devscope

Rui Romano

Power BI Tips & Tricks

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DevScope Suite of Power BI tools

PowerBI Tiles

Embed Power BI Reports in PowerPoint presentations, Word documents or Outlook messages.

Try Now

PowerBI Robots

Schedule and automatically send Power BI data to anyone, anywhere.

Try Now

PowerBI SmartPivot

Connect data from Power BI or OLAP cubes to Excel, search for any values in the data model and apply filters in bulk.

Try Now

devscope

Agenda

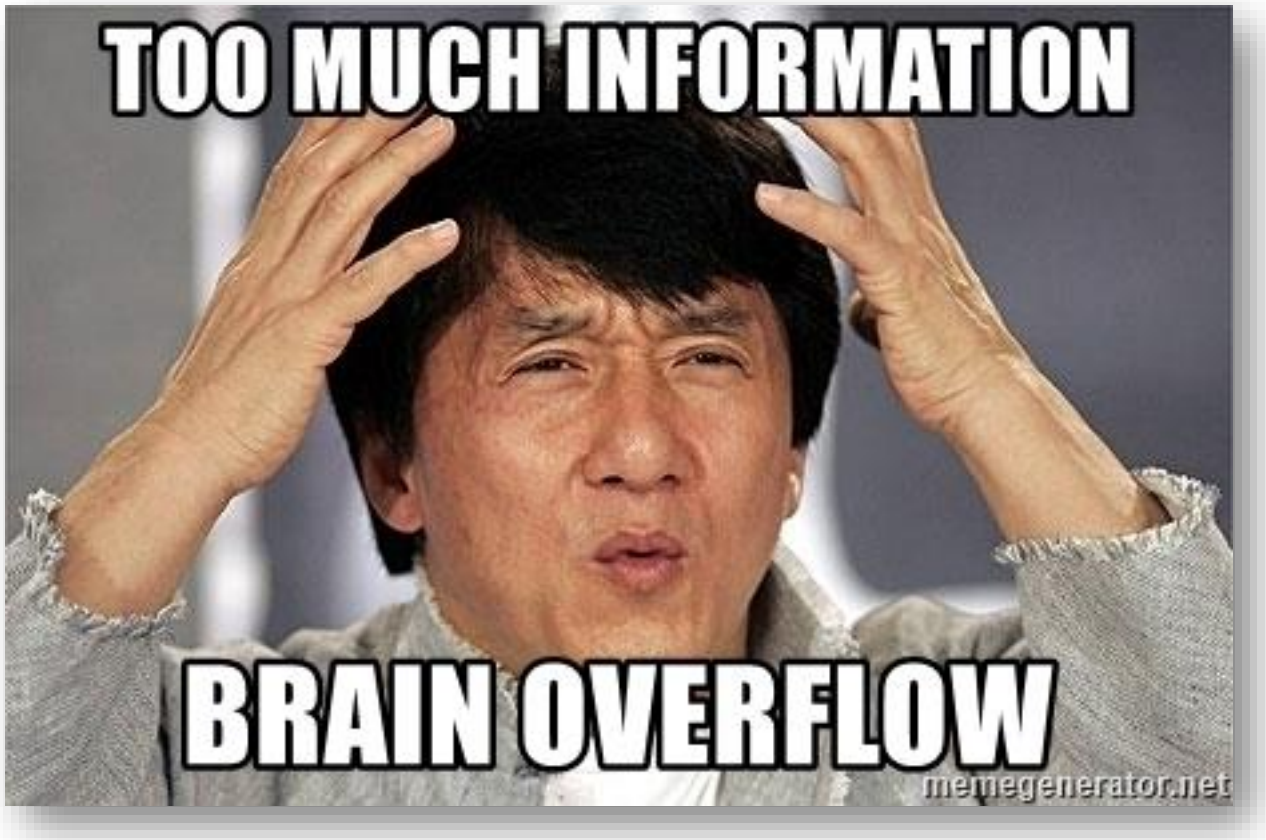
Learn some Best Practices

Learn useful tips / hacks on Power BI

Fast-paced, full of demos

This session is not:

- Intro to Power BI
- Deep-Dive
- Advanced DAX

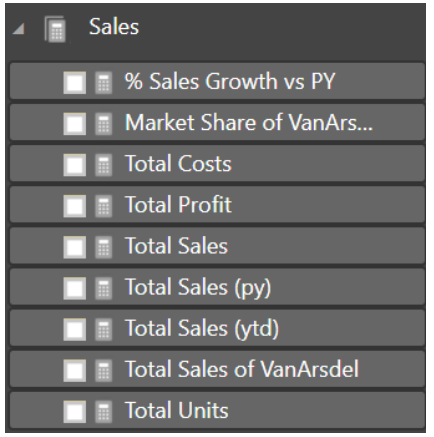


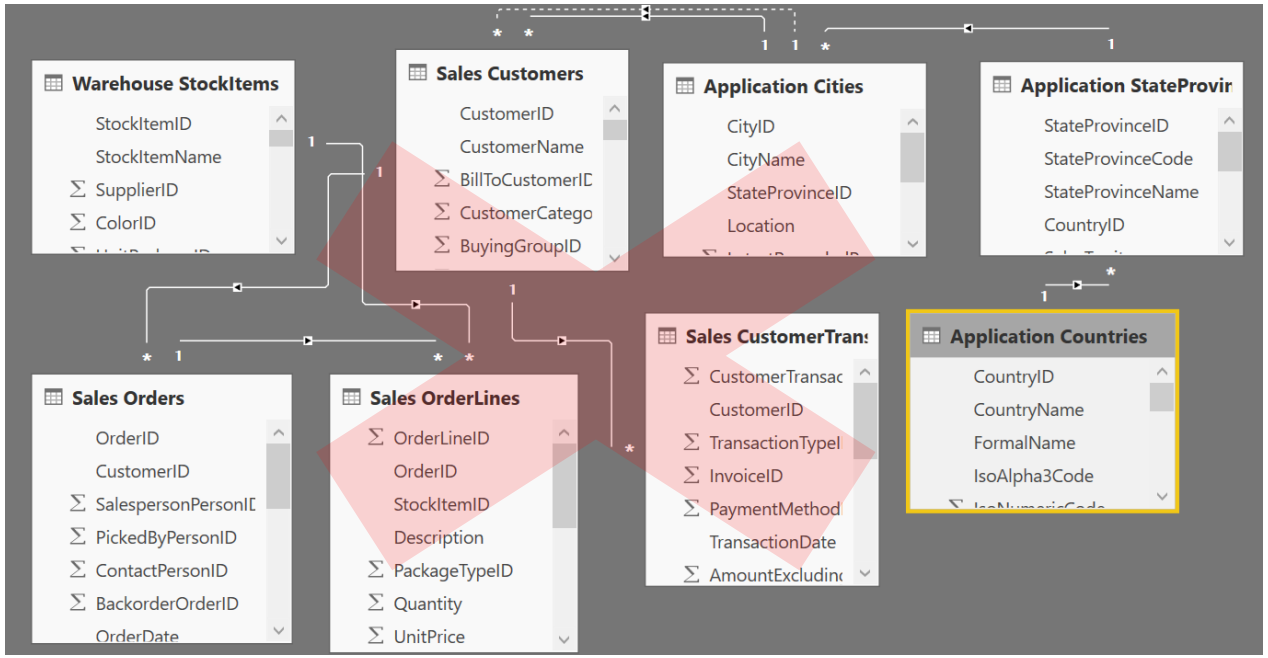
Tip - Think like a Analyst (not a DBA ☺)

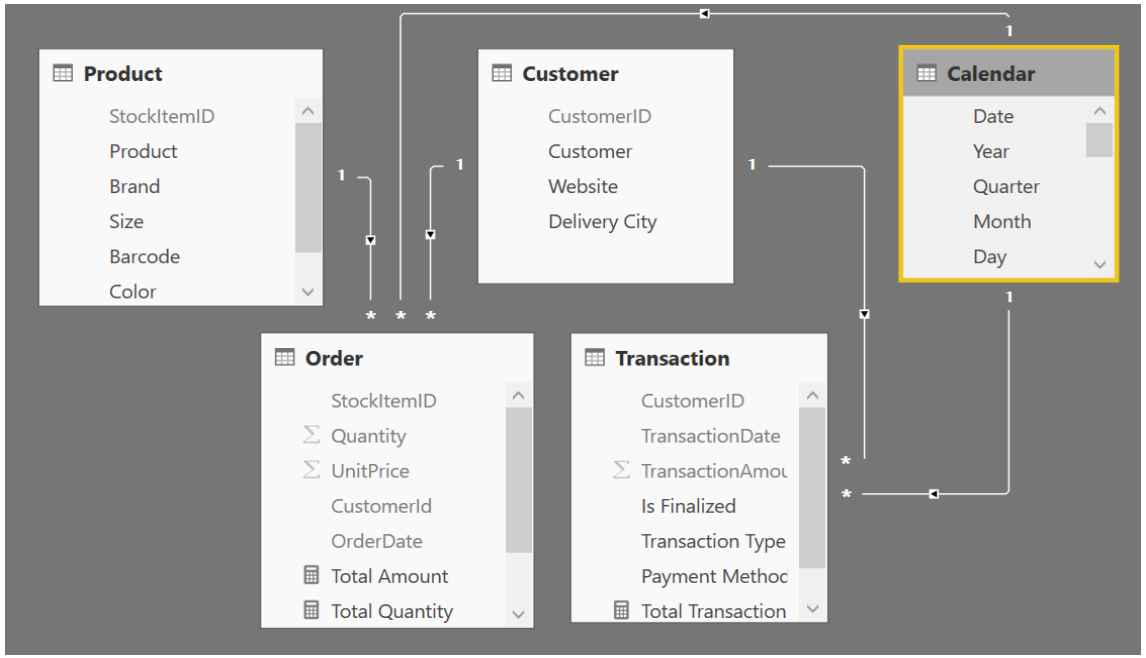
Entities not Tables =>Power BI is not MS Access!

