Goals scored wit...
- Headed goals
- Matches Played
- Minutes Played
- Penalties scored
- PlayerID
- Players
- Groups
- Matches1
- Matches2
- MatchesReverse
- TeamAttacks
- TeamGoals
- TeamPasses
- TeamsDefends
- TeamShots

# Title, Background, Forcolor, Transparency



Visualizations > Fields >

Legend On

Data Colors

Data Labels On

Category La... On

Title On

Text Goals scored by F

Font Color

Backgro...

Alignment

Revert To Default

Background On

Fields >

- AllMatches
- Goals
  - Assists
  - Goals scored
  - Goals scored wit...
  - Goals scored wit...
  - Headed goals
  - Matches Played
  - Minutes Played
  - Penalties scored
  - PlayerID
  - Players
- Groups
- Matches1
- Matches2
- MatchesReverse
- TeamAttacks
- TeamGoals
- TeamPasses
- TeamsDefends
- TeamShots

# Color Saturation

Y-Axis On

X-Axis On

Data Colors

Diverging Off

Minimum

Maximum

Minimum

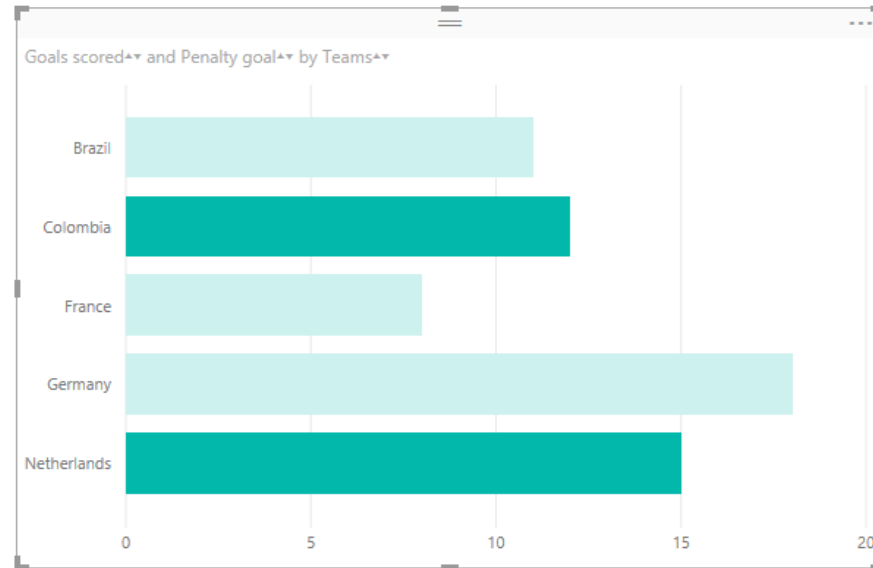
Maximum

Revert To Default

Data Labels Off

Title On

Background On



Visualizations

Fields

Axis: Teams

Legend: Drag data fields here

Value: Goals scored

Color Saturation: Penalty goal

Filters

Visual Level Filters

- Goals scored (All)
- Penalty goal (All)
- Teams (All)

Page Level Filters

- Goals scored is greater than 3
- Goals scored is greater than 7

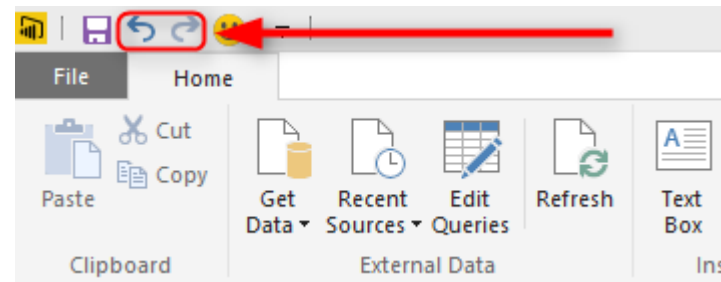
Fields List:

- AllMatches
- Goals
  - Assists
  - Goals scored
  - Goals scored wit...
  - Goals scored wit...
  - Headed goals
  - Matches Played
  - Minutes Played
  - Penalties scored
  - PlayerID
  - Players
- Groups
  - Matches1
  - Matches2
  - MatchesReverse
  - TeamAttacks
- TeamGoals
  - Goals Against
  - Goals for
  - Goals scored
  - Matches Played
  - Open Play Goals...
  - Own goals For
  - Penalty goal
  - Set Piece Goals
  - Teams
  - Teams2
- TeamPasses
- TeamsDefends

