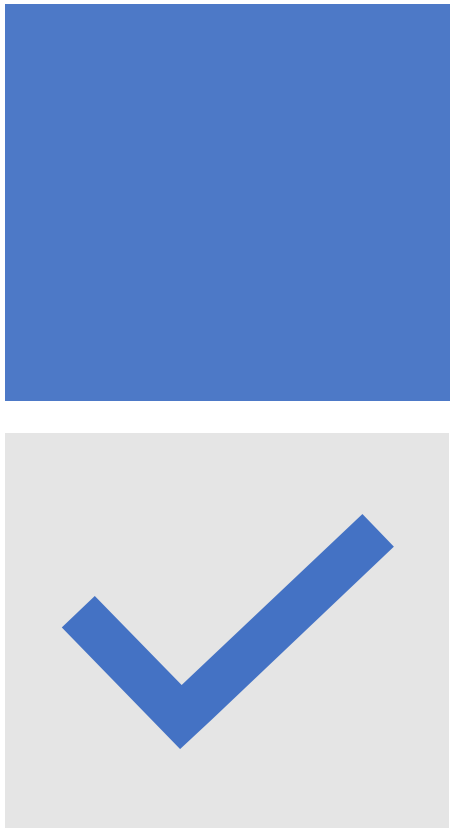
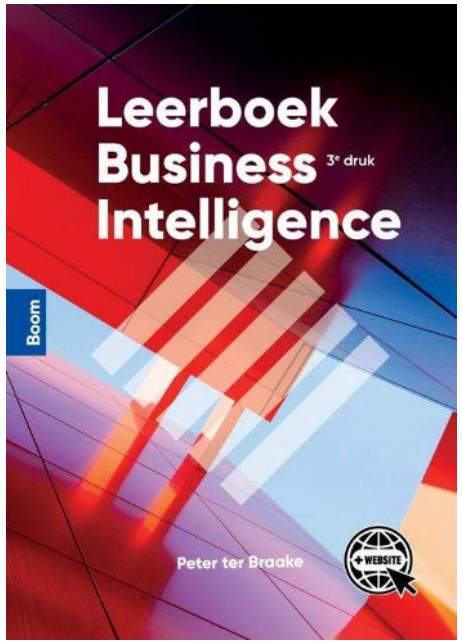
Copilot-Driven Analytics - Power BI, Work IQ & the Future of BI

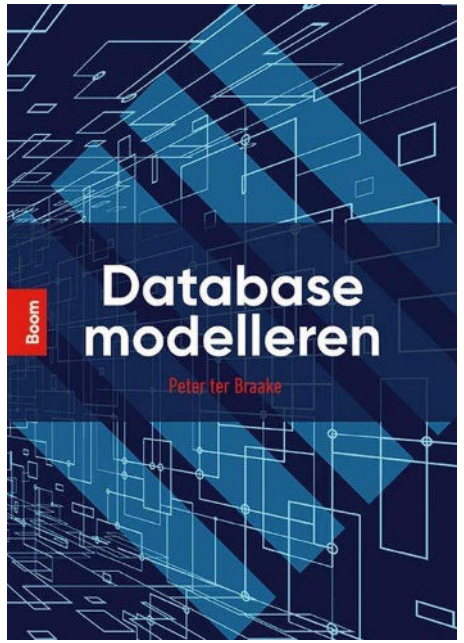


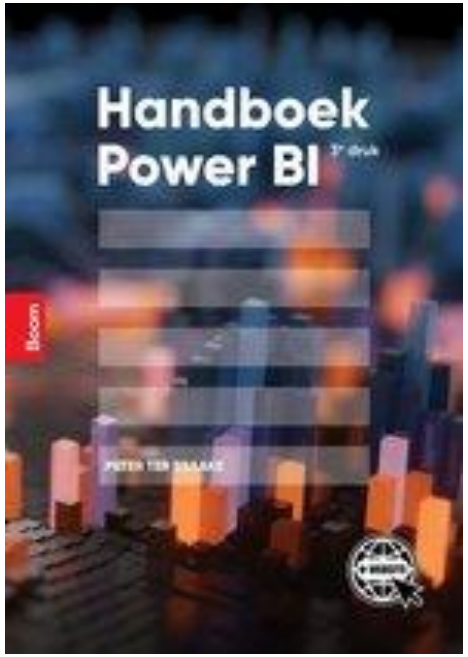
Peter ter Braake

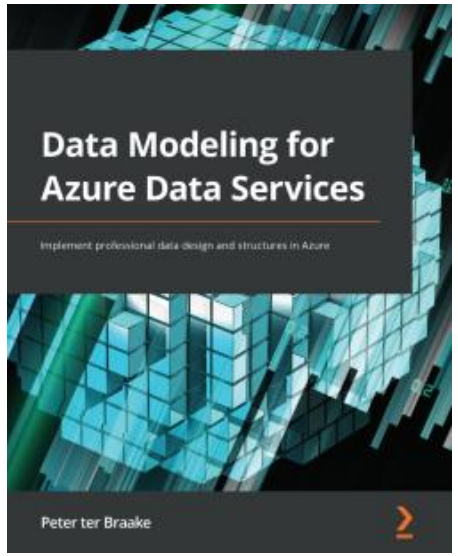
Introducing myself

- Peter ter Braake
  - trainsql@live.nl
  - Independent contractor
  - MCT since 2002
- Microsoft Data Platform
  - SQL Server
    - Incl. SSRS
  - Business Intelligence
  - Power BI
- Author









Agenda

- Power BI + Copilot introduction
- Microsoft IQ
- Copilot Power BI Development
- Power BI Remote MCP Server (Query Layer)
- Recap

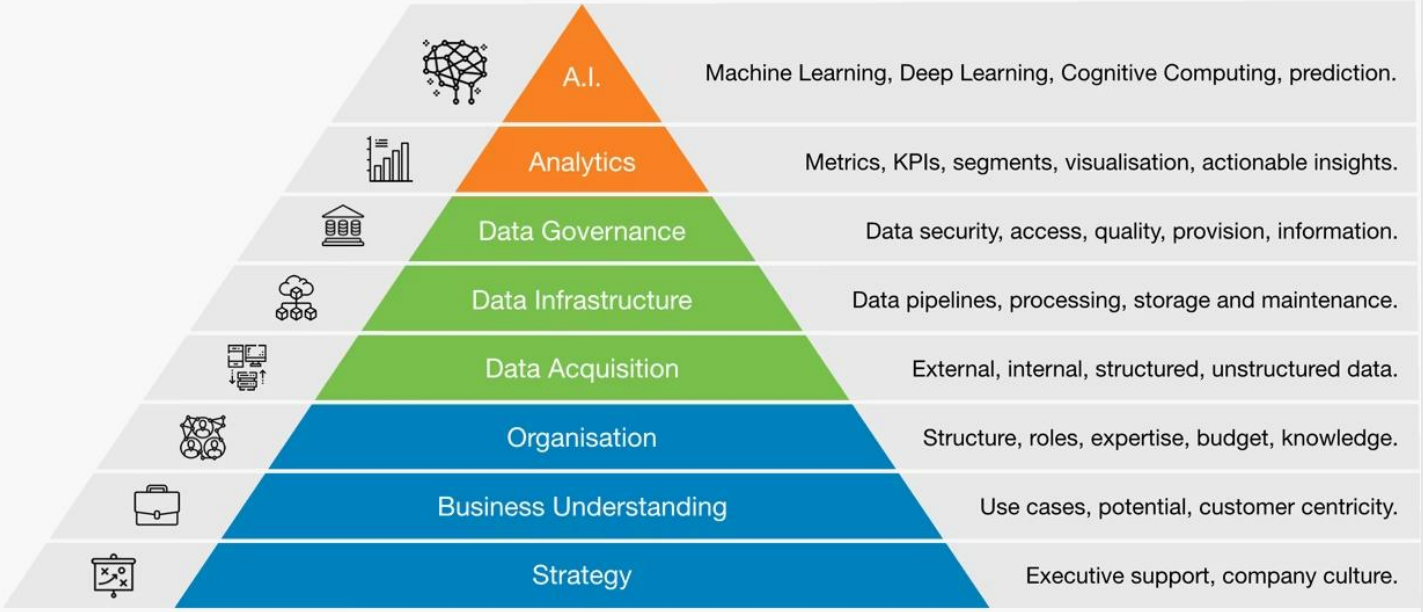
Power BI + Copilot introduction

Power BI will be replaced by AI



- ???

