POWER BI REPORT DEVELOPMENT POWER BI REPORT DEVELOPMENT WITH CODE AND A PINCH OF AI

BUDAPEST BI FORUM 2024

MIHALY KAVASI

INTRODUCTION

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Delivery Lead and Trainer

Avanade

- ✓ 8+ Years of Power BI Experience
- ✓ 7+ Year of Training Experience
- ✓ Microsoft Certified Solution Expert – Data Management and Analytics
- ✓ Microsoft Certified Trainer
- ✓ Azure Enterprise Data Analyst
- ✓ Fasttrack Recognized Solution Architect

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DATA MODEL DEVELOPMENT

Developer support for the whole life cycle management

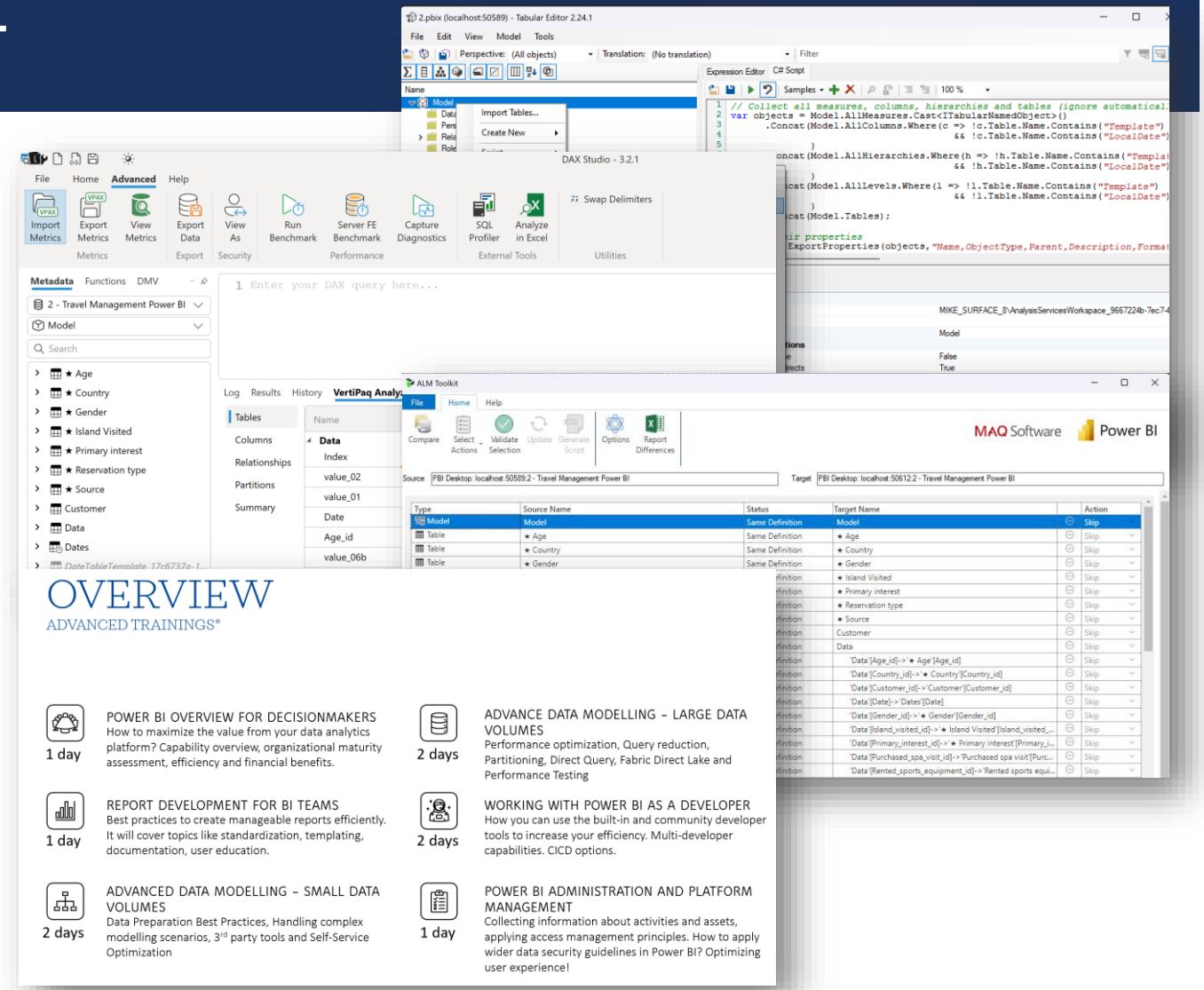
- Version Control
- Multi-Developer Support
- Development
- Testing
- Optimization
- Documentation
- Automation

