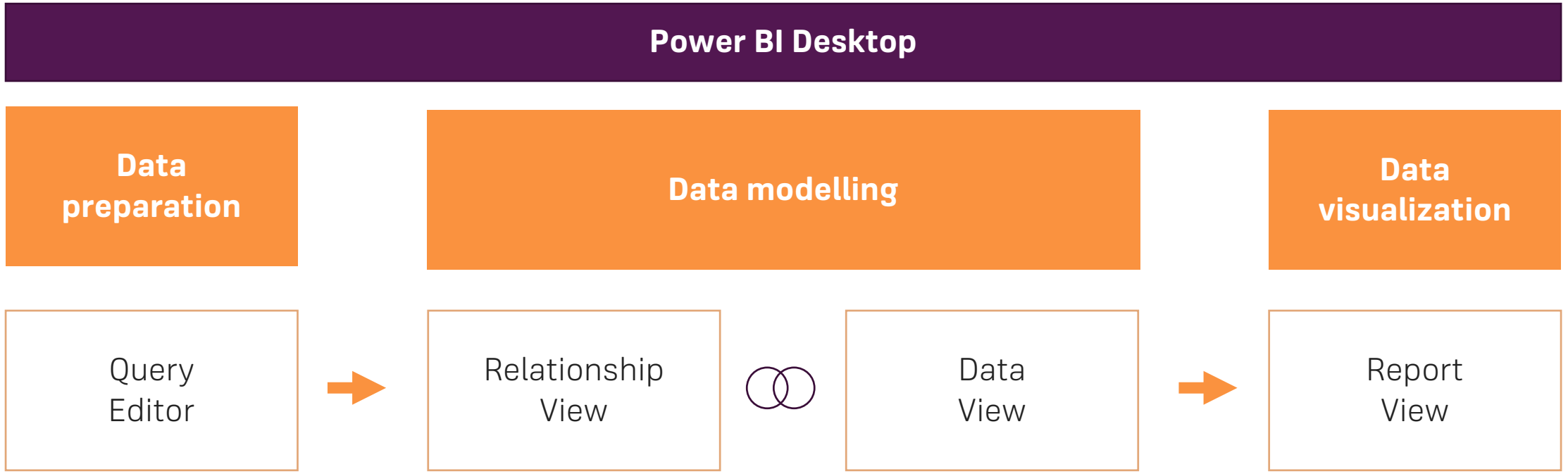
Power BI

The Complete Guide

Power BI Desktop

What the Desktop application is perfect for

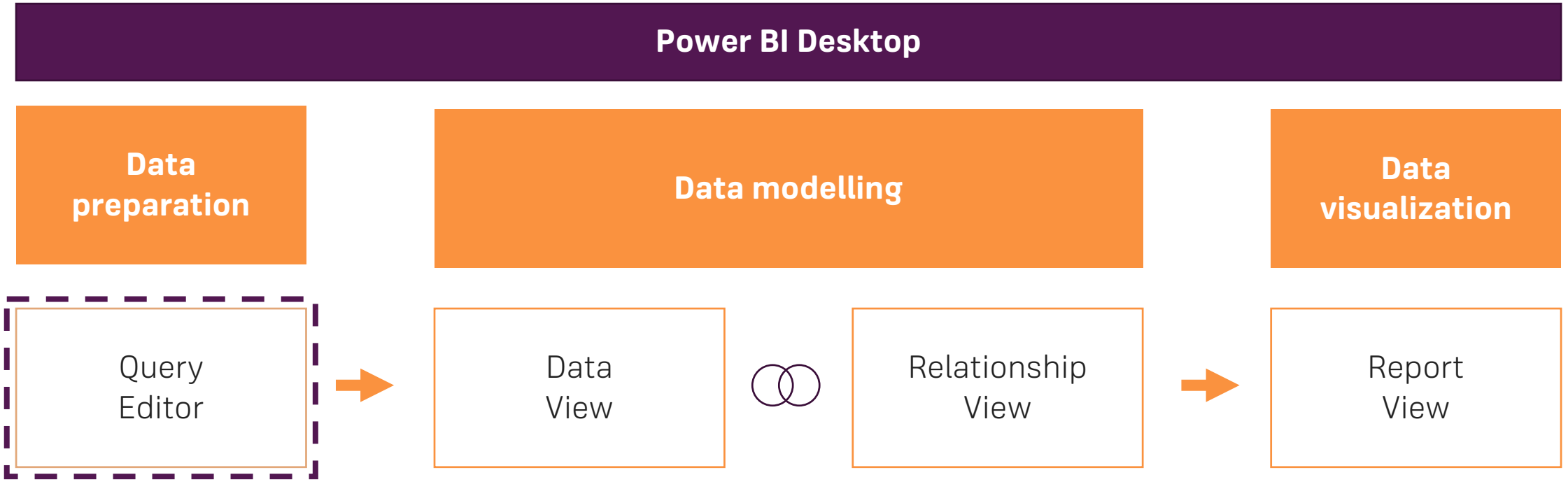
Workflow of Power BI Desktop



The Query Editor

How we import and prepare our data

Power BI Desktop – Query Editor



The Star Schema

FACT TABLE

VS

DIM TABLE

The Star Schema

DIM TABLE

Products

- **IdentifierProd**
- ProductType
- PricePerUnit
- CostperUnit

Time

- **IdentifierDate**
- Year
- Quarter
- Month
- Week
- Day

FACT TABLE

Sales

- **IdentifierProd**
- **IdentifierDate**
- **IdentifierCust**
- **IdentifierGeo**
- UnitsSold
- TotalSales
- TotalCost

