From Dashboards to Dialogues

Reinventing Data Interaction with AI

Data Saturday Holland – October 4th, 2025

FROM DASHBOARDS TO DIALOGUES: REINVENTING DATA INTERACTION WITH AI

Why spend time digging through dashboards to find a KPI when you could just ask a question and get the answer instantly?

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Your guide in the Era of AI.

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At Macaw

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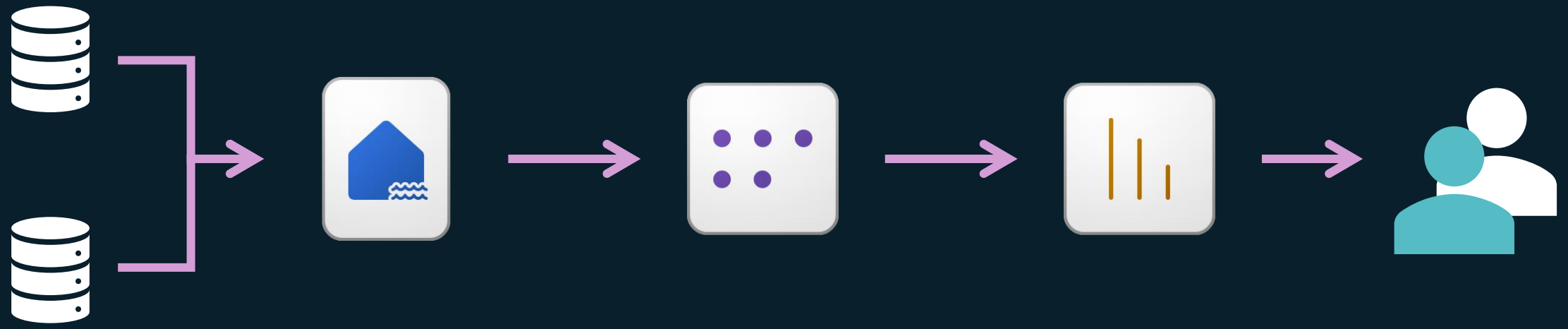
FAVORITE STUFF:

Understanding data interactions

Typical analytics solution today

Simplified overview



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

What if you could chat with your data?

Setting a proper data foundation

Personas	Customer	Financial Advisors	Portfolio Managers	…
Modern Technology	Co-pilot / Chatbot		Predictions	
Data Management Platform	Fabric			
Platforms	Digital Experience	CRM & ERP	Document Management	…

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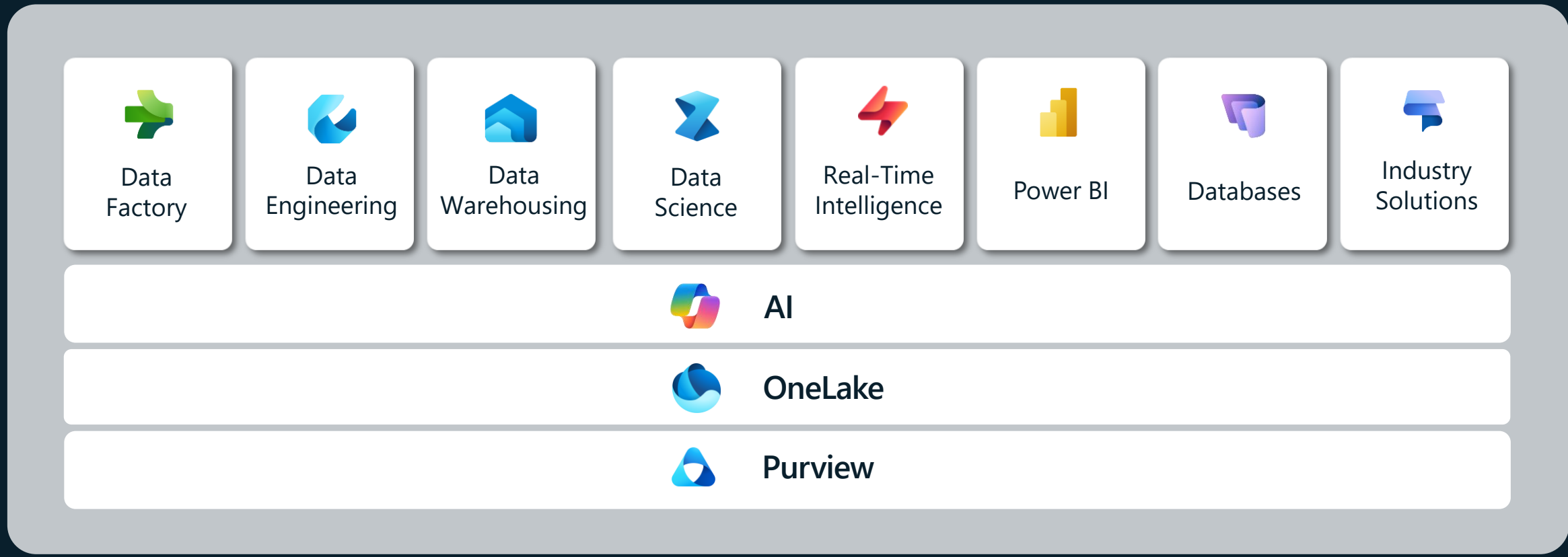
Set a proper foundation!

