

Conquering Excel Fortresses

Our learnings @ ZEISS

Hendrik Stumm

ZEISS Digital Partners | BI Accelerator

18 November 2022

Happy to be here

Who will guide you through today's presentation?



About me

Hendrik Stumm



Lead Data Engineer
ZEISS Digital Partners
(ZDP-AR)

- I have worked for Zeiss for **6 years** in many different positions
- Currently at the **BI Accelerator** Department of the ZEISS Digital Partners
- Our focus is to build a hyperintelligent organization that derives business values from data & analytics
- My tasks include:
 - Driving the adoption of new data-focused technology
 - Exchanging with multiple stakeholders on new technologies and developments
 - Supporting the BI Accelerator team with the projects and products they develop
- I enjoy tinkering with computers, software and many other technology focused topics. In my free-time I enjoy playing video games

What is Zeiss?

Setting the Stage



Semiconductor
Manufacturing
Technology



Industrial
Quality & Research



Medical
Technology



Consumer
Markets



BY 20/21

Revenues in Billion €

7,5

EBIT in Billion €

1,5

Employees

38.000

Companies worldwide

~200

Today's focus

What we will be talking about today



- ✓ **Introduction** of the topic – What is a database for you and your customers?
- ✓ De-mystifying the **Fortress**
- ✓ **Hard** Power vs. **Soft** Power
- ✓ How we got there
- ✓ **Data Landing Zones** for democratizing data



What is a database?

For you and your customers?



A **database** is a



















Small database

The design of data
representation
computing issues

A **database** is an

A database is usu

Together, the data
system, often sho

Name	Status	Date modified	Type	Size
 1 Sources Excel-BW-Districare.xlsm	✓	24.10.2022 13:52	Microsoft Excel M...	17.516 KB
 2 _Consolidation data.xlsm	✓	29.09.2022 20:26	Microsoft Excel M...	11.869 KB
 data.csv	☁	29.10.2021 11:28	Microsoft Excel Co...	33 KB
 departements-francais.csv	✓	26.07.2022 15:31	Microsoft Excel Co...	6 KB
 lbases.xlsx	✓	13.09.2022 15:08	Microsoft Excel W...	2.466 KB
 Mapping Business-Header Division.csv	☁	03.11.2021 15:40	Microsoft Excel Co...	1 KB
 mapping_cluster_client.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	142 KB
 mapping_cluster_client-FM05N00021.csv	☁	29.10.2021 11:28	Microsoft Excel Co...	141 KB
 MED France Rebuild.xlsx	☁	18.11.2021 16:35	Microsoft Excel W...	2.151 KB
 Pacs IOL.xlsx	☁	22.07.2022 09:41	Microsoft Excel W...	240 KB
 table_clients.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	435 KB
 table_clients-FM05N00021.csv	☁	29.10.2021 11:28	Microsoft Excel Co...	429 KB
 table_description_pc.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	1 KB
 table_exceptionnelle_force_de_vente.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	2 KB
 table_force_de_vente.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	30 KB
 table_objectif_realise.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	731 KB
 table_produit_med.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	416 KB
 upload_to_db.csv	✓	03.11.2021 14:57	Microsoft Excel Co...	140.799 KB

storage.

data

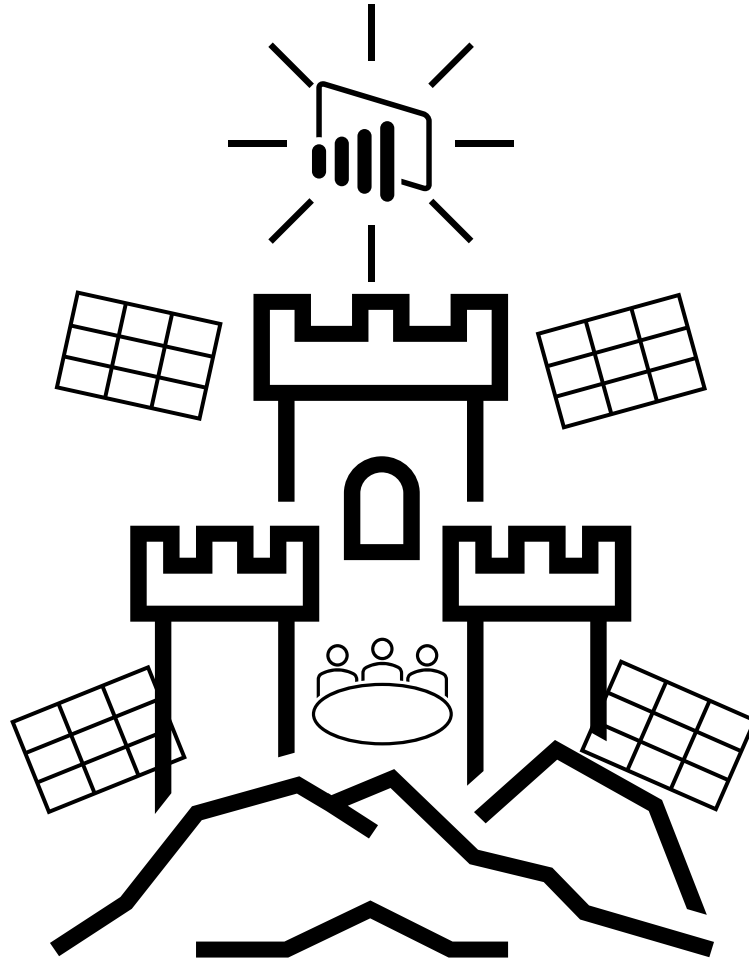
edia

r system.

abase

The Fortress

What it feels like



De-mystifying The Fortress

Why do they exist?



SSC France initial challenge : Automize the process of Sales reporting

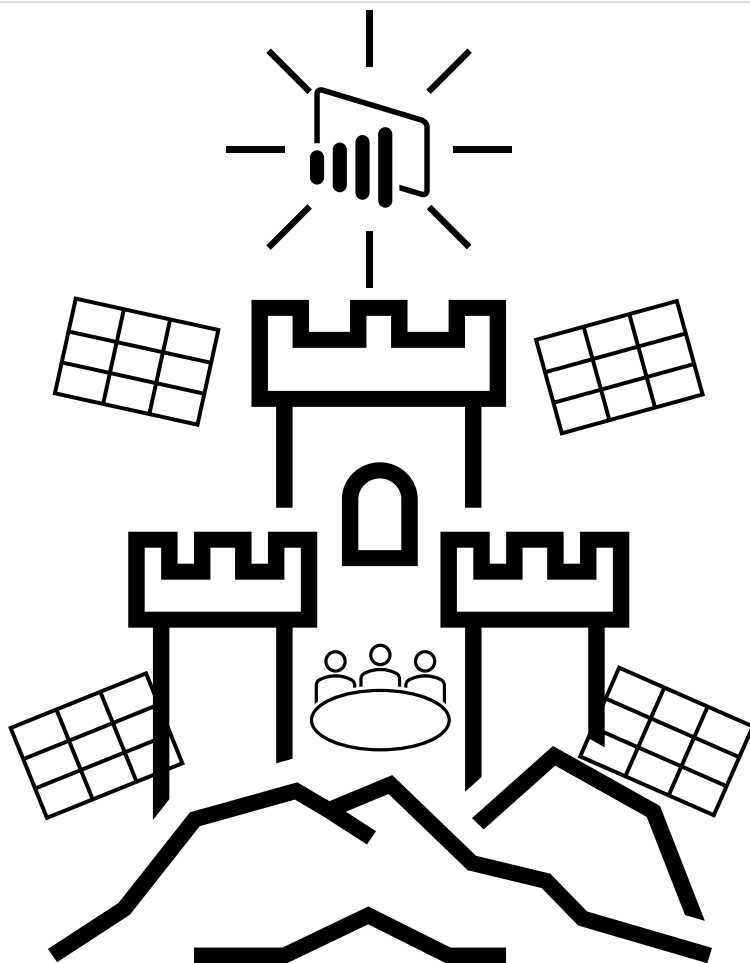
Before	After
Process was employee dependent, only 1 person could do it	→ Almost fully automated process, update of database can be done very easily
Not transparent and used for the calculations of sales incentives	→ Full audit trail of the retreatment
Process took 1 week per month	→ 1 hour/month to include the restatement table in power BI
Data of past month available very late in month (day+20)	→ Data available instantly (only one day delay due to BW update)
Data available in 3 large excel files not easy to read for sales teams	→ Dashboard available in Power BI (computer, phone, Ipad...)
Sales reporting was sent to all team	→ Possibility to manage views and restrict needed visibility

De-mystifying The Fortress

Reason they exist

What it can do

- Automated Process
- Audit Trail / Transparency
- More efficient Report Generation
- Less Delay for data consumption
- Frontend is platform agnostic (PC, Phone, Tablet)
- Local Data Security
- **Data Modelling Flexibility**
- **Lower Lead Times for future Developments**
- **Low Priority Topics for Central BI can be explored and exploited**



De-mystifying The Fortress

The local architectural setup is not sufficient for global leverage



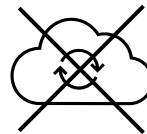
Complex back-end architecture

- Main Data Platform Setup based on **local** Sharepoint/OneDrive solutions
- Complex automation done via third party tools (not scalable)



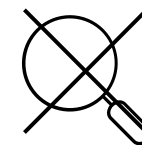
Unsynced data sources

- Base data is used from **multiple different data sources** across the ZEISS Group
- **Multiple** viewpoints on the data change how that data is **interpreted on different levels**



Limited visibility

- Highly **specialized** solutions for Sales Controlling are **localized** and **non-transferable** to other Units
- Units with lower resources **do not benefit** from developments in other Units



Local developments have led to **inspiring data products** with a high impact on local Sales Controlling Units.