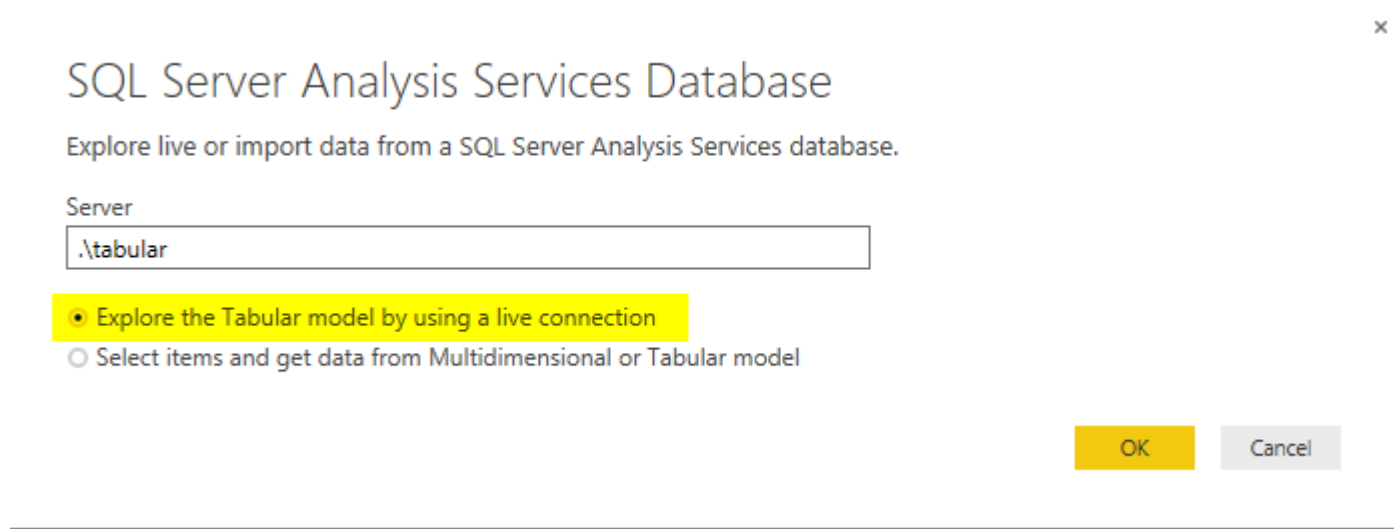
# Insert Image, Text, Hyperlink

The screenshot displays the Power BI Desktop interface with the 'Home' ribbon selected. The 'Text Box' icon is highlighted in yellow. The main canvas contains the text 'What's New In Power BI Desktop' with a blue hyperlink '<http://www.radacad.com>' below it. To the right, the 'RADACAD' logo is visible. Below the text, a visualization titled 'Goals scored by Players' is shown, featuring a donut chart with segments for Thomas MUELLER (5 goals) and James RODRIGUEZ (6 goals). A font settings toolbar is overlaid on the chart, showing 'Font Segoe UI Light', size '54', and bold 'B' formatting. To the right of the chart, a visualization titled 'Goals scored and Penalty goal by Teams' is partially visible, showing a horizontal bar for 'Brazil'.

# Undo/Redo Reports



# SSAS Tabular Live Connection



SQL Server Analysis Services Database

Explore live or import data from a SQL Server Analysis Services database.

