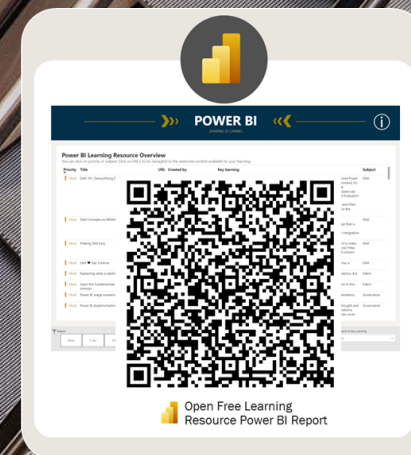
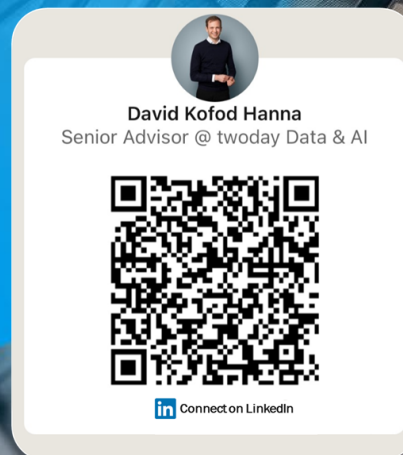
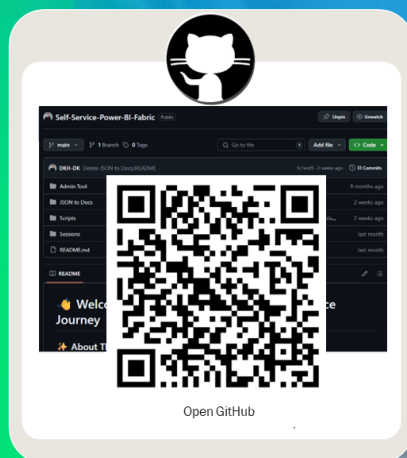


# A Power BI Documentation System

– Not Just an Afterthought

*BI Budapest Forum  
Nov-2025*

*Presented by  
David Kofod Hanna*



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# David Kofod Hanna



## Senior Advisor, Data Storytelling @ twoday

+200 courses as Academy Trainer and 10 years as consultant  
Microsoft Data Platform MVP, Certified Trainer in Microsoft and Tabular Editor



## Passionate about guiding self-service Power BI

developers for more enterprise manageable concepts in a consumable and practical way



## Born on beautiful “Sunshine island”: Bornholm

Lives in Denmark, Silkeborg with wife and 3 kids  
Love football and running half-marathons



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Who **loves** documentation?



Who **writes** documentation?



Who **updates** documentation?



Who **reads** documentation?



Who can **find** documentation?



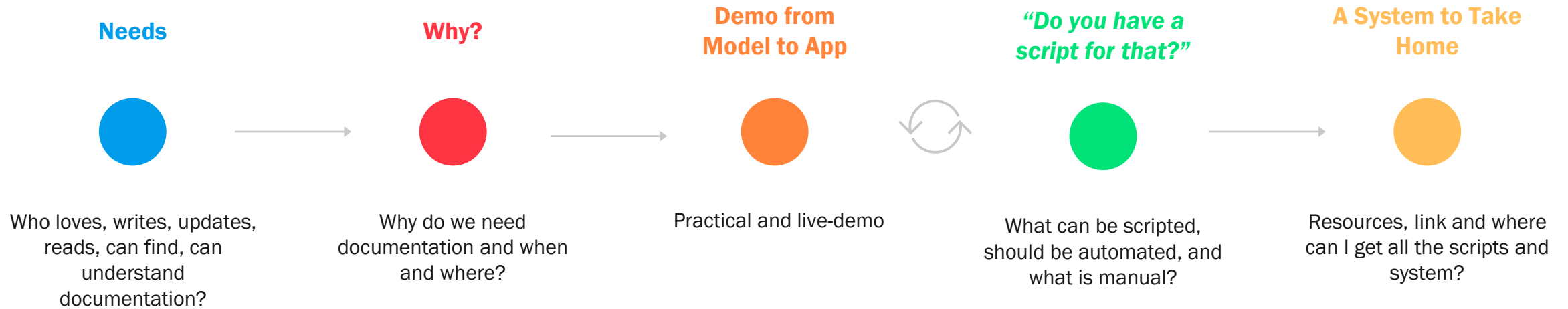


Who can **understand** documentation?

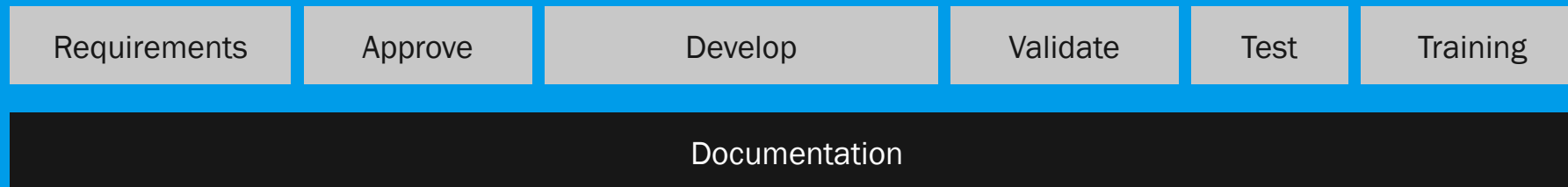


# A Power BI Documentation System

– Not Just an Afterthought



# Example of project



# Why documentation?

Transparency

Reproducibility

Collaboration

Compliance

Scalability

Easier debugging



**I CREATED 175 BOOKMARKS**

**AND NOW I'M LEAVING THE COMPANY...**

 Please write my  
documentation



*“You do not rise to the level of  
your **goals**, you fall to the  
level of your **systems**.”*

**- James Clear, Atomic Habits**

# Power BI Documentation System – from Model to App



Power Query  
{M}



Semantic  
Model



Power BI  
Desktop



App



## Purpose for docs:

*Clear, Concise,  
Complete, Consistent,  
Correct, Consumable*

Documentation and  
transparency from  
model to app

From report consumers  
to report developers to  
semantic model  
developers and data  
ingest

Best Practice Analyzer  
Rules to highlight  
violations and severity  
of best practices

Tabular Editor 2/3 for  
Semantic Model and  
DAX scripts

Semantic Link Labs in  
Fabric Notebooks for  
automation like never  
before



# Power BI Documentation System – from Model to App

■ Automated or Script   ■ Manual   ▭ Requires Fabric SKU



Power Query  
{M}



Semantic  
Model



Power BI  
Desktop



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■ Automated or Script   ■ Manual   [ ] Requires Fabric SKU



## Power Query {M}



## Semantic Model



## Power BI Desktop



## App



### Purpose for docs:

*Clear, Concise, Complete, Consistent, Correct, Consumable*

Documentation and transparency from model to app

From report consumers to report developers to semantic model developers and data ingest

Best Practice Analyzer Rules to highlight violations and severity of best practices