Think about your naming & <u>be coherent</u>

Only load what you <u>really</u> need

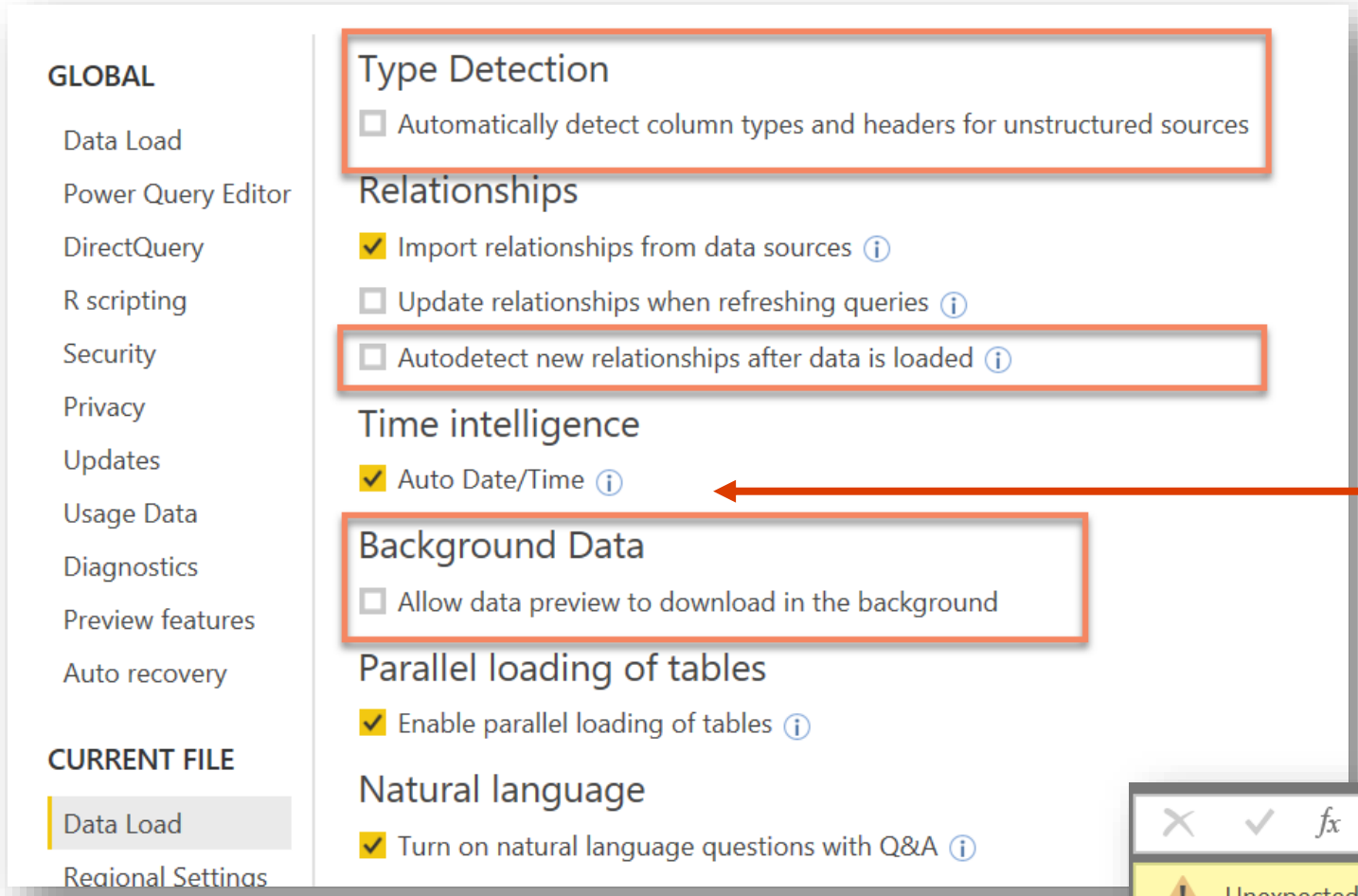




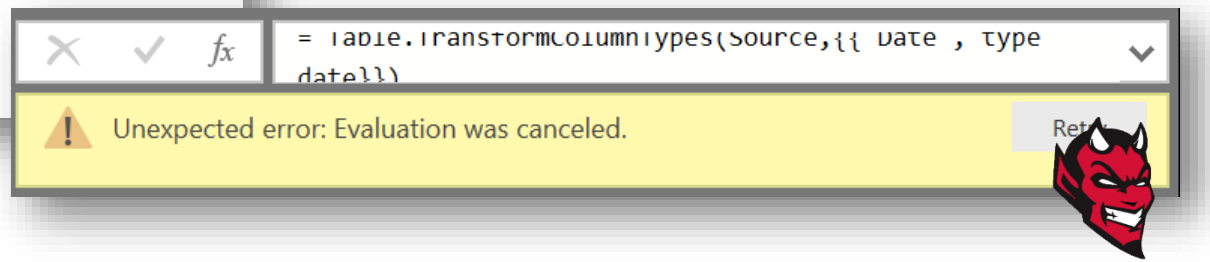


Learn more: link1

Tip – Change defaults on Data Load



Be Careful… (pbix from 30Mb to 100kb)



Tip – Always use Base Measures

Create measures from numeric base values
Reuse the base measure in: YTD, LY,…
Analyse in Excel support

```
Total Amount = SUMX('Order', [Quantity] * [UnitPrice])
```

```
Total Amount (ly) = CALCULATE([Total Amount], SAMEPERIODLASTYEAR('Calendar'[Date]))
```

```
Total Amount (ytd) = TOTALYTD([Total Amount], 'Calendar'[Date])
```

```
Total Amount (ytd, ly) = CALCULATE([Total Amount (ytd)], SAMEPERIODLASTYEAR('Calendar'[Date]))
```

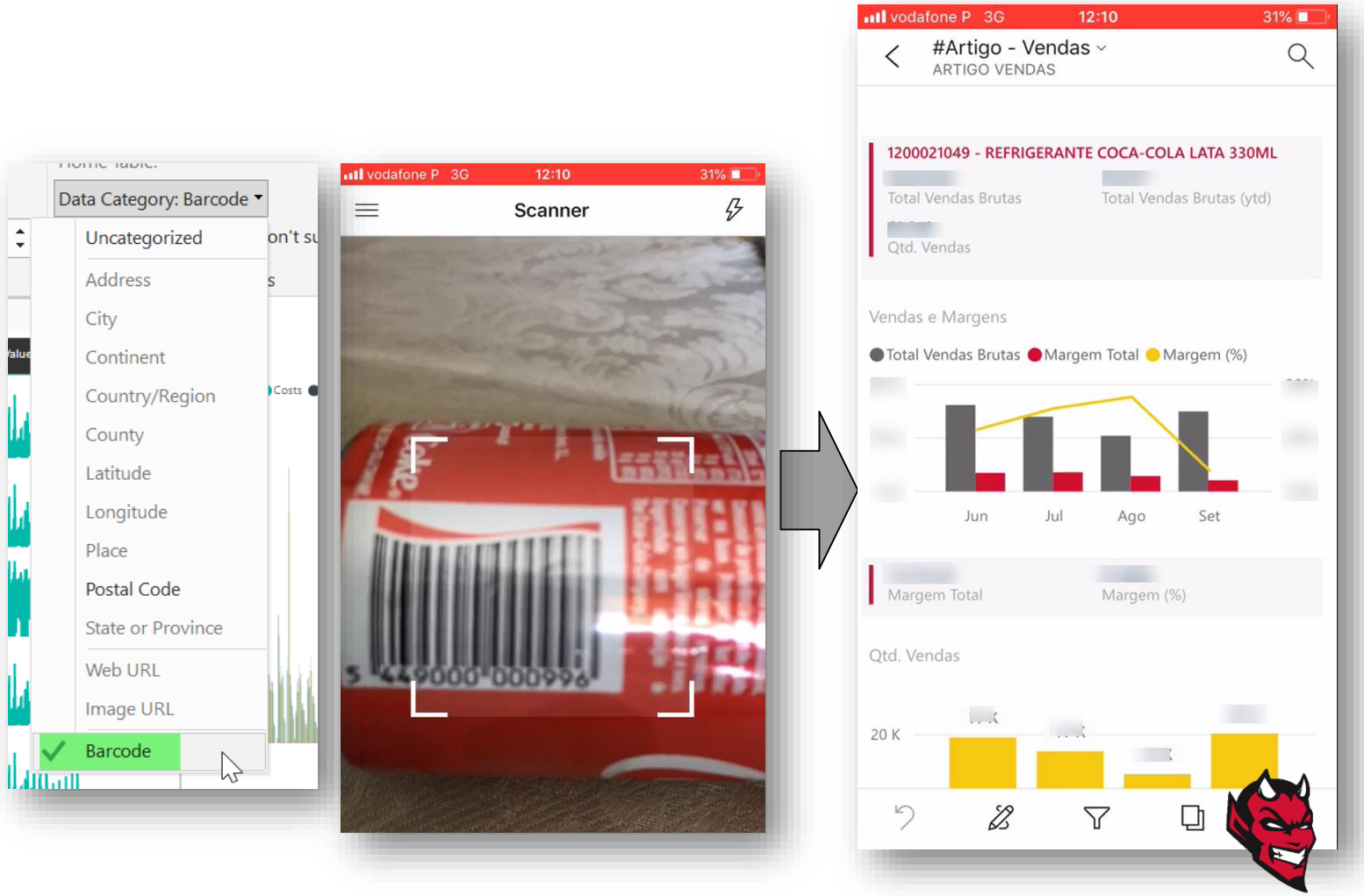
Tip – Use the Barcode Scanner

Little effort, **big impact**

IOS only ☹

PowerApps as alternative

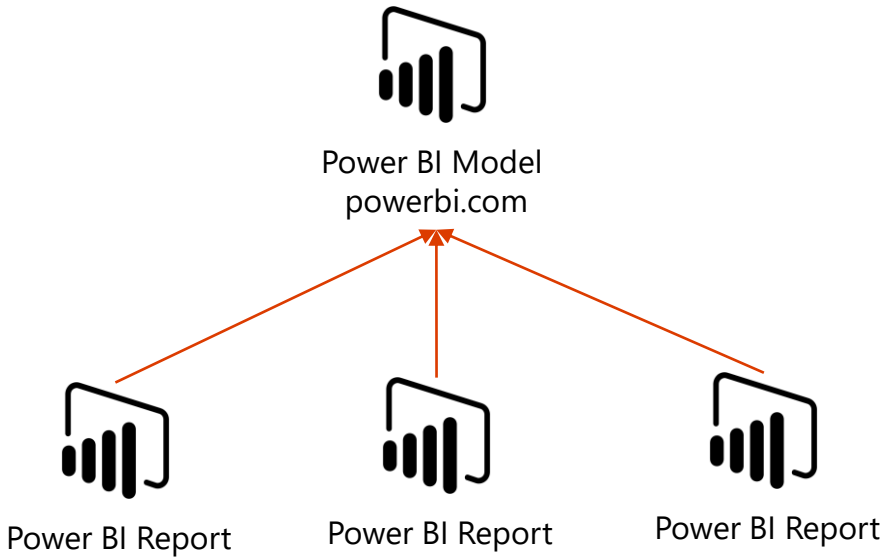
[Vote!]