Cause nobody wants to build a house on quicksand, right?

Microsoft Fabric as data foundation



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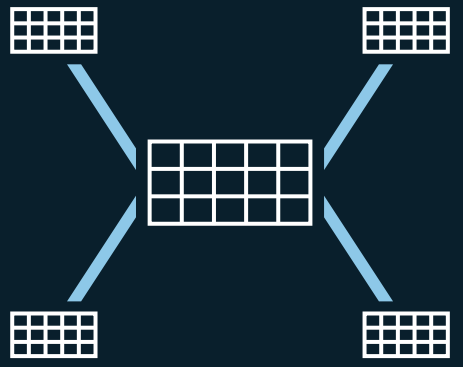
A decent data solution is more important than ever!

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

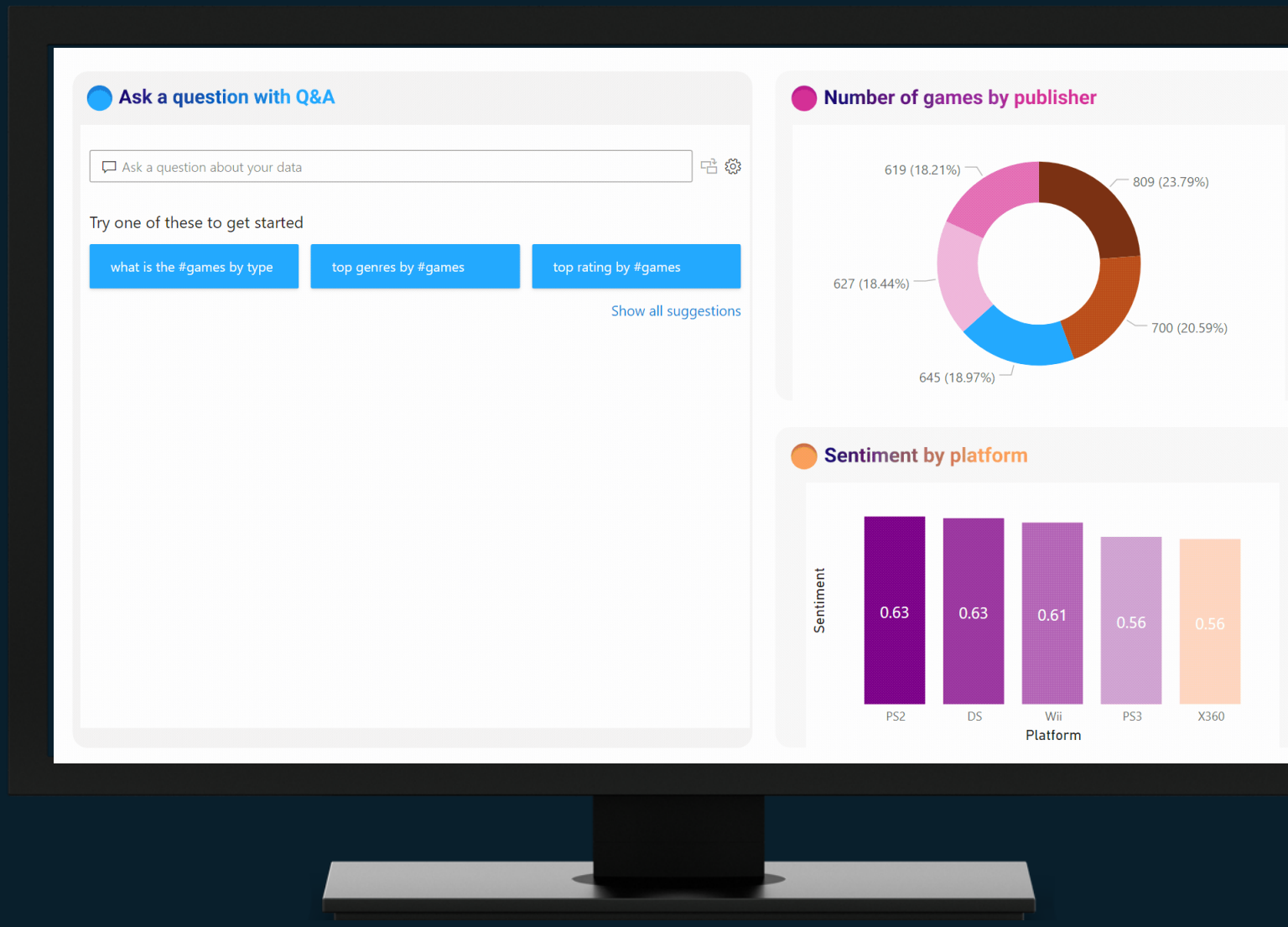
Q&A Visual

Exact string matching between prompt and Semantic Model

Based on:

- Tables
- Columns
- Measures

... other model objects



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Q&A training

Overall setup

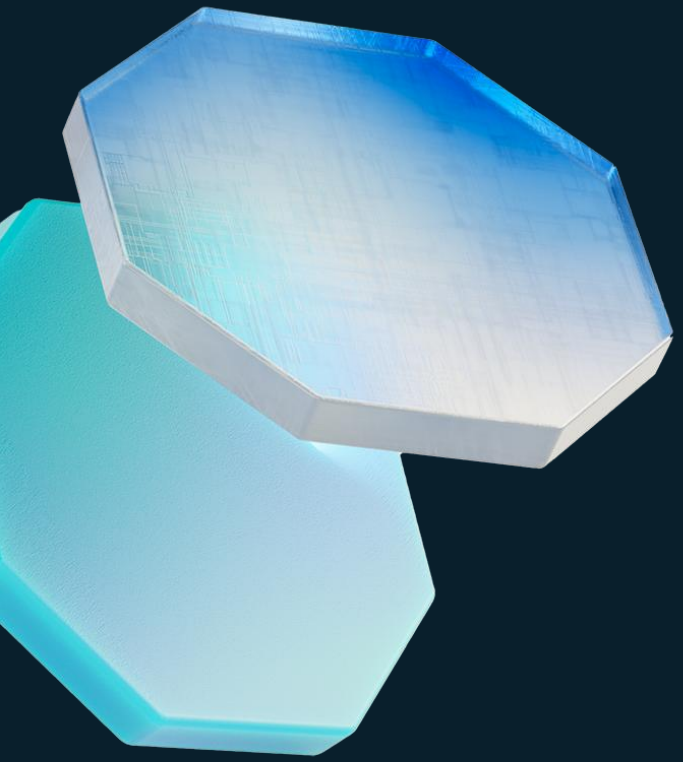
- Training by looking at previous questions & answers from users
- Fields can be excluded from potential answers

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

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

Should we hammer it with Copilot?

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

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Copilot in Fabric

Focused on the different workloads

Data Factory	Data Warehouse	Data Engineering & Data Science	Databases	Real-Time Intelligence	Power BI
Get intelligent code generation to transform data with ease and code explanations to help you better understand complex tasks.	Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.	Quickly generate code in Notebooks to help work with Lakehouse data and get insights.	Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.	Translate questions into KQL queries that you can execute.	Quickly create report pages, natural language summaries, and generate synonyms.

