




# Power BI

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# About me



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## Work experience

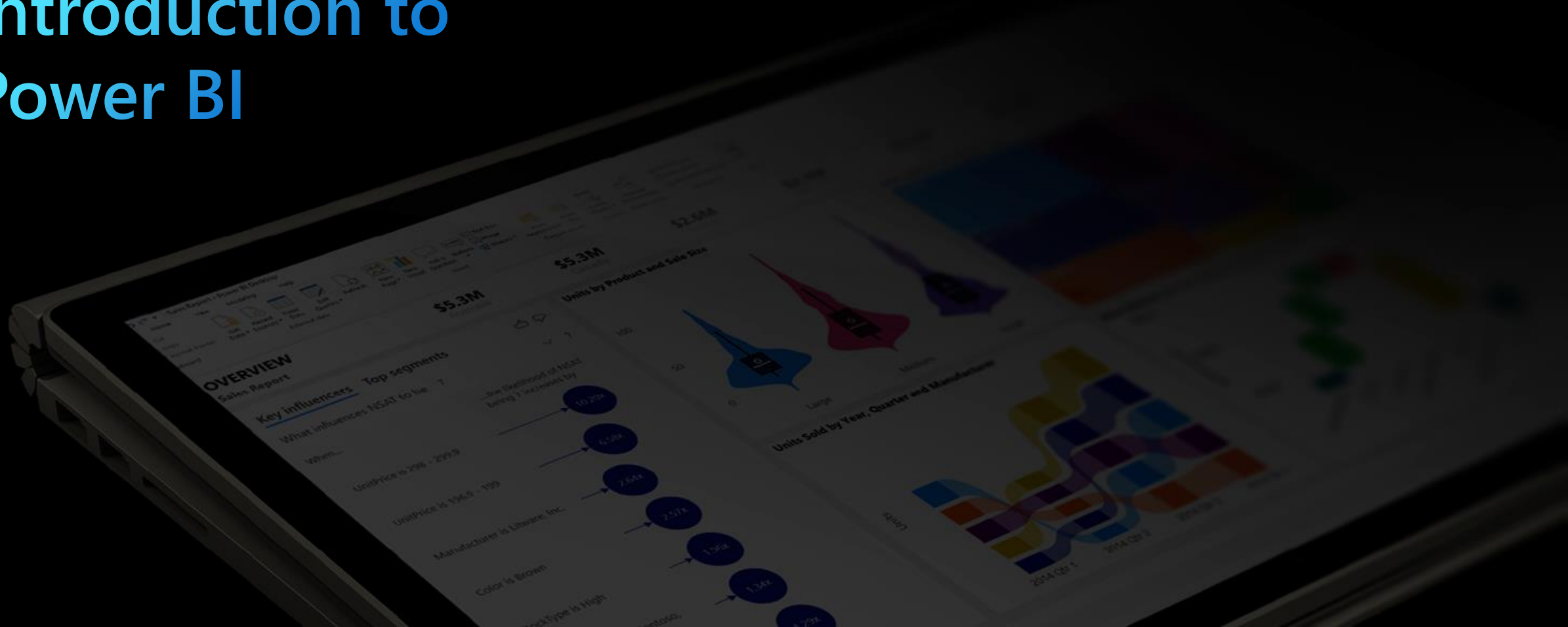
- 5.5+ years at Microsoft (Dublin, Brussels)
- 2+ years at KPMG (Vienna)

## Education

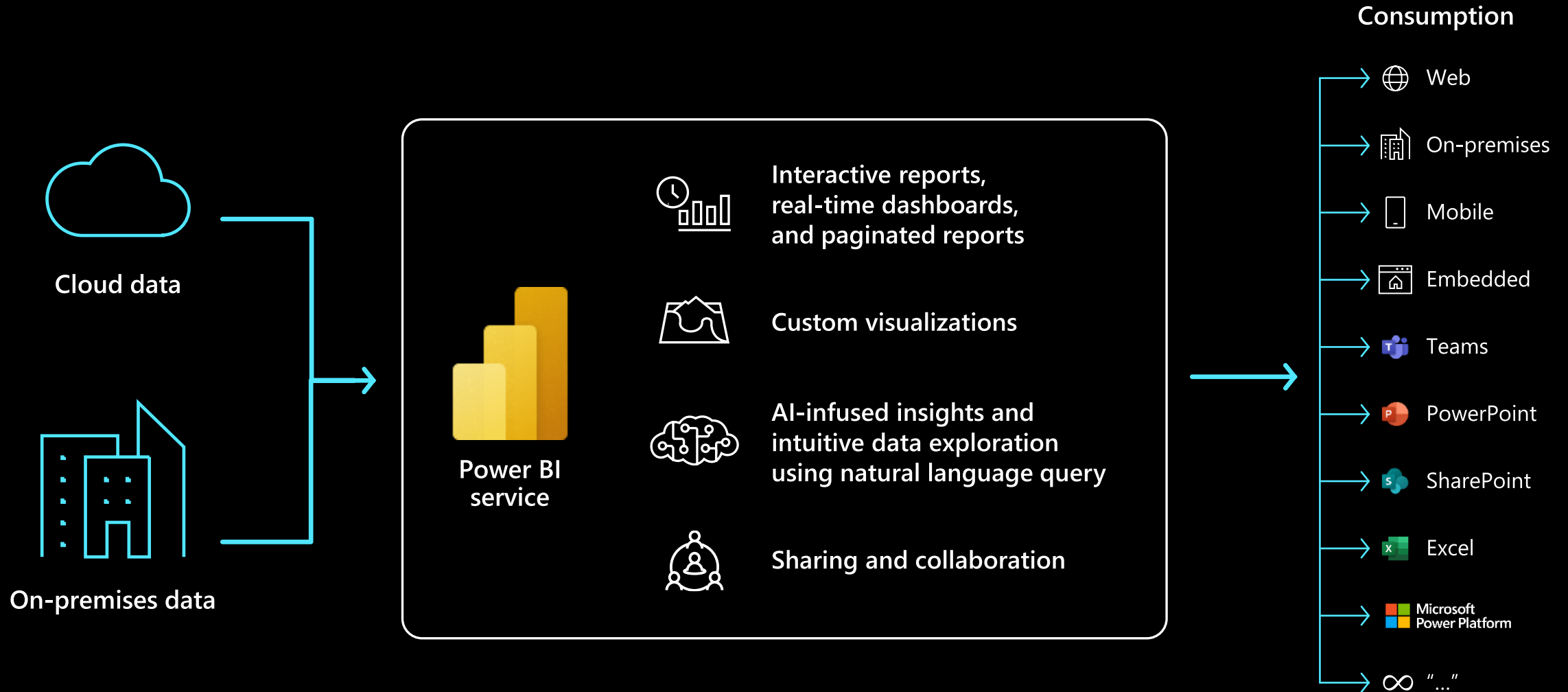
- Business informatics, Technical University of Vienna



