

From Dashboards to Dialogues

Reinventing Data Interaction with AI



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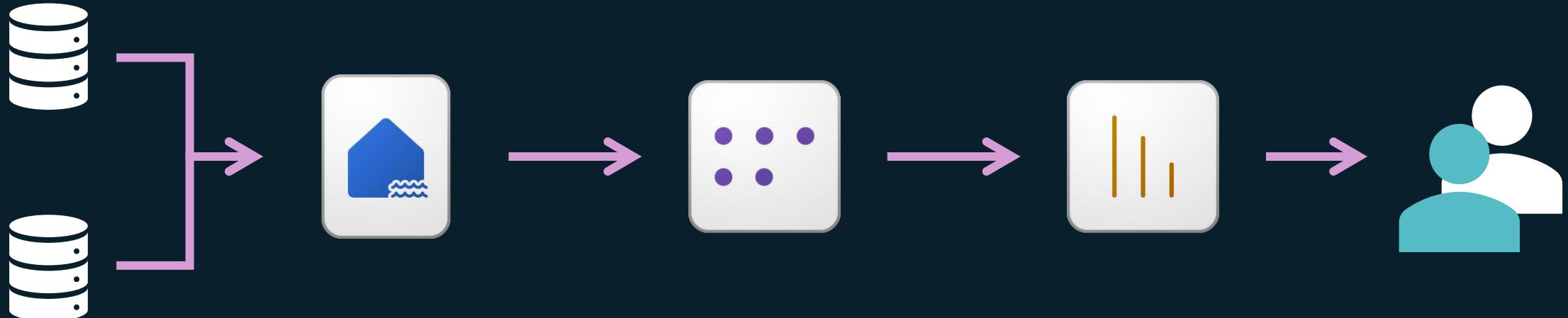
FAVORITE STUFF:



Understanding data interactions

Typical analytics solution today

Simplified overview

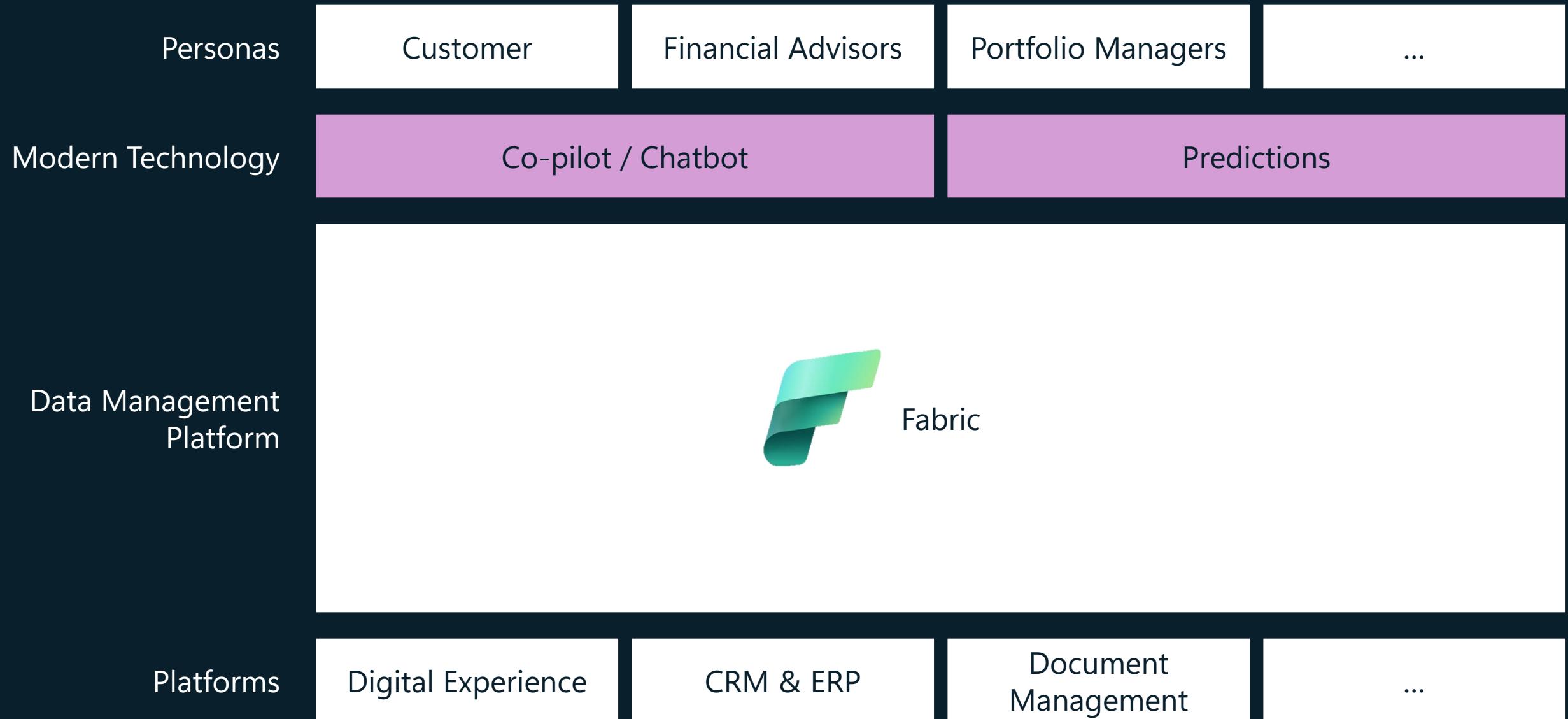


Why should I open a report
to get to my insights?



What if you could **chat** with your data?

