POWER PLATFORM
BOOTCAMP

Microsoft

Power BI dataflows? Why you need to implement it!

Thanks to our Sponsors

With the support of:

01

Hello, who’s this?

Benni De Jagere?

Enterprise Data Architect

Inetum-Realdolmen

dataMinds .be, Co-leader

@BenniDeJagere

/bennidejagere

#SayNoToPieCharts

Microsoft® MVP Most Valuable Professional

dataflows?

02

dataflows?

(Google) Cloud Dataflow
TensorFlow Dataflow
SSIS Data Flows
Microsoft Flow
ADFv2
- Mapping Data Flows
- Wrangling Data Flows

PowerApps dataflows
Power Platform dataflows

dataflows?

~~(Google) Cloud Dataflow~~
~~TensorFlow Dataflow~~
~~SSIS Data Flows~~
~~Microsoft Flow~~
~~ADFv2~~
- ~~Mapping Data Flows~~
- ~~Wrangling Data Flows~~

~~PowerApps dataflows~~
~~Power Platform dataflows~~

Power BI dataflows!

03

Who?

Who should using dataflows

- (Financial) Power Users
- Business Analysts
- Tech savvy Users
- Everyone else ☺

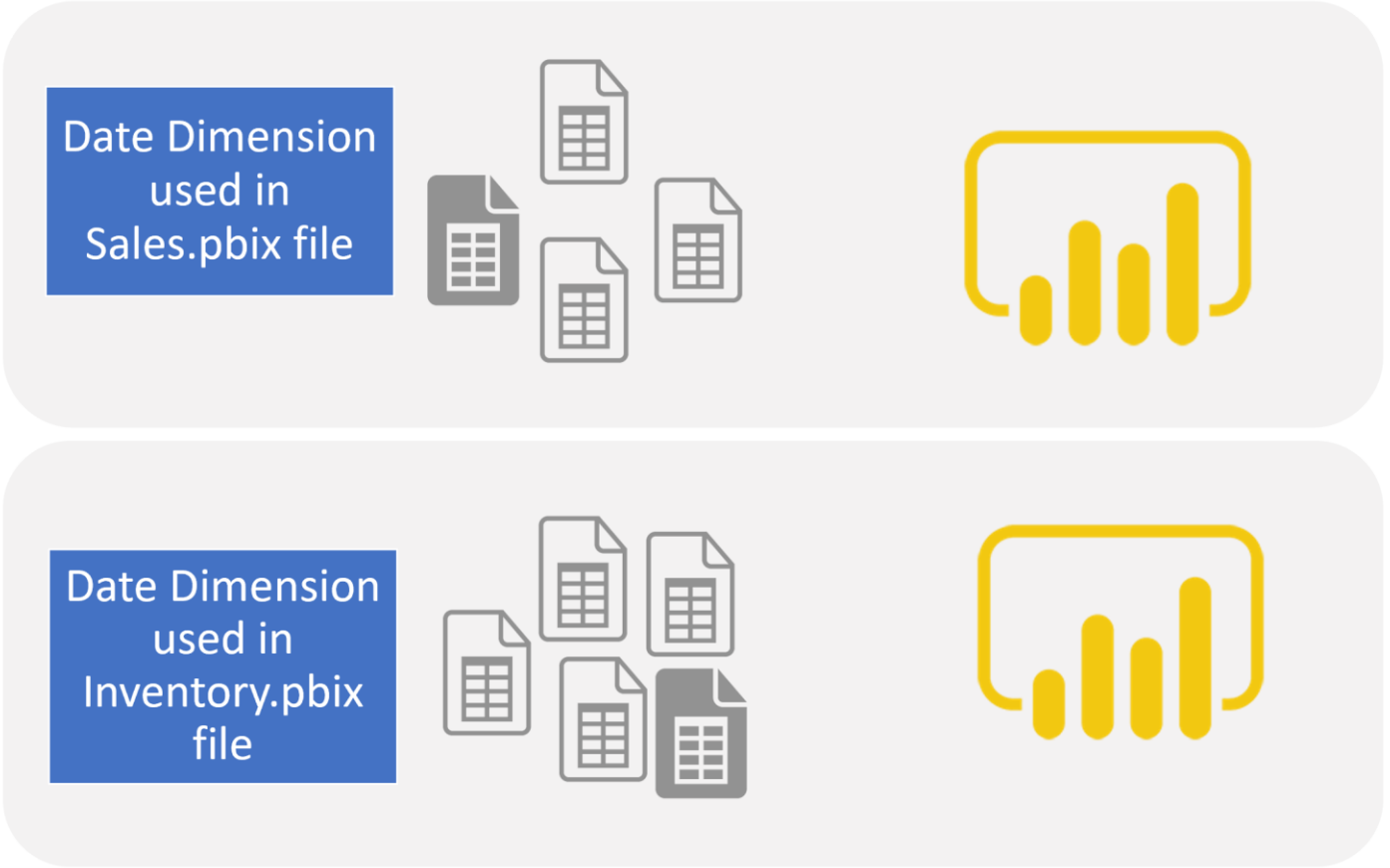
04

What?

