Power BI for the Enterprise

What should you think about…?

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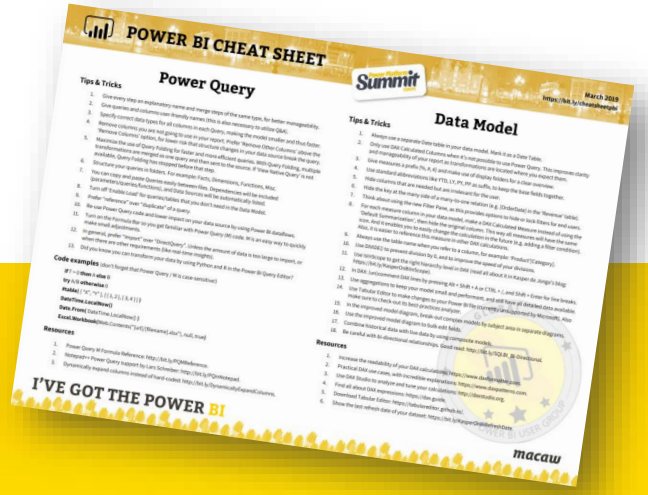
Marc Lelijveld

Data & Analytics Consultant



Consultant with a specialization in Power BI at Macaw Netherlands. On daily bases I am working on project bases for the bigger international companies. I like to share my thoughts and enthusiasm about Power BI and related Microsoft Product in public speaking & user groups.

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Agenda

- Power BI for the enterprise
- Parameters for re-use

  (Workshop)
- Application Lifecycle Management
- Power BI monitor

  (Workshop)

Power BI for the Enterprise

What should you think about…?

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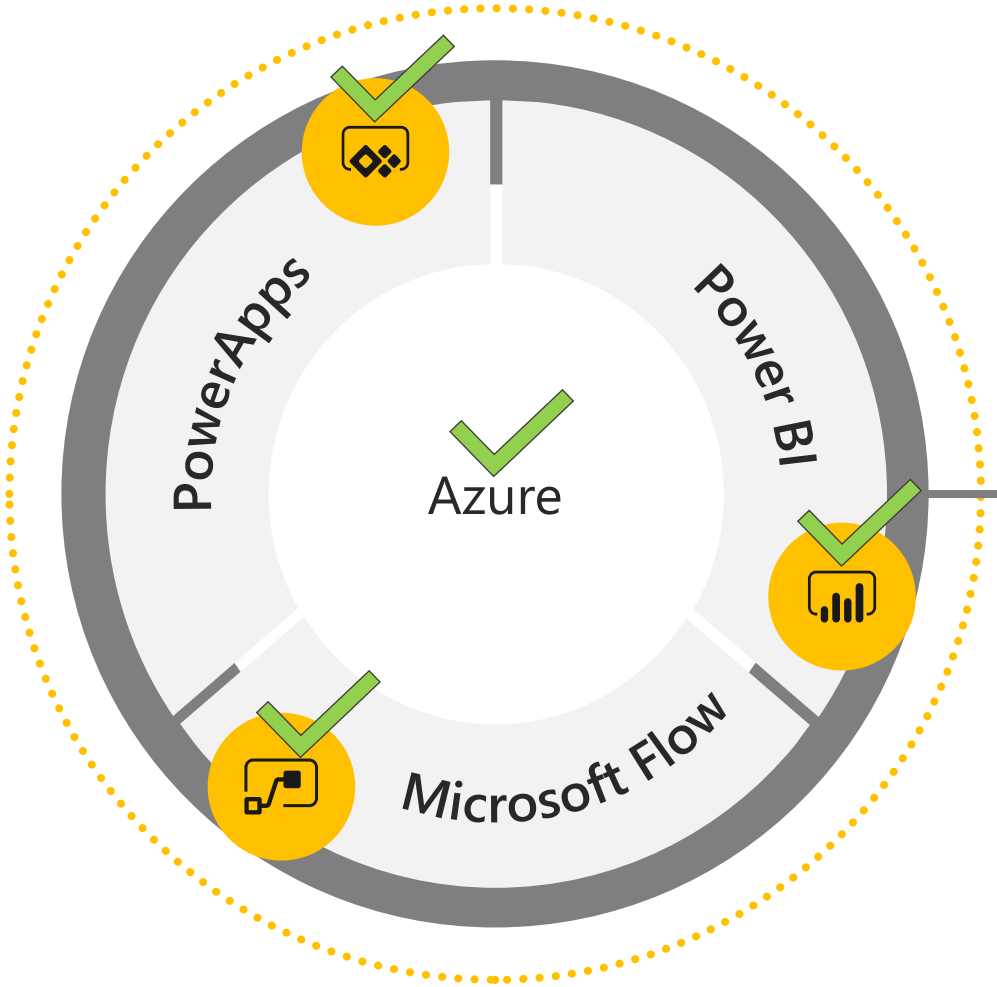
Power Platform



Dynamics 365

Office 365

Standalone Apps

Common Data Service for Apps and Data Connectors

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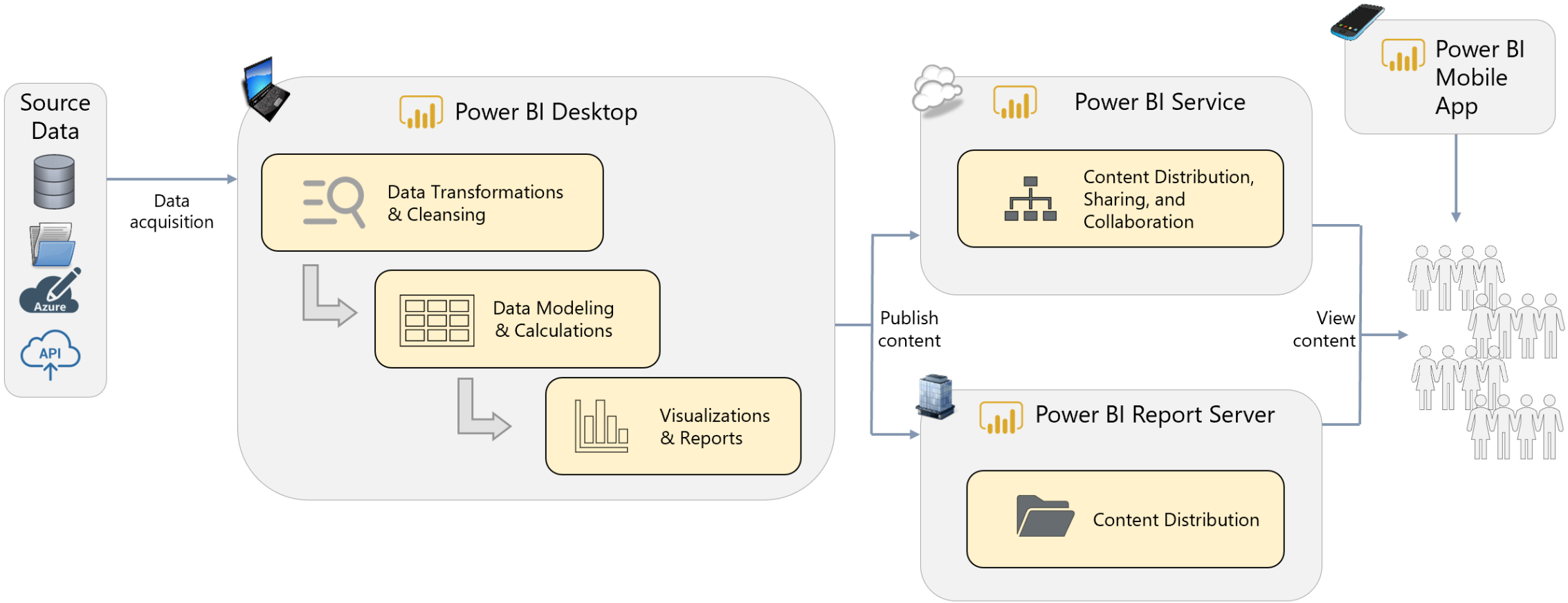
High level overview of Power BI



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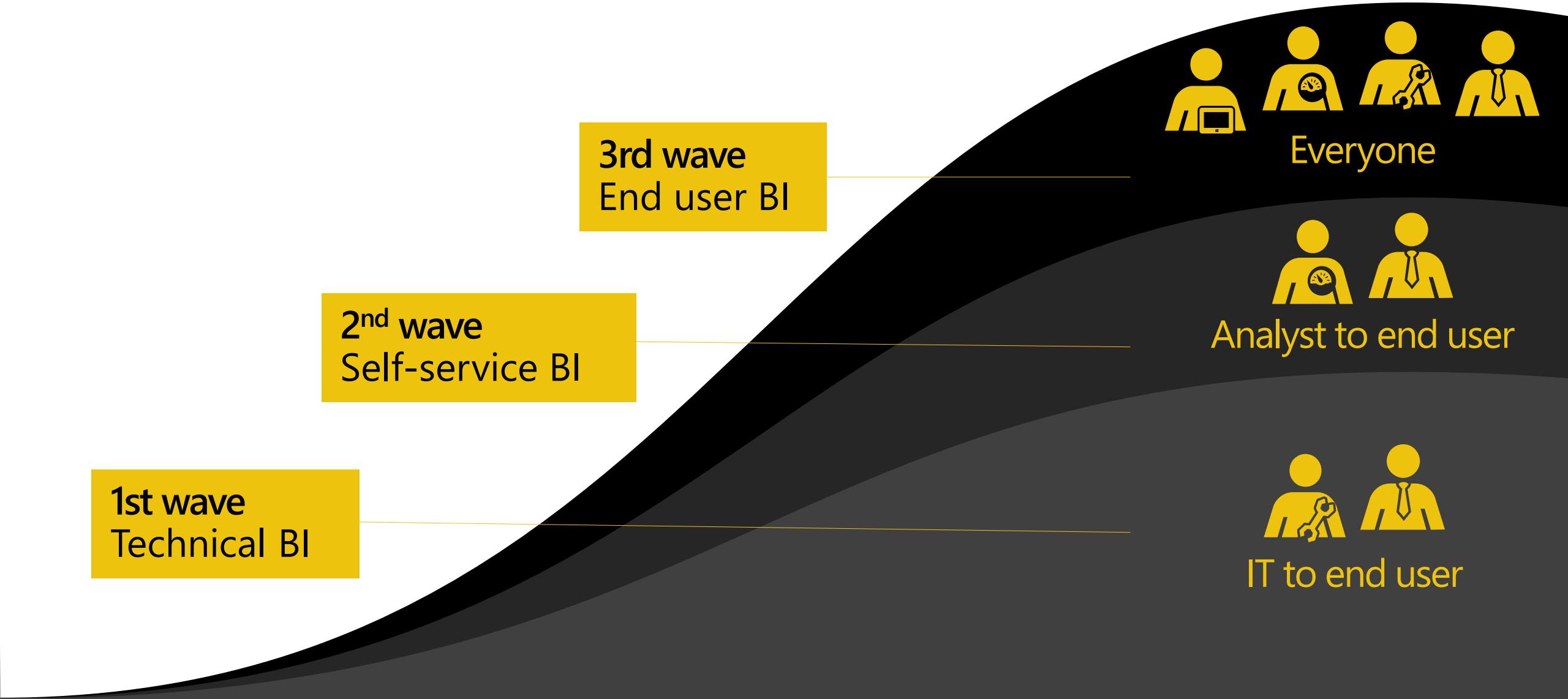
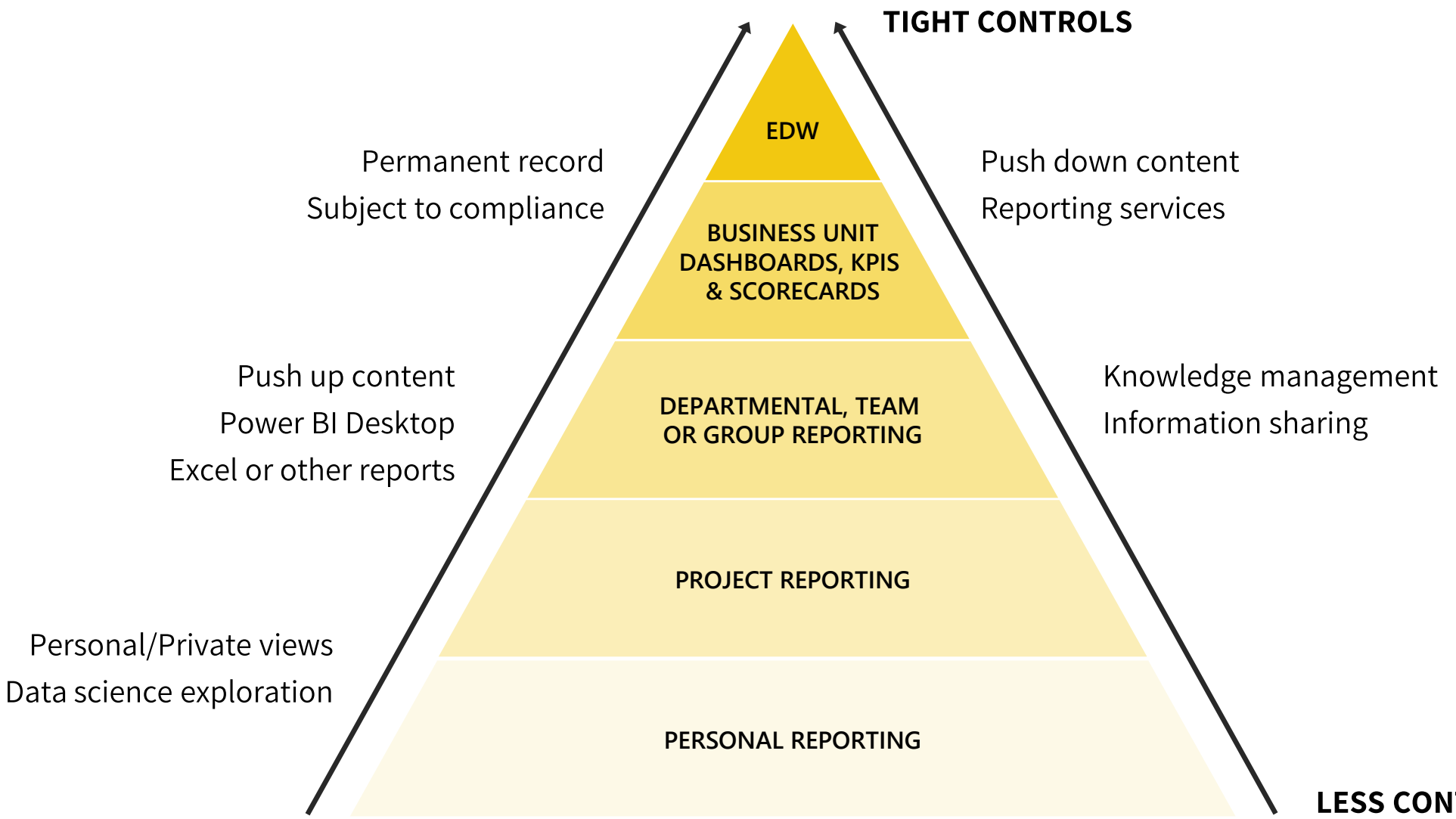
BI for everyone



Governance Model



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Everyone engages with software

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Implementing Power BI

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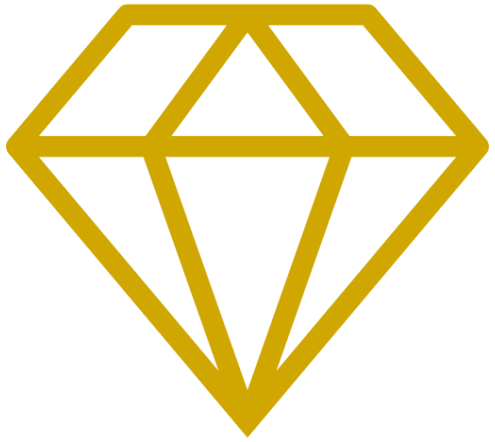
Licensing

Free

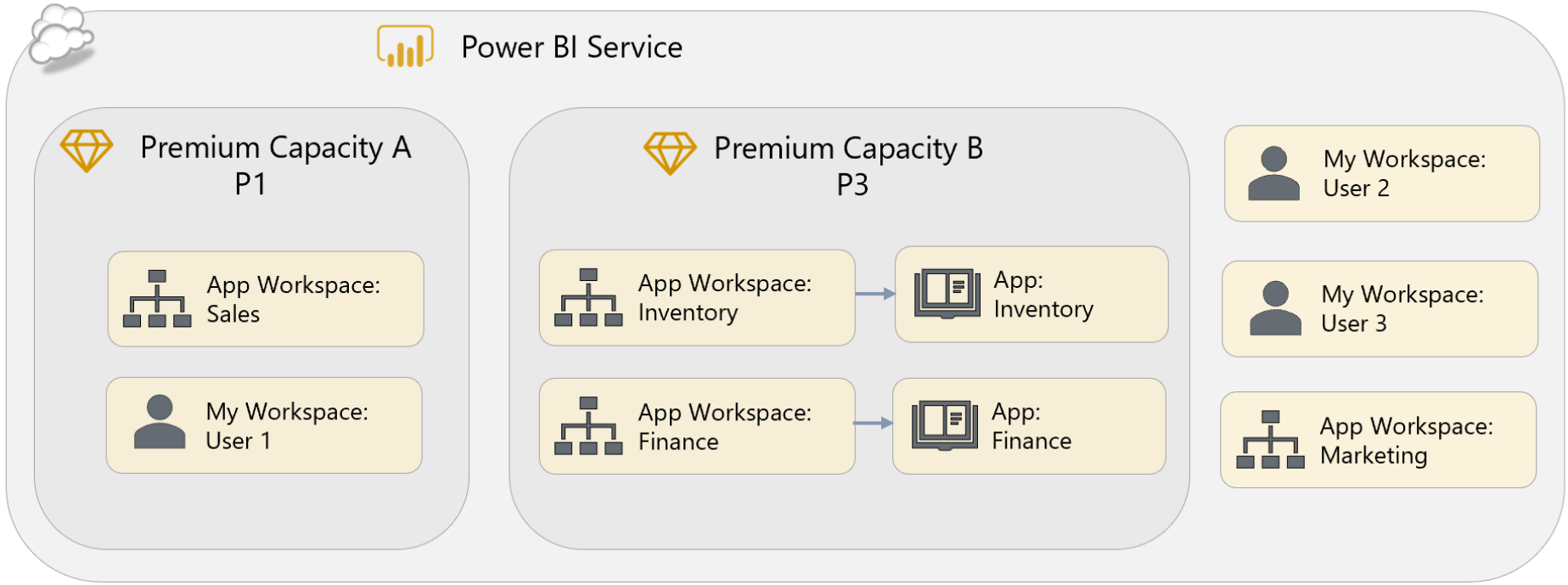
Pro



Premium

Embedded

Enterprise = premium?