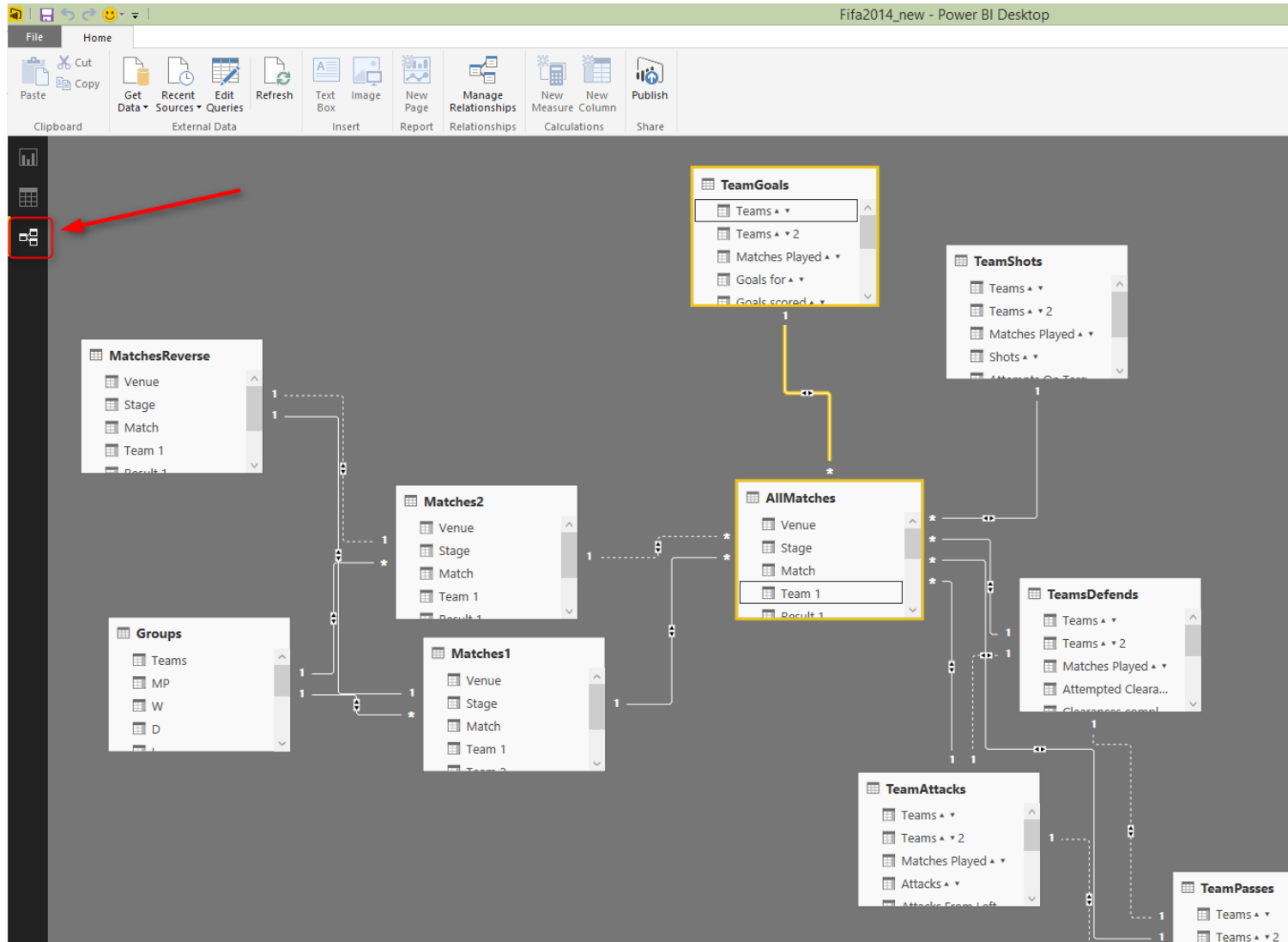
Server

Explore the Tabular model by using a live connection

Select items and get data from Multidimensional or Tabular model

The image shows a dialog box titled "SQL Server Analysis Services Database". It contains a text box for the server name with ".\tabular" entered. Below the text box are two radio button options: "Explore the Tabular model by using a live connection" (which is selected and highlighted in yellow) and "Select items and get data from Multidimensional or Tabular model". At the bottom right are "OK" and "Cancel" buttons.