Data driven world



The world is changing rapidly

->

Need to adapt

+

Lots of data available

Monitor and Act!

Power BI in age of AI



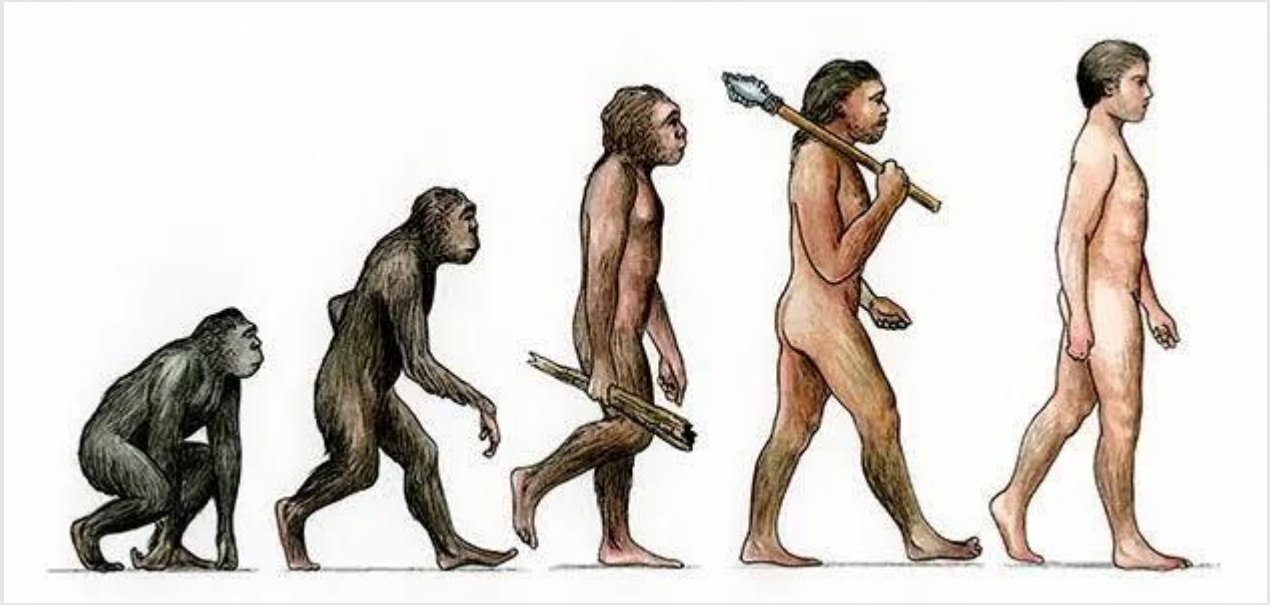
- Dashboards remain important
  - Monitor KPI's
  - Share knowledge
- Natural language is new interface
  - Question? -> Ask!
  - No SQL needed
  - No DAX needed
- Good data IS needed
  - Data Quality
  - Metadata Quality

Historic retrospective



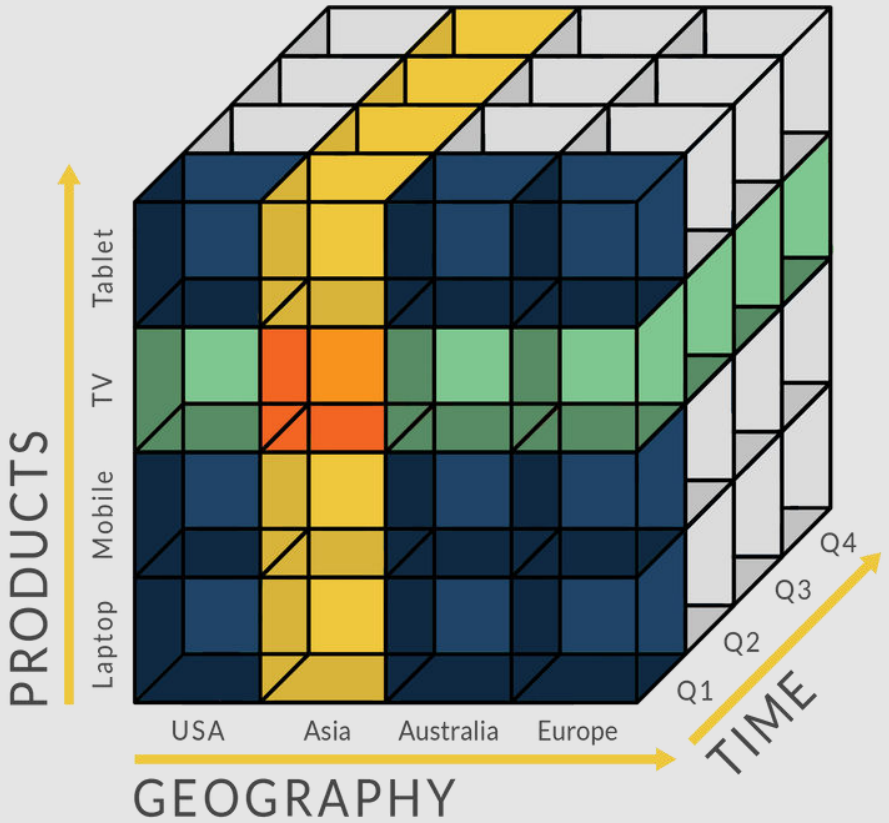
- 80s and 90s
  - Relational database source
  - Request for report
  - Write query + develop report
  - Time-to-market: days – weeks
- 00s and 10s
  - OLAP cubes / Semantic model source
  - Request report OR self-service BI
  - Develop report
    - Drag-and-drop
  - Time-to-market: hours – days
- Now
  - Just ask!
  - Human / natural language

Evolution



- Traditionally
  - Tables -> columns -> Queries
- Semantic model
  - Customer -> Sales -> Margin
- (Fabric IQ
  - Customer buys Product
  - Customer segment drives Revenue
  - Revenue contributes to KPI)
- Agent
  - Why is revenue dropping in Germany?

Semantic model



- Enables
  - Drag-and-drop reporting
  - Helps AI
- Semantic
  - Adds meaning to data
    - Defines how things are measured and calculated for business intelligence
  - Defines
    - Business Rules
    - Definitions
  - Uses DAX

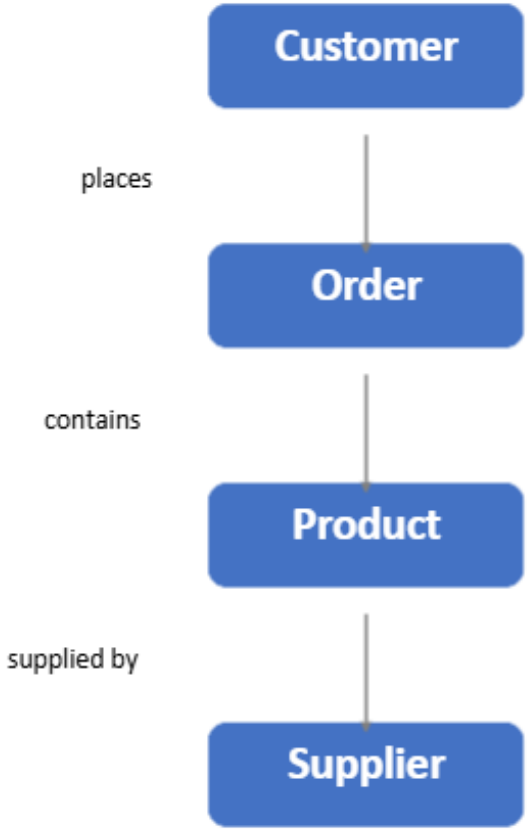
Copilot



- Microsoft’s AI assistant
  - Helps with everyday tasks
    - Mail
    - Data Analysis
    - …
- Chat and search
  - Web
  - Copilot app
- Within (office) apps
  - Power BI Service
  - Power BI Desktop

