XMLA endpoints
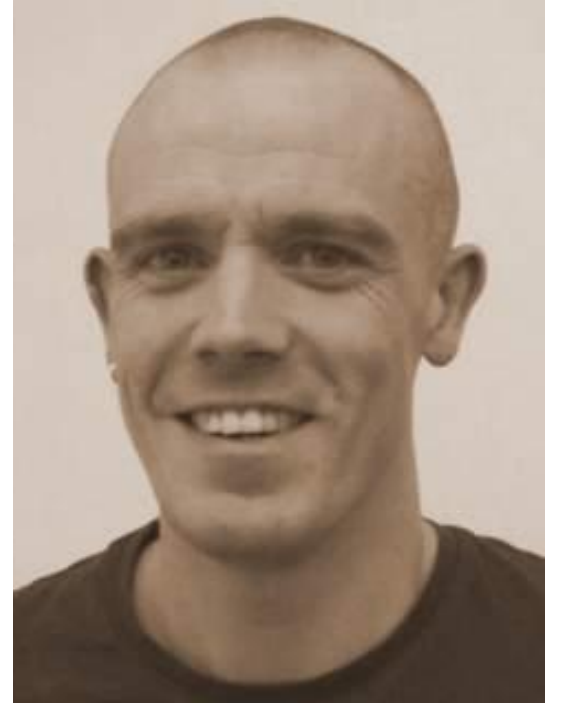## Power BI open-platform connectivity

Just Thorning Blindbæk

▶ Consultant in justB

▶ Trainer at Orange Man

▶ Founder of Power BI UG and MsBIP Denmark

▶ 10+ years of experience with Microsoft BI

▶ just@blindbaek.dk / blog.justB.dk / @justblindbaek

Microsoft CERTIFIED Trainer
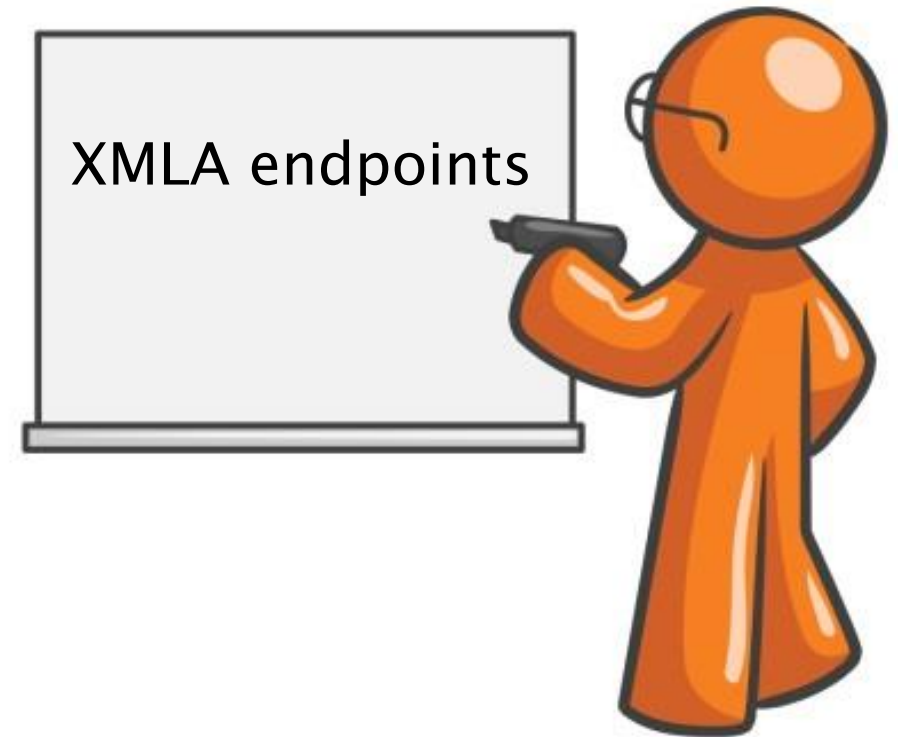
Microsoft CERTIFIED IT Professional

SSAS MAESTRO by Microsoft
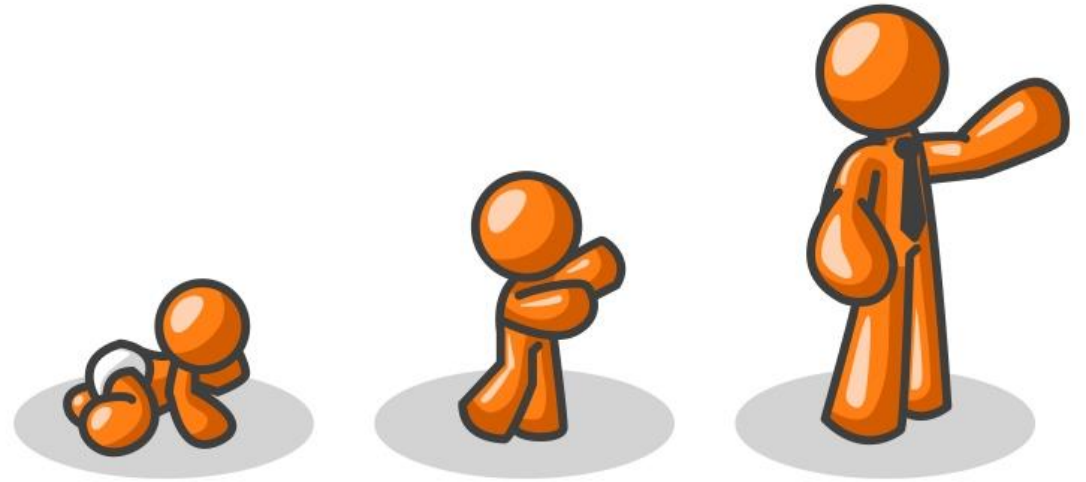
MVP **Microsoft®** Most Valuable Professional

ORANGEMAN

Agenda

▶ What's XMLA endpoints?
▶ How to get started
▶ Demo: Client tools
▶ Next up: Write