DIM TABLE

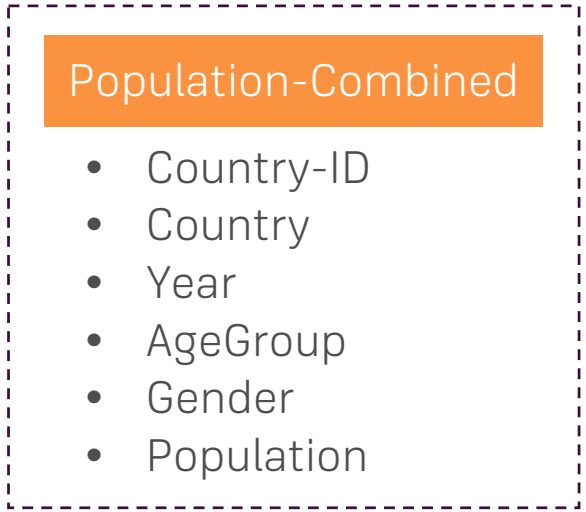
Customers

- **IdentifierCust**
- FirstName
- SecondName
- Age
- Gender

SalesPoint

- **IdentifierGeo**
- Continent
- Country
- City

Our Project – Current structure



Out Project turned into a Star Schema

DIM TABLE

Region

- Country-ID
- Country
- Region

FACT TABLE

Population

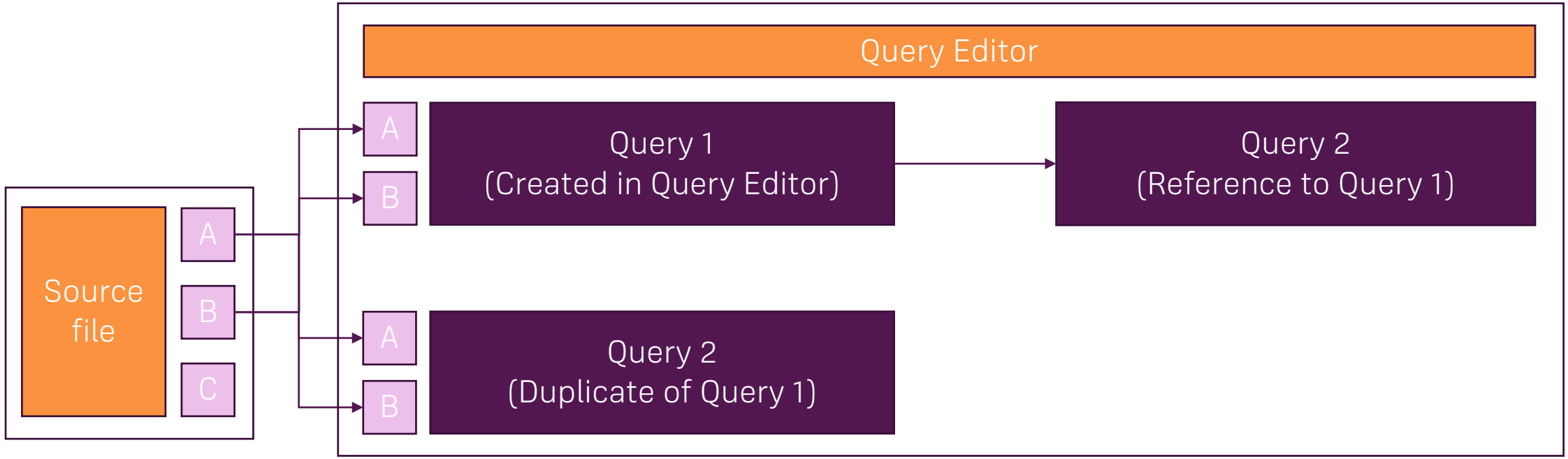
- Country-ID
- AgeGroup-ID
- Year
- Gender
- Population