Premium capacity:

Sharing requires a Pro license, but recipient can be either a Free or Pro user

Any usage of or access to an App Workspace requires a Pro license

App readers can be either Free or Pro users

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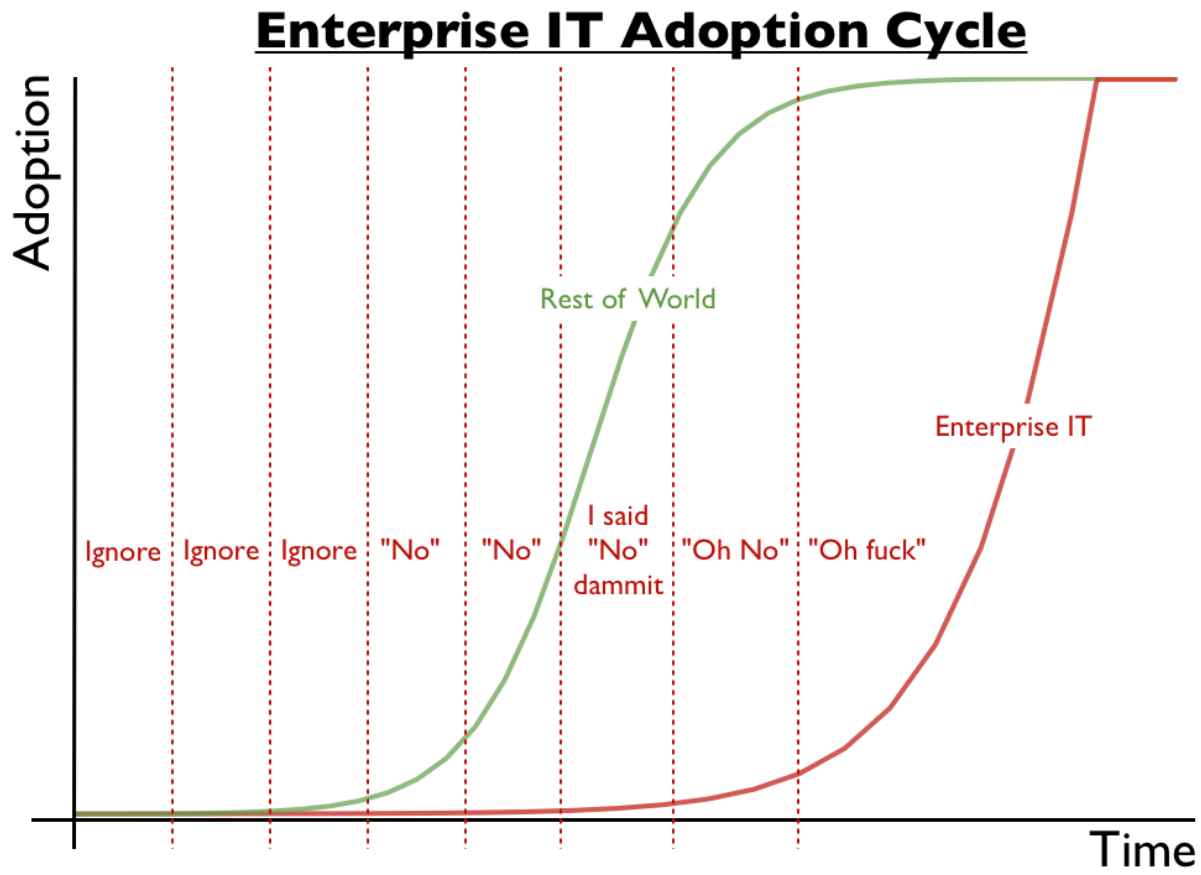
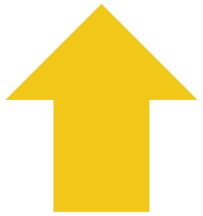
Enterprise rollout



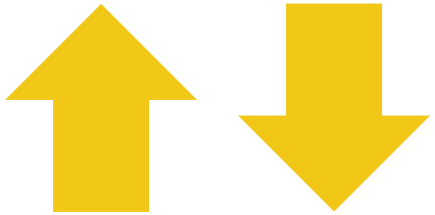
Delivery approaches

Business-Led Self-Service BI



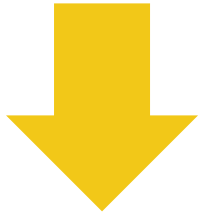
Bottom-Up

IT- Managed Self-Service BI



Blended

Corporate BI



Top-Down

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Guidance, support and expertise as a service

Best practises

Training & Support

ALM & Monitoring

Grow Scenario’s

Power BI Friends

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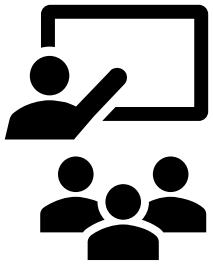
Best practises

You are the expert



Use that to make your business users a hero

- Modelling standards
- Power BI standards (Query → Front-end)
- Naming conventions
- Security awareness (possibilities)
- Training (competences, skills)
- Templates
- Application Lifecycle Management
- Collaboration standards

Power BI Solution Categories

100% Business 0% IT	**100% Business:** • Reports build and managed by **business** • Data models build and managed by **business** • No direct connections to IT managed data sources
75% Business 25% IT	**75% Business:** • Reports build and managed by **business** • Data models build and managed by **business** • Direct connections to **IT** managed data sources
50% Business 50% IT	**50%-50% Business and IT:** • Reports build and managed by **business** • Data models build and managed by **IT** • Direct connections to **IT** managed data sources
0% Business 100% IT	**100% IT Managed:** • Reports build and managed by **IT** • Data models build and managed by **IT** • Direct connections to **IT** managed data sources

Exponential growth of content

Business-Led
Self-Service BI

Bottom-Up

Chuck
Finance

Rose
Human Resources

Jena
Marketing

Kasper
Engineer

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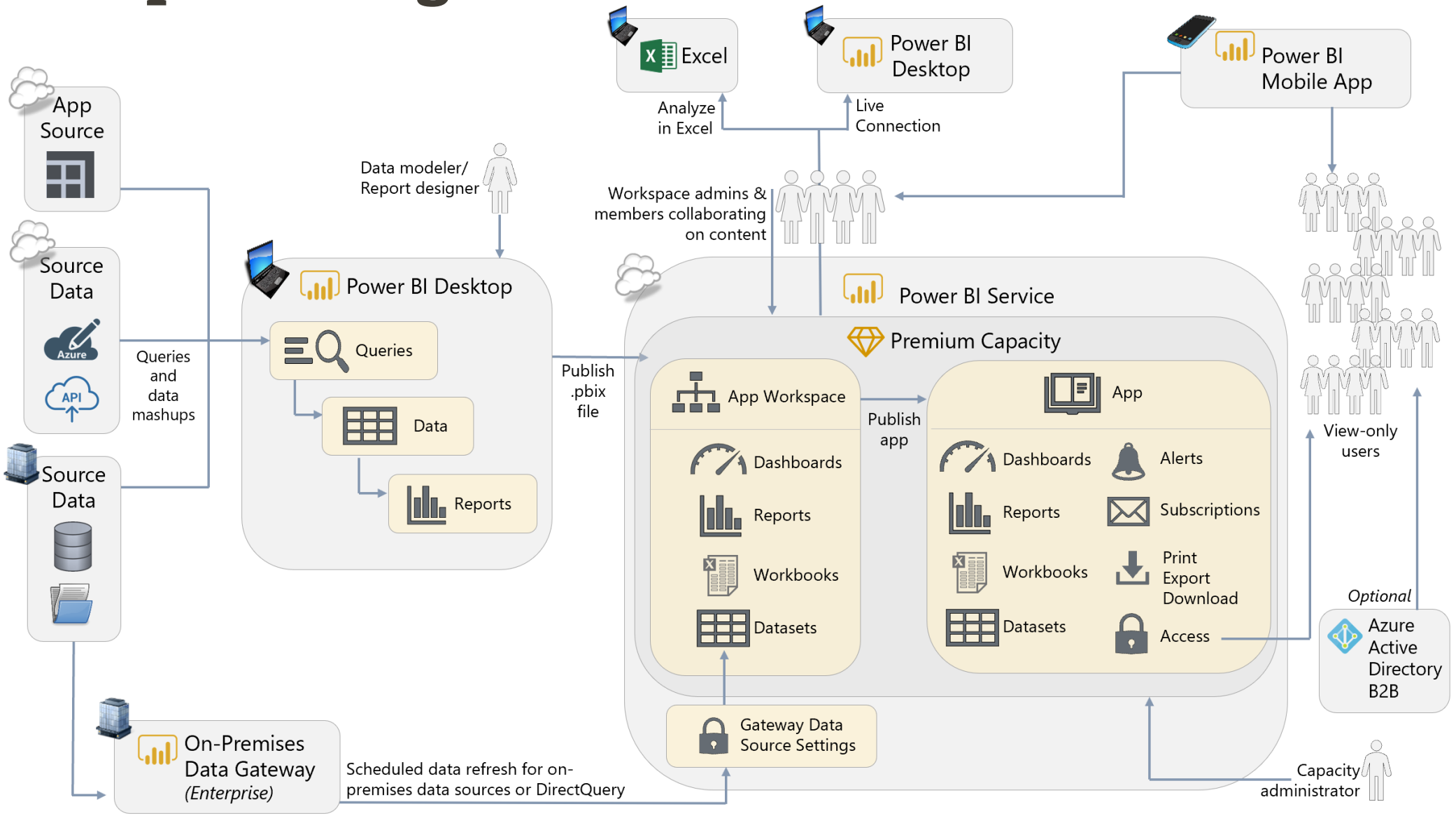
Enterprise usage scenario



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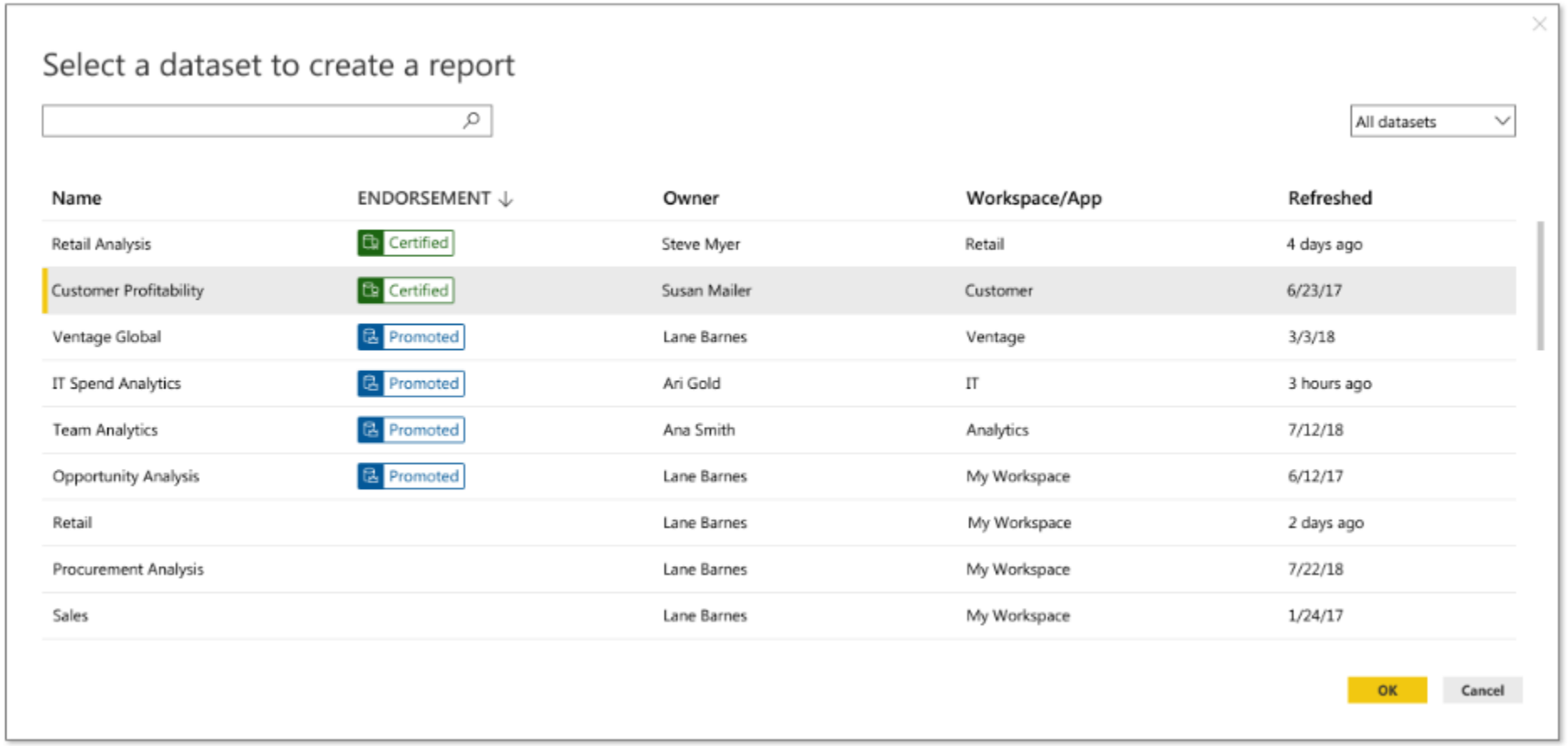
Re-use


Select a dataset to create a report
All datasets
Name
ENDORSEMENT
Owner
Workspace/App
Refreshed
Retail Analysis
Certified
Steve Myer
Retail
4 days ago
Customer Profitability
Certified
Susan Mailer
Customer
6/23/17
Ventage Global
Promoted
Lane Barnes
Ventage
3/3/18
IT Spend Analytics
Promoted
Ari Gold
IT
3 hours ago
Team Analytics
Promoted
Ana Smith
Analytics
7/12/18
Opportunity Analysis
Promoted
Lane Barnes
My Workspace
6/12/17
Retail
Lane Barnes
My Workspace
2 days ago
Procurement Analysis
Lane Barnes
My Workspace
7/22/18
Sales
Lane Barnes
My Workspace
1/24/17
OK
Cancel

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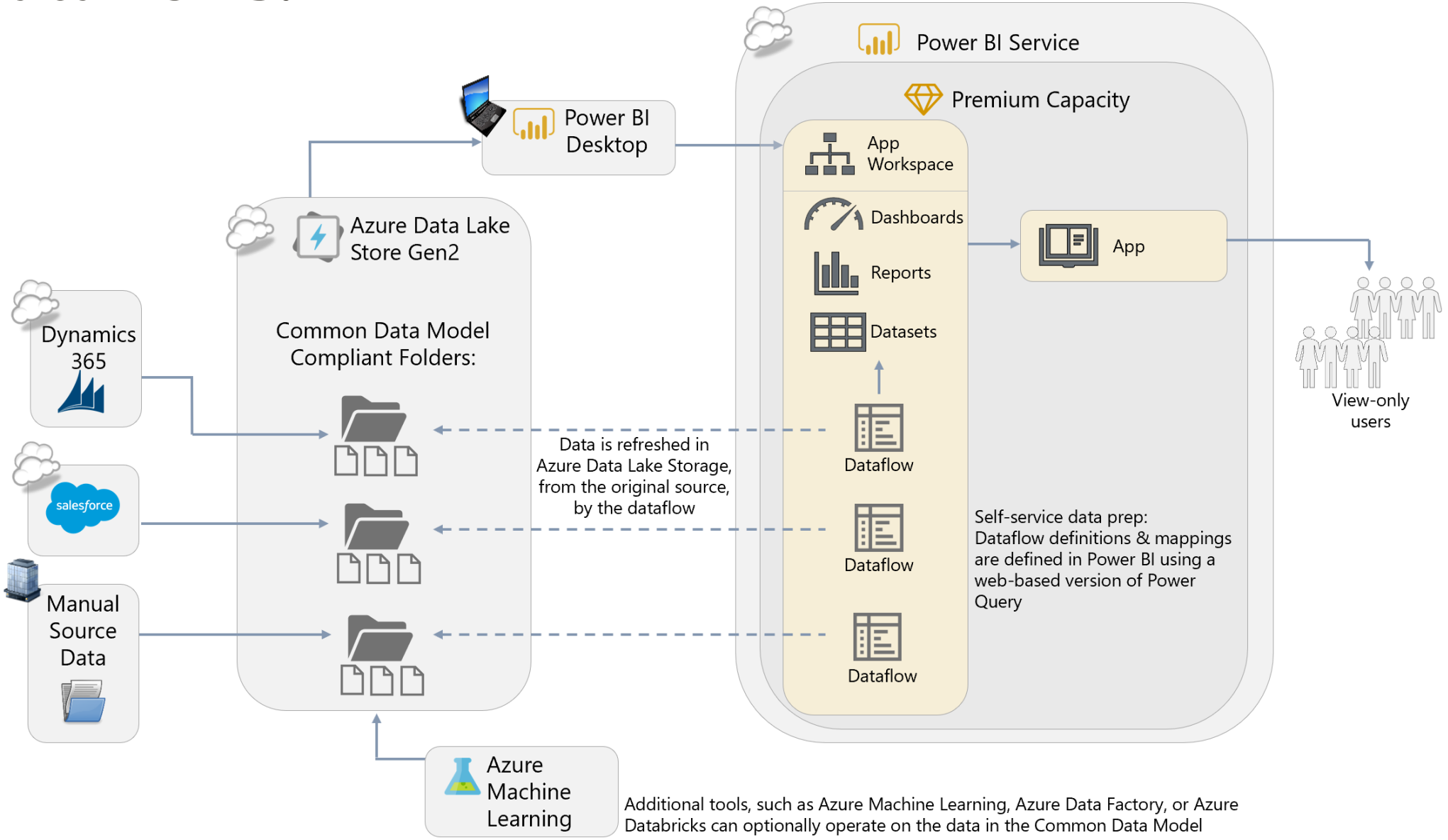
Dataflows!



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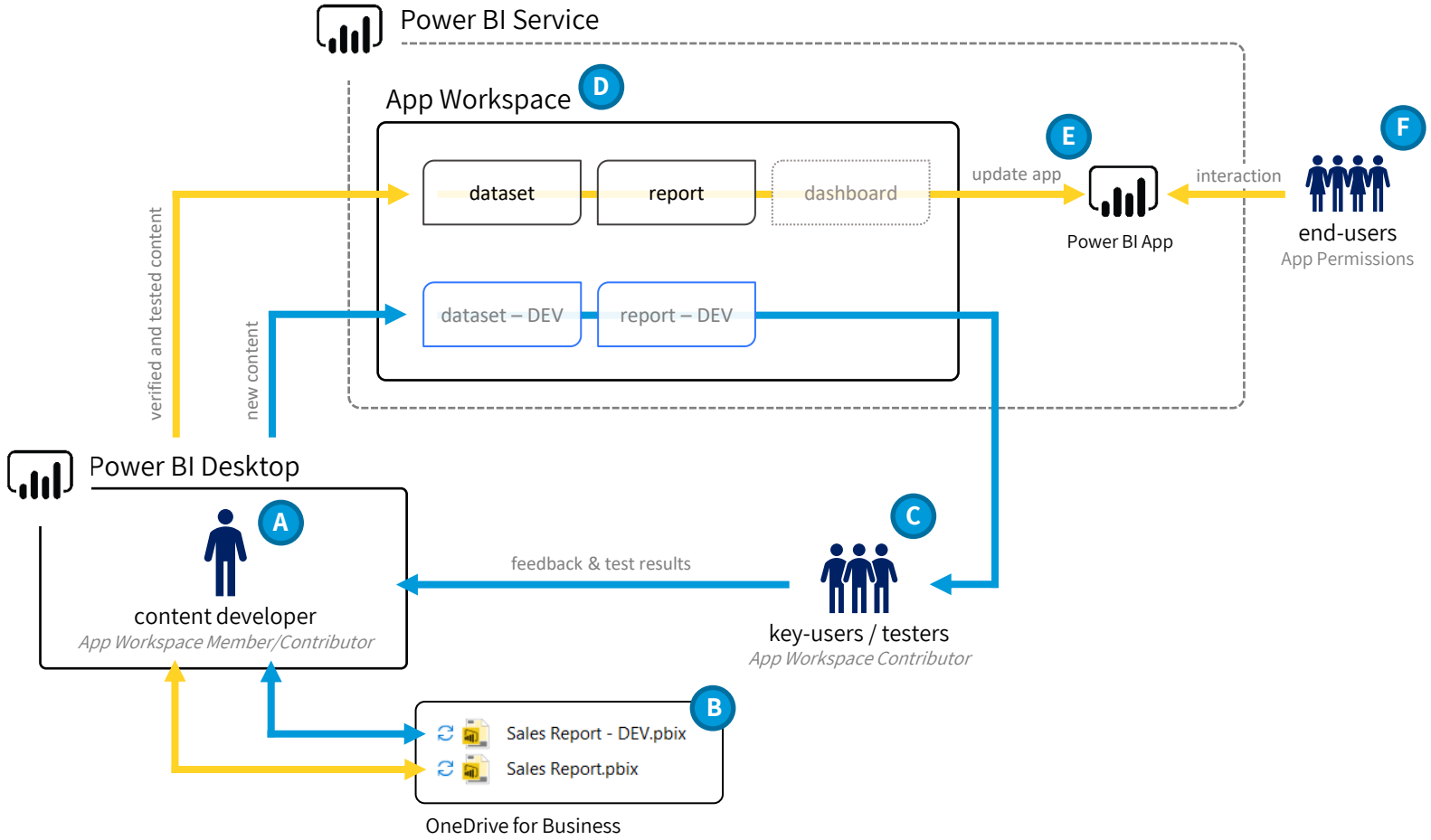
Multi-Tier Lifecycle Management by Business Users



A Report author uses Power BI Desktop to create content and publishes (un)verified content to the App Workspace. *Requires a Power BI Pro license. Power BI Desktop should be installed via the Windows 10 Store where possible, to ensure automatic updates and a consistent version in the organization.*

B Collaboration and version history is taken care of using a locally synchronized OneDrive for Business folder. Each save in Power BI Desktop automatically creates a file version.