XMLA endpoints

ORANGEMAN

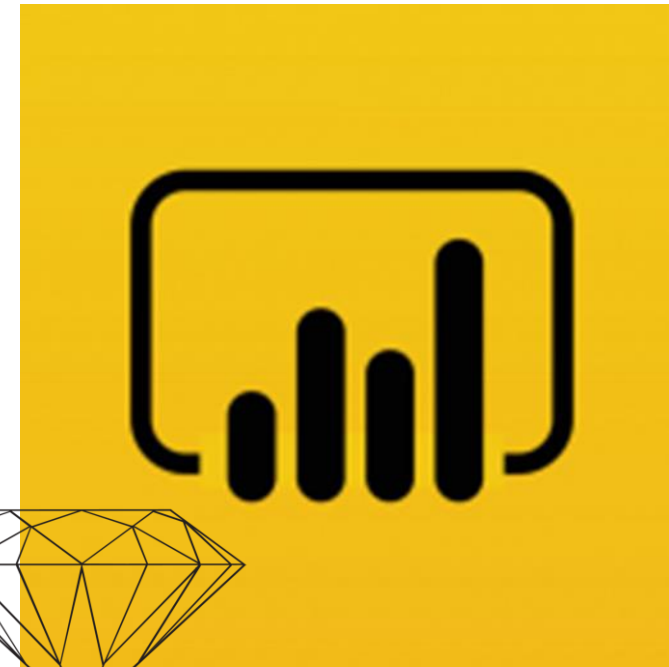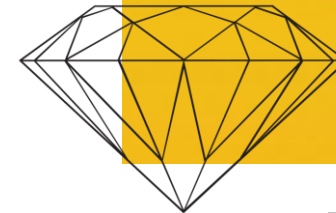# Power BI merging with Azure Analysis Services

Power BI merging with Azure Analysis Services

Enterprise BI　　**All BI users**　**Self–service BI users**

Azure Analysis Services　Power BI Premium　Power BI

ORANGEMAN

Connectivity: Analysis Services

Security

Data modeling

In-memory cache

Azure Analysis Services Server

Lifecycle management

Business logic & metrics
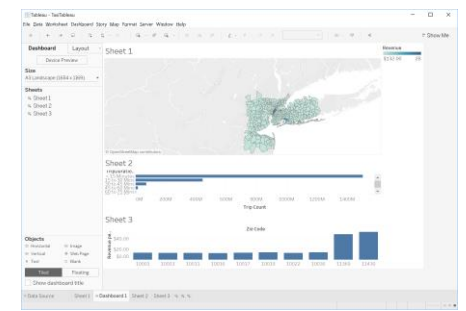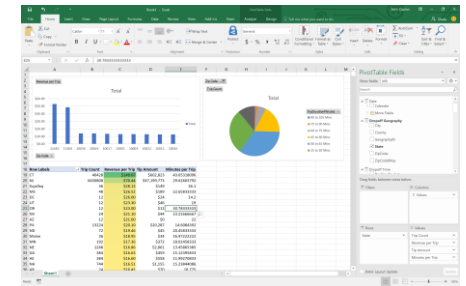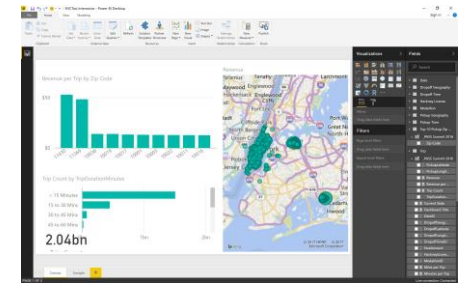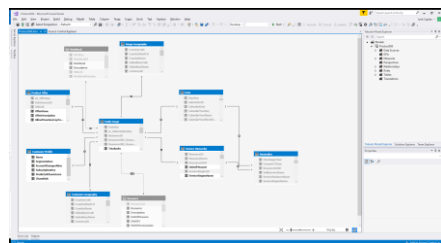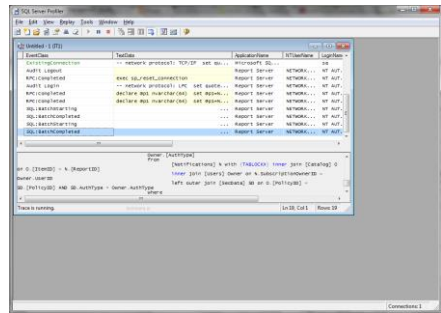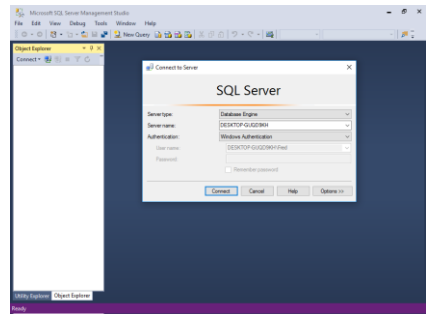
ORANGEMAN