DIM TABLE

Age

- AgeGroup-ID
- AgeGroup
- Category

Query: Duplicate vs. Reference



Merge Queries - Join Kind

Separate Queries

Query 1
LEFT

ID	Sales
A	10
B	50
C	20

Query 2
RIGHT

ID	Region
A	USA
BB	Europe
C	Asia

Merged Queries

Outer

LEFT

ID	Sales	Region
A	10	USA
B	50	n/a
C	20	Asia

RIGHT

ID	Region	Sales
A	USA	10
BB	Europe	n/a
C	Asia	20

FULL

ID	Sales	Region
A	10	USA
B	50	n/a
C	20	Asia
BB	n/a	Europe

Anti

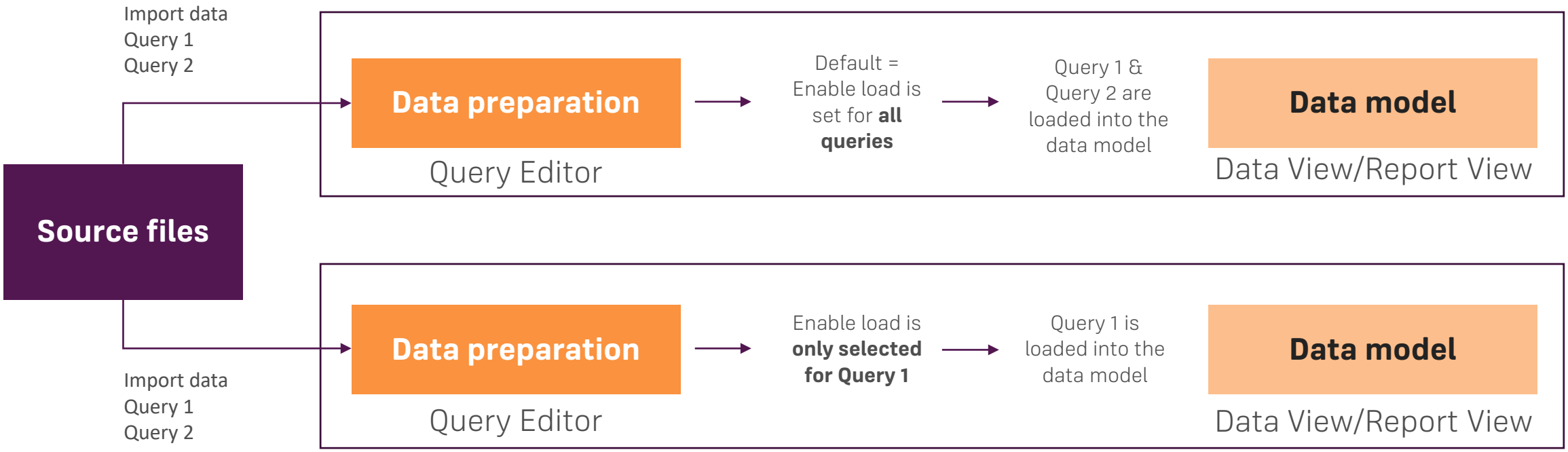
ID	Sales	Region
B	50	n/a

ID	Region	Sales
BB	Europe	n/a

Inner

ID	Sales	Region
A	10	USA
C	20	Asia