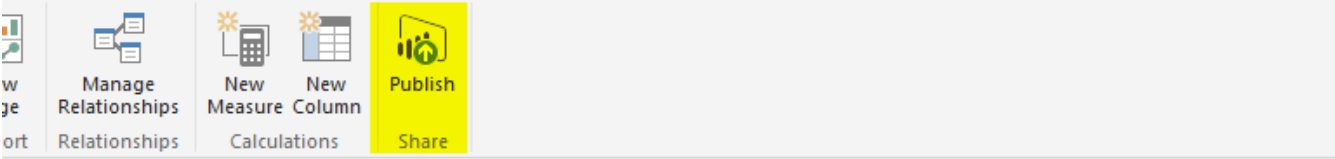
# Relationship Diagram





# Publish


Fifa2014\_new - Power BI Desktop



Manage Relationships | New Measure | New Column | **Publish** | Share

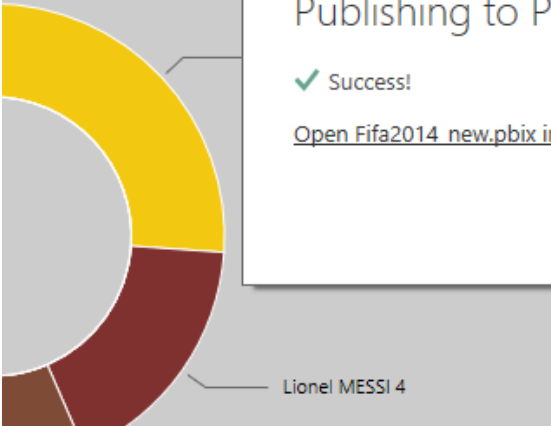
## In Power BI Desktop

<http://www.radacad.com>



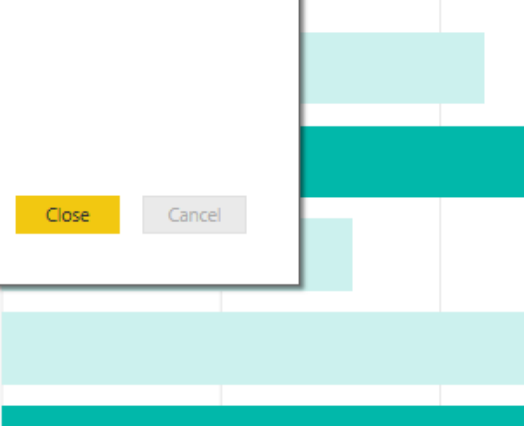
by Players

mar ● Robin VAN PER... ● Thomas MUELL...



Lionel MESSI 4

Germany



Germany

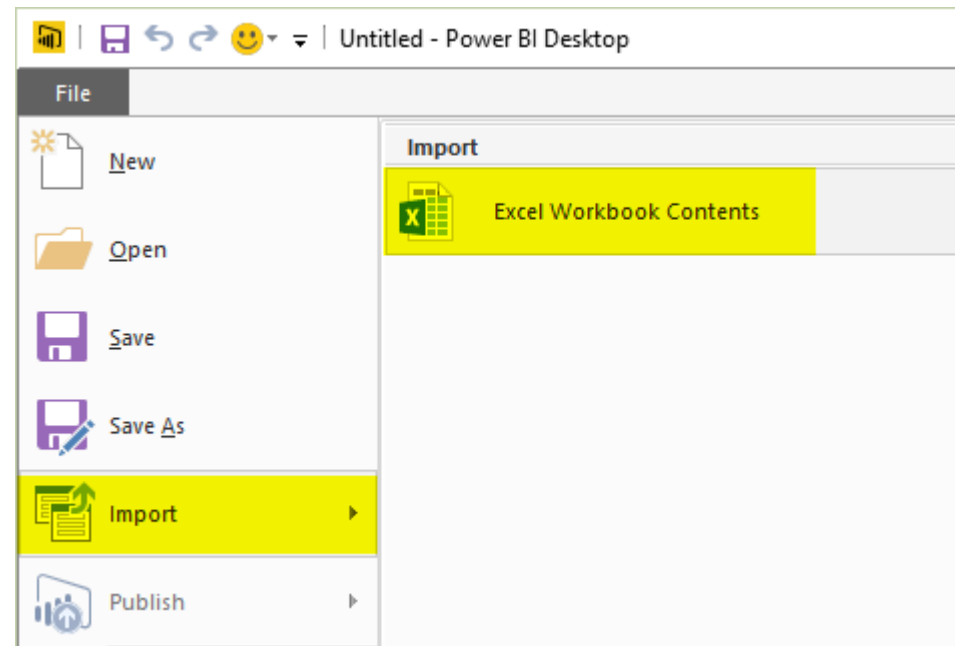
Publishing to Power BI

✓ Success!