However, their global potential is currently not being leveraged, which drives **inefficiencies** and reduces **transparency** in between these units.

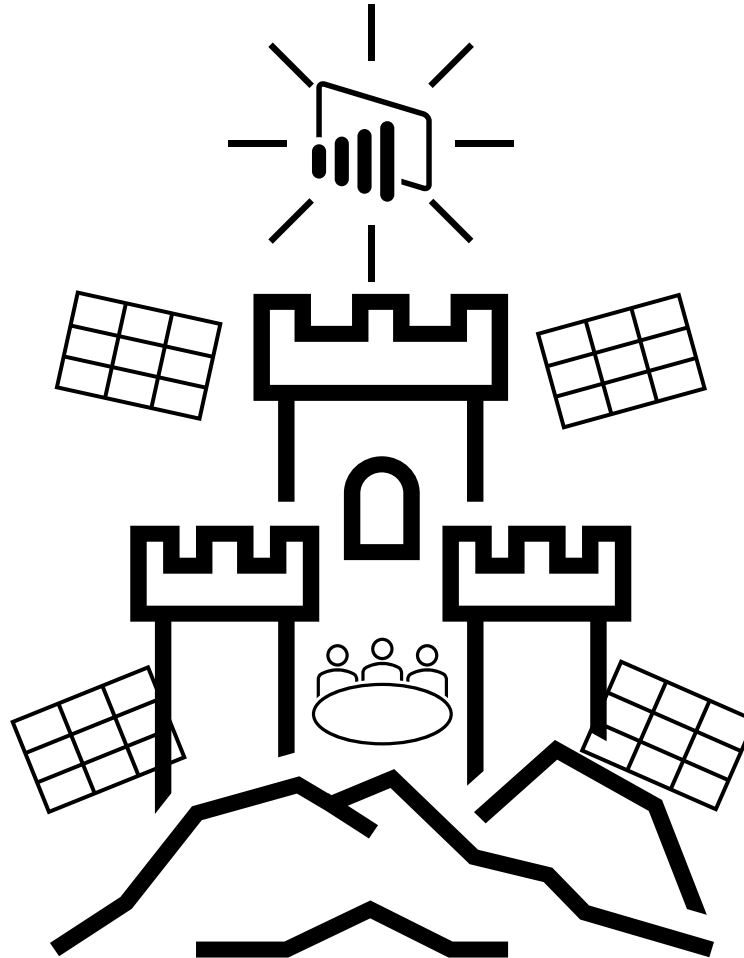
De-mystifying The Fortress

Situations they create



What it can do

- Automated Process
- Audit Trail / Transparency
- More efficient Report Generation
- Less Delay for data consumption
- Frontend is platform agnostic (PC, Phone, Tablet)
- Local Data Security
- Data Modelling Flexibility
- Lower Lead Times for future Developments
- Low Priority Topics for Central BI can be explored and exploited

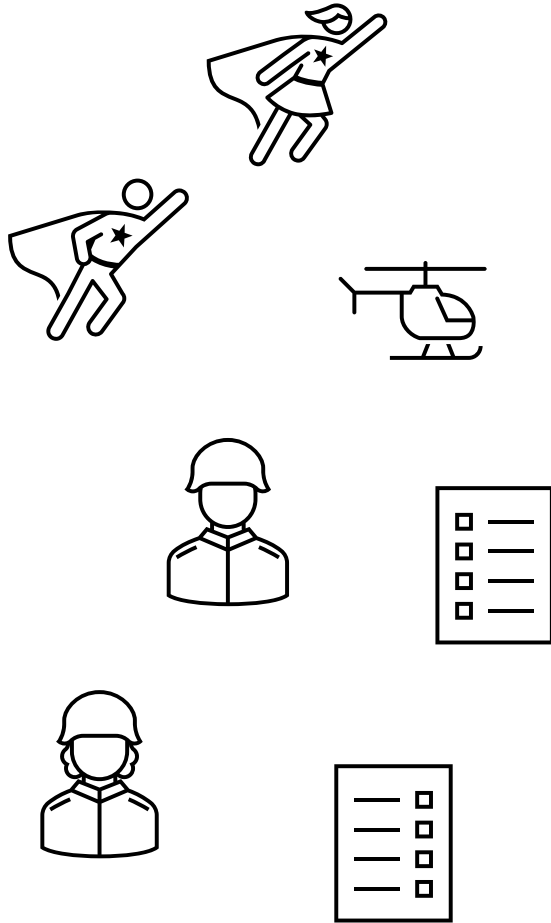


Behind the Scenes

- Complex Backend architecture
- Excel is fragile and can be broken
- Unsynced Data Sources
- Limited visibility across borders
- Low resource units don't have anything
- Unrealized potential for data product deployments
- **Different versions of the truth**