Extensive Microsoft and community tooling

- Tabular Editor
- Dax Studio
- ALM Toolkit
- Visual Studio Code
- Azure DevOps
- Rest API
- Realistic Load Testing Tool

Developer level training is also available:

- Power BI Masterclass



REPORT DEVELOPMENT SO FAR

- Binary file
- No efficient multi developer options
- No real version control and fallback options
- No developer tools and no automation

INTRODUCING PBIR FORMAT

Microsoft Power BI Blog

DEVELOPERS FEATURES POWER BI

Power BI enhanced report format (PBIR) in Power BI Desktop developer mode (Preview)

Rui Romano
Principal Program Manager

June 13, 2024

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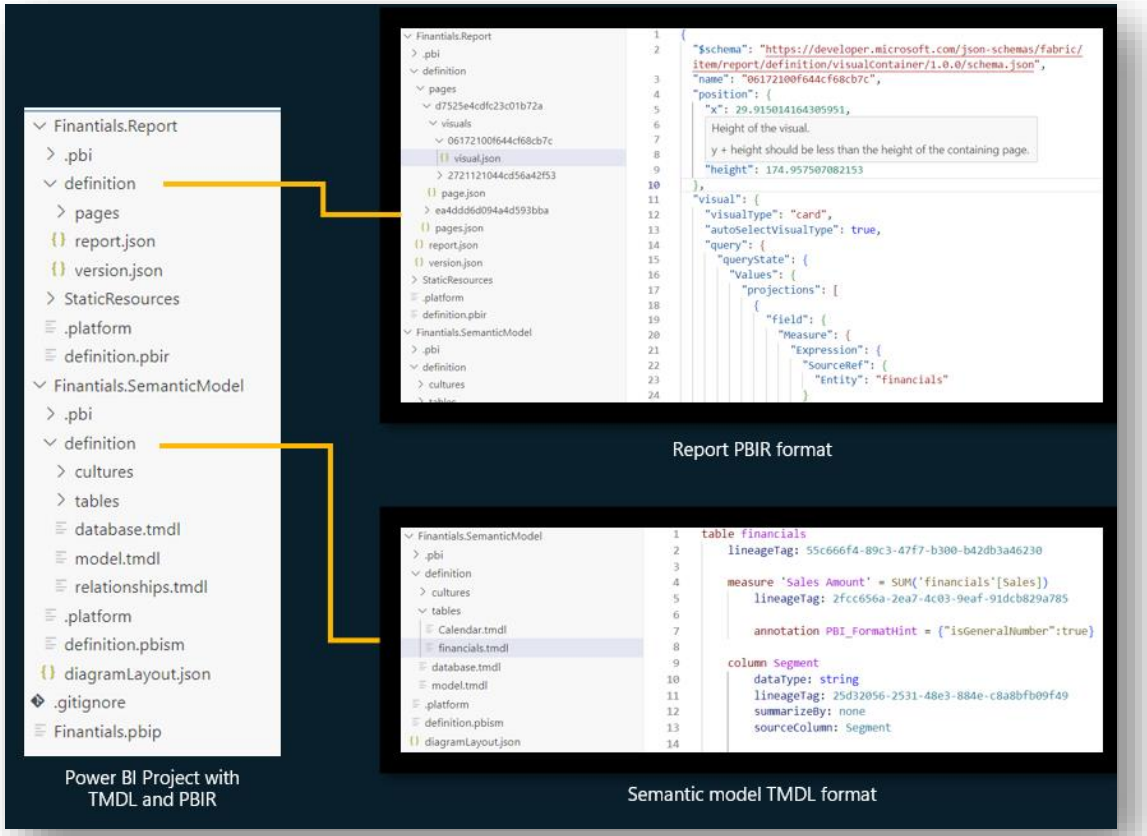
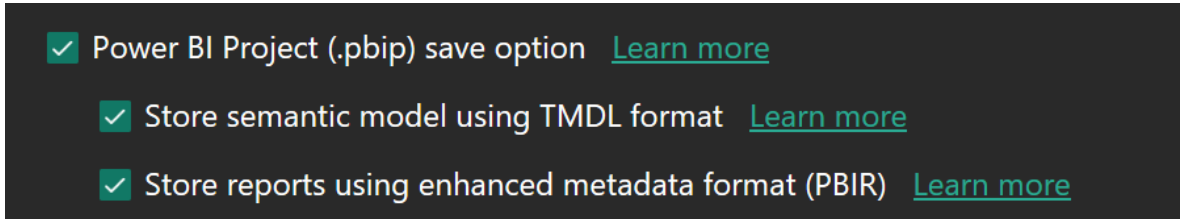
Enhancing team collaboration and automation is crucial for any enterprise BI development, which is the primary goal of Power BI Desktop developer mode. The **Power BI enhanced report format (PBIR)** for Power BI Project files (PBIP) represents a significant milestone in that direction. This new report format offers source control-friendly file structures, facilitating co-development and improving development efficiency for Power BI reports.