# Introduction to Power BI



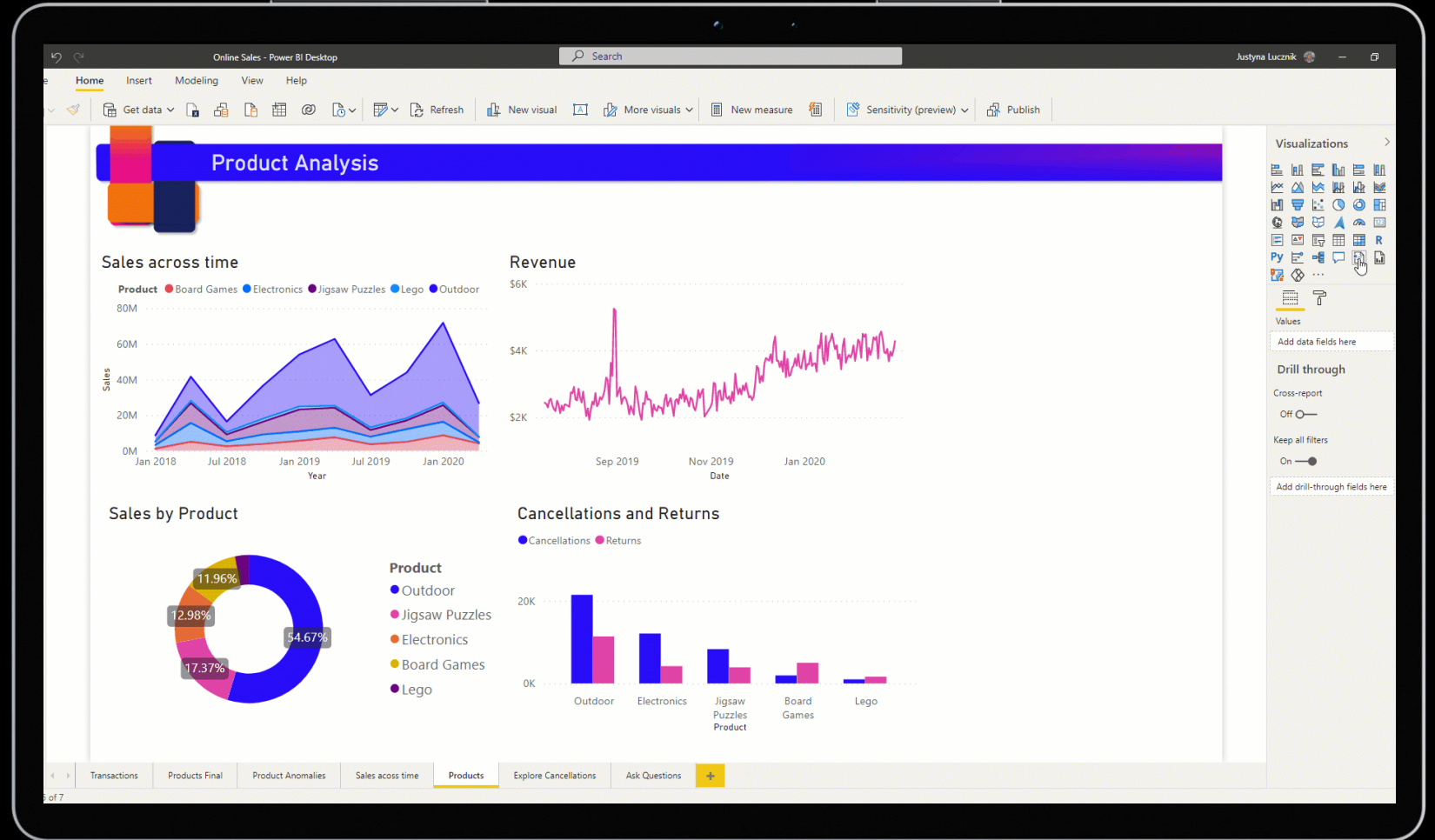
# Power BI: The bridge between data and decisions





# PowerPoint for data

## Drag & Drop



# AI-powered analytics

The most complete AI capabilities in a BI product



Information workers



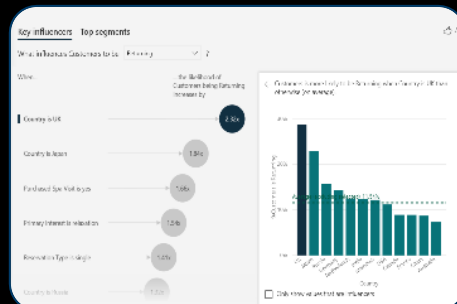
Business analysts



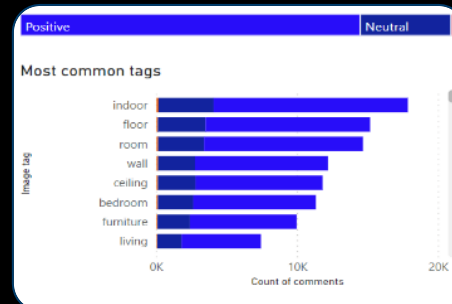
Data scientists



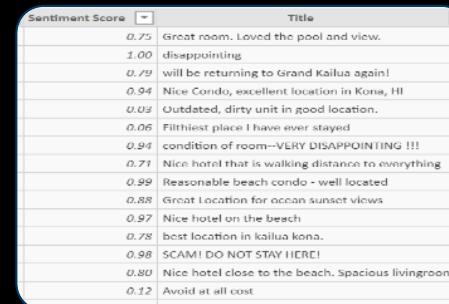
Q&A



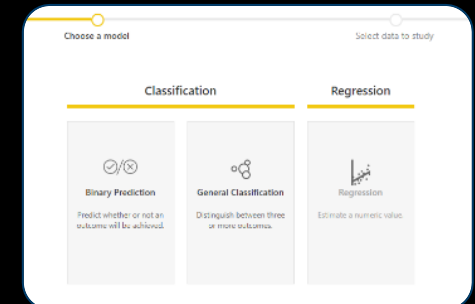
Key driver analysis



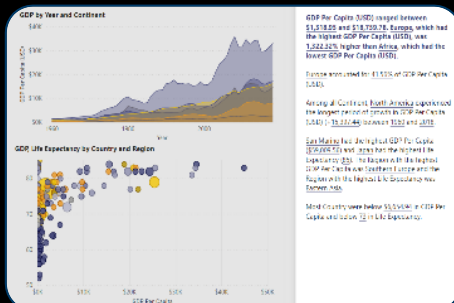
Key phrase extraction



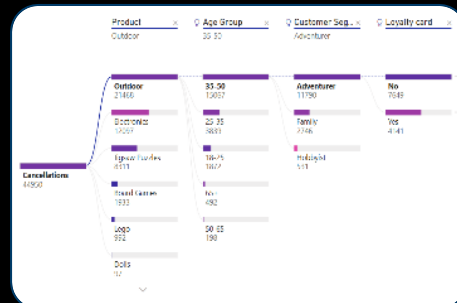
Sentiment analysis



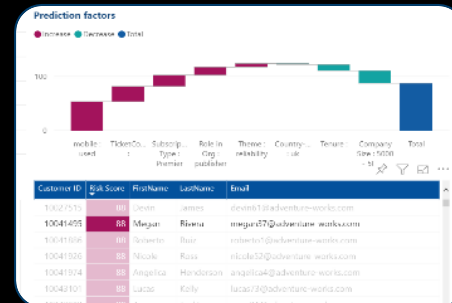
Create ML models



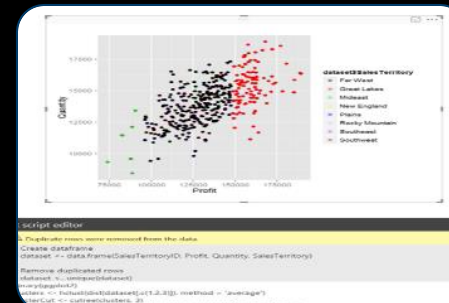
Smart narratives



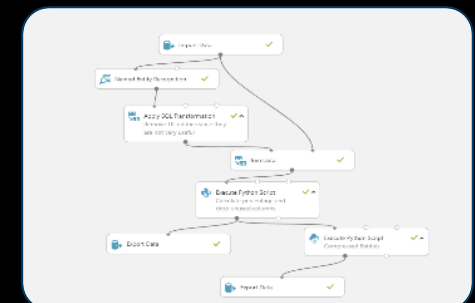
Root cause analysis



Explore predictions



Python and R integration



Extend with Azure ML



Integrated part of  
the Microsoft  
platform



# Power BI product portfolio

## Author



Power BI  
Desktop

Power BI  
Report Builder

Data exploration and report  
authoring tools

## Share and collaborate



Power BI service

Cloud-based modern  
business analytics solution,  
includes free mobile app

## Large scale deployments



Power BI Premium

Dedicated capacity for:

- Increased performance and advanced capabilities
- Sharing with large groups

## App dev



Power BI Embedded

Visual analytics embedded in  
your applications





# Power BI Desktop



# Power BI Desktop

Free companion authoring tool for the Power BI service – analytic reports



## Get data

Easily connect, clean, and mashup data



## Analyze

Build powerful models and flexible measures



## Visualize

Create stunning interactive reports



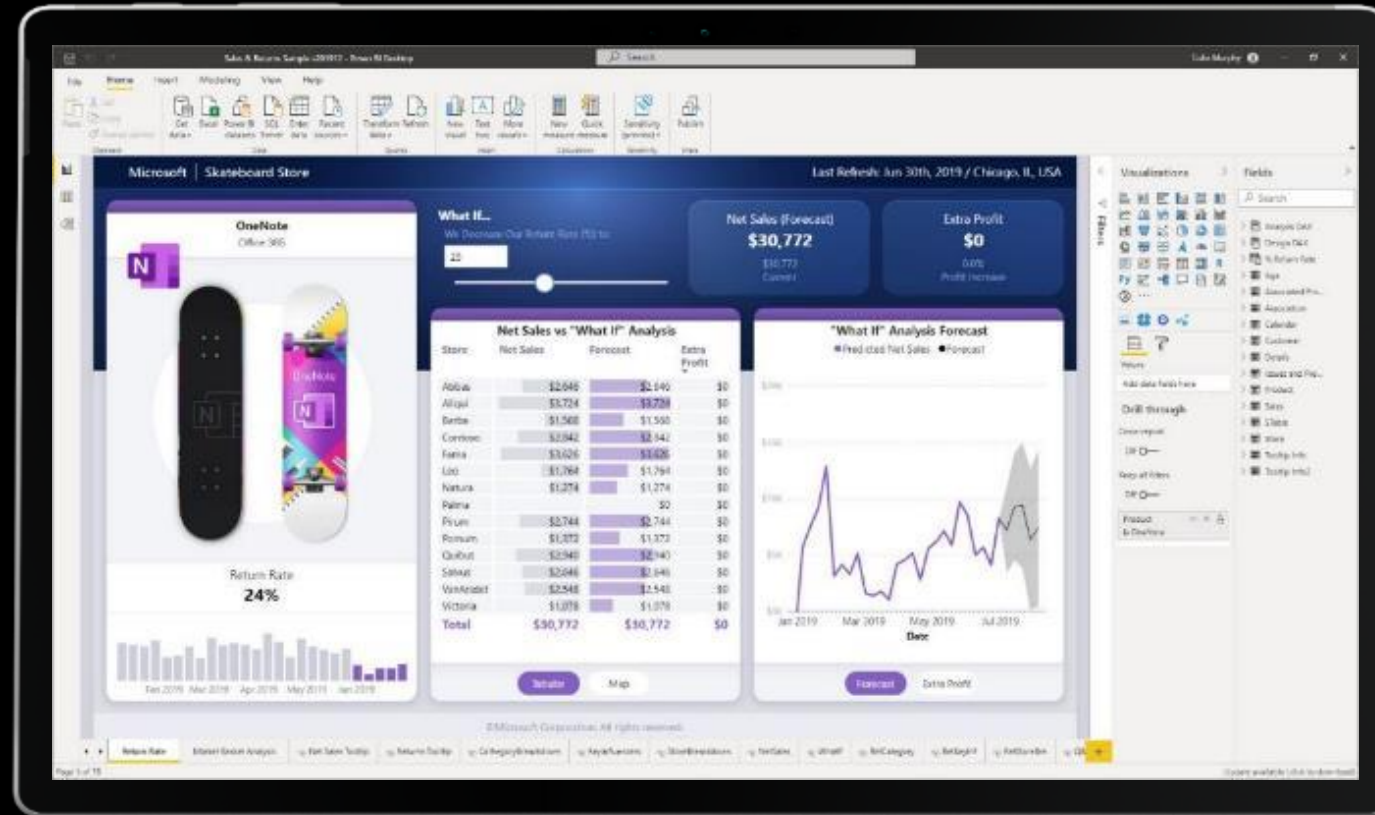
## Publish

Share insights with others



## Collaborate

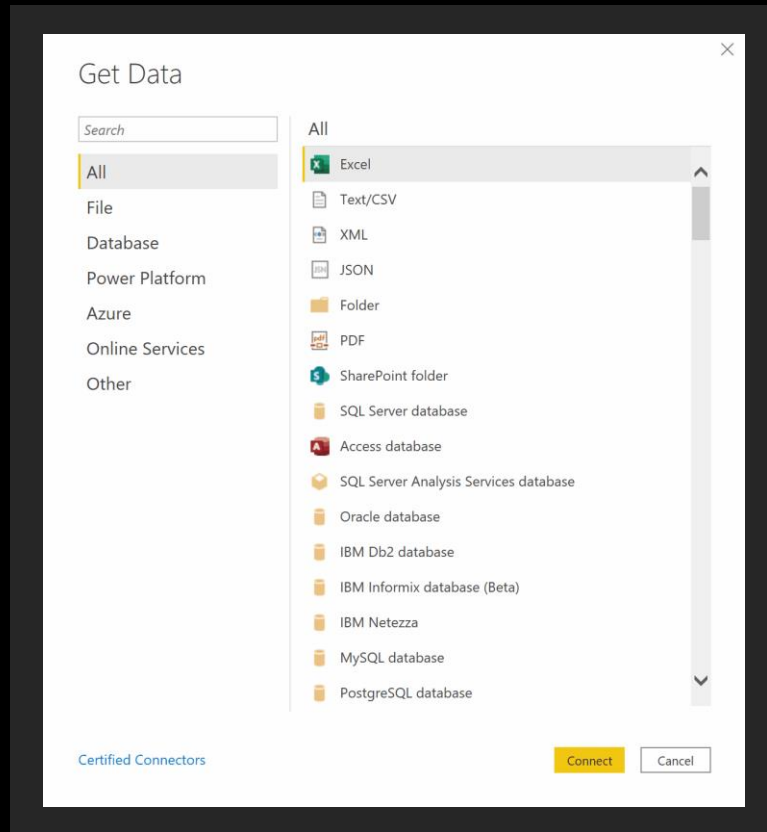
Empower your organization with self-service analytics



Download free from [PowerBI.com](https://powerbi.com) or the Windows Store

# Power Query – richest data connectivity in the industry

150+ data connectors out-of-the-box



82

Built by Microsoft

- Developed by our Product Team
- Bundled w/ Power Query
- **Examples:** SQL Server, Analysis Services, PDF Files, SAP BW & HANA, Web Page & Web API, ODBC, etc.