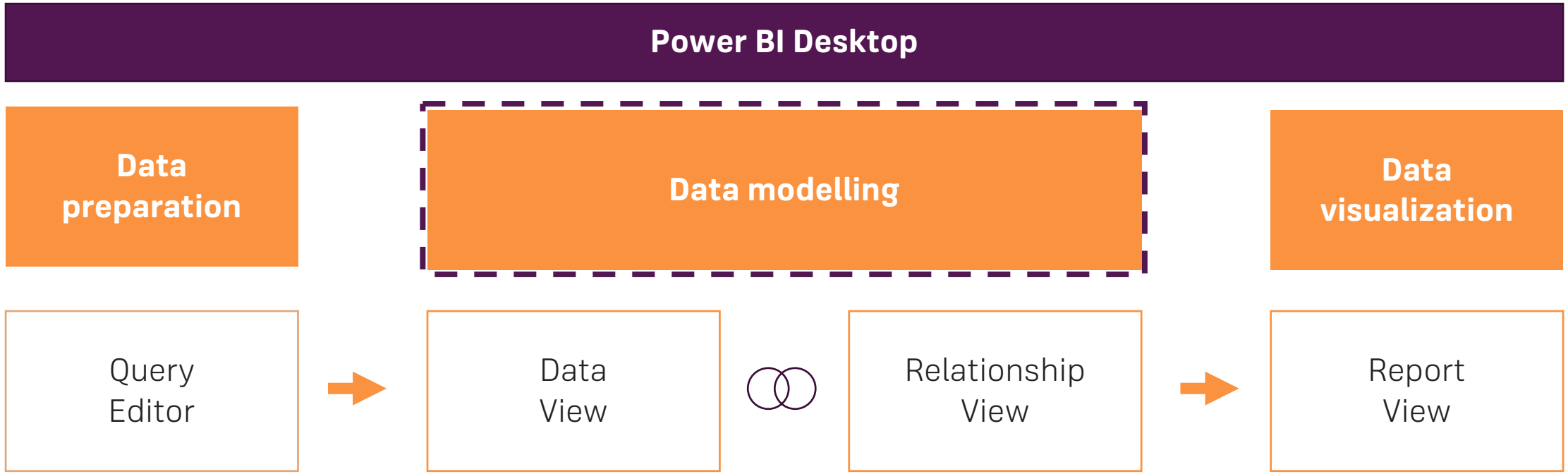
Import data into the data model



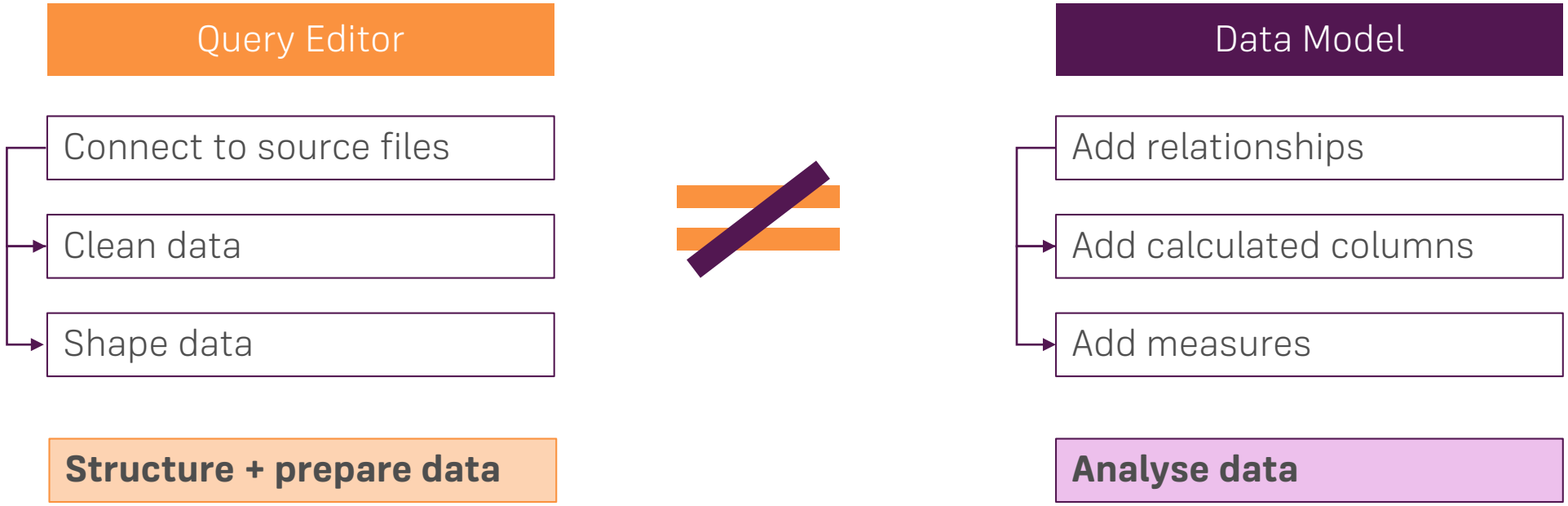
Data View & Relationships

How we model our data

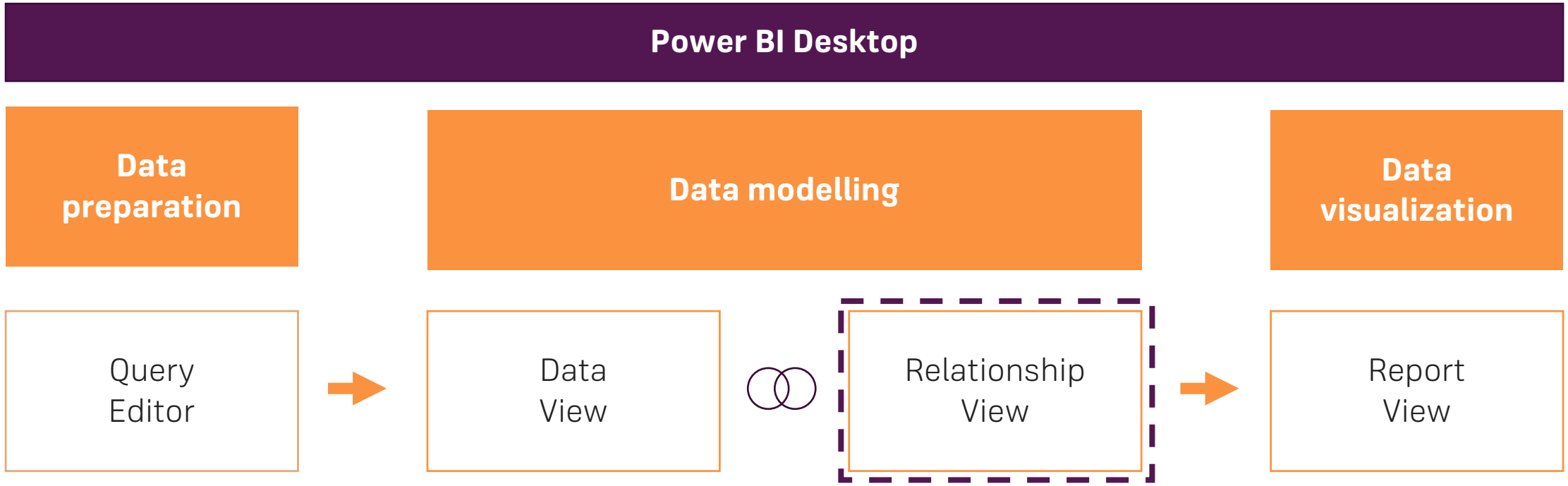
Power BI Desktop – Data Model



Query Editor vs. Data Model



Power BI Desktop – Data Model



Let‘s bring our Data Model to live

Cardinality

= „Type of relationship“

Cross Filter Direction

Active Properties

One to many (1:*) & Many to one (*:1)

Customers

ID-Customer	FirstName	SecondName
1	Maximilian	Schwarzmueller
2	John	Meyer
3	Linda	Belle
4	Manuel	Lorenz