One Entity, Many Datasets

- Lack of semantic model will create many versions
- Re-use of queries across datasets is limited
- Shared Datasets is all or nothing approach
- Will “Composite Models over Azure Analysis Services and Power BI datasets” change the way we work?

One Entity, Many Datasets



Date Dimension transformation executed multiple times, when only once is needed

One Entity, Many Datasets

Date Dimension transformation executed only once, and then used multiple times

04

How?

Enter, Power BI dataflows!

Preview Late 2018, GA April 2019

Cloud based PowerQuery experience

Self-Service Data Preparation

Non-technical user personas

Enter, Power BI dataflows!

Build reusable Data Entities

Not a replacement for a DWH Solution

Manageable and securable like all Power BI Objects

Managed CDM Folders

DEMO

Power BI dataflows

04

www.citibikenyc.com/system-data

Public Open Data

Starts June 2013

Information about every trip

- Longer than 60 seconds
- Starts at public station

Masterdata

https://i0.wp.com/thenypost.files.wordpress.com/2013/12/citibike1.jpg?quality=90&strip=all&ssl=1

04

How?

Common Data Model

Common Data Model

Unified metadata layer for Cloud Apps and Services

Shared

- Data Language
- Storage Format and Location
- Set of Default Entities

Extend Entities for all consumers

Simplified integration and disambiguation of data

Decision Makers, Business analysts ⟷ Data scientists, Data engineers

No code, low code — Low to high code

Dynamics 365

Power BI

Common Data Service

Power BI dataflows

ISV partners

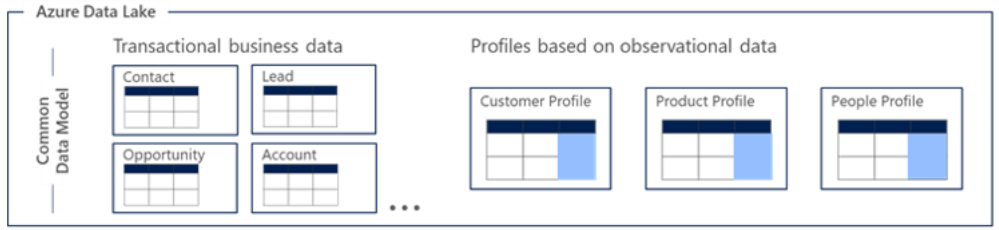
Custom
LOB +
Developer resources

Azure Data Services

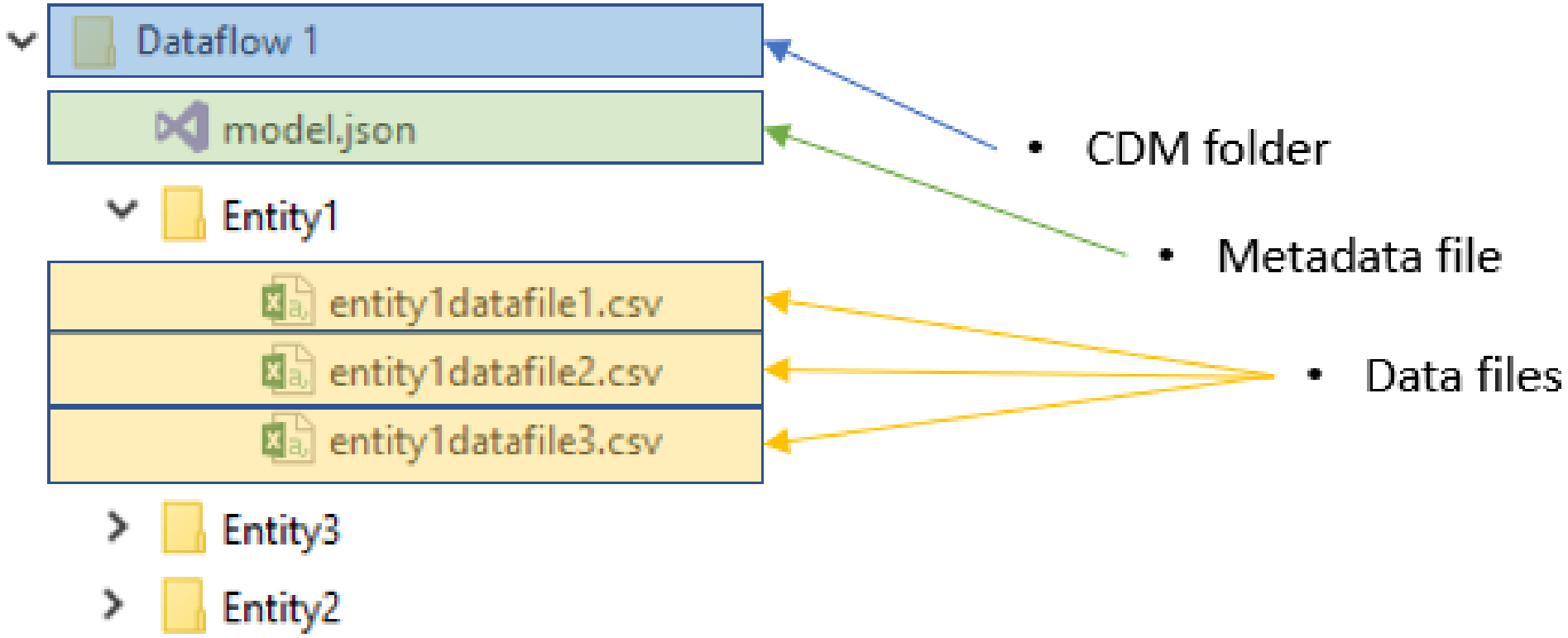
data ingest, data prep, AI,
machine learning, data warehousing