Microsoft IQ

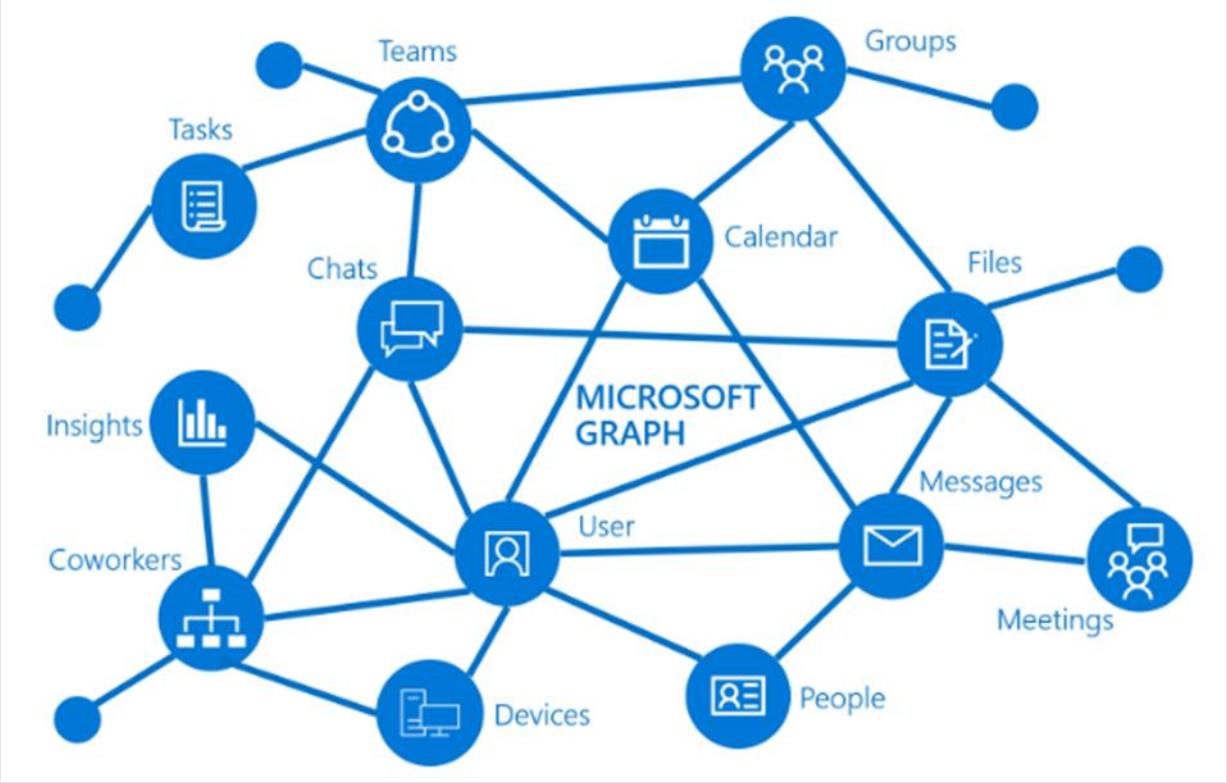
Ontology



Data
+
Meaning
+
Relationships
=
Business Understanding

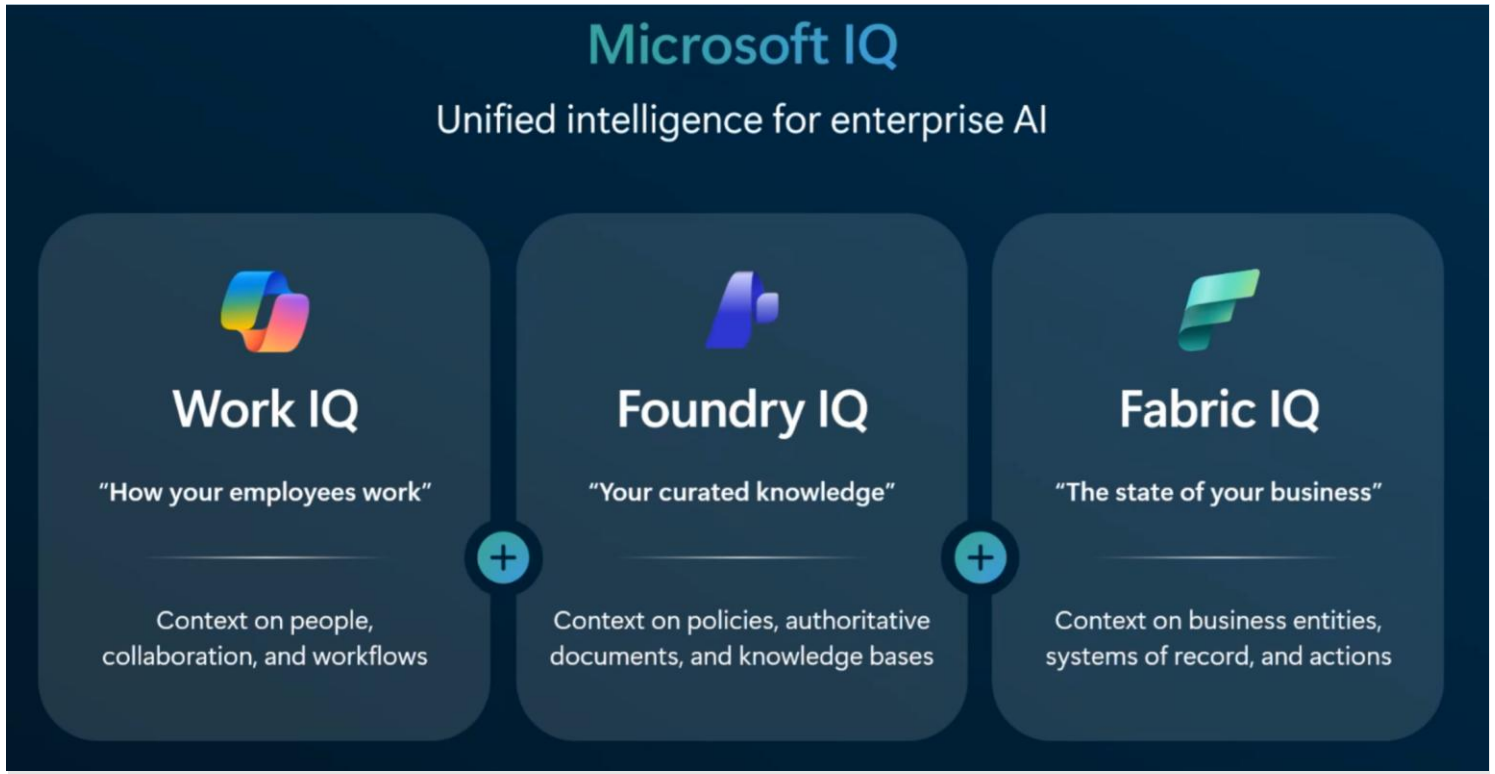
- Traditional data platforms store
  - Tables
  - Columns
  - Keys
  - Relationships
- An Ontology models
  - Business entities
  - Relationships between entities
  - Business definitions
  - Rules and metrics
  - Describes what things are and how they relate

Work IQ



- Microsoft Graph
  - Usage and data tracking
  - Crucial for Copilot
- Adhere permissions
- Purview for governance
- Copilot Cowork