Each customer is unique

Orders

ID-Order	OrderDate	ID-Customer
A	01 Jan 2017	1
B	08 Jan 2017	2
C	15 Jan 2017	1
D	25 Jan 2017	1
E	05 Feb 2017	3
F	15 Feb 2017	4

Each customer can have multiple orders

One to one (1:1)

ID-Passport	Valid	Issued	FirstName	SecondName	Country
1	2025	2005	Maximilian	Schwarzmueller	Germany
2	2019	1999	John	Meyer	USA
3	2017	1997	Linda	Belle	Japan

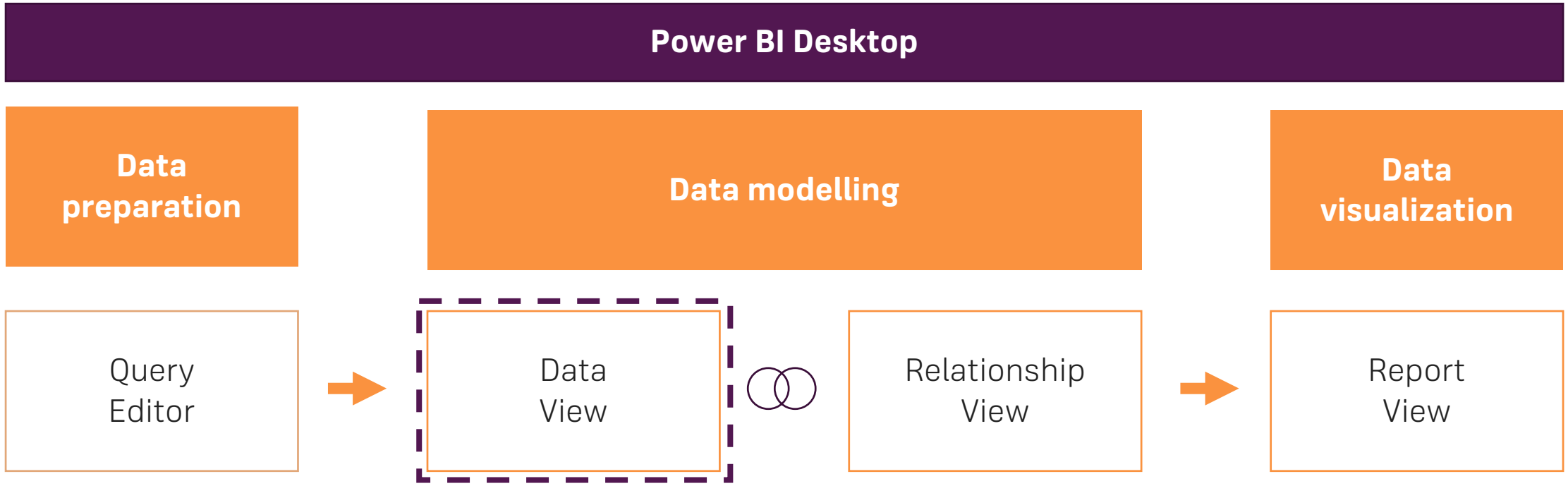
Passport

ID-Passport	Valid	Issued
1	2025	2005
2	2019	1999
3	2017	1997

Person

ID-Passport	FirstName	Second Name	Country
1	Maximilian	Schwarzmueller	Germany
2	John	Meyer	USA
3	Linda	Belle	Japan

Power BI Desktop – Data Model



One tool – Two languages

Description		Application areas
Power Query Formula Language Data transformation	M-Language	Prepare your data before you load them into the data model
	Independent from each other	
Data Analysis Expression Language Analytical data calculation Comparable to Excel functions	DAX-Language	Create formulas for an in-depth analysis in the Data View

