

Microsoft Power BI Training

CrediBill

Contact Us

info@cloubis.be



Michiel Bekkers

BI consultant

michiel@cloubis.be

+32 479 26 53 05



Victor Baelus

BI consultant

victor@cloubis.be

+32 496 29 16 55



Download

- Power BI Desktop

<https://powerbi.microsoft.com/en-us/downloads/>

- Exercise material

<https://github.com/MichielCloubis/Credibill>

Agenda

- Introduction Power BI
- Power BI Flow
 - Prepare & explore + Exercise
 - Model + Exercise
 - Visualize + Exercise
 - Share & collaborate

Lunch?

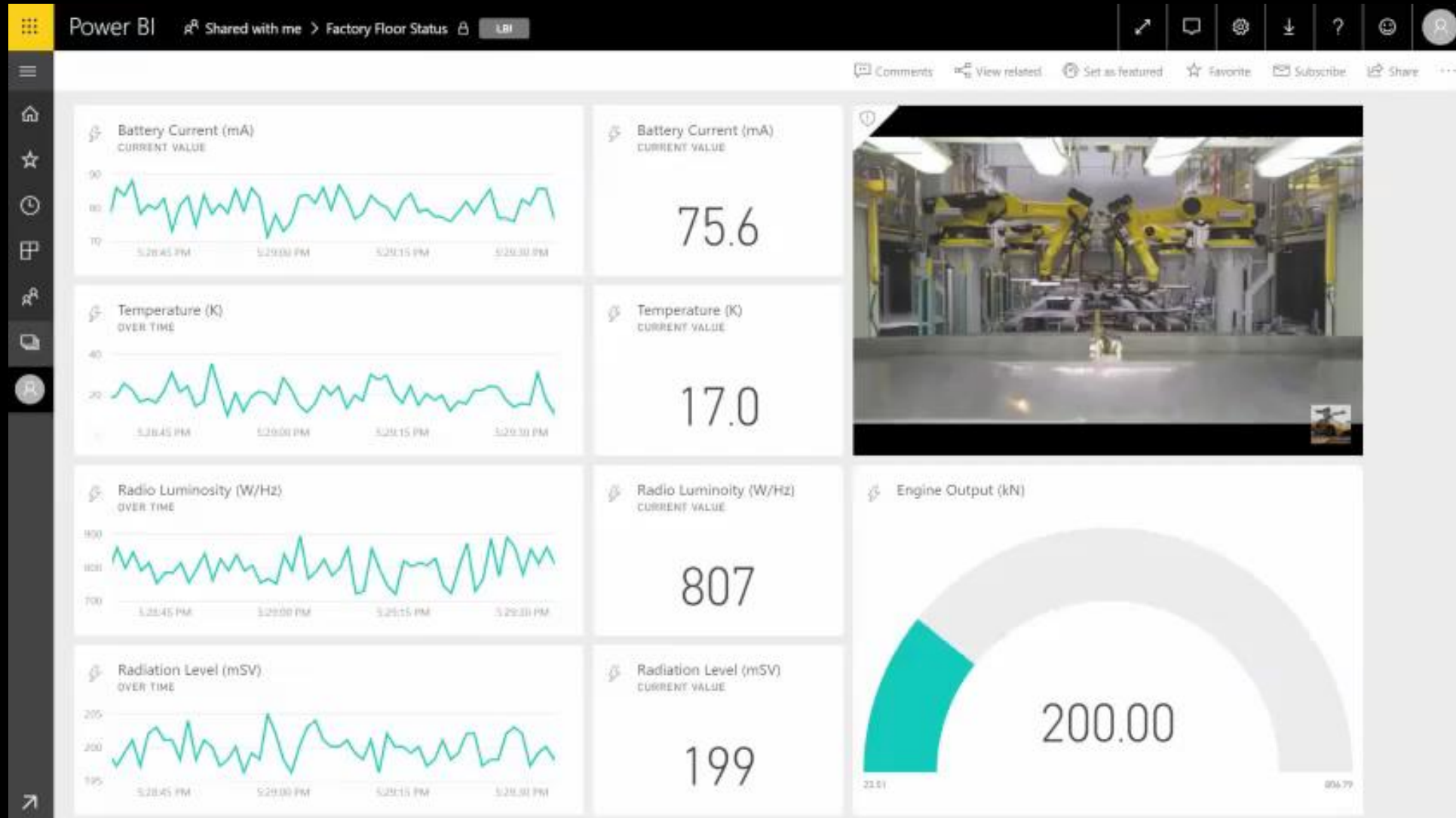
Introduction Power BI



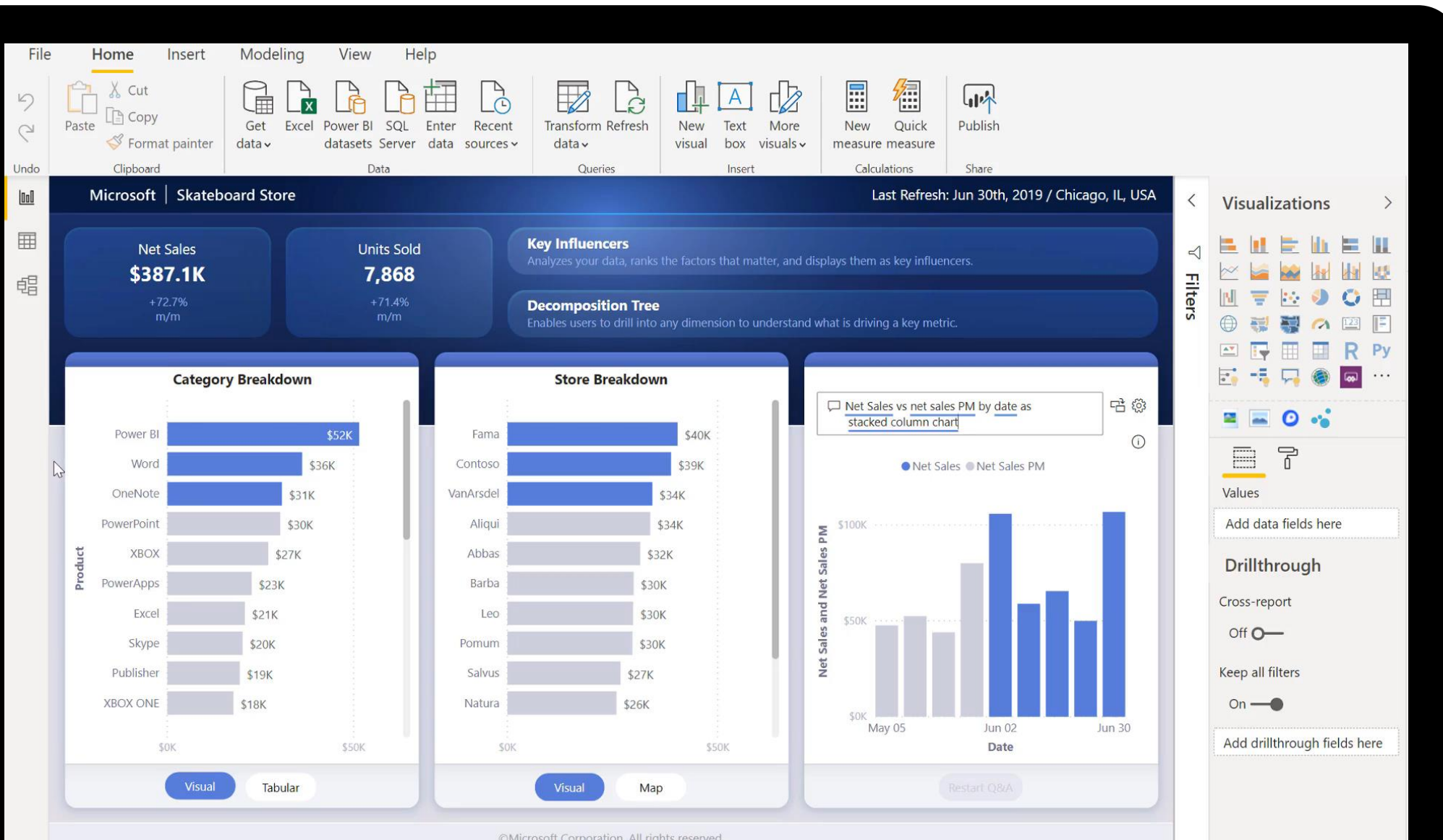
Why Power BI?

- Power BI Desktop is free
- User friendly
- Community & monthly updates
- Real time dashboards and interactive reports (slides)
- Low entry cost & scalability (slides)
- Integration with Excel, PowerPoint, SharePoint and Teams (slides)

Live Dashboards



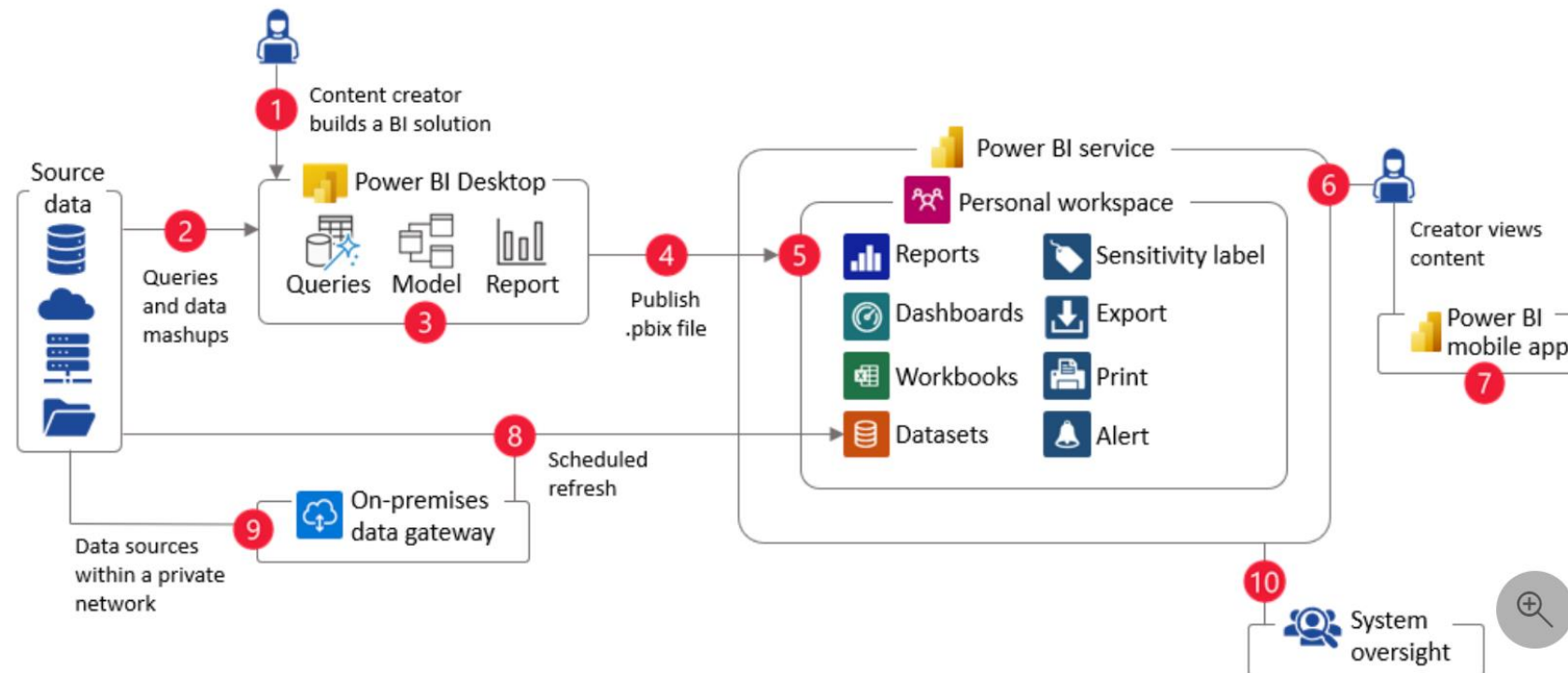
Interactive reports



Scalability: start (free)