Setting a proper data foundation

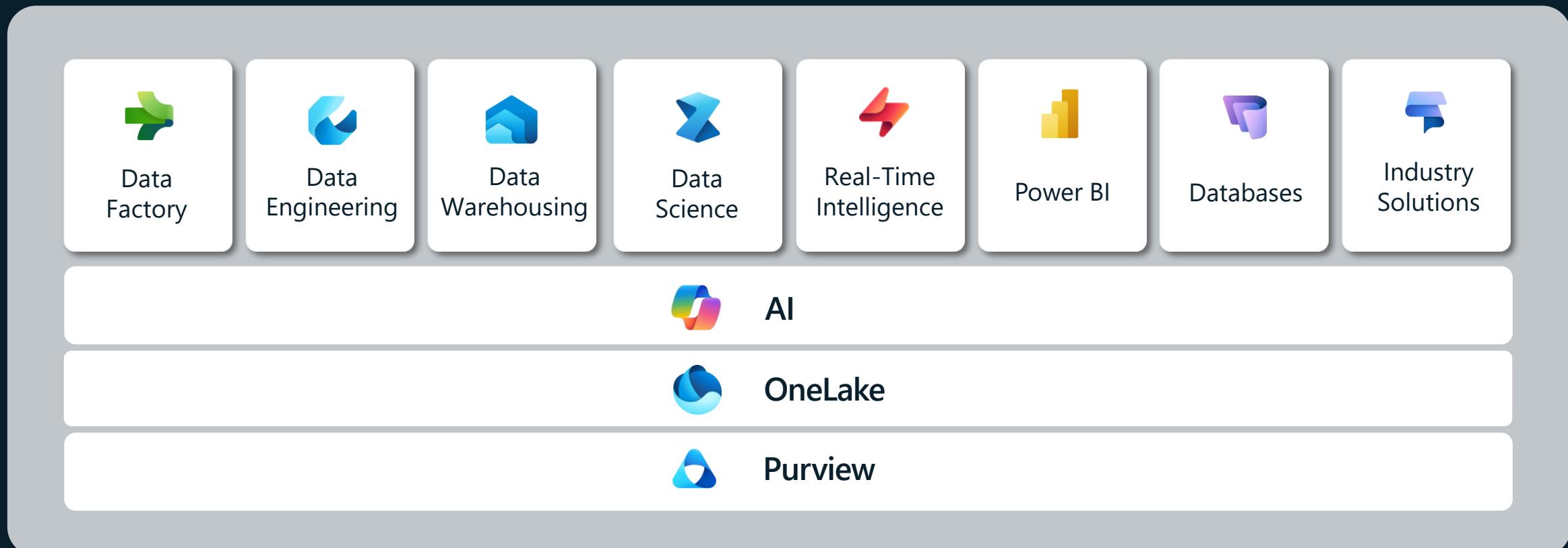


Set a proper foundation!
Cause nobody wants to build a
house on quicksand, right?



DANGER KEEP OUT
UNSTABLE BANK
QUICKSAND
STRONG CURRENT

Microsoft Fabric as data foundation



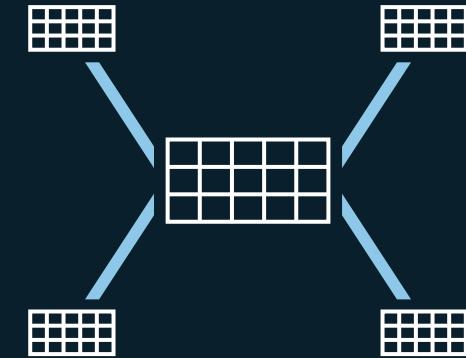
A decent data solution is more important than ever!



Structured platform
striving for a single
source of truth



Transformation
done upstream



Semantics and
business logic
added

Without data...
there is no AI!

Exploring solution areas

What are the alternatives to copilot?

What can you conclude from
the orders placed versus the
orders shipped?



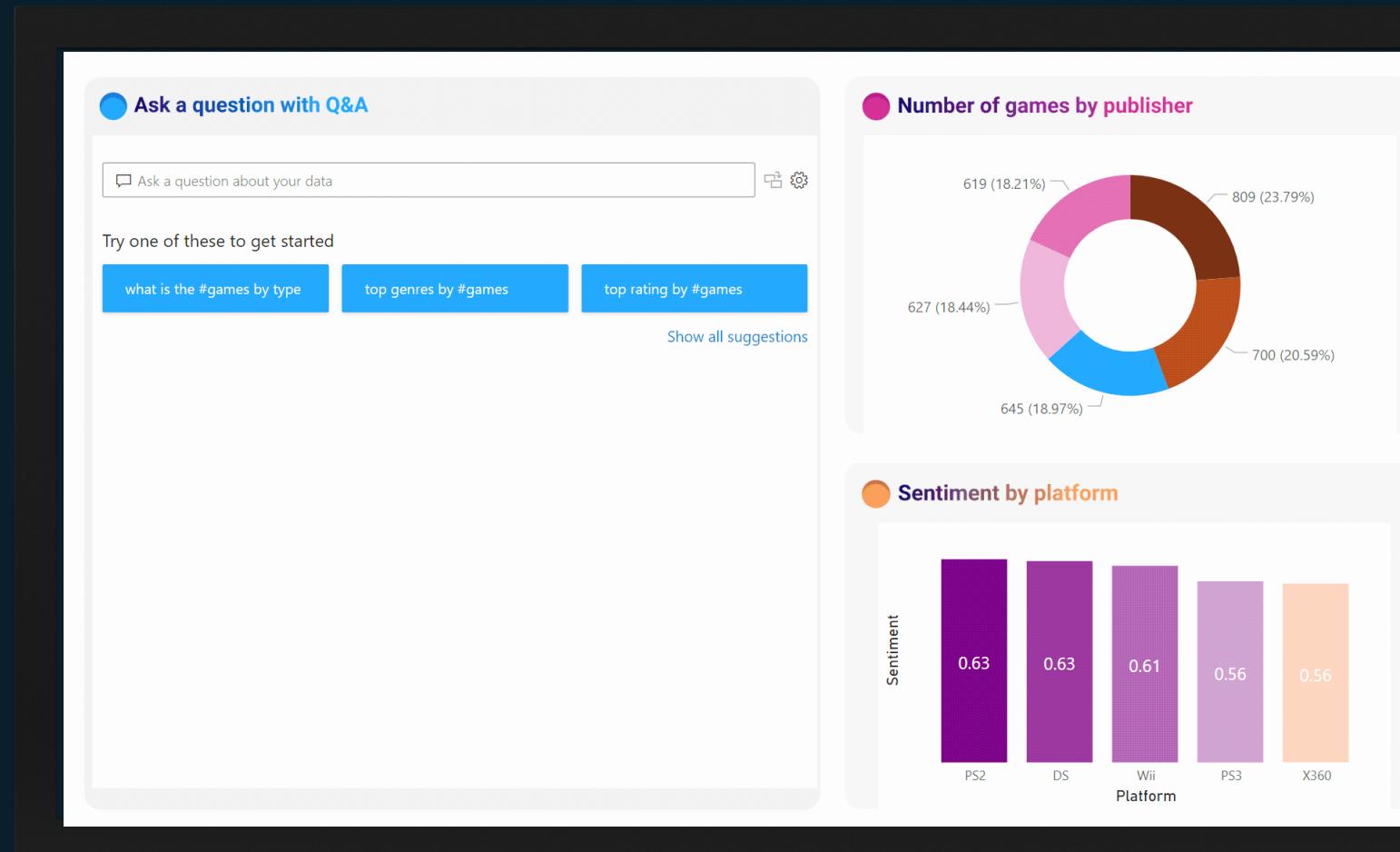
Power BI Q&A

Q&A Visual

Exact string matching between prompt and Semantic Model

Based on:

- Tables
- Columns
- Measures
- ... other model objects



Q&A training

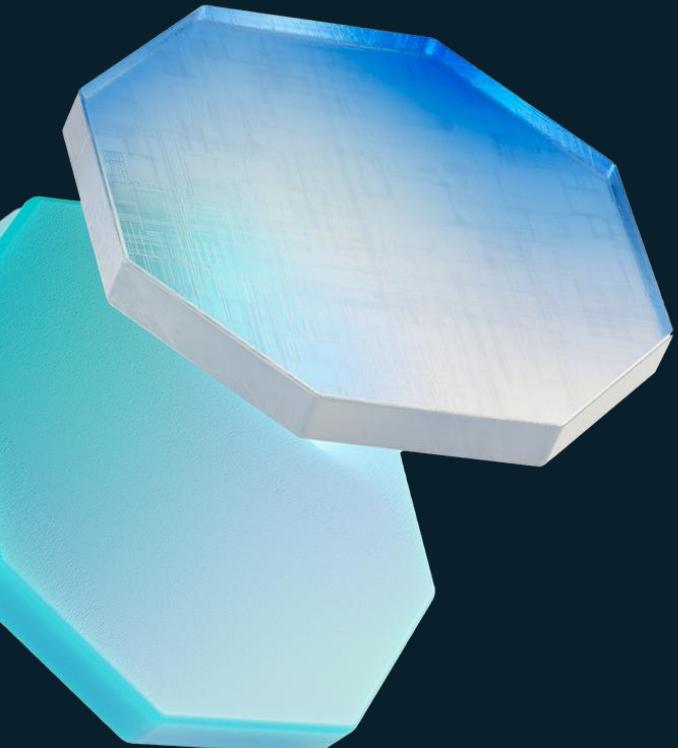
Overall setup

- Training by looking at previous questions & answers from users
- Fields can be excluded from potential answers

Can be enriched by

- (Field) Synonyms & descriptions
- Linguistic schema

```
JSON Copy  
  
product_has_category:  
  Binding: {Table: Products}  
  Phrasings:  
    - Attribute: {Subject: product, Object: product.category}
```



Demo

Q&A visual

Copilot experiences

“IF THE ONLY TOOL YOU HAVE IS A HAMMER,
IT IS TEMPTING TO TREAT EVERYTHING
AS IF IT WERE A NAIL”



Should we hammer it
with Copilot?

Image from: <https://x.com/Vaccinologist/status/1622620533706588161>

Copilot in Fabric

Which copilot experiences do we have?



Copilot accelerated
experiences

Help me build stuff



AI-driven
insights

Summarize and find insights



Custom generative AI
for your data

Custom configured and build

Copilot in Fabric

Focused on the different workloads



Data Factory

Get intelligent code generation to transform data with ease and code explanations to help you better understand complex tasks.



Data Warehouse

Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.



Data Engineering & Data Science

Quickly generate code in Notebooks to help work with Lakehouse data and get insights.



Databases

Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.



Real-Time Intelligence

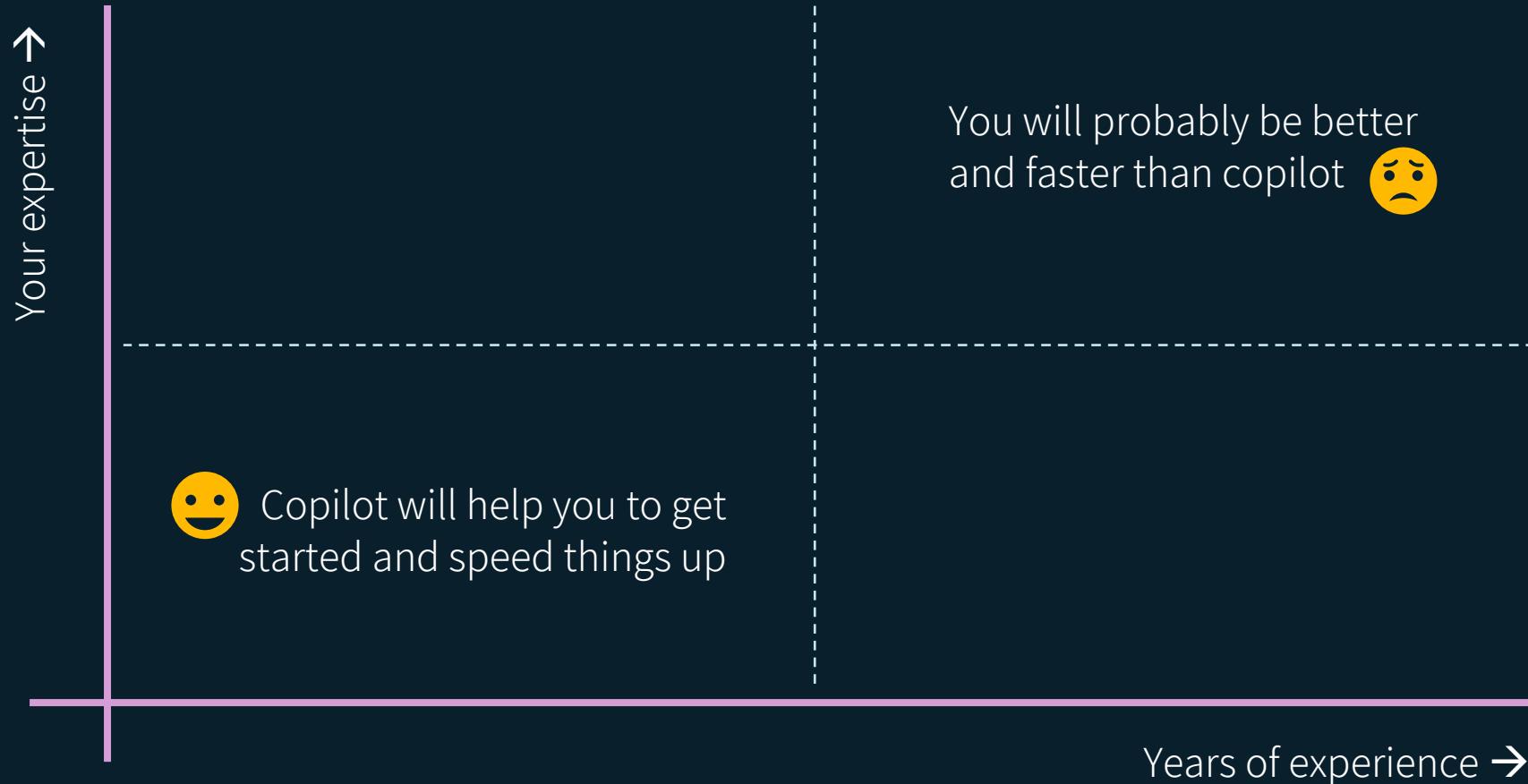
Translate questions into KQL queries that you can execute.