Tabular Editor 2/3 for Semantic Model and DAX scripts

Semantic Link Labs in Fabric Notebooks for automation like never before

# A Power BI Documentation System

– Not Just an Afterthought

**Released on  
GitHub  
and LinkedIn  
article**

#DocumentationCanBeFun

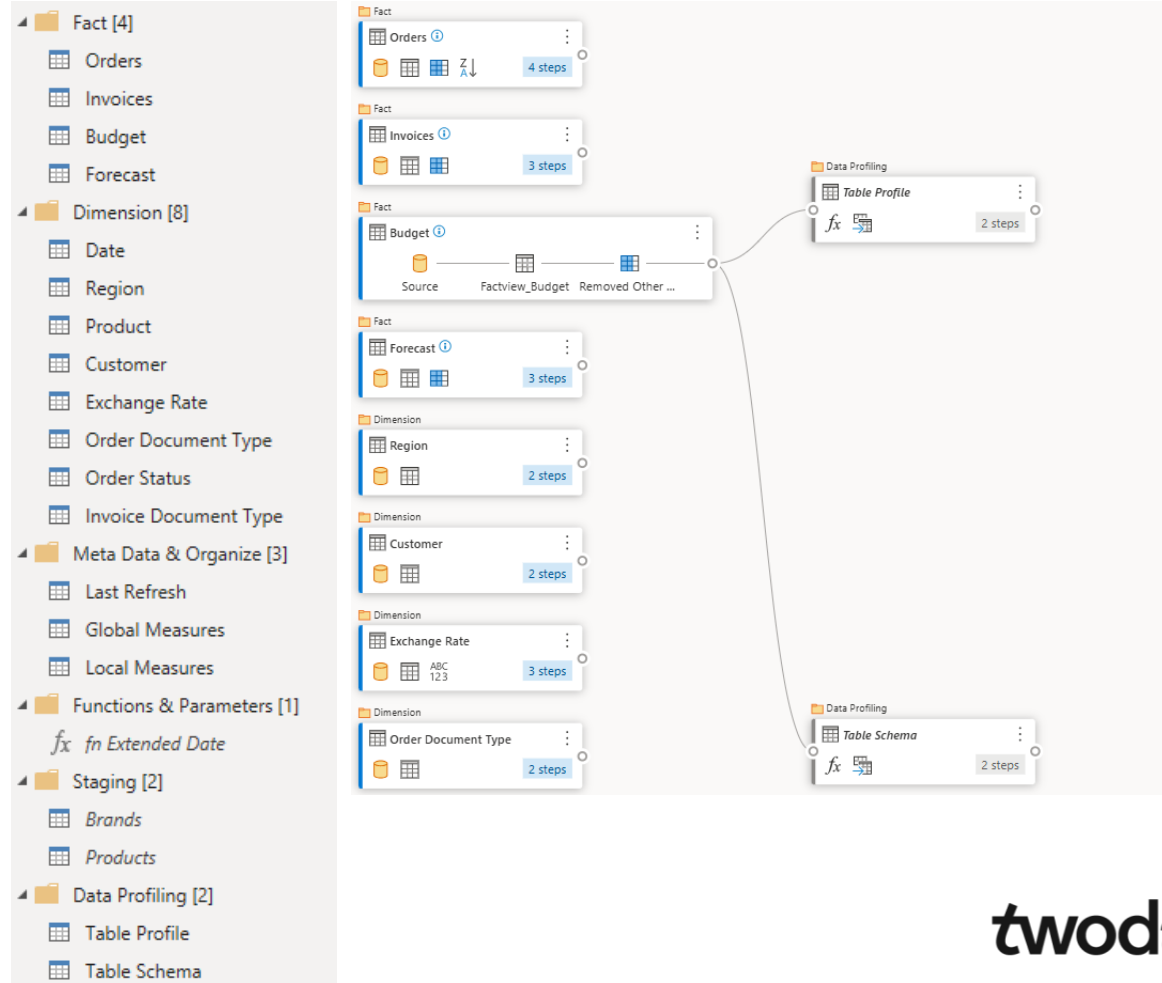
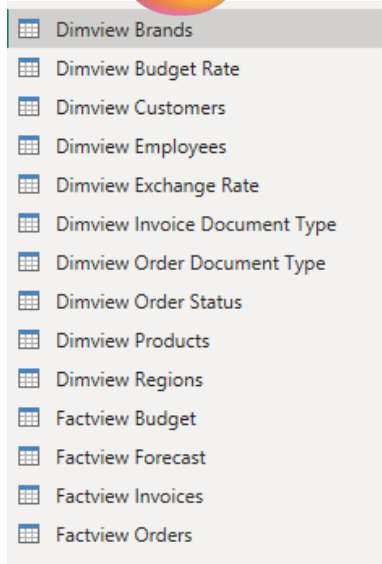
1. Create M Parameter	C# Script Source File
2. Create Global Measure Table	C# Script Source File
3. Create Last Refresh	C# Script Source File
4. Format Power Query (M)	C# Script Source File
5. Format DAX Measures	C# Script Source File
6. Measure DAX Expression as Description	C# Script Source File
7. Model Documentation DAX Script	TE3DAXS File
7. Model Documentation DAX	Text Document
8. Display Folders for Measures & Columns	C# Script Source File
9. Create Table Groups TE3	C# Script Source File
9. Table Groups in Power BI Desktop with INFO.VIEW DAX	File
9. Table Groups in Power BI Desktop with INFO.VIEW DAX Script	TE3DAXS File
10. Best Practice Analyzer Rules incl. John Kerski PQ Doc Rules	JSON Source File
11. Measure Dependency	DAX Query File
11. Model Issues	DAX Query File
11. Model Summary	DAX Query File
11. VertiPaq Column	DAX Query File
11. VertiPaq Memory Size	DAX Query File
11. VertiPaq Partition	DAX Query File
11. VertiPaq Relationship	DAX Query File
11. VertiPaq Table	DAX Query File
12. DKH Self-Service Report Theme - Raw Template	JSON Source File
12. JSON to Power BI Docs - Raw Template	Microsoft.MicrosoftPowerBIDesktop
13. Report Analysis Notebook - Michael Kovalsky	Jupyter Source File
14. Measure Maze Dependency Sandeep Pawar	Jupyter Source File
15. Design Document - Sample Fragment 01 - General and Scope - V0.1	Microsoft Word Document
15. Design Document - Sample Fragment 02 - Workflow Issues and Business Rules - V0.2	Microsoft Word Document
15. Design Document - Sample Fragment 03 - Data - V0.3	Microsoft Word Document
15. Design Document - Sample Fragment 04 - Reports - V0.4	Microsoft Word Document
MsBIP - Power BI Documentation System - David Kofod Hanna - May 2025	Microsoft PowerPoint Presentation



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# Query folders by type – and Diagram View in Dataflow Gen2





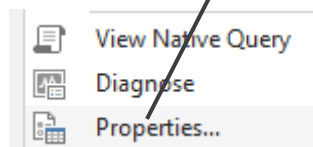
# Applied Steps & Properties in step



APPLIED STEPS	
Source	✳
Navigation	✳
Promoted Headers	✳
Changed Type	
Added Conditional Column	✳
Changed Type1	
Added Conditional Column1	✳
Added Conditional Column2	✳
Added Conditional Column3	✳
Changed Type2	
Inserted Sum	✳
Renamed Columns	
Merged Queries	✳
Expanded Accuracy Master	✳
Added Conditional Column4	✳
Changed Type3	
Filtered Rows	✳



APPLIED STEPS	
Source	✳
Navigation	✳
Promoted Headers	✳
Changed Type	
Filtered Rows on Nulls from Excel	✳
DQ Check Column: Firstname = Null	✳
DQ Check Column: Lastname = Null	✳
DQ Check Column: Mobilephone = Null	✳
DQ Check Column: e-Mail = Null	✳
DQ Check Column Sum of Nulls above	✳
Merged Queries Accuracy Master for c...	✳
Expanded Accuracy Master for clientna...	✳
DQ Check Column: Clientname = Client...	✳
Changed Type Wholenumber for DQ c...	



## My Standard:

**Filter as early** as possible (rows and columns)

**Combine similar steps** into one – instead of Changed Type1, Changed Type2, Changed Type3

**Rename steps** that are important for yourself or colleagues to understand

- Added Conditional Column
- Merge Queries
- Append Queries

Add more documentation for tooltip info at steps by right-clicking step and choose **Properties**– if you are needing more space than in the step name.

The **#"** in the steps can be avoided if you don't use space

**Query Folding** for SQL DB and OData connection and always **Roche's Maxim of Data Transformation**.





**Table properties** –  
add it once and see it  
everywhere

# Table properties – add it once and see it everywhere

Queries [22]

Dimension [8]

Customer

- Copy
- Paste
- Delete
- Rename
- Enable load
- Include in report refresh
- Duplicate
- Reference
- Move To Group
- Move Up
- Move Down
- Create Function...
- Convert To Parameter
- Advanced Editor
- Properties...

## In Power Query Editor

Queries [22]

Dimension [8]

Product

Customer

Ex From CRM, ERP and ServiceNow - combined and validated by Data Governance team

Order Document type

## In TMDL

Apply Preview

```
1 createOrReplace
2
3
4
5
6
7
8
9
10
11
12
```

```
/// From CRM, ERP and ServiceNow - combined and validated by Data Governance team
table Customer
  lineageTag: 726a20c4-ae07-450e-8d9f-e2b51dfa4e91

  column 'Customer Key'
    dataType: string
    isHidden
    isAvailableInMdx: false
    displayFolder: Key
```

## In Power BI Desktop

Name Customer

Storage mode Import

Data refreshed 5/16/2025, 8:06:53 PM

Description From CRM, ERP and ServiceNow - combined and validated by Data Governance team

Data

- > Units
- > User Configuration
- > Customer
- > Date

## In Dataflows in the service

From CRM, ERP and ServiceNow - combined and validated by Data Governance team

Customer

Source

Dimview\_Custom... Marked key colu...

## In INFO.VIEW DAX Functions

Model Documentation		Filter by keyword		Column	Measure	Relationship	Table
Location	Name	Type	Expression	Description			
Budget	Budget	Table	From IBM TMS				
Customer	Customer	Table	From CRM, ERP and ServiceNow - combined and validated by Data Governance team				
Date	Date	Table	Derived from Melissa de Korte Extended Date Function				
Exchange Rate	Exchange Rate	Table	From purchased source from web				
Global Measures	Global Measures	Table	Store Global measures from Semantic Model Developer				
Invoice Document Type	Invoice Document Type	Table	MS F&O				
Last Refresh	Last Refresh	Table	Last refresh of semantic model - not the underlying job and pipelines				
Local Measures	Local Measures	Table	Store Local Report Level Measures				
Order Document Type	Order Document Type	Table	MS F&O				
Order Status	Order Status	Table	MS F&O				

Query Properties

Name

Customer

Description

From CRM, ERP and ServiceNow - combined and validated by Data Governance team

☒ Enable load to report

☒ Include in report refresh

OK Cancel

## In OneLake catalog

Semantic model

Power BI Docs - System

Open

Overview Lineage Monitor Permissions

Location Power BI & Fabric Showcase

Refreshed 19/05/25, 13:35:28

Owner David Kofod Hanna

Tables

Name	Type	Description
> Customer	Table	From CRM, ERP and ServiceNow - combined and validated by ...
> Date	Table	Derived from Melissa de Korte Extended Date Function
> Exchange Rate	Table	From purchased source from web
> Global Measures	Table	Store Global measures from Semantic Model Developer



# Model Docs DAX INFO.VIEW



“There’s a script for that”