C Key-user accesses content in the App Workspace for verification and testing purposes. Uses the comments functionality of the App Workspace to provide feedback. *Requires Contributor role until a read-only Viewer role is available. Requires a Power BI Pro license.*

D Both production and development Power BI content reside in the App Workspace. The development content has a postfix of " – DEV" and has the 'INCLUDED IN APP" switch in the "Off" position. Dashboards are developed against the production reports.

E Power BI App is published or updated. Preferably 'Install app automatically' is used. Preferably a mail-enabled security group is used (Active Directory). *Requires Admin or Member role.*

F End-user accesses Power BI App. Uses the comment functionality of the App.

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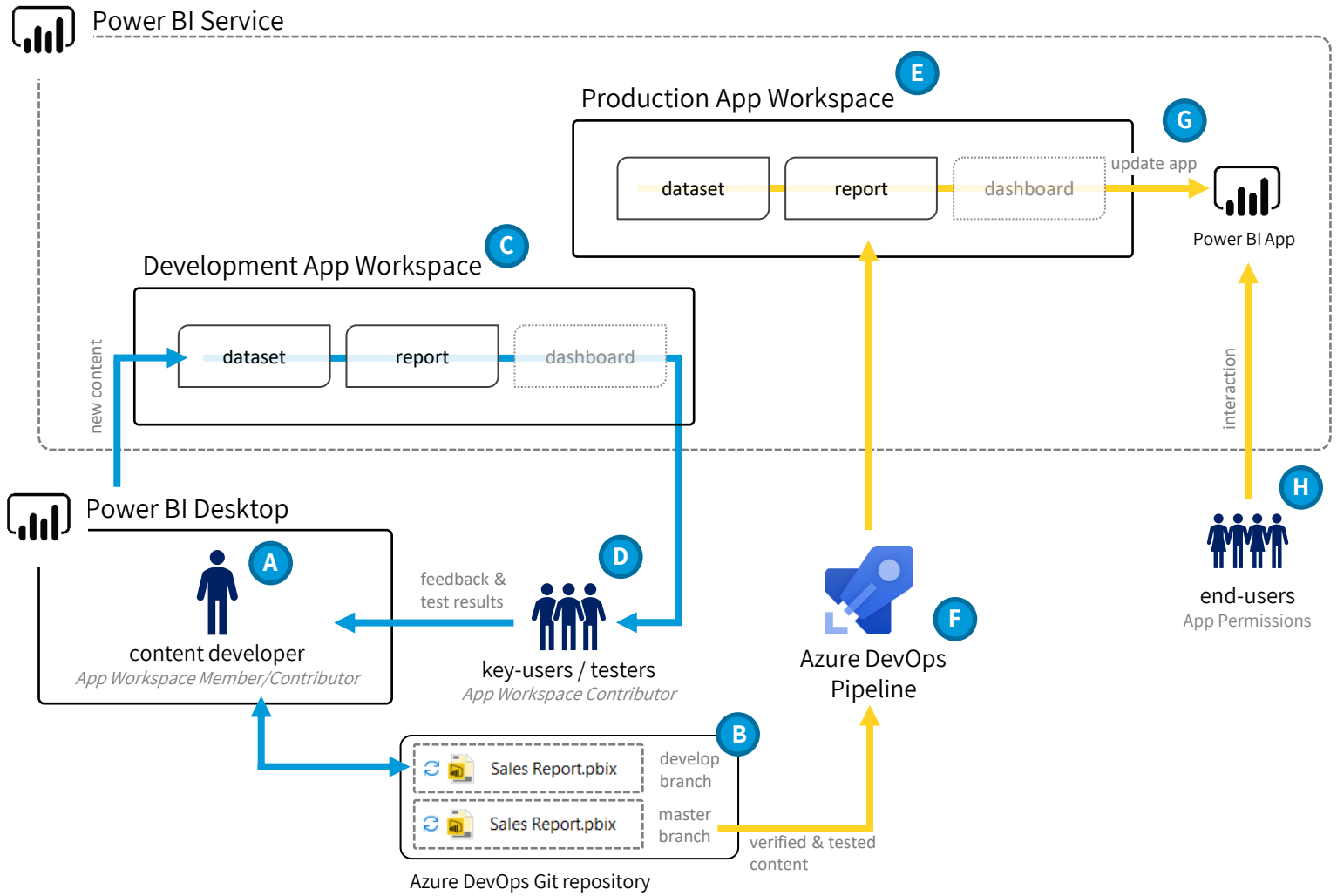
Multi-Tier Lifecycle Management by Business & IT



A Report author uses Power BI Desktop to create content and publishes content to the Development App Workspace. *Requires a Power BI Pro license. Power BI Desktop should be installed via the Windows 10 Store where possible, to ensure automatic updates and a consistent version in the organization.*

B Collaboration and version history is taken care of using a Azure DevOps Git repository folder. Development content is promoted to the master branch using a pull request.

C The Development App Workspace is used to continuously develop and improve the Power BI Solution. Dashboards are developed inside this Workspace.

D Key-user accesses content in the App Workspace for verification and testing purposes. Uses the comments functionality of the App Workspace to provide feedback. *Requires Contributor role until a read-only Viewer role is available. Requires a Power BI Pro license.*

E The sole purpose of the Production App Workspace is to facilitate publishing the Power BI App.

F An Azure Pipeline in Azure DevOps Services is used to implement the automated deployment of the Power BI file to the Power BI Service.

G Power BI App is published or updated. Preferably 'Install app automatically' is used. Preferably a mail-enabled security group is used (Active Directory). *Requires Admin or Member role.*

H End-user accesses Power BI App. Uses the comment functionality of the App.

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WHY
WHICH
?
WHEN

Use parameters

To add extra flexibility to your Power BI content

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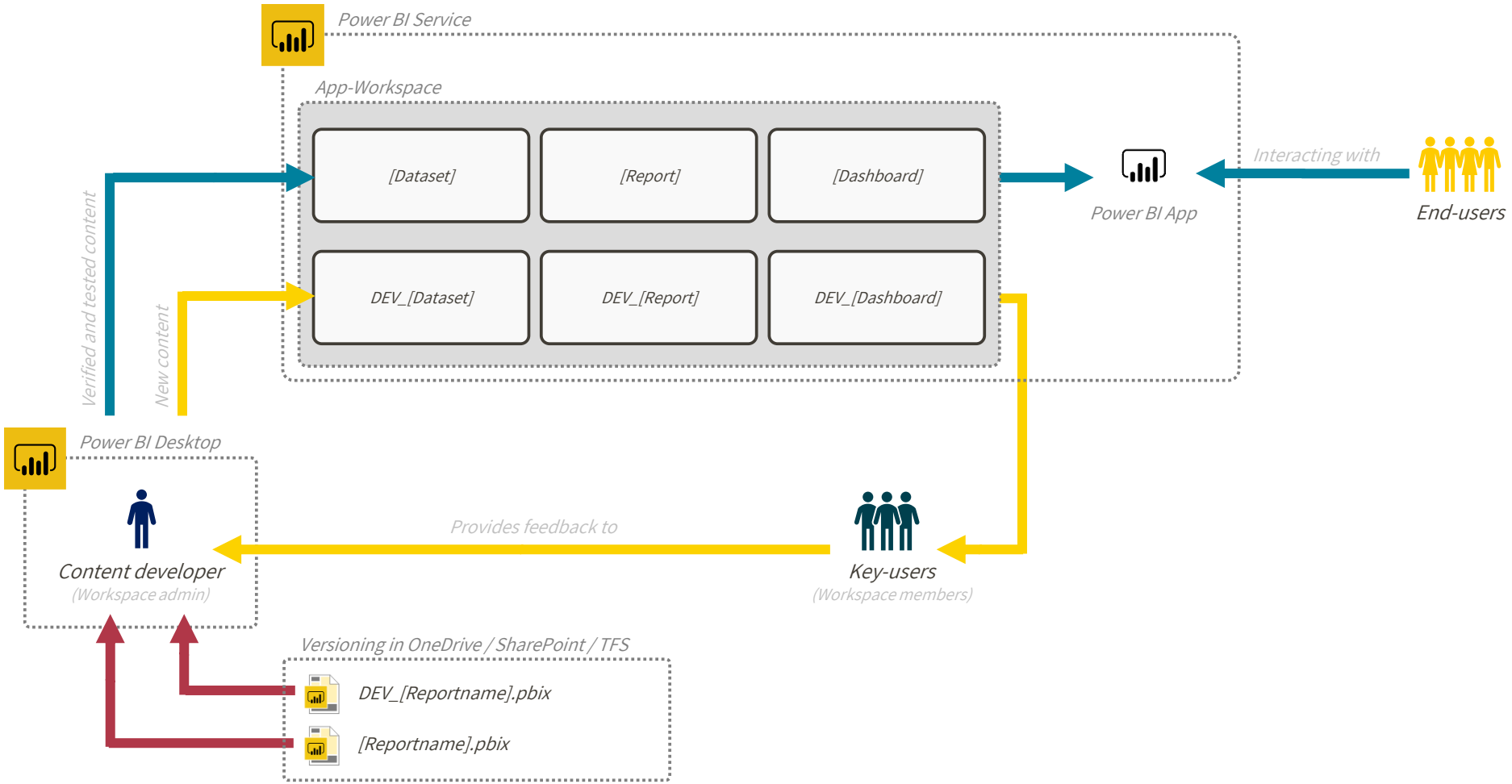
DTAP Pipeline

DTAP

Power BI Deployment



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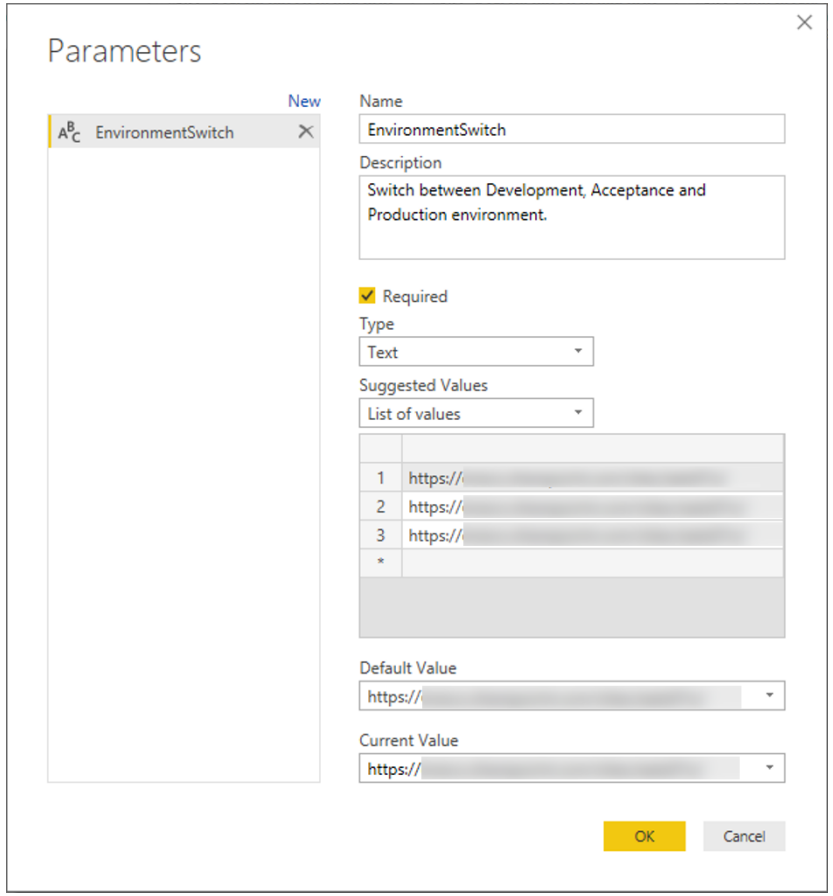
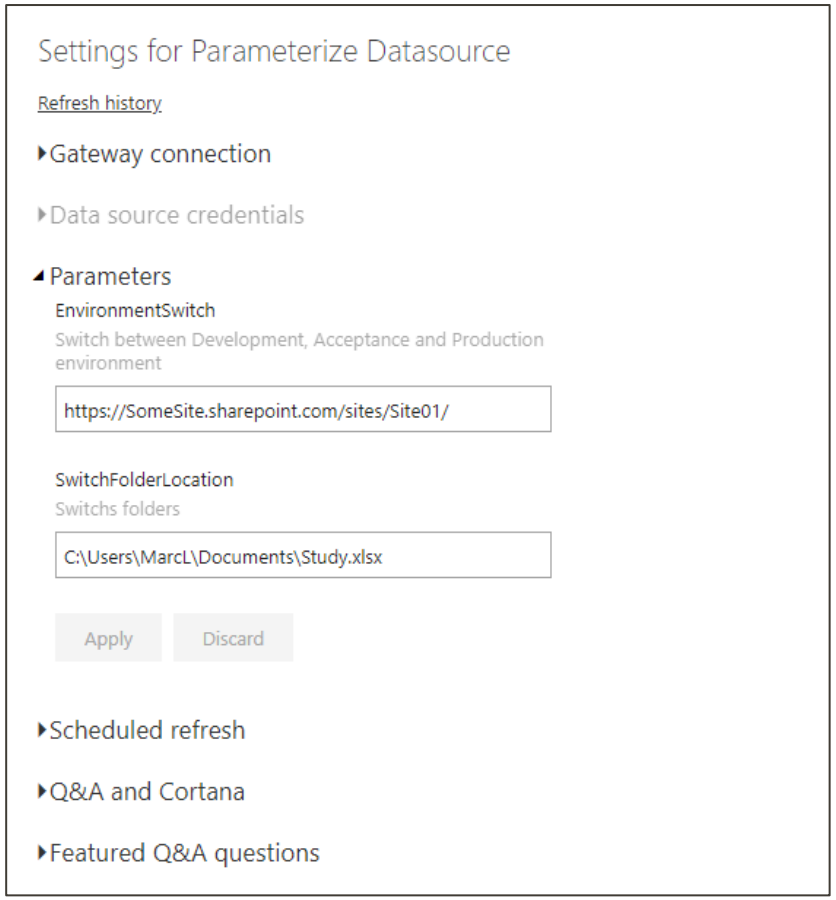
Parameter settings

Desktop



Service



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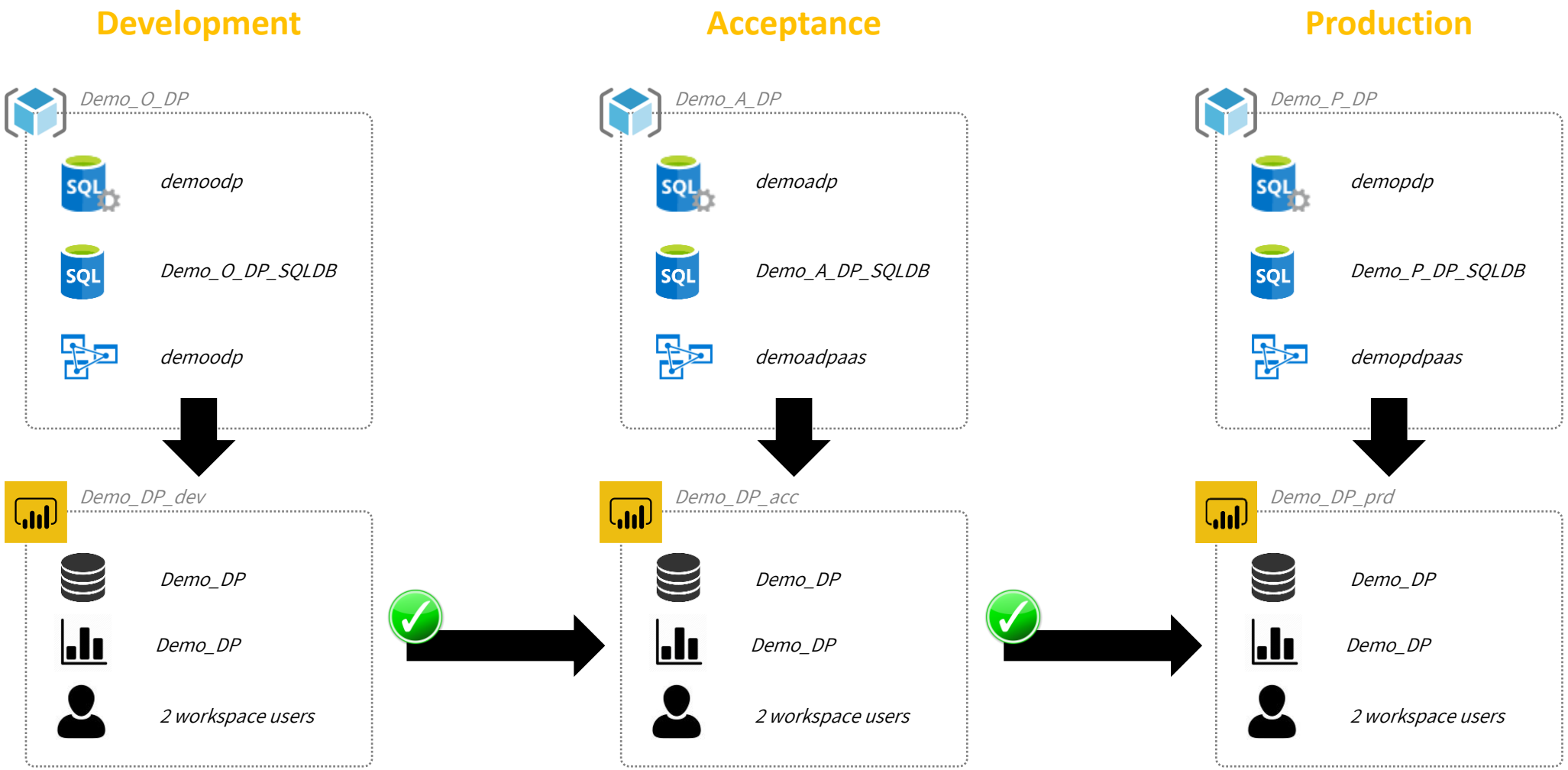
Demo Context



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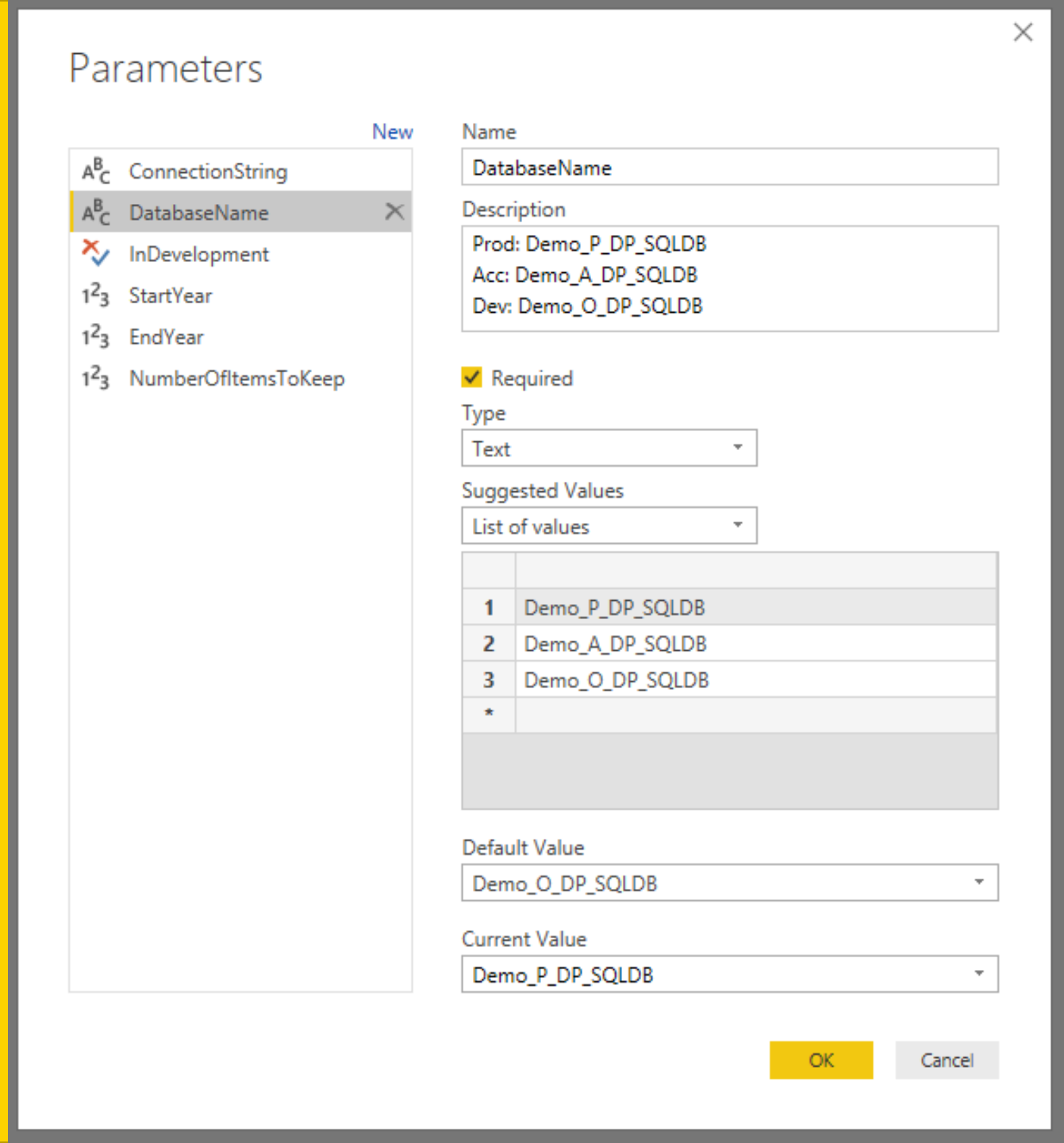
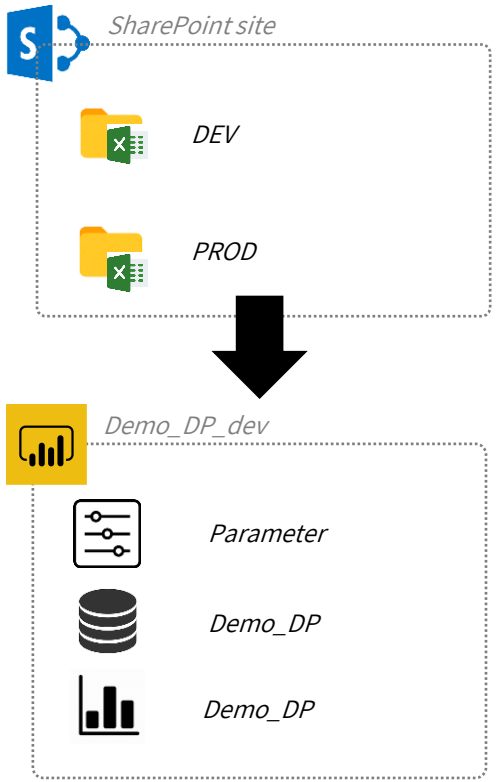
Demo:

Change data source connection string



Switching folders!