Hard Power

Attacking the fortress



Security Concerns

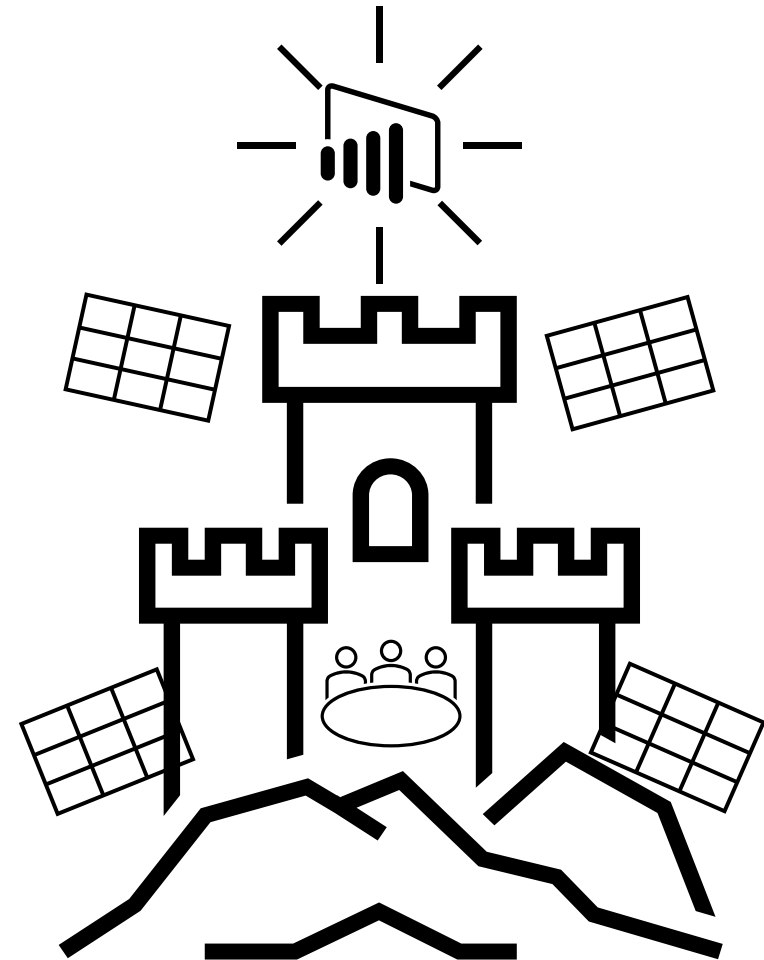
Target Operating Model

Products from Corporate

Project Proposals

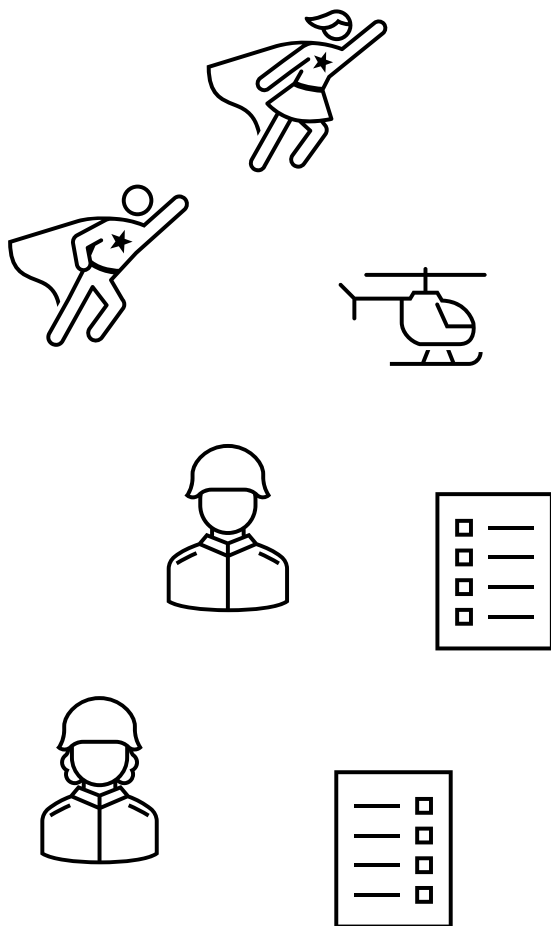
Remove Data Access

Restrict Tools



Hard Power

Attacking the opportunity



Security Concerns

Target Operating Model

Products from Corporate

Project Proposals

Remove Data Access

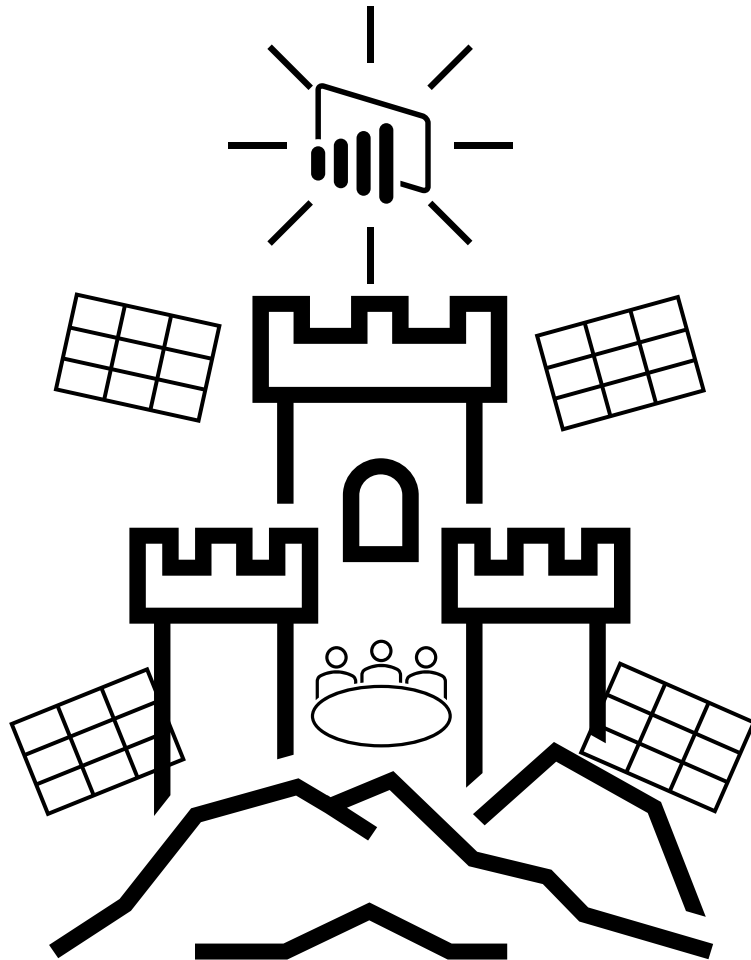
Restrict Tools

What it can do

- Automated Process
- Audit Trail / Transparency
- More efficient Report Generation
- Less Delay for data consumption
- Frontend is platform agnostic (PC, Phone, Tablet)
- Local Data Security
- Data Modelling Flexibility
- Lower Lead Times for future Developments
- Low Priority Topics for Central BI can be explored and exploited