70

Built by ISVs

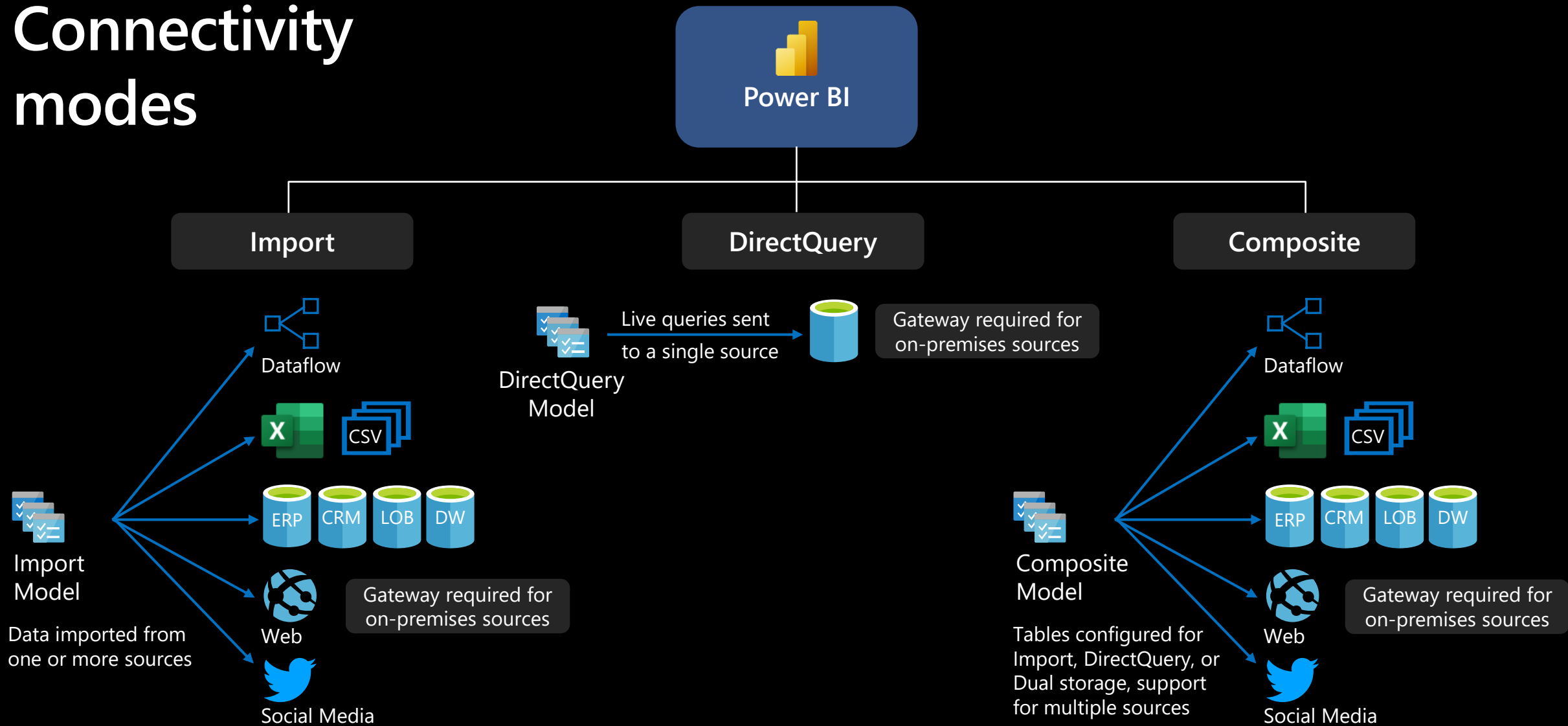
- Built by 3rd party ISVs, using our Connectors SDK
- Certified and Shipped by Microsoft
- Bundled w/ Power Query
- **Examples:** Denodo, Databricks, etc.

1,000s

Custom

- Built by 3rd party ISVs, SIs, partners, etc.
- Side-loaded by users/admins into Power Query & On-premises data gateway

# Connectivity modes



# Clean and mash-up your data

## Consolidate data from a broad range of sources

- Merge or append queries to combine data from multiple queries into a single query

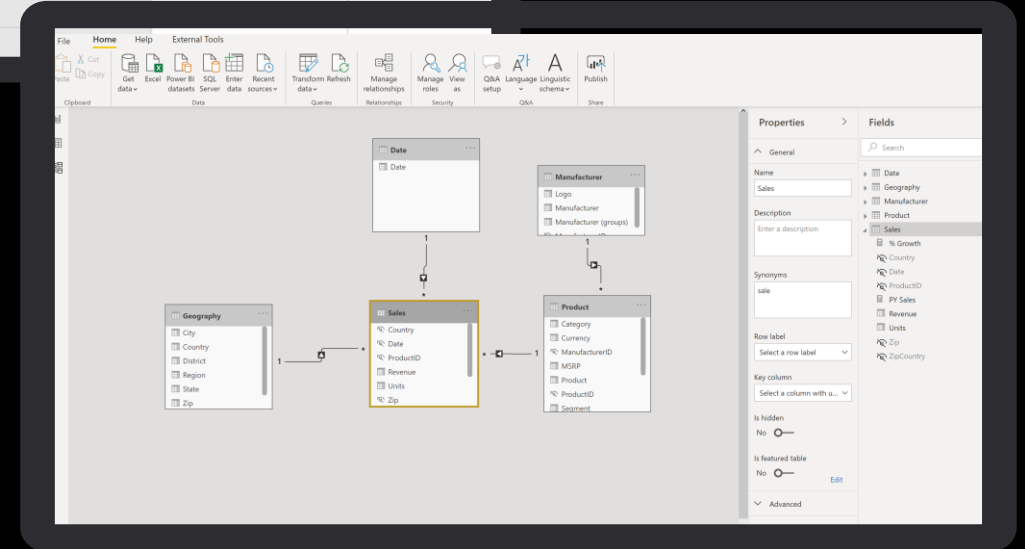
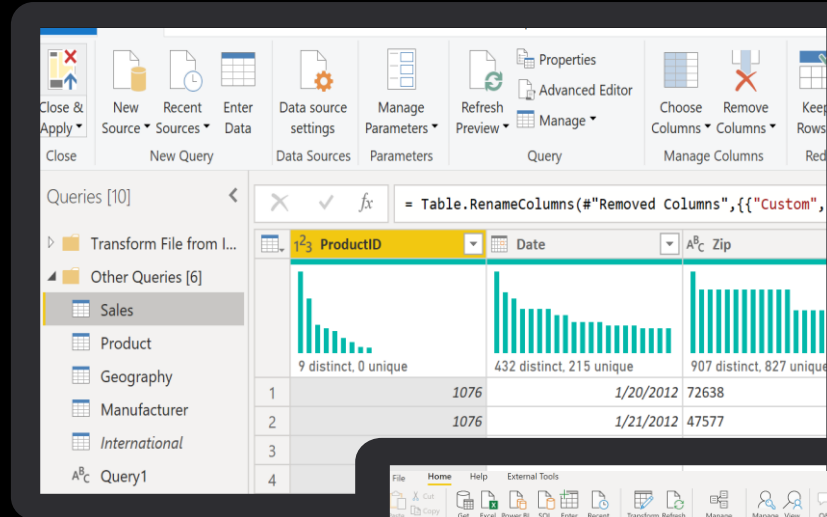
## Transform data to fit your needs using intuitive UI