Connectivity: Power BI Premium

Security

Data modeling

In-memory cache

Workspace

Lifecycle management

Business logic & metrics
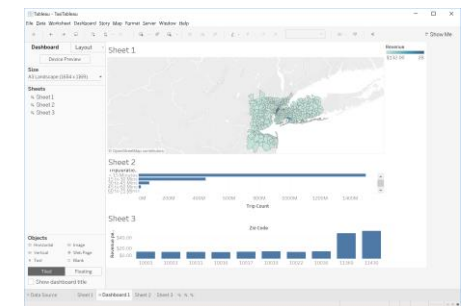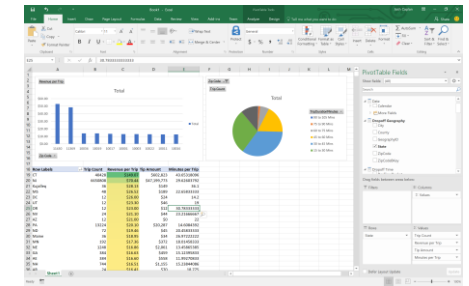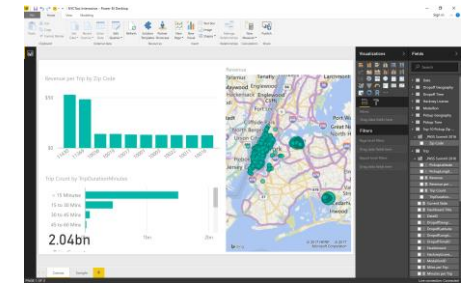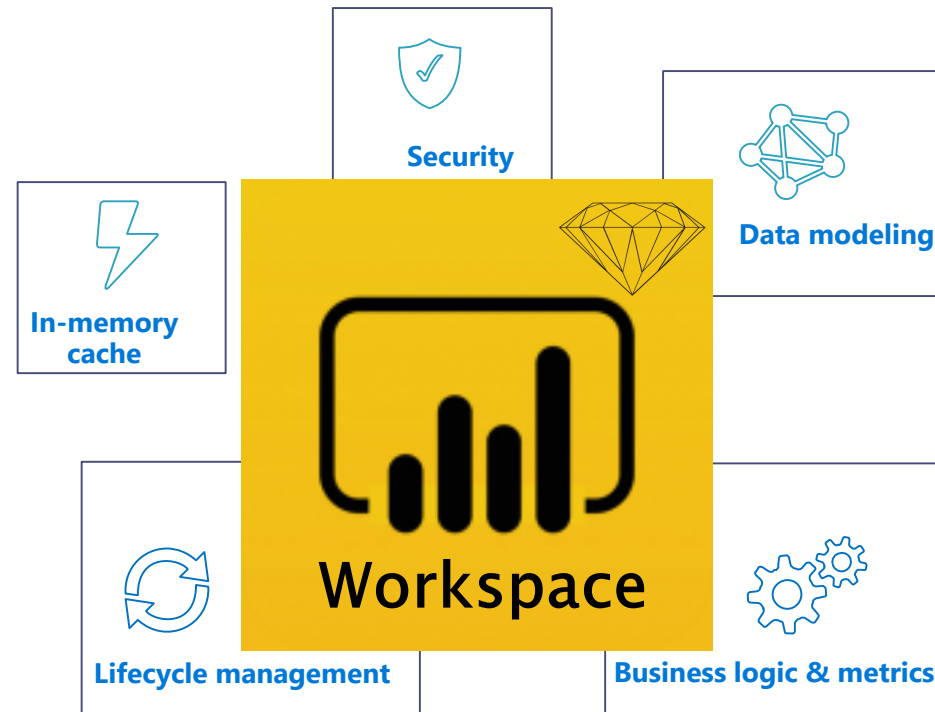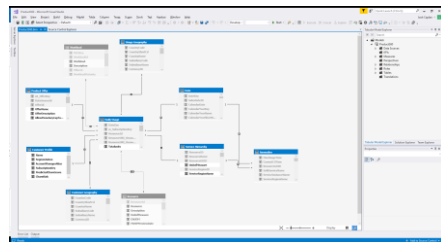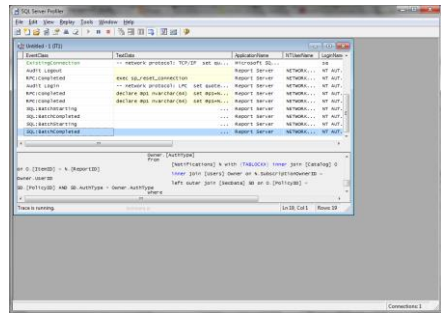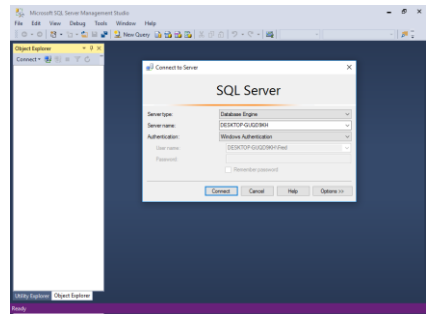
ORANGEMAN
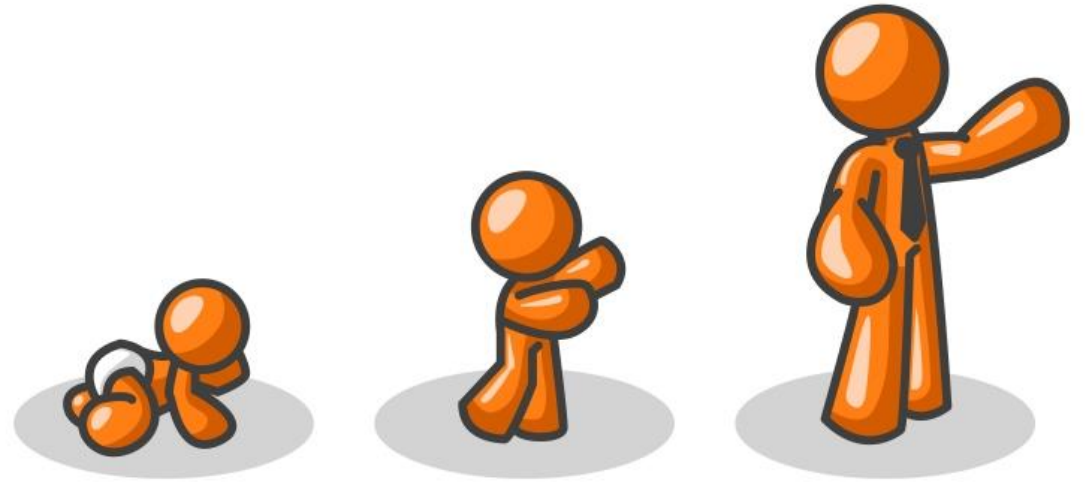
What is XMLA endpoint?