Personal BI

Private analytics for an individual



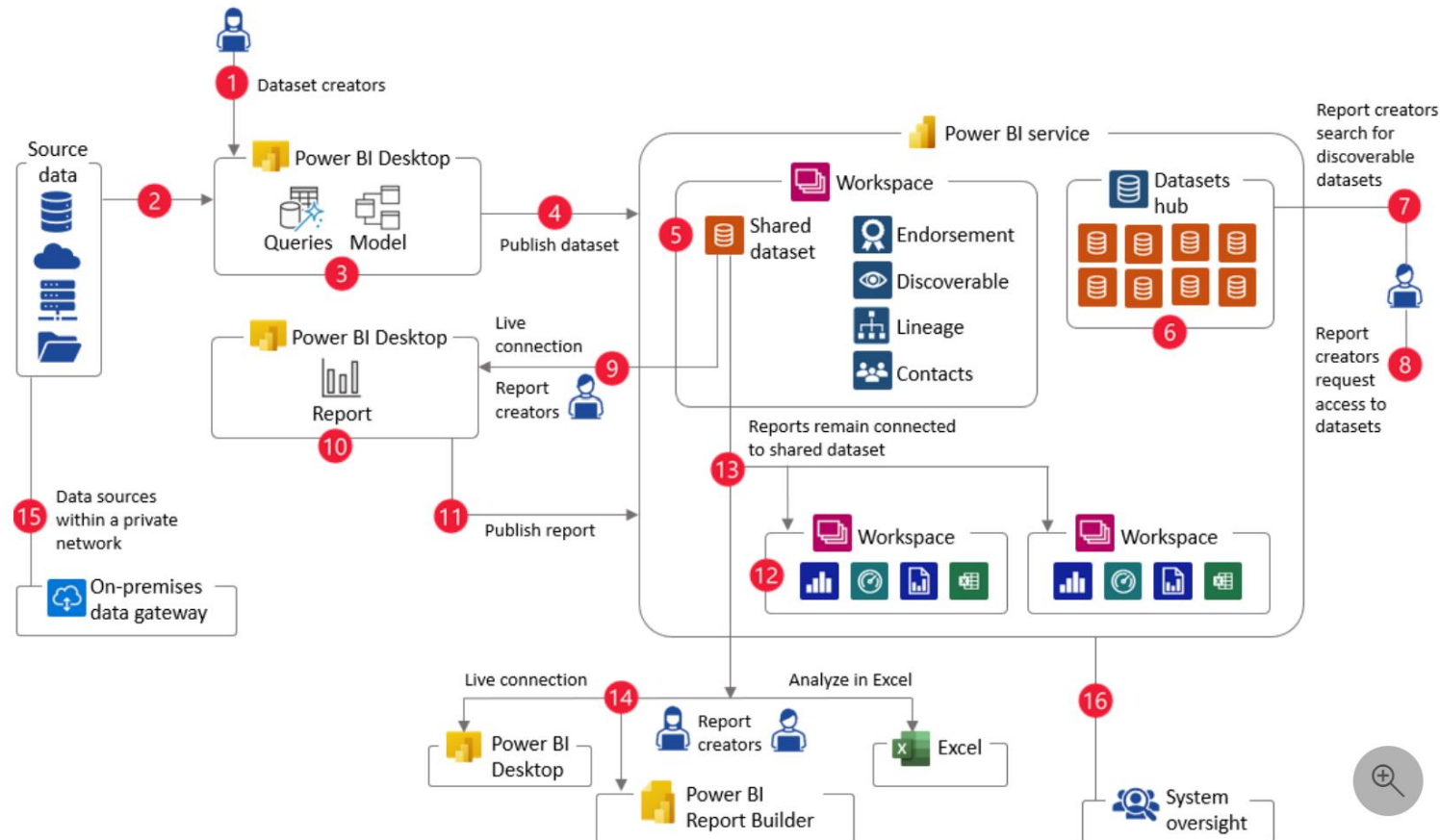
Scalability: intermediate (pro)

€ 9,40

Per gebruiker/maand

Managed self-service BI

Reuse of a centralized shared dataset by other report creators



Scalability: advanced (premium)