Soft Power

Focus on the right topics



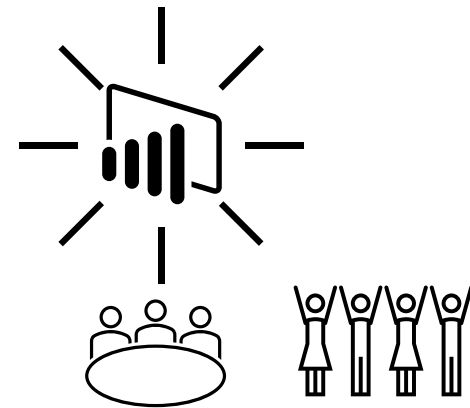
Behind the Scenes

- Complex Backend architecture
- Excel is fragile and can be broken
- Unsynced Data Sources
- Limited visibility across borders
- Low resource units don't have anything
- Unrealized potential for data product deployments
- Different versions of the truth



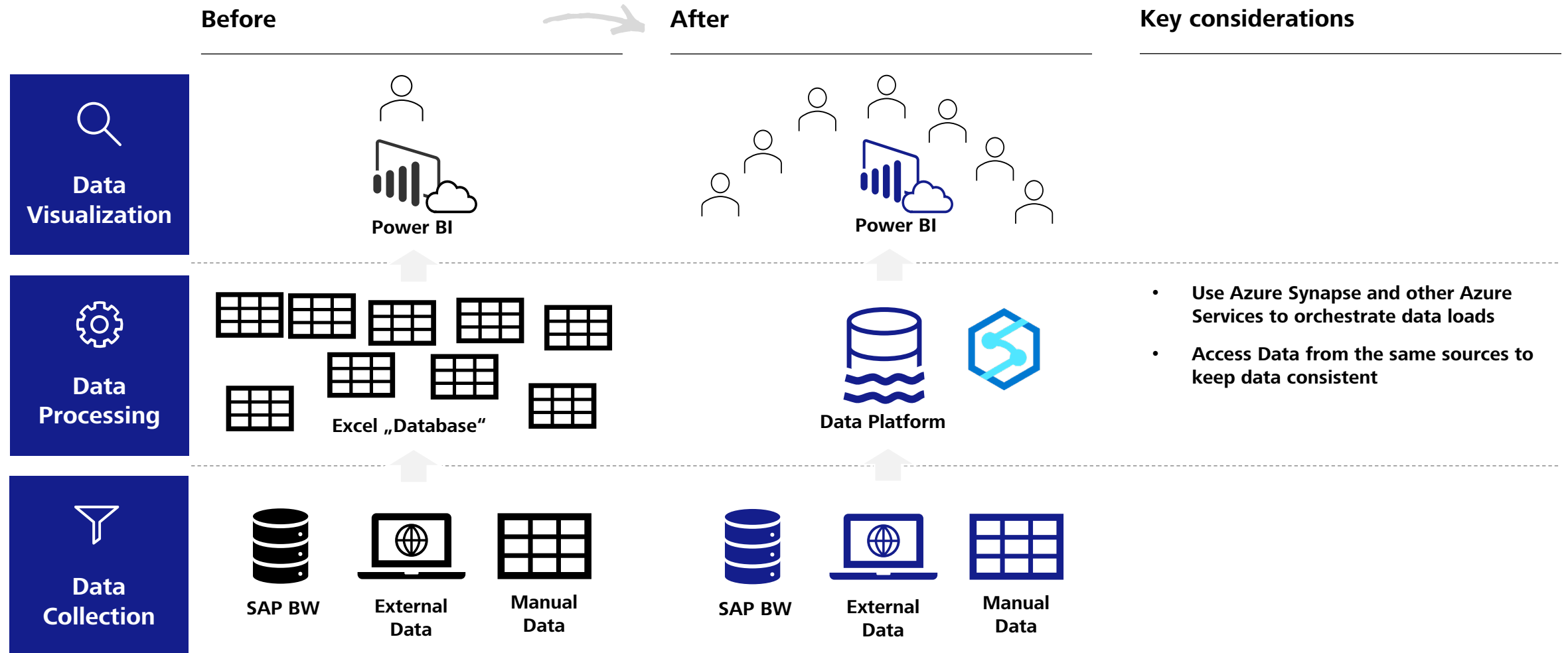
Behind the Scenes

- Simplify their loads
- Provide an environment for data
- Re-use Data sources from other Projects
- Showcase project in Global Presentations
- Provide Template solutions
- Onboard other units in your organizations with more MVPs
- Be transparent



How we got there

Simplify their loads

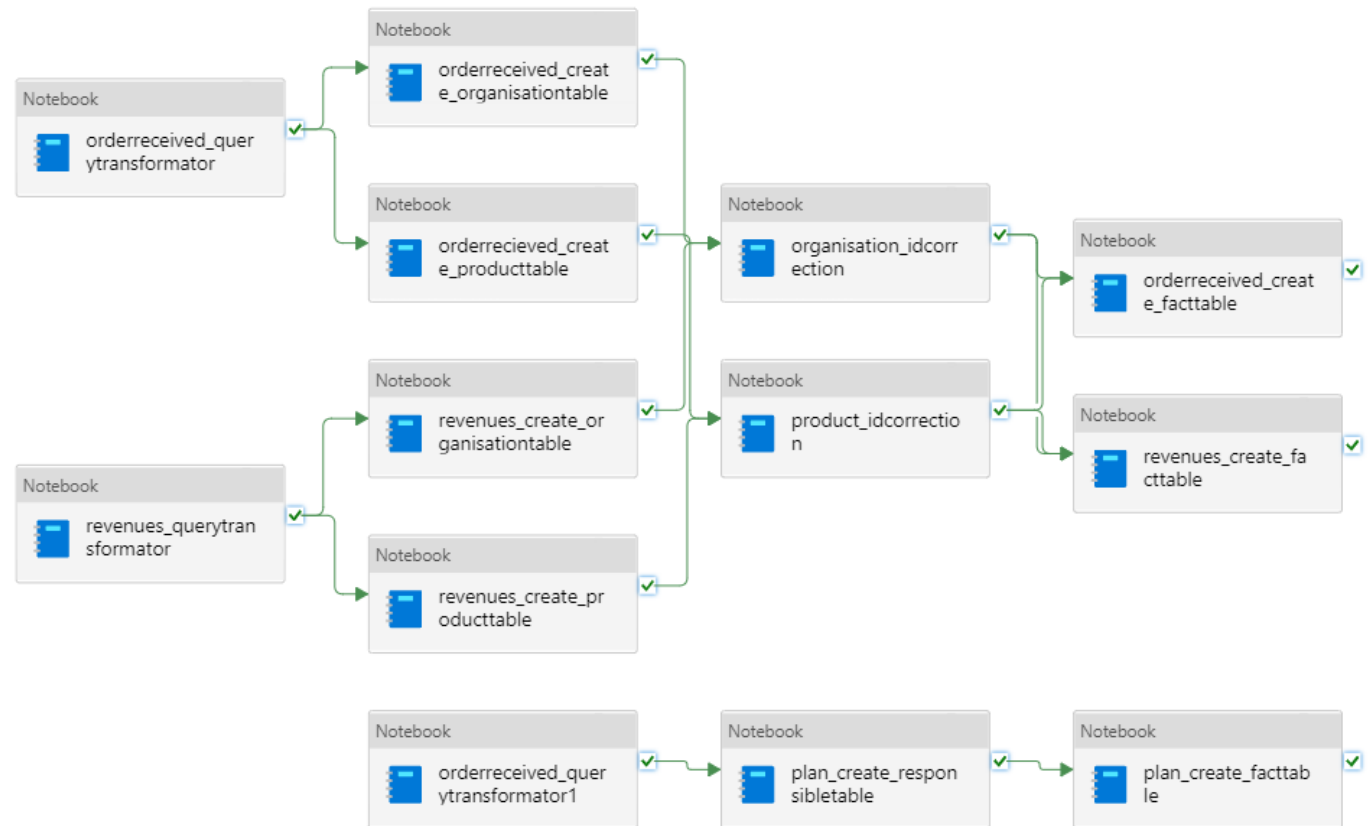
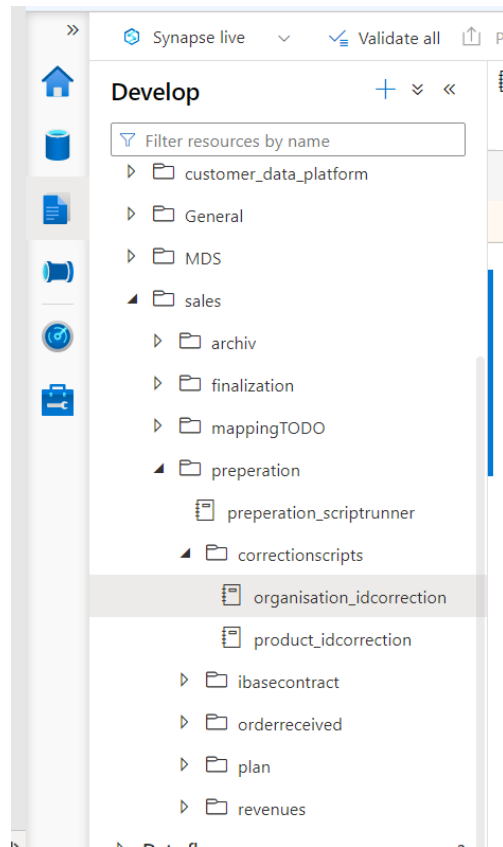