▸ XMLA is the same protocol used for managing SQL Server Analysis Services and Azure Analysis Services models, a variety of Microsoft and third-party tools can be used with Power BI datasets

▸ Analysis Services engine in the Power BI service
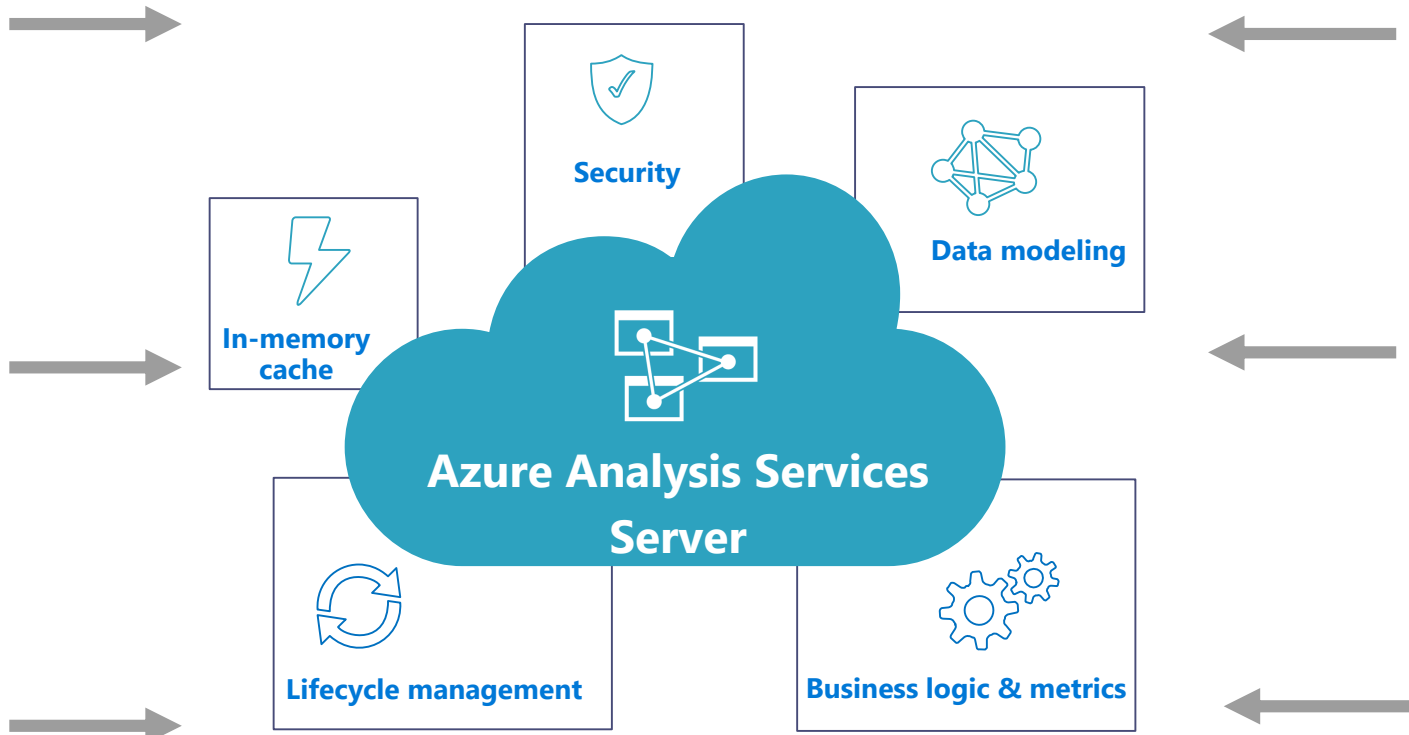
▸ Semantic models that serve as the single source of truth for the whole enterprise also to third-party BI tools

▸ Preview feature!

▸ Requires Premium capacity!

ORANGEMAN

Get started

▸ Premium, Licensing, Security etc.

ORANGEMAN

What is Power BI Premium?

▸ **Licensing option**
- For 500+ internal users
- External users

▸ **Enterprise features**
- Incremental data refresh
- Multiple region support
- Power BI Report Server
- XMLA endpoints?

▸ **Capacity based features**
- Dedicated hardware
- Paginated reports (SSRS)
- Big datasets (10 GB)
- 48 refreshes per day
- AI (Cognitive Services)
- Dataflows
- XMLA endpoints?

ORANGEMAN

Dedicated Capacity

	Analysis Services	A SKU	EM SKU	P SKU
Product	Azure AS	Power BI Embedded	Power BI Premium	Power BI Premium
Purchase	Azure portal	Azure portal	Office 365	Office 365
Use cases	• Only datasets • No Power BI features	• Embed content in external apps • Capacity testing purposes only	• Embed content in apps • Share content with Power BI free users outside the Power BI portal • Embed in other SaaS apps (SharePoint, Teams)	• Same as EM SKU, plus: • Share content with Power BI free users through the Power BI portal and Power BI mobile app
Billing	Hourly	Hourly	Monthly	Monthly
Commitment	None	None	Yearly	Monthly/Yearly
Difference	Full elasticity: scale up, scale down, pause, resume. ARM API with PowerShell.	Full elasticity: scale up, scale down, pause, resume. ARM API with PowerShell.	Can be used to embed content in SharePoint Online and Microsoft Teams	Combine embedding in apps, and use the Power BI Service in the same capacity. Power BI Report Server included.