AI reasoning architecture



Together they provide enterprise-wide reasoning context for AI

- Work IQ
  - Understands
    - Emails
    - Meetings
    - Files
    - Collaboration patterns
  - 'Knows' how work happens
  - Context-aware Copilot
  - People, meetings, documents
- Fabric IQ
  - Data context
    - Raw data -> business concepts
  - Semantic models
  - Ontology
  - Data-aware agents
    - Reason and act on trusted, governed enterprise data
  - Business data
- Foundry IQ
  - AI/runtime context
  - Manage models, prompts, tools, and agent execution in governed environment
  - Agents, models, tools

Copilot

Experience	Can discover Power BI reports	Can query semantic models	Can use Fabric content as grounding	Typical use
Microsoft Copilot	Yes	Yes	Yes, when Fabric integration is enabled	Ask business questions Create emails/docs from data
Copilot Cowork Chat	Yes, including workspace app reports	Yes	Yes, through Fabric IQ plugin	Conversational analytics combined with document creation and collaboration workflows
Copilot in Power BI	Directly works with the current report/model	Yes, native capability	Yes, inside Fabric/Power BI environment	Create reports, DAX, model documentation Explain measures

Microsoft Copilot Chat (Windows app, web, M365 app)

Capability	Supported
Find relevant Power BI reports automatically	Yes
Use a report you explicitly reference	Yes
Query underlying semantic models	Yes
Return answers grounded in Power BI data	Yes
Respect RLS and Power BI permissions	Yes
Create emails/docs from answers	Yes, through normal Copilot capabilities
Edit reports/models	No

- Requirements
  - Fabric data in Microsoft Copilot enabled
    - M365 Admin Center
  - Fabric metadata sharing enabled
    - Fabric Admin Portal
    - Recommended for indexing/discovery
  - User has report access
- License
  - Microsoft 365 Copilot license
  - Power BI / Fabric license
    - View

Copilot Cowork Chat

Capability	Supported
Search Power BI reports	Yes
Search workspace app reports	Yes
Query semantic models	Yes
Summarize reports	Yes
Explain trends	Yes
Compare metrics	Yes
Continue result into email, Word document, meeting	Yes
Direct report authoring	No

New "work orchestration" experience

- Uses Fabric IQ plugin
  - Fabric Admin Portal -> Tenant settings -> Share Fabric data with Microsoft 365 services
- License
  - Microsoft 365 Copilot/Cowork
  - Power BI access

Copilot inside Power BI Desktop

Capability	Supported
Generate DAX	Yes
Explain DAX	Yes
Create report pages	Yes
Suggest visuals	Yes
Document semantic models	Yes
Generate measure descriptions	Yes
Assist model development	Yes
Analyze published reports	Yes

- Requirements
  - Workspace on Fabric capacity F2+ or Premium P1
  - Copilot enabled in Fabric tenant
  - Workspace access
    - Admin/member/contributor
  - Sign in to Power BI Desktop

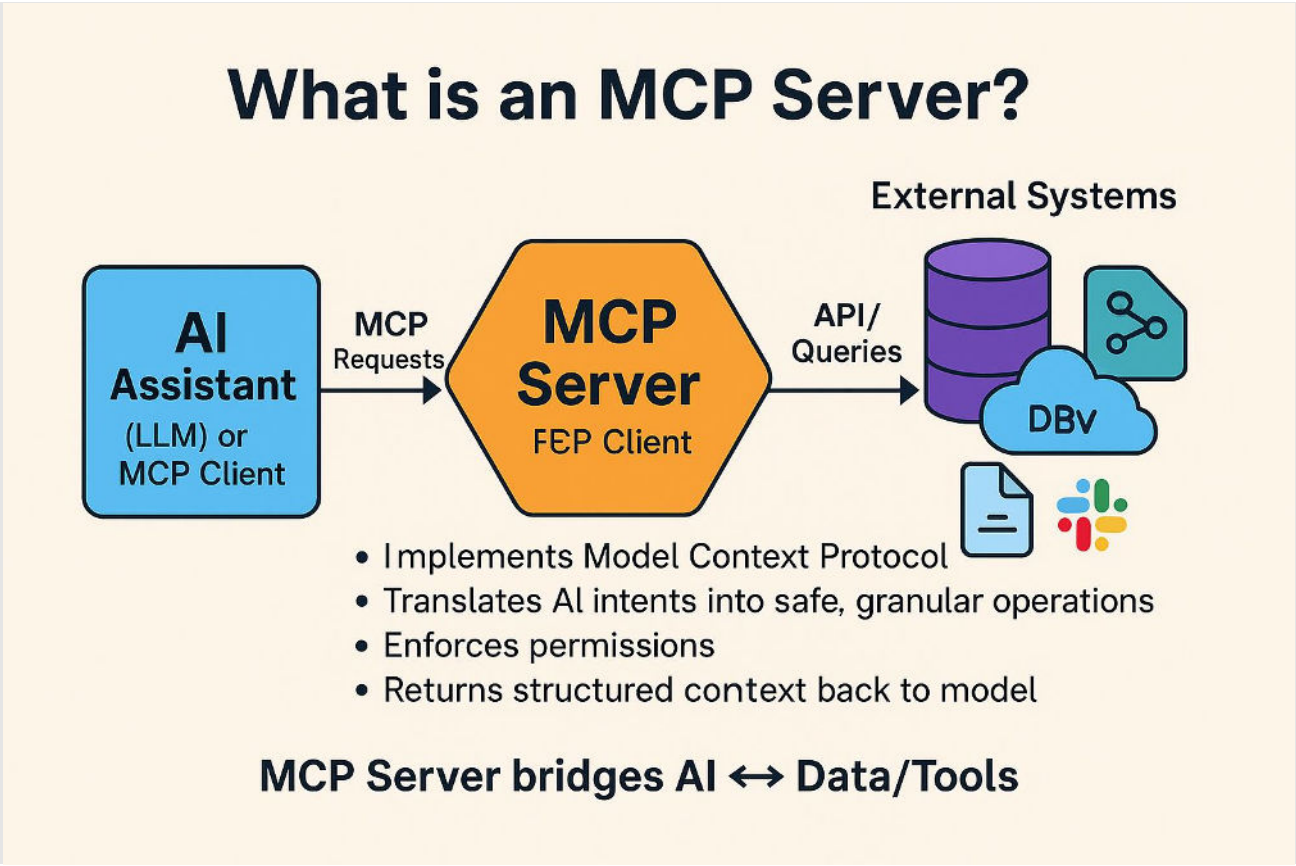
Use cases

Scenario	Copilot
"What were last quarter's sales in Germany?"	M365 Copilot Chat or Cowork
"Find the right report for me"	Cowork slightly stronger because of Fabric IQ discovery
"Write an email based on KPI results"	Cowork or M365 Copilot Chat
"Create DAX measures"	Power BI Desktop Copilot
"Design a report page"	Power BI Desktop Copilot
"Document a semantic model"	Power BI Desktop Copilot
"Analyze Power BI data already loaded into Excel"	Excel Copilot

- M365 Copilot Chat and Cowork:
  - Evolve into consumers of Power BI/Fabric data
- Power BI Desktop Copilot
  - Authoring and development assistant for reports and semantic models