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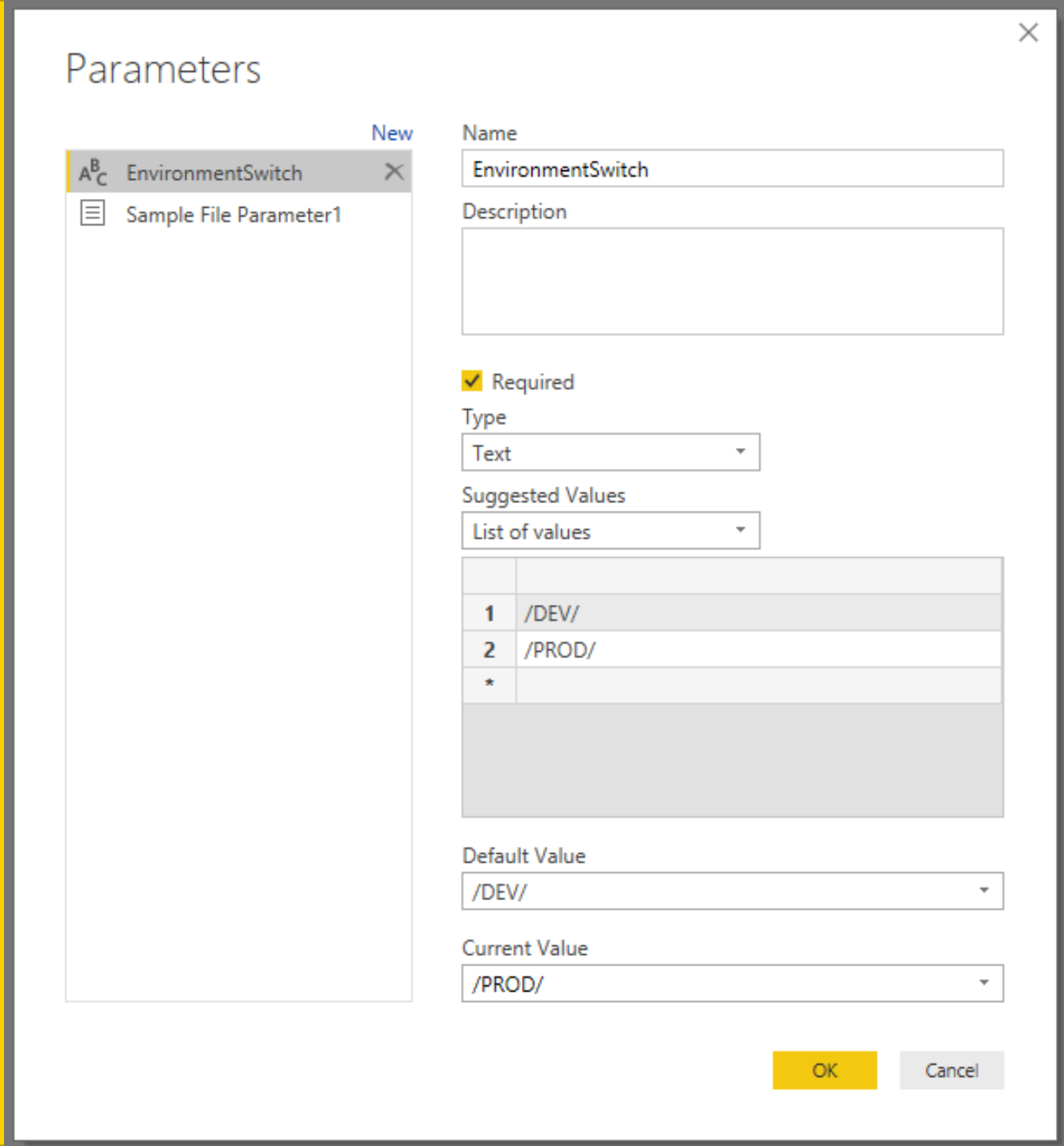
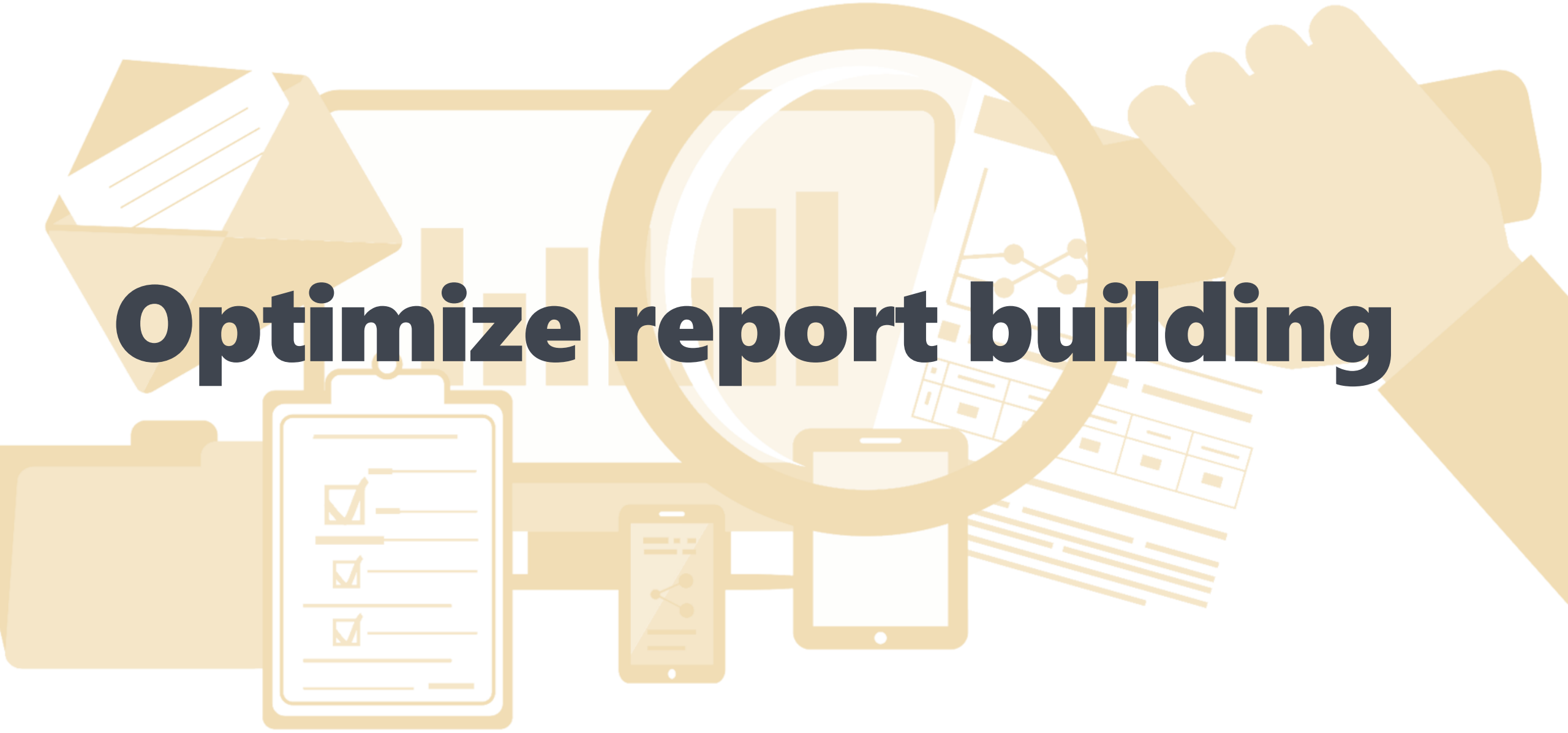
Demo:

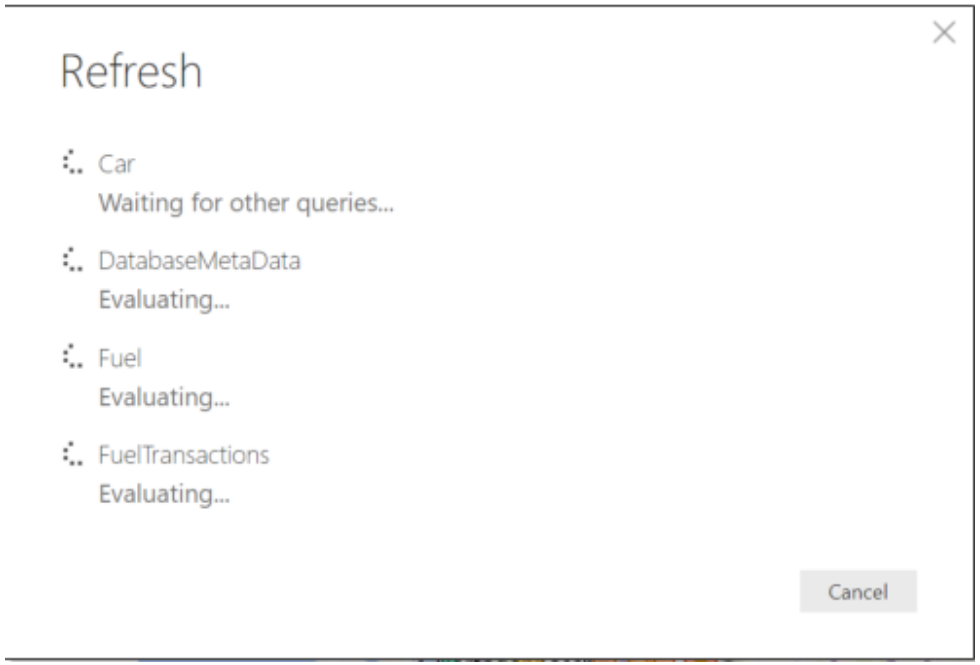
Change folder





Optimize report building

Big loads of data!



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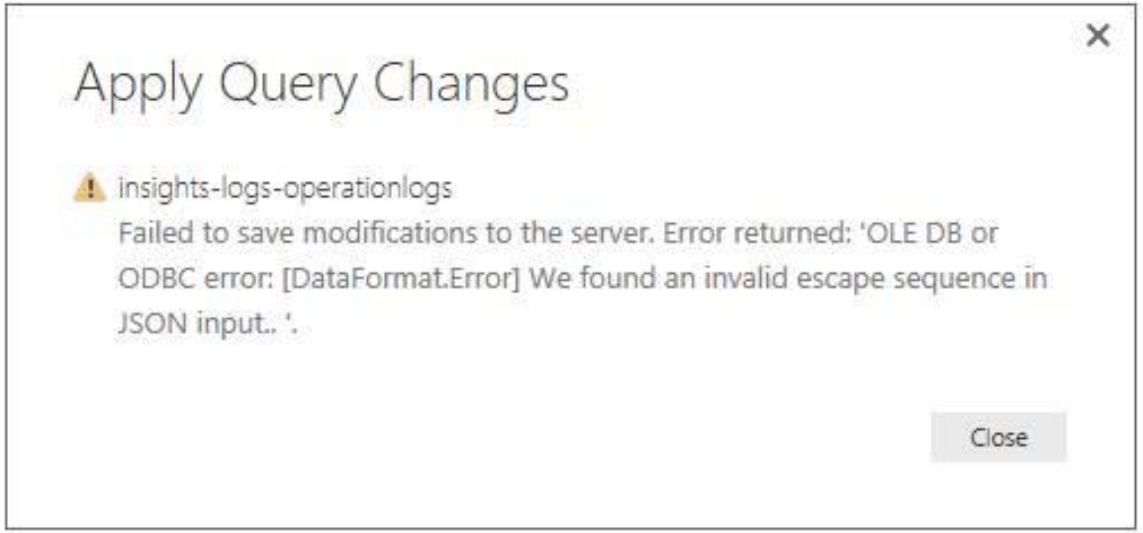
Big loads of data!



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Query folding

Generate SQL queries

Push queries back to the source

Improve performance in Power Query

Query folding

Supported Sources

- Relational data sources (SQL Server, Oracle…)
- OData sources (SharePoint lists…)
- Active Directory
- Exchange

Query folding

Supported Operations

- Filtering (both rows and columns)
- Joins
- Aggregation (Group By)
- Pivot and Unpivot
- Numeric Calculations
- Simple transformations (Uppercase / Lowercase)

Lab:

Apply top N rows

Advanced Editor

FuelTransactions

```
let
    Source = Sql.Databases((ConnectionString)),
    Database = Source{[Name=(DatabaseName)]}[Data],
    dbo_FuelTransactions = Database{[Schema="dbo",Item="FuelTransactions"]}[Data],
    #"Kept First Rows" =
        if (InDevelopment) = true
            then Table.FirstN(dbo_FuelTransactions,(NumberOfItemsToKeep))
            else #"dbo_FuelTransactions",
    #"Inserted Parsed Date" = Table.AddColumn(#"Kept First Rows", "ParsedDate", each
in
    #"Inserted Parsed Date"
```

No syntax errors have been detected.

Parameters...

…makes it easier to **move through** your DTAP pipeline.

…improves the development **performance** and experience.

…are still **changeable** after publishing.

…easy to use for creating **templates**.

…add extra flexibility for **explorative reporting**.


WHY
WHICH
?
WHEN

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Challenge accepted.

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Power BI Enterprise Deployment

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Our way of working

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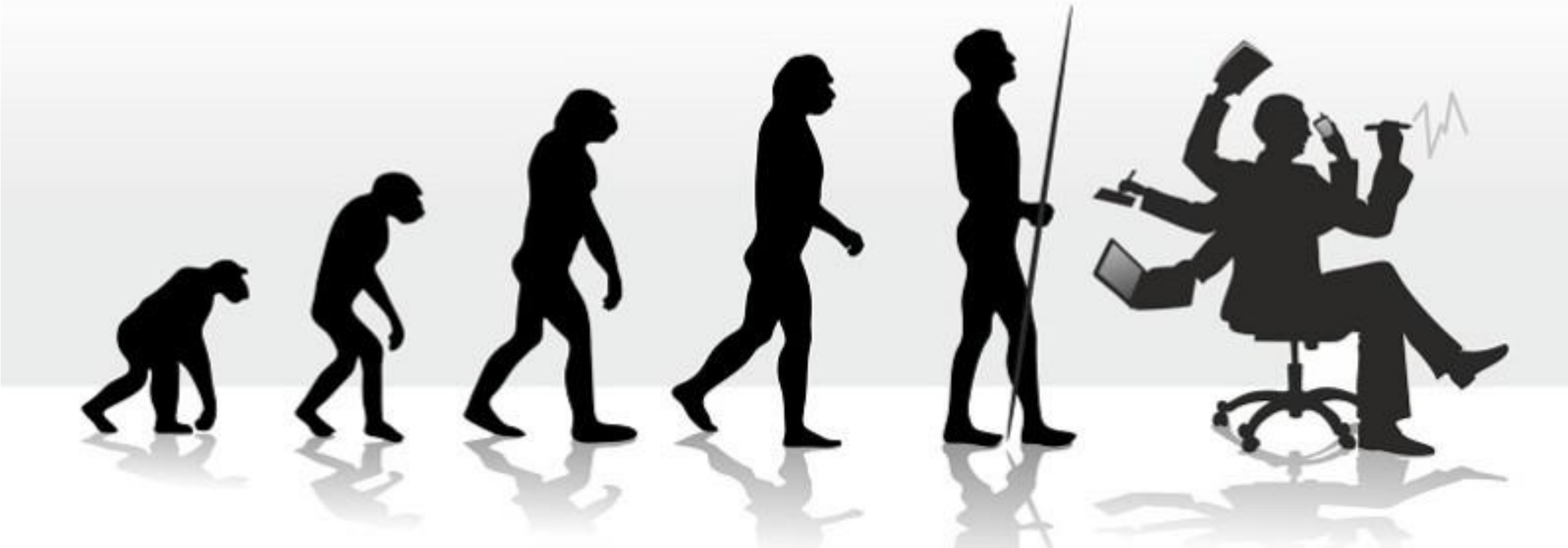
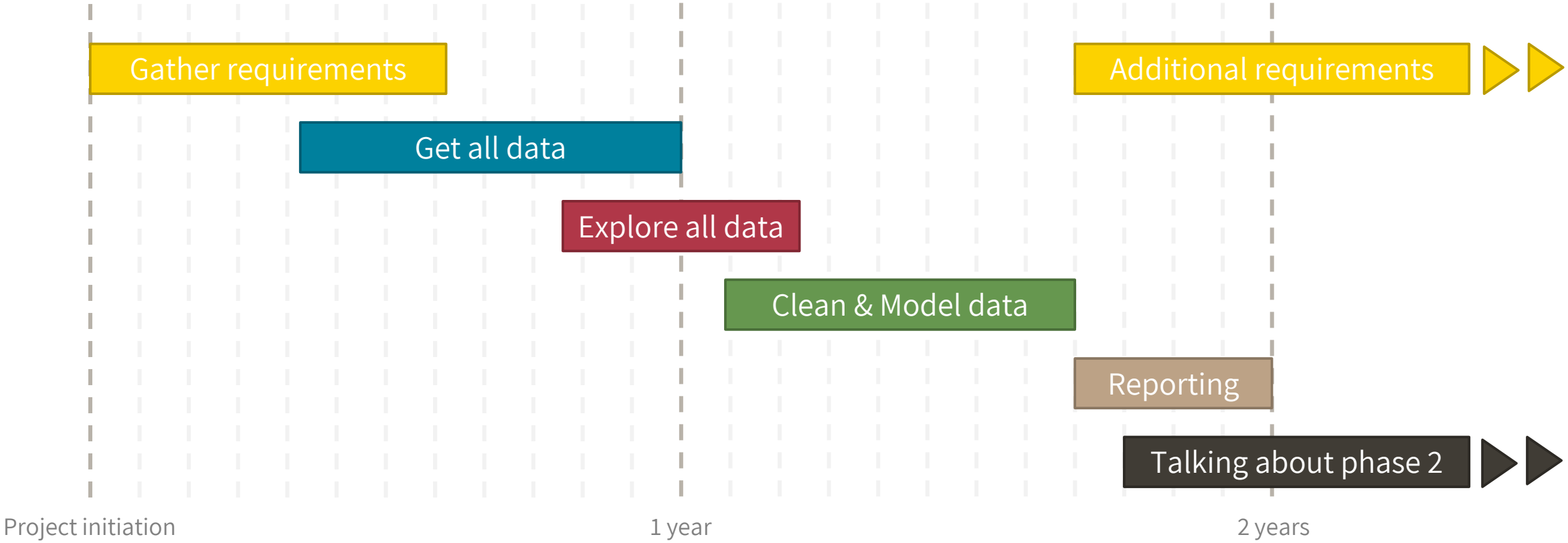
Busy era