ORANGEMAN

Azure Analysis Services Pricing

Tier	QPUs	Memory (GB)	Price / month
Developer	10	3	~DKK 600
B1	40	10	~DKK 2.000
B2	80	20	~DKK 4.000
S0	40	10	~DKK 3.700
S1	100	25	~DKK 9.300
S2	200	50	~DKK 18.600
S4	400	100	~DKK 37.200
S8	320	200	~DKK 47.700
S9	640	400	~DKK 95.400

ORANGEMAN

Power BI dedicated capacity pricing

Embedded (A SKU)		Premium (EM & P SKU)		Virtuel cores	RAM (GB)	LC/DQ connections (per sec)	Model Refresh Parallelism
A1	~DKK 4.600	EM1	~DKK 3.900	1	3	3,75	1
A2	~DKK 9.200	EM2	~DKK 7.800	2	5	7,5	2
A3	~DKK 18.500	EM3	~DKK 15.700	4	10	15	3
A4	~DKK 37.000	P1	~DKK 31.400	8	25	30	6
A5	~DKK 74.000	P2	~DKK 62.800	16	50	60	12
A6	~DKK 148.000	P3	~DKK 125.600	32	100	120	24

Price is per month. A SKU has full elasticity

ORANGEMAN

Client tools connectivity

▸ SSMS, DAX Studio, SSRS, Third-Party....
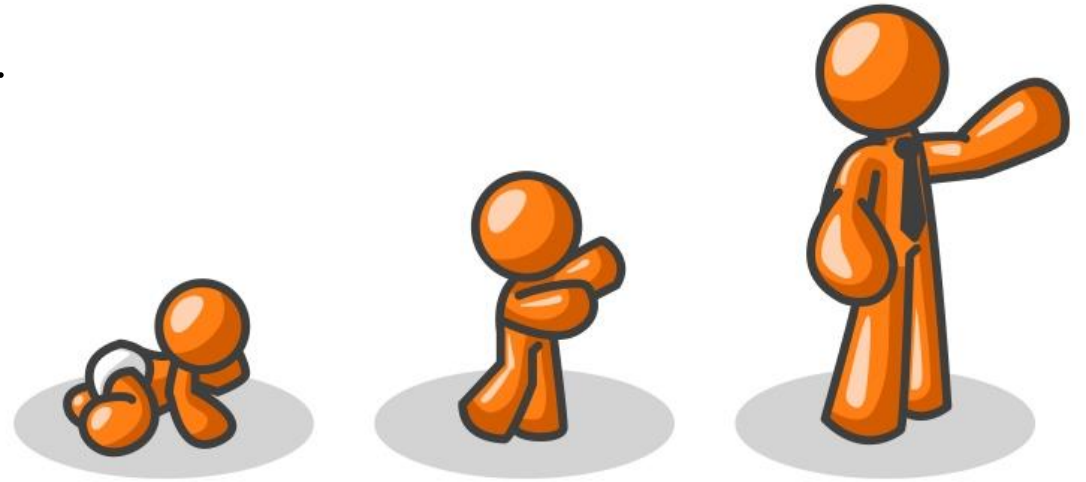
Client tools connectivity

Tool	Description	Installation/prerequisites
Third party data-visualization tools	Non-Microsoft tools to consume reusable semantic models in Power BI	Install the latest versions of MSOLAP
SQL Server Management Studio	View partitions generated by incremental refresh	Version 18.0 RC1 or above
SQL Server Profiler	Tool for tracing and debugging	SSMS version 18.0 RC1 or above
DAX Studio	Open-source, community tool for executing and analyzing DAX queries against Analysis Services	Version 2.8.2 or above.
Paginated reports (SSRS)	Operational, pixel perfect, paginated reports	Will be supported in upcoming releases
Excel PivotTables	Traditional interactive analysis	Click-to-Run version of Office 16.0.11326.10000

ORANGEMAN

Connectivity

▸ ADOMD.NET client library is required

▸ Addressing a workspace
  ◦ powerbi://api.powerbi.com/v1.0/myorg/[your workspace name]
  ◦ myorg can be replaced with your tenant name (e.g. "mycompany.com")
  ◦ [your workspace name] is case sensitive and can include spaces
  ◦ May need to specify Initial Catalog

▸ XMLA endpoints will honor the security group membership set at the workspace/app level
  ◦ Workspace contributors and above have write access to the dataset and are therefore equivalent to Analysis Services database admins
  ◦ App viewers are equivalent to Analysis Services database readers