How we got there

Simplify their loads



What we do in the Background

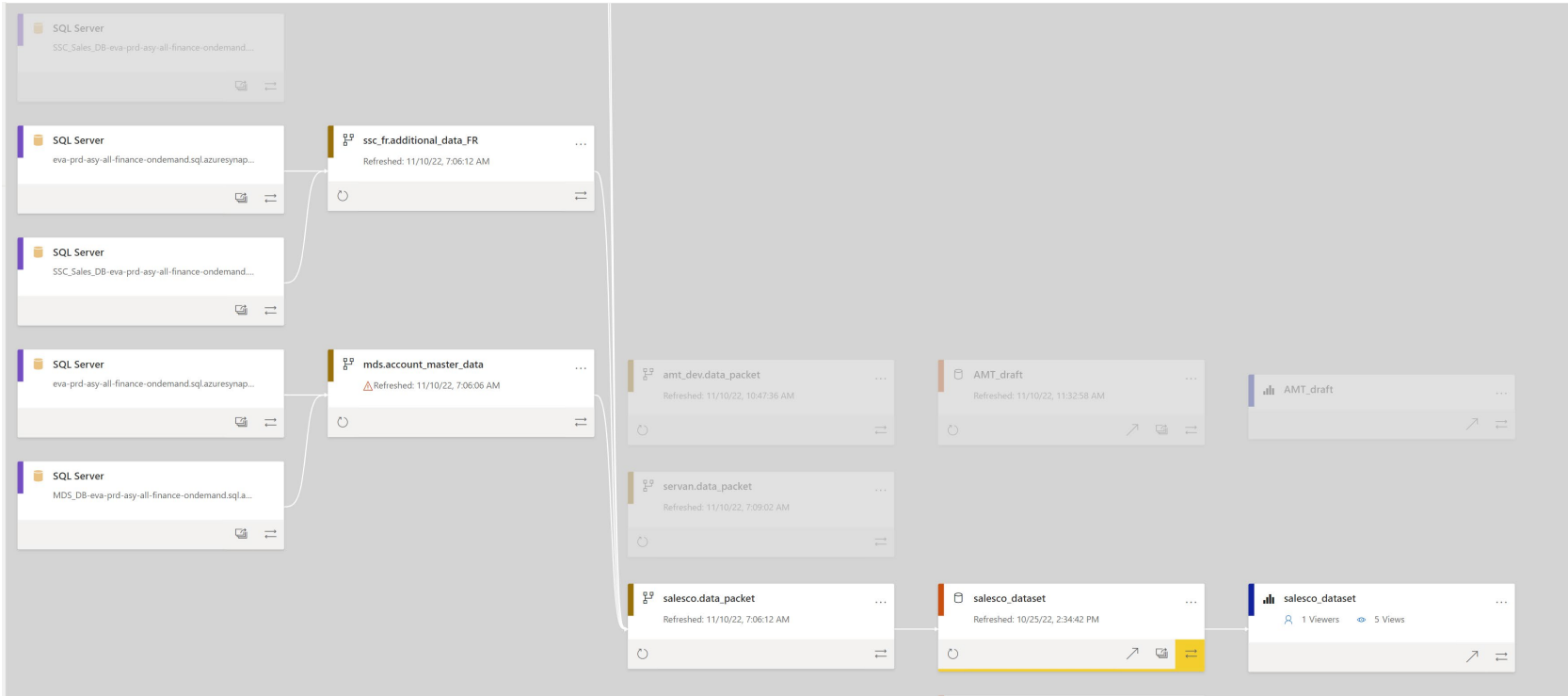


How we got there

Simplify their loads



What we do in the Background

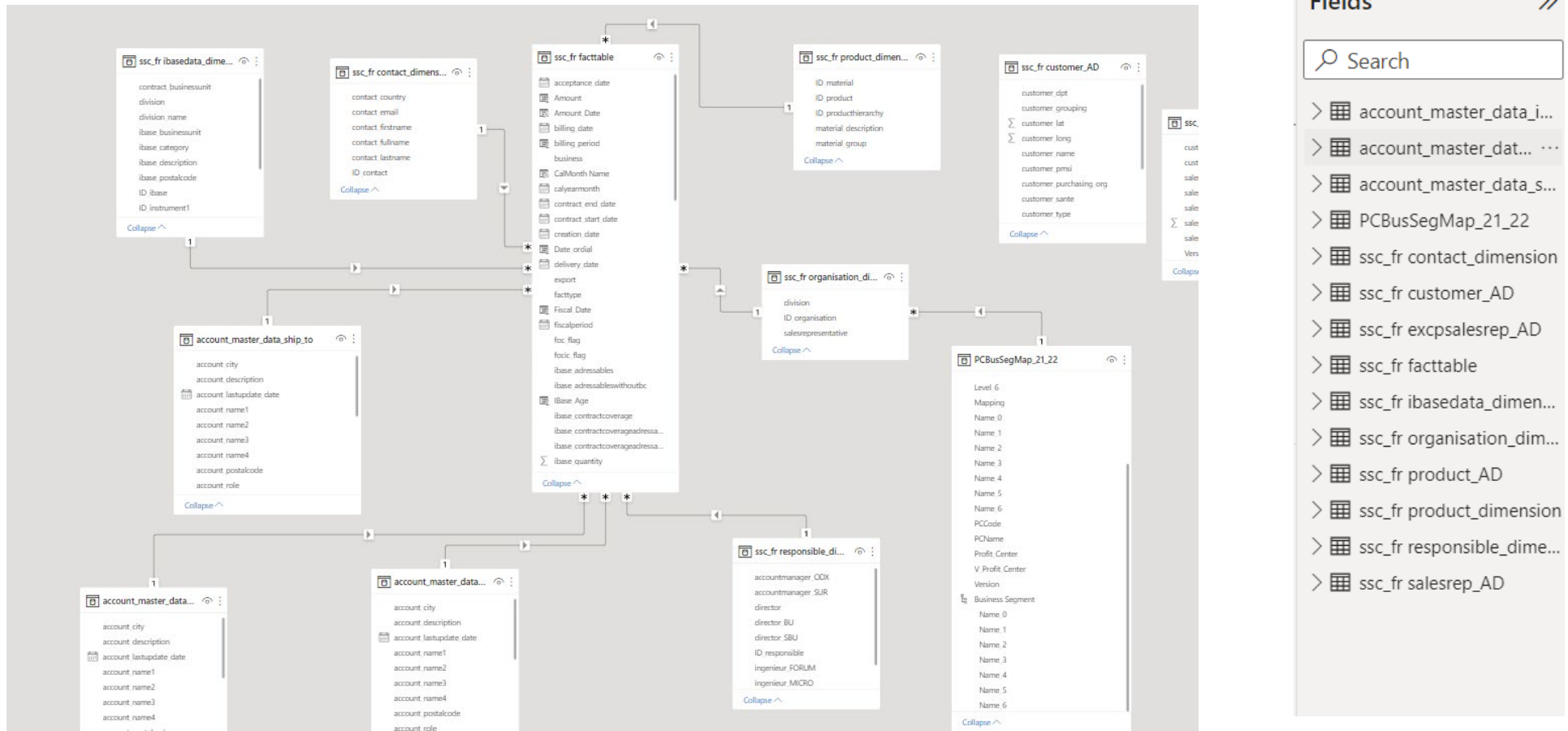


How we got there

Simplify their loads

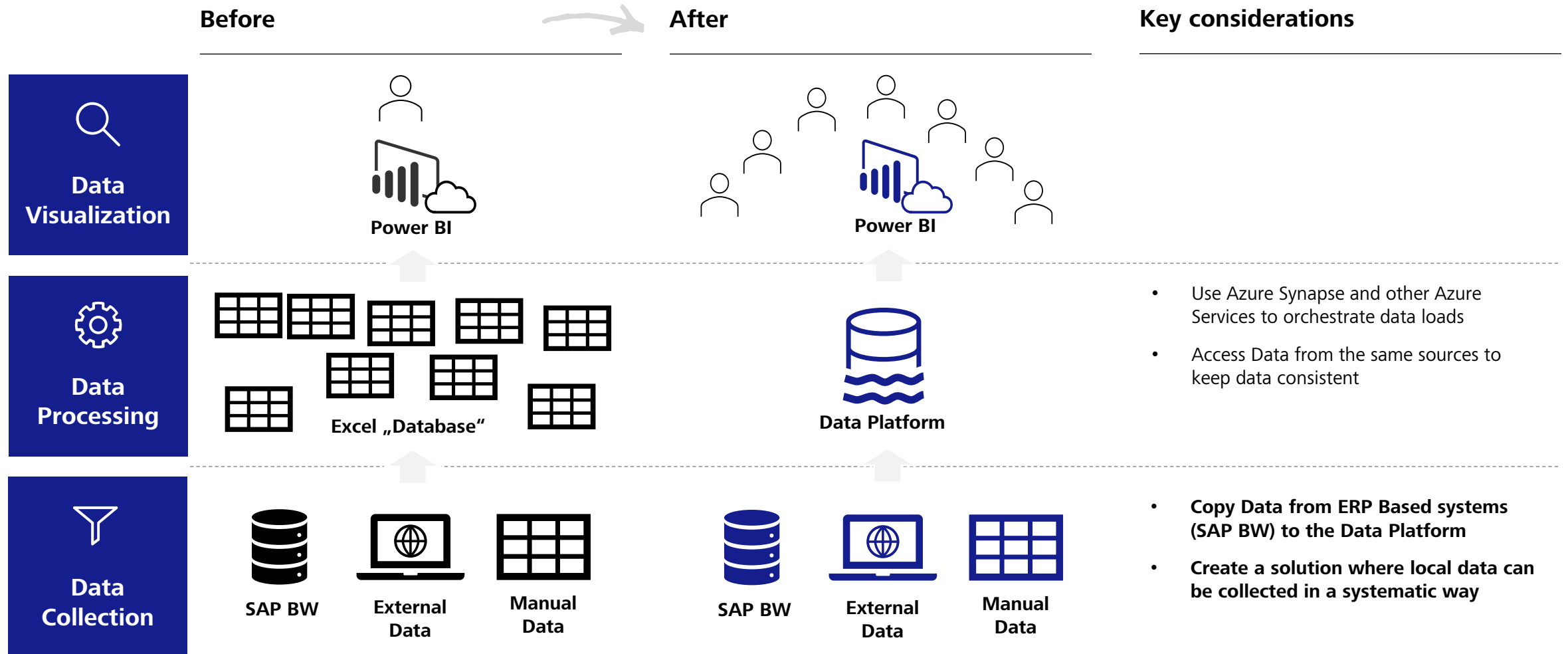


What they receive from one data connection



How we got there

Provide an environment for data



How we got there

Provide an environment for data



Before



After

~5-10 manual Excel Files containing data from other sources or manually created data

Microsoft SQL Server with Master Data Services Plugin to consolidate manual inputs



Name	Status	Date modified	Type	Size
1 Sources Excel-BW-Districare.xlsm	✓	24.10.2022 13:52	Microsoft Excel M...	17.516 KB
2 _Consolidation data.xlsm	✓	29.09.2022 20:26	Microsoft Excel M...	11.869 KB
data.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	33 KB
departements-francais.csv	✓	26.07.2022 15:31	Microsoft Excel Co...	6 KB
lbases.xlsx	✓	13.09.2022 15:08	Microsoft Excel W...	2.466 KB
Mapping Business-Header Division.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	1 KB
mapping_cluster_client.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	142 KB
mapping_cluster_client-FM05N00021.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	141 KB
MED France Rebuild.xlsx	✓	18.11.2021 16:35	Microsoft Excel W...	2.151 KB
Pacs IOL.xlsx	✓	22.07.2022 09:41	Microsoft Excel W...	240 KB
table_clients.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	435 KB
table_clients-FM05N00021.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	429 KB
table_description_pc.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	1 KB
table_exceptionnelle_force_de_vente.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	2 KB
table_force_de_vente.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	30 KB
table_objectif_realise.csv	✓	29.10.2021 11:28	Microsoft Excel Co...	731 KB
table_produit_med.csv	✓	03.11.2021 15:40	Microsoft Excel Co...	416 KB
upload_to_db.csv	✓	03.11.2021 14:57	Microsoft Excel Co...	140.799 KB

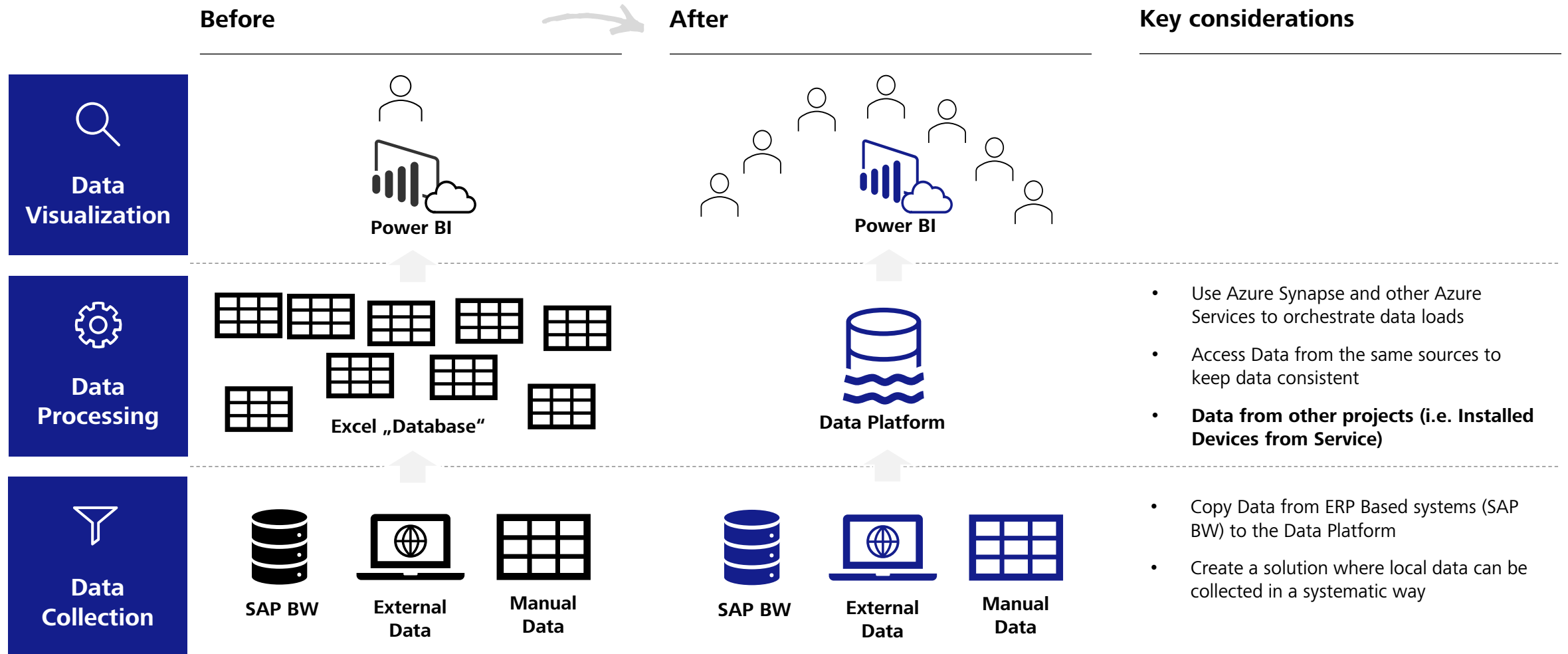
Everything stored on Onedrive/Sharepoint

Name	Code	Sales Organisation ID	Sales Organisation Name	Legal Entity Code	Version
MED_JAG	0223	0223	CZ Meditec AG	0150	1
MED_France	5552	5552	FR Medical Systems	0310	1

Other general Mapping tables and Hierarchies are provided by central department to reduce replicated data