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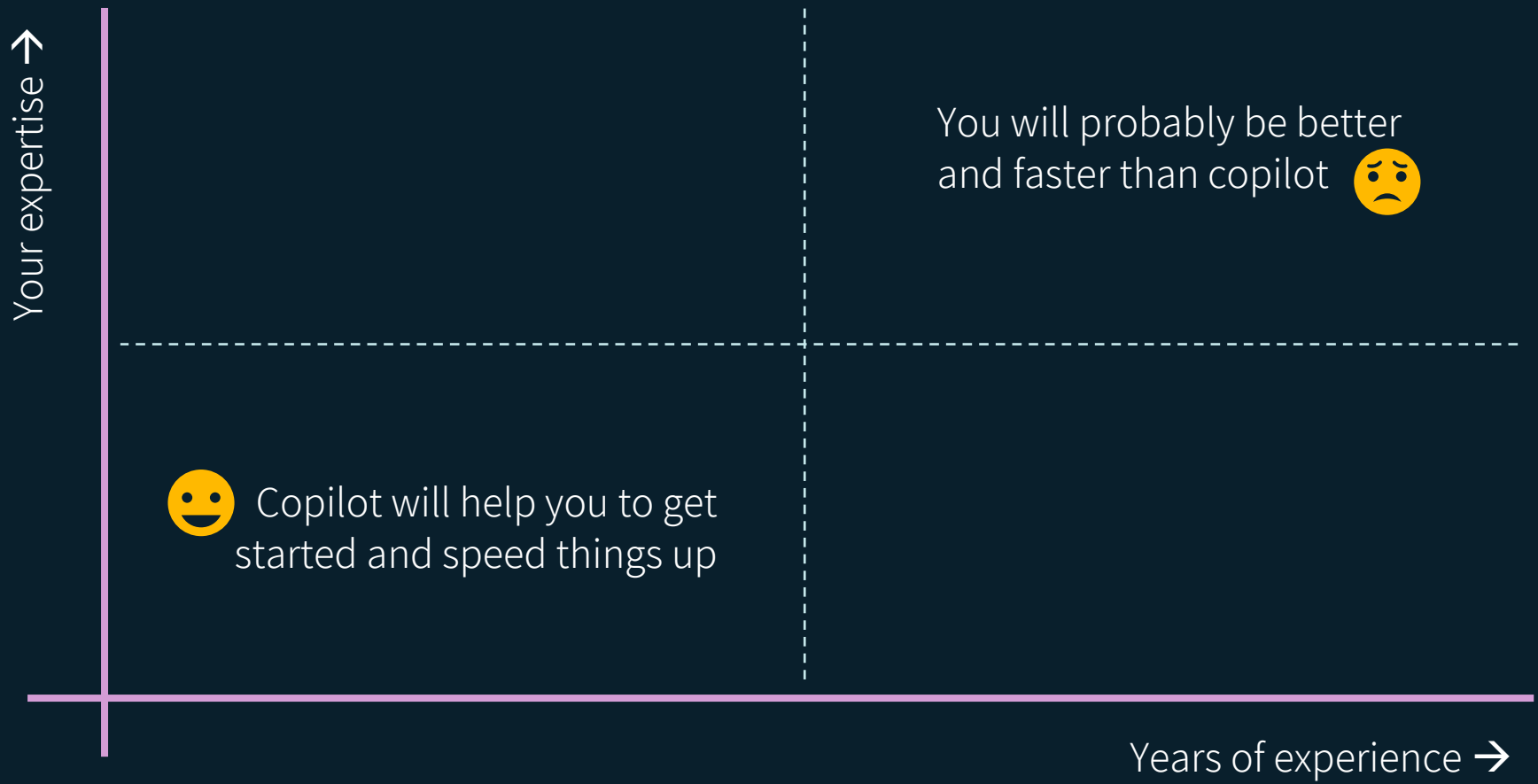