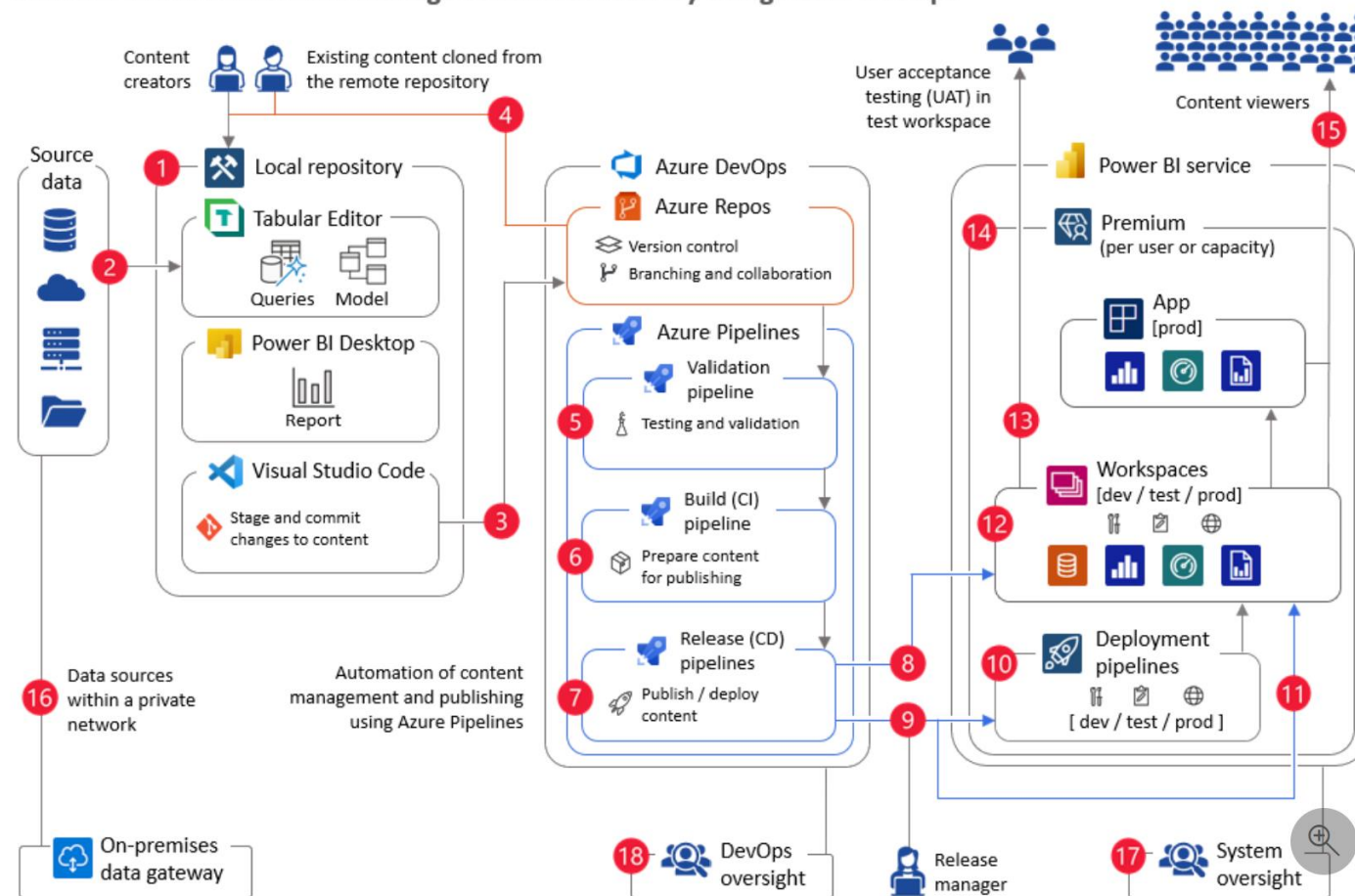
van

€ 4.675,60

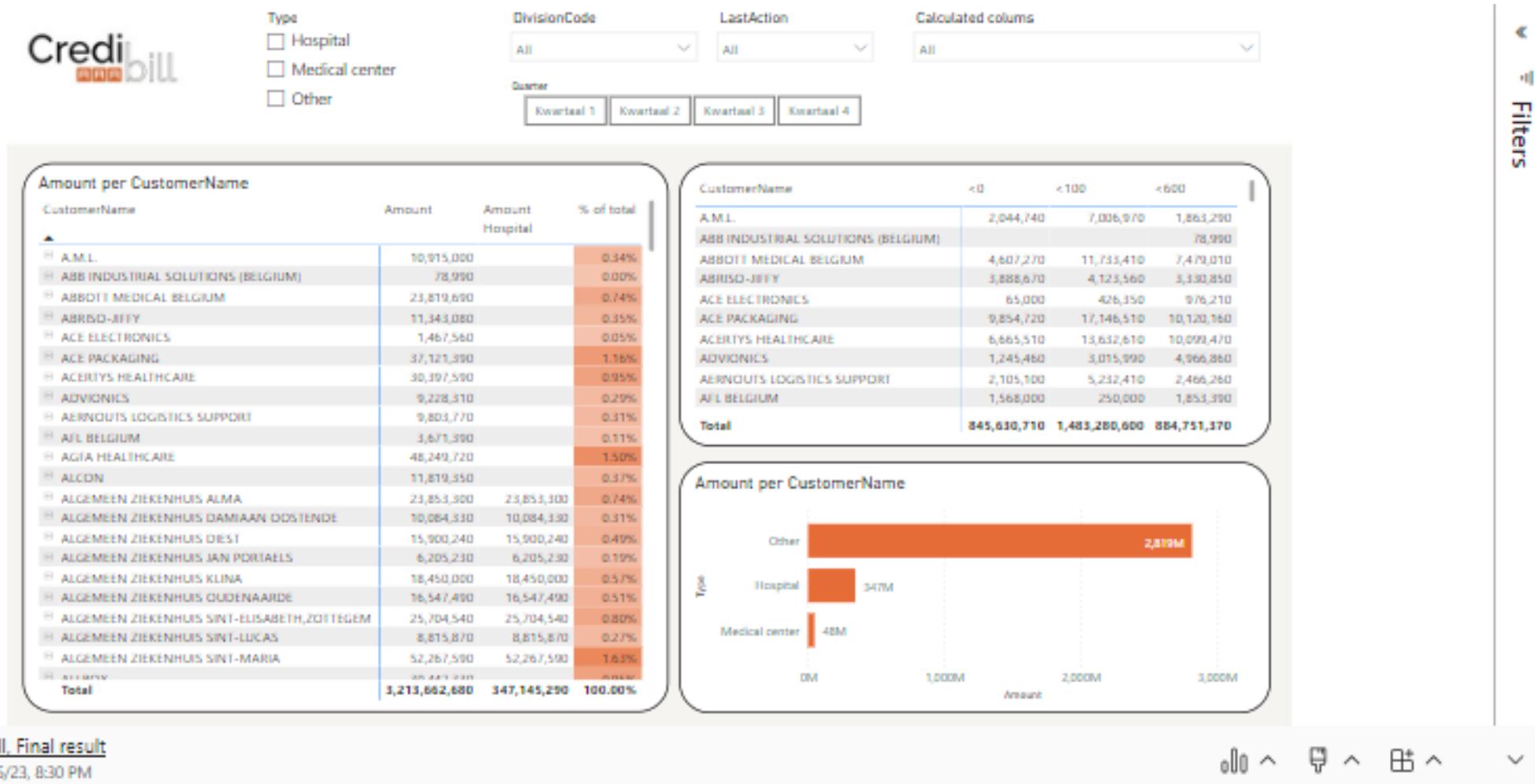
Per capaciteit/maand

Enterprise content publishing

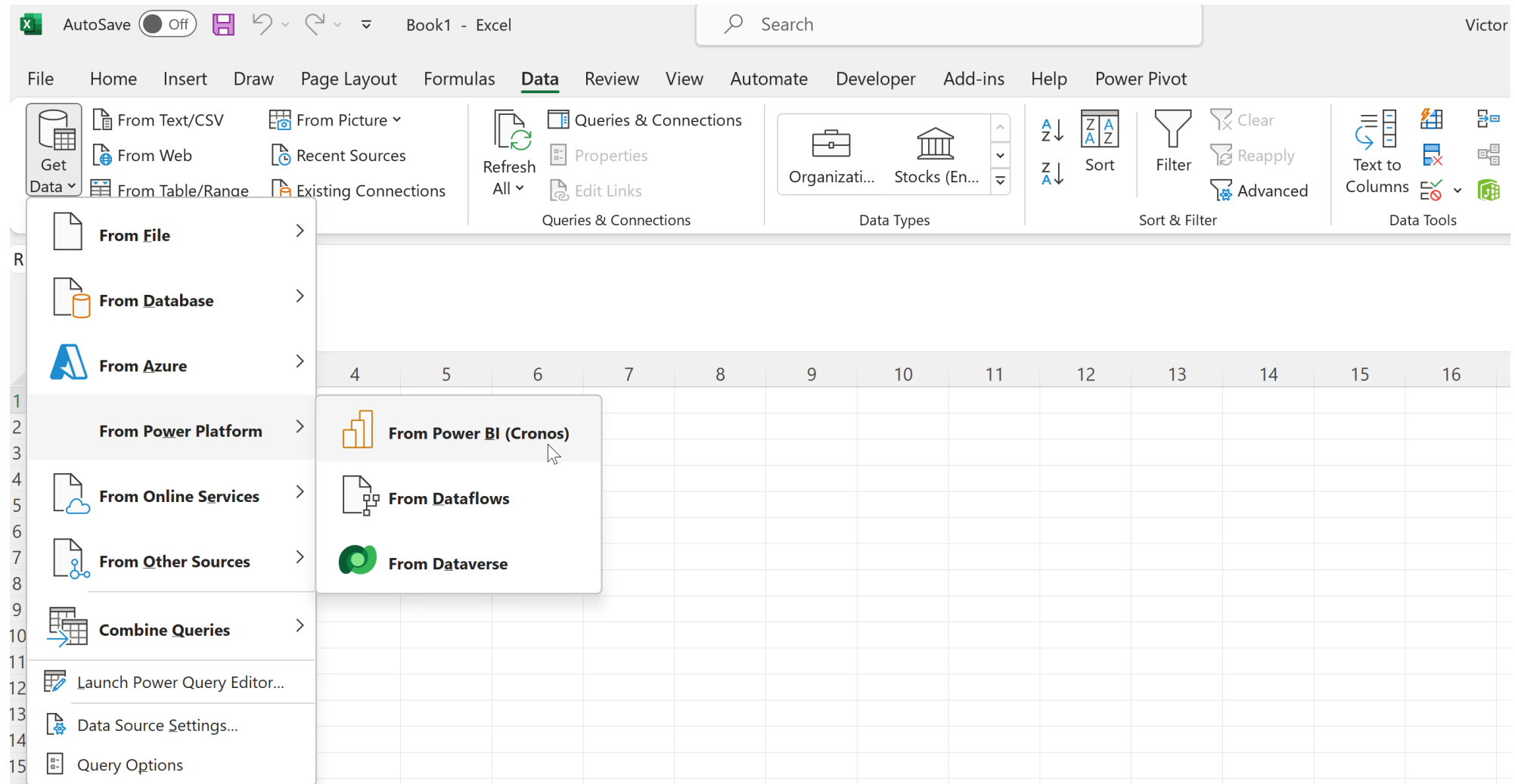
Enhance collaboration and manage content at scale by using Azure DevOps



Integration: PPT



Integration: Excel



Integration: Excel & PowerBI

Prepare &
explore

POWER QUERY



Model

POWER PIVOT



Visualize

PIVOT TABLE

Drag fields between areas below:

▼ FILTERS

Region ▼

||| COLUMNS

Category ▼

≡ ROWS

City ▼

Σ VALUES

Sum of Quantity ▼

FileHomeInsertDrawPage LayoutFormulasDataReviewViewAutomateDeveloperAdd-insHelpPower PivotPivotTable AnalyzeDesignCommentsShare

Get Data

From Text/CSV

From Web

From Table/Range

From Picture

Recent Sources

Existing Connections

Refresh All

Queries & Connections

Properties

Edit Links

Organizati...

Stocks (En...

Sort

Filter

Clear

Reapply

Advanced

Text to Columns

What-If Analysis

Forecast Sheet

Outline

From File

From Database

From Azure

From Power Platform

From Online Services

From Other Sources

Combine Queries

Launch Power Query Editor...

Data Source Settings...

Query Options

	5	6	7	8	9	10	11	12	13
Row Labels		Sum of Amount							
BEL		210516110							
FR		1038875420							
NED		870773550							
Grand Total		2120165080							

PivotTable Fields

ActiveAll

Choose fields to add to report:

Search

☐ InvoiceNumber

☐ Currency

☒ Amount

Drag fields between areas below:

Filters

Columns

Rows

Values

DivisionCode

Sum of Amount

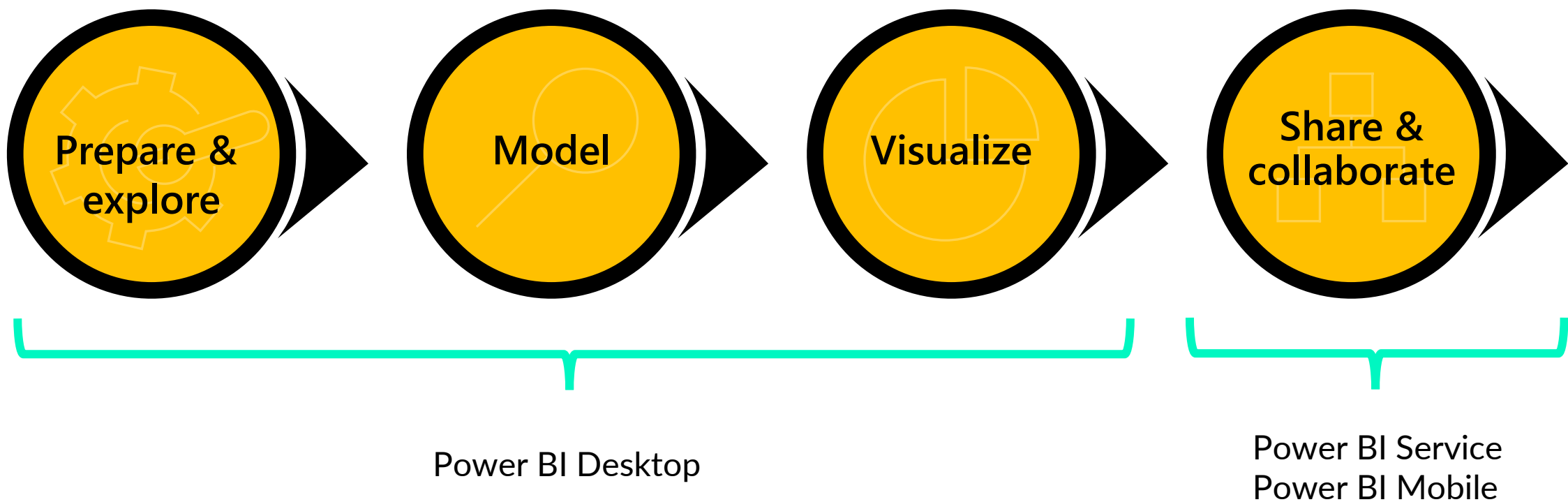
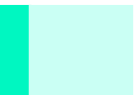
Defer Layout Update