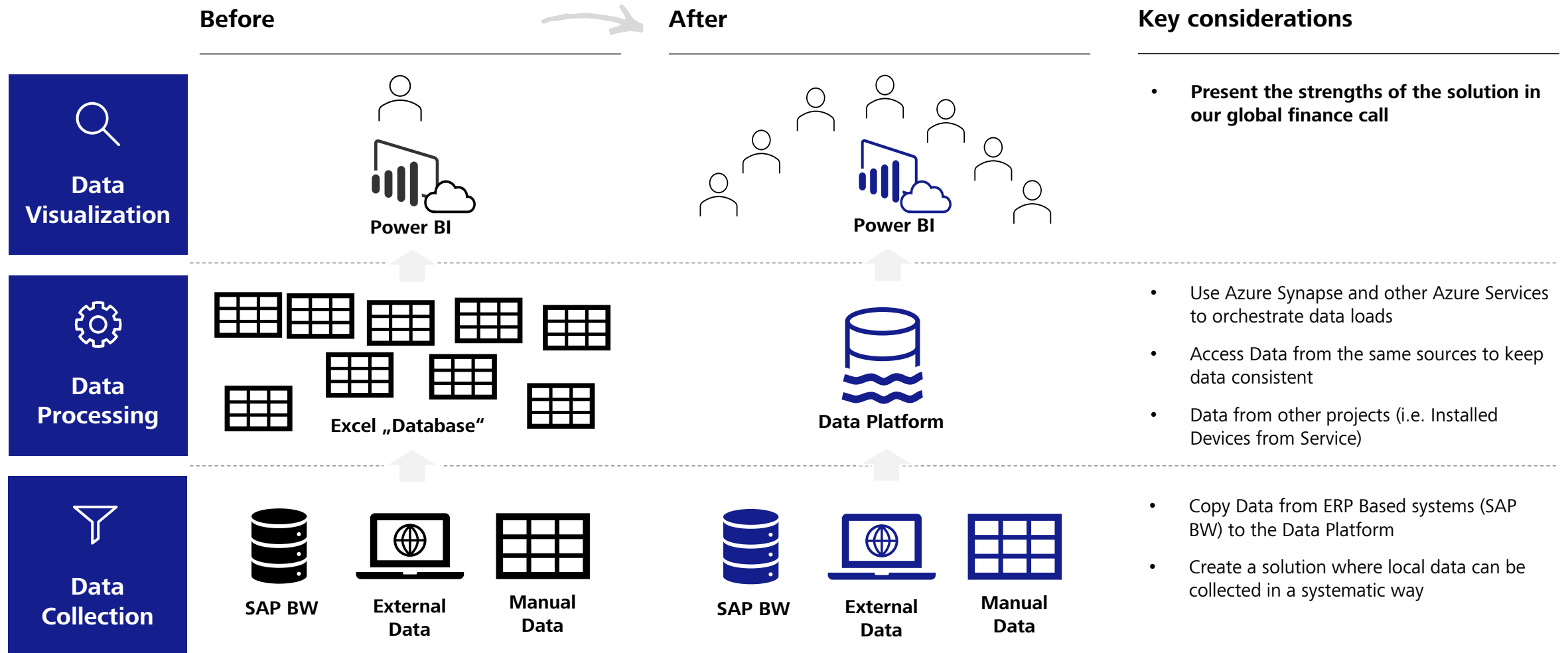
How we got there

Re-use Data sources from other Projects



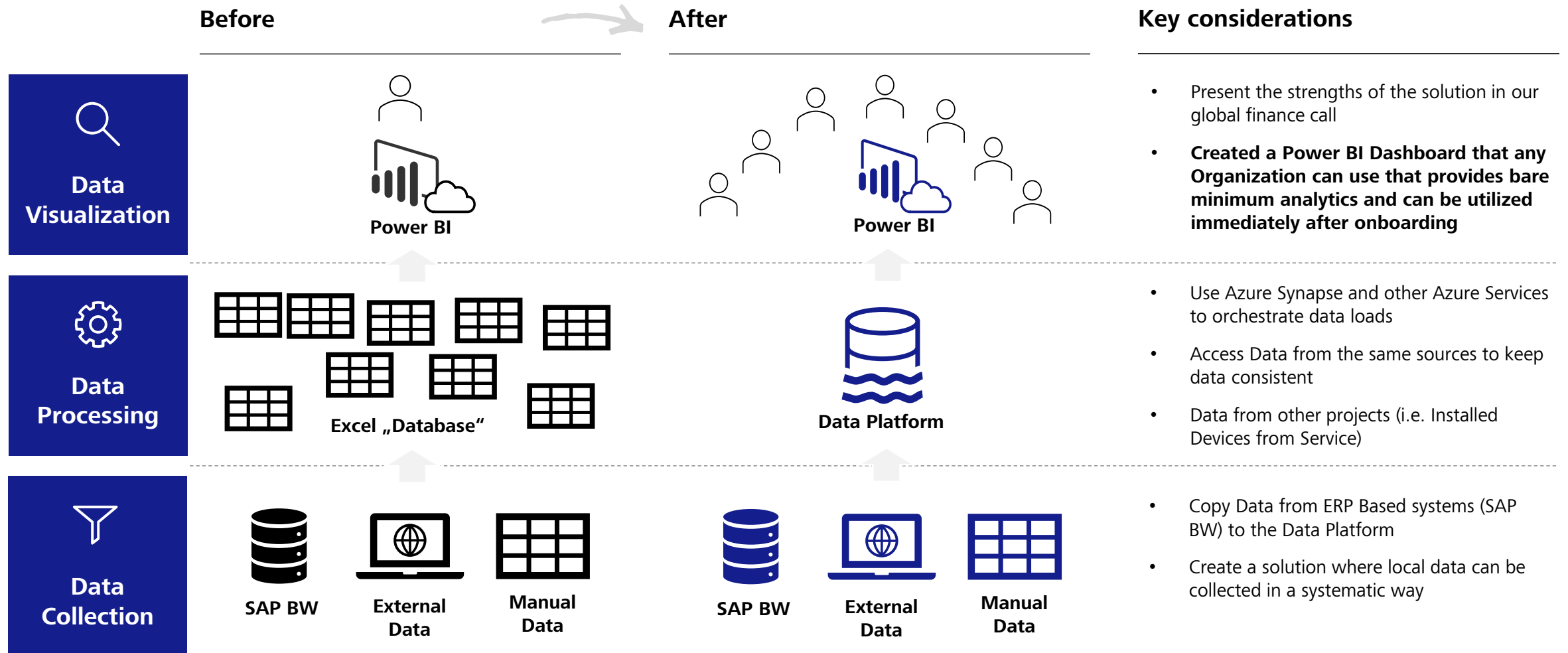
How we got there

Showcase project in Global Presentations



How we got there

Provide Template solutions

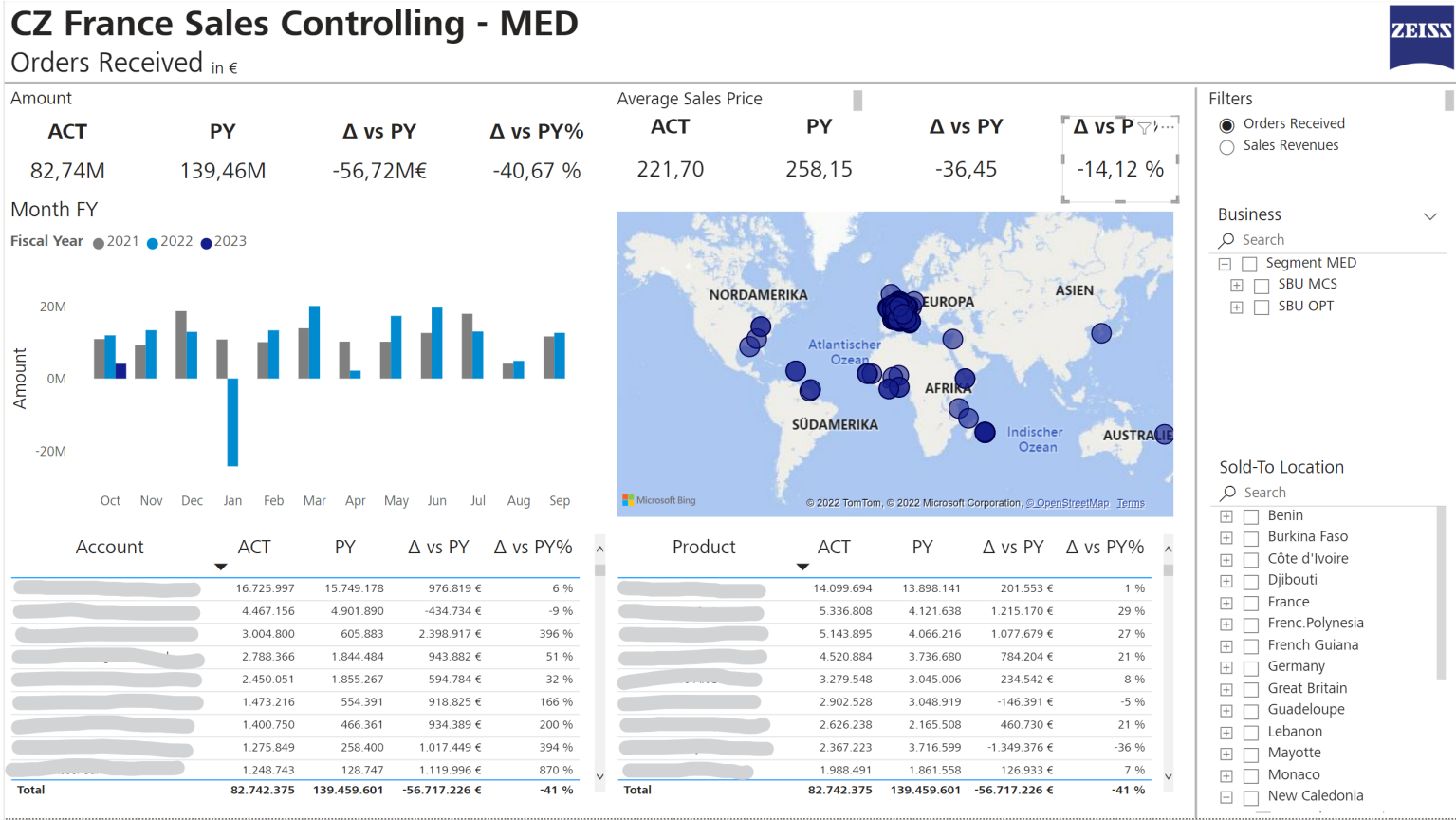


How we got there

Provide Template solutions



Template Dashboard with Row Level Security that can be used by any Legal Entity



*Data has been randomized and blurred

Is this Dashboard a Product?