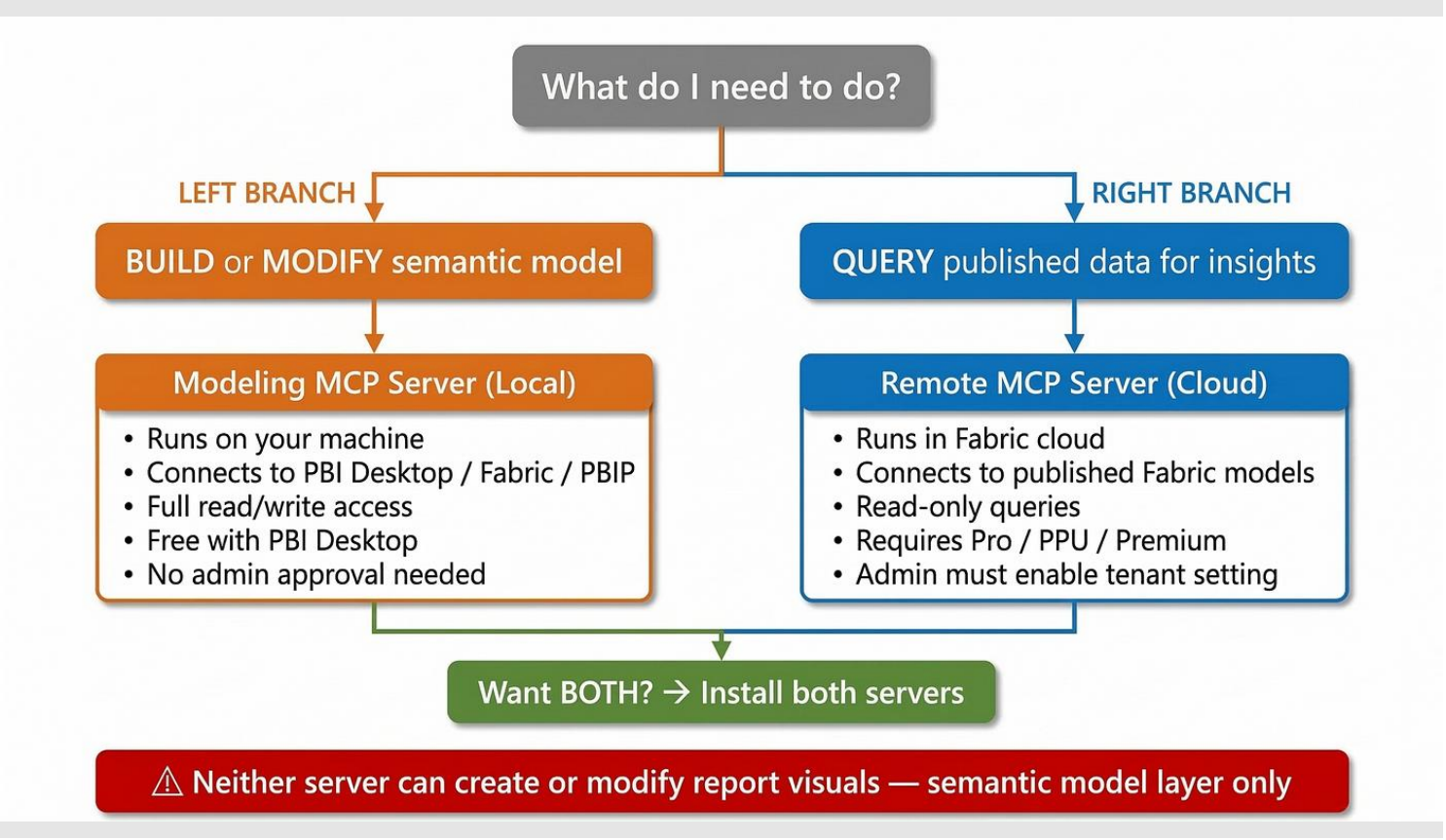
Copilot Power BI Development

MCP Server



- MCP
  - Model Context Protocol
  - Open standard that lets AI agents discover and use external tools
- MCP Server
  - Program that exposes specific data, tools, and prompts to AI applications
- Power BI
  - Provide agent
    - Access to semantic models
    - Query capabilities

2 Power BI MCP Servers

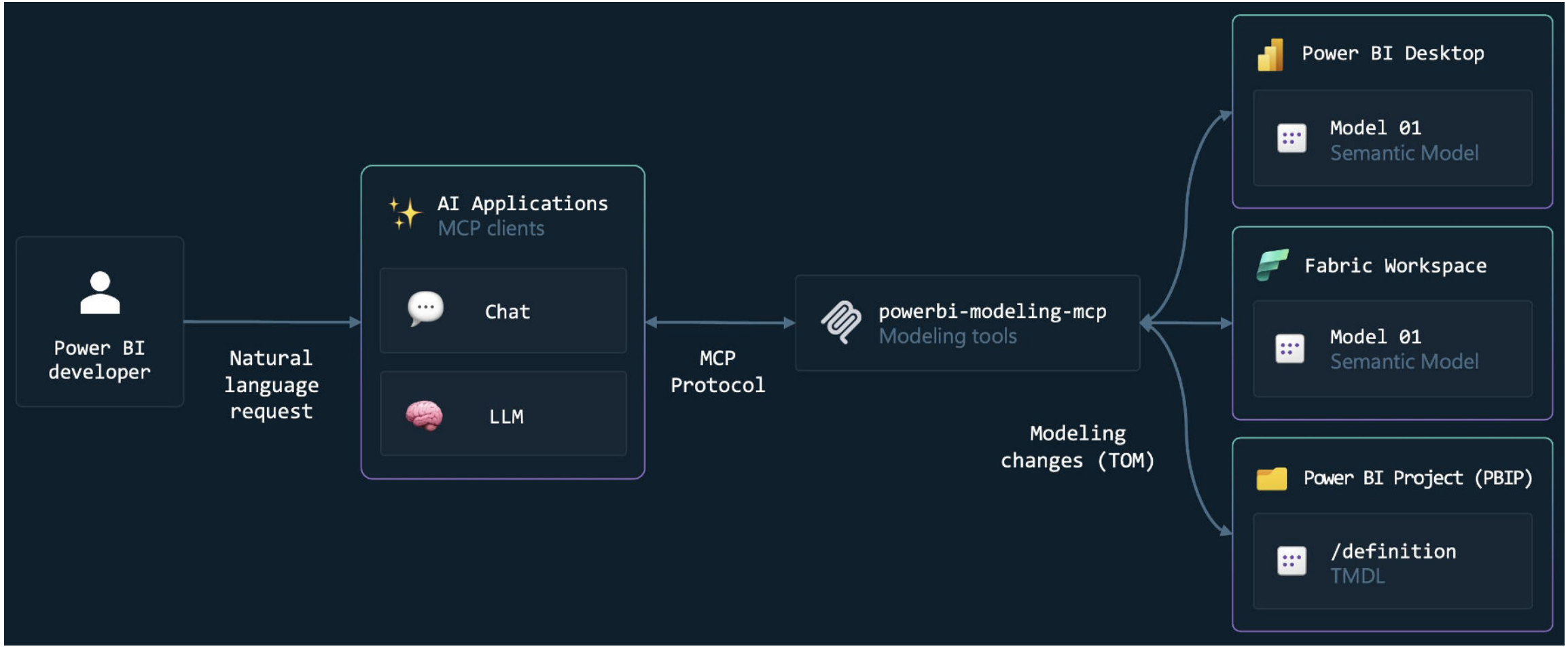


- Local MCP Server
  - Power BI modeling MCP Server / Power BI Authoring MCP Server
  - Focuses on modeling and development
  - Report developer
- Remote MCP Server / Fabric IQ MCP Server
  - Focuses on
    - Querying data
    - Generating insights from existing semantic models
  - Analyst consumption