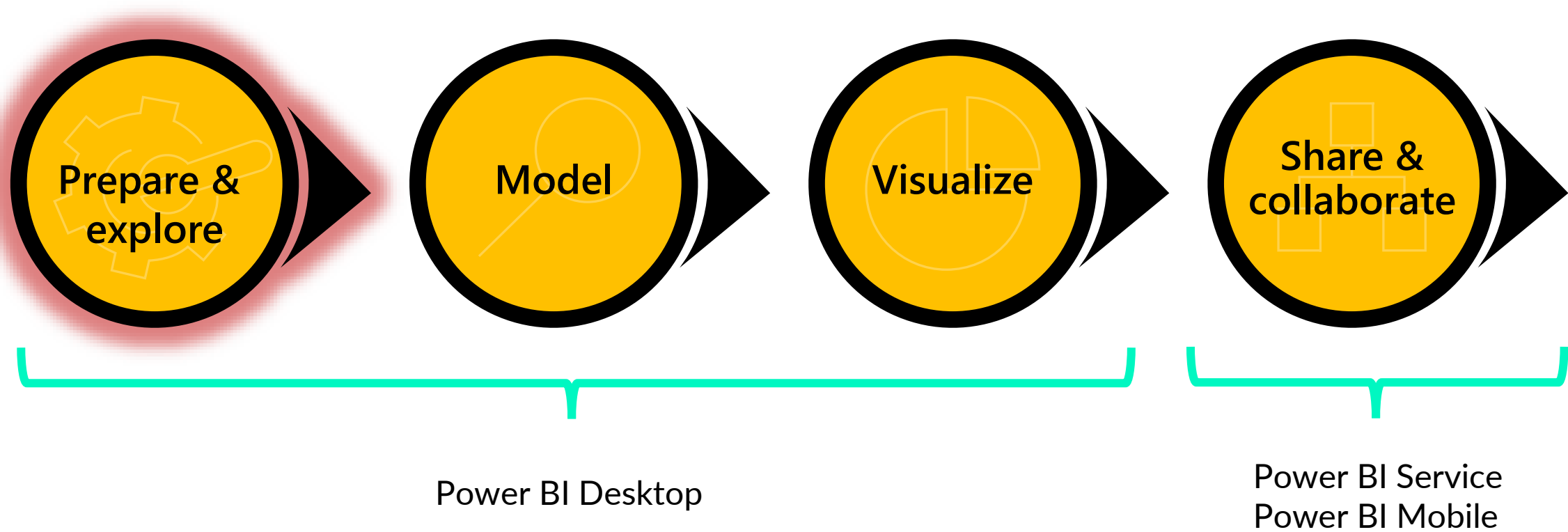
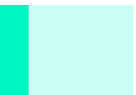
Update

Sheet1Table1

100%

Power BI Flow





Get data

Gegevens ophalen

Alles

Bestand

Database

Power Platform

Azure

Onlineservices

Overige

Alles

Excel-werkmap

Tekst/csv

XML

JSON

Map

PDF

Parquet

SharePoint-map

SQL Server-database

Access-database

SQL Server Analysis Services-database

Oracle-database

IBM Db2-database

IBM Informix-database (bèta)

IBM Netezza

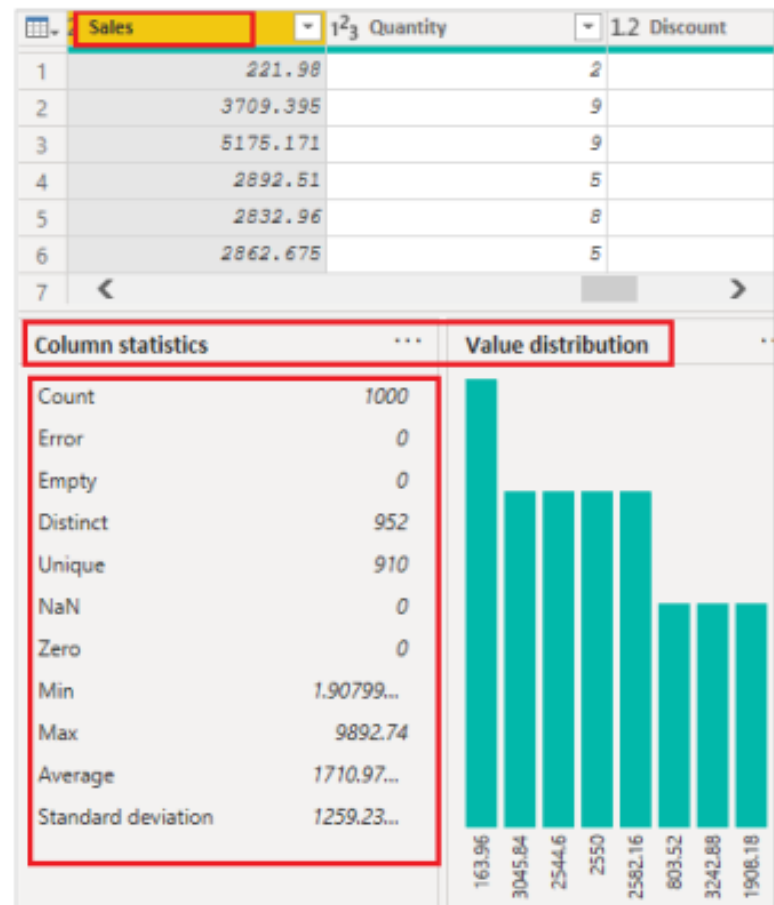
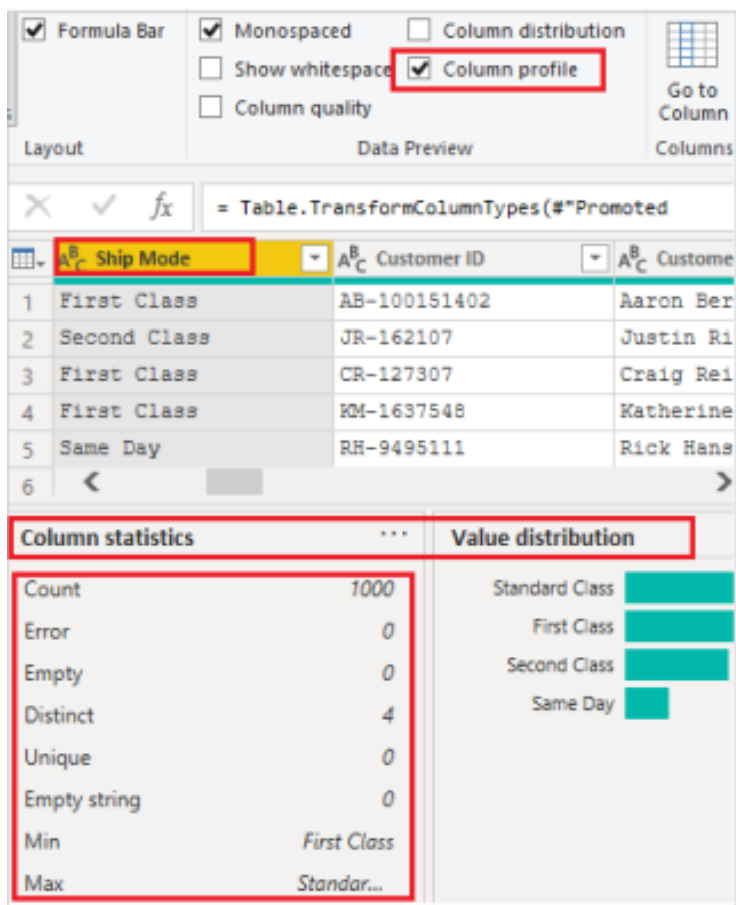
MySQL-database

Nij

Explore your data

Data profiling

- Examining underlying data structures
- Determining anomalies
- Querying data statistic





Clean & transform your data








Actions

- Rename columns/tables
- Change data types
- Remove duplicates
- Replace (null) values
- Setting first row as header
- ...

Clean & transform your data


Combine multiple tables into a single table


- Append queries (vertical)
- Merge queries (horizontal)


<input checked="" type="checkbox"/>		HR.Employees
<input type="checkbox"/>		Nums
<input type="checkbox"/>		Production.Categories
<input type="checkbox"/>		Production.Products
<input checked="" type="checkbox"/>		Production.Suppliers
<input checked="" type="checkbox"/>		Sales.Customers
<input type="checkbox"/>		Sales.OrderDetails

Clean & transform your data

Append queries

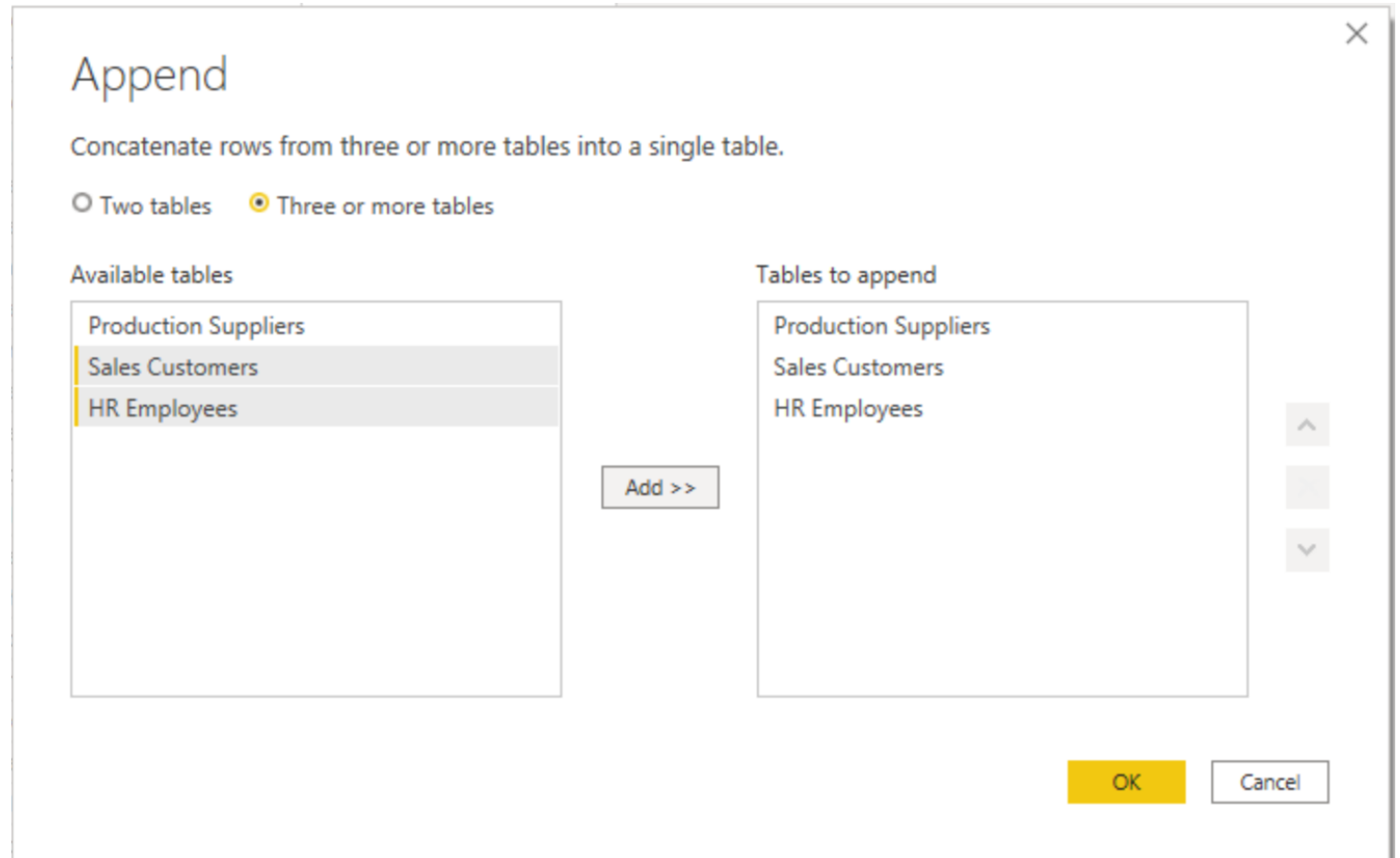
 1 ² ₃ id	A ^B _C company	A ^B _C name	1 ² ₃ phone
1	96351 cus145	Mike Poi	1626258811
2	64826 cus134	John Likec	1363718361
3	92647 cus018	Theresa Yulia	2467355553