Classic approach



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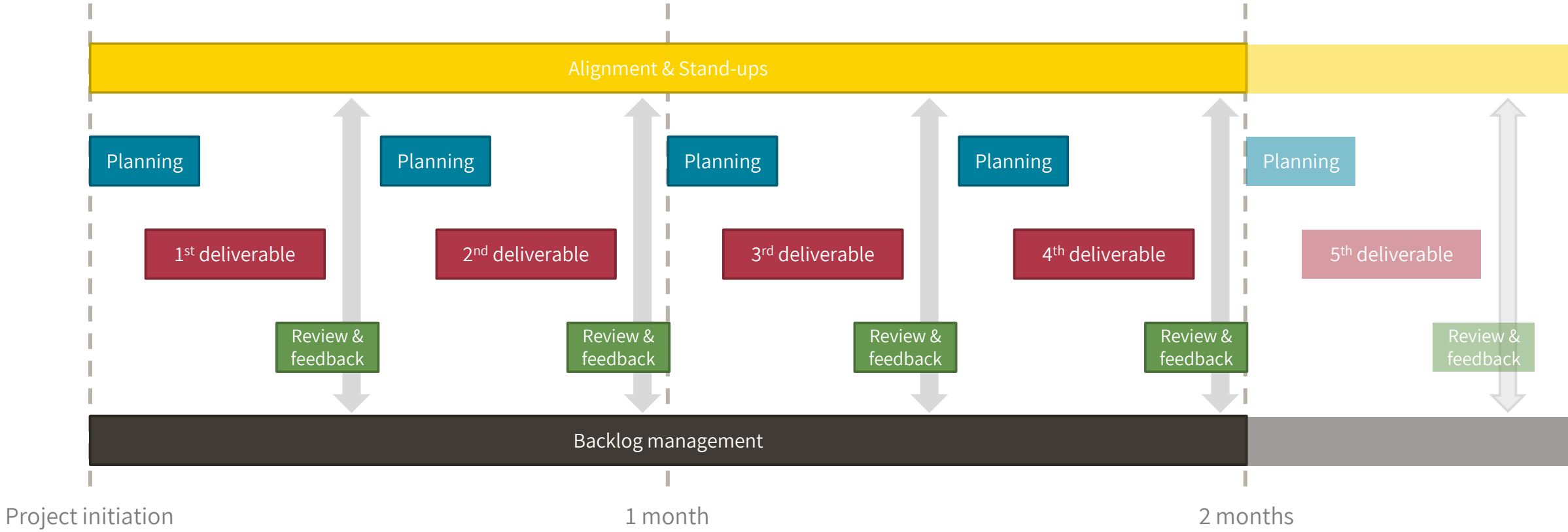
Start working agile



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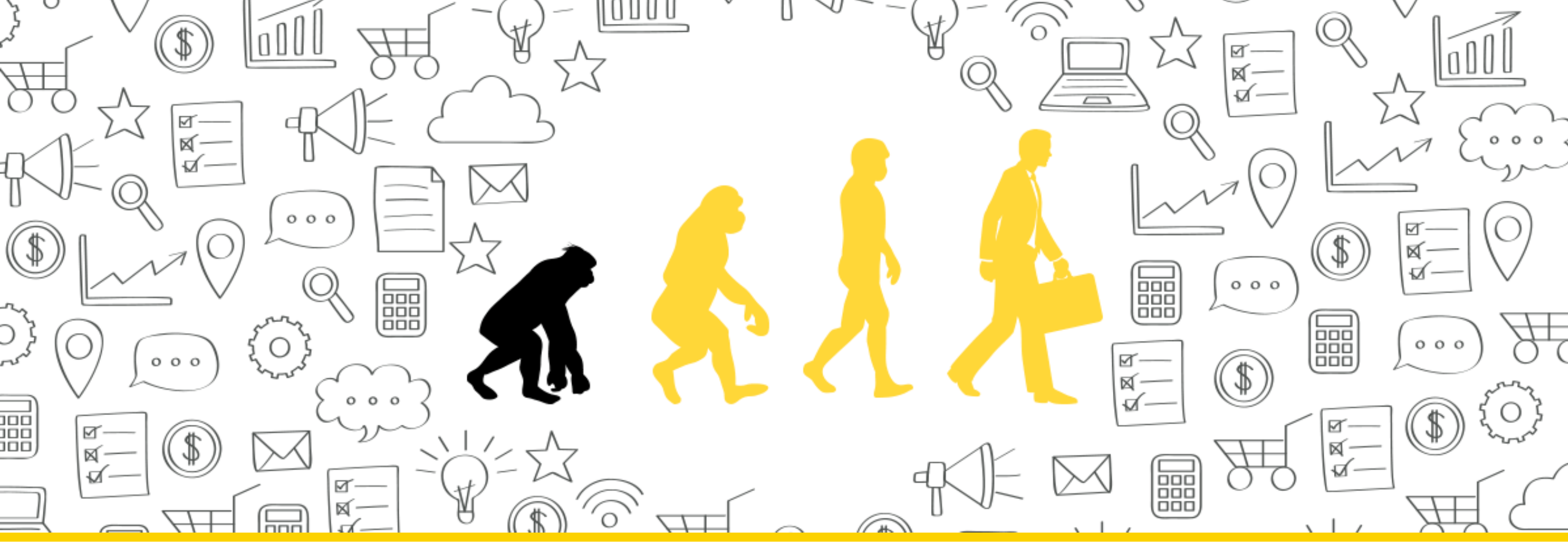

The Evolution of BI

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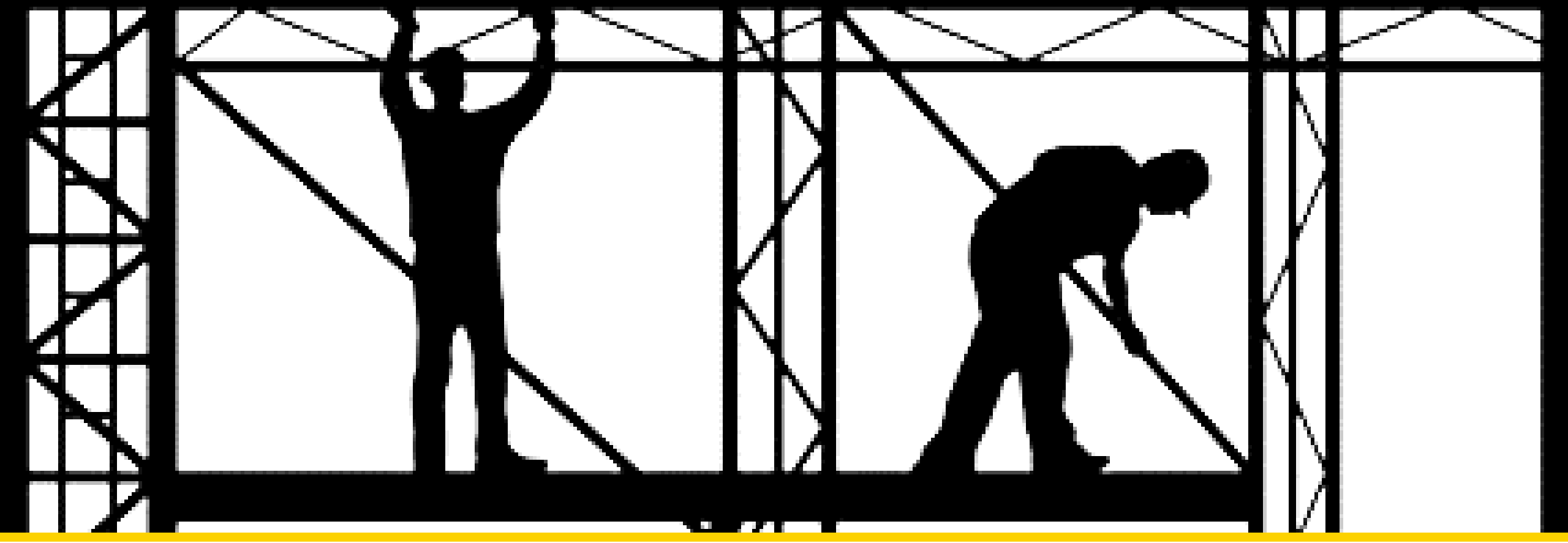
Self-Service vs End-user BI



Deployment Framework

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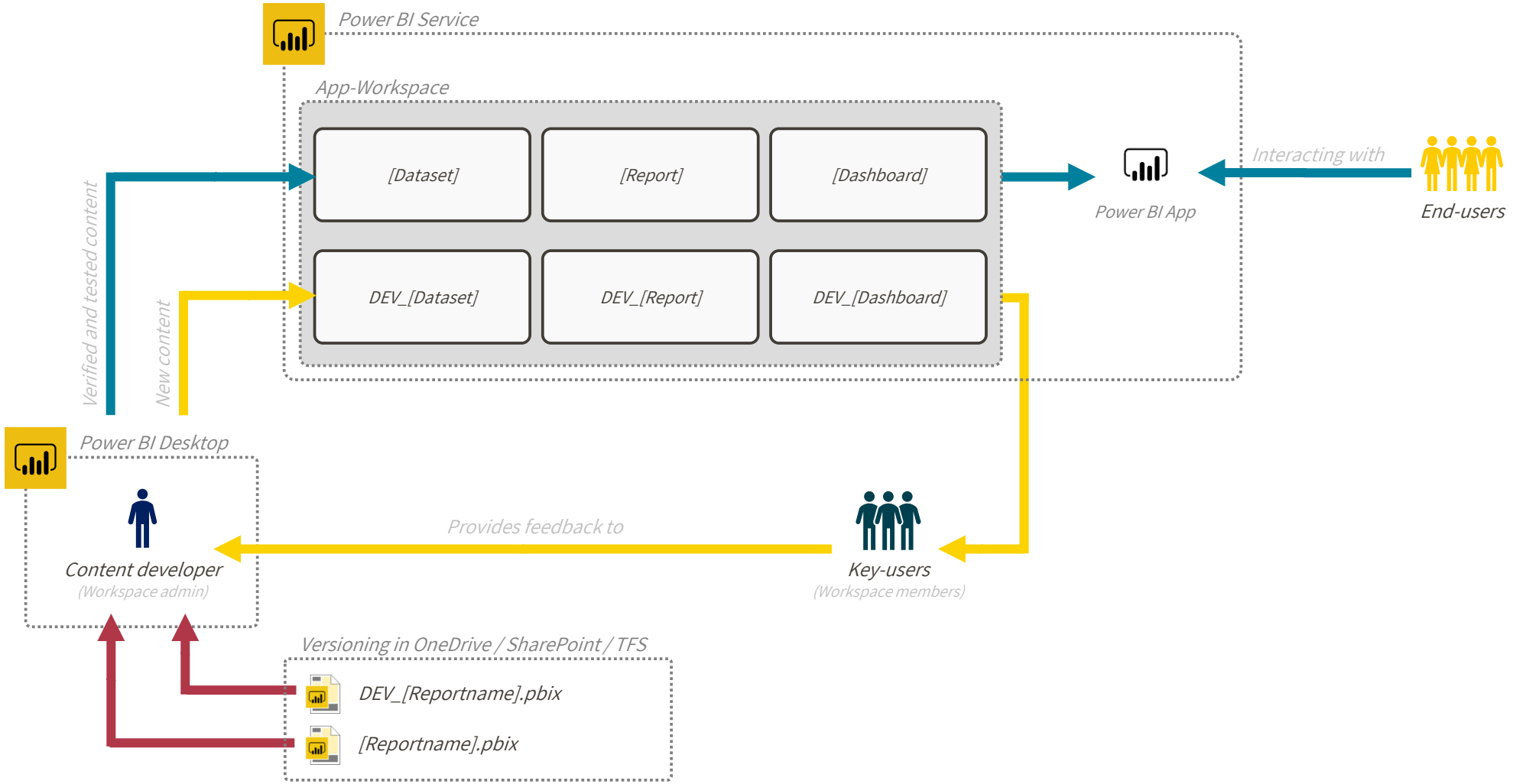
Deployment Framework

At a small scale



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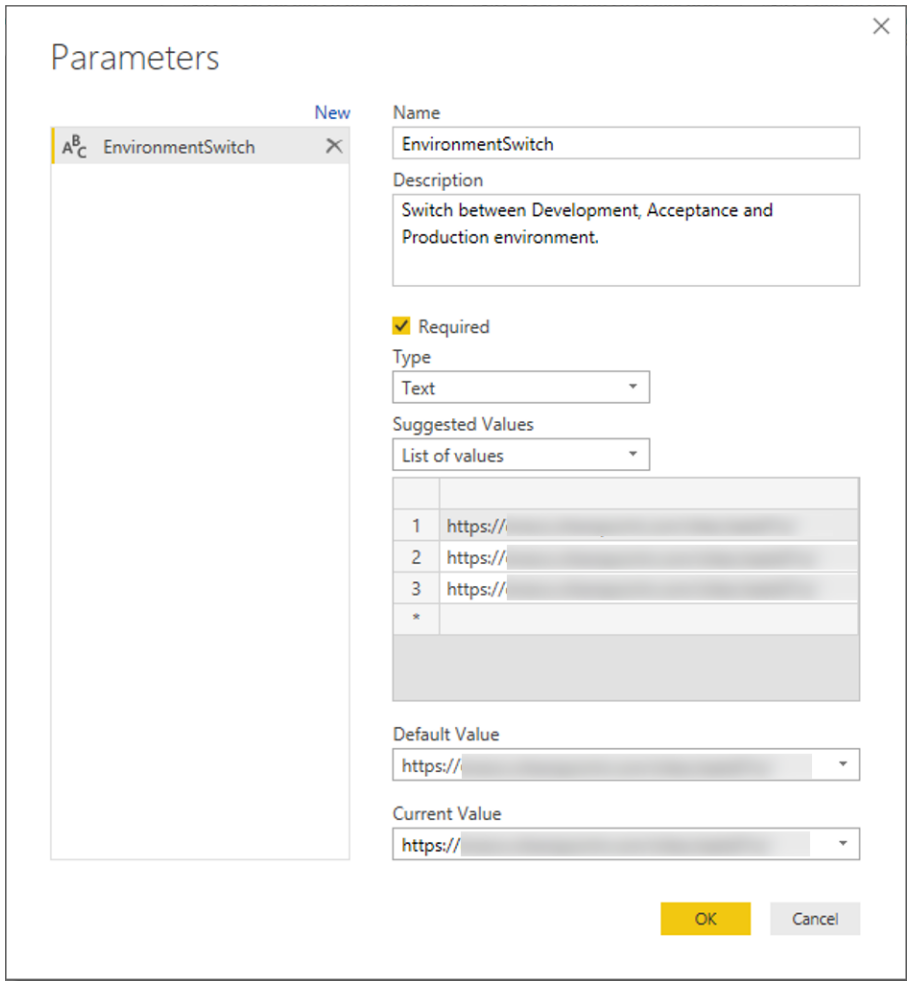
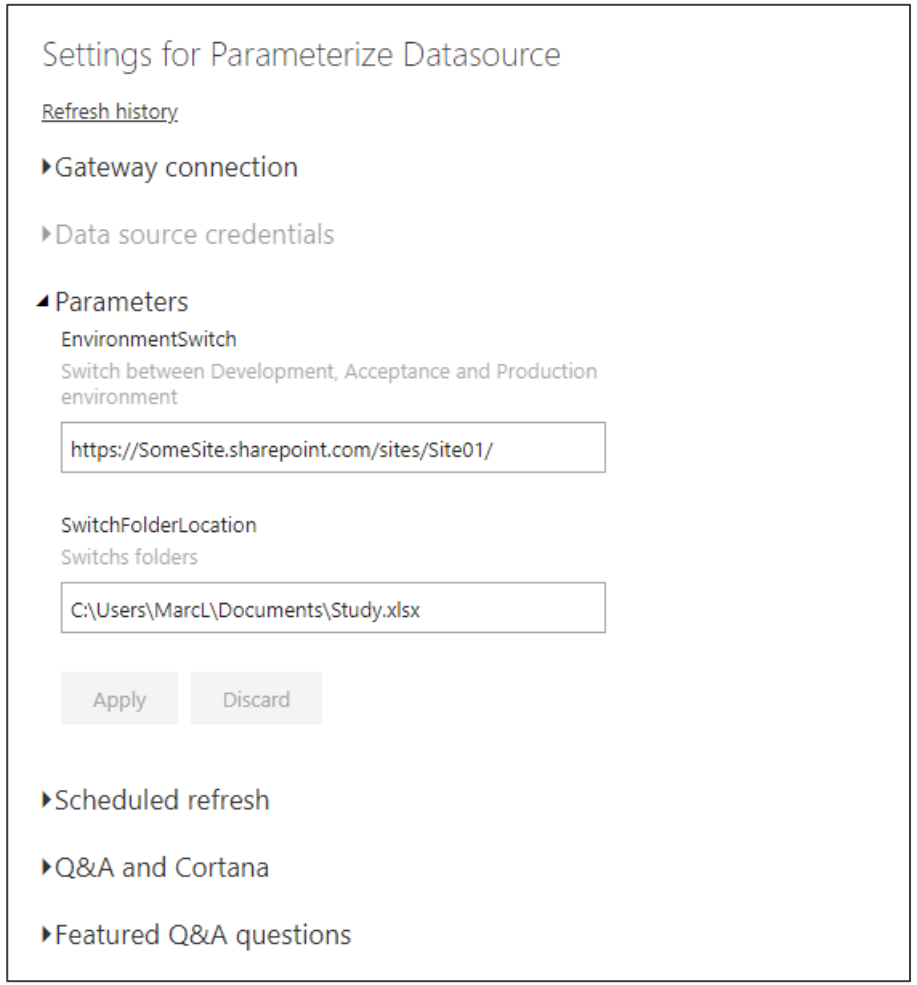
Deployment Framework

At a small scale





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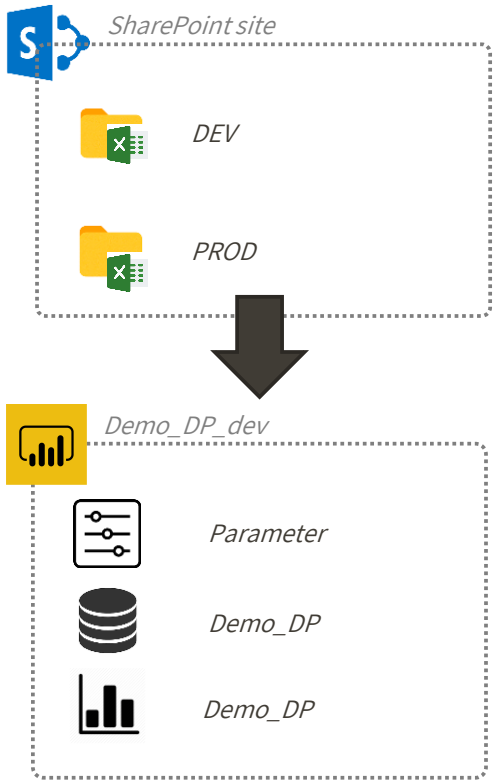
Demo context