- Select data for inclusion
- Cleanse data and remove errors

## Define calculations to generate new fields for use in reports

## Develop advanced analytics using a combination of measures and relationships

- Uncover correlations, highlight exceptions and understand business outcomes



# Power Query

Data transformation and data preparation engine used in Power BI and other Microsoft tools (e.g., Excel)

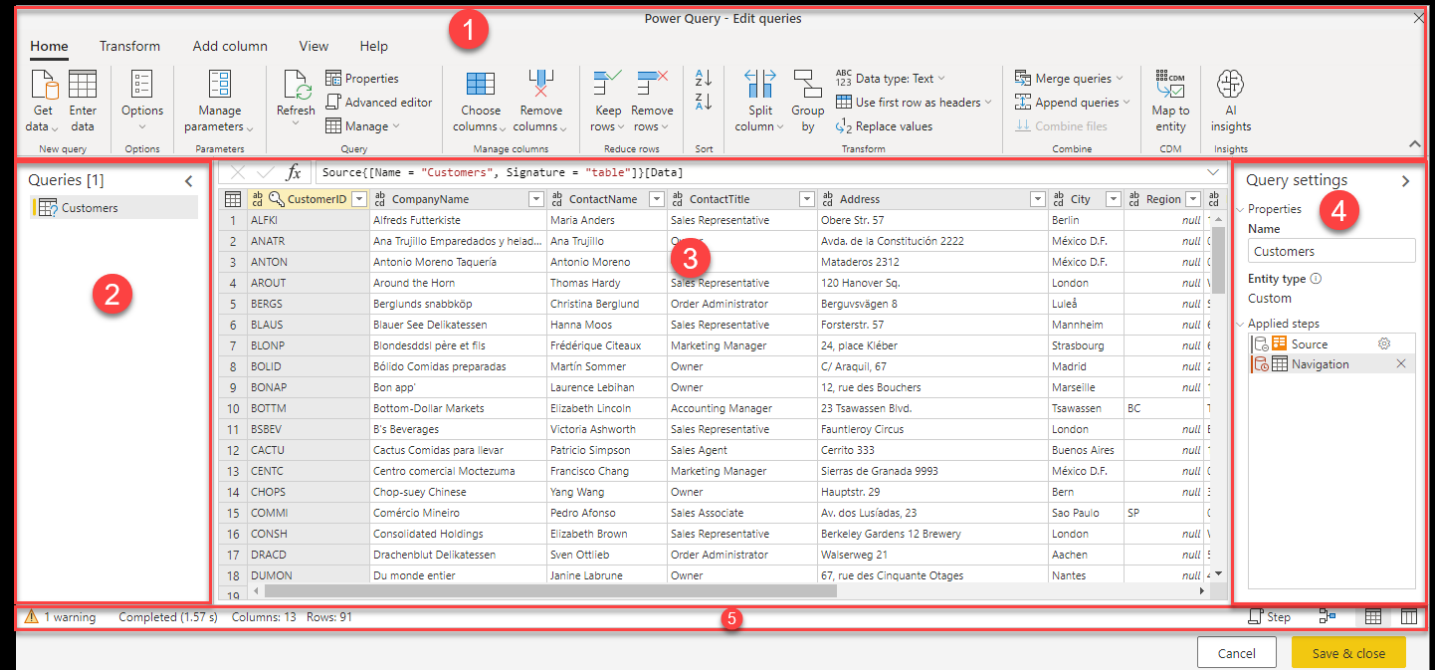
- Comes with graphical interface
- Code can also be edited directly
- Formula language is called "M"

## Interface

1. Ribbon: Navigation
2. Queries pane
3. Current view: Preview of query
4. Query settings: Includes transformation steps
5. Status bar

## Additional resources

- [What is Power Query? - Power Query](#)
- [Transform, shape, and model data in Power BI - documentation](#)



# Data modelling

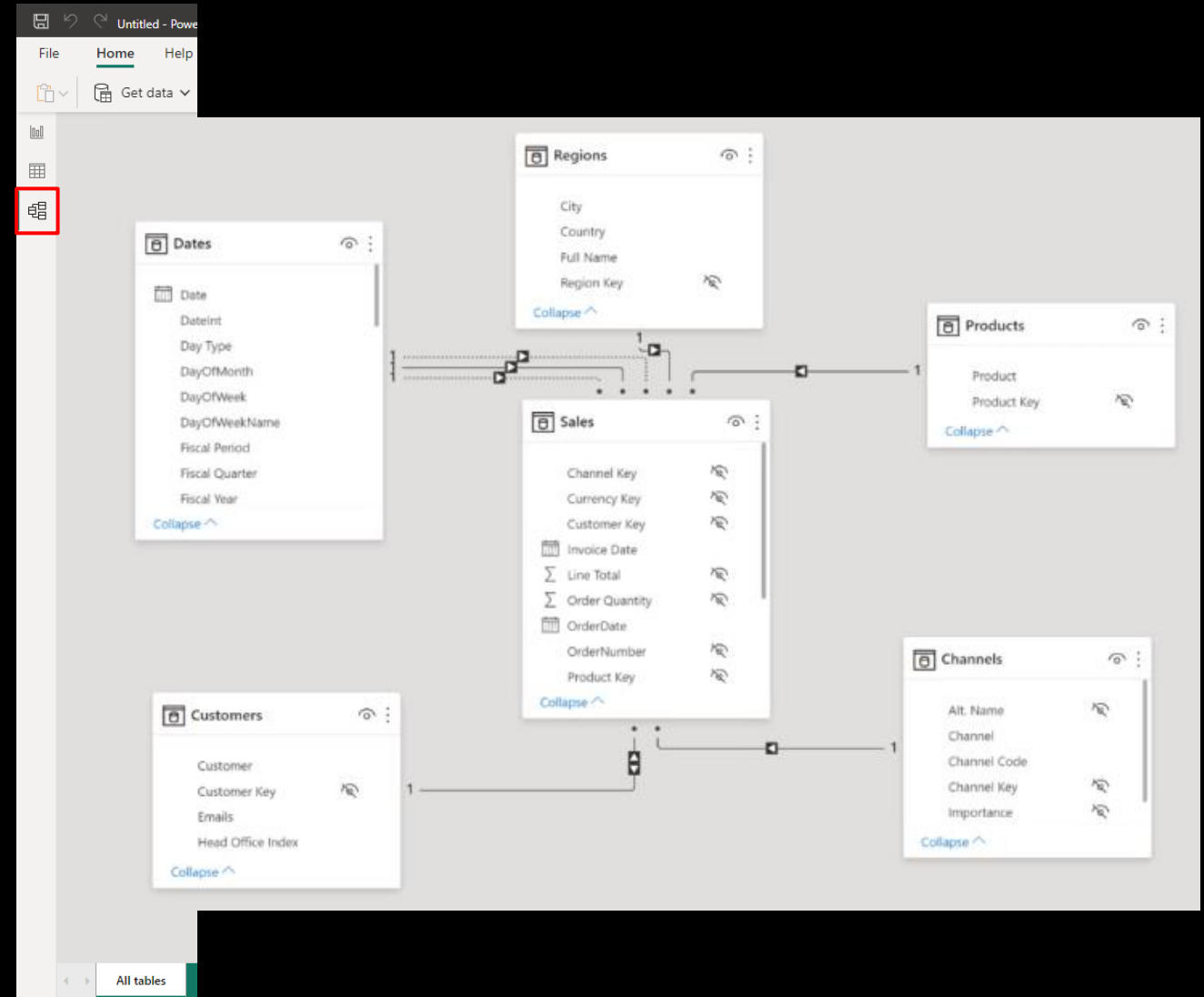
## Create a data model in Power BI Desktop based on your tables