Azure Data Lake Storage Gen2

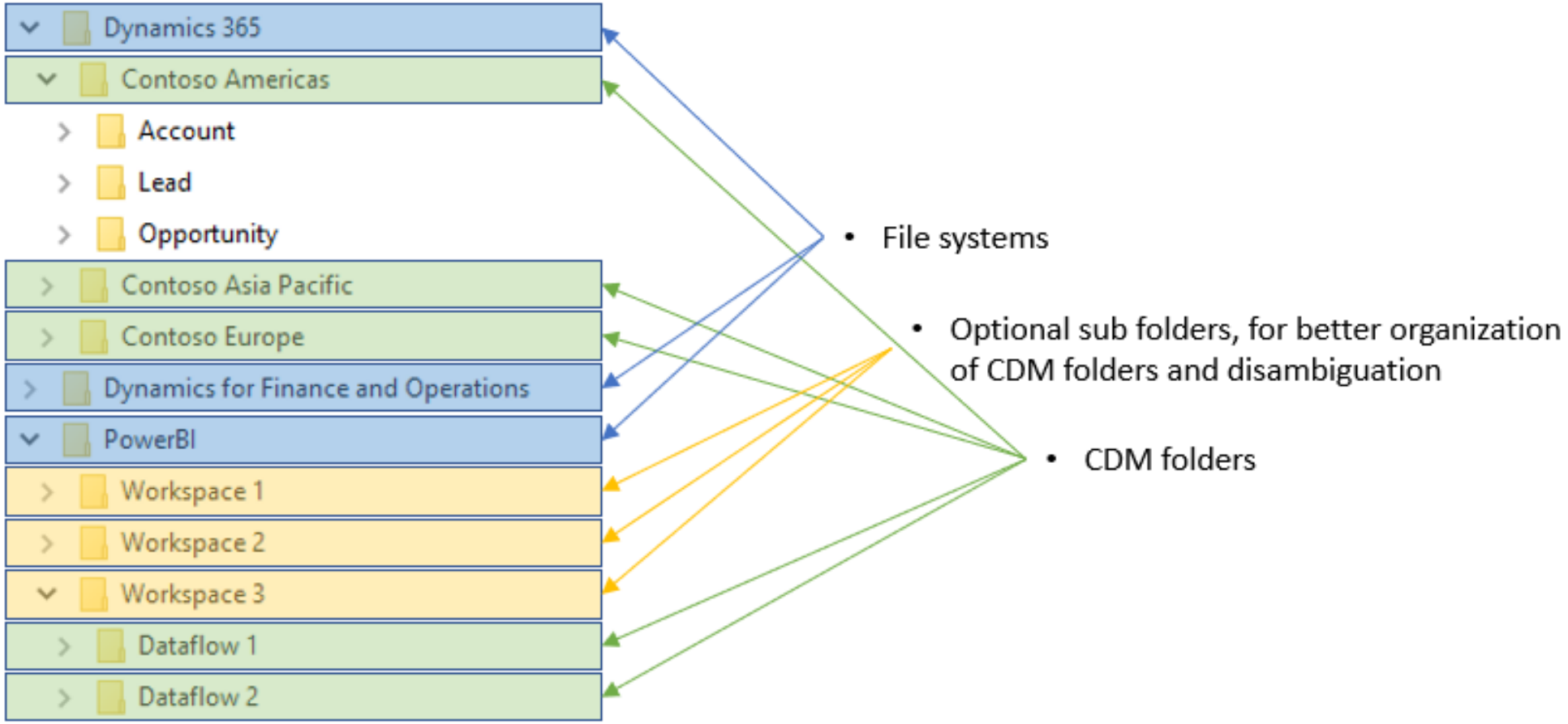
"CDM folders"