Course interim conclusion

Calculated Columns vs. Measures

Perform an operation that generates **results for each row** of your table

Calculated Column

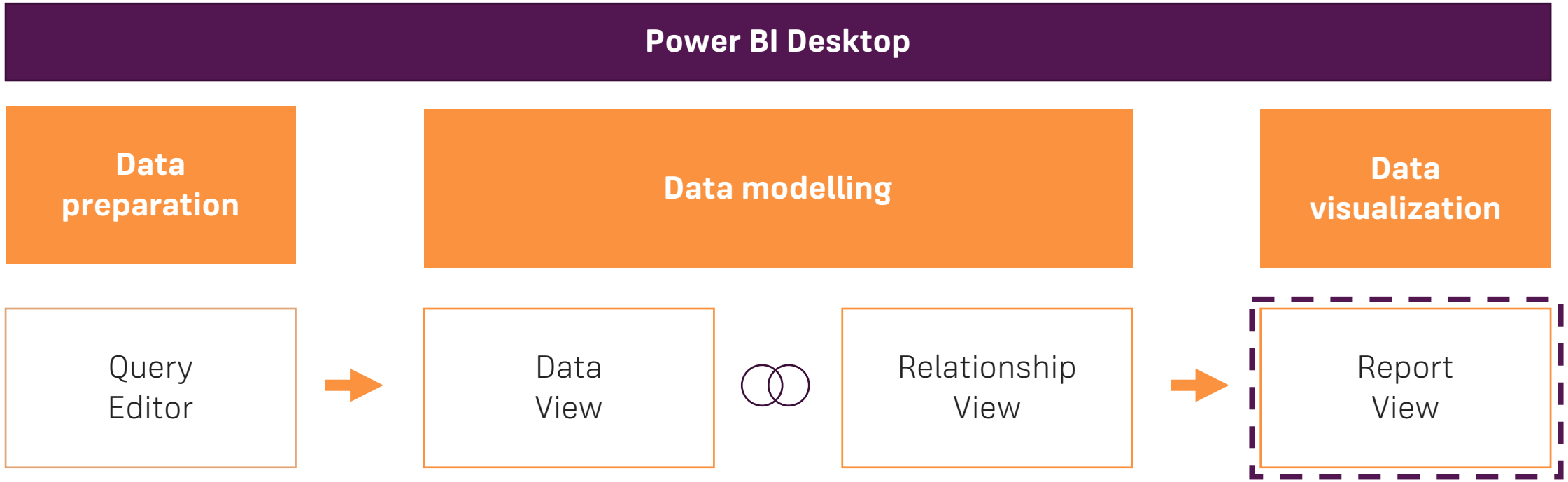
Return a **single result** of a calculation or an aggregated value (e.g. Averages)

Measure

Report View

Let‘s create beautiful charts and tables

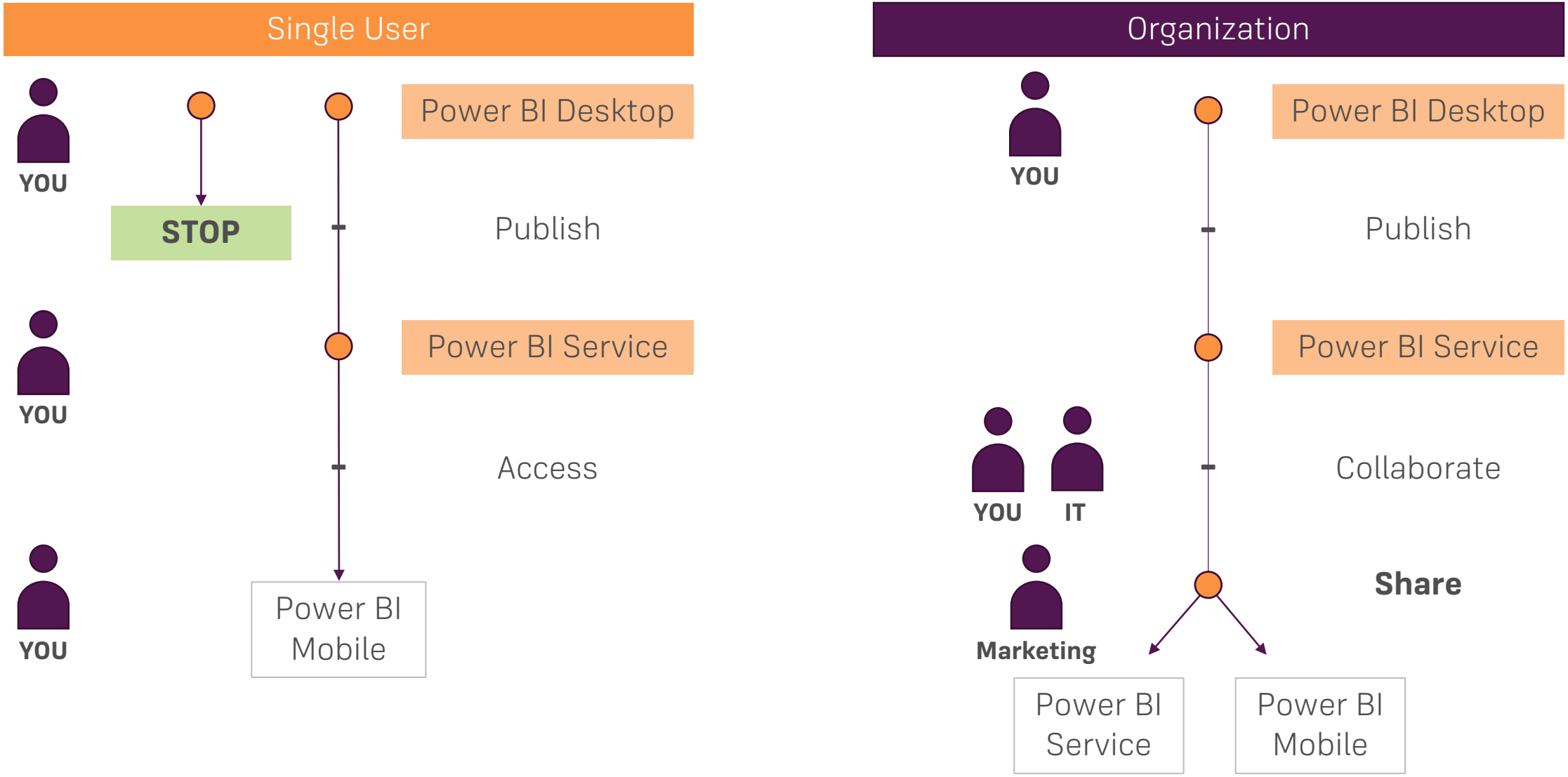
Power BI Desktop – Report View



Power BI Service & Power BI Mobile

We finished our work locally, what now?