- Create relationships between your tables and data sources (queries)
- Optimize data by hiding fields and sorting visualization data
- Configure filter directions

An optimized data model should follow a star-schema

## Additional resources

- [Model data in Power BI – Training](#)
- [Design a data model in Power BI - Training](#)
- [Understand star schema and the importance for Power BI](#)





# DAX (Data Analysis Expressions)

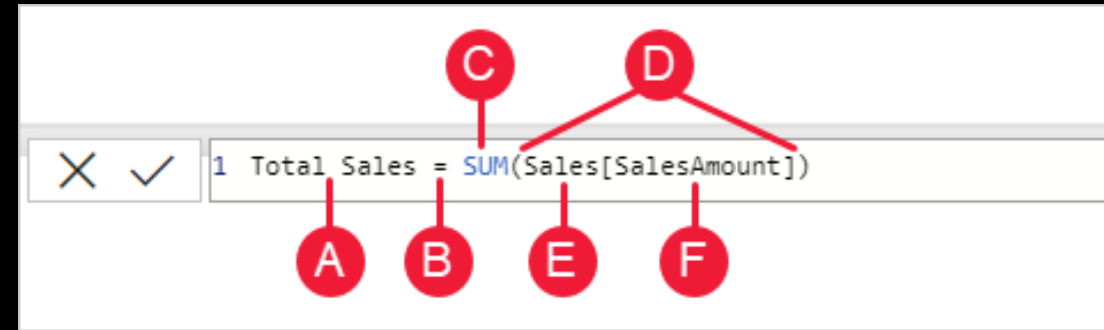
## Formula expression (calculation) language in Power BI

- Used in measures, calculated columns, calculated tables, and row-level security
- Can be used for simple aggregations (count, sum, average, ...) or complex calculations
- Measures are calculated at execution, columns/tables on dataset load

## Easy to learn, difficult to master

## Additional resources

- [Data Analysis Expressions \(DAX\) Reference - DAX](#)
- [Learn DAX basics in Power BI Desktop - Power BI](#)



- A. Measure name "Total Sales"
- B. = indicates beginning of formula
- C. DAX function
- D. Function arguments
- E. Table reference
- F. Column reference

# Data visualization

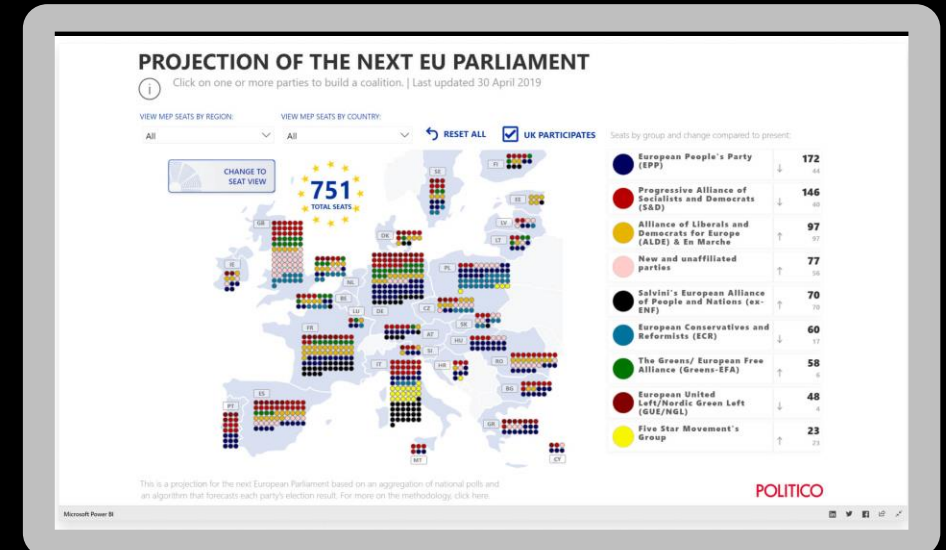
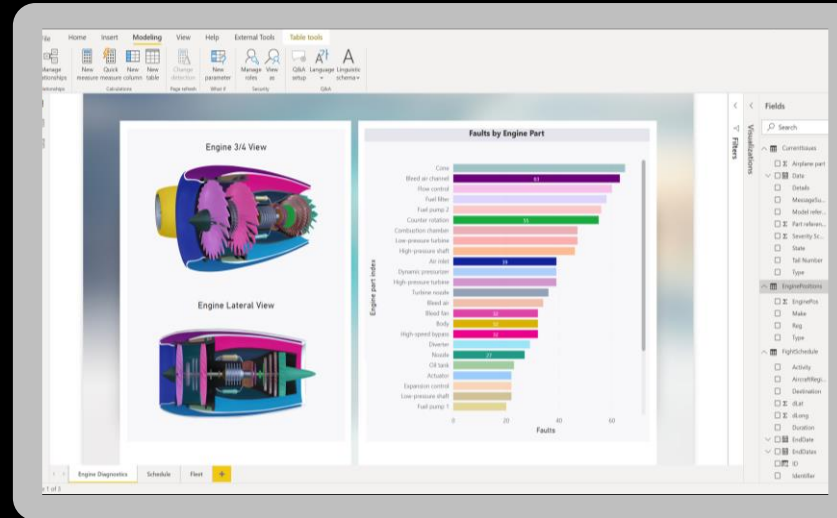
Visualize data in a variety of ways

Growing number of visualization types

- Donuts, basic area, waterfall, filled maps, tree maps, funnel, gauges combo charts and more
- Custom visuals available from Power BI Visuals Marketplace
- Tools to develop, test, package new custom visuals

Visualizations on report page are connected – select value in one visualization to change other visualizations

Full screen pop out mode for report visuals to show additional details



# Data exploration

Explore data in a variety of ways and across multiple visualizations using drag and drop canvas