## Model Documentation

by INFO.VIEW Functions

Filter by keyword



Column

Measure

Relationship

Table

Location	Name	Type	Expression	Description
Global Measures	Global Measures	Measure	"Locate them here my semantic model developer friend"	
Global Measures	Sum of Delivery Cost	Measure	SUM('Invoices'[Delivery Cost])	This measure is the sum of column 'Invoices'[Delivery Cost]
Global Measures	Sum of Forecast (EUR)	Measure	SUM('Forecast'[Forecast (EUR)])	This measure is the sum of column 'Forecast'[Forecast (EUR)]
Global Measures	Sum of Freight	Measure	SUM('Invoices'[Freight])	This measure is the sum of column 'Invoices'[Freight]
Global Measures	Sum of Late Delivery Penalti...	Measure	SUM('Invoices'[Late Delivery Penalties])	This measure is the sum of column 'Invoices'[Late Delivery Penalties]
Global Measures	Sum of Net Invoice COGS	Measure	SUM('Invoices'[Net Invoice COGS])	This measure is the sum of column 'Invoices'[Net Invoice COGS]
Global Measures	Sum of Net Invoice Cost	Measure	SUM('Invoices'[Net Invoice Cost])	This measure is the sum of column 'Invoices'[Net Invoice Cost]
Global Measures	Sum of Net Invoice Quantity	Measure	SUM('Invoices'[Net Invoice Quantity])	This measure is the sum of column 'Invoices'[Net Invoice Quantity]
Global Measures	Sum of Net Invoice Value	Measure	SUM('Invoices'[Net Invoice Value])	This measure is the sum of column 'Invoices'[Net Invoice Value]
Global Measures	Sum of Net Order Quantity	Measure	SUM('Orders'[Net Order Quantity])	This measure is the sum of column 'Orders'[Net Order Quantity]
Global Measures	Sum of Net Order Value	Measure	SUM('Orders'[Net Order Value])	This measure is the sum of column 'Orders'[Net Order Value]
Global Measures	Sum of Total Budget	Measure	SUM('Budget'[Total Budget])	This measure is the sum of column 'Budget'[Total Budget]
Local Measures	Local Measures	Measure	"Locate them here my report developer friend"	
Table Group DAX	Number of tables	Measure	COUNTROWS('Table Group DAX')	



**INFO.VIEW DAX Functions make this possible**

INFO.VIEW.COLUMNS()

INFO.VIEW.MEASURES()

INFO.VIEW.TABLES()

INFO.VIEW.RELATIONSHIPS()

```
1 Model Documentation =
2 VAR _columns =
3     SELECTCOLUMNS(
4         FILTER(
5             INFO.VIEW.COLUMNS( ),
6             [Table] <> "Model Documentation" && NOT ( [IsHidden] )
7         ),
8         "Type", "Column",
9         "Name", [Name],
10        "Description", [Description],
11        "Location", [Table],
12        "Expression", [Expression]
13    )
14 VAR _measures =
15     SELECTCOLUMNS(
16         FILTER(
17             INFO.VIEW.MEASURES( ),
18             [Table] <> "Model Documentation" && NOT ( [IsHidden] )
19         ),
20         "Type", "Measure",
21         "Name", [Name],
22         "Description", [Description],
23         "Location", [Table],
24         "Expression", [Expression]
25    )
26 VAR _tables =
27     SELECTCOLUMNS(
28         FILTER(
29             INFO.VIEW.TABLES( ),
30             [Name] <> "Model Documentation" && [Name] <> "Calculations"
31             && NOT ( [IsHidden] )
32         ),
33         "Type", "Table",
34         "Name", [Name],
35         "Description", [Description],
36         "Location", BLANK( ),
37         "Expression", [Expression]
38    )
39 VAR _relationships =
40     SELECTCOLUMNS(
41         INFO.VIEW.RELATIONSHIPS( ),
42         "Type", "Relationship",
43         "Name", [Relationship],
44         "Description", BLANK( ),
45         "Location", BLANK( ),
46         "Expression", [Relationship]
47    )
48 RETURN
49 UNION( _columns, _measures, _tables, _relationships )
```

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# Display folders for columns



Factview Invoices
Billing Date
Σ Billing Document Line Item Number
Σ Billing Document Number
Billing Document Type Code
Customer Key
Σ Delivery Cost
DWCreatedDate
Σ Freight
Σ Late Delivery Penalties
Local Currency
Σ Net Invoice COGS
Σ Net Invoice Cost
Σ Net Invoice Quantity
Σ Net Invoice Value
OTD Indicator
Σ Overdue Payment Penalties
Product Key
Ship Date
Σ Taxes & Commercial Fees



Invoices	
> Attributes	
> Dates	
> Flags	
> Key	
> Numeric	



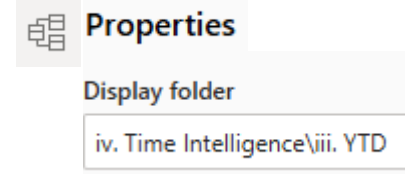
“There’s a script for that”

```
//Go through each table in the model
foreach(var table in Model.Tables)
{
    if(table.Name != "Date"){
        //First look at columns
        foreach( var column in table.Columns)
        {
            var keySuffix = "Key";
            var columnDataType = column.DataType.ToString();
            //DWCreatedDate column should be hidden in a separte folder
            if( column.Name == "DWCreatedDate")
            {
                column.DisplayFolder = "Attributes\\Metadata";
                column.IsHidden = true;
            }
            //Numeric columns should not be aggregated and float (double) data type should not be used
            if(column.DataType == DataType.Double || column.DataType == DataType.Decimal || column.DataType == DataType.Int64)
            {
                column.DisplayFolder = "Numeric";
                column.SummarizeBy = AggregateFunction.None;
                if(column.DataType == DataType.Double)
                {
                    column.DataType = DataType.Decimal;
                }
            }
            //Boolean data types into their own folder
            if(column.DataType == DataType.Boolean)
            {
                column.DisplayFolder = "Flags";
            }
            if(column.DataType == DataType.String)
            {
                column.DisplayFolder = "Attributes";
            }
            //Keys go into their own display folder, should not be aggregated and hidden.
            if(column.UsedInRelationships.Any())
            {
                column.DisplayFolder = "Key";
                column.SummarizeBy = AggregateFunction.None;
                column.IsHidden = true;
            }
            //Date keys get their own folder and other dates go in attributes
            if( column.DataType == "DateTime" && column.Name != "DWCreatedDate")
            {
                if(column.UsedInRelationships.Any())
                {
                    column.DisplayFolder = "Key";
                    column.IsHidden = true;
                }
                else{
                    column.DisplayFolder = "Dates";
                }
            }
        }
    }
}
```

# Display folders in Global and Local Measure Groups



To create subfolder use \

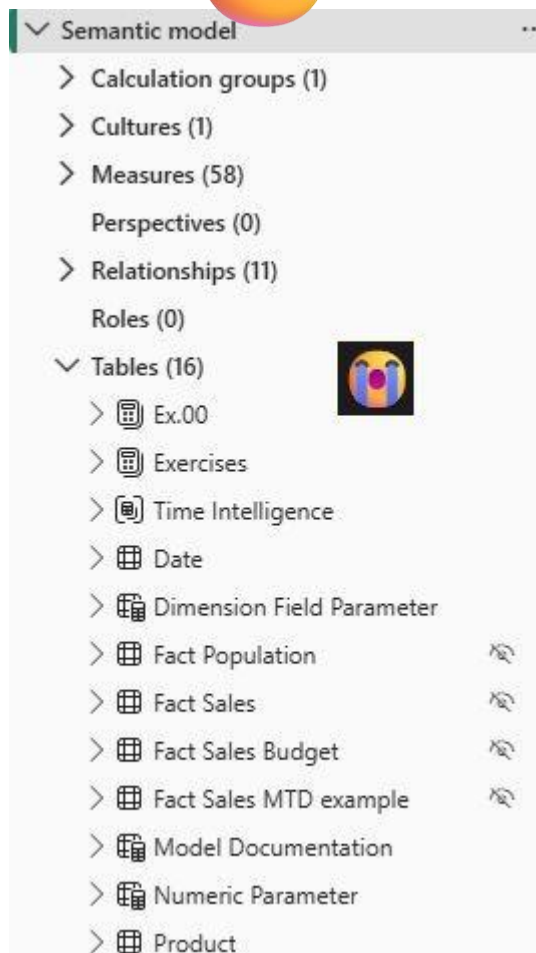


To order folders by ...