Together with TMDL for the semantic model, Power BI Projects now have a great source control experience for both report and semantic model:

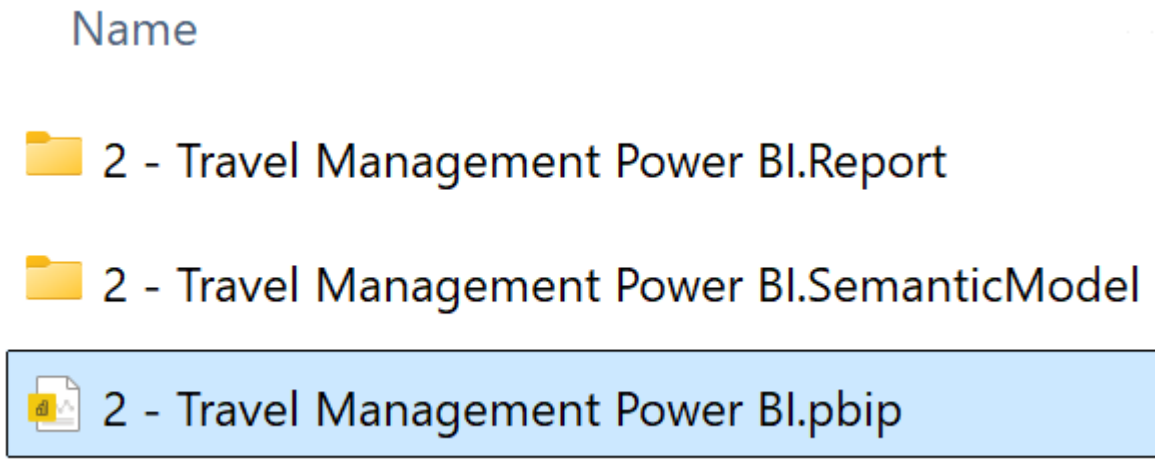


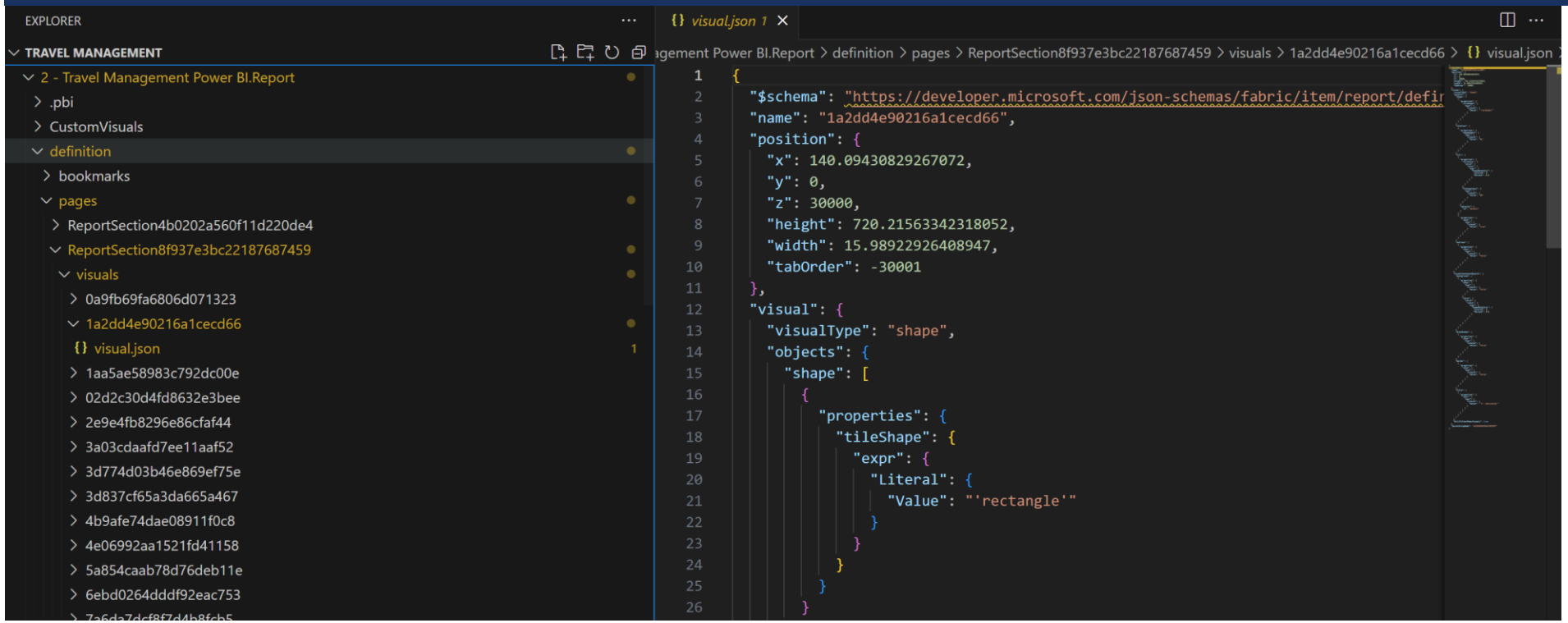
https://powerbi.microsoft.com/en-us/blog/power-bi-enhanced-report-format-pbir-in-power-bi-desktop-developer-mode-preview/

GETTING STARTED



- Turn on Preview Feature for PBIP and PBIR
- Save Power BI File as a Project file





UNDERSTANDING THE NEW FORMAT

HOW THE CODE IS STRUCTURED

UNDERSTANDING THE NEW FORMAT

- Where can you find?
  - Themes
  - Images and Icons
  - Groups
  - Report level measures
  - Report and Page level filters

- Complications:
  - Matching files with visuals and attributes because everything is stored with its ID
  - Attributes of a visual can also be in a theme file
  - Small change in desktop can affect multiple files
  - Desktop makes updates to files that are not intentional