ORANGEMAN

Deploying Power BI

- ▸ Enterprise vs. Self-Service

ORANGEMAN

Power BI Delivery Approaches

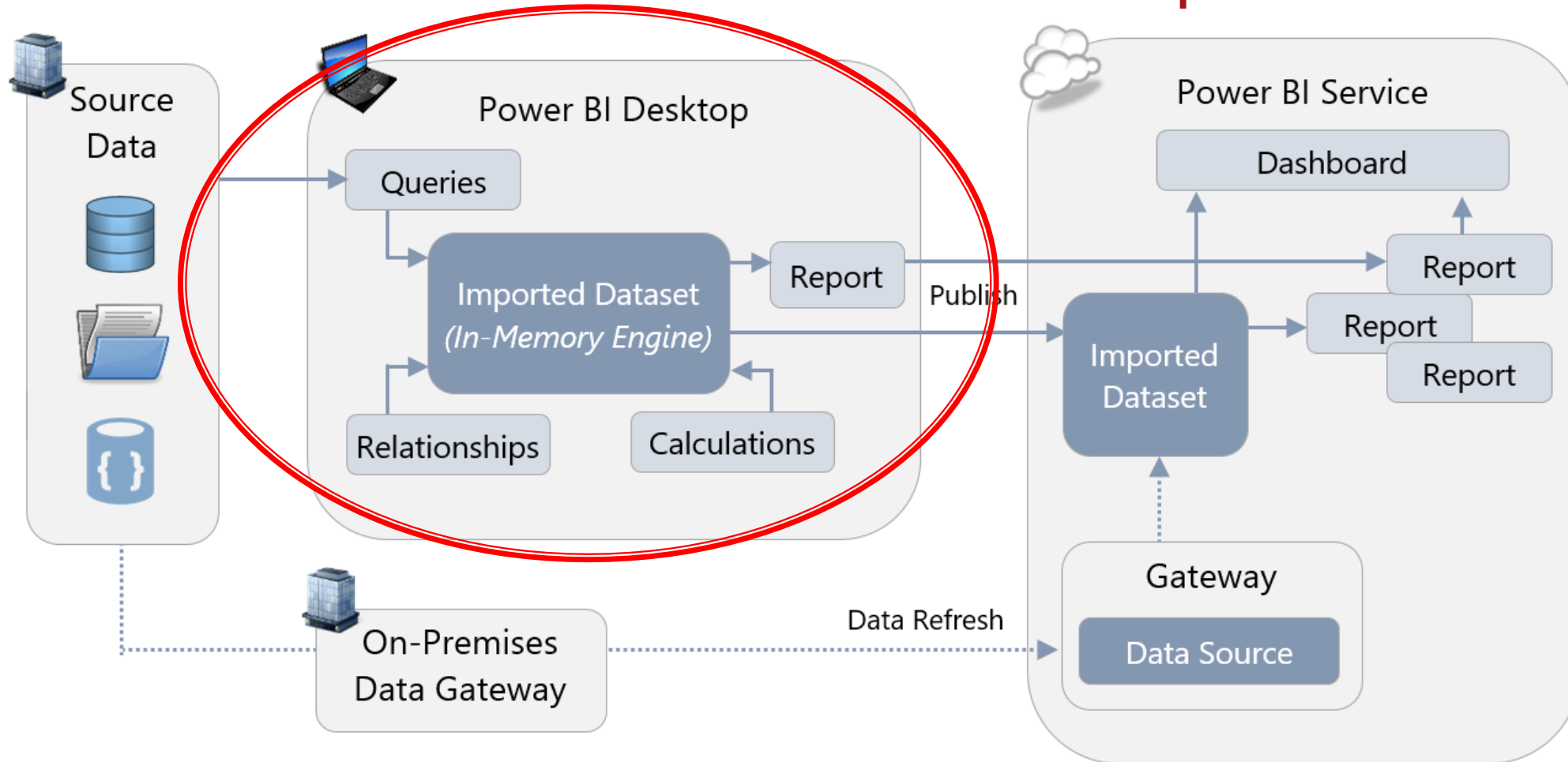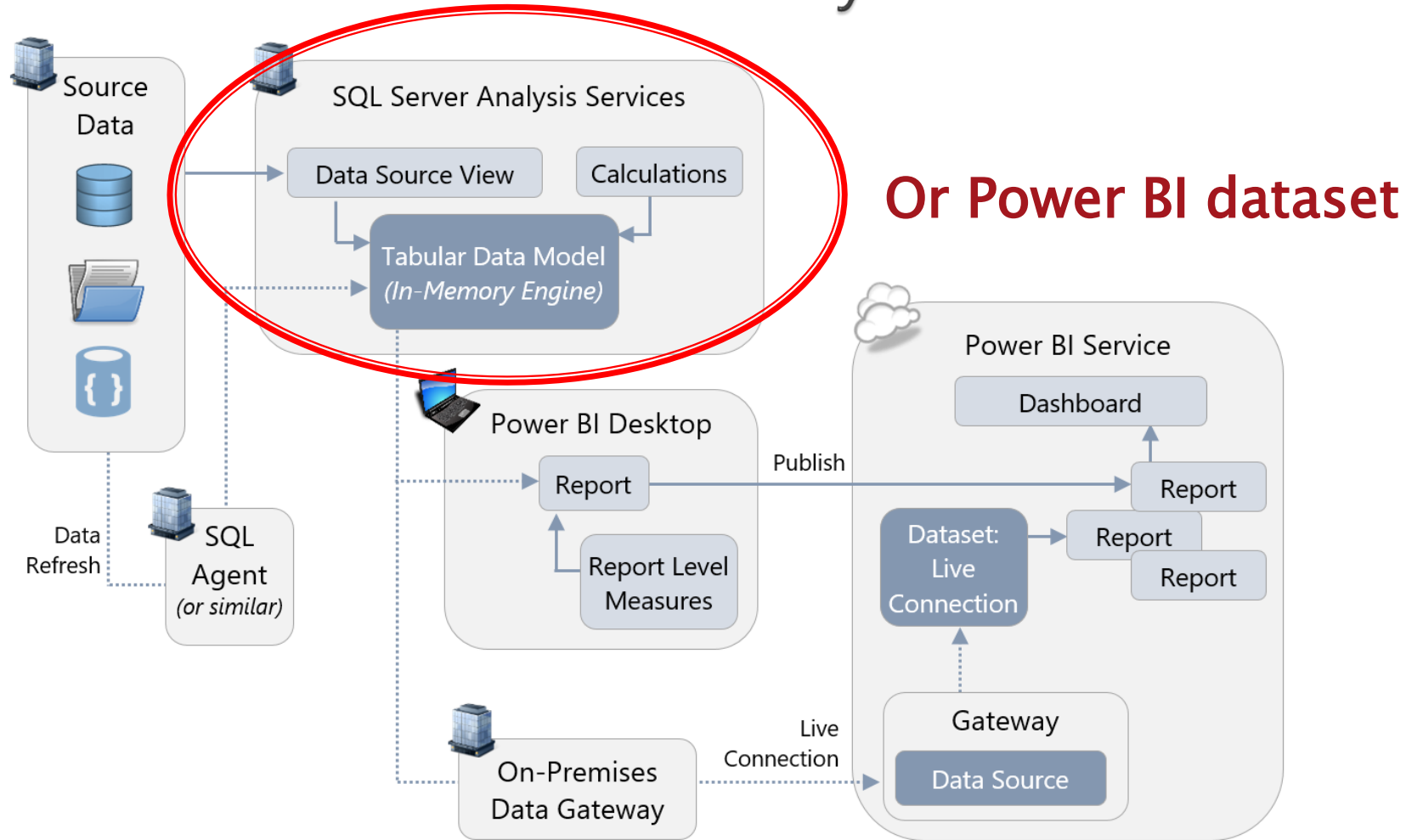| Business-Led Self-Service BI	IT-Managed Self-Service BI	Corporate BI
Bottom-Up Approach	Blended Approach	Top-Down Approach
Analysis using any type of data source; emphasis on data exploration and freedom to innovate	A "managed" approach wherein reporting utilizes only predefined/governed data sources	Utilization of reports and dashboards published by IT for business users to consume
Ownership: Business supports all elements of the solution	**Ownership:** IT: data + semantic layer Business: reports	**Ownership:** IT supports all elements of the solution
Business users: Data mashup, data modeling, report creation, distribution & execution	**Business users:** Creation of reports and dashboards	**Business users:** Execution of published reports
Governed by: Business	**Governed by:** IT: data + semantic layer Business: reports	**Governed by:** IT