Number	Roman Numeral
1	i
2	ii
3	iii
4	iv
5	v
6	vi
7	vii
8	viii
9	ix
10	x

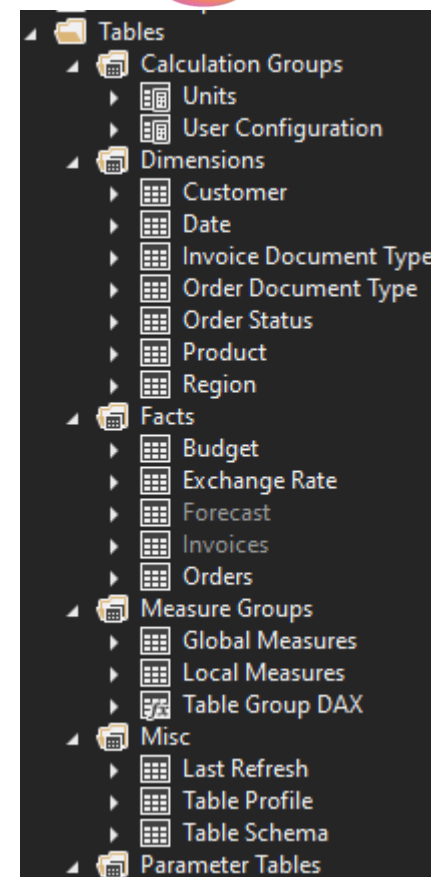


# Table Groups in Tabular Editor 3



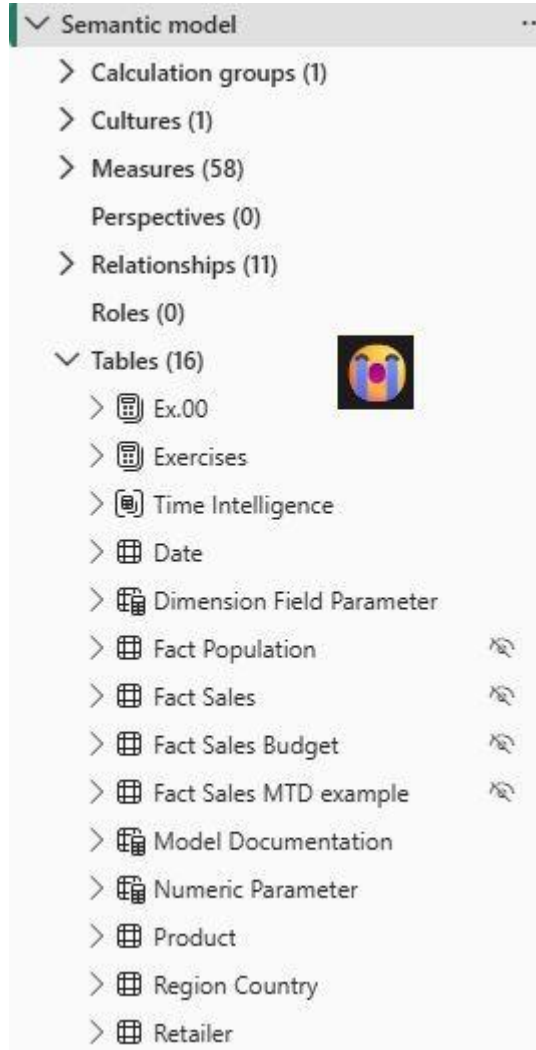
"There's a script for that"

```
// ***** CREATE TABLE GROUPS *****  
  
// Loop through all tables in the model:  
foreach (var table in Model.Tables)  
{  
    if (table is CalculationGroupTable)  
    {  
        // Assign table group for calculation groups:  
        table.TableGroup = "Calculation Groups";  
    }  
    else if (!table.UsedInRelationships.Any() && table.Measures.Any(m => m.IsVisible))  
    {  
        // Tables containing visible measures, but no relationships to other tables:  
        table.TableGroup = "Measure Groups";  
    }  
    else if (table.UsedInRelationships.All(r => r.FromTable == table) && table.UsedInRelationships.Any())  
    {  
        // Tables exclusively on the "many" side of relationships:  
        table.TableGroup = "Facts";  
    }  
    else if (!table.UsedInRelationships.Any() && table is CalculatedTable && !table.Measures.Any())  
    {  
        // Tables without any relationships that are calculated tables  
        // and do not have measures:  
        table.TableGroup = "Parameter Tables";  
    }  
    else if (table.UsedInRelationships.Any(r => r.ToTable == table))  
    {  
        // Tables on the "one" side of relationships:  
        table.TableGroup = "Dimensions";  
    }  
    else  
    {  
        // All other tables:  
        table.TableGroup = "Misc";  
    }  
}
```



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# Table Group in Power BI Desktop with INFO.VIEW



“There’s a script for that”

Description	Type	Order	Table Name
Classified as Measure Group	Measure Group	1	Exercises
Classified as Measure Group	Measure Group	1	Ex.00
Fact with many-side relationship	Fact	2	Fact Sales
Fact with many-side relationship	Fact	2	Fact Sales Budget
Fact with many-side relationship	Fact	2	Fact Population
Fact with many-side relationship	Fact	2	Fact Sales MTD example
Dimension with one-side relationship	Dimension	3	Sales Size
Dimension with one-side relationship	Dimension	3	Retailer
Dimension with one-side relationship	Dimension	3	Product
Dimension with one-side relationship	Dimension	3	Date
Dimension with one-side relationship	Dimension	3	Region Country
Dynamic calculation items	Calculation Group	4	Time Intelligence
Dynamic switch between measure or attributes	Field Parameters	5	Dimension Field Parameter
Dynamic slider for end users to select	Numeric Parameter	6	Parameter
Documentation with INFO.VIEW functions	Model Documentation	7	Model Documentation

## Semantic Model Information

### Table Groups in Power BI Desktop

Using INFO.VIEW DAX Functions & some creativity

Type	Number of tables
<b>Calculation Group</b>	<b>1</b>
User Configuration	1
<b>Dimension</b>	<b>7</b>
Customer	1
Date	1
Invoice Document Type	1
Order Document Type	1
Order Status	1
Product	1
Region	1
<b>Fact</b>	<b>6</b>
Budget	1
Customer	1
Exchange Rate	1
Forecast	1
Invoices	1
Orders	1
<b>Measure Group</b>	<b>6</b>
Global Measures	1
Last Refresh	1
Local Measures	1
Table Profile	1
Table Schema	1
Units	1
<b>Total</b>	<b>21</b>

Calculation Group	Dimension	Fact	Measure Group	Model Document...
-------------------	-----------	------	---------------	-------------------

### Rule Specifications

#### ① Measure Group

An “empty” table to store my measures

If not below tables, no relationships, hidden columns, visible measure

#### ② Fact

Fact table with many-side relationship \*->1

SELECTCOLUMNS ( INFO.VIEW.RELATIONSHIPS(), Table name from [FromTable] )

#### ③ Dimension

Dimension table with one-side relationships 1->\*

SELECTCOLUMNS ( INFO.VIEW.RELATIONSHIPS(), Table name from [ToTable] )

#### ④ Calculation Group

Dynamic calculation items with SELECTEDMEASURE()

IF ( INFO.VIEW.TABLES() [CalculationGroupPrecedence] >= 1 )

#### ⑤ Field Parameter

Dynamic switch between measure or attributes

IF ( INFO.VIEW.TABLES() CONTAINSSTRING([Expression], "NAMEOF") )

#### ⑥ Numeric Parameter

Dynamic slider for end users to select

IF ( INFO.VIEW.TABLES() CONTAINSSTRING([Expression], "GENERATE") )

#### ⑦ Model Documentation

Documentation with INFO.VIEW functions

IF ( INFO.VIEW.TABLES() CONTAINSSTRING([Expression], "INFO.VIEW") )

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# DAX Query View for testing



## DAX Query View

DAX queries will be saved to your model. They won't be visible when published in the Power BI service. [Learn more](#)

Run Update model with changes (0)

```
1 // Author - Hariharan Rajendran
2 // Name - Model Summary in DAX Query View
3 // Version - 1.0
4 // Contact - https://www.linkedin.com/in/hariharan/
5 // This query will provide details about your model like property, value and comment to execute the DAX query to see the complete list
6 // Define the properties
7 EVALUATE
8 VAR _tableCount = COUNTROWS(INFO.TABLES())
9 VAR _columnCount = COUNTROWS(INFO.COLUMNS())
10 VAR _calcColumnCount = COUNTROWS(FILTER(
11     INFO.COLUMNS(),
12     [Type] = 2
13 ))
14 VAR _measures = COUNTROWS(INFO.MEASURES())
15 VAR _relationships = COUNTROWS(INFO.RELATIONSHIPS())
16 VAR _composite = IF(
17     COUNTROWS(SUPPRESS(
18         INFO.VIEW.TABLES(),
19         [StorageNode]
20     )) > 1,
21     "Yes",
22     "No"
23 )
24 VAR _daxTables = COUNTROWS(FILTER(
```

### Model Summary

	[Property]	[Value]	[Comment]
1	Tables	21	EVALUATE INFO.TABLES()
2	Columns	197	EVALUATE INFO.COLUMN...
3	--CalculatedColumns	0	EVALUATE FILTER(INFO....
4	--DirectColumns	197	EVALUATE FILTER(INFO....
5	Measures	17	EVALUATE INFO.MEASU...
6	Relationships	13	EVALUATE INFO.RELATI...
7	IsCompositeModel	No	EVALUATE INFO.VIEW.T...
8	DAXTables	2	EVALUATE FILTER(INFO....
9	IsPartitioned	No	EVALUATE FILTER(INFO....
10	Perspectives	0	EVALUATE FILTER(INFO....
11	Calculation Groups	2	EVALUATE FILTER(INFO....
12	Roles	0	EVALUATE FILTER(INFO....
13	PBIDesktopVersion	2.142.1277.0 (25.04)+014fde45...	EVALUATE FILTER(INFO....