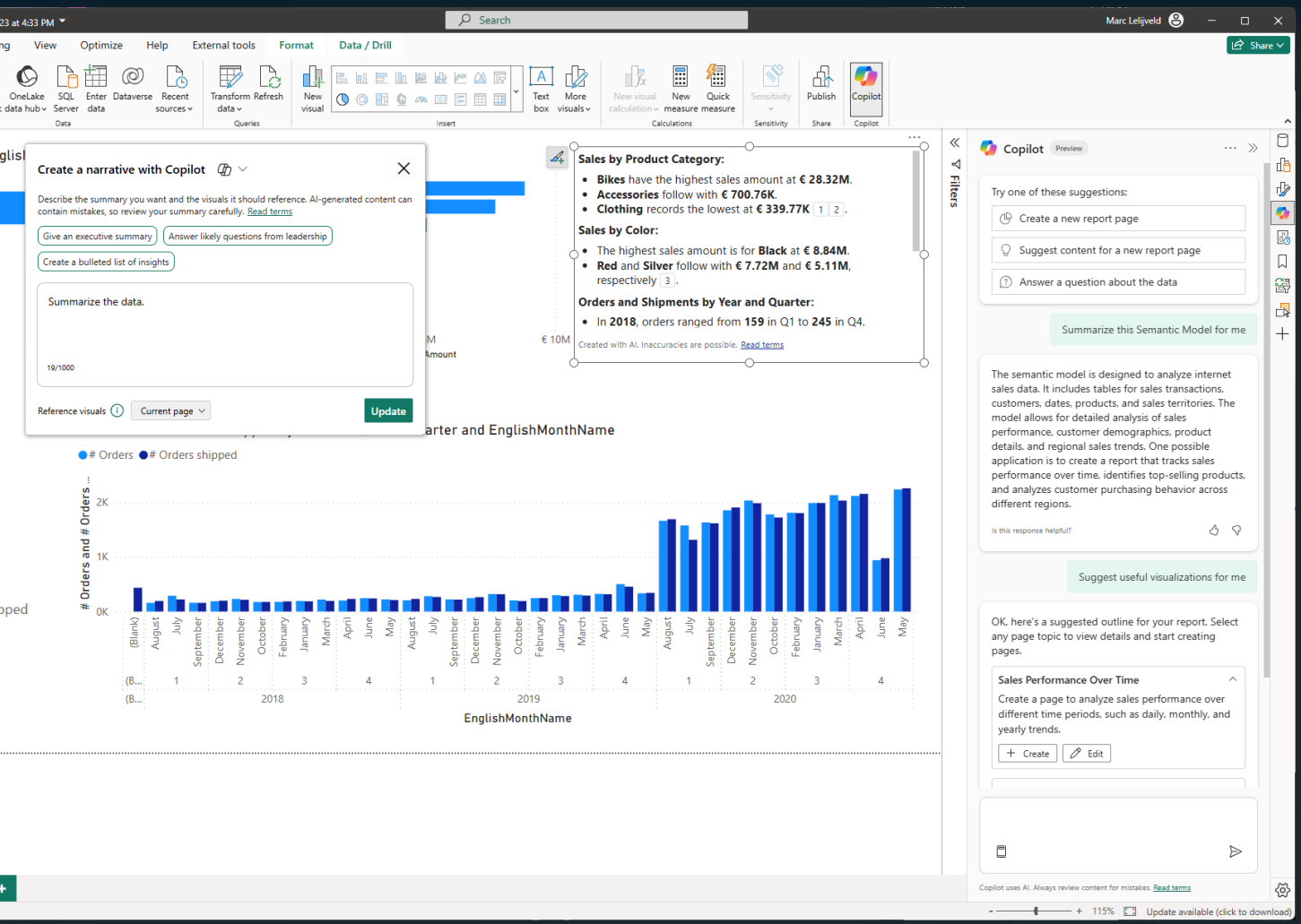
Who copilot is for