Ownership Transfer

Over time, certain self-service solutions deemed as critical to the business may transfer ownership and maintenance to IT. It's also possible for business users to adopt a prototype created by IT.
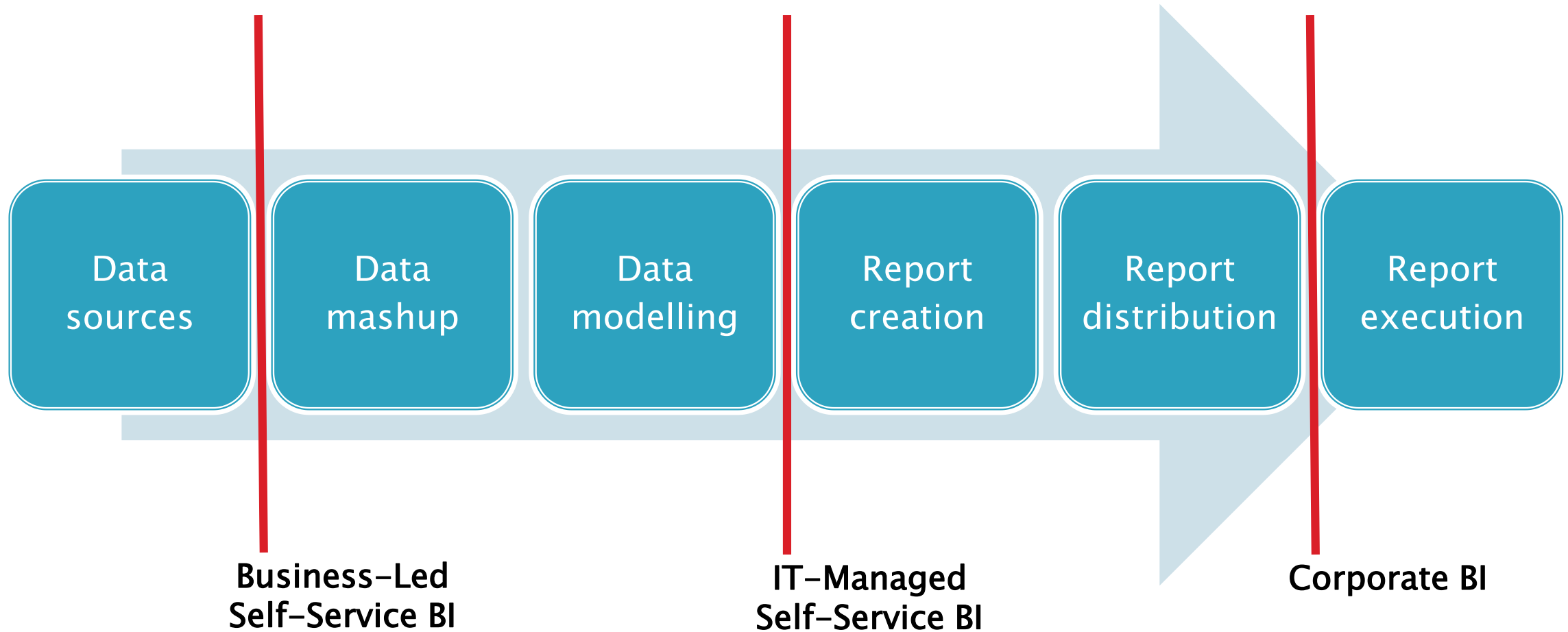
Business-Led Self-Service BI: Importing Data

Model and report in the same file

IT-Managed Self-Service BI:
# Live Connection to Analysis Services

Or Power BI dataset

Power BI Ownership Approaches

Data sources | Data mashup | Data modelling | Report creation | Report distribution | Report execution

Business-Led Self-Service BI

IT-Managed Self-Service BI

Corporate BI

ORANGEMAN

Demo: Ownership transfer

▸ Let se some Magic !
  ◦ Split the report and dataset
  ◦ Connect more report to the same dataset

▸ Shared and certified datasets!
  ◦ Between workspaces
  ◦ Dataset discovery
  ◦ Preview in June 2019