 1 ² ₃ id	A ^B _C company	A ^B _C name	1 ² ₃ phone
1	86563 sup126	Mike Firt	7163615121
2	96352 sup889	Josie Lind	1831635671
3	48256 sup761	Joanna Threven	2936827338

 1 ² ₃ id	A ^B _C company	A ^B _C name	1 ² ₃ phone
1	12347 emp124	John Kate	1625535511
2	76478 emp273	Luke John	1028777351
3	82482 emp291	Michael Uji	1245245672

Clean & transform your data

- Append Queries
- Append Queries as New



The screenshot shows a dialog box titled "Append" with a close button (X) in the top right corner. Below the title, it says "Concatenate rows from three or more tables into a single table." There are two radio buttons: "Two tables" (unselected) and "Three or more tables" (selected). Below this, there are two list boxes. The left list box is titled "Available tables" and contains three items: "Production Suppliers", "Sales Customers", and "HR Employees". The right list box is titled "Tables to append" and also contains the same three items. Between the two list boxes is a button labeled "Add >>". To the right of the "Tables to append" list box are three vertical arrow buttons: an up arrow, a middle button, and a down arrow. At the bottom right of the dialog box are two buttons: "OK" (highlighted in yellow) and "Cancel".

Append

Concatenate rows from three or more tables into a single table.

☐ Two tables ☒ Three or more tables

Available tables

- Production Suppliers
- Sales Customers
- HR Employees

Tables to append

- Production Suppliers
- Sales Customers
- HR Employees

Add >>

OK Cancel



	<div><div><div><div></div></div></div><div>1²₃ id</div></div>	<div><div><div><div></div></div></div><div>A^B_C company</div></div>	<div><div><div><div></div></div></div><div>A^B_C name</div></div>	<div><div><div><div></div></div></div><div>1²₃ phone</div></div>
1	12347	emp124	John Kate	1625535511
2	76478	emp273	Luke John	1028777351
3	82482	emp291	Michael Uji	1245245672
4	97436	emp173	Kate Fitch	2352467634
5	12462	emp270	Eve Jun	3578999554
6	35237	emp715	Don Potre	3579006677
7	23467	emp183	Marc Wetb	2245789954
8	13892	emp163	Sara Scotts	2388367234
9	56356	emp172	Mitch Potter	1234683673
10	23478	emp812	Liliy Kithc	4567800522
11	45783	emp818	Ren Swrte	2357997515
12	86563	sup126	Mike Firt	7163615121
13	96352	sup889	Josie Lind	1831635671
14	48256	sup761	Joanna Threven	2936827338
15	28461	sup163	Michael Bob	1937293165
16	83613	sup162	Mimi Jukth	2916384462
17	96351	cus145	Mike Poi	1626258811
18	64826	cus134	John Likec	1363718361
19	92647	cus018	Theresa Yulia	2467355553
20	91661	cus182	Ren Thibe	3345783234
21	1736	cus104	Ron Mikel	1235799789
22	1835	cus103	Joy Qui	2345689411
23	1745	cus141	Cat Yate	2345678986

Clean & transform your data

Merge queries

	1 ² ₃ orderid	orderdate	1 ² ₃ shipperid
1	1	4/23/2018	12
2	2	4/25/2018	24
3	3	6/12/2018	19
4	4	6/13/2018	13
5	5	7/23/2018	11
6	6	7/25/2018	33
7	7	8/1/2018	77

	1 ² ₃ orderid	1 ² ₃ productid	1 ² ₃ qty	1.2unitprice
1	1	124	12	14
2	2	134	55	11.2
3	3	641	57	45
4	4	98	5	112.5
5	5	312	23	11.1
6	6	124	78	11.2
7	7	127	11	572.1

Clean & transform your data

- Merge Queries
- Merge Queries as New

×

Merge

Select a table and matching columns to create a merged table.

Sales Orders

orderid	custid	empid	orderdate	requireddate	shippeddate	shipperid	freight	shipname
10248	85	5	7/4/2014	8/1/2014	7/16/2014	3	32.38	Ship to 85-B
10249	79	6	7/5/2014	8/16/2014	7/10/2014	1	11.61	Ship to 79-C
10250	34	4	7/8/2014	8/5/2014	7/12/2014	2	65.83	Destination SCC
10251	84	3	7/8/2014	8/5/2014	7/15/2014	1	41.34	Ship to 84-A

Sales OrderDetails

orderid	productid	unitprice	qty	discount
10248	11	14.00	12	0
10248	42	9.80	10	0
10248	72	34.80	5	0
10249	14	18.60	9	0
10249	51	42.40	40	0

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge



Fuzzy matching options

✓ The selection matches 830 of 830 rows from the first table.