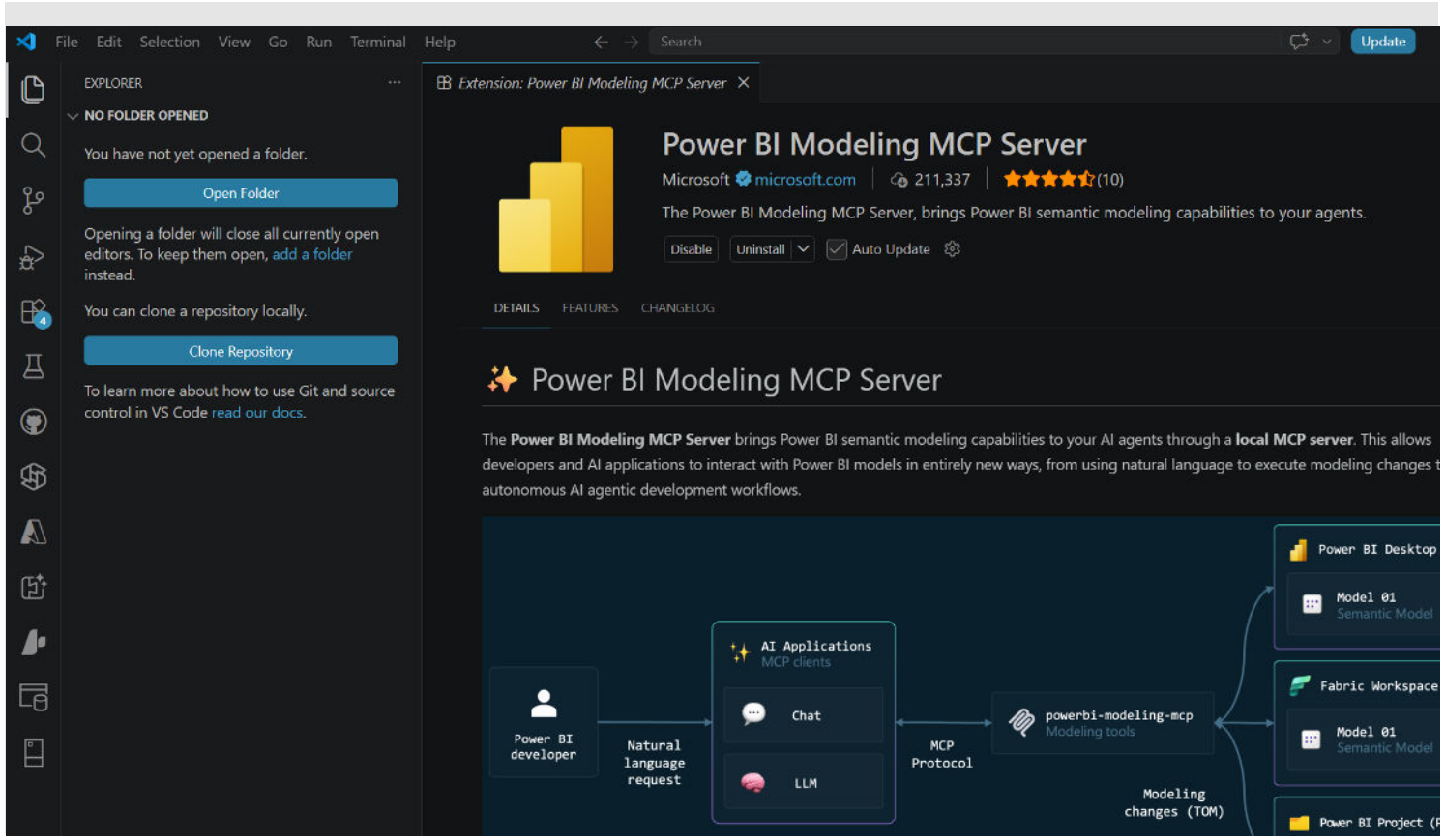
Demo

Create Northwind star from Visual studio code using Copilot and the MCP Server

Power BI Modeling MCP Server



Power BI Modelling MCP Server



- Install Visual Studio Code
- Install Power BI Modeling MCP Server extension
- Install GitHub Copilot and GitHub Copilot Chat

MCP capabilities



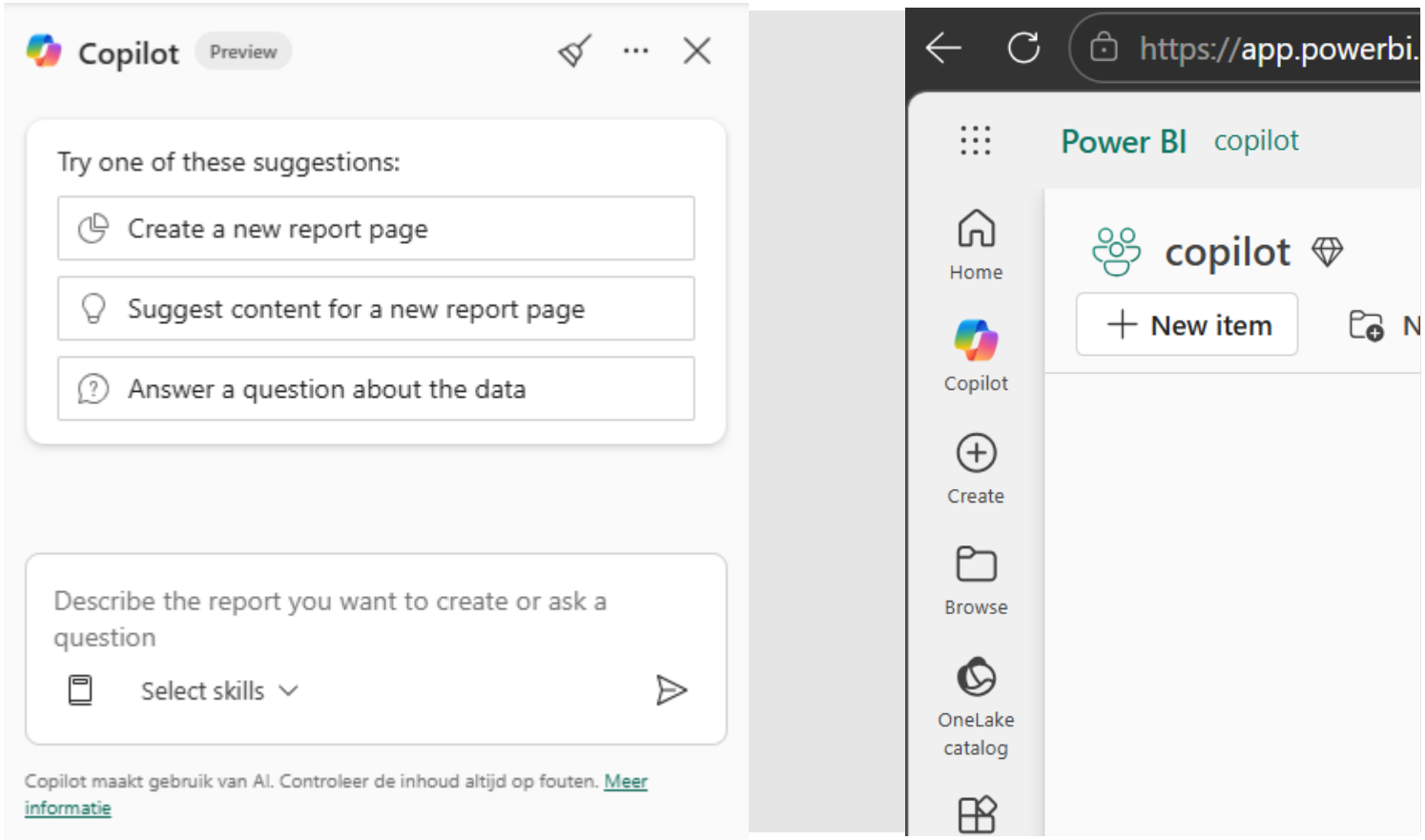
- Use natural language to
  - Build / Modify Semantic Model
    - Create, update, and manage
      - tables, columns, measures, relationships,…
  - Power BI Desktop, Fabric semantic models
- Bulk Operations at Scale
  - Execute batch modeling operations on hundreds of objects simultaneously
    - Bulk renaming, bulk refactoring, model translations, or model security rules
    - Transaction support and error handling
- Apply modeling best practices
  - Evaluate and implement modeling best practices
- Agentic Development Workflows
  - Supports working with TMDL and Power BI Project files
  - Let AI agents autonomously plan, create, and execute modeling tasks
- Query and Validate DAX
  - Execute / validate DAX queries against model