Tip – Separate the Model from the Report

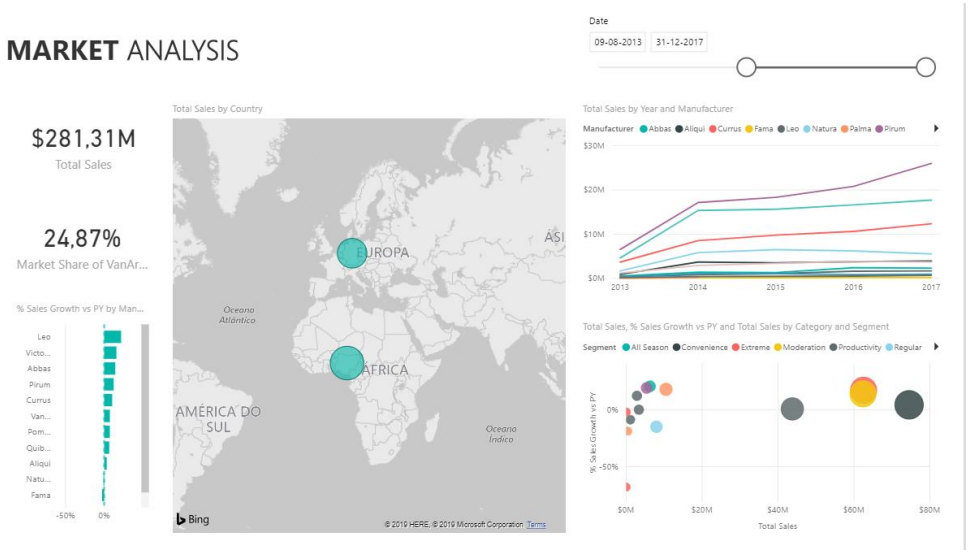
You can convert an Import model into a Live Connection

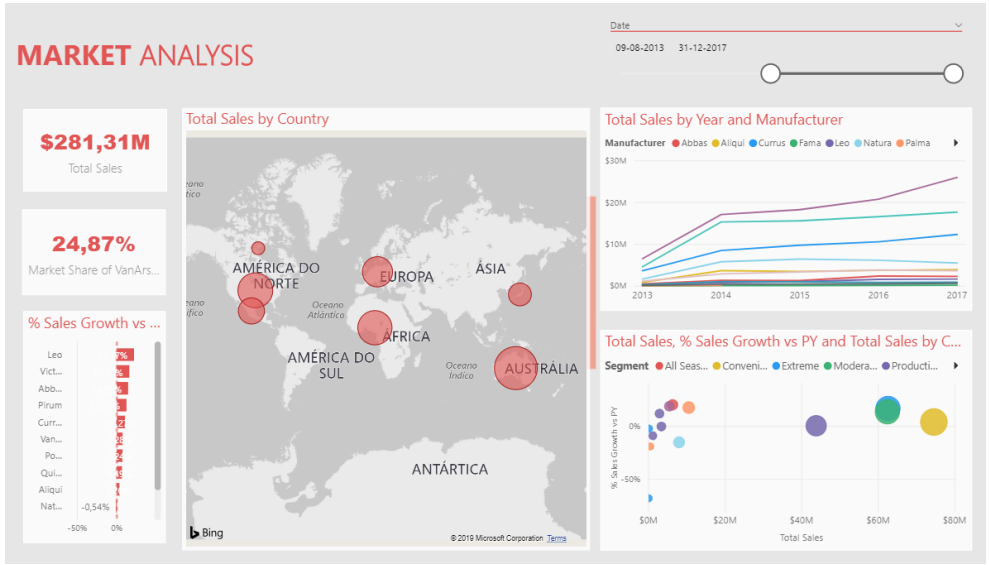
- PowerBIPS
- Hack: Delete all the queries & Rebind



Tip – Report Theming

Colors
Fonts
Headers
Spacings
Shapes
Backgrounds
…



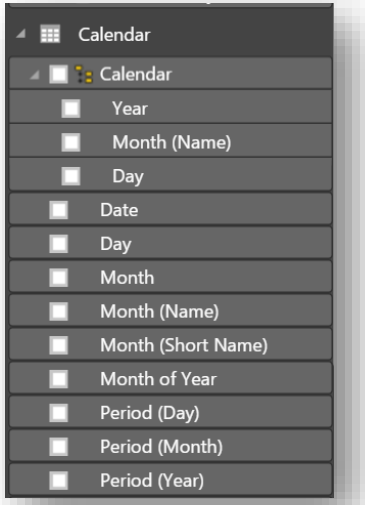


Learn more: https://github.com/deldersveld/PowerBI-ThemeTemplates

Tip – Calendar/Date table

Generate your calendar table with M Script or DAX

Use Relative *Period fields => Dynamic Filter Reports over Time




```
VAR TodayReference =
    TODAY () -- Change this if you need to use another date as a reference "current" day
VAR FirstYear = 2008
VAR LastYear =
    YEAR ( TodayReference )
VAR FiscalCalendarFirstMonth = 9 -- For Fiscal 52-53 weeks (start depends on rules) and Gr
VAR FirstDayOfWeek = 0 -- Use: 0 - Sunday, 1 - Monday, 2 - Tuesday, ... 5 - Friday, 6 - Sa
VAR IsoCountryHolidays = "US" -- Use only supported ISO countries or "" for no holidays
VAR WeeklyType = "Last" -- Use: "Nearest" or "Last"
VAR QuarterWeekType = "445" -- Supports only "445", "454", and "544"
```

CalendarAuto()

Calendar(<start>, <end>)

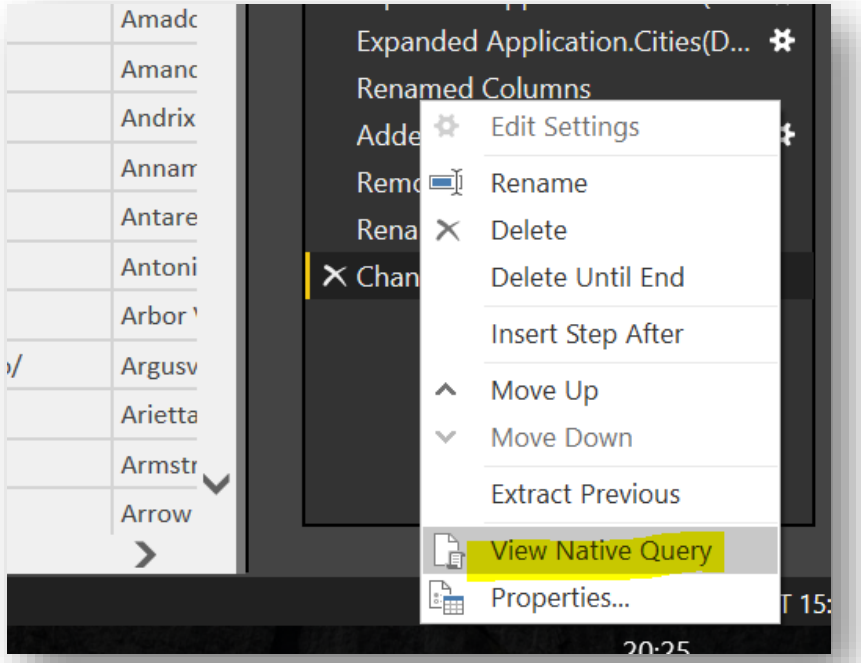
Learn more: link1

Tip – Filter first, Transform later

Know “Query Folding” concept

Some transformations don’t “fold” the query

Filter ASAP (as second step if possible)



Native Query

```
select [_].[Supplier],
    [_].[Category],
    [_].[Primary Contact]
from [Dimension].[Supplier] as [_]
where (([_].[Category] = 'Clothing Supplier' or [_].[Category] = 'Co
```

Tip – When Importing from SQL DBs

Write your own SQL (if you can)

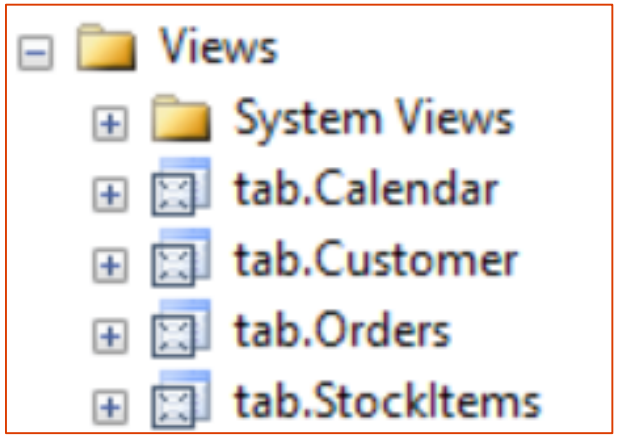
- Generated query could be very bulky

Push shaping/transform to the DB (if possible)

- Reusability, Performance
- Free the gateway from heavy lifting transformations

Use Views & Schemas

- Isolation
- Easy to export all the “BI” content



Tip – Parameters

PBIX Templates

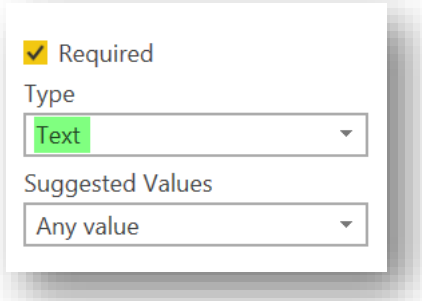
Change the values after Publish

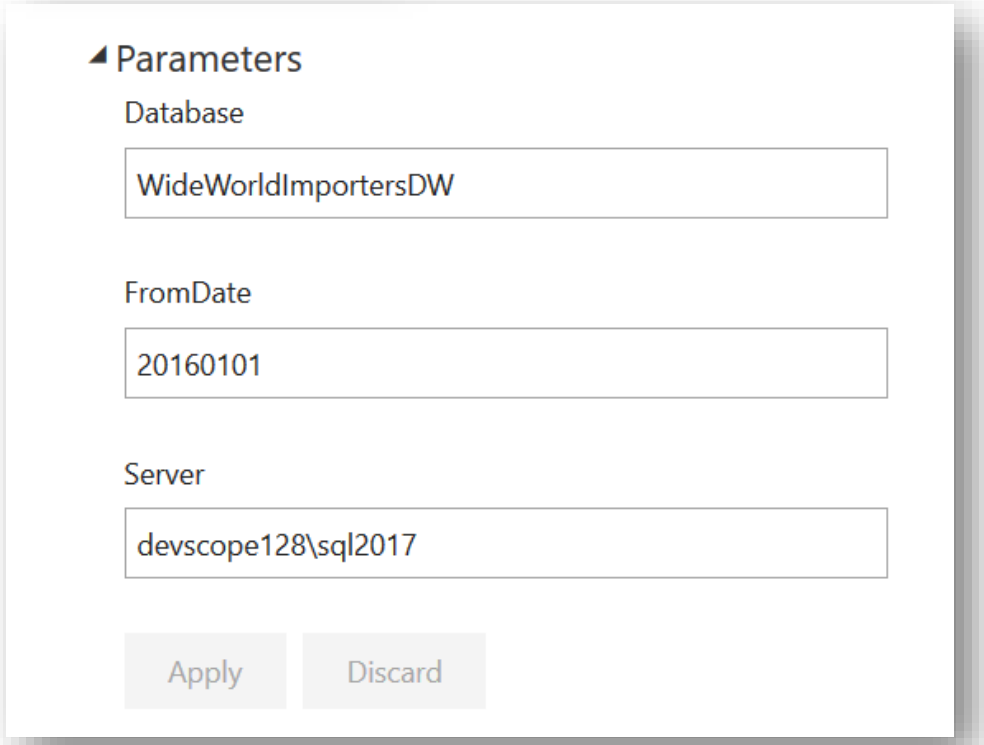
- Change the Database without Re-Publish
- Change the Query without Re-Publish

Set the Type (don't use "Any")