Power BI

Quickly create report pages, natural language summaries, and generate synonyms.

Who copilot is for



Copilot – Power BI use cases

The screenshot shows the Microsoft Power BI desktop application interface. On the left, there's a bar chart titled "Sales by Product Category" with a blue bar representing "Amount". The y-axis ranges from € 0M to € 10M. The chart lists categories: Bikes (€ 28.32M), Accessories (€ 700.76K), and Clothing (€ 339.77K). Below it is another bar chart titled "Orders and Shipments by Year and Quarter" for the years 2018, 2019, and 2020. The x-axis is "EnglishMonthName" and the y-axis is "# Orders and # Orders shipped". The legend indicates blue bars for "# Orders" and orange bars for "# Orders shipped". The chart shows a general upward trend in order volume over time.

In the center, a "Copilot" sidebar is open, titled "Copilot Preview". It contains a list of suggestions:

- Create a new report page
- Suggest content for a new report page
- Answer a question about the data

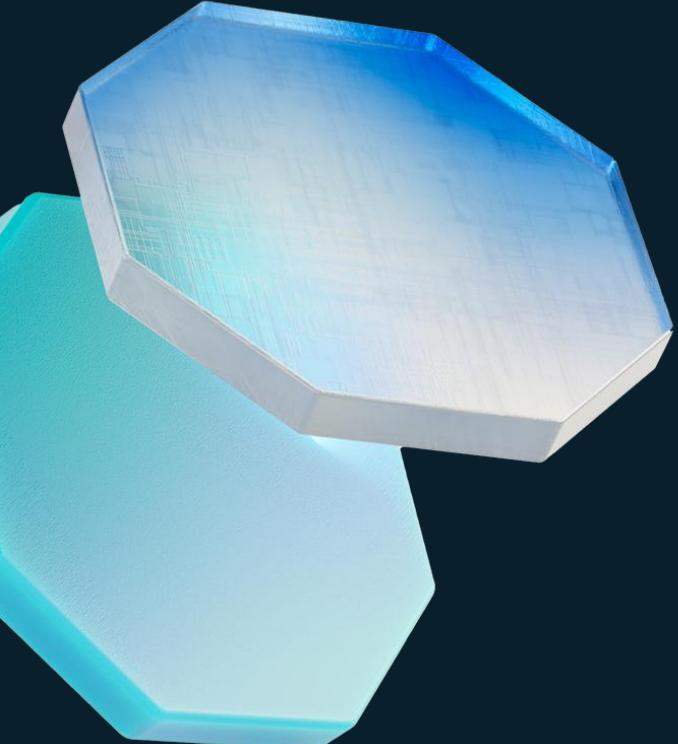
Below these suggestions is a button labeled "Summarize this Semantic Model for me". A detailed description of the semantic model follows:

The semantic model is designed to analyze internet sales data. It includes tables for sales transactions, customers, dates, products, and sales territories. The model allows for detailed analysis of sales performance, customer demographics, product details, and regional sales trends. One possible application is to create a report that tracks sales performance over time, identifies top-selling products, and analyzes customer purchasing behavior across different regions.

At the bottom of the Copilot sidebar, there are buttons for "Is this response helpful?", "Suggest useful visualizations for me", and a section titled "OK, here's a suggested outline for your report. Select any page topic to view details and start creating pages." This section includes a "Sales Performance Over Time" card with "Create" and "Edit" buttons.

How can copilot help you

- Summarize semantic model
 - Suggest report content
 - Create report page
 - Create summary visual (Smart narrative)
 - Add synonyms to model
 - Add descriptions to measures
 - Write DAX (& DQV)
- ... and more!*



Demo

Copilot consumer experience

Data Agents

Previously known as AI Skills

Introducing Data Agents



The **conversational Data Agent** allows users to interact with data naturally, enhancing accessibility and usability.



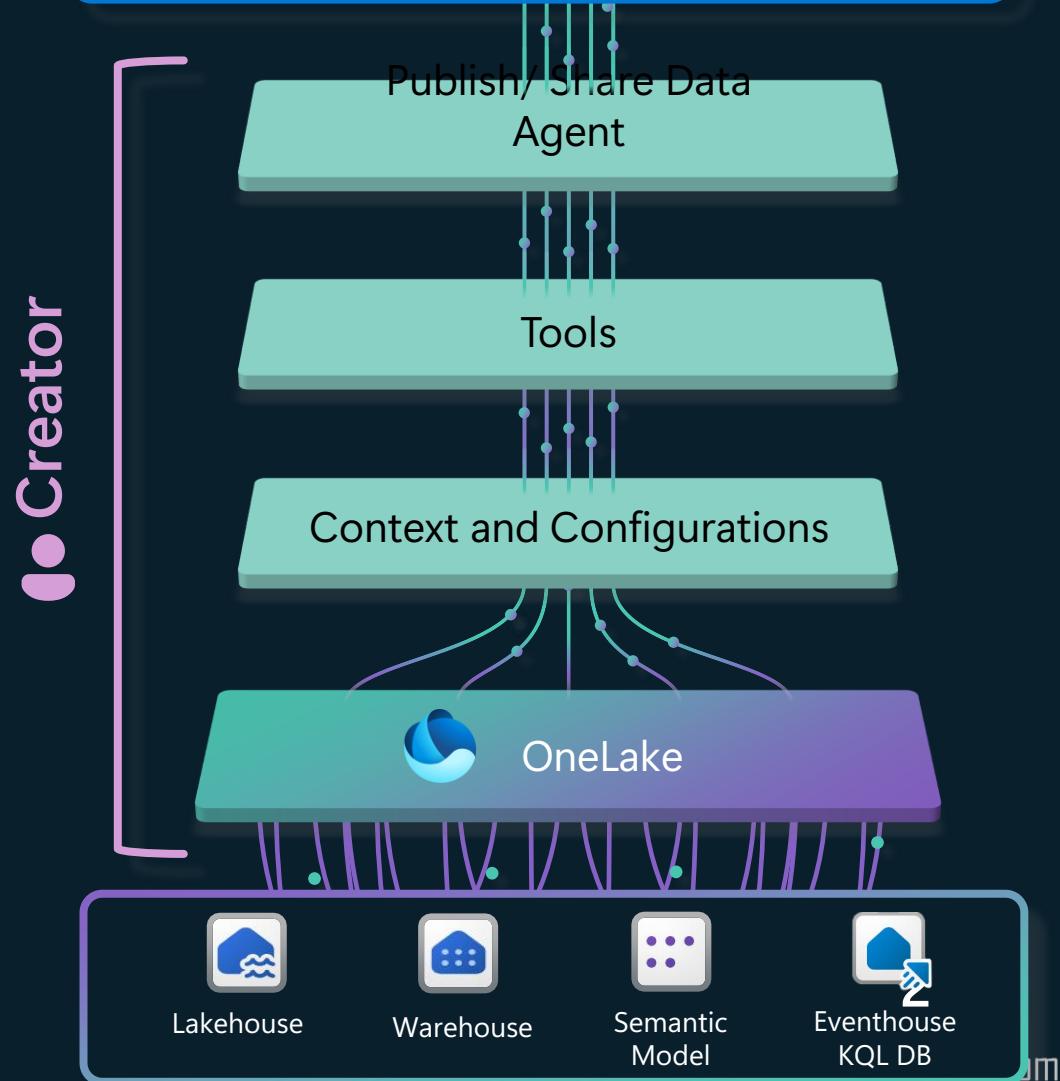
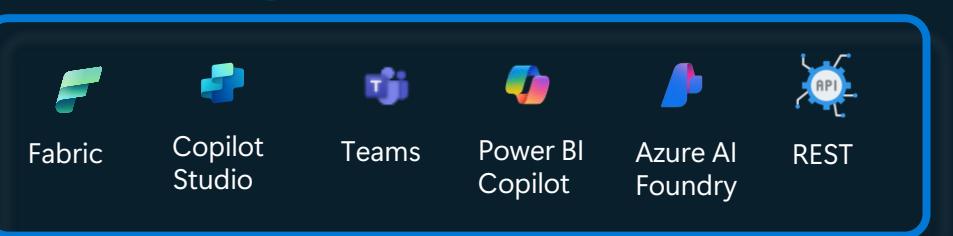
Improved chat canvas for creators with **new debugging capabilities**, making it easier to understand and refine responses.