MCP limitations



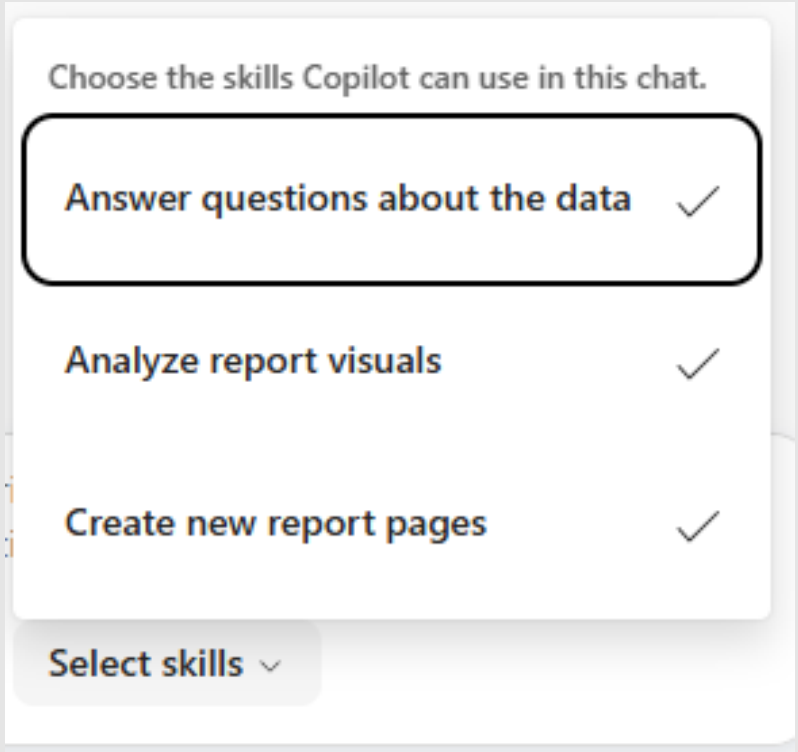
- MCP server primarily builds and handles the underlying semantic model architecture
  - Measures
  - Columns
  - Relationships
  - Metadata
- Once Copilot sets up model, open Power BI Desktop
  - Use native built-in Copilot for Power BI to generate actual visuals

Copilot in Power BI



- Enabled by default
  - Can be turned off (Fabric admin portal)
- Features can be
  - Generally available
  - Preview
- Power BI Desktop
  - Report agent Copilot pane
    - Right side of report
    - Generally available
- Power BI Service
  - Standalone Power BI agent
    - Power BI left navigation
    - Preview
- Power BI app
  - Agent
    - App's left navigation menu
    - Preview
- See Privacy, security, and responsible use for Copilot in Power BI

Copilot in Power BI Desktop



Use Copilot in Power BI Desktop for

- Answering questions about the data
  - Translates question into query
  - Executes query against data model
  - Used when asked specific figures
    - E.g. What is total sales
  - Results in 1 visual answer
- Analyzing report visuals
  - Produces text summary or insights about visuals
  - Used when asked for insights
    - E.g. Explain main insights
  - Results in written summary
- Creating new report pages

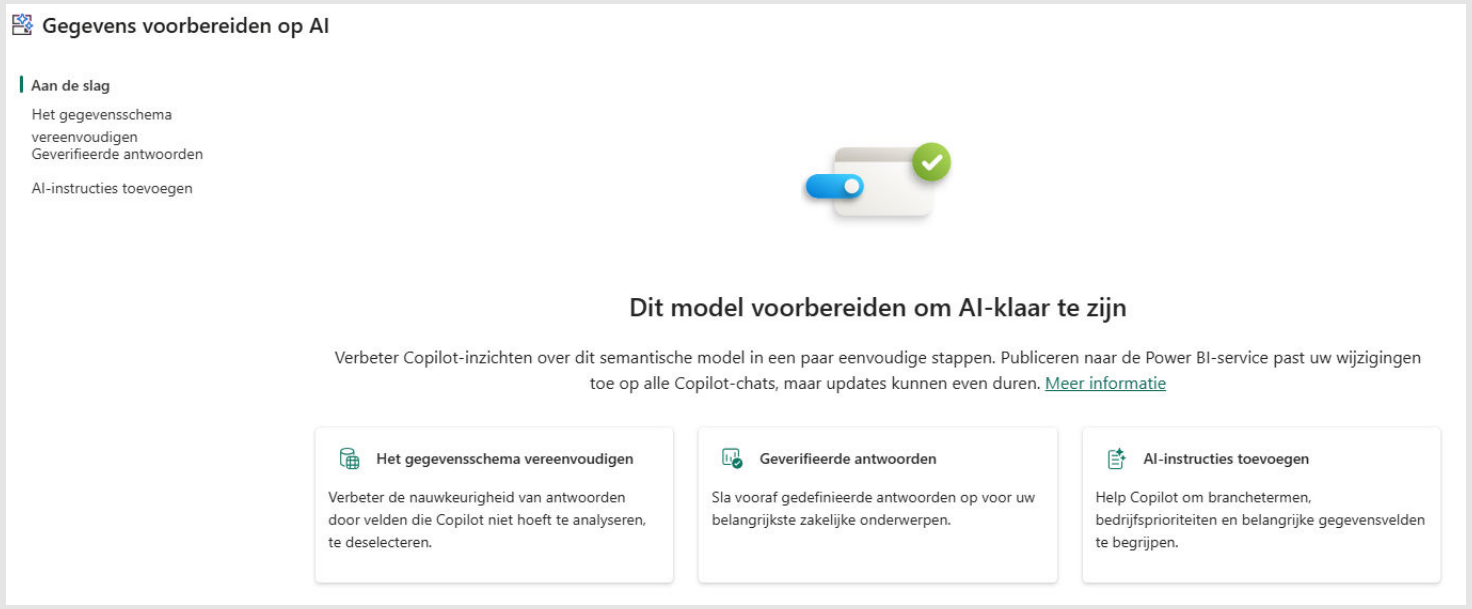
Narrative visual

```
Top Category Narrative =
VAR CategoryName =
    MAXX(
        TOPN(
            1,
            ALL('Dim_Product'[Category]),
            [Total Sales]
        ),
        'Dim_Product'[Category]
    )
RETURN
    "The best-performing category is "
    & CategoryName
    & " based on Total Sales."
```

Optimize for narrative

- Well-described semantic model metadata
- Prep data for AI instructions
- Dedicated narrative measures

Prepare data



- Simplify data schema
  - Hide unnecessary columns
- Verified answers
  - Add questions to visuals
- Add AI instructions
  - Add descriptions to tables and columns