Use REST API to change values

- Set-PBIDatasetParameters => DevOps Scenarios

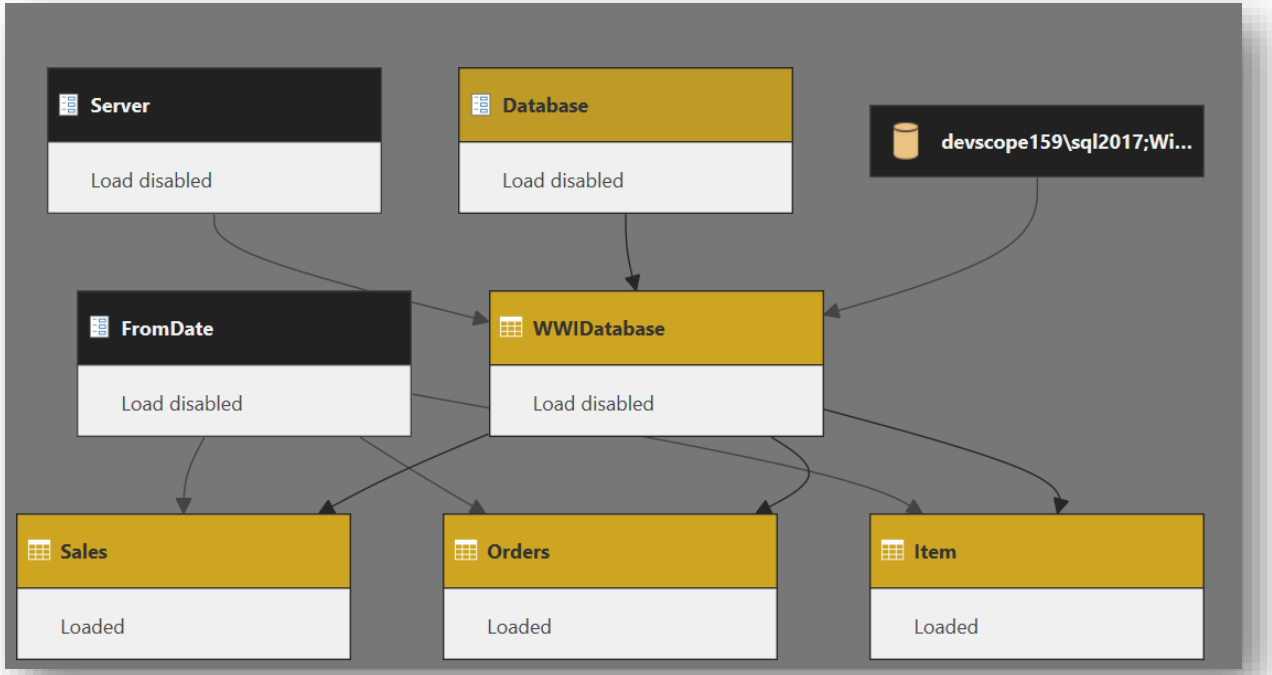




Learn more: link1

Tip – Value.NativeQuery / Centralized Connection

- Connection as separate query
  - timeouts, maxdop,…
- Query Parameters
- Query as a separate step
  - No UI on Value.NativeQuery




```
let
    Source = Sql.Database(Server, Database,
[CommandTimeout=#duration(0, 0, 30, 0),
ConnectionTimeout=#duration(0, 0, 0, 15),
MaxDegreeOfParallelism=1])
in
    Source
```

```
let
    Query = "select [Sale Key], [Invoice Date Key], [Description],
[Quantity] #(lf)from [Fact].[Sale]#(lf)where [Invoice Date Key] >=
@fromDate",
    Source = Value.NativeQuery(WWIDatabase, Query, [fromDate =
FromDate])
in
    Source
```

Hack – Folder Proxy

FolderProxy (M Query)

Redirects to:

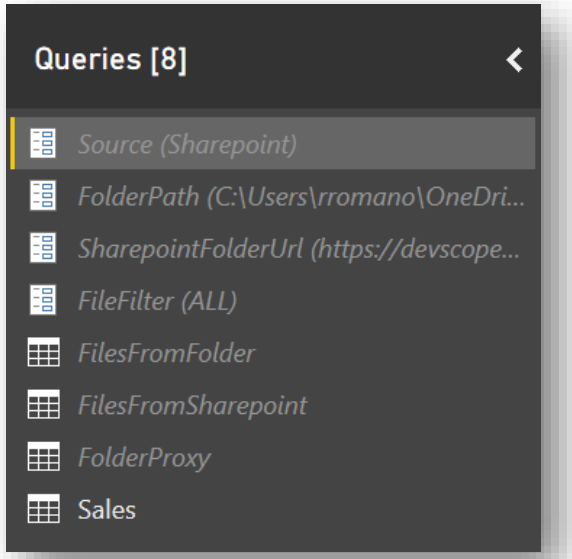
FileSystem

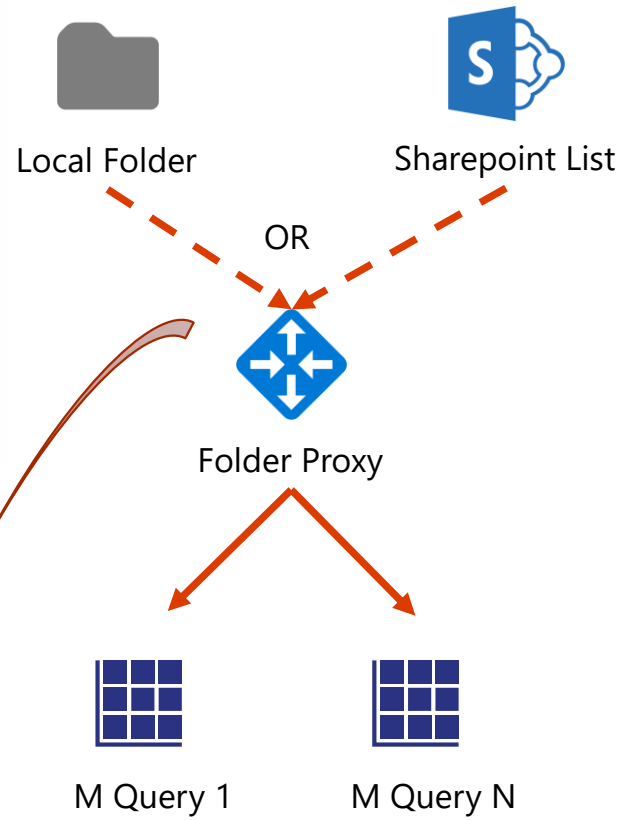
or

Online Source(ex: Sharepoint)

More productivity w/ online data sources (ex: Sharepoint or DataLake)

Content	Name	Extension	Date accessed
Binary	2018-08-01.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-02.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-03.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-04.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-05.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-06.csv	.csv	26/09/2018 20:25:02
Binary	2018-08-07.csv	.csv	26/09/2018 20:25:02





FolderProxy

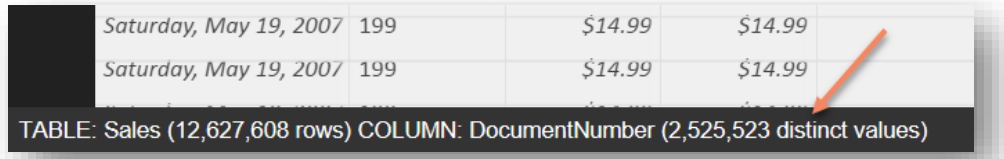
```
let
    Source = FilesFromSharepoint // or FilesFromFolder,
    #"Removed Other Columns" = Table.SelectColumns(Source
    Filter = Table.SelectRows(#"Removed Other Columns", e

in
    Filter
```

Tip – Optimize your model size

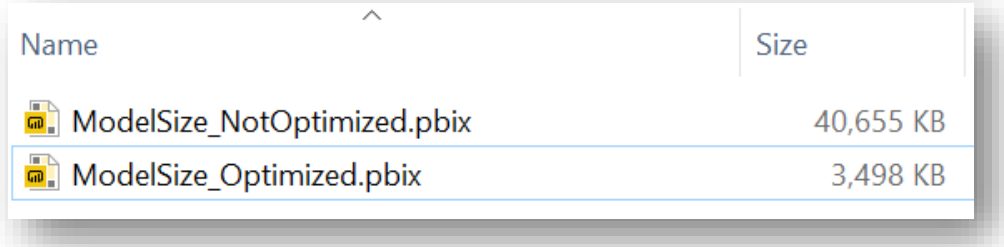
Focus on columns w/ high cardinality

- Use Status Bar, DMV's or tools like VertiPaq Analyser



Try to

- Review DataTypes, ex: reduce decimal numbers
- Remove columns you don't need (ex: Transaction Number)
- Separate query for things ex: "Transaction Count"
- Split columns, ex: Date & Time, Id's