Common Data Model



Common Data Model



04

How?

Data Refresh

Data Refresh

- Trigger Manual refresh in the UI
- Scheduled refresh comparable to Power BI Datasets
- Refresh History offers an interesting view
- Automatically refreshes any dataflows it is dependent on
- Incremental Refresh is Premium Only (for now?)

04

How?

Query Reusage

Query Reusability

No developer experience in Power BI Desktop

- Copy/Paste queries between environments

Reference Query, Append or Merge

- Create a query, and mark ‘Disable for load’
- Reference this query, in the same workspace
- Logic is reused, and data is duplicated every time the query is referenced

Query Reusability

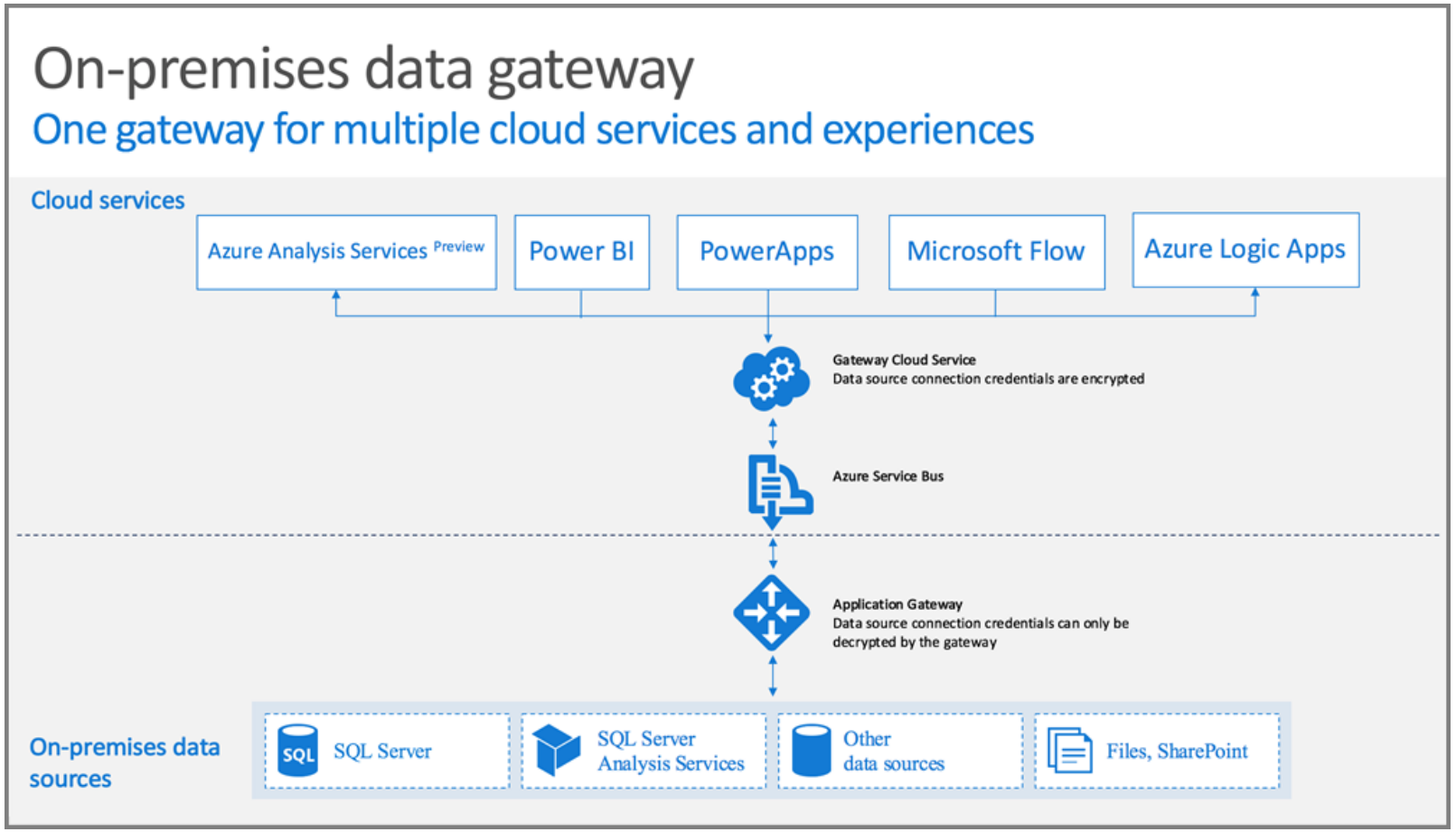
Linked/Computed Entities (Premium/PPU Only)