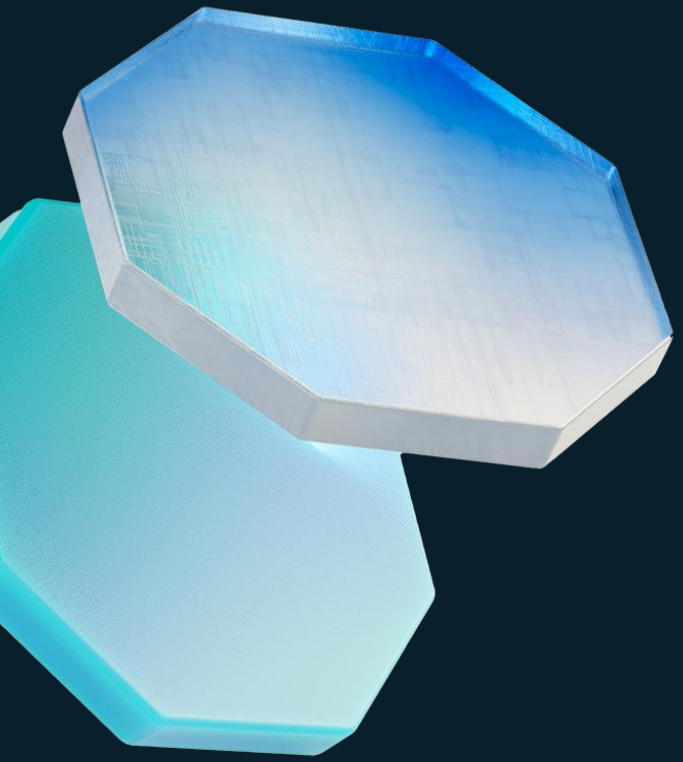
Copilot – Power BI use cases



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

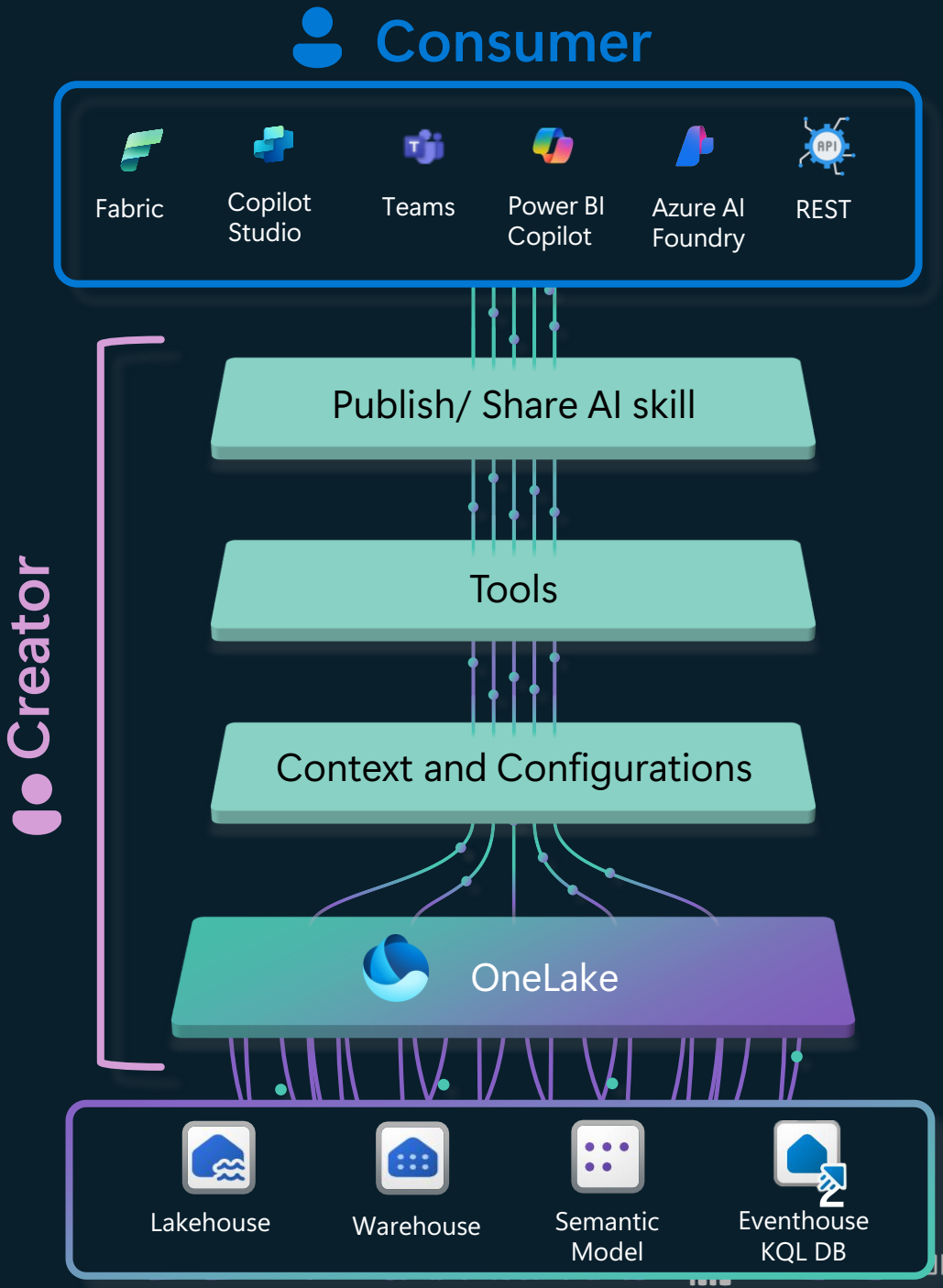