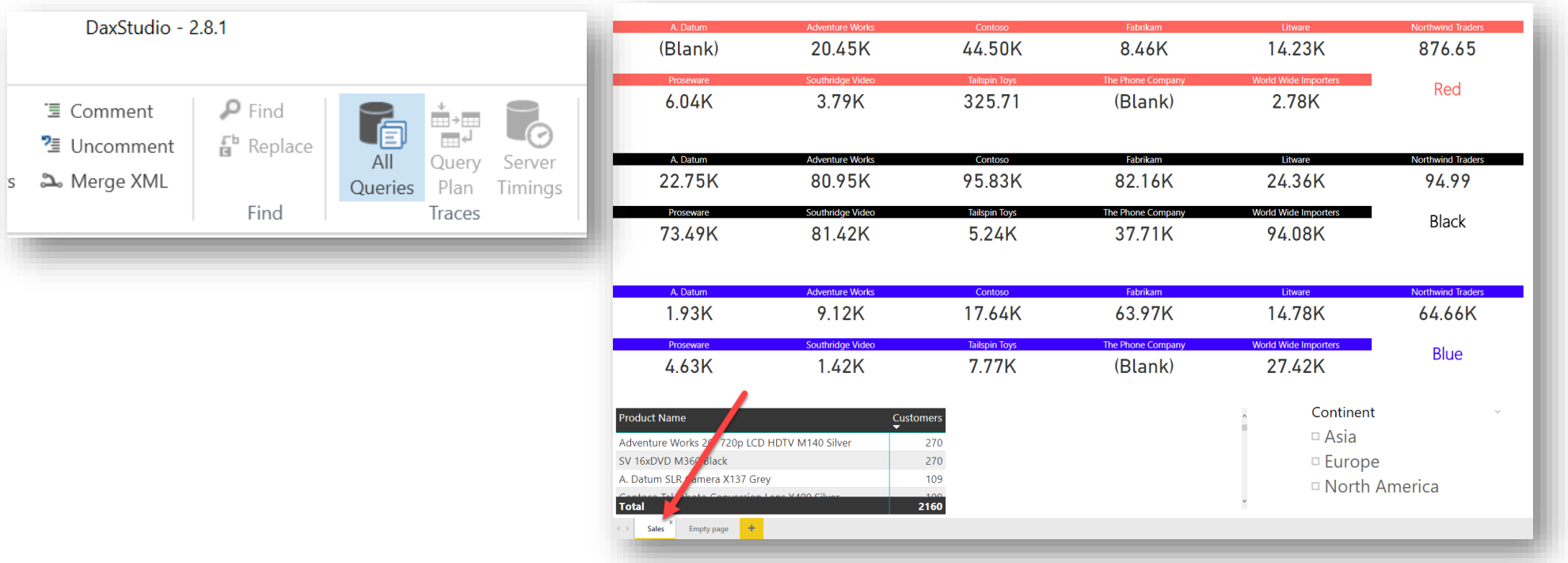
Learn more: link1

Hack – Slow Report? Identify the cause (with focus)…

DAXStudio & Queries Capture

By SQLBI & DAXStudio

Focus on what matters by identifying the slowest



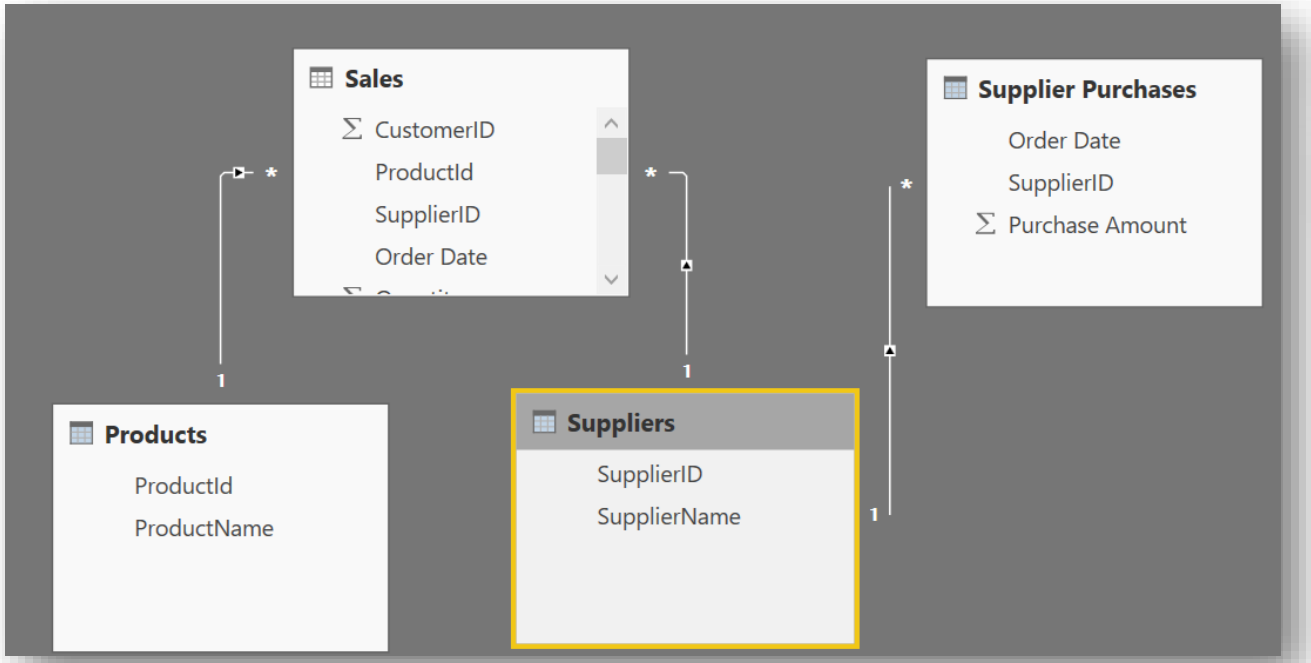
Learn more: link1

Tip – DAX Tables/Columns to reduce DB Impact

Not a Best Practice! But very useful to reduce DB round trips

1 Server Query => N Tables

Complex Calculated Column in DAX is blazing fast




```
Products = SUMMARIZE('Sales', [ProductId], [ProductName])
```

```
Suppliers = SUMMARIZE('Sales', [SupplierID], [SupplierName])
```

Hack – "Incremental Loading" w/ "Report Refresh"

Only loads on first refresh

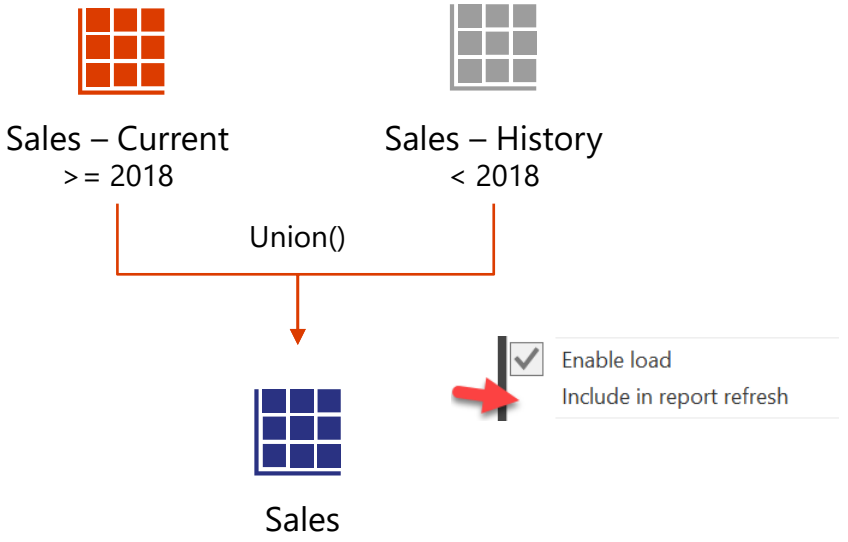
Useful for Static Data (history)

*Alternative to "Incremental Loading"

Not Perfect

Use DAX to avoid duplicating tables

If there's attributes to slice on the fact, then use UNION




```
Quantity (DAX) = SUM('Sales - History'[Quantity]) + SUM('Sales - Current'[Quantity])
```

```
Sales = UNION('Sales - Current', 'Sales - History')
```

Learn more: link1

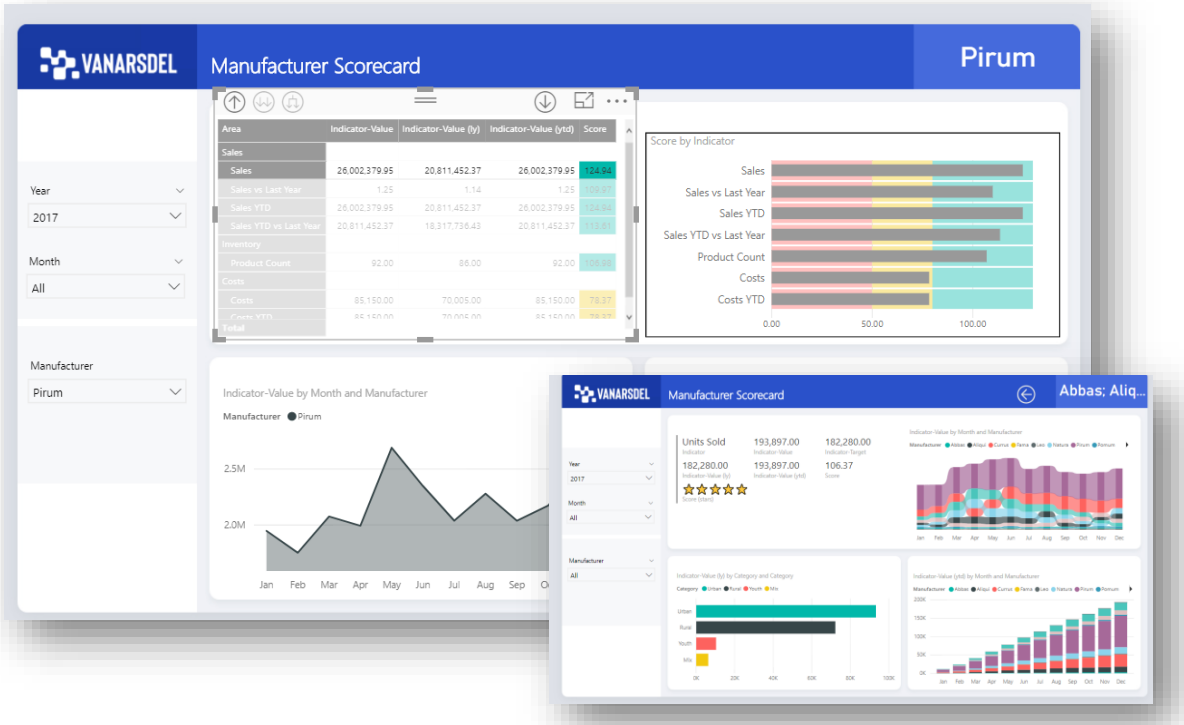
Hack – Measures as Dimension

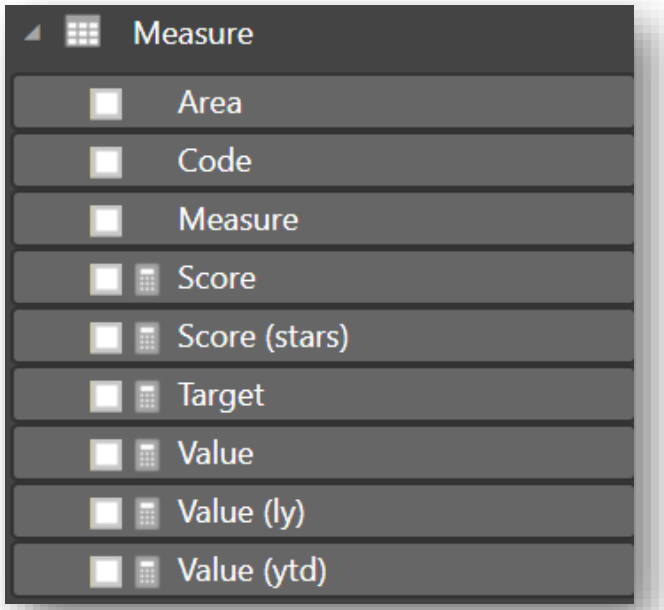
Scorecards & KPIs

Reusability: YTD, LY,… for all the measures

One report for multiple analysis

*Performance hit






```
Value =
if (HASONEVALUE('Measure'[Code]) && ISFILTERED('Measure'[Measure]),
var currentIndicator = SELECTEDVALUE('Measure'[Code],BLANK())
return
SWITCH(currentIndicator
, BLANK(), BLANK()
, 1, [Sales]
, 2, DIVIDE([Sales], [Sales (py)])
, 3, [Units]
, 4, CALCULATE([Sales YTD], SAMEPERIODLASTYEAR('Date'[Date]))
, 10, DISTINCTCOUNT('Sales'[ProductID])
```