At a small scale



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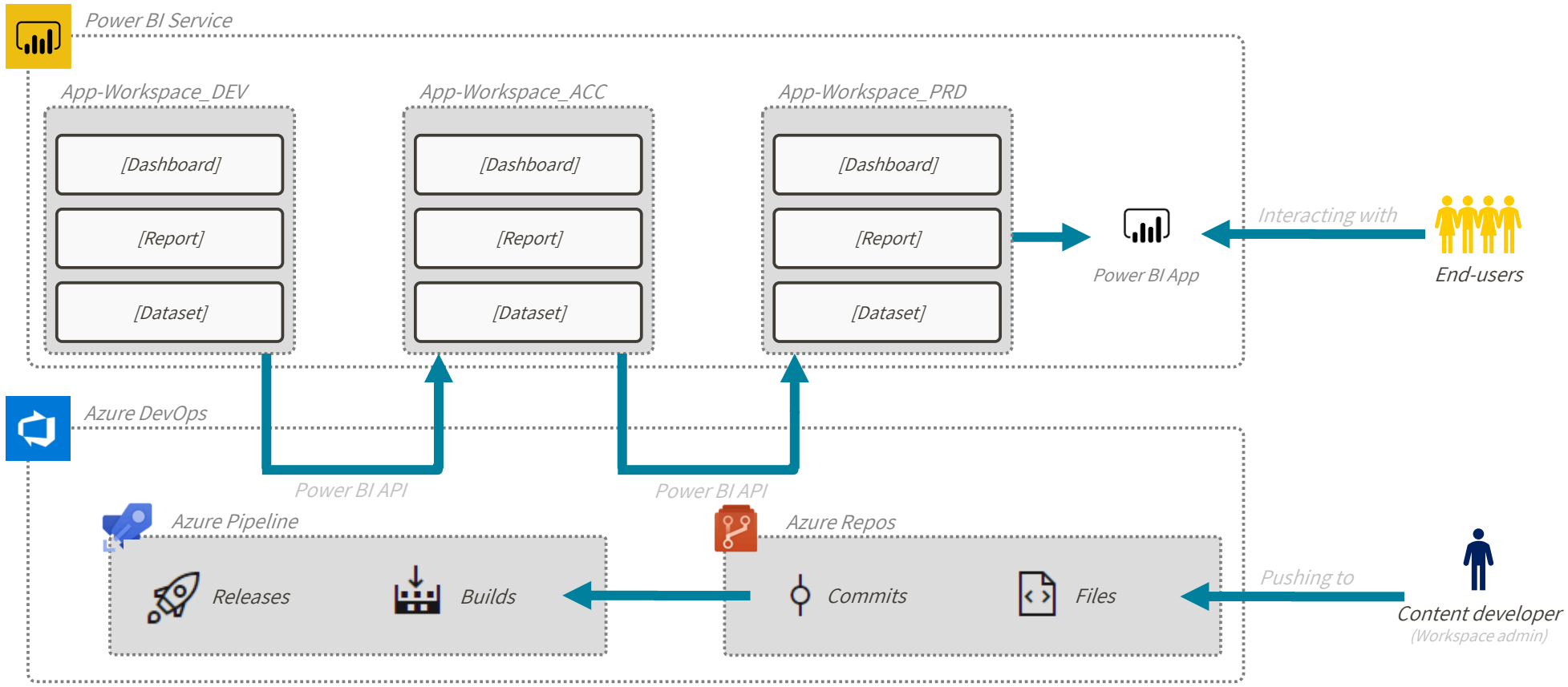
Deployment Framework

At a larger scale



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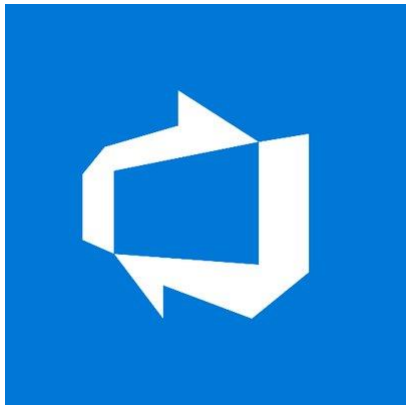
Deployment Framework

At a larger scale

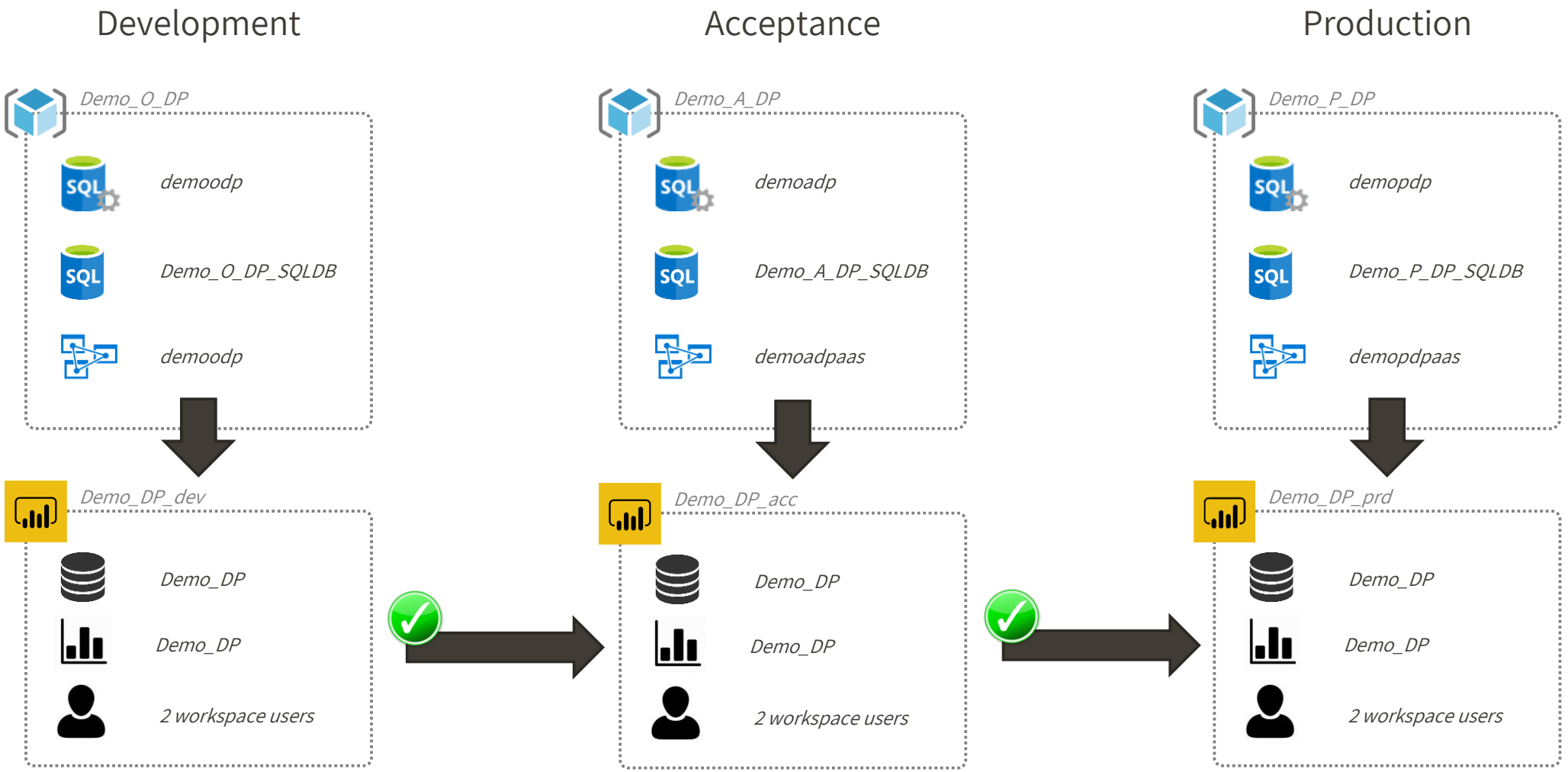


Azure DevOps

Power BI Service

Demo context

At a larger scale



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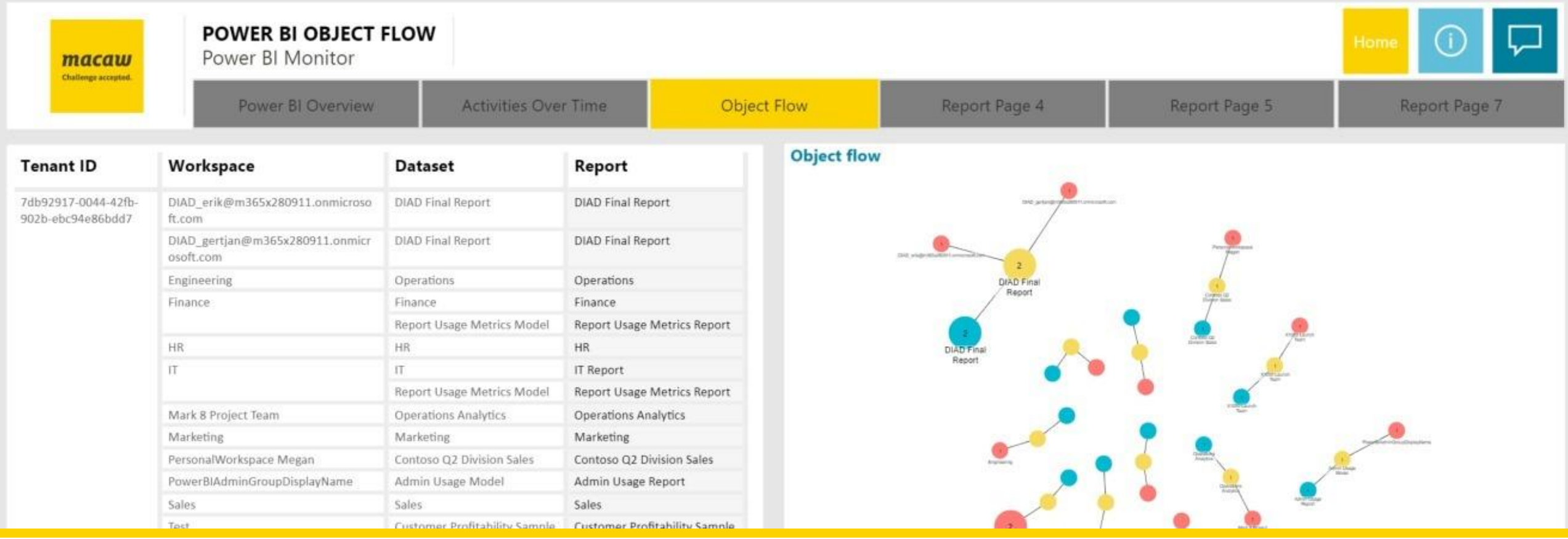
Demo:

Azure DevOps Power BI Deployment


WHY
WHICH
?
WHEN



End to end monitoring

For a successful Power BI implementation

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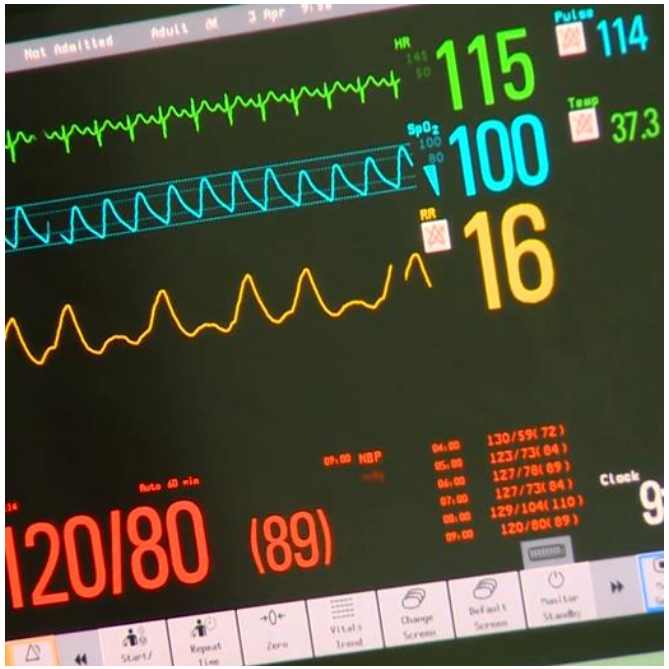
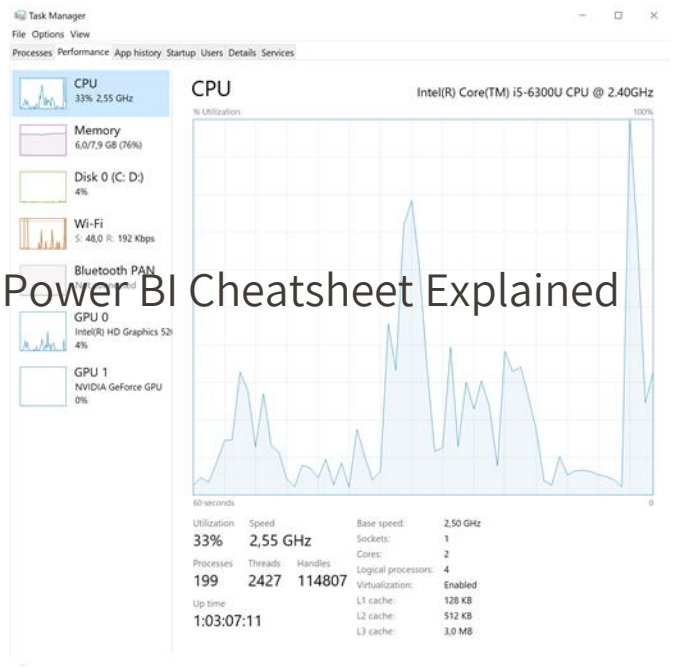
DATA BREACH

First thoughts on monitoring?

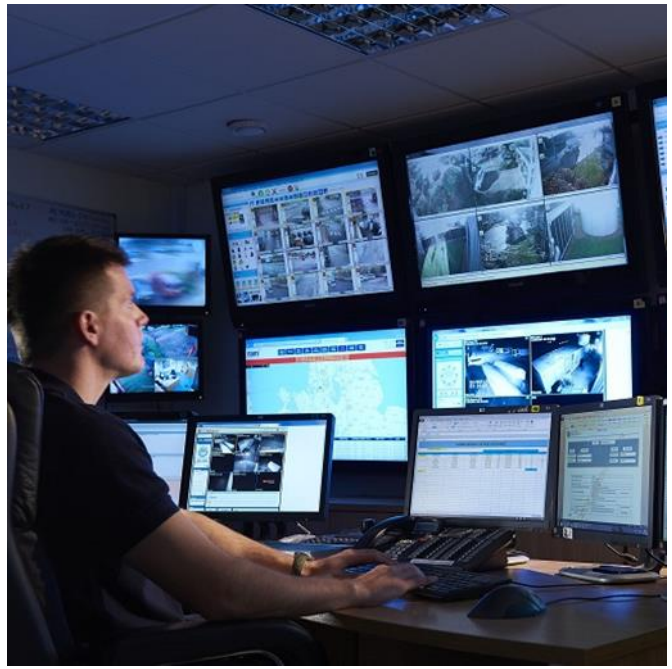


Health monitoring



Power BI Cheatsheet Explained

Task manager



Security

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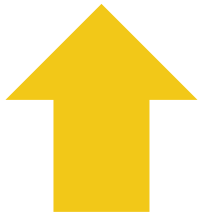
Why monitoring?

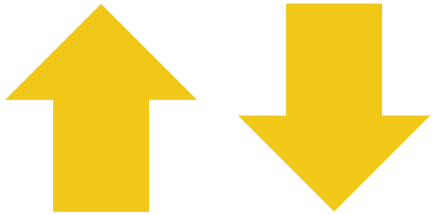
Delivery approaches

Business-Led Self-Service BI



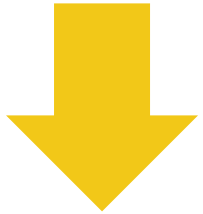
Bottom-Up

IT- Managed Self-Service BI



Blended

Corporate BI



Top-Down

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Exponential growth of content

Business-Led
Self-Service BI

Bottom-Up

Chuck
Finance

Rose
Human Resources

Jena
Marketing

Kasper
Engineer

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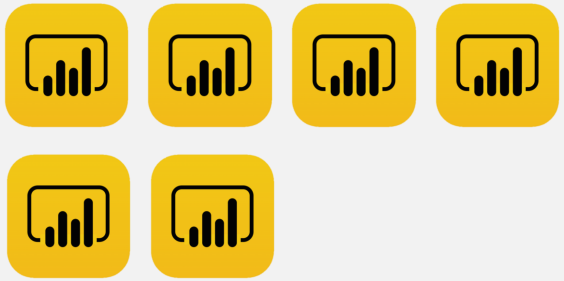
Get order in the chaos

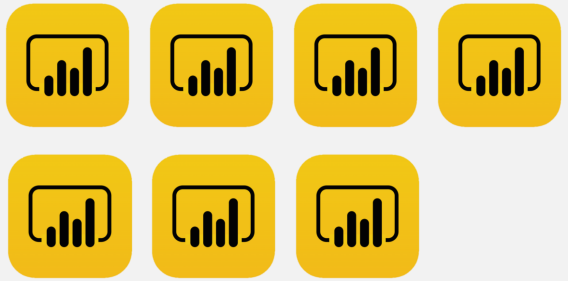
Chuck
Finance

Rose
Human Resources



Jena
Marketing

Kasper
Engineer



Separate people and content!

Chuck
Finance

Rose
Human Resources

Jena
Marketing

Kasper
Engineer

What do we want to monitor?

What we need to monitor

Content availability

Usage

Performance

What we need to monitor

Secure data uploaded to the service

Publish data to the entire organisation

Share content to external users

Publish to web

Custom visuals

Audit logs

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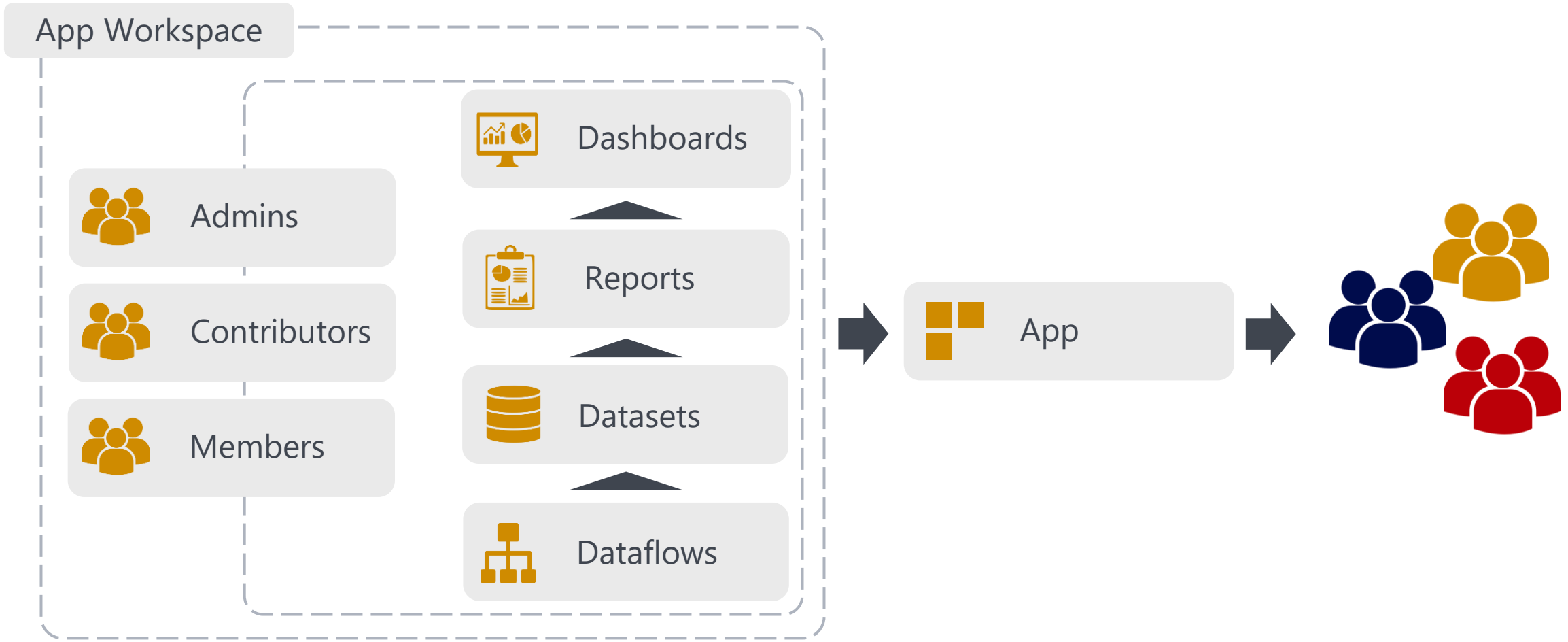
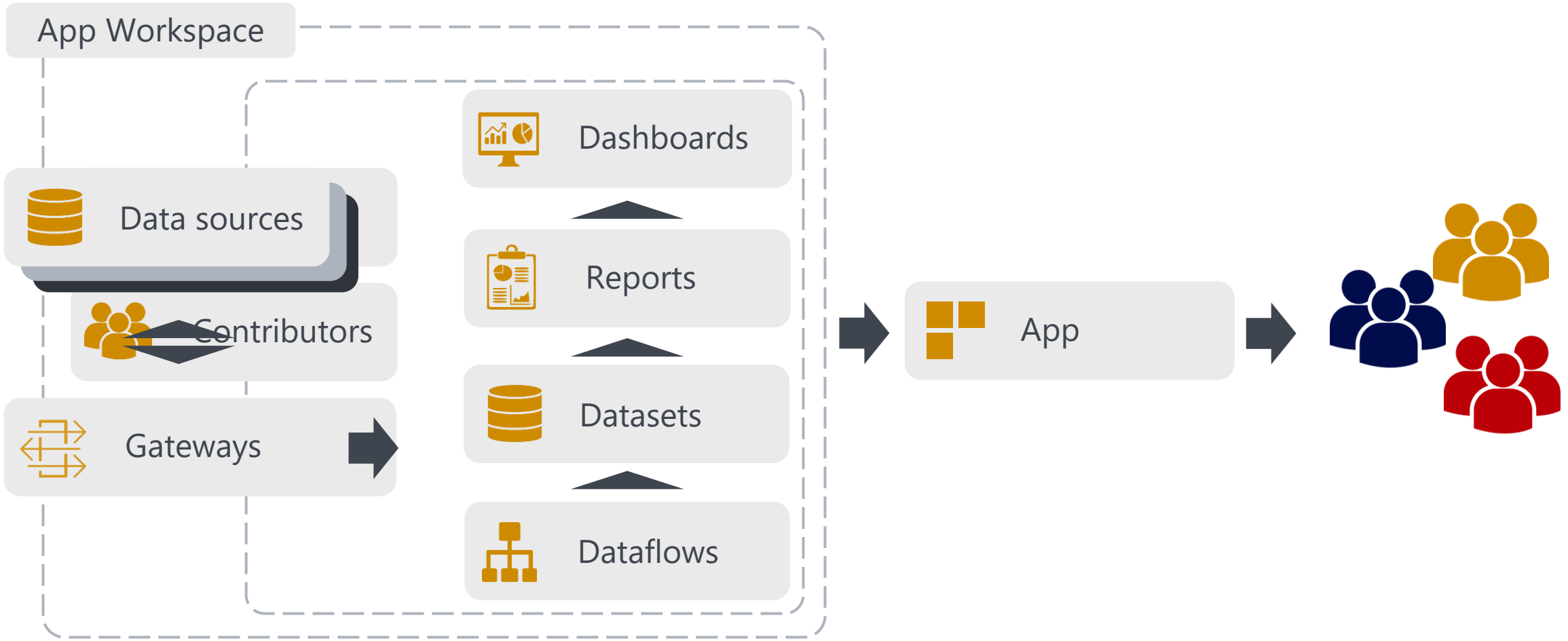
What objects are available?