[Open Fifa2014\\_new.pbix in Power BI](#)

Close Cancel

# Import Excel Contents



# Limitations of Import

- External connection to SSAS Tabular; This type of connection should be recreated in Power BI Desktop
- KPIs; Is not supported in Power BI Desktop now and will be skipped through import process
- Hierarchies; Power BI Desktop doesn't support hierarchies at the moment, so these parts of data model will be skipped
- Binary data columns; In Power Pivot supported, but Power BI Desktop doesn't support it yet, so will be removed through the process
- Power View unsupported visualizations; Such as Themes, Scatter chart with Play axis, Drill-down feature. an "Unsupported Visualization" message will appear in the place of these items after import that can be removed in Power BI Desktop.
- Synonyms; In Power Pivot synonyms can be defined to be used in Power Q&A. In Power BI Desktop is not supported, and will be skipped.
- Named Range using From Table in Power Query or using Excel.CurrentWorkbook in M; named ranges will be loaded as connection to external excel workbook.
- PowerPivot to SSRS connections; are not supported.

# MDX/DAX Query Support

## SQL Server Analysis Services Database

Explore live or import data from a SQL Server Analysis Services database.

Server

Database

- Explore the Tabular model by using a live connection
- Select items and get data from Multidimensional or Tabular model

MDX or DAX Query (optional)

```
select {[Customer].[Customer Geography].[Country].members} on 0,  
       {[Date].[Calendar].[Calendar Year].members} on 1  
from [Adventure Works]
```