### Model Issues

	[Property]	[Value]	[Comment]	[Status]
1	Is Partition Required?	Yes	EVALUATE VAR _dt_parti...	Fail
2	Dedicated Date Table	No	EVALUATE FILTER(INFO....	Fail
3	Is there any Redundant Columns	Yes	EVALUATE FILTER(GROU...	Fail
4	Are descriptions added?	No	EVALUATE FILTER(INFO....	Fail
5	Calculated Columns		EVALUATE FILTER(INFO....	Pass
6	Local Date Tables (Auto Time Intelligence)	0	EVALUATE FILTER(INFO....	Pass
7	In Active Relationships	0	EVALUATE FILTER(INFO....	Pass
8	Bi-directional Relationships	0	EVALUATE FILTER(INFO....	Pass
9	Many to Many Relationships	0	EVALUATE FILTER(INFO....	Pass

### Measure Dependency

	[MeasureName]	[Expression]	[SourceMeasure]	[SourceExpression]	[Type]	[ReferenceTable]	[ReferenceObject]
1	Net Invoice Value YTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	TABLE	Invoices	Invoices
2	Net Invoice Value YTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	COLUMN	Invoices	Net Invoice Value
3	Net Invoice Value MTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	TABLE	Invoices	Invoices
4	Net Invoice Value MTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	COLUMN	Invoices	Net Invoice Value
5	Net Invoice Value QTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	TABLE	Invoices	Invoices
6	Net Invoice Value QTD	CALCULATE([Sum of Ne...	Sum of Net Invoice Value	SUM('Invoices'[Net Invo...	COLUMN	Invoices	Net Invoice Value
7	Number of tables	COUNTROWS('Table Gr...			CALC_TABLE	Table Group DAX	Table Group DAX
8	Sum of Total Budget	SUM('Budget'[Total Bud...			TABLE	Budget	Budget
9	Sum of Total Budget	SUM('Budget'[Total Bud...			COLUMN	Budget	Total Budget
10	Sum of Net Order Quan...	SUM('Orders'[Net Order...			TABLE	Orders	Orders

### VertiPaq Memory Size

	[Size in MB]
1	1017.25

Visible in .PBIP and for easy copy/paste

System.SemanticModel > DAXQueries >

.pbi	File folder
DAXQueries	DAX Query File
.platform	DAX Query File
definition.pbism	DAX Query File
diagramLayout	DAX Query File
model	DAX Query File
Measure Dependency	DAX Query File
Model Issues	DAX Query File
Model Summary	DAX Query File
VertiPaq Columns	DAX Query File
VertiPaq Memory Size	DAX Query File
VertiPaq Partitions	DAX Query File
VertiPaq Relationships	DAX Query File
VertiPaq Table	DAX Query File



# Run DAX Query and save as delta table in Lakehouse 🤖

## DAX Query x Semantic Link Labs x DAX INFO Functions

Purpose of notebook is to collect, analyze and store semantic model INFO functions and DAX Queries in a Lakehouse and share with semantic model or report owners or **"crazy solution documenters"**

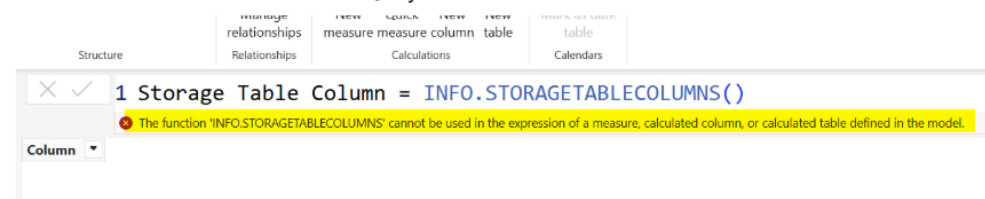
This can be run in a Python notebook

### Credit to following

- Michael Kovalsky - Semantic Link Labs
- List of all DAX INFO functions
- Fourmoo on Python Notebook advantages vs spark notebooks
- Hariharan Rajendran's DAX Query on Models Issues and Model Summary
- Power BI Tips on Save to Delta table with Python
- Reza Rad's take on Power BI model analysis using DAX INFO functions
- David Kofod Hanna's GitHub on Power BI Documentation System

If you feel frustrated like me, not all DAX Info functions can be used like INFO.VIEW functions by adding a calculated DAX table.

Then we have been forced to use DAX Query View.



Save your frustration, because I found a way to store DAX Query results back to a lakehouse 🤖

### Manual DAX Query

```
In [ ]: # Define DAX Query to execute
dax_query = """
EVALUATE
INFO.TABLES()
"""

In [ ]: # Run DAX Query against Semantic Model
df_result_manual = fabric.evaluate_dax(
    dataset=SemanticModelName,
    dax_string=dax_query,
    workspace=WorkspaceName
)

# Display the result
display(df_result_manual)

In [ ]: labs.save_as_delta_table(
    dataframe=df_result_manual,
    delta_table_name="daxquery",
    write_mode="overwrite", # or "append" based on your requirement
    merge_schema=False, # Set to True if you want to merge schema
    schema=None, # Provide schema if needed
    lakehouse=LakehouseName,
    workspace=None
)
```

### Automated DAX Query loop and save to delta table

```
In [ ]: # Defining DF of all INFO DAX Functions and descriptions

dataDAX = [
    ("INFO.ALTERNATEOFDEFINITIONS()", ""),
    ("INFO.ANNOTATIONS()", "Returns a list of all annotations in t"),
    ("INFO.ATTRIBUTEHIERARCHIES()", "Represents the TMSchema_Attr"),
    ("INFO.ATTRIBUTEHIERARCHYSTORAGES()", ""),
    ...
]
```



# JSON Report Theme – For the Nerdy Data Storytellers

Home / JSON to Power BI

## JSON Report Theme to Power BI

Power BI custom report themes provide granular control over many aspects of a report theme. It's crucial to build a solid, documented and adopted in an organization for consistency and efficiency.

### Theme colors in Power BI

Power BI's data color system lets you define up to 8 colors that map directly to your data points. Along with these colors, Power BI automatically generates 5 different shades of each color that can be dynamically applied throughout the file.

### KPI & Divergent Colors

These properties set the status colors used by the waterfall chart and the KPI visual or set the various gradient colors in the conditional formatting dialog box.

Use them to refer in conditional formatting measures where you can simply in the measure, instead of hard-coding a HEX, use "good", "neutral", "bad", "minimum" or "maximum"

### Structural Colors

These color classes set the structural colors for elements in the report, such as axis gridlines, highlight colors, and background colors for visual elements.

Try yourself?  
Download at [GitHub](#)

Active Report Theme:  
DKH Self-Service Report Theme

Theme Colors 1-8  
For data visualization

Theme	HEX	ID
	#367cff	1
	#fa8100	2
	#6cc6cb	3
	#aa77dd	4
	#d14576	5
	#b26d6d	6
	#8b9fd4	7
	#eae5c9	8

Learn more

Remember to think of brand guidelines together with enough categorical values along side thinking contrast and call-to-action and WCAG and color-blindness.

KPI Colors  
For KPI performance status context

KPI	HEX	Property
	#37a78f	Good
	#f2f2f2	Neutral
	#a74d37	Bad

Learn more

Example measure diff Color =  
IF (  
[Revenue LY %] > 0,  
"good",  
"bad"  
)

Divergent Min & Max Colors  
For divergent heat map

Divergent	HEX	Property
	#fa8100	Minimum
	#f2f2f2	Center
	#367cff	Maximum
		Null

Learn more

Structural Colors  
Non-data ink for colors except the data colors

Structural	HEX	Property
	#485257	Background
	#f1f3f4	BackgroundLight
	#f1f3f4	BackgroundNeutral
	#485257	Foreground
	#485257	ForegroundNeutralSecondary
	#606e74	ForegroundNeutralTertiary
		Hyperlink
	#e6e6e6	TableAccent
		Visited Hyperlink

Learn more

Any formatting elements that aren't included in the JSON file revert to their default values and settings.

Visual Styles

15 of 52 visual styles defined in theme

Visual

Object

--

Image	VisualStyleAttribute	Defined in JSON Theme	Type
	textbox	textbox	Object
	tableEx	tableEx	Visual
	slicer	slicer	Visual
	shape	shape	Object
	report	report	Object
	pivotTable	pivotTable	Visual
	pageNavigator	pageNavigator	Object
	page	page	Object
	multiRowCard	multiRowCard	Visual
	kpi	kpi	Visual
	image	image	Object
	cardVisual	cardVisual	Visual
	bookmarkNavigator	bookmarkNavigator	Object
	advancedSlicerVisual	advancedSlicerVisual	Visual
	actionButton	actionButton	Object
	aiNarratives		Visual
	areaChart		Visual
	azureMap		Visual
	barChart		Visual
	card		Visual
	clusteredBarChart		Visual
	clusteredColumnChart		Visual
	columnChart		Visual
	decompositionTreeVisual		Visual
	donutChart		Visual
	filledMap		Visual
	filter		Object
	funnel		Visual
	gauge		Visual
	group		Object
	hundredPercentStackedAreaChart		Visual
	hundredPercentStackedBarChart		Visual
	hundredPercentStackedColumnChart		Visual

Be aware of the new preview visuals as the report theme schema can change more often on these.