Demo

Use Copilot in Power BI Desktop

Demo

Deploy

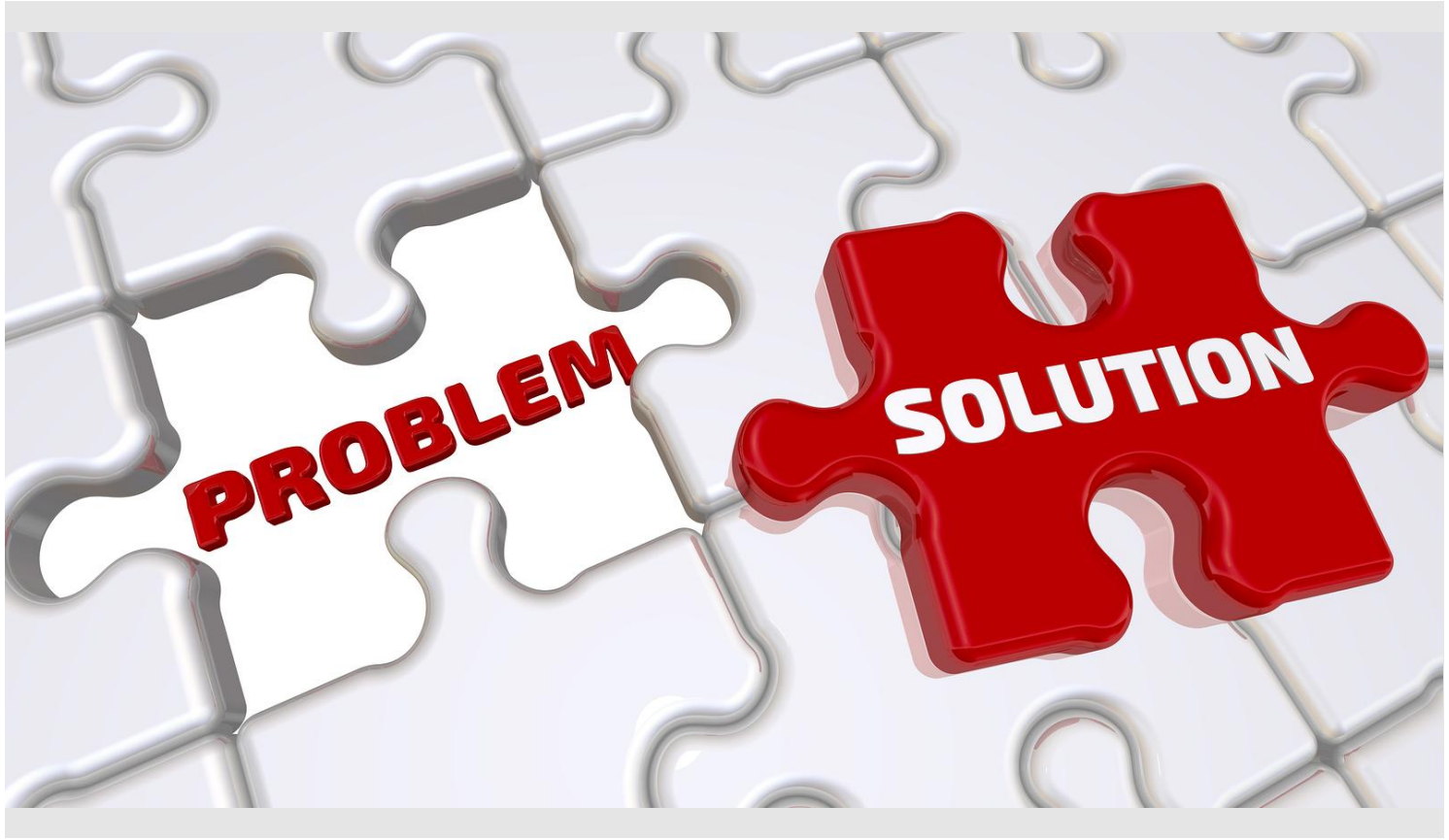
Approved for Copilot



- Semantic model setting

Fabric IQ MCP Server (Query Layer)

Fabric IQ MCP Server



- Problem
  - Business users have questions
    - They do not know DAX
  - Analysts
    - Know model + DAX
    - Spend time answering
      - Repetitive questions
      - One-off questions
  - Using predefined reports
    - May not exist
    - Not found
    - Time consuming to find and open
- Solution
  - Natural language to query Semantic models
  - Technically: MCP Server

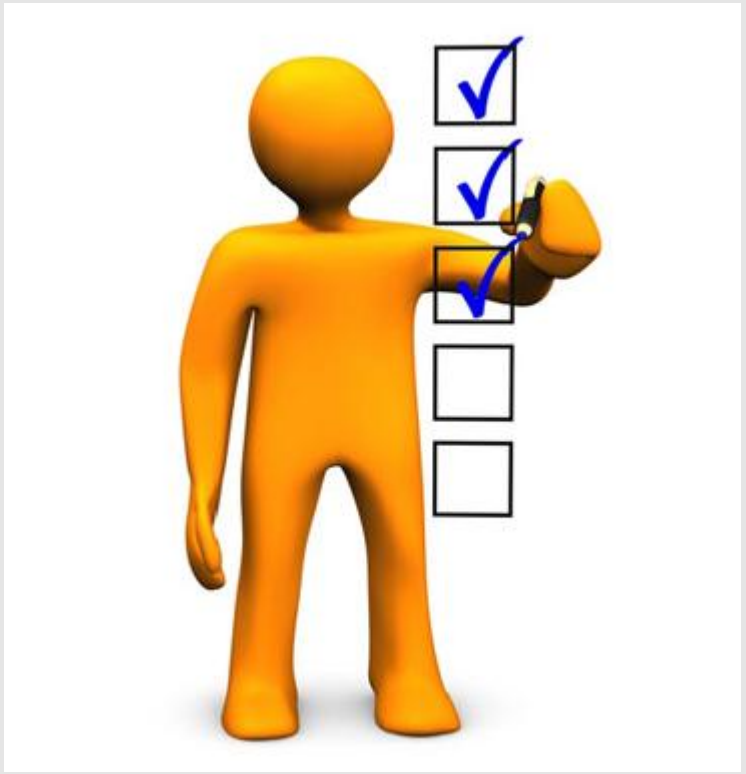
Copilot Studio

https://copilotstudio.microsoft.com



- Development platform
  - Graphical, low-code
  - Build, customize, and manage
    - Agents
    - Workflows
    - Chatbots
- Agents
  - Specialized chat
  - Can consist of:
    - Skills
    - Tools
      - E.g. Power BI MCP Server
    - Knowledge
    - Connected agents
    - Memory

Prerequisites



- Power BI tenant setting
  - Users can use the Power BI Model Context Protocol server endpoint (preview)
- Create App registration for MCP server in Entra
  - Get
    - Client ID
    - Tenant ID
    - Secret
  - Add permissions
    - Dataset.Read.All
    - MLModel.Execute.All
    - Workspace.Read.All
- Add tool to Copilot Studio
  - Authentication = OAuth
    - Use values from App registration

Demo

Create Agent using MCP Server

Recap

Session recap – Power BI future



- There will always be
  - The need to ask questions based on YOUR data
  - The need to communicate / share insights
- There will always be need for Power BI!

- Development:
  - Semantic models more important than ever
  - Prep data for AI
  - Use MCP modeling server
- Data Analysis:
  - Natural language instead of DAX
  - Native Copilot in Power BI
  - Custom Copilot Agents using Remote Power BI MCP Server

Can Copilot be trusted?



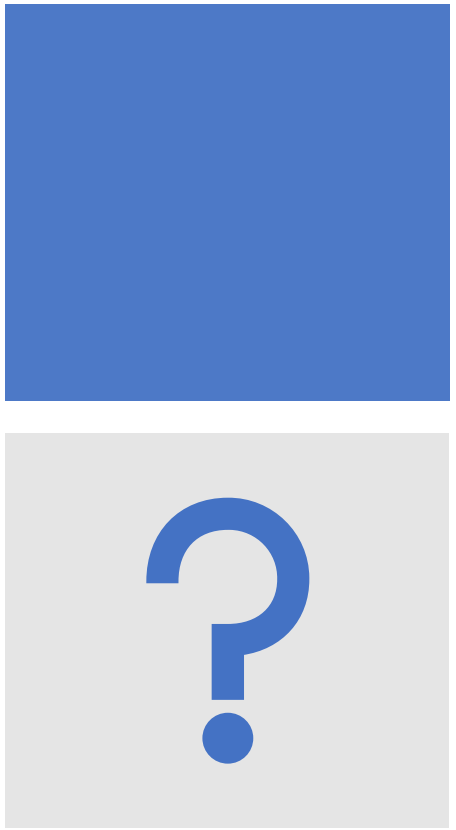
- Strengths
  - Semantic model grounding
  - Verified answers
  - RLS respected
  - Existing governance
- Limitations
  - Can misunderstand prompts
  - Metadata quality matters
  - Human review remains required

What changes for professional?



- Less focus on
  - Building simple reports
  - One-off analysis requests
- More focus on
  - Semantic modeling
  - Governance
  - Metadata
  - AI enablement
  - Business definitions
  - Agent design

Questions ?



Thank you

Peter ter Braake

trainsql@live.nl