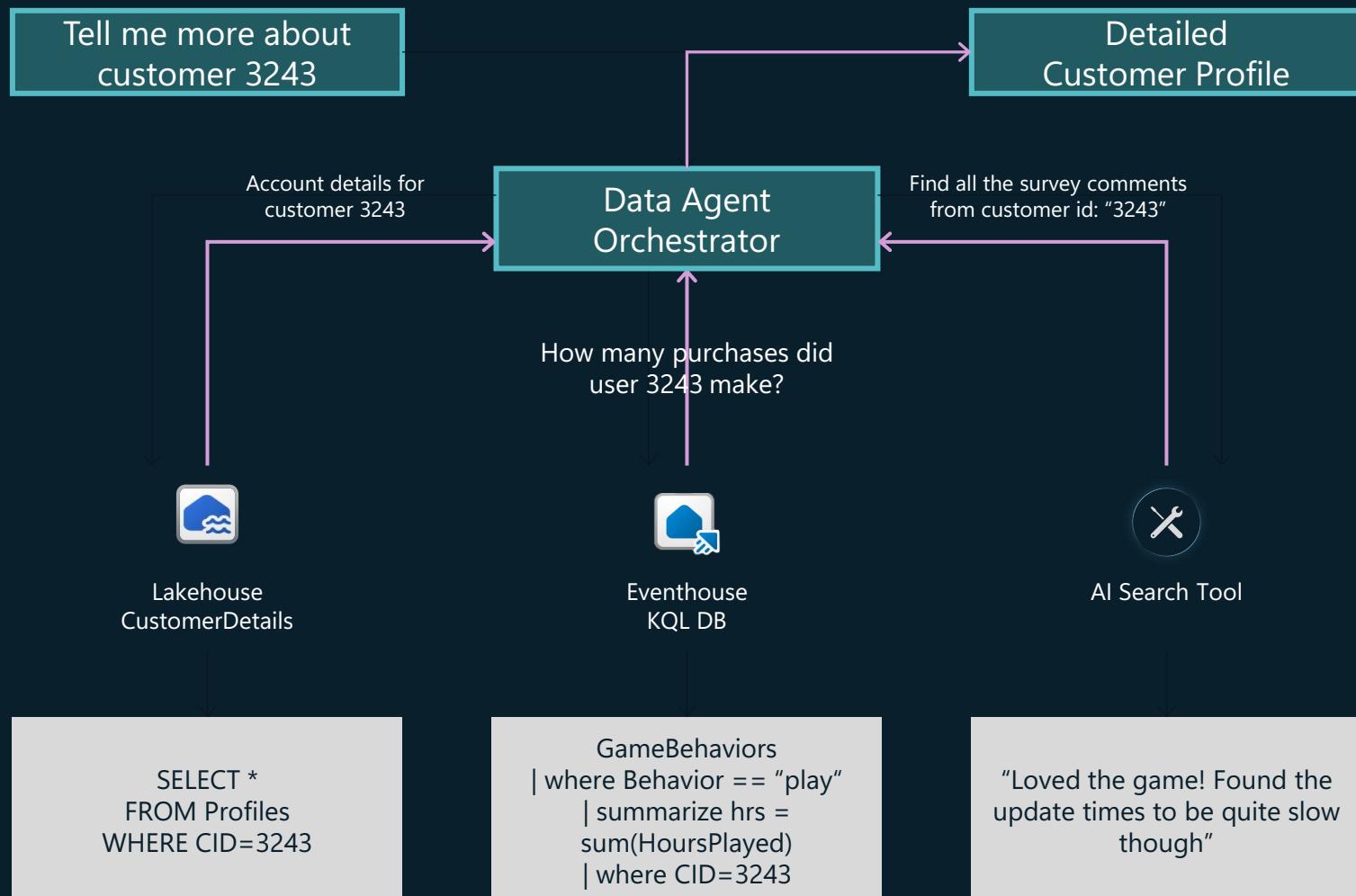
Seamlessly reason over multiple data sources, including **Lakehouses, warehouses, semantic models and Eventhouse KQL databases**.



Your Data Agent can be consumed inside and outside of Fabric. Stay tuned for **upcoming integrations** with Copilot Studio, Teams, Azure AI Foundry and your own custom applications.



Data Agent Architecture



1 The data agent delegates questions to specific tools or data sources.

2 Data Sources are specialized at taking a natural language question and generating a response – query or result.

3 Data Sources & Tools supply their response back to the orchestrator – allowing it to process the information and think about the next step or return the summarized result.