Ways to continue



Questions to be answered

How can we **publish** our data to Power BI Service?

How can we **collaborate** in Power BI Service?

How can **we share data** and specify **what** we want to share?

Changes in 2017

Until 31 May

Power BI Free

Personal users

Power BI Pro

Collaboration

01 June 2017

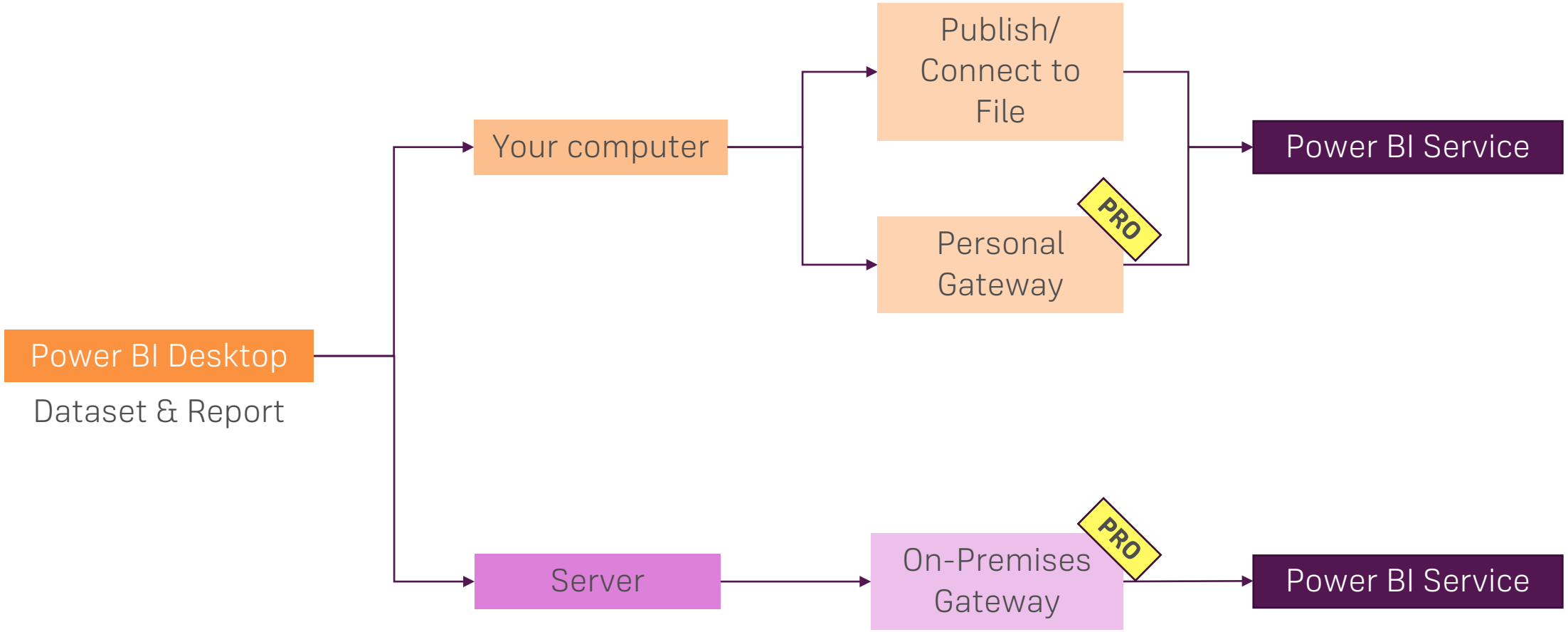
- Access to all Pro Databases
- Increased Workspace Storage
- Improved refresh-rates