OK

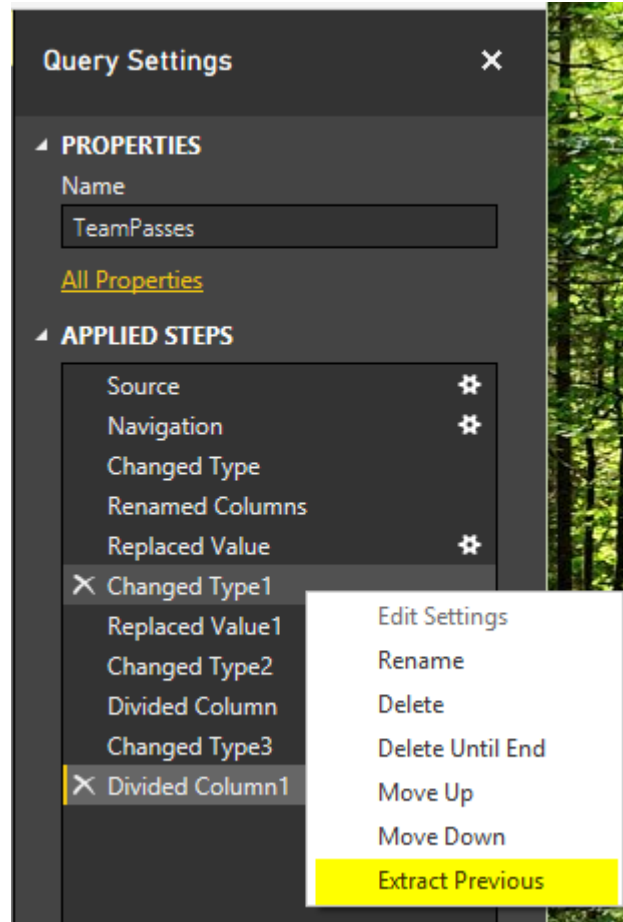
Cancel

# Grouping Queries

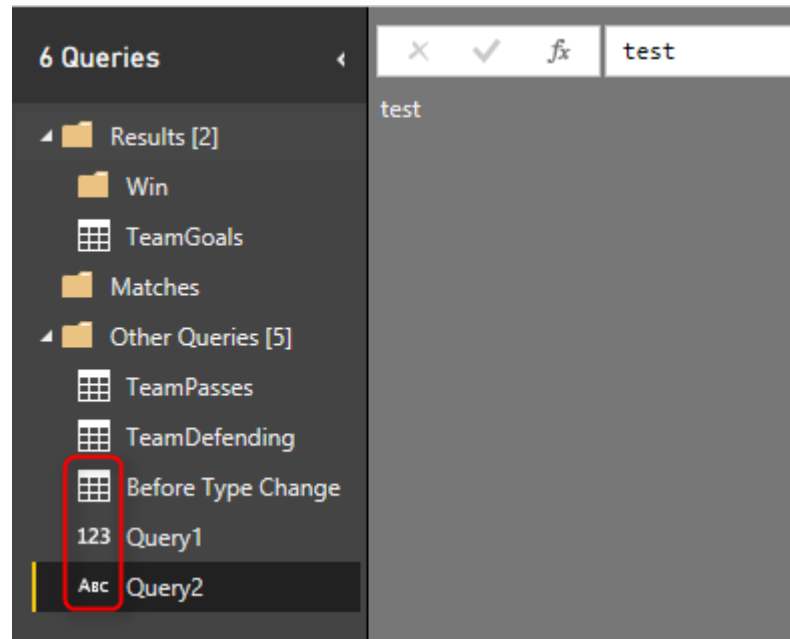
The screenshot shows the Power BI Desktop interface. On the left, the 'Queries' pane displays a tree structure with three main groups: 'Results [1]', 'Matches', and 'Other Queries [2]'. Under 'Results [1]', there is a query named 'TeamGoals'. Under 'Other Queries [2]', there are two queries: 'TeamPasses' and 'TeamDefending'. The 'TeamPasses' query is highlighted with a red box. A context menu is open over the 'TeamPasses' query, with the 'Move To Group' option selected. A sub-menu is open, showing the available groups: 'Matches', 'Results', and 'New Group...'. The 'Results' group is highlighted in the sub-menu. The main view shows a table with columns 'Teams', 'Teams Abrv', and 'Match'. The table contains data for various teams, including Germany, Argentina, Netherlands, Brazil, France, Belgium, Chile, Costa Rica, and the USA. The formula bar at the top shows the query formula: `= Table.TransformColumns("#C`. A yellow banner at the top of the main view indicates 'This preview may be up to 30 days old.'

Teams	Teams Abrv	Match
1 Germany	GER	
2 Argentina	ARG	
3 Netherlands	NED	
4 Brazil	BRA	
	FRA	
	BEL	
	CHI	
	CRC	
	USA	
	NGA	
	MEX	
15 Italy	ITA	

# Split Queries



# Query Icons



# Moving Measures

The screenshot shows a Power BI report with a table of team goals and a Fields pane. A red arrow points from the 'TeamGoals' measure in the Fields pane to the 'TeamGoals' measure in the table's filter bar.

**Home Table: TeamGoals**

- TeamDefending
- TeamGoals
- TeamPasses

Goals scored	Goals Against	Penalty goal	Own goals For	Open Play Goals	Set Piece Goals
18	4	1	0	15	
15	4	2	0	13	
12	4	2	0	9	
11	14	1	0	8	
8	3	1	2	8	
7	4	0	1	7	
7	7	1	0	4	
7	7	0	0	5	
5	6	0	1	5	
6	4	0	0	6	
6	3	0	0	6	
5	3	0	0	4	
5	6	0	0	4	
5	2	0	0	4	
4	4	0	0	4	
4	5	0	0	4	
4	6	0	0	4	

**Fields**

- TeamGoals
  - Teams
  - Teams Abrv
  - Σ Matches Played
  - Σ Goals for
  - Σ Goals scored
  - Σ Goals Against
  - Σ Penalty goal
  - Σ Own goals For
  - Σ Open Play Goals
  - Σ Set Piece Goals
  - Total Goals
- TeamPasses
  - Teams



# References to Study

- Power BI from Rookie to Rockstar Online Book

<http://www.radacad.com/category/power-bi-from-rookie-to-rockstar>

- Power BI Videos

<https://www.youtube.com/user/mspowerbi/featured>

- Power BI website

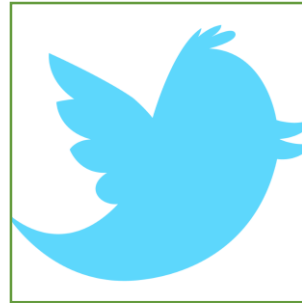
<https://support.powerbi.com/>

- What's New In Power BI:

<http://www.radacad.com/whats-new-in-power-bi-august-2015-update>

<http://www.radacad.com/all-in-one-whats-new-in-power-bi-desktop-2-0-ga>

# Questions?



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Thanks