OK

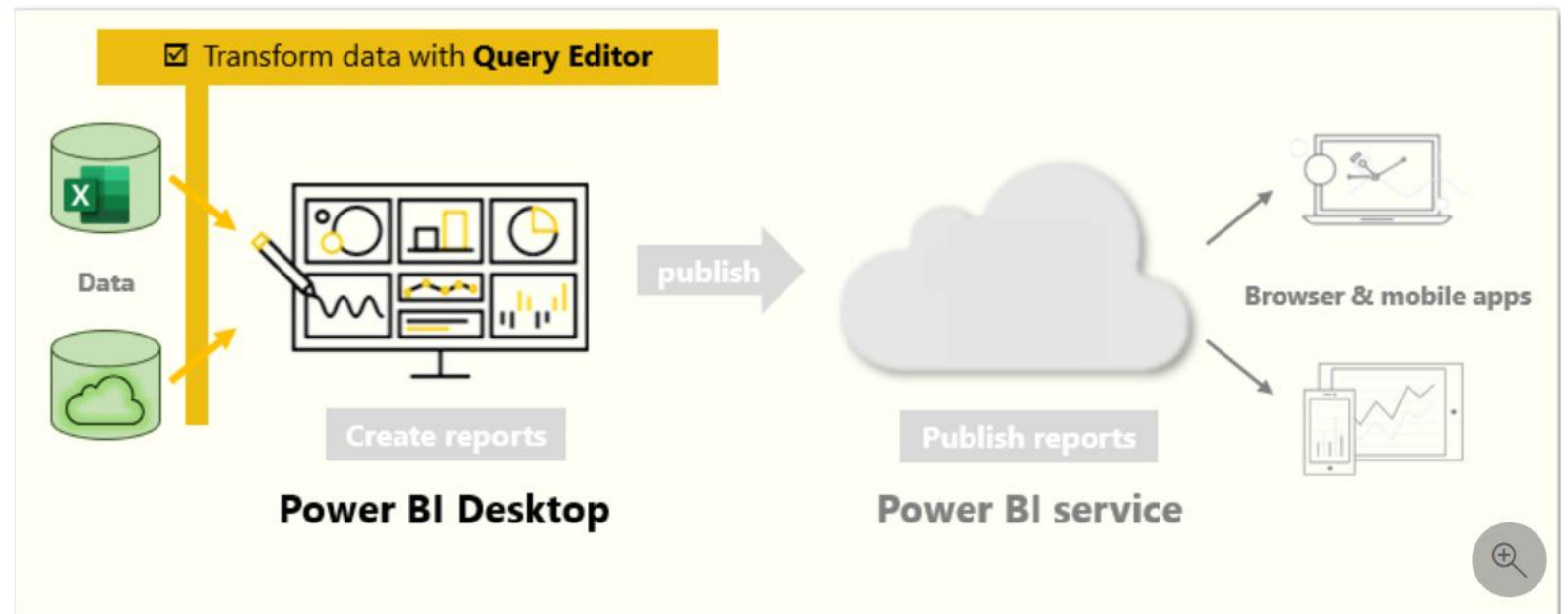
Cancel

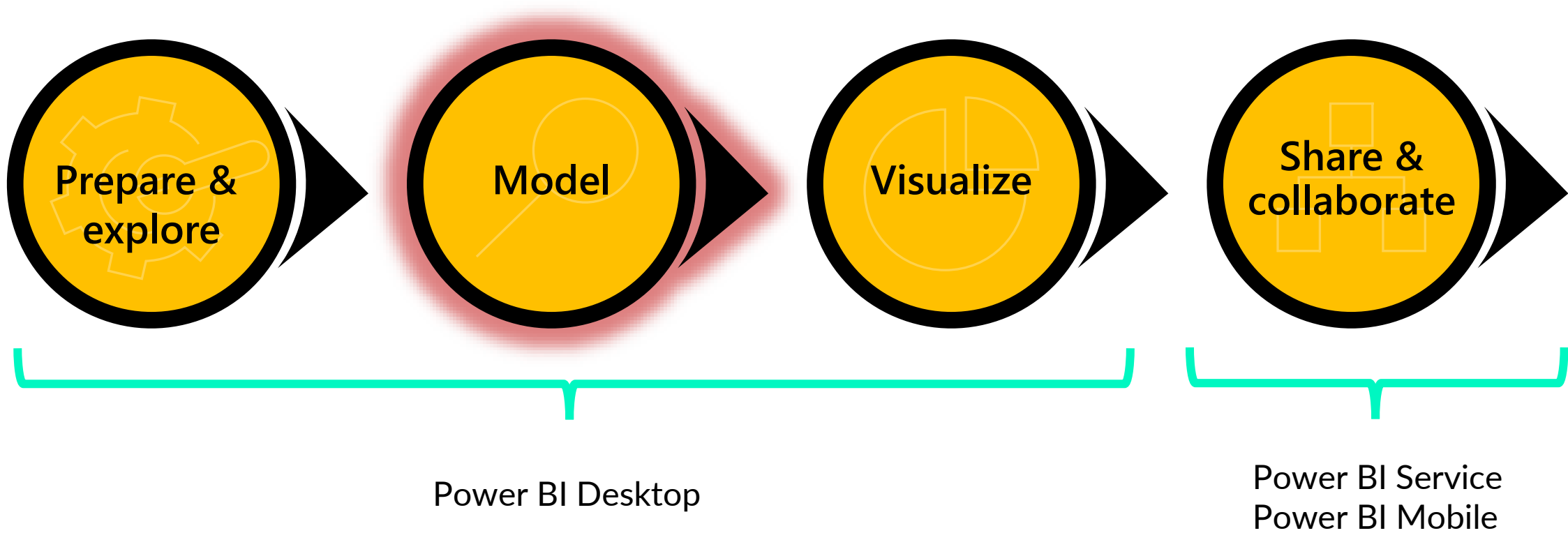
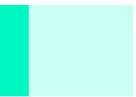


 1 ² ₃ orderid	 orderdate	1 ² ₃ shipperid	1 ² ₃ OrderDetails.productid	1 ² ₃ OrderDetails.qty	1.2 OrderDetails.unitprice	
1	1	4/23/2018	12	124	12	14
2	2	4/25/2018	24	134	55	11.2
3	3	6/12/2018	19	641	57	45
4	4	6/13/2018	13	98	5	112.5
5	5	7/23/2018	11	312	23	11.1
6	6	7/25/2018	33	124	78	11.2
7	7	8/1/2019	77	137	11	572.1
8	8	8/10/2019	11	124	36	1331.9
9	9	8/11/2019	81	789	85	898.1

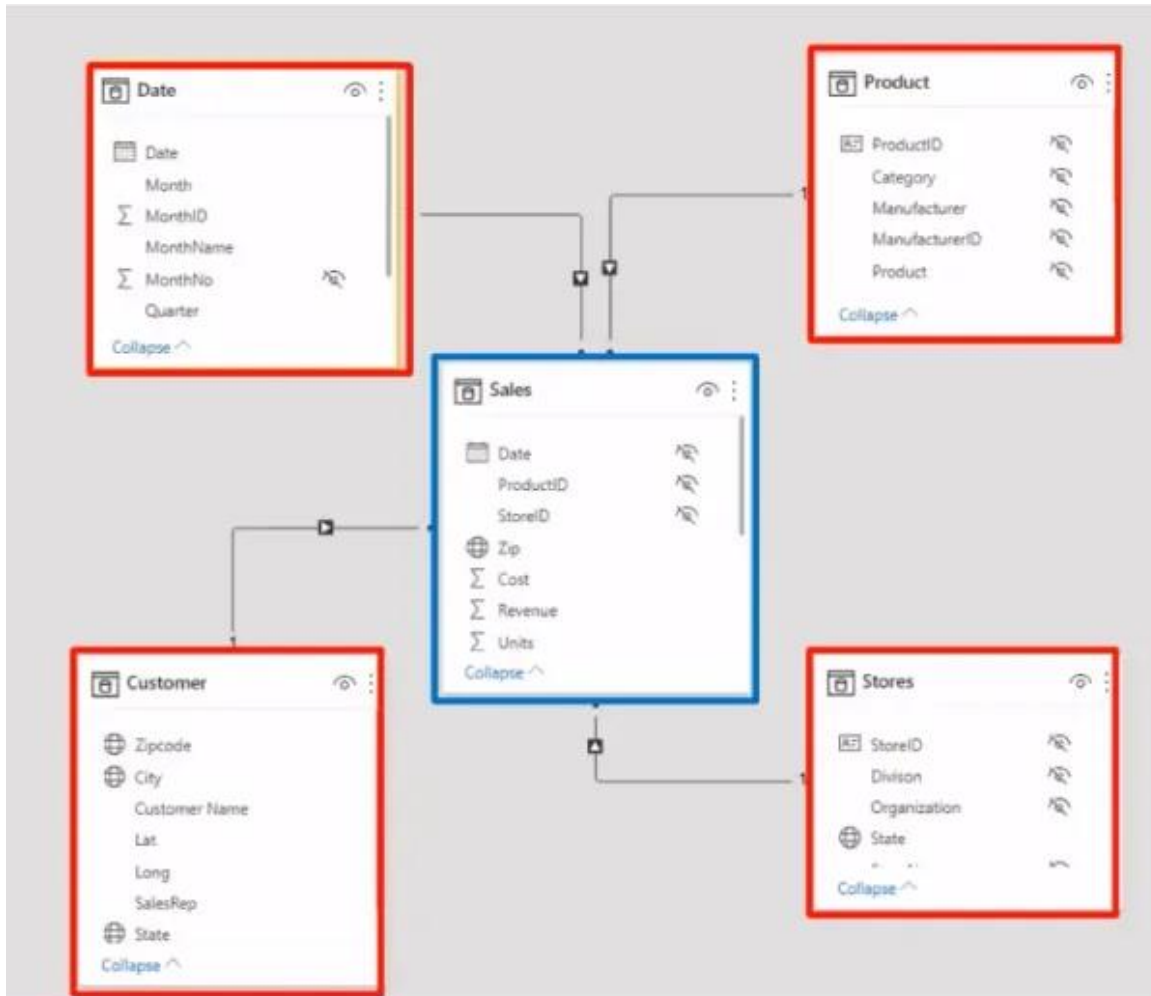
Behind the scenes

- Import/direct query
- Advanced Editor => M





Design a data model



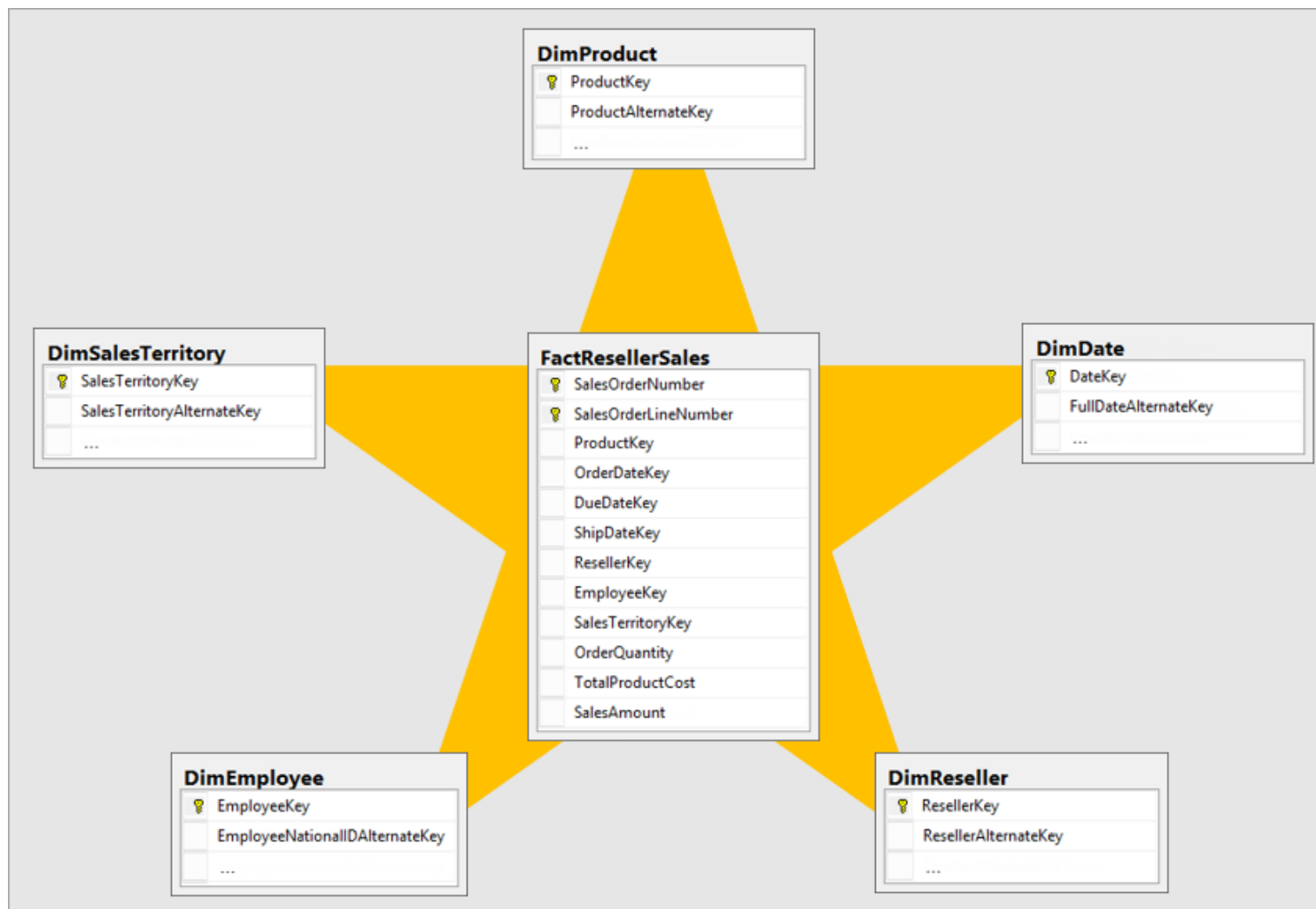
Dimension:

- Many columns, few rows
- Used to filter facts
- Who, when, where, ...