What objects are available?



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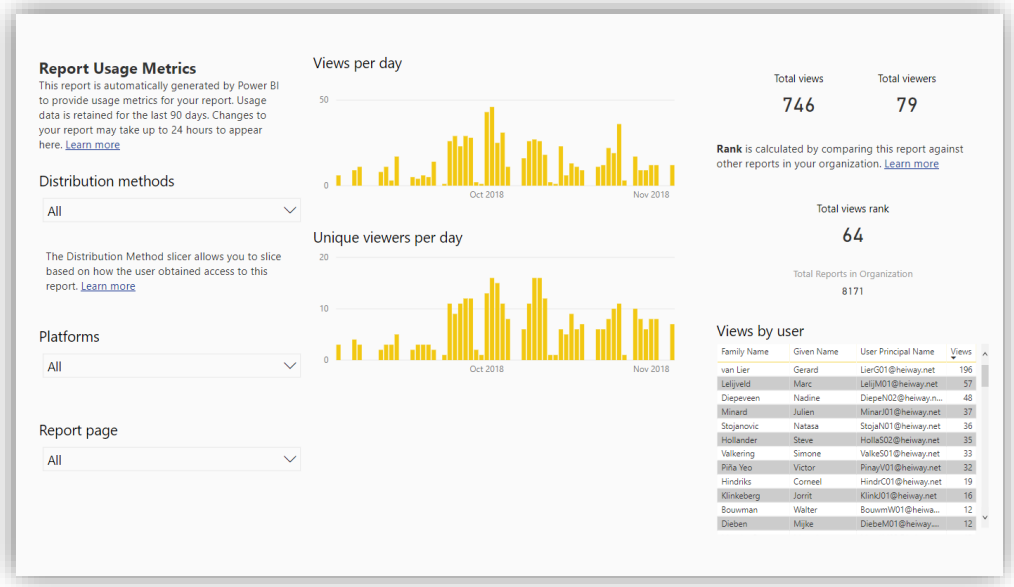
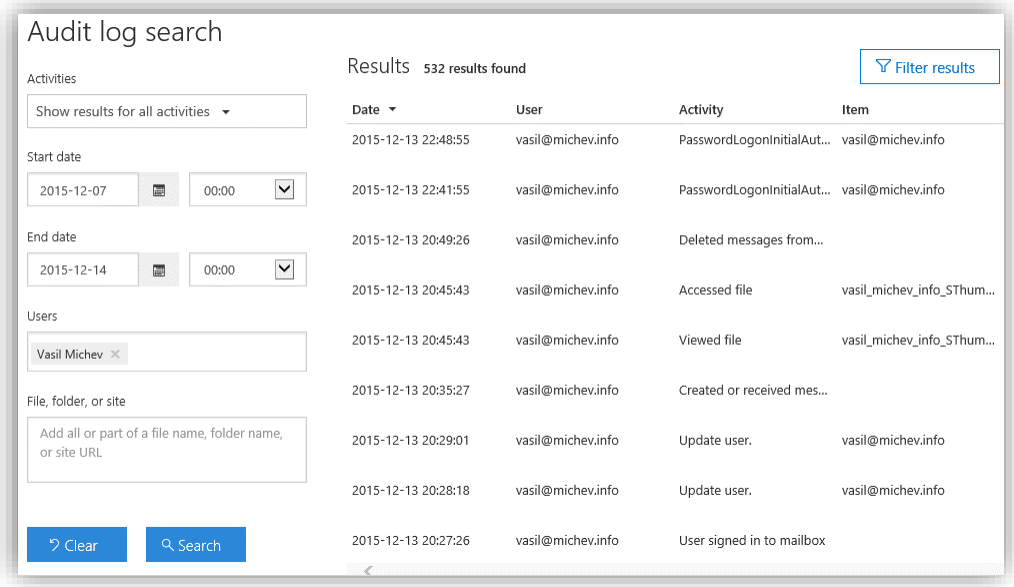
What the Power BI Service provides



Usage Metrics in Power BI Service



Audit logs in O365 admin portal (manually)

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How to monitor this?

Power BI Cmdlets
PowerShell module

- Power BI General management
- Data Management
- Profile Management
- Report Management
- Workspace Management

```
Get-PowerBIWorkspace
    [-Scope <PowerBIUserScope>]
    [-Filter <String>]
    [-User <String>]
    [-Deleted]
    [-Orphaned]
    [-First <Int32>]
    [-Skip <Int32>]
    [<CommonParameters>]
```

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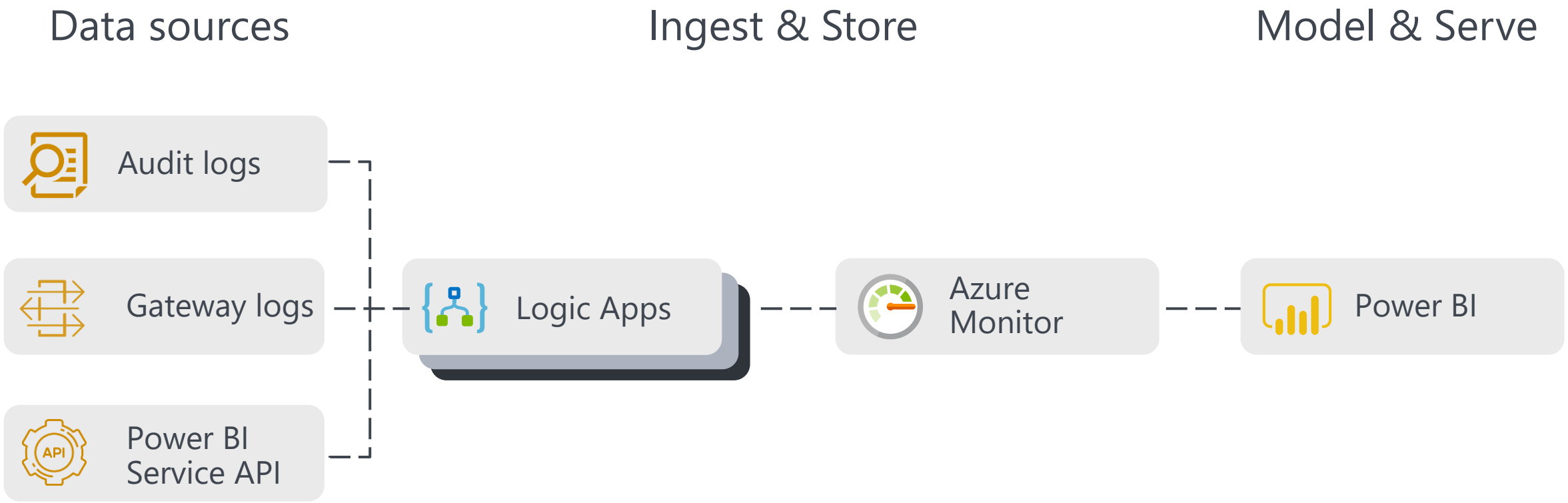
High-level Architecture



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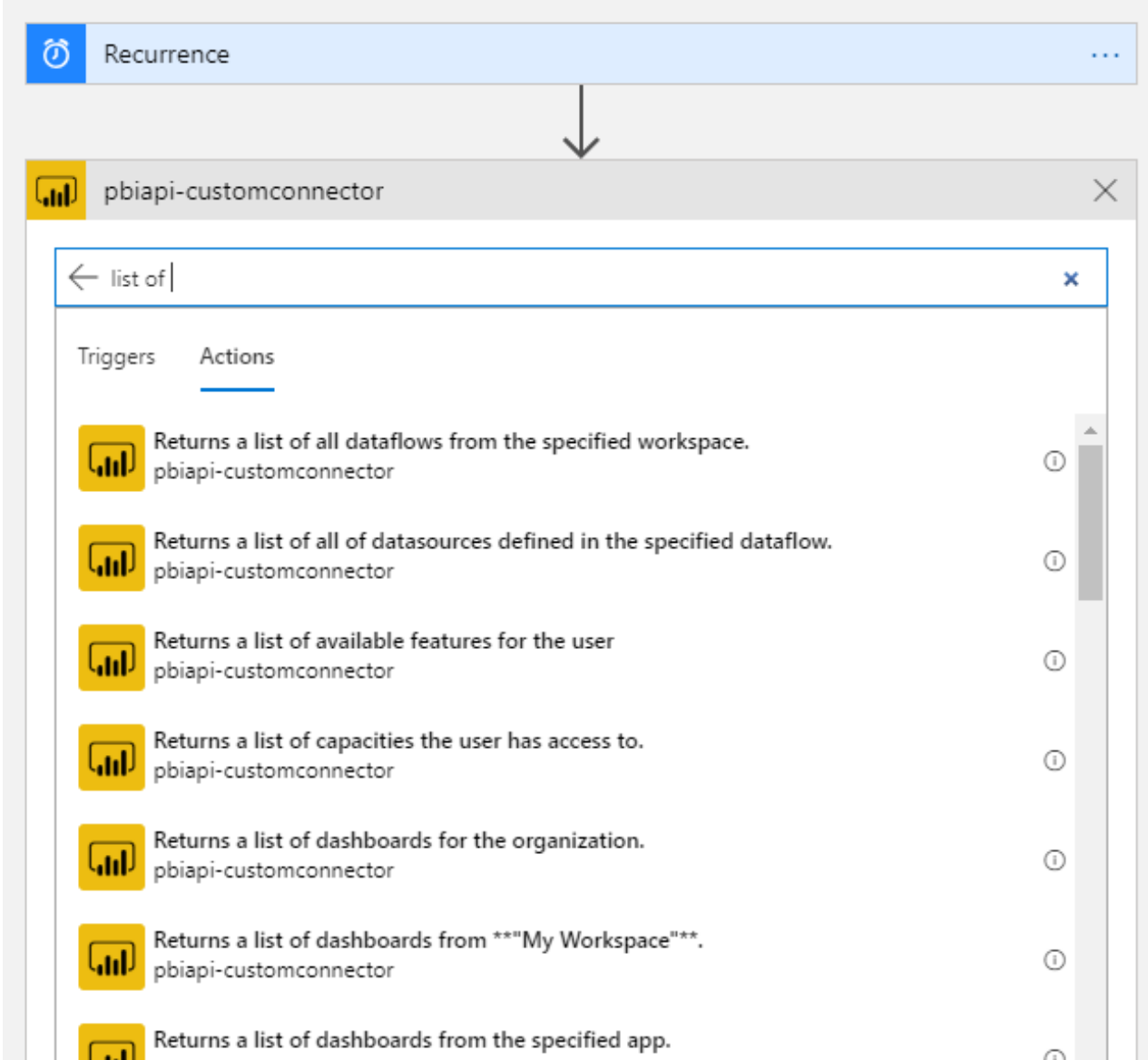
Data collection

GET https://api.powerbi.com/v1.0/myorg/admin/groups/{groupId}/reports


```
{
  "value": [
    {
      "datasetId": "cfafbeb1-8037-4d0c-896e-a46fb27ff229",
      "id": "5b218778-e7a5-4d73-8187-f10824047715",
      "name": "SalesMarketing",
      "webUrl": "https://app.powerbi.com/groups/f089354e-8366-4e18-aea3-4cb4a3a50b48/reports/5b218778-e7a5-4d73-8187-f10824047715",
      "embedUrl": "https://app.powerbi.com/reportEmbed?reportId=5b218778-e7a5-4d73-8187-f10824047715&groupId=f089354e-8366-4e18-aea3-4cb4a3a50b48"
    }
  ]
}
```

Data collection



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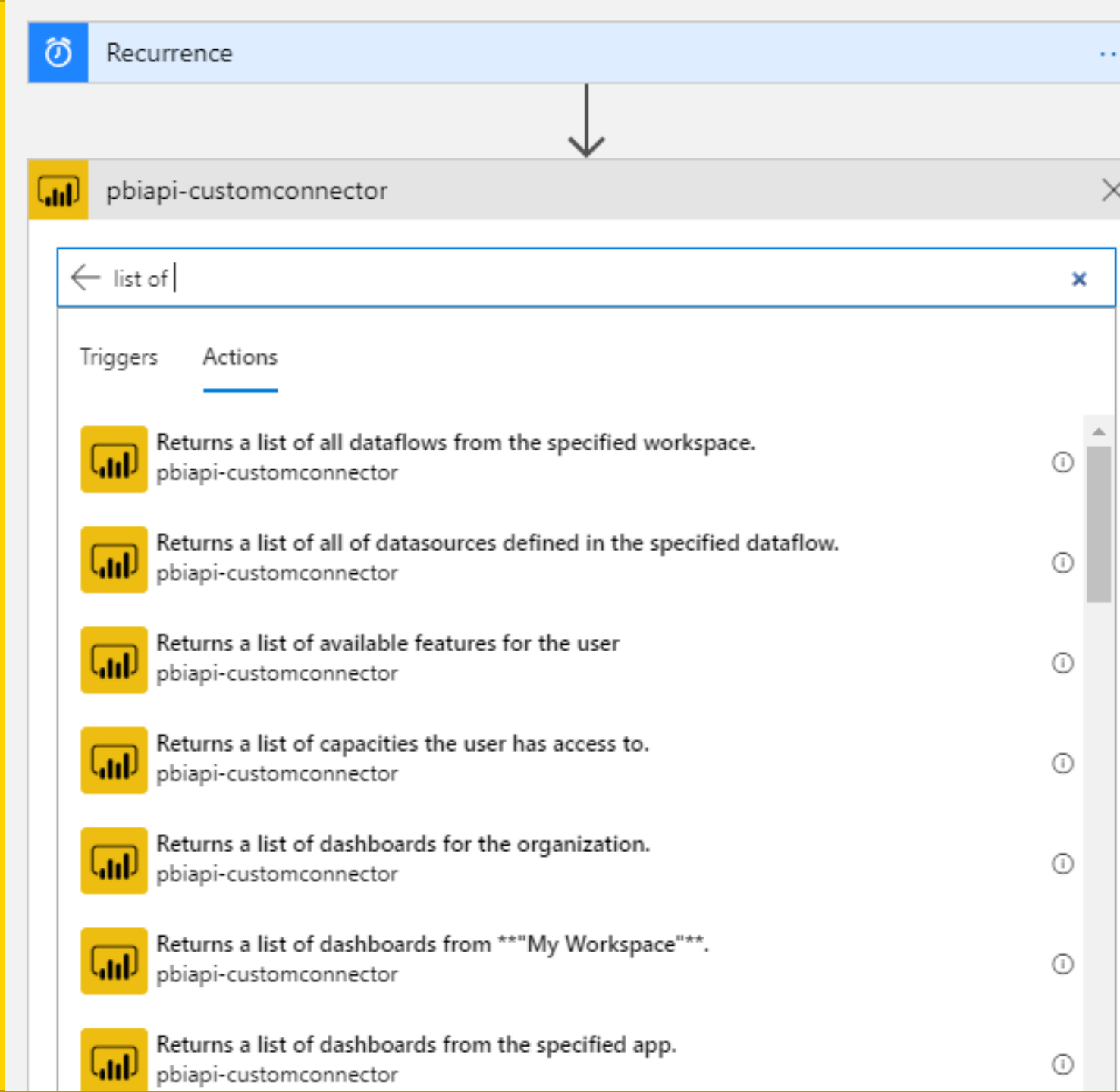
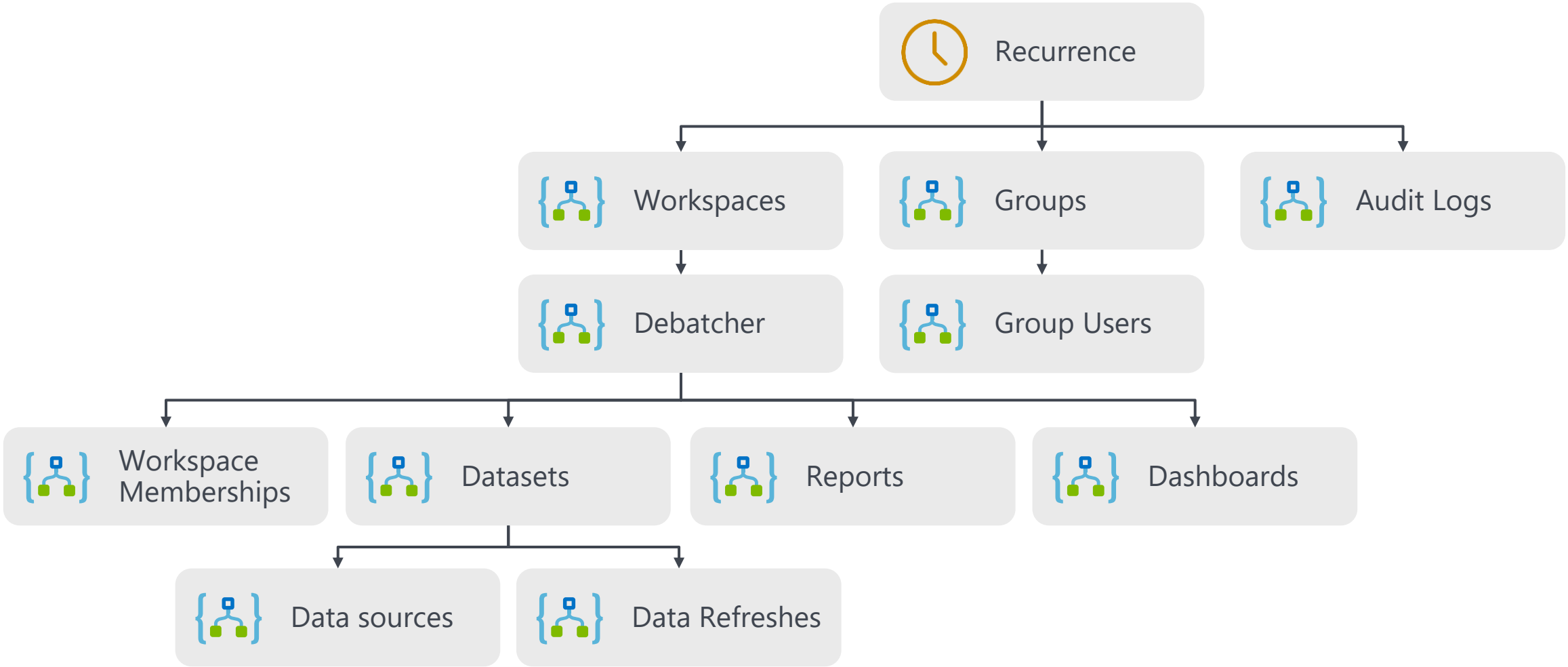
Lab:

Build your own Power BI monitor



Logic Apps Architecture



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New Query 1*

Help Settings Sample queries Query explo

loganalytics-workspace-powerbi

Run | Time range: Last 24 hours | Save | Copy link | Export | New alert rule

Schema | Filter (preview)

```
PBI_Workspaces_CL
| limit 50
```

Azure Monitor / Log Analytics

Filter by name or type...