Copilot consumer experience

Data Agents

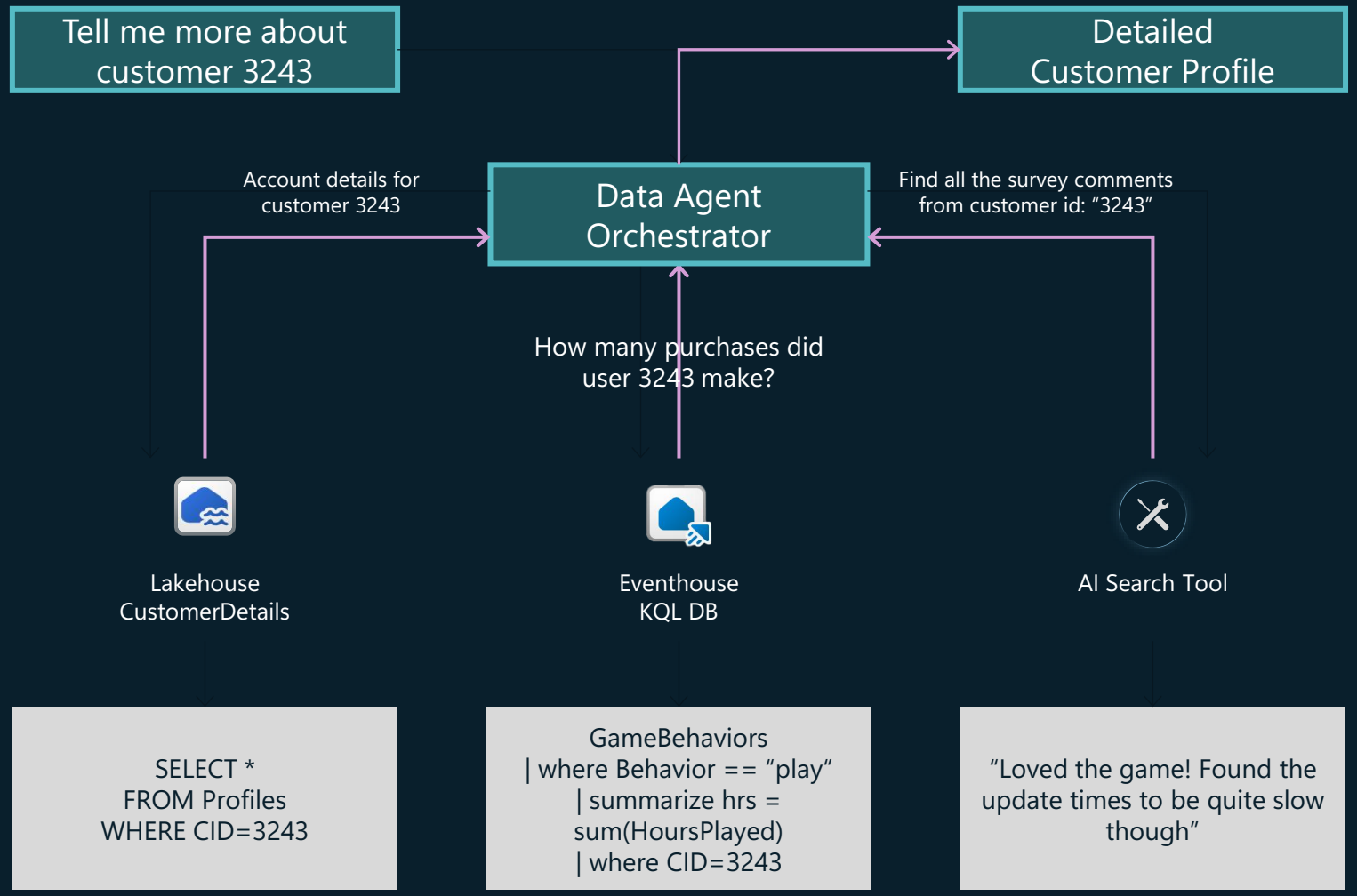
Previously known as AI Skills

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.