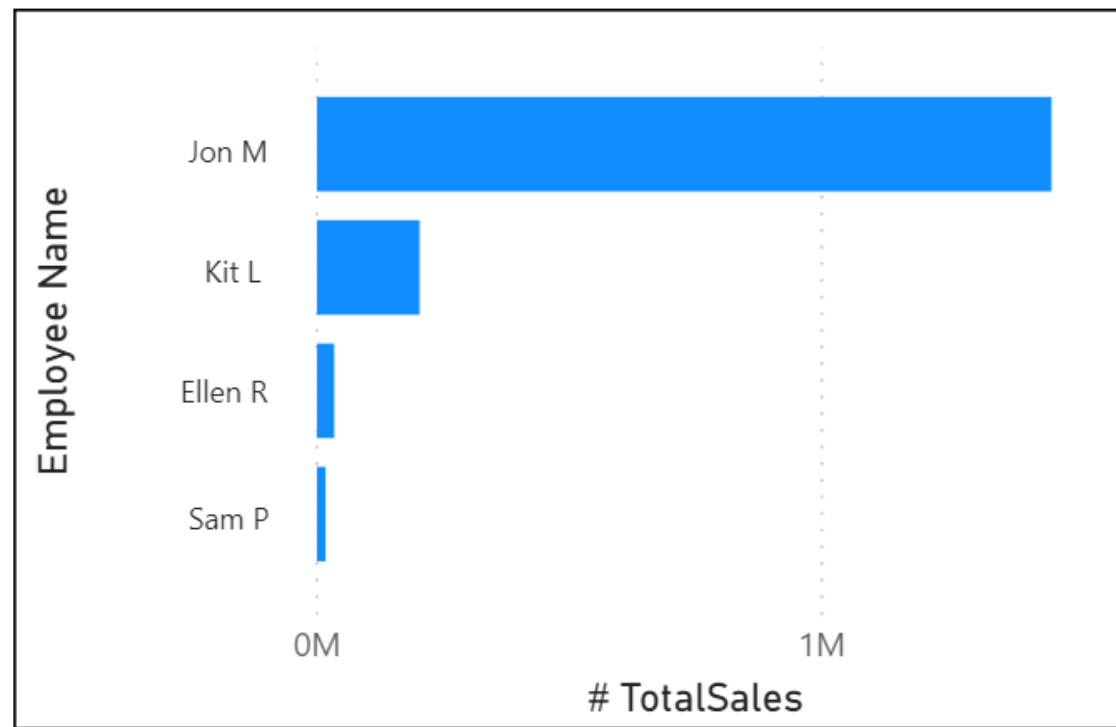
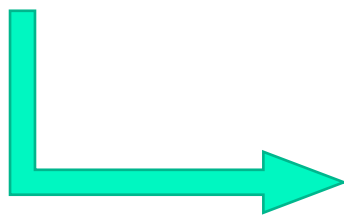
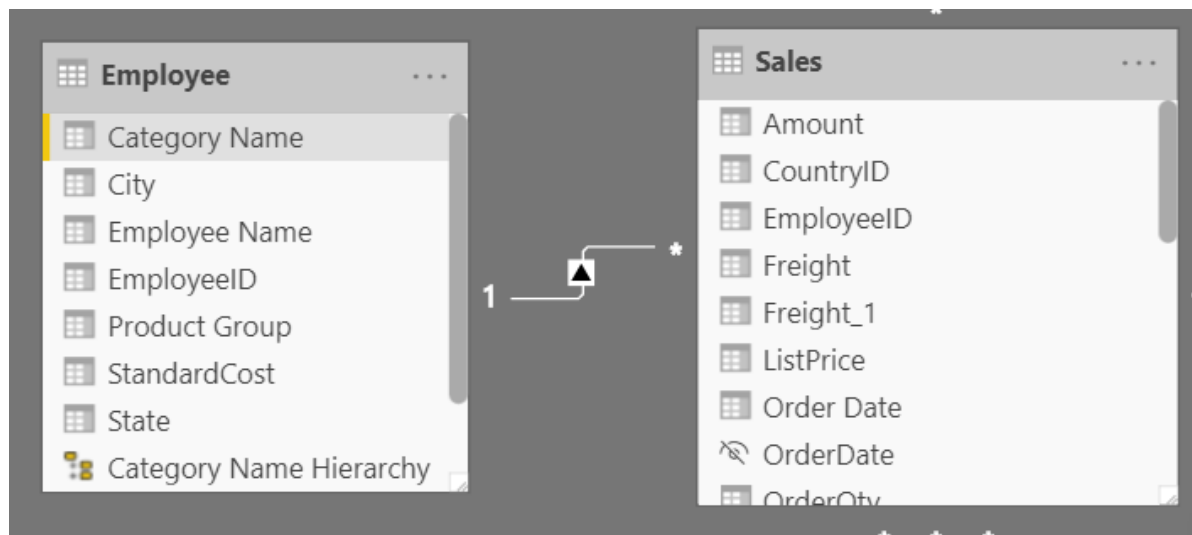
Facts:

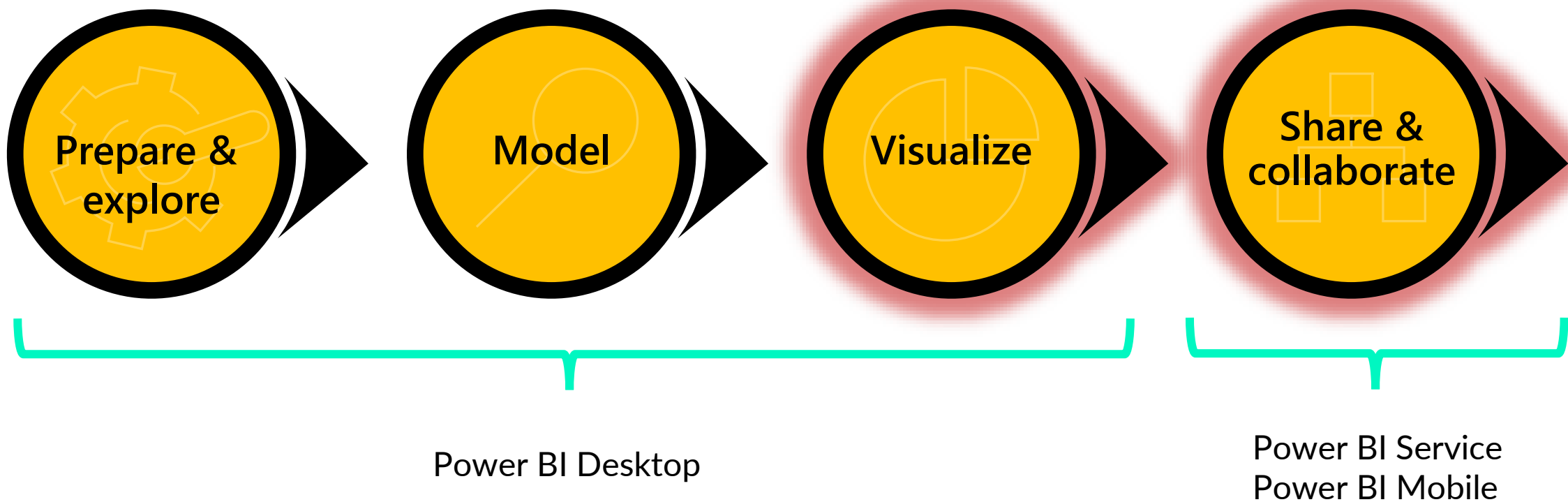
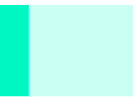
- Many rows, few columns
- Calculations
- Value, time, ID

Design a data model



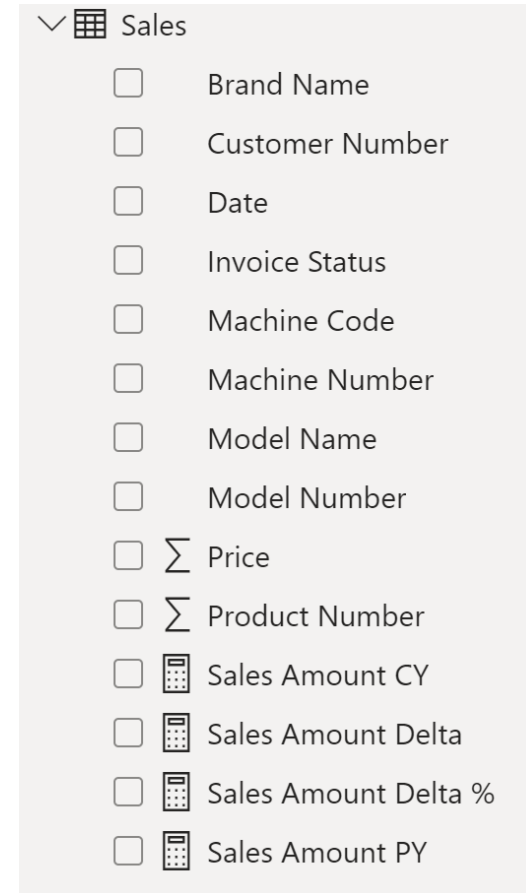
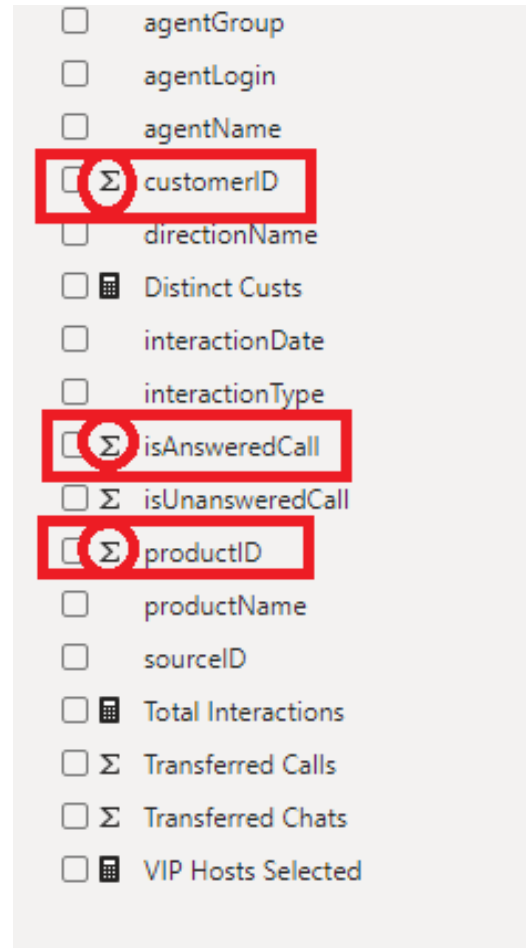
Manage relationships





Measures

- Implicit vs explicit measures
- Explicit = best practice
 - DAX
 - Complex calculations
 - Reusable
- Hide used column in report model
- Format measure