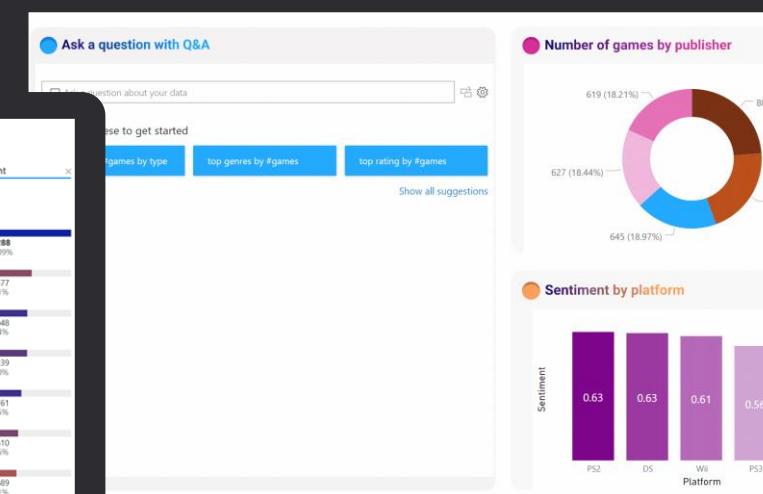
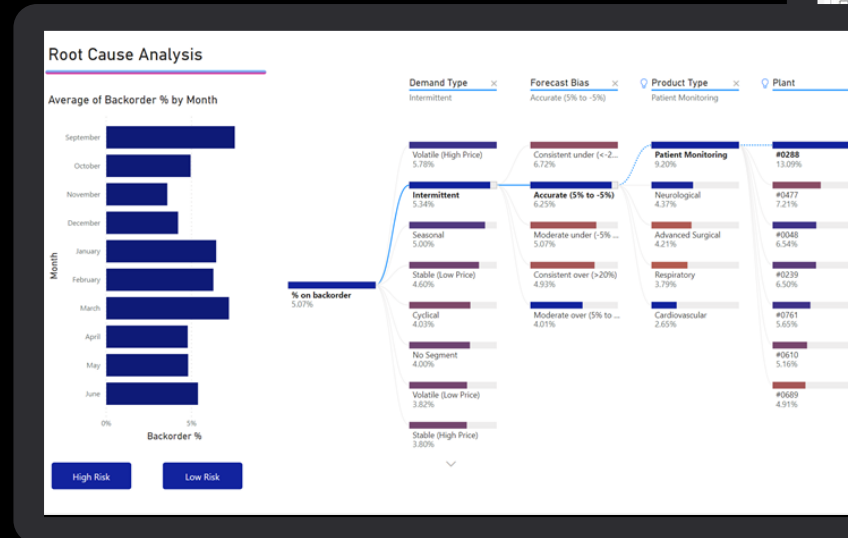
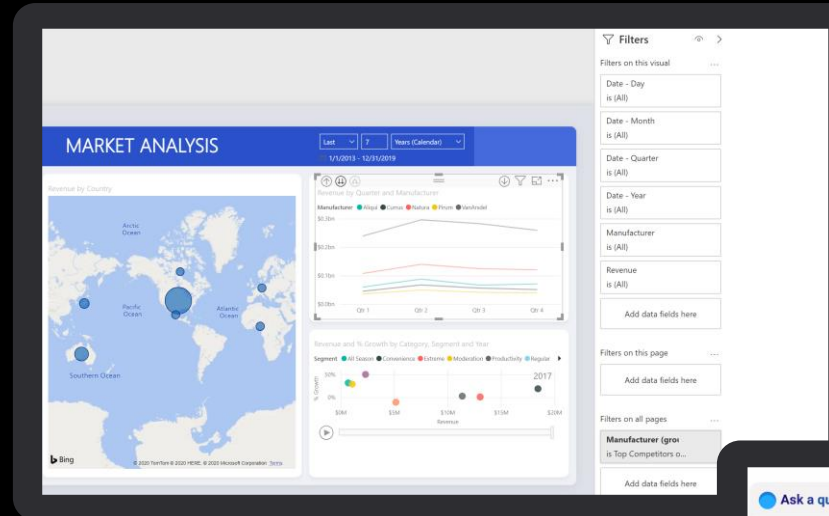
Dig deeper into your reports

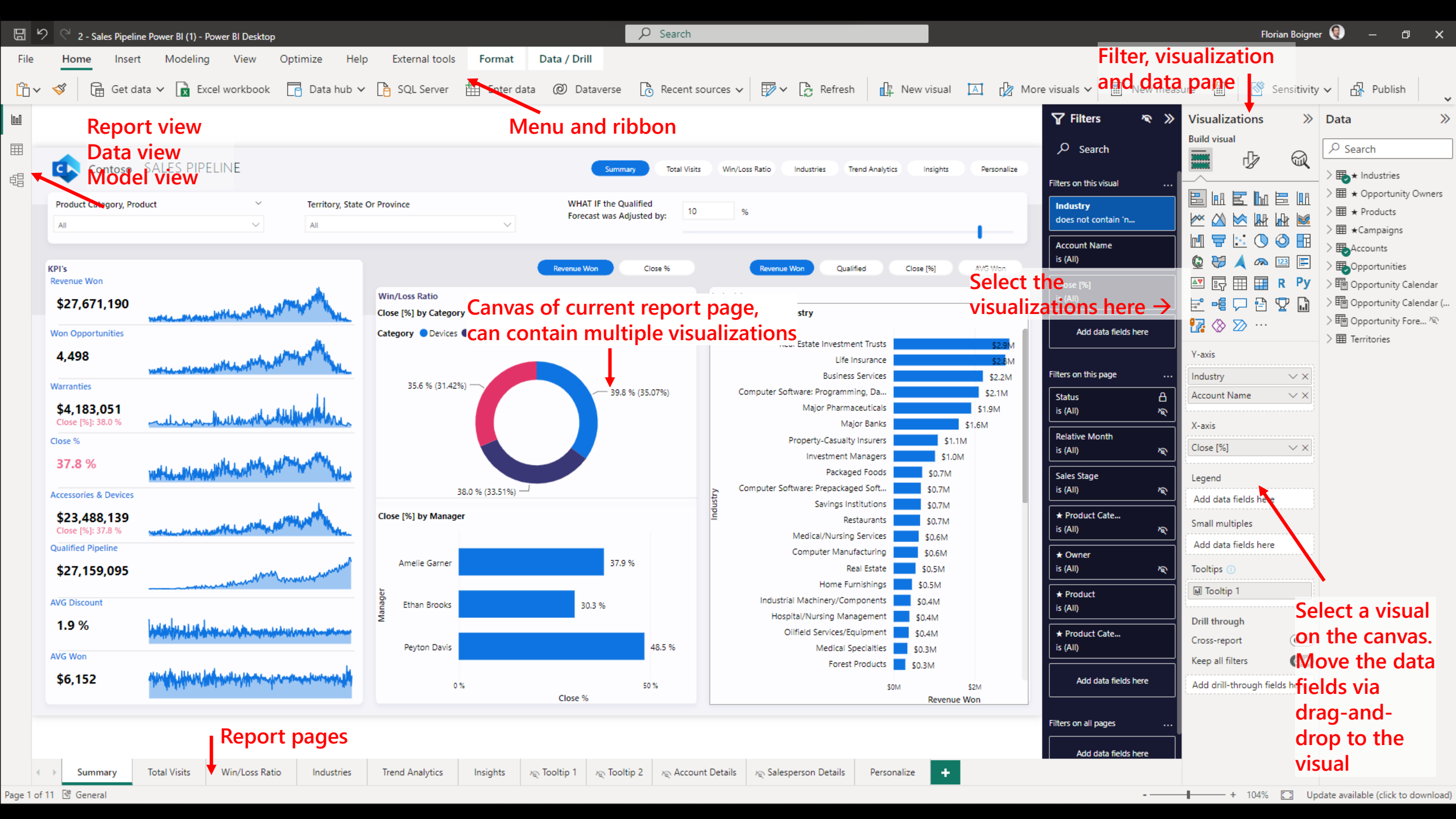
- Drill-down in your hierarchical data
- Filter, sort, hover over and highlight data

Leverage Quick Insights to find insights in your data

Ask questions of your data in natural language with Q&A

- Type questions in plain language
- Q&A intelligently filters, sorts, aggregates, groups and displays data based on the question