No, Data is the Product!



How we got there

Onboard other units in your organizations with more MVPs



Feedback from global presentation

Solution looks fantastic [REDACTED], especially when available over the phone for sales teams to regularly track performance. Look forward to further roll out to other SSC's

Quite interesting. Just wondering how this data automation could be quickly adopted to China.

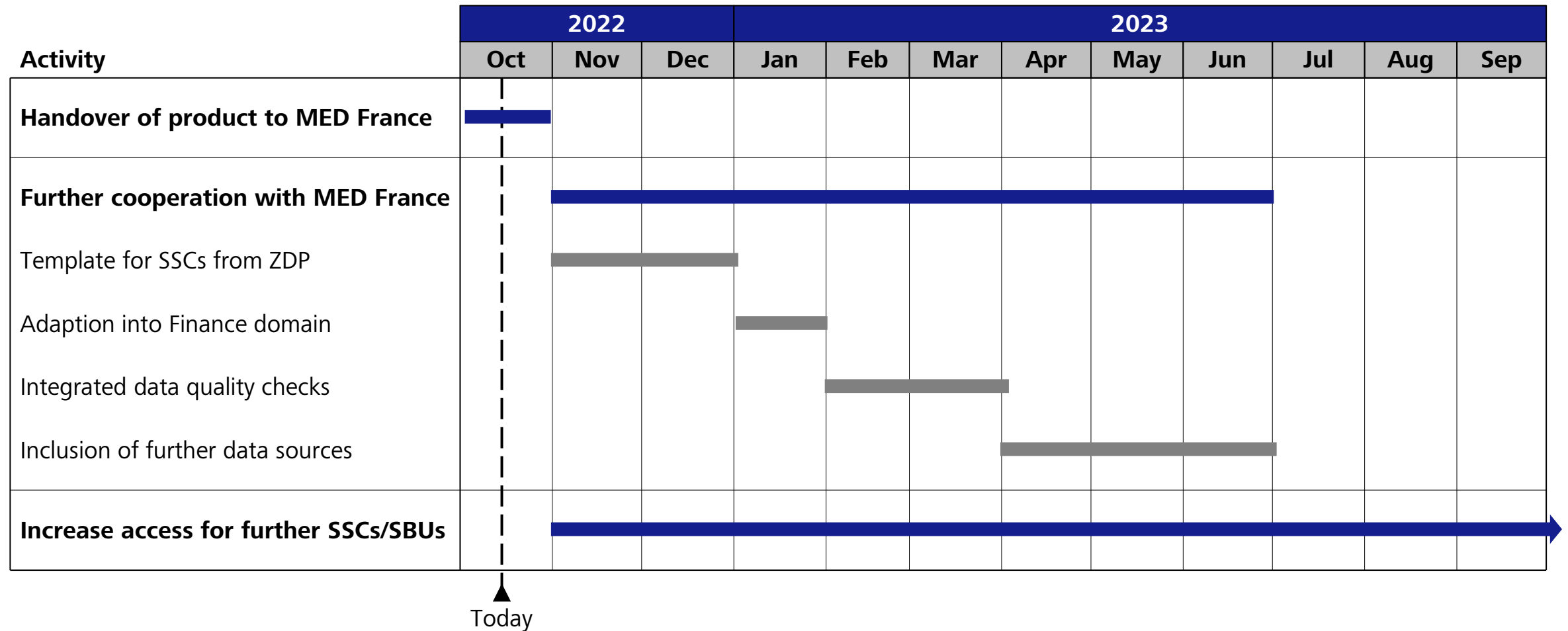
Great team work and amazing result. We would definitely be up for pilot 😊

Incredible work, Hendrik. I'd love to see how I can leverage some of the work you've already done and see if I can help pioneer/pilot any further dashboards or any other data driven projects.

Thank you so much and again - REALLY great job. I'm really excited about this opportunity and how this can help the team!

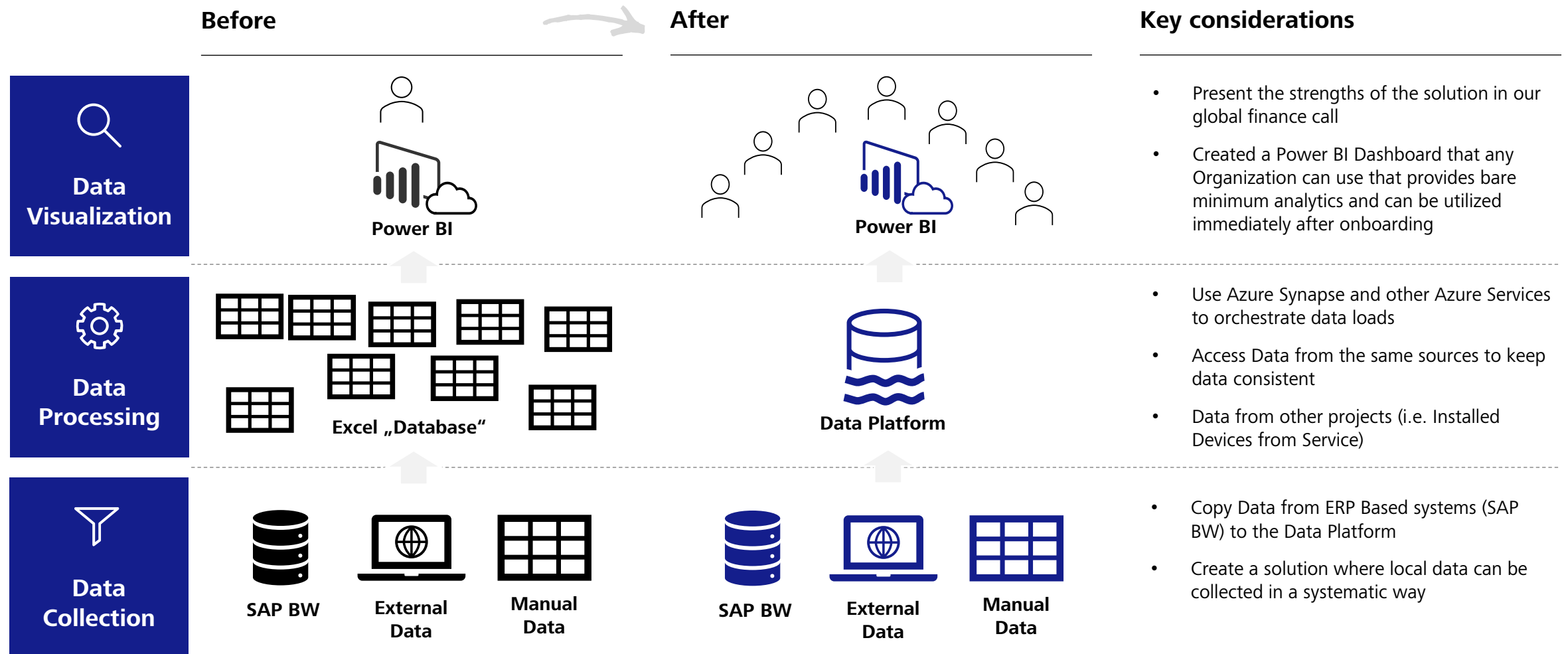
How we got there

Be transparent – and keep developing



Where we are now

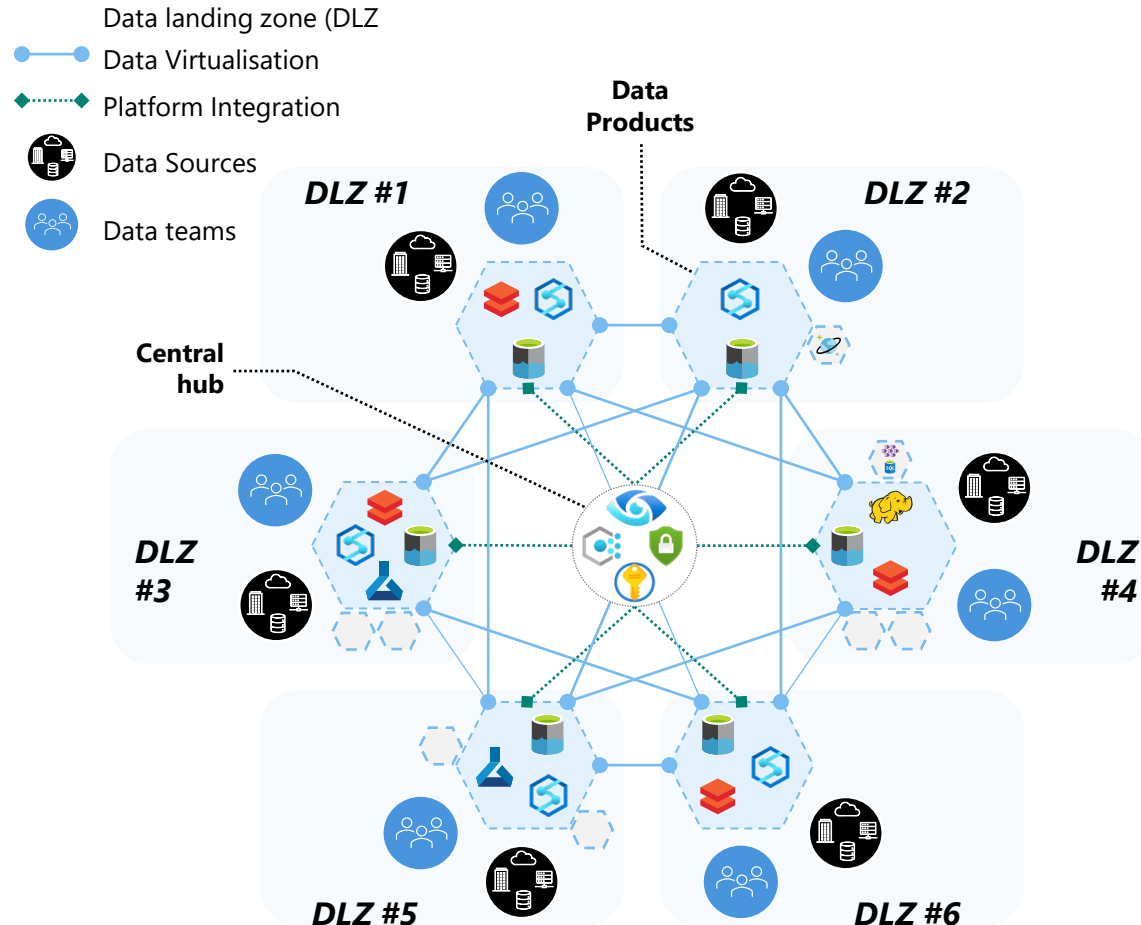
First Step is completed



Data Landing Zones for democratizing data

Where we are headed in the long-term

eVA3.0 is based on the Data Mesh principle



Guiding principle – “encapsulation and interfaces”