Understanding the Data Agent creator experience

The screenshot illustrates the macaw Data Agent creator interface with several callout boxes highlighting different features:

- Example queries**: Points to the AI instructions section where a query like "What is my total sales by product category?" is shown, along with its corresponding SQL code.
- Connected source tables**: Points to the Explorer sidebar, which lists connected databases and tables: sampledata (dbo, customer, date, product, productcategories, sales).
- Chat window**: Points to the bottom-left area where a user can "Ask a question to test the data agent's response".
- Notes to enrich model**: Points to the AI instructions section, specifically the "Agent instructions" field containing a note about displaying sales amounts as dollars.
- Reasoning for results**: Points to the "Data source instructions" section, which provides guidance for effectively using the connected data sources.
- Instructions for sources**: Points to the "sampledata instructions" field, which is intended for entering text in markdown format.

Creator configuration

Agent Instructions

Intended Use Cases:

- Specify which data sources to route for specific questions
- Guide how the agent interprets user intent

What to include:

- Map terminology to user intent
- Define steps for handling key questions
- Set response style and tone

Data Source Instructions

Intended Use Cases:

- Provide clarity on how to use each source
- Guide table selection for topics
- Ensure correct query logic

What to include:

- Descriptions of key tables & columns
- Recommended table usage for certain topics
- Example column values and filter patterns

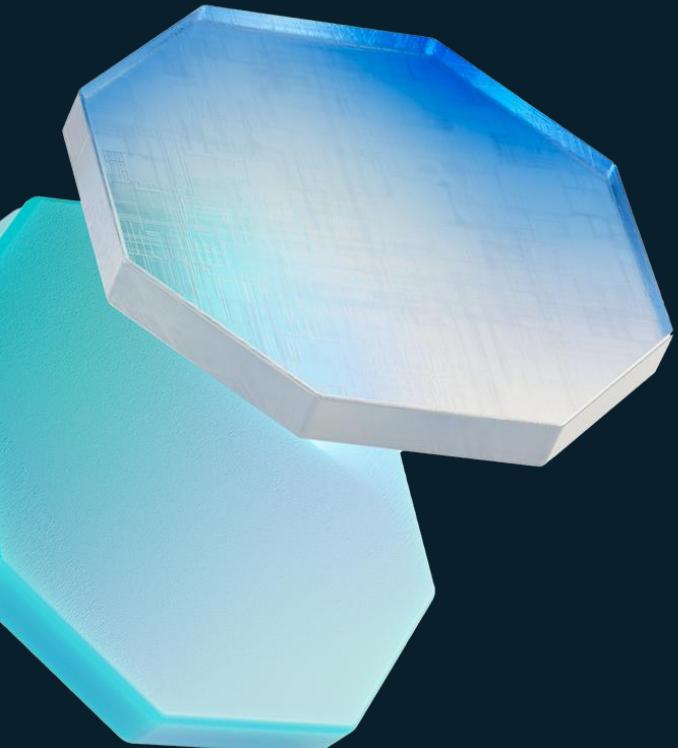
Example Queries

Intended Use Cases:

- Reflect advanced logic
- Examples should highlight join patterns or expected values

What to include:

- Representative set of questions a consumer may ask

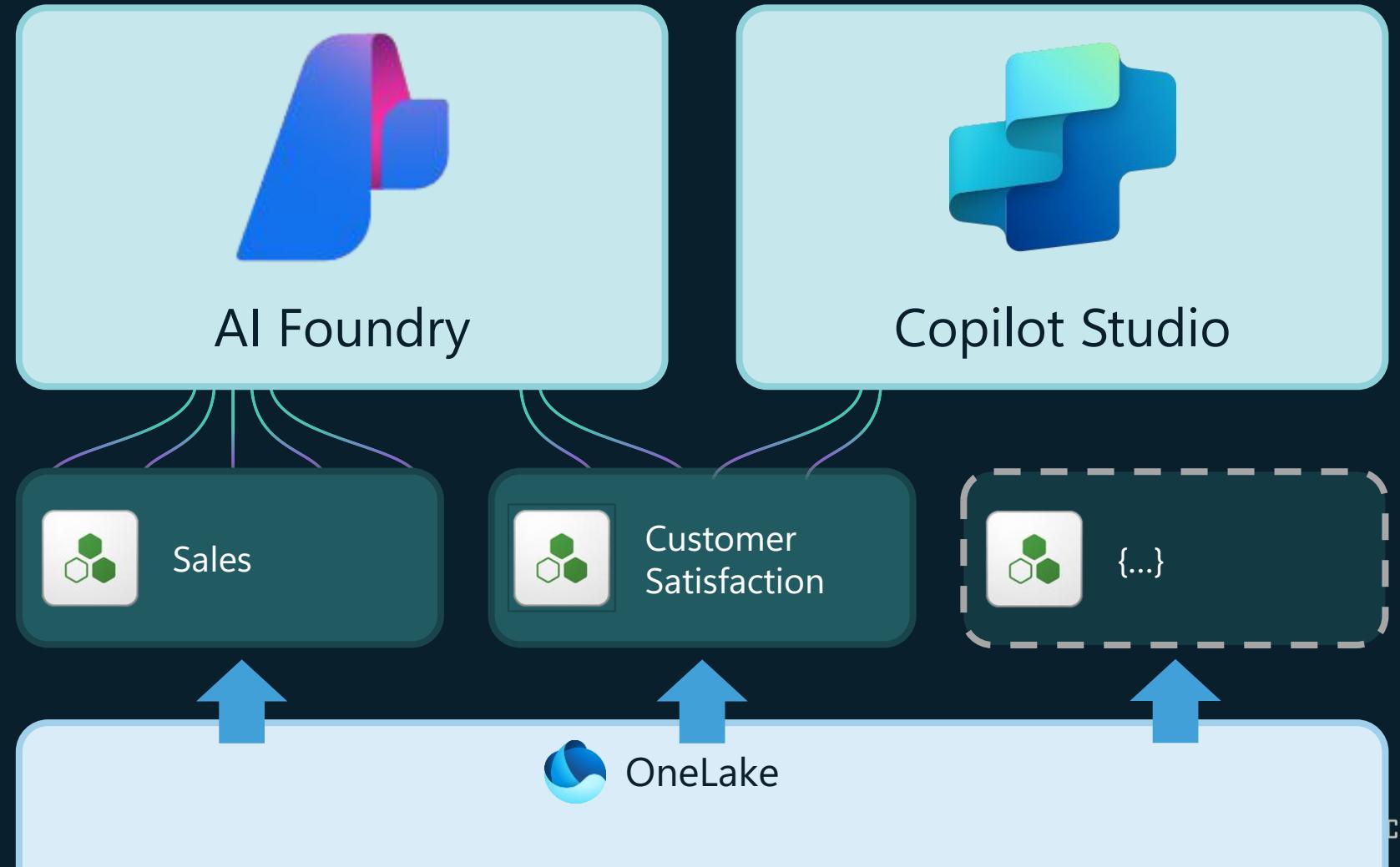


Demo

Data Agents

Agent architecture One to rule them all?