Recommendation:

Set Visual Styles for frequently used visuals like

- Card New Visual
- Matrix
- Table
- Line chart
- Column chart
- Bar chart
- Slicer
- Action button
- Page Navigator

Attribute

Property

Value

Filter by keyword →

All

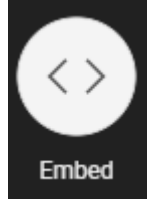
Filter by keyword →

Detail Properties of Visual Styles in Your JSON Theme

Click on a Visual Style to filter

Image	Name	Attribute	Property	Value
	bookmarkNavigator	Sid	fill	selected
			shape	default
			Text	selected
			border	Color
			bottom	*
			color	Border
			fillColor	fill
			fontColor	Text
			fontFamily	Text
			fontSize	Text
			left	*
			radius	Border
			right	*
			roundEdge	shape
			show	Border
				fill
				Outline
			tileShape	shape

## Embed videos

A screenshot showing a YouTube video player on the left and an "Embed Video" dialog on the right. The video player shows a scene from a medieval period with a man and a woman, and a candle. The "Embed Video" dialog displays the following HTML code:

```
<iframe width="560" height="315"
src="https://www.youtube.com/embed/
pQHx-SjgQvQ?si=n2JMTj9g4Hi0fptp"
title="YouTube video player"
frameborder="0"
allow="accelerometer; autoplay;
clipboard-write; encrypted-media;
gyroscope; picture-in-picture; web-
share" referrerpolicy="strict-
origin-when-cross-origin"
allowfullscreen></iframe>
```

Below the code is a checkbox labeled "Start at 0:01". At the bottom of the dialog, it says "EMBED OPTIONS" and "Copy".

Helpdesk support back in the day of the middle age



### New link

To include a link to an item or website, enter the URL.

\* required fields

Link name \*

Medieval Help Desk

URL address \*

[https://www.youtube.com/embed/pQHx-S](https://www.youtube.com/embed/pQHx-SjgQvQ?si=n2JMTj9g4Hi0fptp)

Include https:// at the beginning of the URL

Link behavior

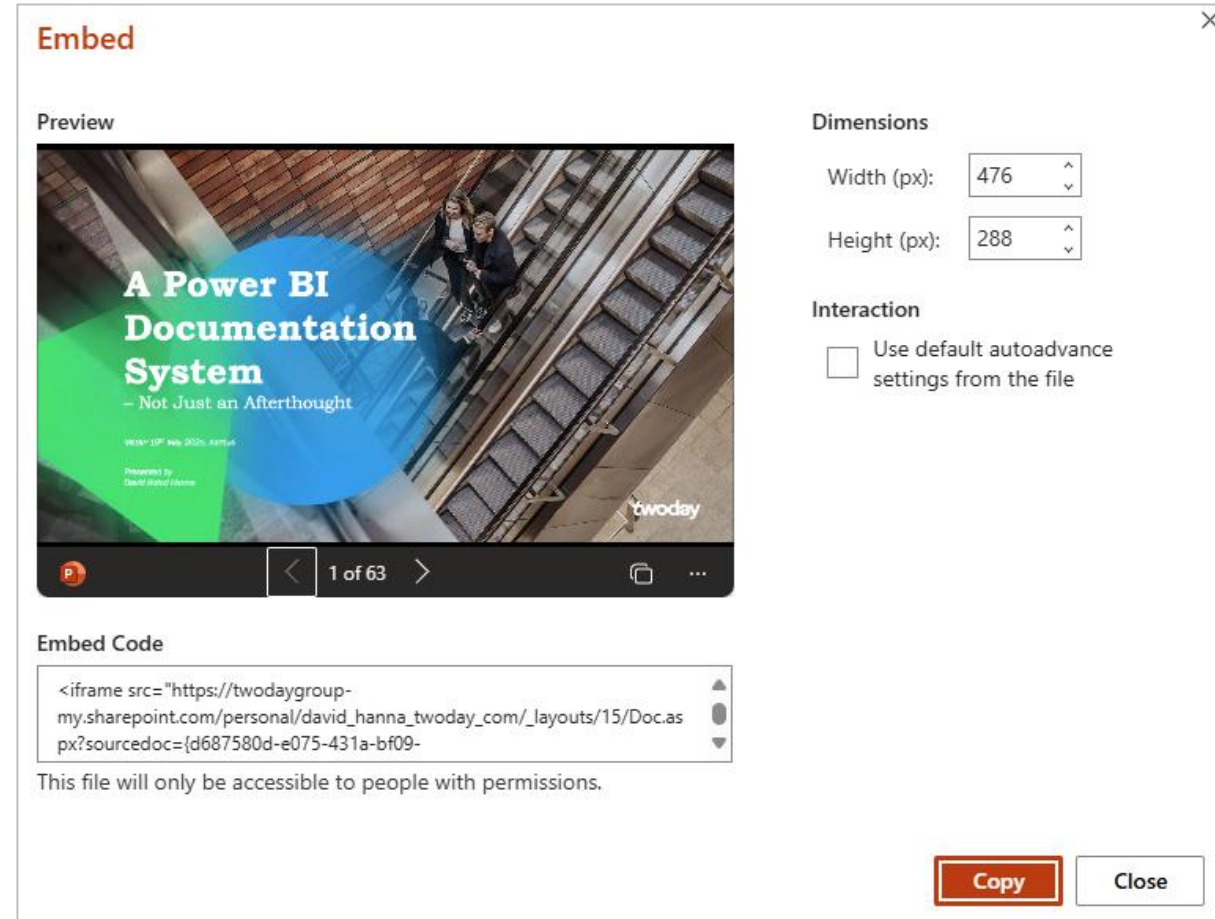
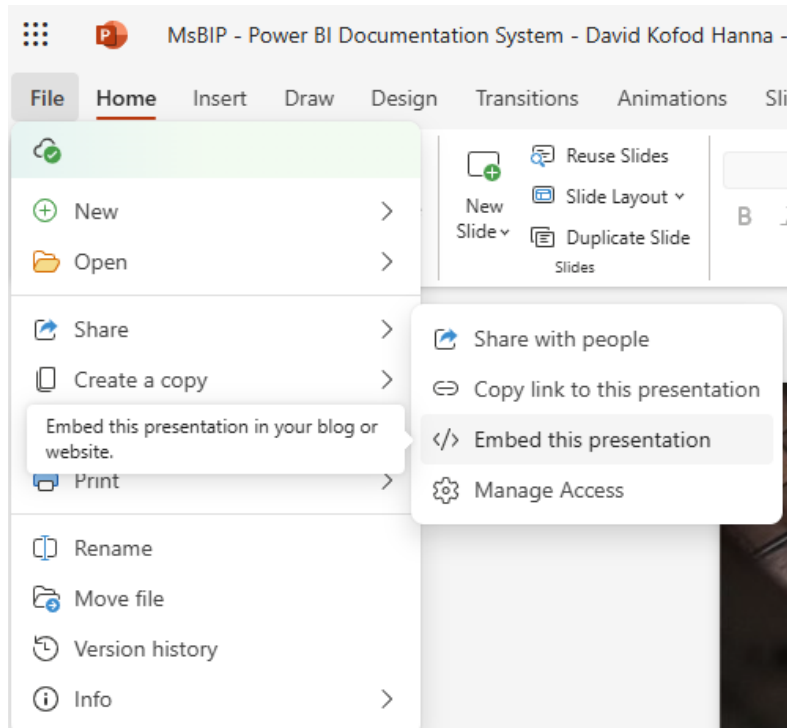
- ☐ Open link in new browser tab
- ☒ Embed linked content into app

Create

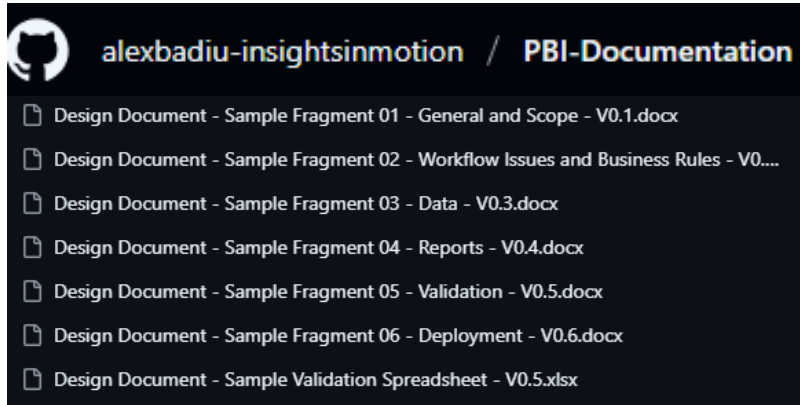
Cancel



# Embed PowerPoint, Excel, PDF



# Design Documents – Samples



Power BI Documentation – Design Document  
Sample Fragment 04 – Reports

Table of Contents	
1. Introduction .....	3
2. Scope of Work .....	3
3. Workflow .....	3
4. Issues .....	3
5. Business Rules .....	3
6. Data .....	3
7. Reports .....	3
7.1. Common .....	3
7.1.1. Theme .....	3
7.1.2. Filters .....	4
7.1.3. Navigation .....	5
7.1.4. Page Header .....	6
7.1.5. Page Footer .....	7
7.1.6. Slicers .....	7
7.2. Specific .....	8
7.2.1. Semantic Model (specific) .....	8
7.2.2. AR01 – All Invoices .....	9
7.2.3. AR02 – Current Invoices .....	10
7.2.4. AR03 – Upcoming Invoices .....	10
7.2.5. AR04 – Historical Invoices .....	11

The items that will be included are described below.