Hack – Measure as Image

Lot of flexibility for KPI's / Scorecards

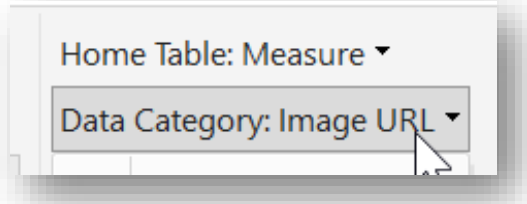
Use base64 to embed images in PBIX

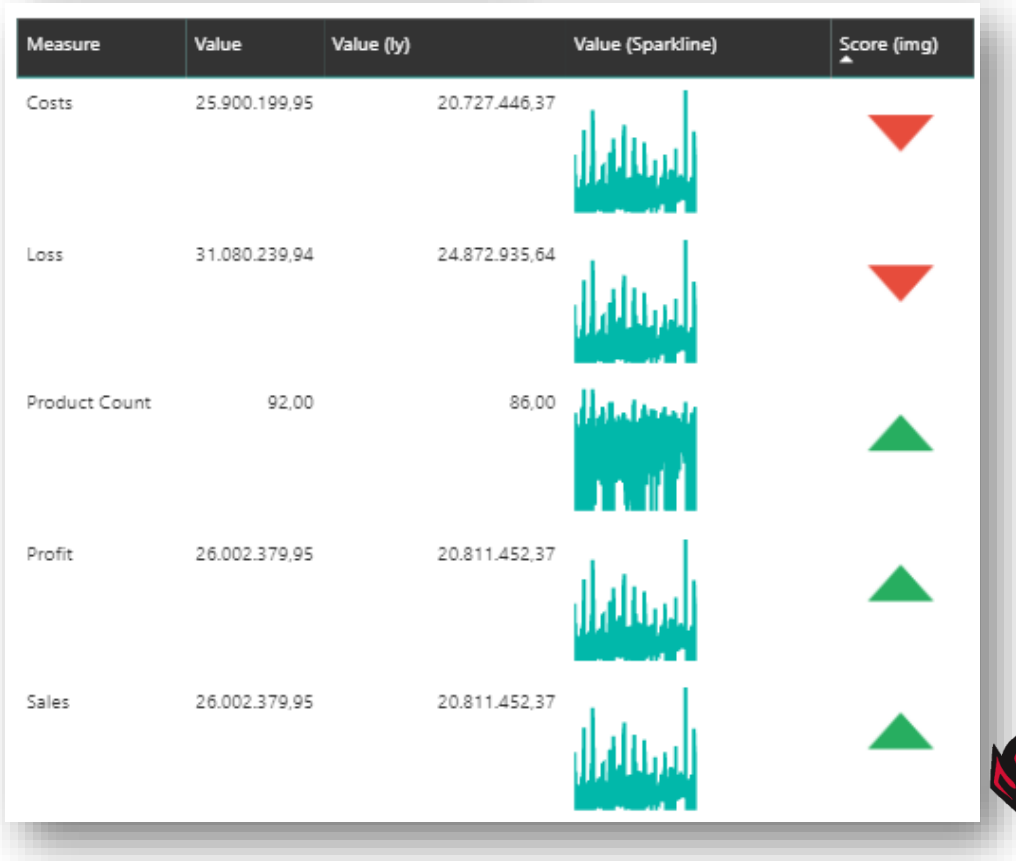
Use SVG for flexibility

Can do sparklines (David Eldersveld)

Only works on tables/matrix

This month ☺





Measure	Value	Value (ly)	Value (Sparkline)	Score (img)
Costs	25.900.199,95	20.727.446,37		
Loss	31.080.239,94	24.872.935,64		
Product Count	92,00	86,00		
Profit	26.002.379,95	20.811.452,37		
Sales	26.002.379,95	20.811.452,37		

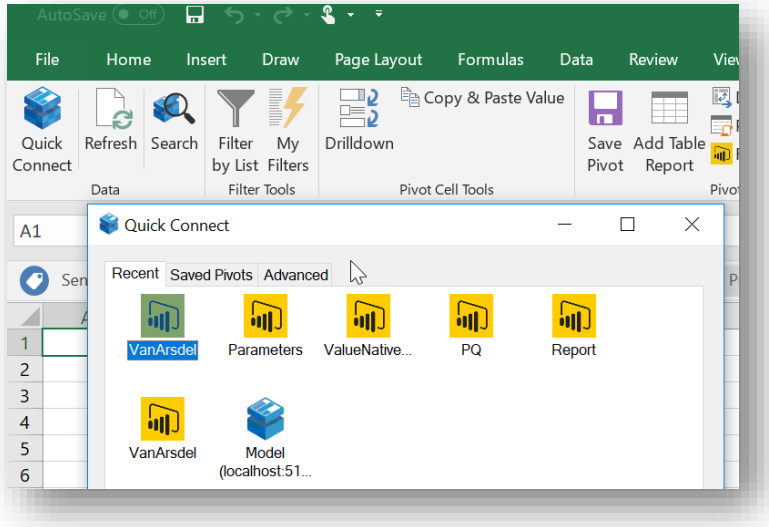
Learn more: link1, link2, link3, link4

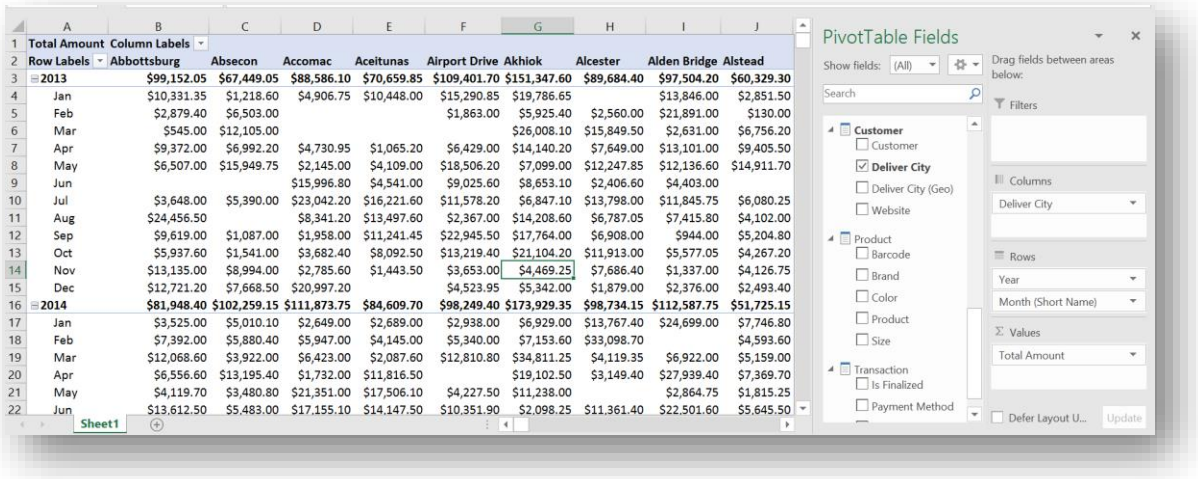
Hack – Excel + Power BI Desktop

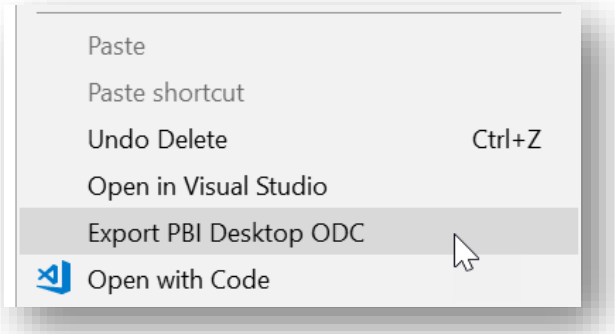
PBIDesktop has an Analysis Services Instance

Great for data validation at development time

Discover the TCP Port using netstat,
PowerBIPS.Tools, DAXStudio, SmartPivot

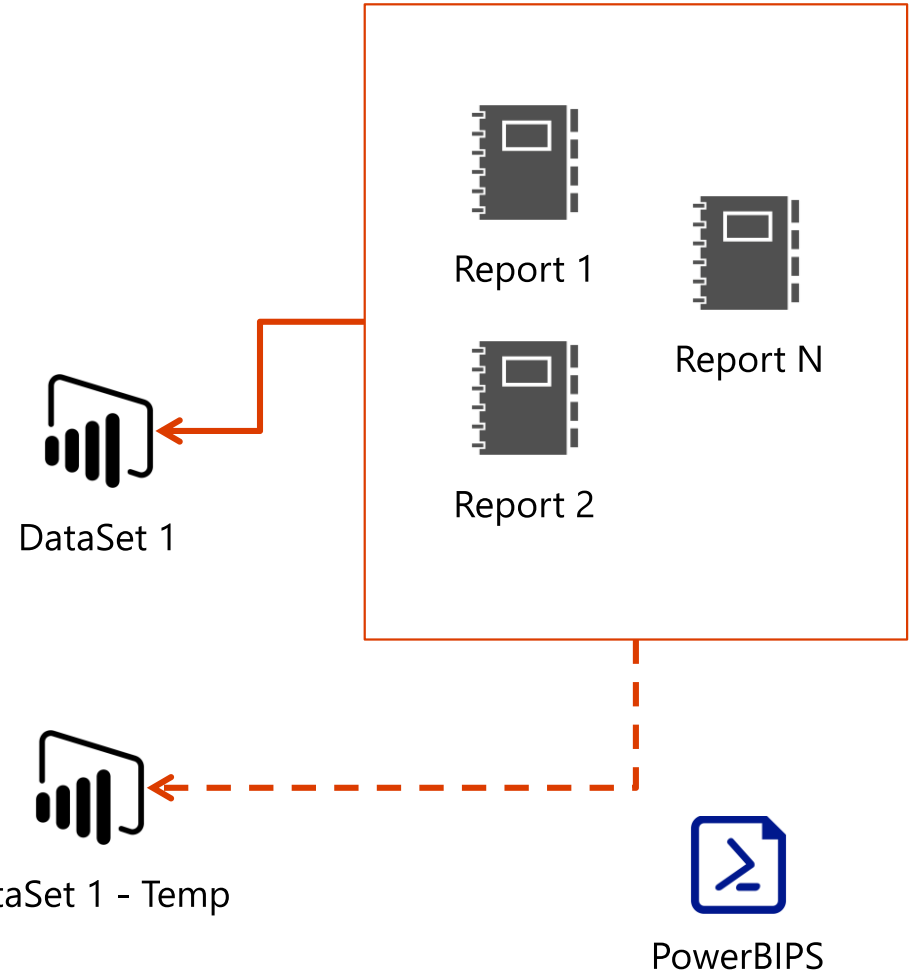






Hack – DevOps – Publish & Rebind

1. Publish to a TEMP dataset
2. Refresh & Test the TEMP dataset
3. Rebind the all the reports to the TEMP dataset
4. Rename DataSet



Learn more: link1

Hack – REST API & DevOps

Use the REST API to:

Automation, Productivity, DevOps, Realtime…

Examples:

PBIX Publish & Rebind

Export all pbix from PowerBI.com to Folder

Bulk Create Multiple Workspaces using Folders and Files

Sync between Workspaces: (ex: Dev to Prod)