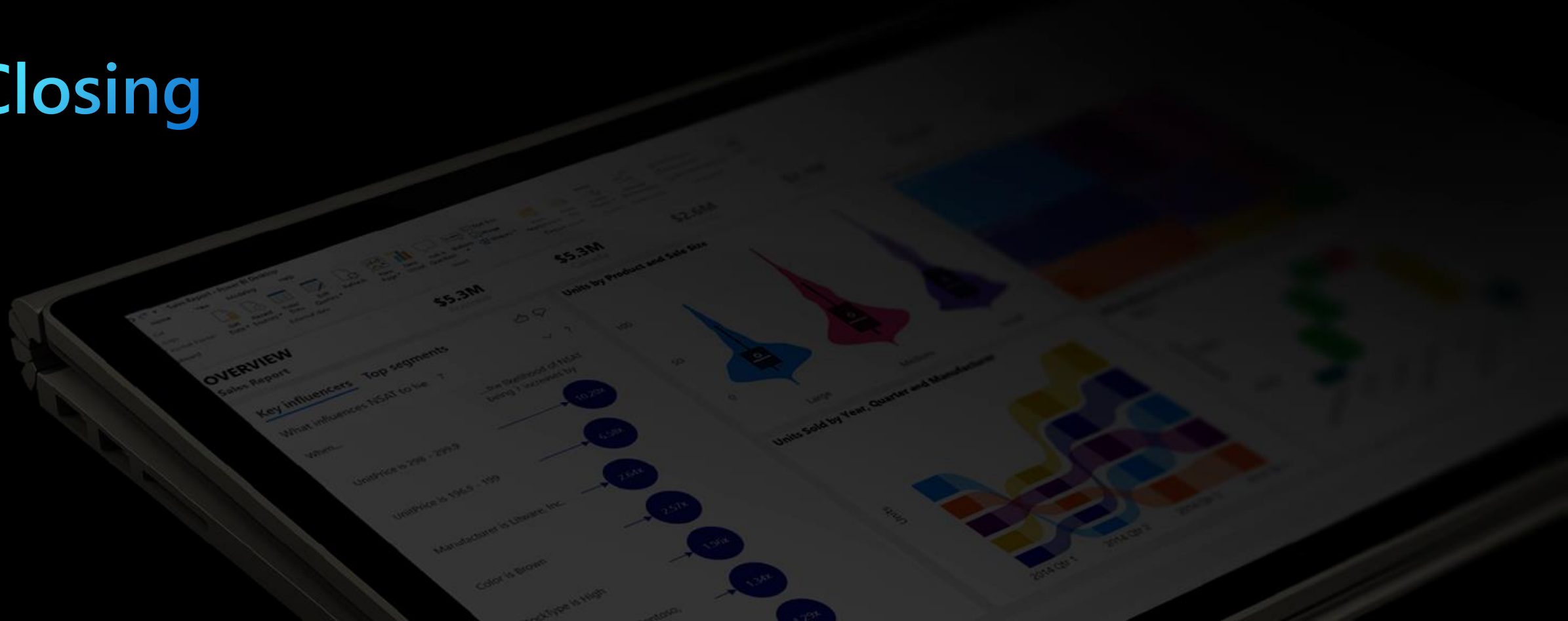


# Lab

<https://aka.ms/PBIDLab>



# Closing





# Microsoft Learn

- Self-paced learning for everyone in different levels (beginner, intermediate, advanced)
- Various modules grouped by learning paths, covering core concepts in Power BI
- Can be filtered by product, user profile and more

## [Power BI on Microsoft Learn](#)

The screenshot displays the Microsoft Learn interface, organized into two main sections: "Your path to get started" and "Popular learning paths and modules".

**Your path to get started**

- LEARNING PATH: Get started with Power BI**  
Duration: 2 hr 35 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save
- LEARNING PATH: Get and transform data with Power BI**  
Duration: 3 hr 56 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save
- LEARNING PATH: Model data with Power BI**  
Duration: 3 hr 10 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save
- LEARNING PATH: Build Power BI visuals and reports**  
Duration: 3 hr 31 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save
- LEARNING PATH: Distribute Power BI insights**  
Duration: 1 hr 57 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save
- LEARNING PATH: Introduction to Power BI**  
Duration: 59 min  
Level: Microsoft Power Platform • Data Analyst • Beginner  
Icon: Trophy  
Action: Save

**Popular learning paths and modules**

- MODULE: Introduction to Microsoft Power Platform**  
Duration: 36 min  
Rating: ★★★★★ 4.7 (24,873)  
Level: Microsoft Power Platform • Business Analyst • Beginner  
Icon: Power Platform logo  
Action: Save
- LEARNING PATH: Get started with Microsoft data analytics**  
Duration: 1 hr 16 min  
Level: Microsoft Power Platform • Data Analyst • Intermediate  
Icon: Analytics icon  
Action: Save
- LEARNING PATH: Prepare data for analysis**  
Duration: 3 hr 56 min  
Level: Microsoft Power Platform • Data Analyst • Intermediate  
Icon: Analytics icon  
Action: Save
- MODULE: Get data with Power BI Desktop**  
Duration: 1 hr 15 min  
Rating: ★★★★★ 4.7 (33,032)  
Level: Microsoft Power Platform • Business Analyst • Intermediate  
Icon: Power BI Desktop icon  
Action: Save
- MODULE: Explore fundamentals of data visualization**  
Duration: 38 min  
Rating: ★★★★★ 4.7 (6,466)  
Level: Azure • Administrator • Beginner  
Icon: Data visualization icon  
Action: Save
- MODULE: Model data in Power BI**  
Duration: 1 hr 7 min  
Rating: ★★★★★ 4.7 (1,111)  
Level: Microsoft Power Platform • Data Analyst • Intermediate  
Icon: Power BI icon  
Action: Save





# Power BI Learning Catalog

Free role based self-paced learning material which also includes hands on examples and use cases for certain roles, like the analyst.

Content is mostly a collection of curated recorded webinars and videos that have been grouped by topic and role.

[Power BI learning catalog - Power BI | Microsoft Learn](#)

	stand out. This session will walk you through a series of before-and-after case studies and teach you how to use visual perception to influence audience attention in data visualization design.		
<a href="#">Make Your Power BI Data Visual: Core Chart Types and How to Use Them</a>	Chart type is one the most fundamental building blocks of visual analytics. With the right usage of charts, we create the right patterns and clarity, and provide the right answers for our users.	Webinar	
<a href="#">Visualize public or private datasets with the new Power BI and data.world connector</a>	In collaboration with data.world, Microsoft has released a new data connector that allows you to import data.world datasets into Power BI Desktop. Together with data.world, we're excited to help data fans more easily collect, manage, explore, visualize and share insights with others.	Webinar	
<a href="#">Get actionable insights using real-world visualizations in your Power BI dashboard</a>	Join Charles Sterling and Shakun Grover as they walk through using real-world visualizations in your Power BI dashboard. Microsoft Visio offers the perfect canvas for visually contextualizing data and depicting process flows. Using the new Visio visual for Power BI, you can easily bring alive Visio's powerful visualization capabilities right within your Power BI dashboards to drive insights and action.	Webinar	34 min 19 sec

## Governance and Deployment

Content	Description	Format	Length
<a href="#">Scenario Analysis Patterns in Power BI using DAX - Free Training Workshop</a>	We'll be reviewing a number of techniques specifically around scenarios analysis in Power BI. Don't just think Power BI is just a visualization tool, it is a powerful analytical engine that can produce amazing insights including running custom scenarios on your raw data.	Webinar	42 min 34 sec
<a href="#">Power BI Adoption Framework Webinar</a>	Shift your organization's mindset to a data-driven culture and register for the Webinar series that gives you an adoption framework for Power BI from Microsoft	Webinar	



# Thank you

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