DEMO - REPORT DOCUMENTATION

Level_0	Level_1	page_name	visual_name	visual_type
definition	pages	Audience	'8 - Vertical'	shape
definition	pages	Audience	'9 - Horizontal'	shape
definition	pages	Audience	'9 - Vertical'	shape
definition	pages	Audience	Charts	Visual Group
definition	pages	Audience	'Contoso'	actionButton
definition	pages	Audience	'CUSTOMER SERVICES'	actionButton
definition	pages	Audience	'Customer Type'	shape
definition	pages	Audience	'Customers by Gender'	donutChart
definition	pages	Audience	'Customers by Group and Gender'	clusteredColumnChart
definition	pages	Audience	'Customers by Group and Gender '	clusteredColumnChart
definition	pages	Audience	'Customers by island visited'	shapeMap
definition	pages	Audience	'Customers by island visited'	textbox
definition	pages	Audience	'Customers by Reservation Type'	columnChart
definition	pages	Audience	'Customers" Country'	barChart
definition	pages	Audience	'Customers" Country '	barChart
definition	pages	Audience	Elements	Visual Group
definition	pages	Audience	Horizontal Guide	Visual Group
definition	pages	Audience	'Interesting'	slicer
definition	pages	Audience	KPI	Visual Group
definition	pages	Audience	Lines	Visual Group
definition	pages	Audience	'Logo'	image
definition	pages	Audience	New	Visual Group
definition	pages	Audience	'New Custmers'	kpi
definition	pages	Audience	Not found	actionButton

	A	B	C	D	E	F	G
1	entity	display_folder	measure_name	expression	dataType	formatString	
2	Calculations	Housing	Freehold Sales	CALCULATE([Properties Sold],'Housing Market Data'[Estate Type] ="Freehold")	Double	General Number	
3	Calculations	Housing	Leasehold Sales	CALCULATE([Properties Sold], 'Housing Market Data'[Estate Type] = "Leasehold")	Double	General Number	
4	Calculations	Housing	New Build Sales	CALCULATE([Properties Sold], 'Housing Market Data'[New Build?])	Double	General Number	
5	Calculations	Housing	Detached Sales	CALCULATE([Properties Sold], 'Housing Market Data'[Property Type] = "Detached")	Double	General Number	
6							

DEMO – EXPLORATION

findfiles.py

C: > Users > kavas > OneDrive > Documents > GitHub > Python-Scripts > findfiles.py > ...

```python
import os
import csv
from datetime import datetime

# Create a script to find and list the files in a directory that have specific w
def find_files_with_words(directory, words):
    # Add a counter to count the number of files that have been checked
    file_count = 0
    matching_file_count = 0
    matching_files = []
    print("Checking files in directory: {}".format(directory))
    print("Words to search for: {}".format(words))
    for root, _, files in os.walk(directory):
        for file in files:
            file_path = os.path.join(root, file)
            file_count += 1
            # Print the number of files checked and the number of matching files
            print("\rNumber of files checked: {} | Number of matching files: {}"
            try:
                with open(file_path, 'r') as f:
                    file_content = f.read()
                    if all(word in file_content for word in words):
                        matching_files.append(file_path)
                        matching_file_count += 1

            except:
                continue

    return matching_files
```

A	B
C:\Users\kavas\Documents\GitHub\PBITraining\Microsoft Demos\Travel Management\2 - Travel Management Power BI.Report	visualGroup
C:\Users\kavas\Documents\GitHub\PBITraining\Microsoft Demos\Travel Management\2 - Travel Management Power BI.Report	slicer
C:\Users\kavas\Documents\GitHub\PBITraining\Microsoft Demos\Travel Management\2 - Travel Management Power BI.Report	kpi