ORANGEMAN
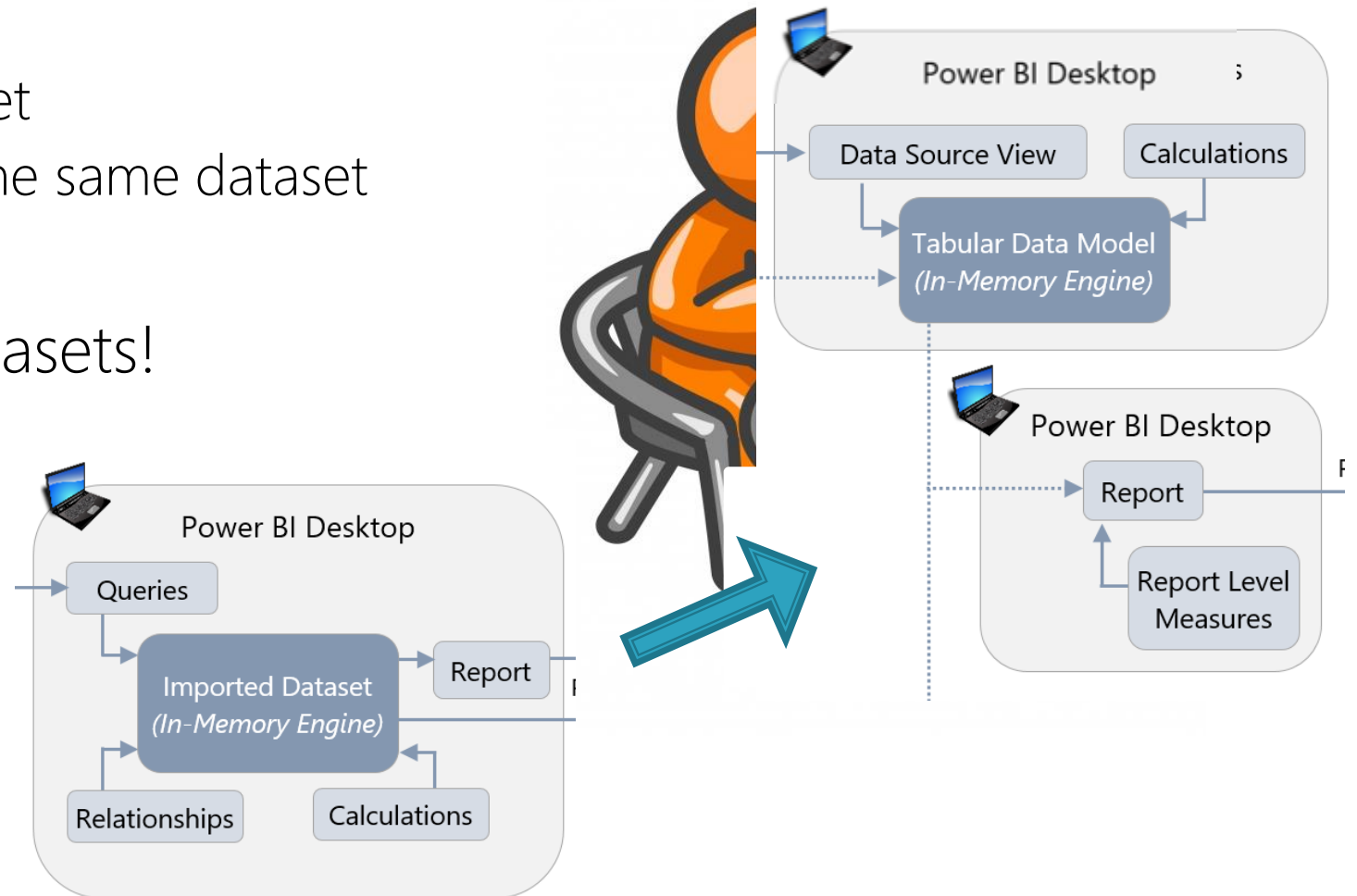
Shared and certified datasets

▸ Between workspaces

▸ Shared datasets

▸ Certified datasets

▸ Preview in June 2019
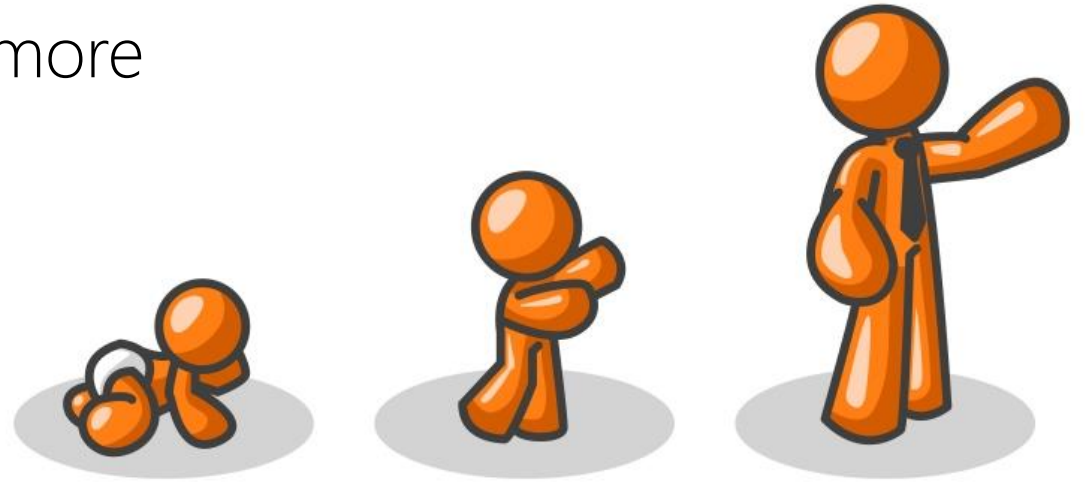

Select a dataset to create a report

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

All datasets

OK   Cancel

https://docs.microsoft.com/en-us/business-applications-release-notes/april19/business-intelligence/planned-features

ORANGEMAN

Next up: Read/Write

▸ SSDT, SSMS, Tabular Editor and many more

Read/write coming soon…. Later 2019

▸ SQL Server Data Tools
  ◦ Model authoring with a range of enterprise features, integration with source control, and application-lifecycle management processes.

▸ Tabular Editor
  ◦ Open-source, community tool with extensive set of enterprise modelling features, and easy-to-use experience

▸ SQL Server Management Studio
  ◦ Perform fine-grain data refresh, scripting and management.

▸ Power BI ALM Toolkit and BISM Normalizer
  ◦ Application-lifecycle management, incremental deployments and model merging

▸ Other third-party tools

ORANGEMAN

Questions?

Ressources

- https://powerbi.microsoft.com/en-us/blog/power-bi-open-platform-connectivity-with-xmla-endpoints-public-preview/
- https://docs.microsoft.com/en-us/business-applications-release-notes/october18/intelligence-platform/power-bi-service/xmla-endpoint
- https://docs.microsoft.com/en-us/power-bi/service-premium-what-is
- https://docs.microsoft.com/en-us/power-bi/developer/embedded-faq
- https://radacad.com/what-is-the-xmla-endpoint-for-power-bi-and-why-should-i-care

ORANGEMAN