- In-lake Compute, which requires dedicated capacity
- Can Reference any Entity in any Workspace
- Data is only stored in the original Entity

05

Gateway & Security

On-Premises Datasources



Securing Dataflows

Dataflows reside in Workspaces

Secure/Hide Linked Entities by disabling load

Datasets using Dataflows will likely be Import Mode

- Security is the responsibility of the dataset designer!

DEMO

Gateway & Security

05

Why?

06

Where do Dataflows fit in?

Without dataflows, users might

- Be blocked on IT involvement
- Use Excel and manual processes
- Require 3rd party data preparation tools

Where do Dataflows fit in?

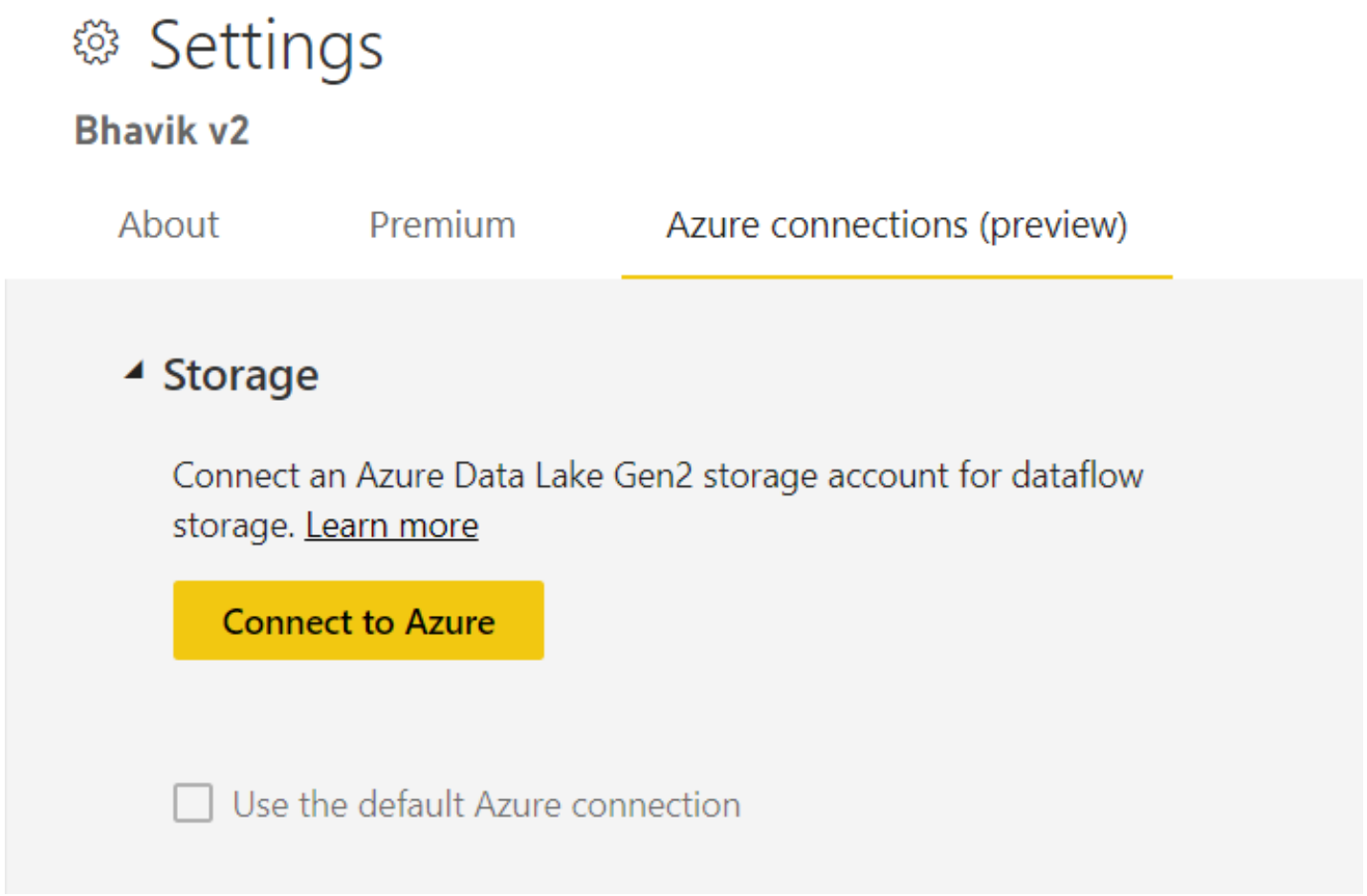
Dataflows are for Power Query users

- Easy to build reusable data entities
- Easier to compose and orchestrate
- Multi-stage, multi-user data prep workflows
- Dataflows fill a self-service gap in the end-to-end story

Extending dataflows

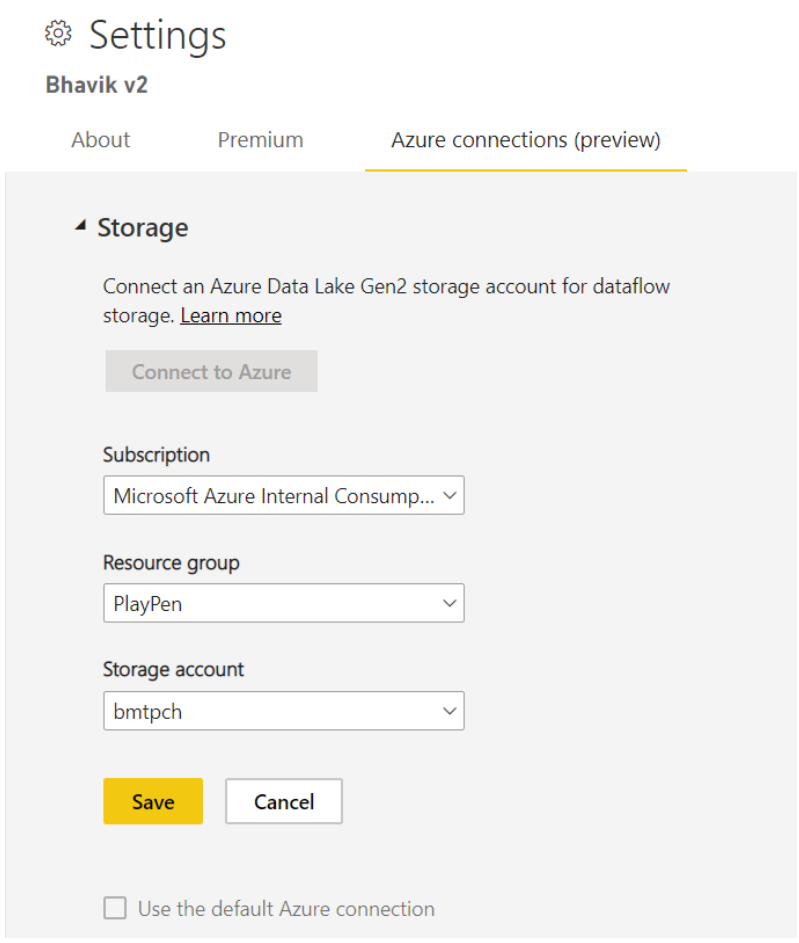
07

Bring your own Storage Account



https://powerbi.microsoft.com/en-us/blog/power-bi-dataflows-multiple-data-lakes-support/