Measures

- Time intelligence functions

```
YTD Total Sales = TOTALYTD  
(  
    SUM('Sales OrderDetails'[Total Price])  
    , Dates[Date]  
)
```

```
Total Sales Previous Month = CALCULATE  
(  
    SUM('Sales OrderDetails'[Total Price]) ,  
    PREVIOUSMONTH(Dates[Date])  
)
```

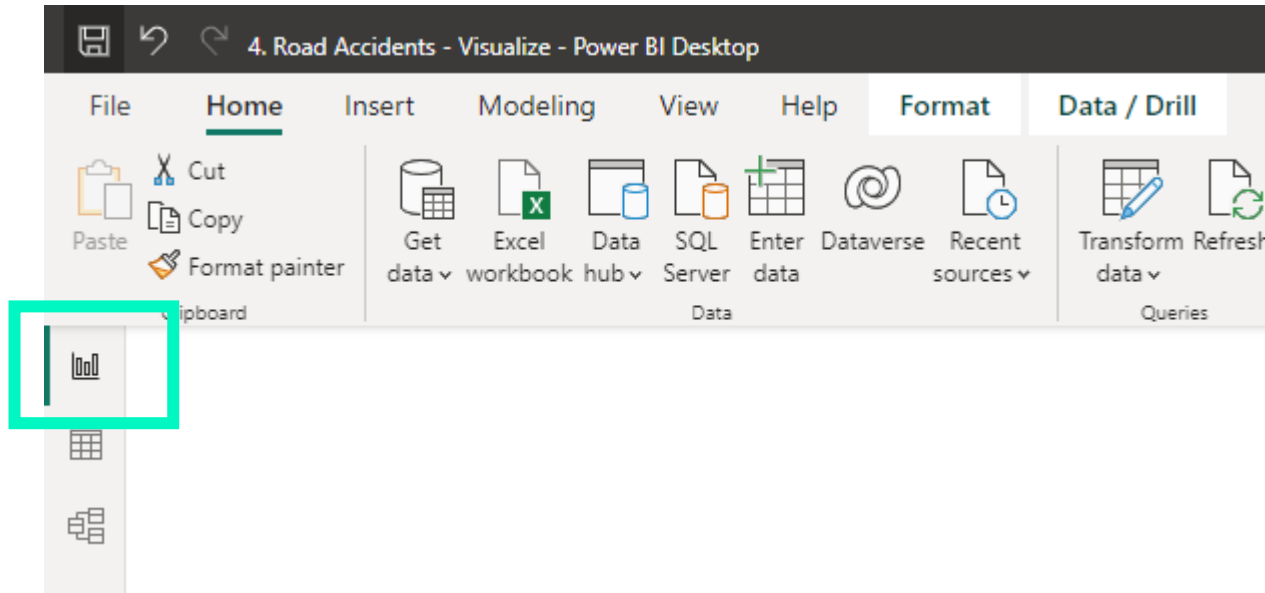
```
Sales Amount PY = CALCULATE  
(  
    SUM('Sales OrderDetails'[Sales Amount])  
    , SAMEPERIODLASTYEAR(Dates[Date])  
)
```



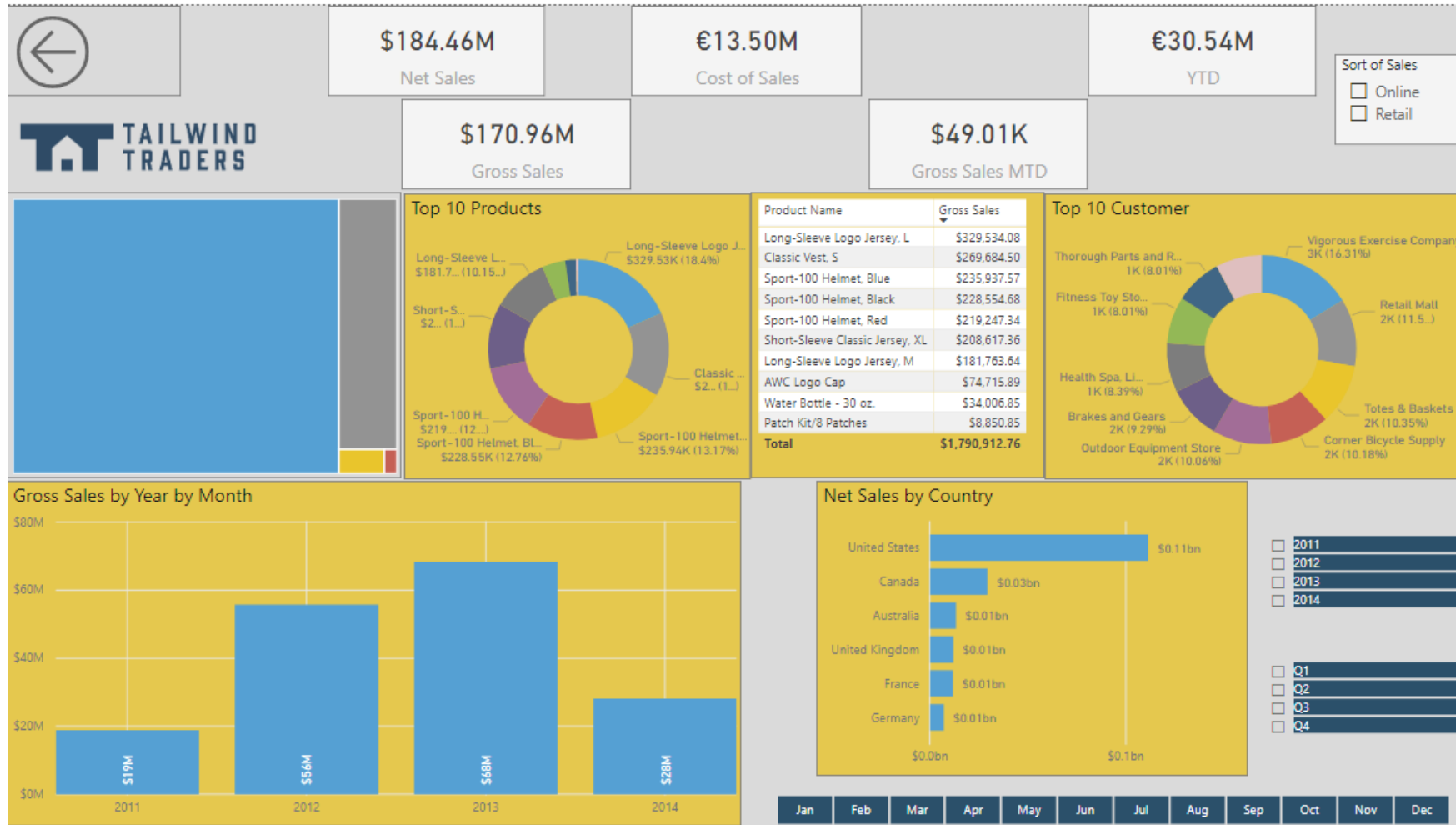
Visualize your data

- **Growing number of visualization types**
 - Donuts, area chart, waterfall, filled maps, tree maps, funnel, gauges, combo charts,...
 - Custom visuals available from Power BI Visuals Marketplace
 - Tools to develop, test, package new custom visuals
- **Visuals are connected**
 - Select value in one visual to change other visual
- **Full screen “Focus mode”**
 - Show additional details

Add visuals to reports



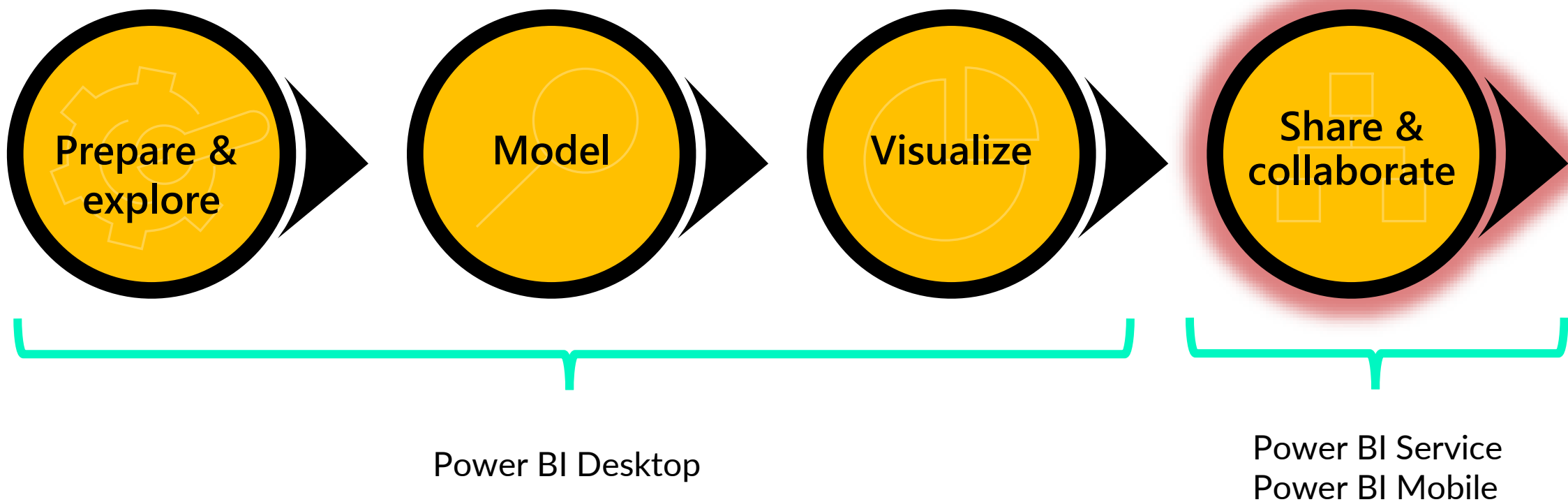
Poorly designed report layout





Topics

- Design report layout
- Add buttons, bookmarks, and selections
- Design report navigation
- Use basic interactions
- Use advanced interactions and drillthrough
- Configure conditional formatting
- Apply slicing, filtering, and sorting
- Publish and export reports





Dashboards vs. Reports

- Dashboards can be created from **multiple datasets** or **reports**
- Dashboards can only be a **single page**, whereas reports can be multiple pages
- You **can't see the underlying dataset** directly (via a *Data* tab)
- Both dashboards and reports can be refreshed to show the latest data



Other topics

- Integration with Teams, PowerPoint, SharePoint
- Custom tooltip pages
- Sync slicers pane
- Field parameters
- Preview features
- Premium features
- Paginated reports
- ...