No!



Future of Data Agents – announced at FabCon Europe

Unstructured Data in the Data Agent

Private Preview

Leverage **built-in notebook utilities** to index PDFs and TXT files

Eliminate the need to provision or manage search resources

Select **Lakehouse folders** and ask natural language questions over unstructured data

Sign up for the Private Preview: aka.ms/unstructured-data-prpr

JOIN THE CONVERSATION #FABCONEUROPE25

Bring your own AI Search index

Sneak peak

Bring your own **AI search index** to a Fabric Data Agent

Use the built-in AI Search tool for **custom indexes**

Ask natural language questions over your AI Search index and **join** with other data sources

Register interest for PrPr: aka.ms/unstructured-data-prpr

JOIN THE CONVERSATION #FABCONEUROPE25

Evaluate data agents

Public Preview

Native support for **data agent evaluation** through the Fabric data agent SDK

Run structured evaluations using Python from notebooks

Validate accuracy before production deployment

Tune prompts for better performance

Benchmark improvements over time

New: Built-in utilities to help refine example queries and configurations

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CI/CD and ALM for Data Agents

Sept 2025

Support for data agents in **Git and deployment pipelines**

Configuration changes tracked for development and published versions

Lineage is preserved during pipeline deployments in Git-connected workspaces

Enables **Agent-Optimized** streamlined AI development

JUST RELEASED!



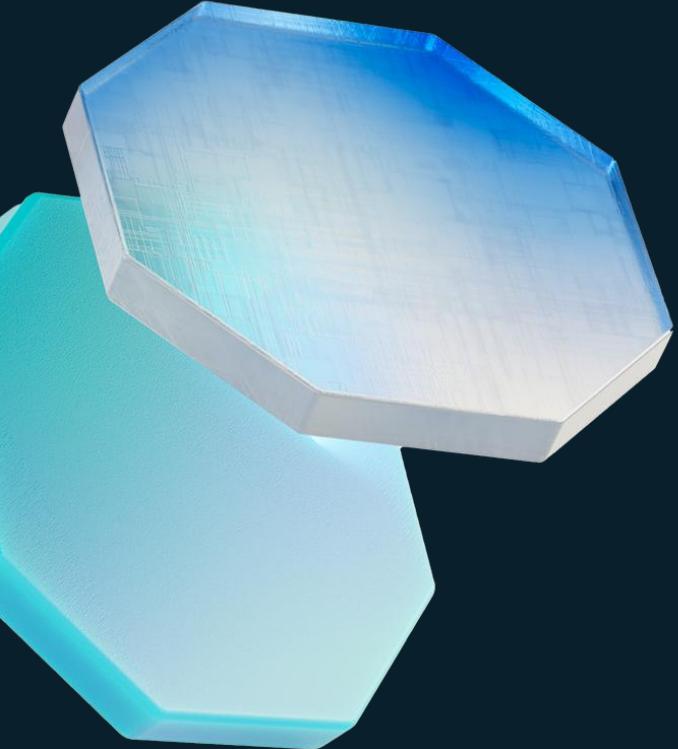
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Fabric Data Agent SDK

- **Programmatic Management:** Create, update, and delete Data Agent artifacts seamlessly.
- **Data Source Integration:** Easily connect to and integrate multiple data sources, for enhanced data analysis and insight generation.
- **OpenAI Assistants API Support:** Use the OpenAI Assistants API for rapid prototyping and experimentation.
- **Workflow Automation:** Automate routine tasks to reduce manual efforts and improve operational efficiency.
- **Resource Optimization:** Optimize configuration and management of Data Agent resources to better align with specific customer needs.

 Copy

```
%pip install fabric-data-agent-sdk
```



Demo

Data Agent SDK

Quality improvements

Keep in mind!
The answers will only be as
good as your data!

siso

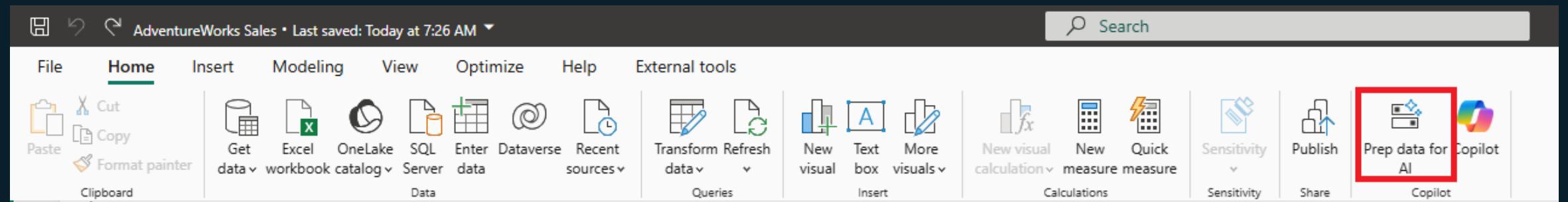
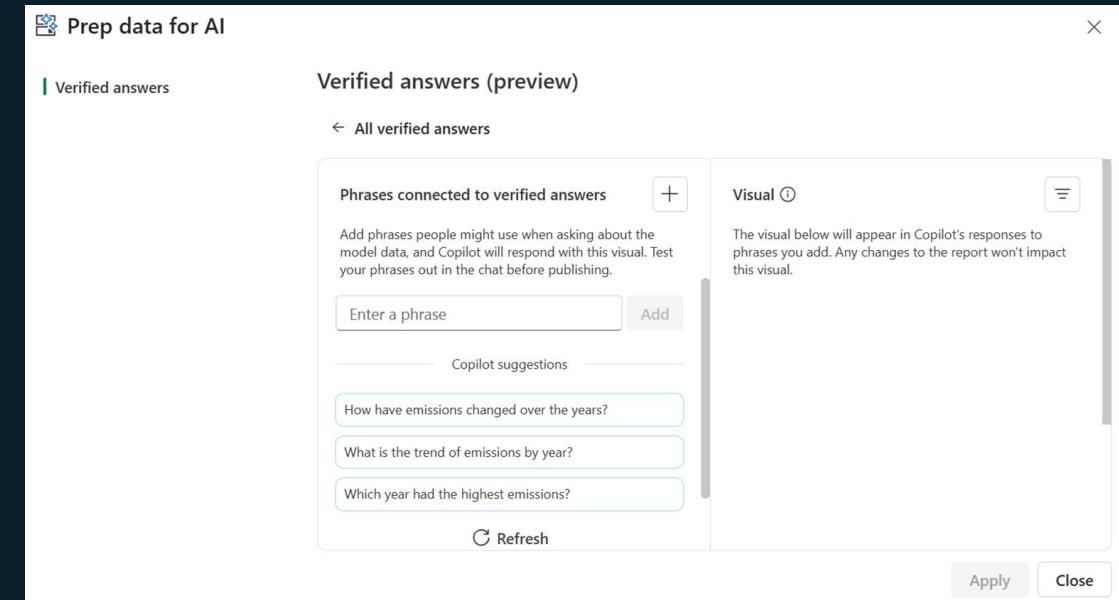
Shit In, Shit Out: If you're putting shit data into an experiment, you're going to get shit data out.