…

Learn more: link1, link2

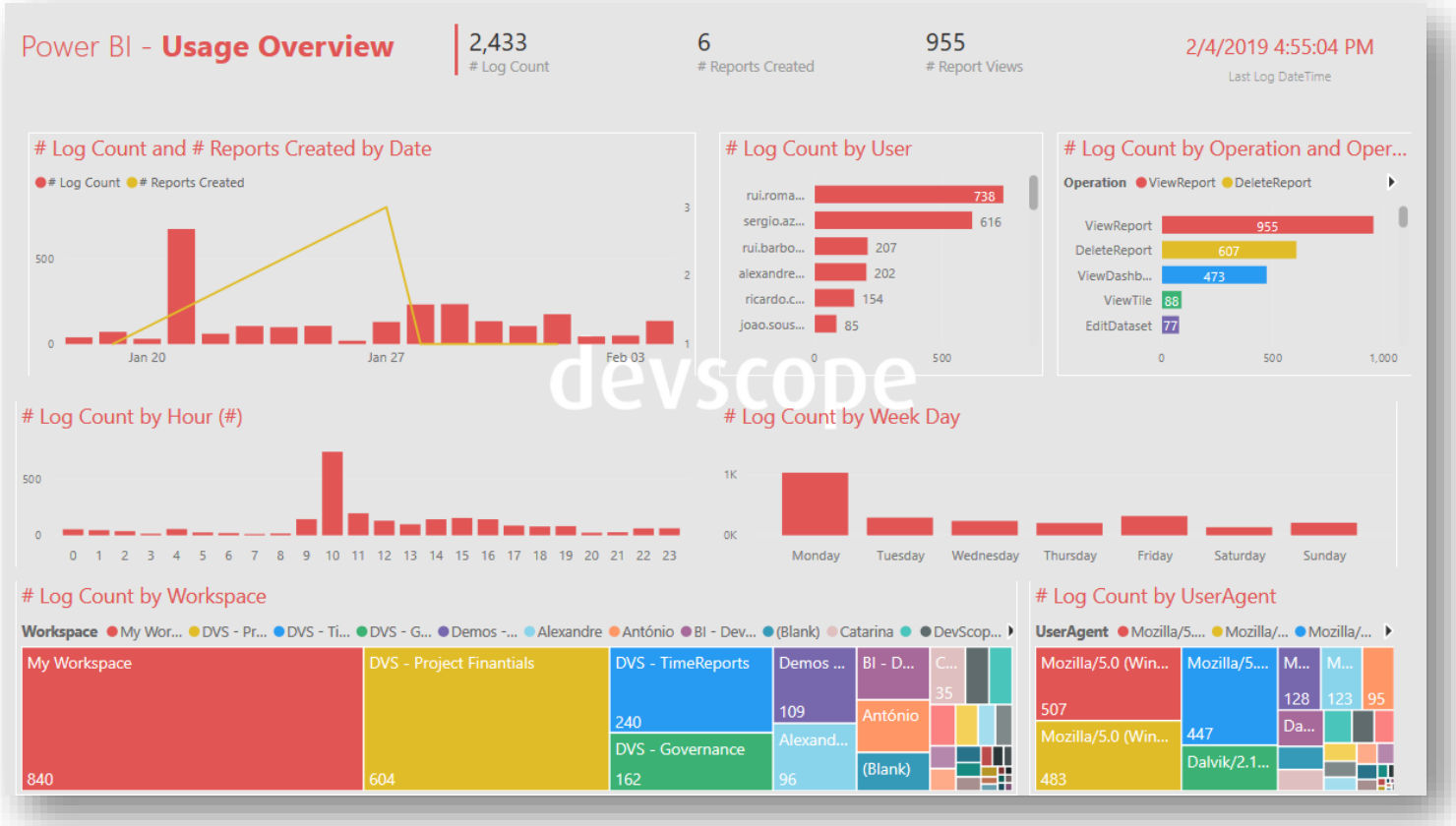
Tip – Governance on Power BI

Use the REST API & Audit Logs to get the Data

Monitor everything: personal included

Monitor datasources, usage, mobile usage, excel usage

Monitor No Activity

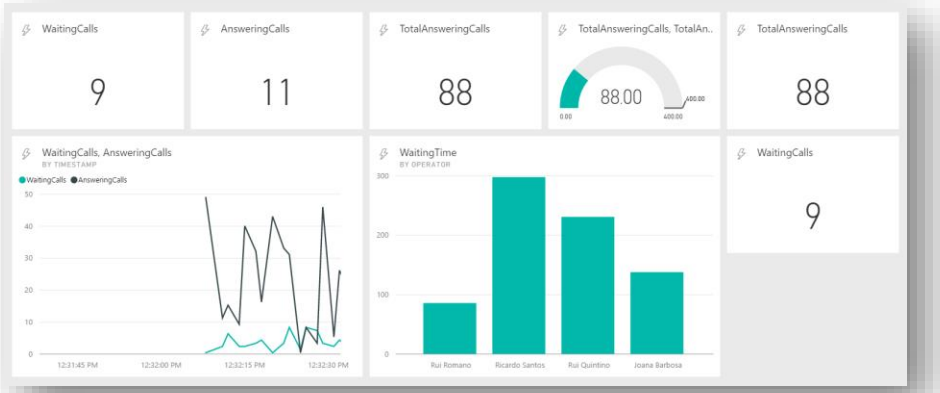


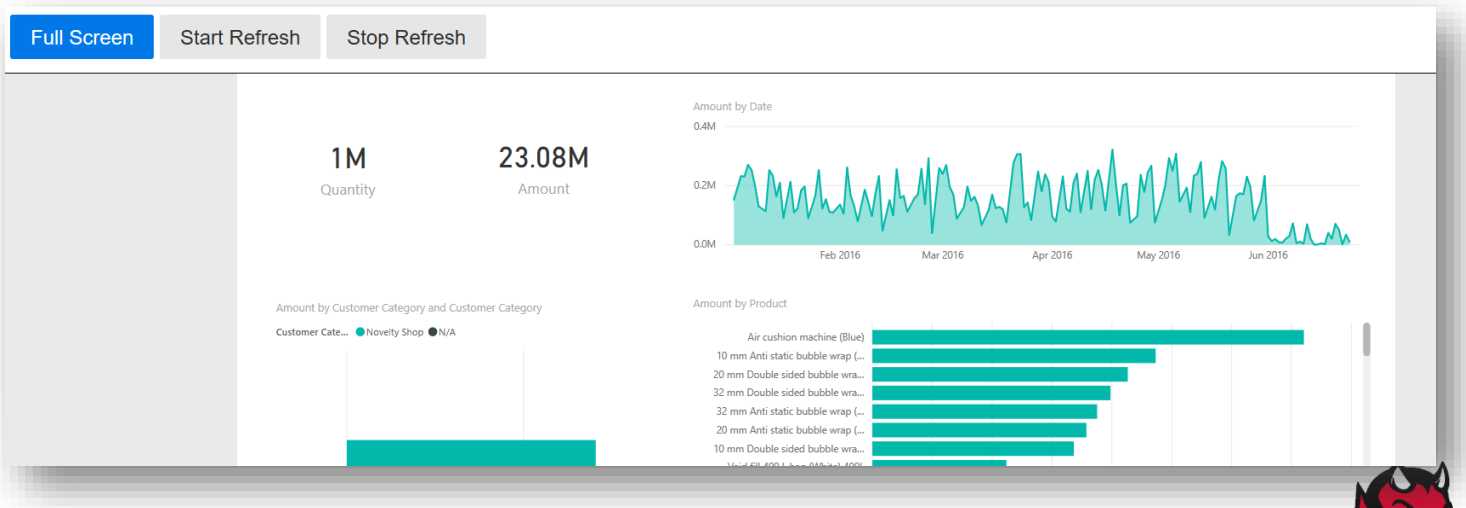
Hack – Power BI + Real Time!

Multiple ways => Choose the best for you!

1. Streaming DataSets => Quick w/ Low Effort (very fast…)
2. REST API => More Control (not so fast…)
3. DirectQuery/Live

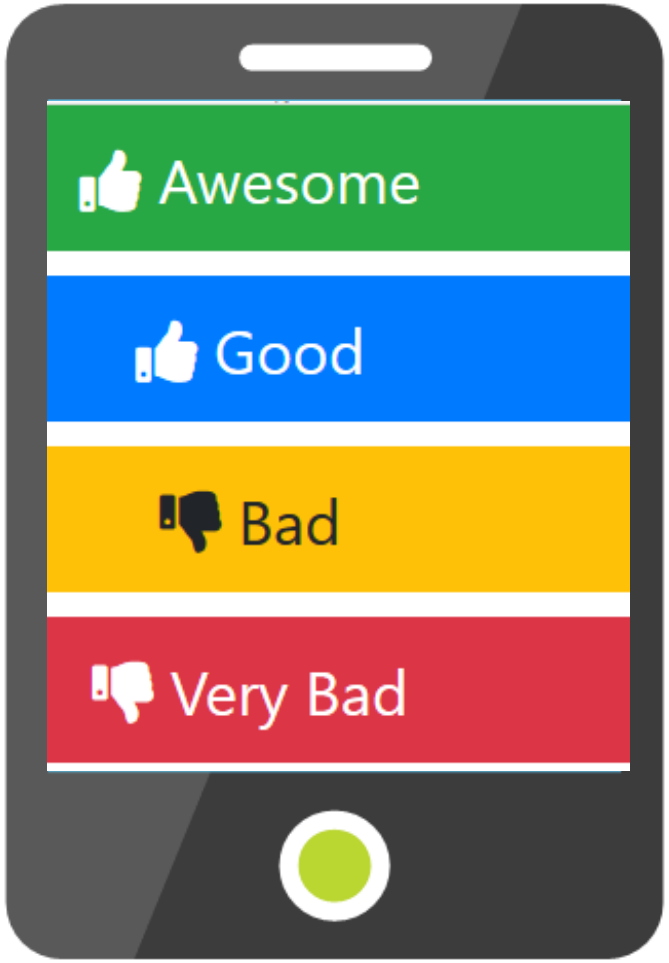
   Power BI Embedded (Ted Pattinson GitHub as sample)