ID	Name (Category / Subcategory)	Design / Selected / Unselected / Hover
N-1	Invoices	<p><b>DESIGN:</b></p> <ul style="list-style-type: none"><li>Type=button</li><li>Shape=any, with border=off</li><li>Action=page navigation (subcategory 1)</li></ul> <p><b>DEFAULT (selected):</b></p> <ul style="list-style-type: none"><li>Font=Segoe UI, white, 10 pt</li><li>Background=dark blue</li><li>Navigation=page, Invoices-All</li></ul> <p><b>DEFAULT (unselected):</b></p> <ul style="list-style-type: none"><li>Font=Segoe UI, medium grey, 10 pt</li><li>Background=medium blue</li><li>Navigation=page, Invoices-All</li></ul> <p><b>HOVER:</b></p> <ul style="list-style-type: none"><li>Font=Segoe UI, dark grey, 11 pt</li><li>Background=medium grey</li><li>Navigation=page, Invoices-All</li></ul>
N-2	Invoices / All	(same as N-1 above)
N-3	Invoices / Current	(same as N-1 above, but with adjusted page navigation and selected and unselected defaults reversed)
N-4	Invoices / Upcoming	(same as N-1 above, but with adjusted page navigation and selected and unselected defaults reversed)
N-5	Invoices / Historical	(same as N-1 above, but with adjusted page navigation and selected and unselected defaults reversed)

7.1.6. Slicers

The slicers that will be included on each page of each all report are described below.

ID	Slicer	Design Features / Data / Notes
n/a	General	<p>Title=Segoe UI Semibold, 10 pt</p> <p>Values=Segoe UI, 8 pt</p> <p>Style=dropdown</p> <p>Selection=multi-select; CTRL off; Select All off</p> <p>Header icons=off</p> <p>Search box=enabled</p>
S-1	Fiscal year	<p>Data=Dates[Fiscal Year]</p> <p>Notes=search box unavailable as numeric data</p>
S-2	Fiscal quarter	<p>Data=Dates[Fiscal Quarter]</p> <p>Notes=search box unavailable as numeric data</p>
S-3	Date range	<p>Type=between</p> <p>Slider-on, responsive off</p> <p>Data=Dates[Date]</p>
S-4	Province	<p>Type=text</p> <p>Data=Countries[Province]</p>



# Embed Notebooks for technical documentation

```
1 #Author and MVP: Sandeep Pawar
2 #https://fabric.guru/measure-maze-visualizing-measure-dependencies-using-semantic-link-network-analysis
```

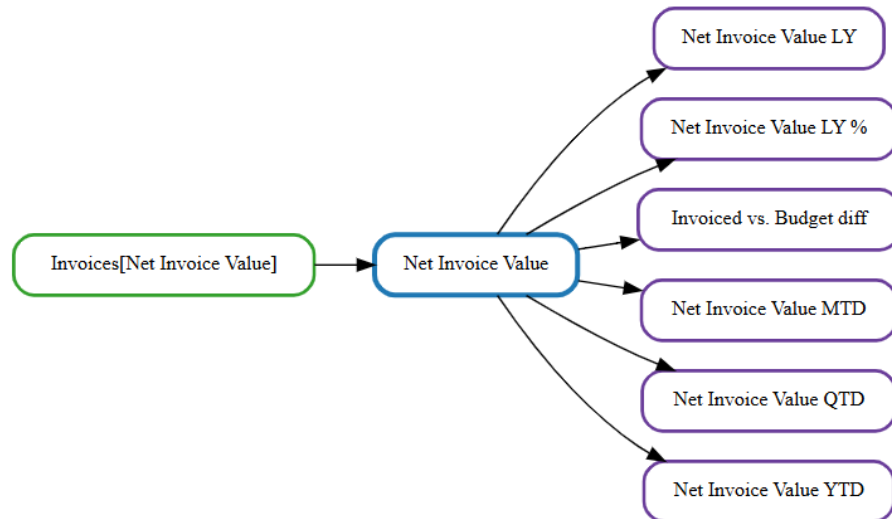
+ Code + Markdown

```
1 #Install Measure Maze in a Fabric Notebook
2 !pip install https://github.com/pawarbi/MeasureMaze/raw/main/measuremaze-0.0.1-py3-none-any.whl --q
3
```

✓

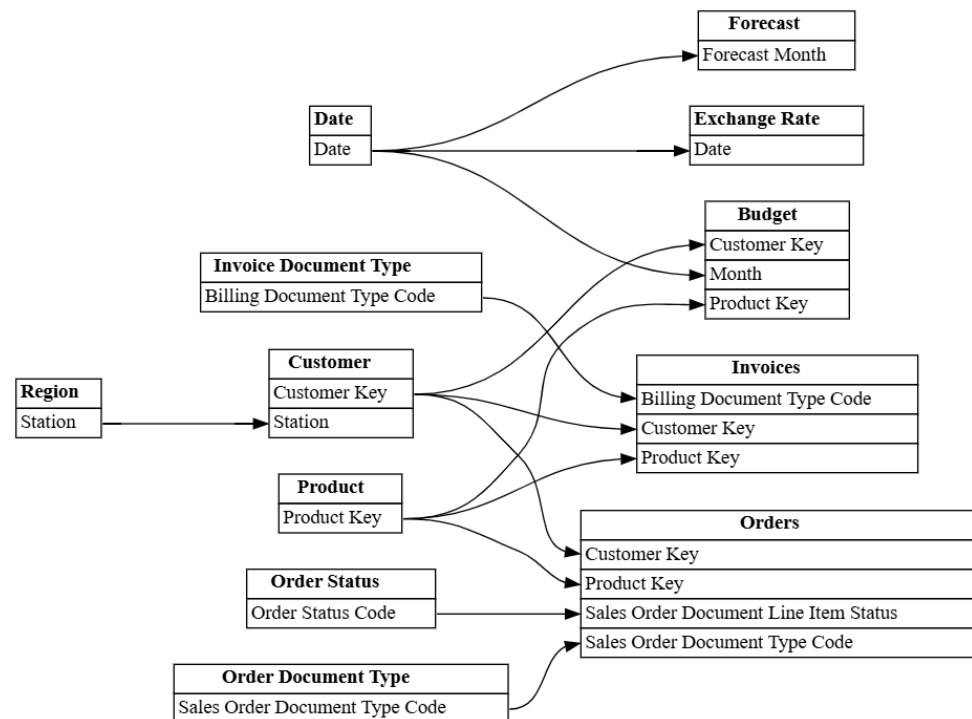
```
1 #Change the layout
2 all_objects.plot('Net Invoice Value', layout='horizontal')
```

[7] ✓ - Command executed in 375 ms by David Kofod Hanna on 1:02:35 PM, 8/12/25



```
1 #Semantic Link can also be used to plot relationships between tables.
2
3 from sempy import fabric
4 from sempy.relationships import plot_relationship_metadata
5
6
7 relationships = fabric.list_relationships(workspace=ws, dataset=ds)
8 plot_relationship_metadata(relationships)
9
```

[10] ✓ - Command executed in 1 sec by David Kofod Hanna on 1:02:59 PM, 8/12/25





# HTML Documentation script – Kurt Buhler x Tabular Editor

**Documentation System Devon**

**DATA GOBLINS SEMANTIC MODEL CHECKLIST**

Enhanced with Tabular Editor 3 • Generated: August 12, 2025

---

**Model: Model**

**1,07 GB**  
Size (sum of table sizes)

**21**  
Tables

**196**  
Columns

**31**  
Measures

**Top 5 Tables by Size**

Invoices	499,40 MB
Orders	465,53 MB
Budget	91,92 MB
Product	24,96 MB
Model Documentation	5,09 MB

**Top 5 Columns by Size**

Orders[Net Order Value]	233,52 MB
Budget[Total Budget]	87,20 MB
Invoices[Net Invoice Value]	68,87 MB
Invoices[Delivery Cost]	59,22 MB
Invoices[Net Invoice COGS]	52,48 MB

This checklist has been automatically analyzed based on your current semantic model structure and contains pre-checked items where applicable.

**How to Use This Enhanced Checklist**

- **Print as PDF:** Use Ctrl+P and select 'Save as PDF' to create a form-fillable document