Bring your own Storage Account



External CDM Folders

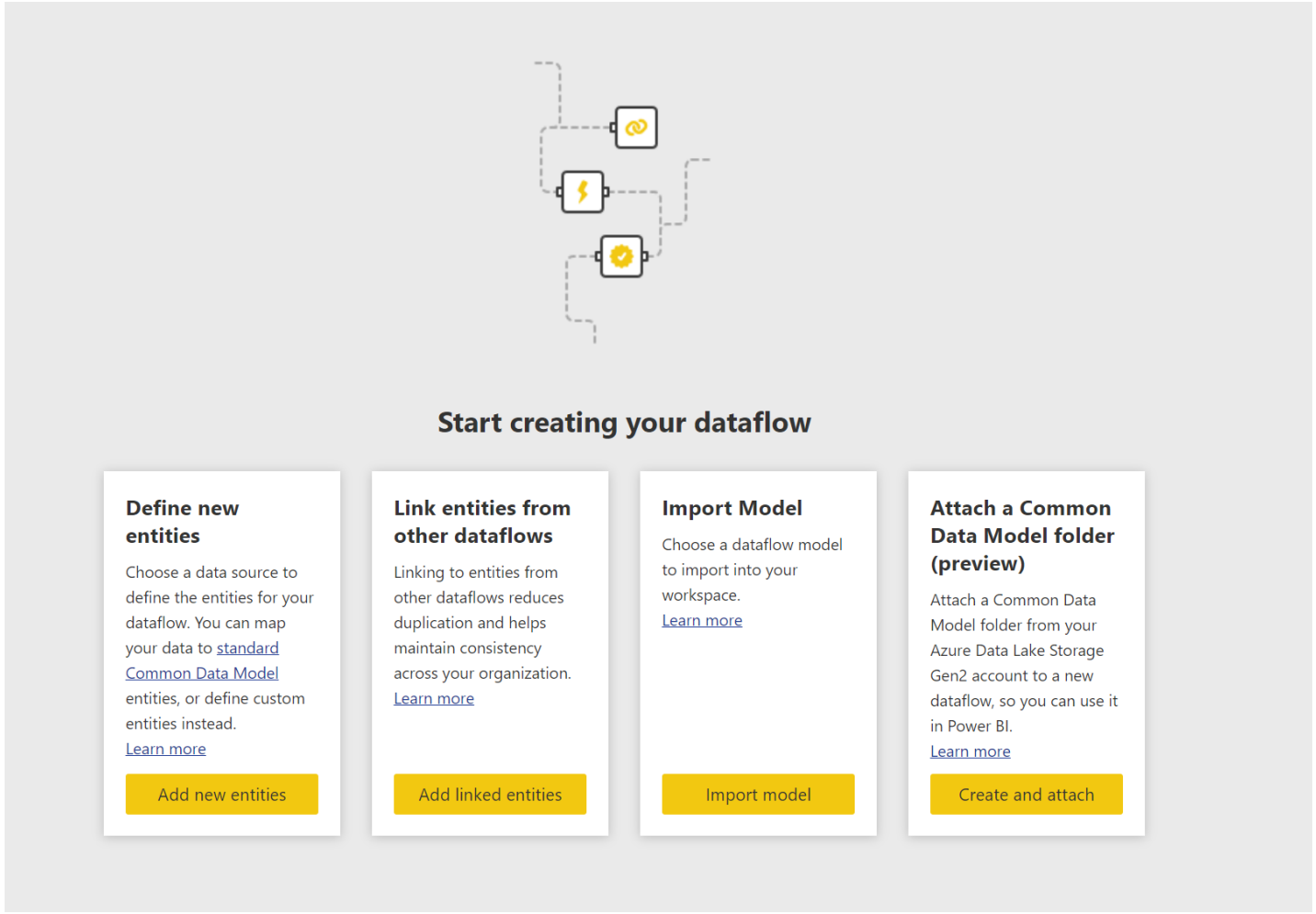
CDM Folders is an open standard

Any tool that can access ADLSg2, and output JSON

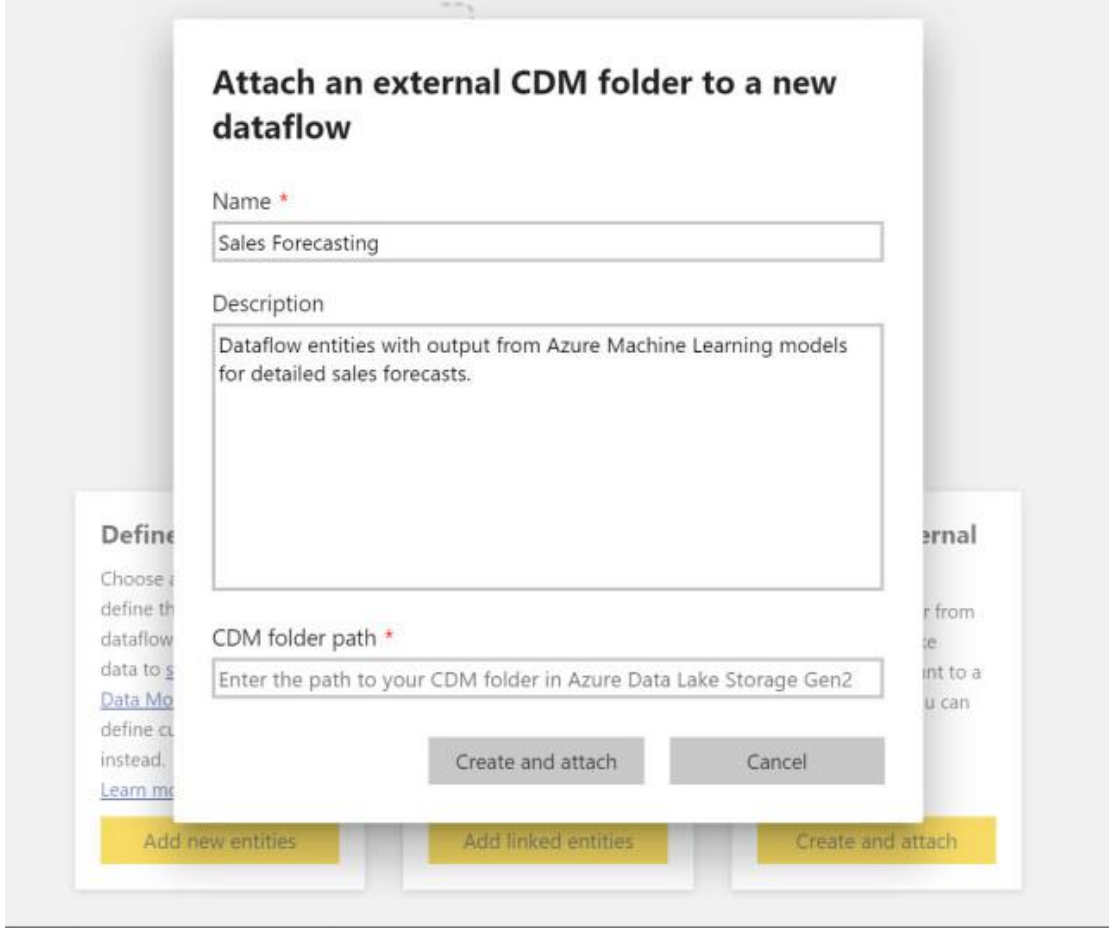
Link External CDM Folder in Power BI

Done!

External CDM Folders



External CDM Folders



08

BONUS!

Power BI dataflows sort-of-FAQ

- A capability for self-service data preparation in Power BI
- Delivered in a familiar Power Query experience
- Built on the foundation of Azure Data Lake Storage gen2
- Utilize the CDM folder format for data storage
- A tool for business users to drive data reuse without requiring IT involvement
- Enable Excel-like data lineage and orchestration

- NOT a replacement for datasets
- NOT a replacement for a data warehouse
- NOT a replacement for Azure Data Factory or SSIS
- NOT a Premium-only feature
- NOT an additional cost or fee
- NOT spelled with a space or any capital letters

08

Recap

Why you should use it!

- Business Driven Initiatives
- Fill existing gaps
- Quick prototyping
- Strive for IT handover to operationalize later on
- Configure your own ADLSg2 Storage

The Self-Service BI Hoax

"Products and technology don't enable Self-Service BI.
People, processes, and methodologies do"

Nimrod Avissar on LinkedIn Pulse

PASS

Resources

- https://docs.microsoft.com/en-us/power-bi/service-dataflows-best-practices
- https://docs.microsoft.com/en-us/power-bi/service-dataflows-overview