Collapse all

Active

- loganalytics-workspace-p...
  - LogManagement
  - Custom Logs
    - GatewayErrorLog_CL
    - GatewayInfoLog_CL
    - GatewayNetworkLog_CL
    - MyRecordType_CL
    - OnPremDataGatewayLogs_CL
    - PBIMonitorAADActivitiesTE...
    - PBIMonitorGeneralActivities...
    - PBIMonitorTenantGroups_CL
    - PBIMonitorTenantUserMem...
    - PBIMonitorTenantUsers_CL
    - PBI_AuditLog_Activities_CL
    - PBI_Dashboards_CL
    - PBI_Datasets_CL
    - PBI_Reports_CL
    - PBI_WorkspaceUsers_CL
    - PBI_Workspaces_CL
    - PbiWorkspaces_CL
    - PowerBIWorkspaces_CL
    - Workspaces_CL
  - Functions

Completed. Showing results from the last 24 hours. 00:00:00.543 50 records

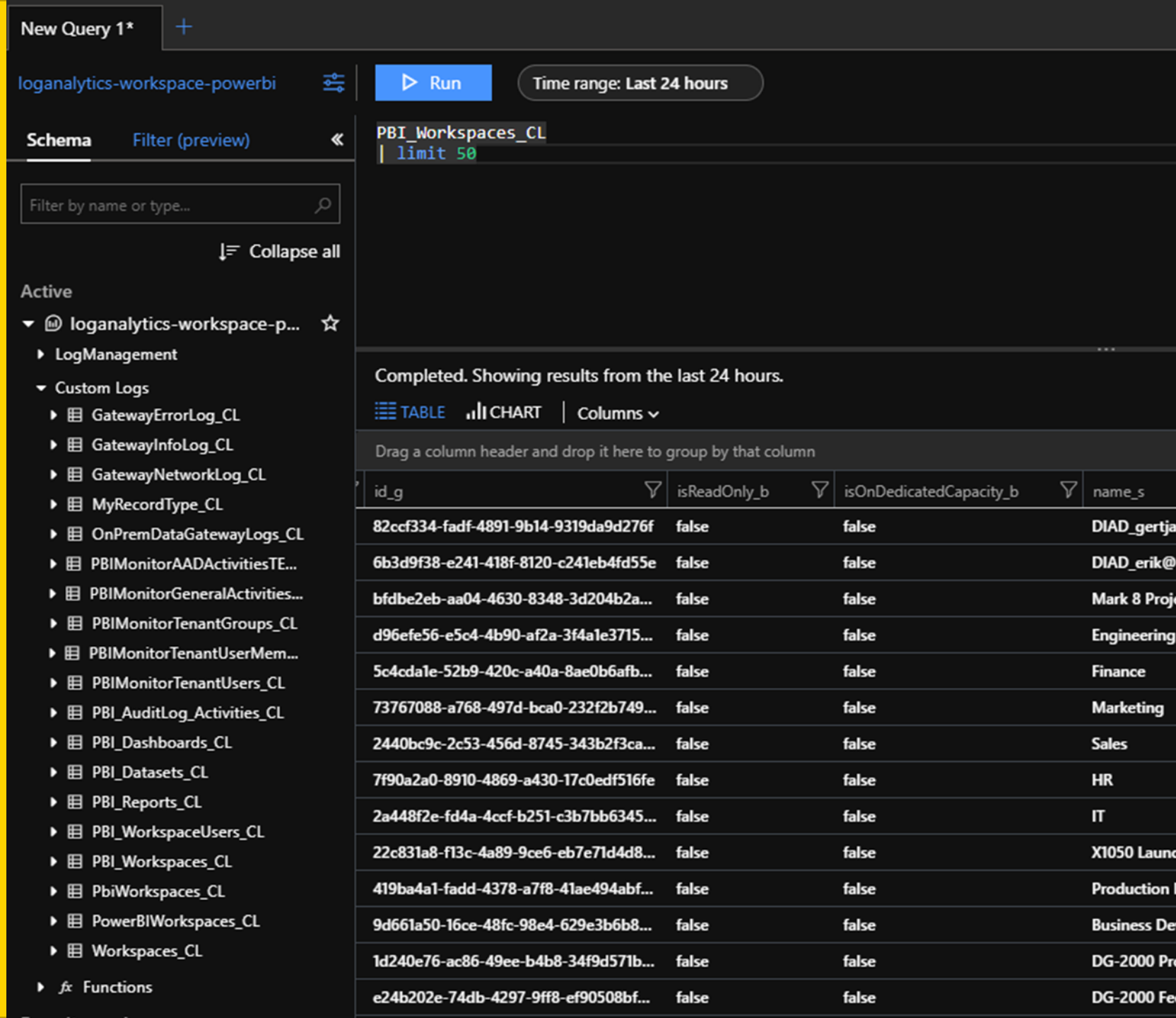
TABLE CHART | Columns | Display time (UTC+00:00)

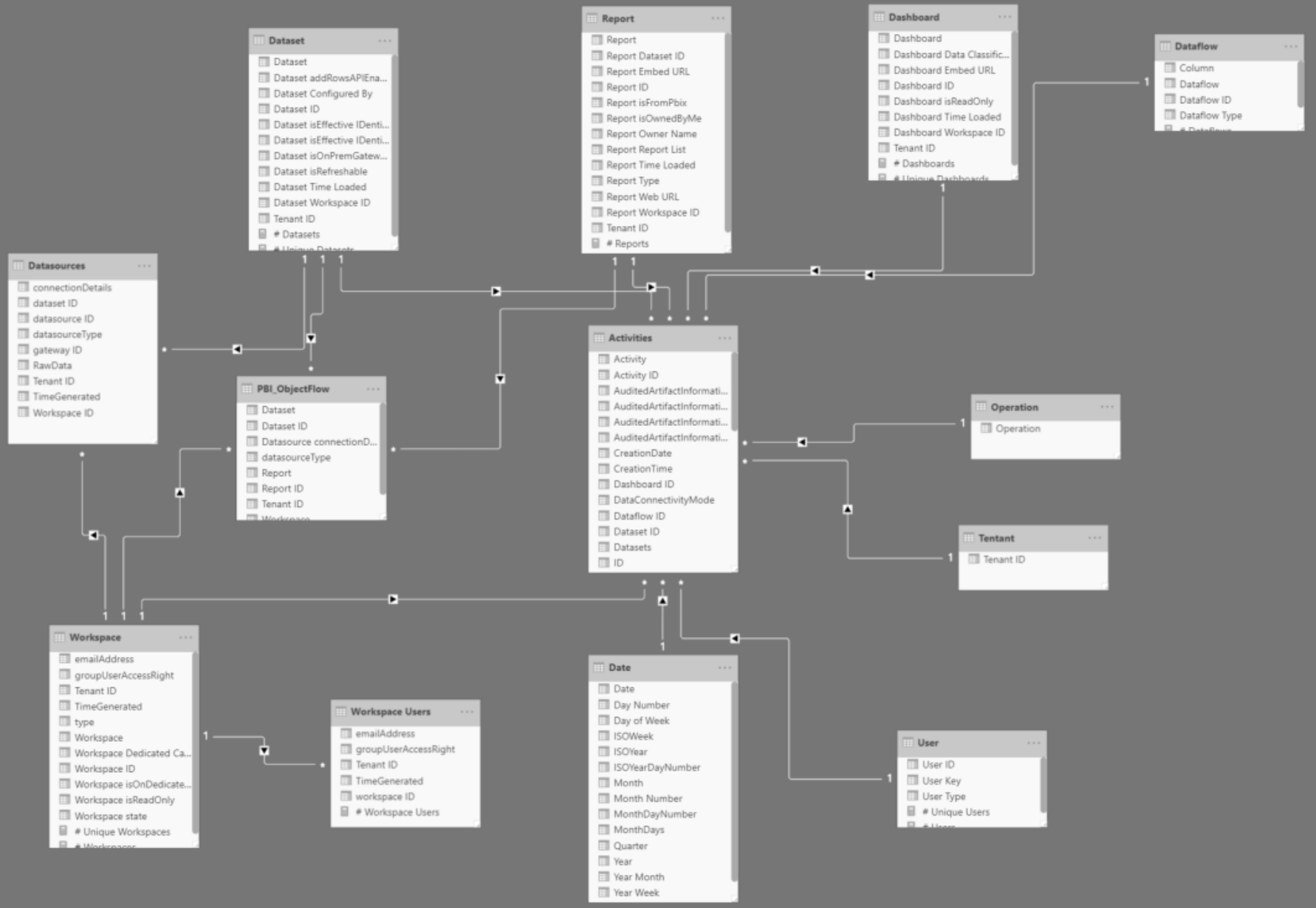
Drag a column header and drop it here to group by that column

id_g	isReadOnly_b	isOnDedicatedCapacity_b	name_s	capacityId_g	Type
82ccf334-fadf-4891-9b14-9319da9d276f	false	false	DIAD_gertjan@m365x280911.onmicrosoft.com		PBI_Workspaces_CL
6b3d9f38-e241-418f-8120-c241eb4fd55e	false	false	DIAD_erik@m365x280911.onmicrosoft.com		PBI_Workspaces_CL
bfdbe2eb-aa04-4630-8348-3d204b2a...	false	false	Mark 8 Project Team		PBI_Workspaces_CL
d96efe56-e5c4-4b90-af2a-3f4a1e3715...	false	false	Engineering		PBI_Workspaces_CL
5c4cda1e-52b9-420c-a40a-8ae0b6afb...	false	false	Finance		PBI_Workspaces_CL
73767088-a768-497d-bca0-232f2b749...	false	false	Marketing		PBI_Workspaces_CL
2440bc9c-2c53-456d-8745-343b2f3ca...	false	false	Sales		PBI_Workspaces_CL
7f90a2a0-8910-4869-a430-17c0edf516fe	false	false	HR		PBI_Workspaces_CL
2a448f2e-fd4a-4ccf-b251-c3b7bb6345...	false	false	IT		PBI_Workspaces_CL
22c831a8-f13c-4a89-9ce6-eb7e71d4d8...	false	false	X1050 Launch Team		PBI_Workspaces_CL
419ba4a1-fadd-4378-a7f8-41ae494abf...	false	false	Production Line		PBI_Workspaces_CL
9d661a50-16ce-48fc-98e4-629e3b6b8...	false	false	Business Development		PBI_Workspaces_CL
1d240e76-ac86-49ee-b4b8-34f9d571b...	false	false	DG-2000 Product Team		PBI_Workspaces_CL
e24b202e-74db-4297-9ff8-ef90508bf...	false	false	DG-2000 Feedback		PBI_Workspaces_CL

Demo:

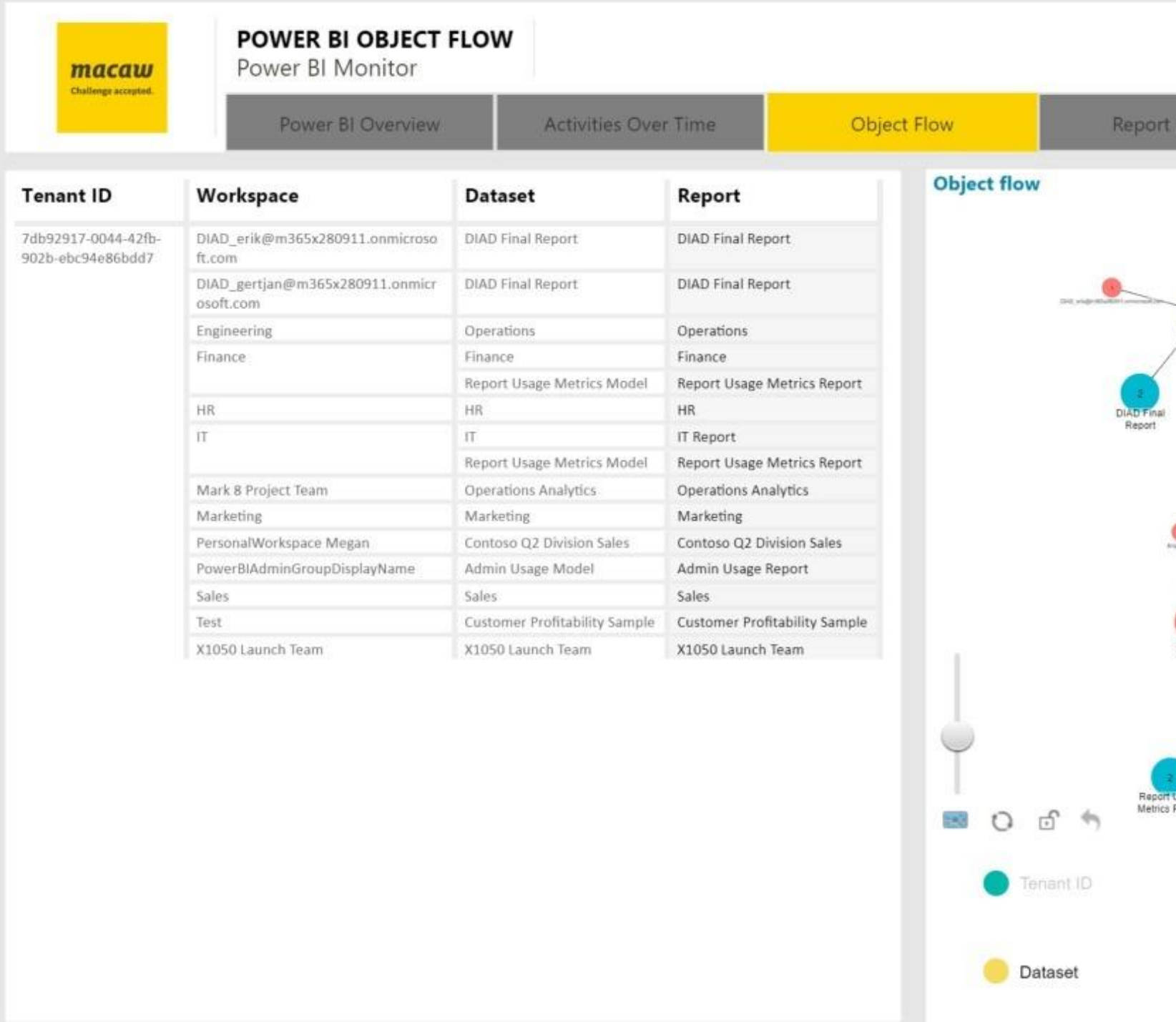
Azure Monitor




Dataset
Dataset
Dataset addRowsAPIEna...
Dataset Configured By
Dataset ID
Dataset isEffective IDenti...
Dataset isEffective IDenti...
Dataset isOnPremGatew...
Dataset isRefreshable
Dataset Time Loaded
Dataset Workspace ID
Tenant ID
Datasets
Report
Report
Report Dataset ID
Report Embed URL
Report ID
Report isFromPbix
Report isOwnedByMe
Report Owner Name
Report Report List
Report Time Loaded
Report Type
Report Web URL
Report Workspace ID
Tenant ID
Reports
Dashboard
Dashboard
Dashboard Data Classific...
Dashboard Embed URL
Dashboard ID
Dashboard isReadOnly
Dashboard Time Loaded
Dashboard Workspace ID
Tenant ID
Dashboards
Dataflow
Column
Dataflow
Dataflow ID
Dataflow Type
Datasources
connectionDetails
dataset ID
datasource ID
datasourceType
gateway ID
RawData
Tenant ID
TimeGenerated
Workspace ID
PBI_ObjectFlow
Dataset
Dataset ID
Datasource connectionD...
datasourceType
Report
Report ID
Tenant ID
Activities
Activity
Activity ID
AuditedArtifactInformati...
AuditedArtifactInformati...
AuditedArtifactInformati...
AuditedArtifactInformati...
CreationDate
CreationTime
Dashboard ID
DataConnectivityMode
Dataflow ID
Dataset ID
Datasets
ID
Operation
Operation
Tentant
Tenant ID
Workspace
emailAddress
groupUserAccessRight
Tenant ID
TimeGenerated
type
Workspace
Workspace Dedicated Ca...
Workspace ID
Workspace isOnDedicate...
Workspace isReadOnly
Workspace state
Unique Workspaces
Workspace Users
emailAddress
groupUserAccessRight
Tenant ID
TimeGenerated
workspace ID
Workspace Users
Date
Date
Day Number
Day of Week
ISOWeek
ISOYear
ISOYearDayNumber
Month
Month Number
MonthDayNumber
MonthDays
Quarter
Year
Year Month
Year Week
User
User ID
User Key
User Type
Unique Users

Demo:

Power BI Monitor Report



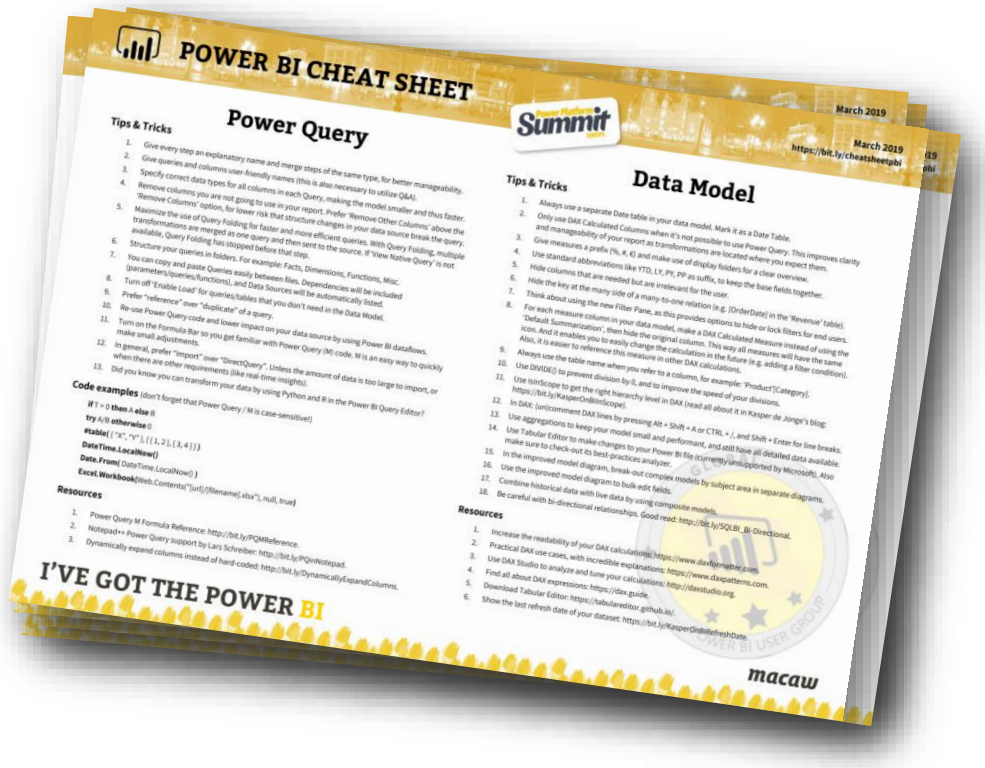
Recap

- Monitoring is **more than usage insights**.
- Monitor **end-to-end**, not only individual reports!
- Monitoring is key for a **successful implementation** of Power BI within an enterprise environment.


WHY
WHICH
?
WHEN

Download for free!

Https://bit.ly/cheatsheetpbi



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