Data landing zone (DLZ)

... is a way to define boundaries around enterprise data. DLZ **teams** who are closest to the data **own** the (analytical) **data** and **serve** the **data products** to the rest of the organization. The team is also responsible of **giving access** to the data and ensuring it's **data quality** measures. DLZs can be seen as black boxes to other DLZ since each team decides which technology to use to fulfill the needs.

A DLZ can be an **encapsulation** around **data sources** (like CRMs) or **topics** (like Customer360) or **teams** (like MED BDA).

Data product

... describes the result of the work of a DLZ team. This could be a **table** with master data like PC hierarchies, complete **data models** or even **PowerBI dashboards**. A data product can be served as an interface to other data landing zones.

Data Landing Zones for democratizing data

An example for a Finance DLZ



Data Landing Zone Content



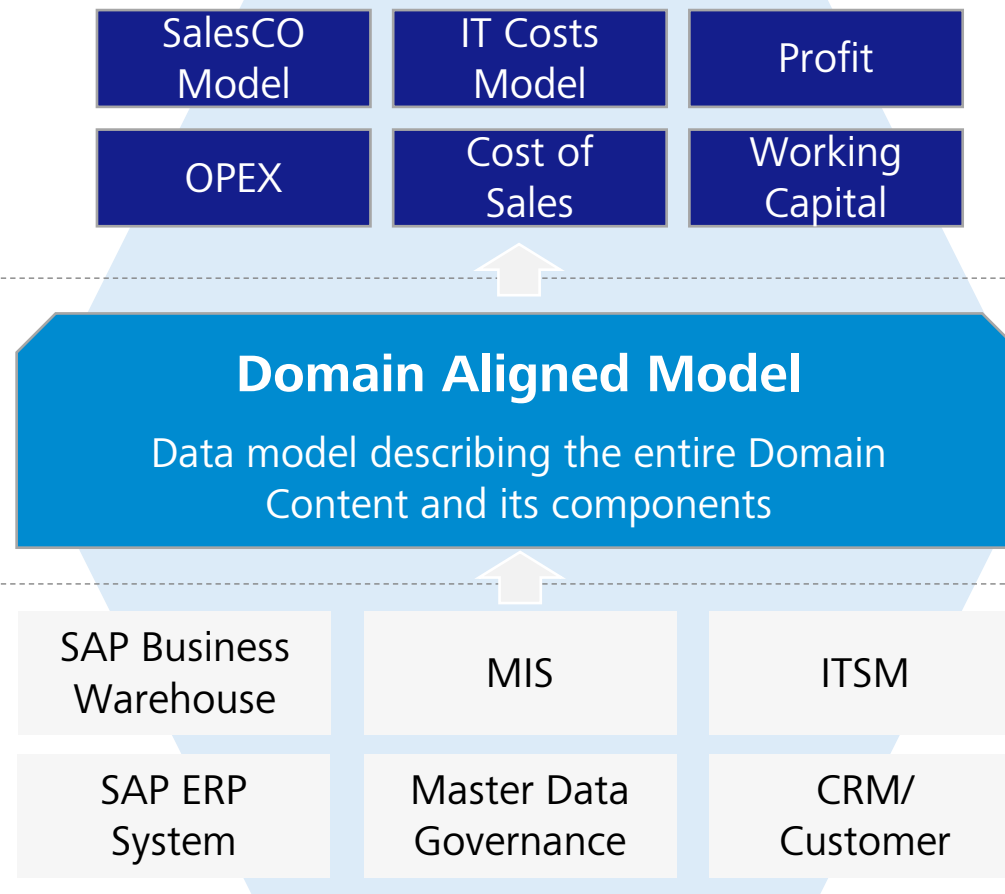
Data Product



Data Standard



Data Source



Key Contributors

- Segment Data Stakeholders
- Entity Data Stakeholders
- Group Data Stakeholders
- Domain Data Analysts
- Domain Architect
- Domain Data Engineers

- Domain Architect
- Domain Data Engineers
- Domain Data Analysts
- Data Product Owners

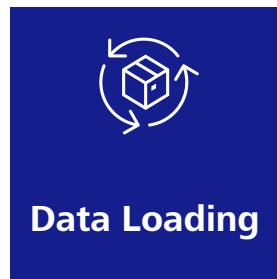
- Source System Owners
- Data Input Contributors
- Domain Data Engineers
- Domain Architect

Data Landing Zones for democratizing data

An example for a Finance DLZ



Data Landing Zone Technologies



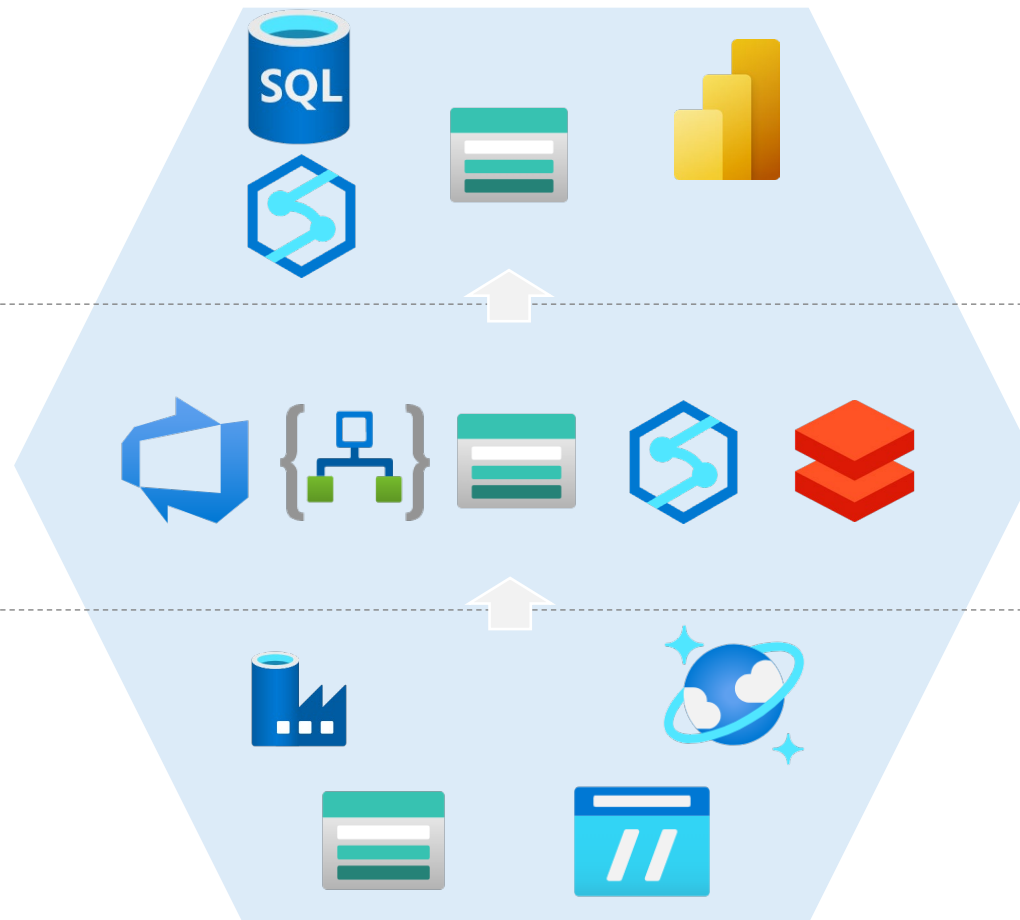
Data Loading



Data Transformation



Data Extraction



Key Features

- Data Provision with Data Products
 - Exposure of Data Products with Synapse SQL serverless
 - Data Visualization with Power BI (either by customer or as Template by BIA)
-
- Data Transformation into Domain Aligned Model with Synapse/Databricks
 - Utilize Pipeline Composition in Azure DevOps
 - Logic Apps for monitoring pipelines
-
- Extract Data from multiple Sources
 - Provide a storage layer for ingest data
 - Standard extraction technologies
 - Delta-Extraction

Wrap-Up

Brief summary, on the points we discussed today



- ✓ **Why Excel Fortresses** come into existence (De-mystifying their **purpose**)
- ✓ **How** we approached Excel Fortresses in one of our projects (**Hard Power** vs. **Soft Power**)
- ✓ **What** our solution **currently** looks like
- ✓ **Where** we predict future developments will take projects like this

Do you have any questions, which haven't been answered so far?



Seeing beyond