- https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/data/enterprise-bi-adf
- https://docs.microsoft.com/en-us/common-data-model/
- https://docs.microsoft.com/en-us/power-bi/transform-model/dataflows/dataflows-azure-data-lake-storage-integration
- https://docs.microsoft.com/en-us/power-bi/transform-model/dataflows/dataflows-premium-features
- https://docs.microsoft.com/en-us/power-bi/transform-model/dataflows/dataflows-machine-learning-integration
- https://docs.microsoft.com/en-us/power-bi/transform-model/dataflows/dataflows-features-limitations

Resources

- https://ssbipolar.com/2018/10/23/dataflows-in-power-bi/
- https://www.sqlchick.com/entries/2019/3/28/three-ways-to-use-power-bi-dataflows
- https://prologika.com/dataflows-the-good-the-bad-the-ugly/
- https://exceleratorbi.com.au/power-bi-dataflows-and-why-you-should-care/
- https://www.jamesserra.com/archive/2018/08/power-bi-dataflows/
  https://ssbipolar.com/2019/10/14/power-bite-dataflows-vs-datasets/
- https://radacad.com/what-are-the-use-cases-of-dataflow-for-you-in-power-bi
- https://ssbipolar.com/2020/09/23/session-resources-patterns-for-adopting-dataflows-in-power-bi/

Resources

- Dataflows Whitepaper – Amir Netz
- Release Notes & Roadmap
- CDM Tutorial
- CDM Documentation
- Dataflows and CDM Sessions at MBAS

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/bennidejagere

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