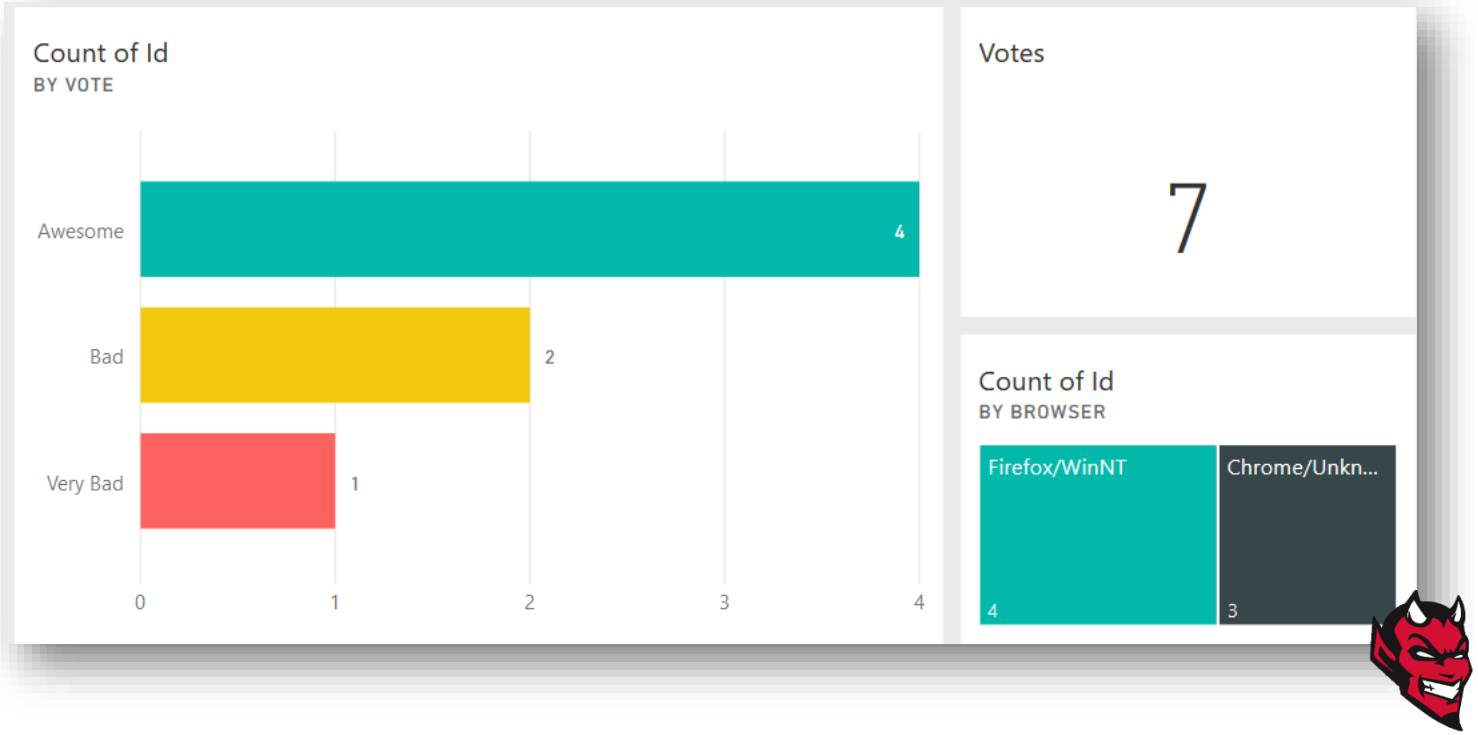


Learn more: link1, link2

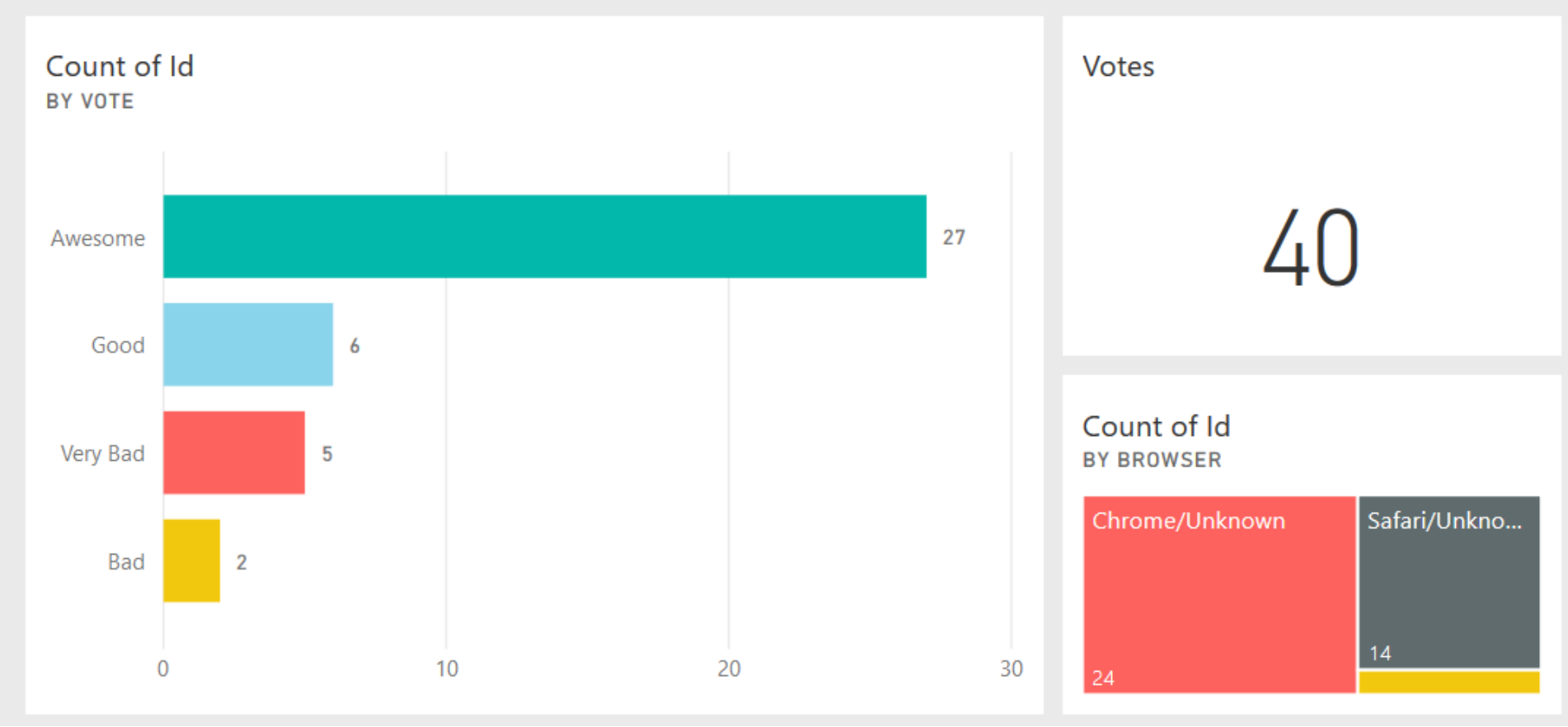
Tip – Real-Time Session Voting



https://tinyurl.com/pbivoting
https://bit.ly/2HVi5ej

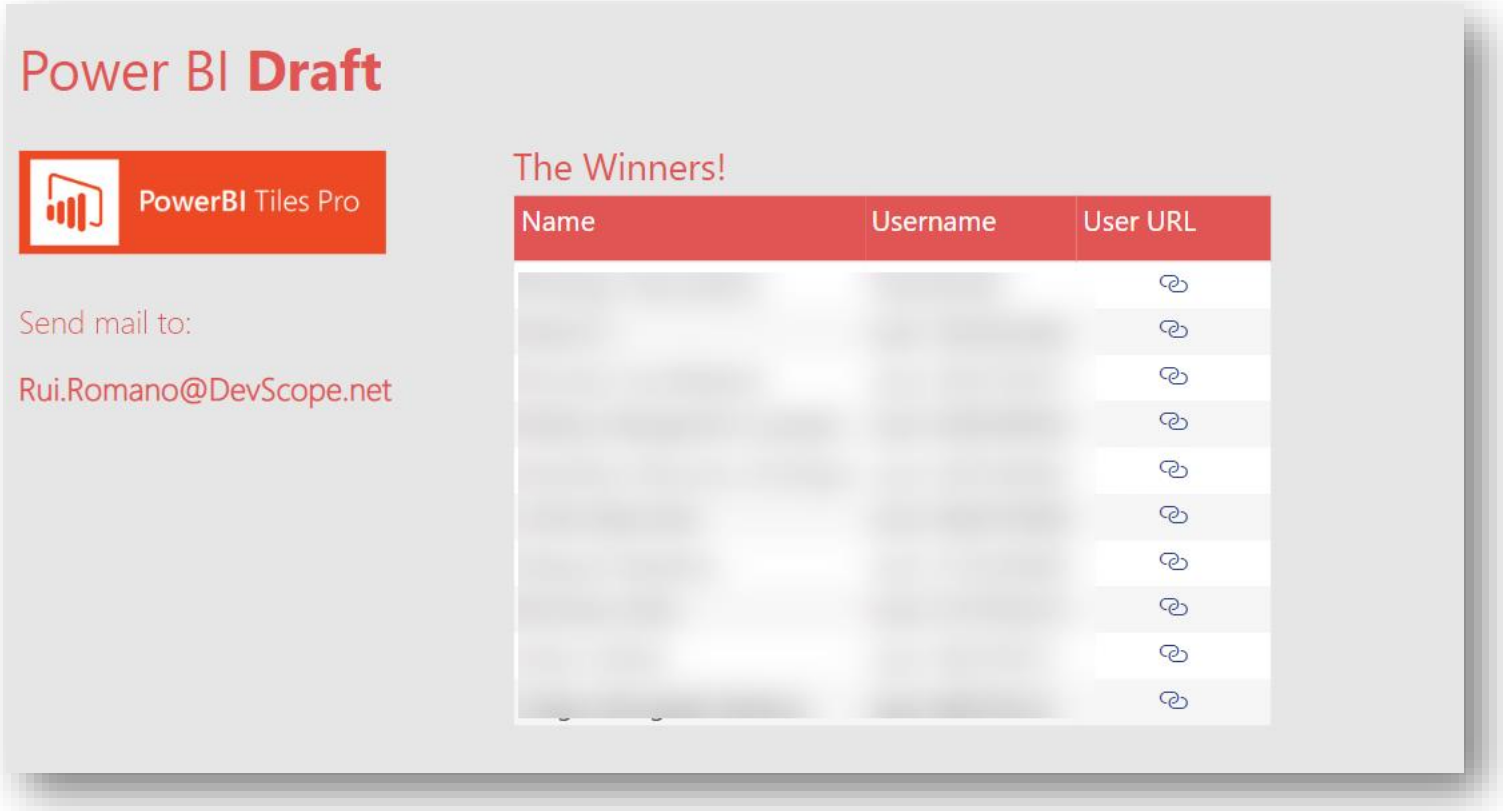


Session Votes – Thank You!



DevScope Offer

5 Licenses of Power BI Tiles PRO



Balancete

0	266 M	-266 M
Valor Lançamento	Valor Lançamento	Valor Lançamento

Filtrar por Num. Conta

Enter Field Values

Ex: SKU1, SKU2, SKU3

Ex:

SKU1

SKU2

SKU3

Empresa	Crédito	Débito	Total
Empresa 1	**57.752.384**	**-57.752.384**	**0**
Ativo - Curto prazo	**19.935.462**	**-21.744.672**	**-1.809.210**
Caixa e depósitos bancários	**17.014.708**	**-19.281.637**	**-2.266.929**
Caixa	2.209	-1.522	**687**
Caixa - Conta Transitoria - Atendimento	31.943	-24.845	**7.099**
Caixa - Conta Transitoria - Débito Directo	4.285.824	-3.098.263	**1.187.561**
Caixa - Conta Transitoria - SIBS/Multibanco	4.379.952	-3.161.572	**1.218.379**
Depósitos à Ordem	8.314.779	-9.195.434	**-880.655**
Outros Depósitos Bancários - STD C/N°23238238264			-3.800.000
Total	**265.965.387**	**-265.965.387**	**0**

Valor Lançamento (ytd) por Year, Quarter, Month e Tipo

January | February | March | April | May | June | July | August | September | October | November | December

05/02/2019

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Obrigado!

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