matching_files_kpi_20241116.csv

matching_files_slicer_20241116.csv

matching_files_visualGroup_20241116.csv

A	B
Matching Files for words: kpi	
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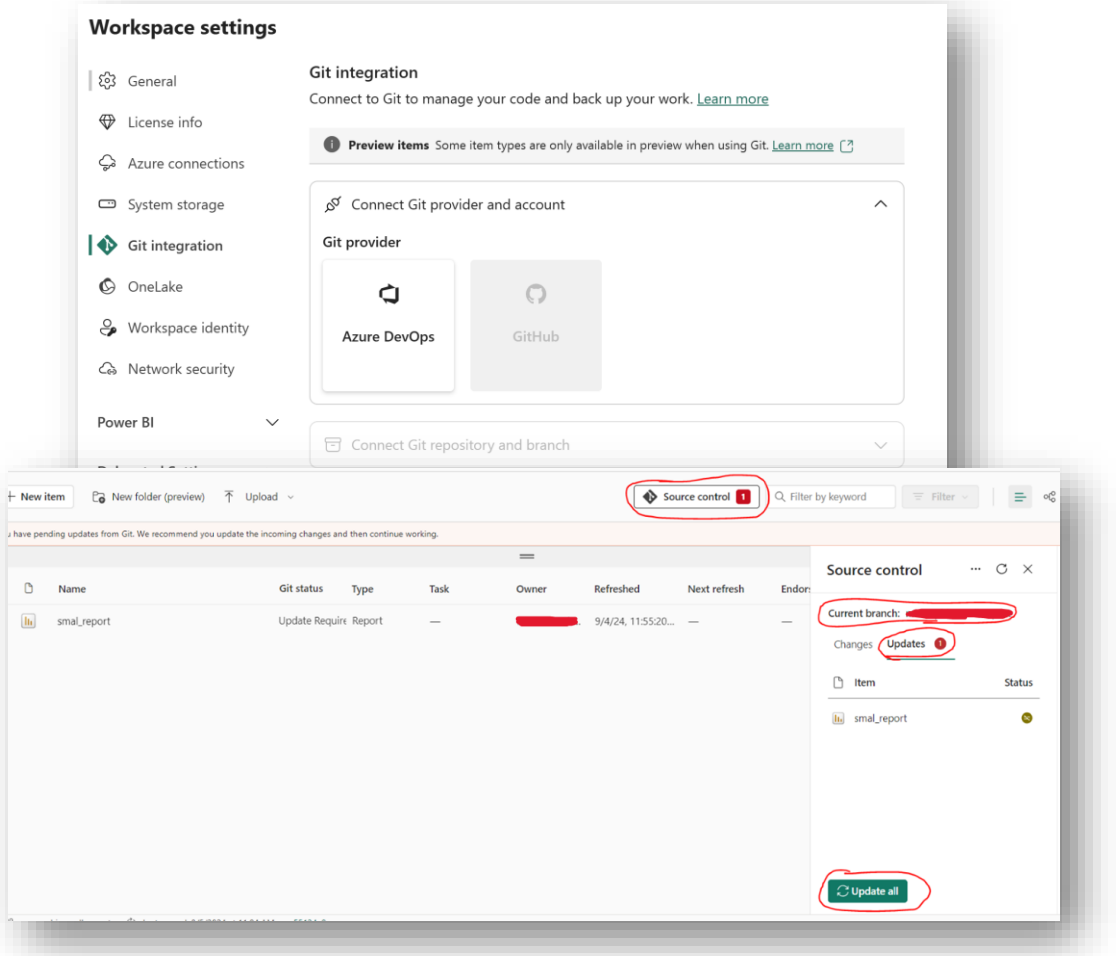
C:\Users\kavas\Documents\GitHub\PBITraining\Microsoft Demos\Travel Management\2 - Travel Management Power BI.Report\definition\pages\ReportSection3596b658cc06e27eb391\visuals\d745bfd9bbad272053da\visual.json	

DEMO – CHANGE REPORT

GITHUB CO-PILOT DEMO FOR CODE CREATION

REPORT DEVELOPMENT WITH CODE PILOT EXPERIENCES

- DevOps integration is synchronized 2-ways
- Any update in the web automatically updated master
- Once the report is edited through git integration then Power BI Desktop authoring is not available
- Large reports constantly erroring while saving/updating



https://learn.microsoft.com/en-gb/power-bi/developer/projects/projects-report#pbir-considerations-and-limitations

CONCLUSION

- Currently too risky for development use
- The creative part of report development will still need a graphical interface (PBI Desktop/Web Authoring)
- Seamless integration with existing tools is essential for adoption
- Documentation and Analysis use cases
- Worth understanding and experimenting with the format
- Copilot can greatly increase productivity

THANK YOU

LinkedIn: Kavasi Mihaly
Blog: https://selfservicebi.co.uk/
Scripts Library:
https://github.com/KavasiMihaly/Conference-Open