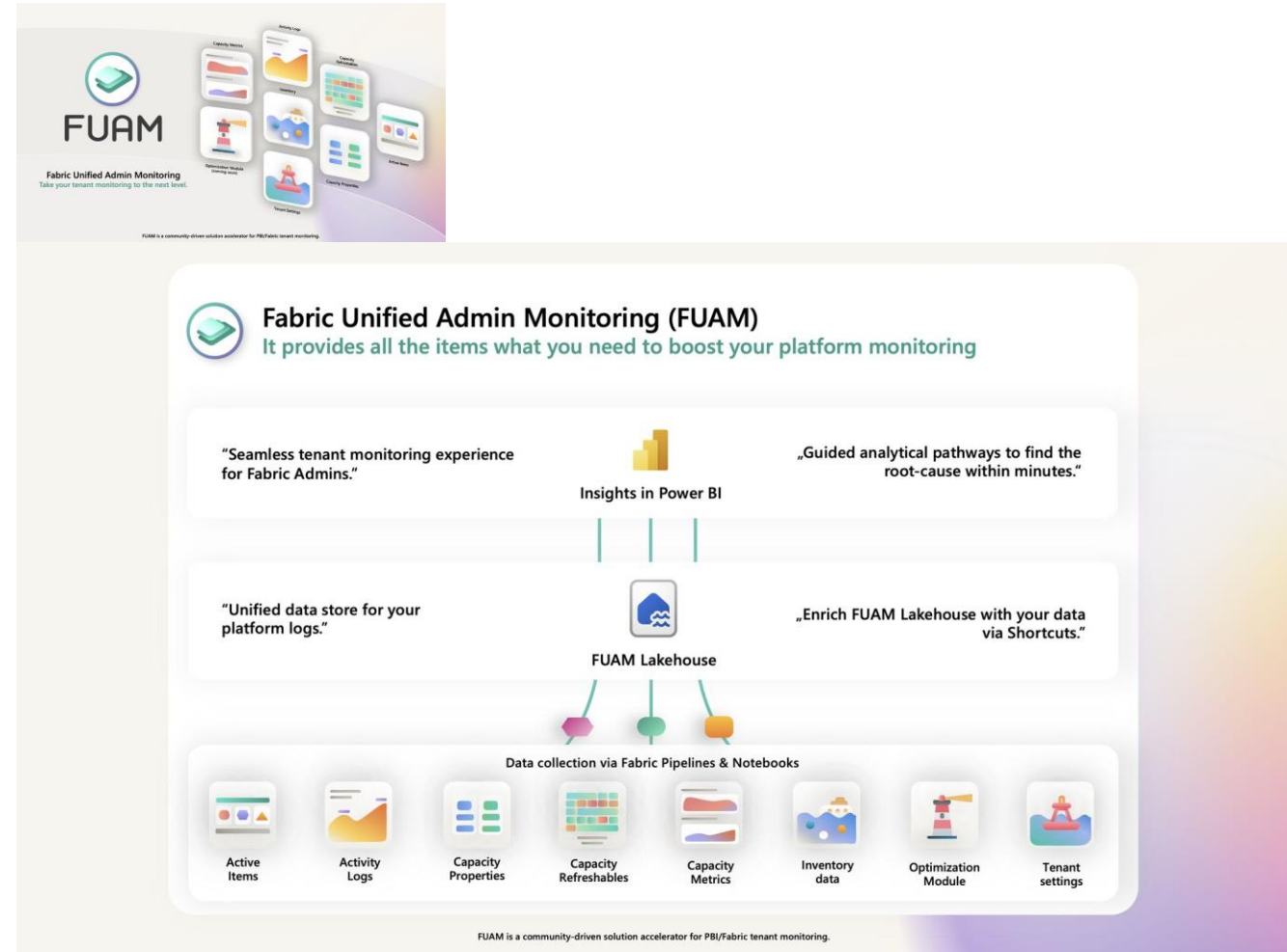


“There’s a script for that”

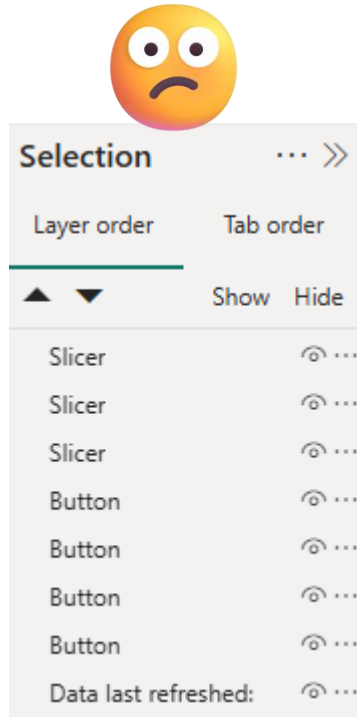


# All into a Lakehouse + GA of PBIP and PBIR in 2026

- Semantic Link Labs
- Dataflow Gen2
- DAX Queries
- FUAM – Fabric Unified Admin Monitoring
- Copilot – Now with F2 SKU
- Copilot to be trained on Model.Bim file and .PBIR
- .PBIR meta data
- Report Best Practice Analyzer
- Best Practice Analyzer Semantic Model
- VertiPaq Analyzer
- Usage Metrics for activity logs
- Data Agents and Copilot on top of your data in Fabric

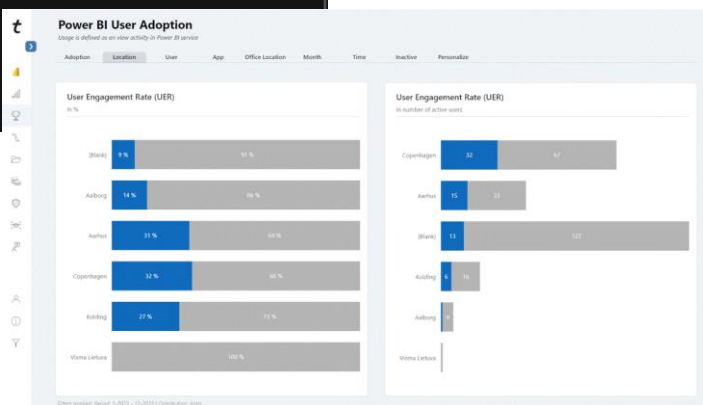
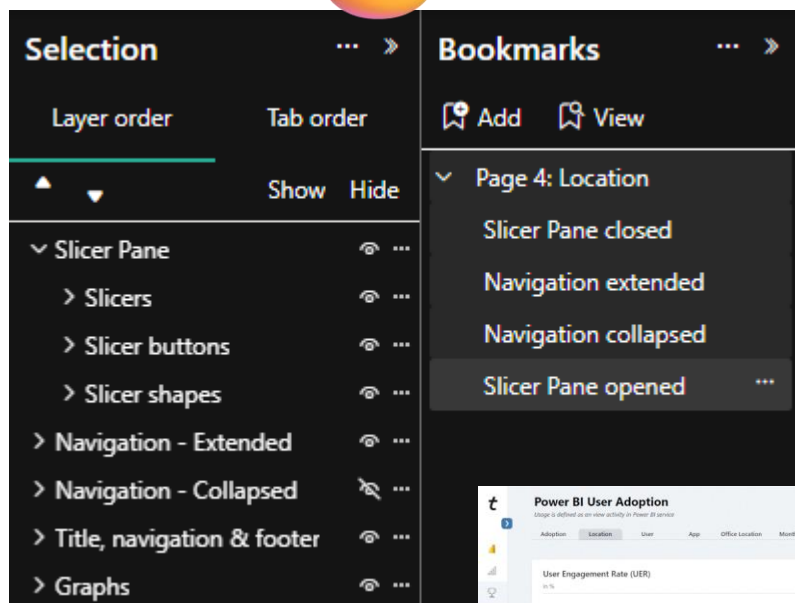


## Report Visual Elements





# Report Visual Elements – especially important if using bookmarks



## 💡 My Standard:

### For non-visual objects:

Use the visual object as Prefix + “-” and then a meaningful name for the object “Slicer – Year” or “Image – Logo”  
Relevant for: Slicer, Textbox, Shapes, Images, Button, Page Navigator, Bookmark Navigator, etc.

For **visual elements** the name of the object is the Title in the visual, thus can’t be prefixed with Bar chart, etc.

**Group** visual elements into e.g.

“Slicer Pane”,  
“Title, Navigation & Footer”,  
“KPI’s”  
“Graphs”.

**Layer** order from top left corner to bottom right corner  
(F or Z structure)

For use cases where only **Bookmarks** can solve the report user need and counting the total cost of ownership, use Selected Visuals and the Group of visuals.  
Group Bookmarks together and name it prefix of page no and page name “**Page 4: Sales Region Analysis**”

 Please write my  
documentation



# Power BI Documentation System – from Model to App

■ Automated or Script   ■ Manual   ▭ Requires Fabric SKU



Power Query  
{M}



Semantic  
Model



Power BI  
Desktop



App



## Purpose for docs:

*Clear, Concise,  
Complete, Consistent,  
Correct, Consumable*

Documentation and  
transparency from  
model to app

From report consumers  
to report developers to  
semantic model  
developers and data  
ingest

Best Practice Analyzer  
Rules to highlight  
violations and severity  
of best practices

Tabular Editor 2/3 for  
Semantic Model and  
DAX scripts

Semantic Link Labs in  
Fabric Notebooks for  
automation like never  
before



# Power BI Documentation System – from Model to App

■ Automated or Script   ■ Manual   [ ] Requires Fabric SKU



## Power Query {M}

Query Folders

Applied Steps  
(Rename +  
Properties)

Table  
Properties

Parameters for  
easy switch

Last Refresh &  
Measure Table  
& Table.Profile

Powerqueryfor  
matter.com



## Semantic Model

Format DAX

DAX Expression  
as Description

INFO.VIEW  
Model Docs

Display Folders  
for Measures &  
Columns

Table Groups

Semantic  
Model Docs



## Power BI Desktop

Model Layout  
View per Fact

DAX Query View  
+ VertiPaq  
Analyzer

Unpin  
Ineffective  
Default Visuals

Report Theme  
JSON Docs

Report Visual  
elements in  
Selection Pane

Report Docs



## App

Video and PDF  
in an App

Notebooks in  
an app

OneLake  
Catalog

All into a  
Lakehouse

External Tools  
& Copilot

End-User Docs

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■ Automated or Script   ■ Manual   [ ] Requires Fabric SKU   ■ GitHub Copilot on top of PBIP Format



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(Rename +  
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Powerqueryfor  
matter.com



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## Power BI Desktop

Model Layout  
View per Fact

DAX Query View  
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Semantic Model and  
DAX scripts

Semantic Link Labs in  
Fabric Notebooks for  
automation like never  
before

*“You do not rise to the level of  
your **goals**, you fall to the  
level of your **systems**.”*

**- James Clear, Atomic Habits**