\+ Power BI Premium

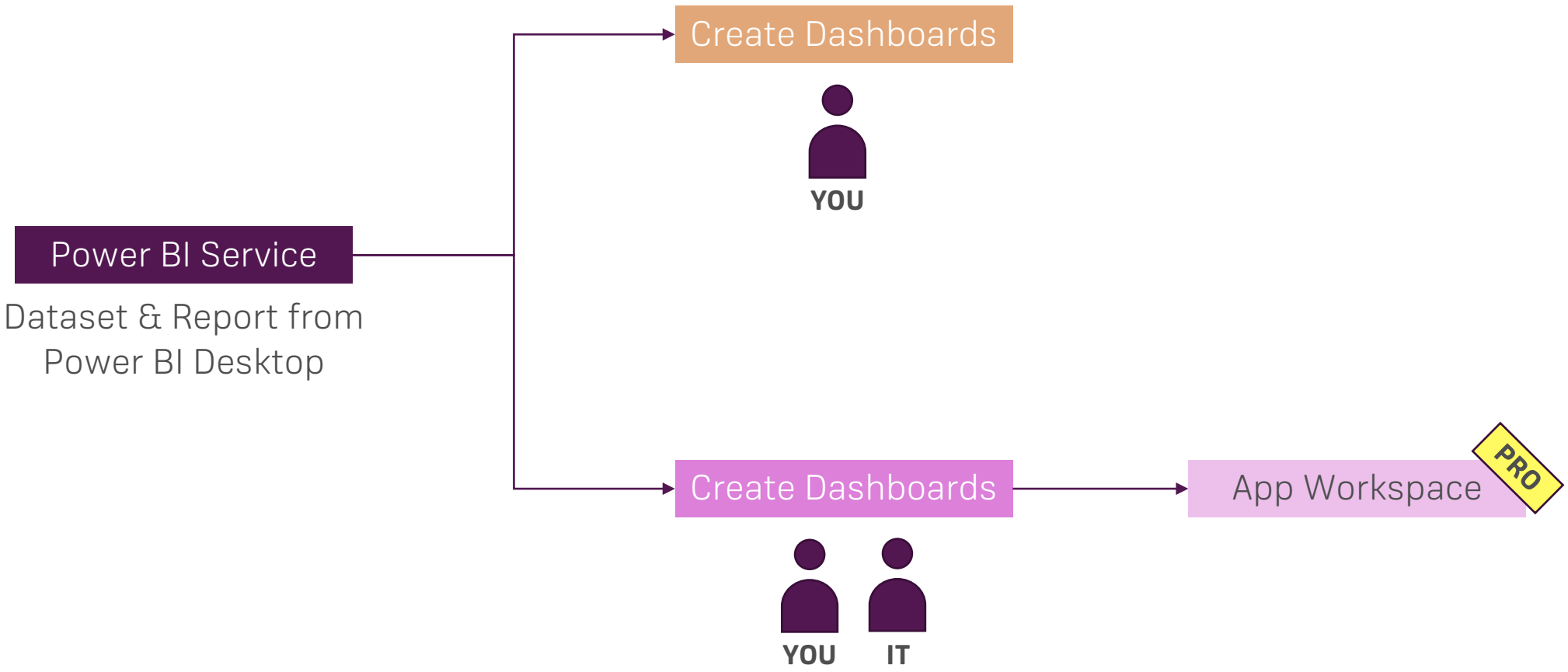
Functional alignment with remaining differences in sharing and collaboration

Large Scale BI deployments

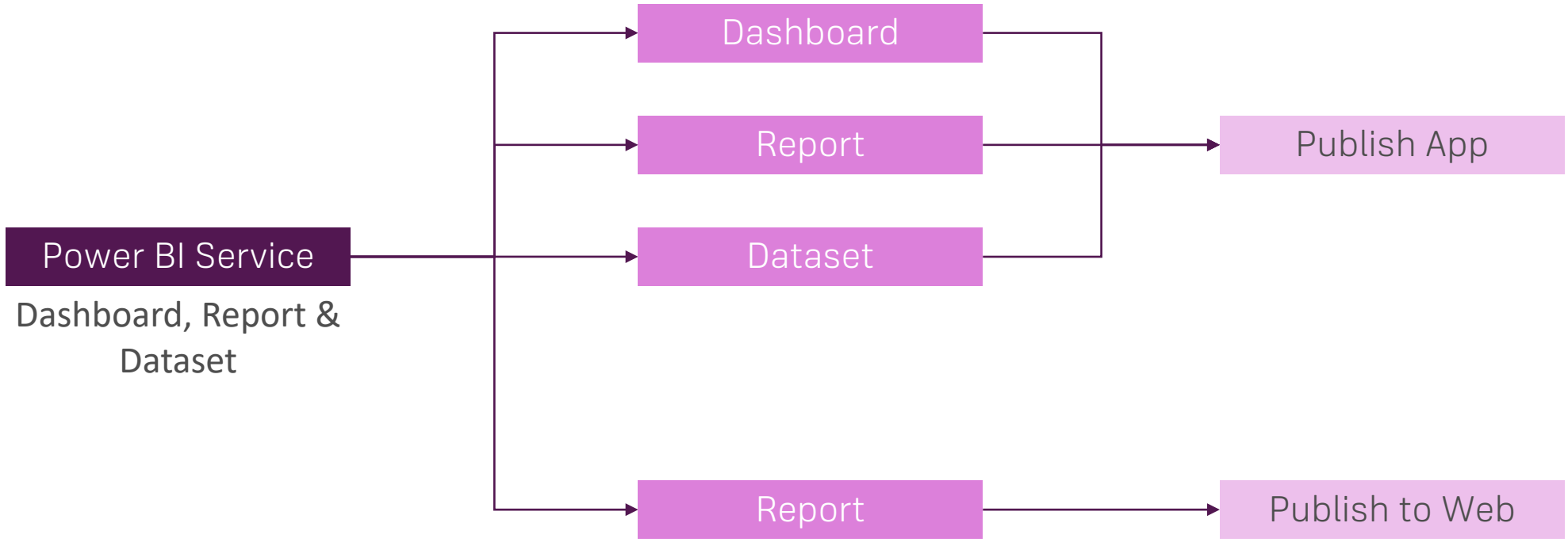
Publishing our project data to Power BI Service



Collaboration



How can we share our results from the App workspace?



PRO Data **created** using **Pro features**, can only be **shared** with **Power BI Pro Users**!