Your results are bubkes,
what did you expect? SISO!

ud

Prep data for AI

- Strongly advised to use Semantic Models as source, as that's where business logic is added!
- Allows authors to define a dedicated schema for Copilot (Power BI Desktop only).
- Can link common questions to specific visuals in a report.
- Allows you to provide AI instructions.
- Unified “Prep with your data” experience.



Meet users where they are

Tools we use day in, day out



Meet users where they are



Using Copilot Studio (Power Platform) to build custom agents to do anything



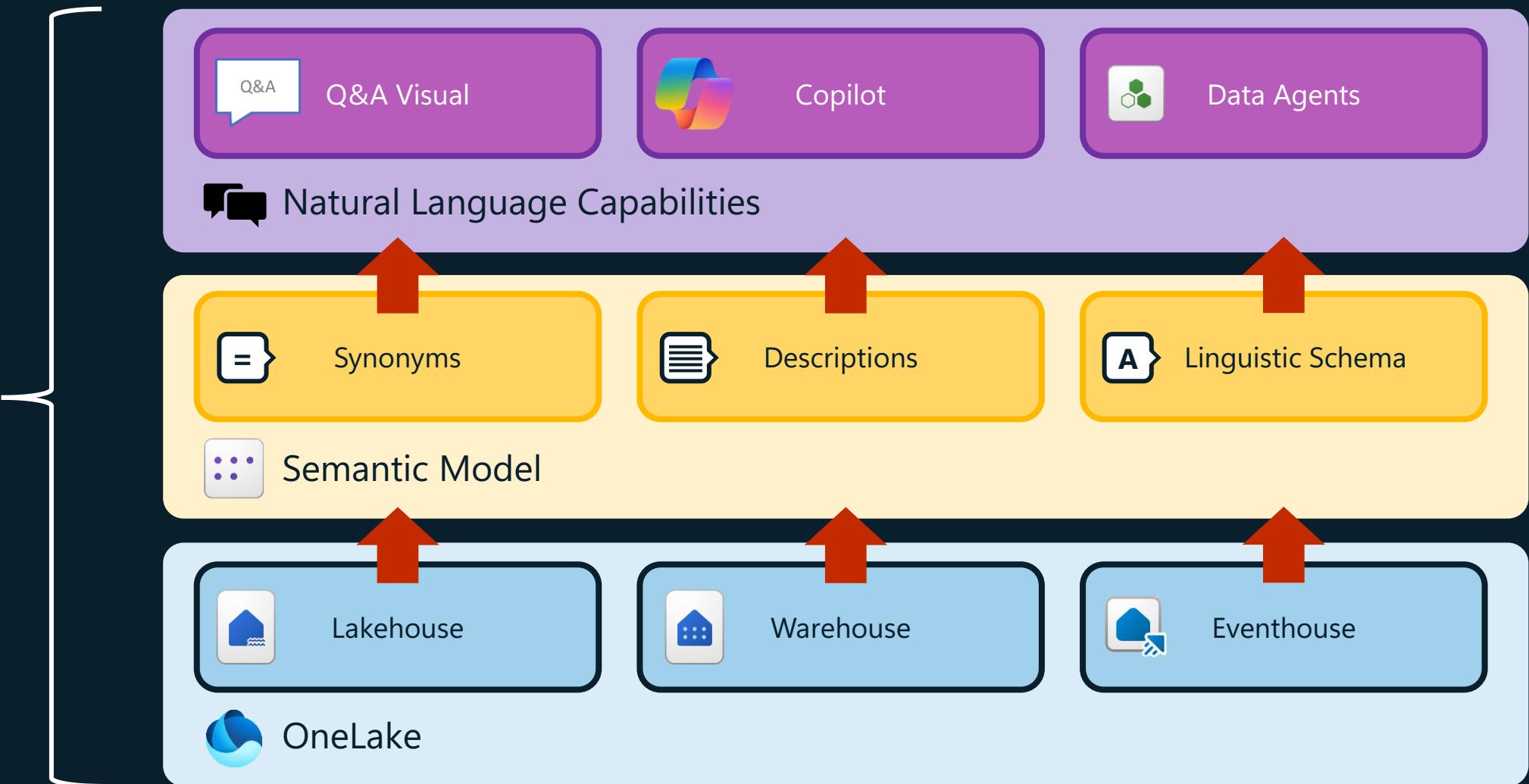
Use Fabric Data Agents as knowledge base



Integrate the agent into Microsoft Teams

The screenshot shows a Microsoft Teams interface. On the left, there's a vertical sidebar with icons for Activity, Chat (selected), Teams, Calendar, Calls, OneDrive, Microsoft 365, and Apps. The main area is titled "Chat" and shows a recent conversation with "AdventureWorks". The message from AdventureWorks says: "Hello, I'm AdventureWorks, a virtual assistant. Just so you are aware, I sometimes use AI to answer your questions. If you provided a website during creation, try asking me about it! Next try giving me some more knowledge by setting up generative AI." The user then asks, "How much sales did we make per year?". AdventureWorks responds with: "In 2017, total sales were \$104,304,245.76. In 2018, total sales were \$172,056,477.82. In 2019, total sales were \$288,695,882.05. In 2020, total sales were \$227,627,679.33". The user then asks, "So, what is my sales for the past 3 years?", and AdventureWorks replies, "Are you able to give me some details?". The timestamp for the messages indicates they are from December 2024.

Wrap up & take-aways



Key take-aways

Building a chat interfaces on top of your data

- A proper data foundation is key!
- Improve answer quality by using Semantic Models – including synonyms, descriptions and the linguistic schema

Data Agents (Data Agents) in Fabric

- ...allows for customization and training, compared to out of the box copilot
- ...only work on structured data (for now)
- ...generate NL2SQL, NL2KQL and NL2DAX
- ...loses accuracy if you use large schemas with dozens of tables

Copilot Studio / AI Foundry

- ...brings the experience to the users to meet them where they are
- ...has its own licensing structure

Most up to date list of limitations:

<https://learn.microsoft.com/en-us/fabric/data-science/concept-ai-skill>