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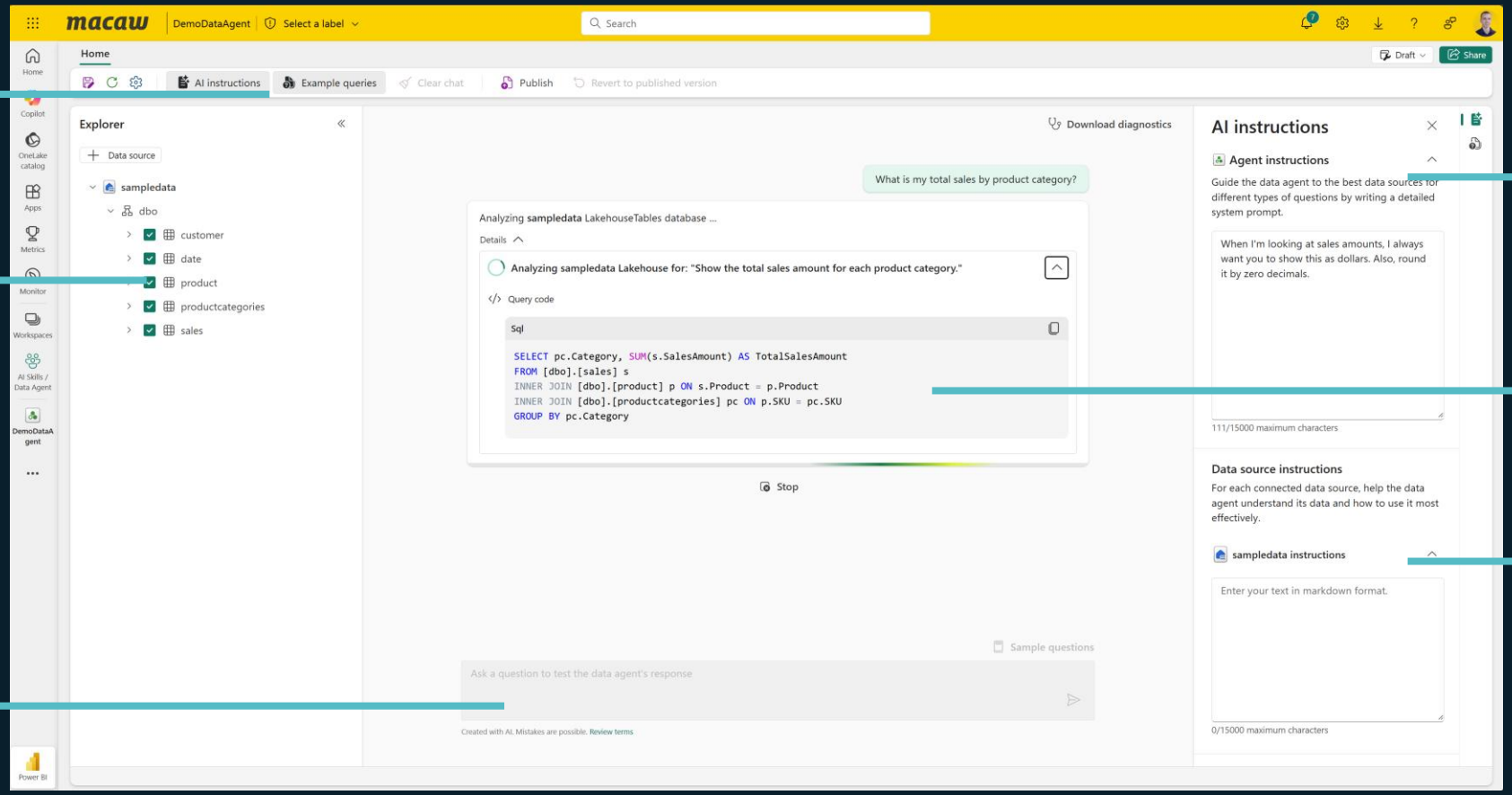
Understanding the Data Agent creator experience



Example queries

Connected source tables

Chat window

Notes to enrich model

Reasoning for results

Instructions for sources

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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

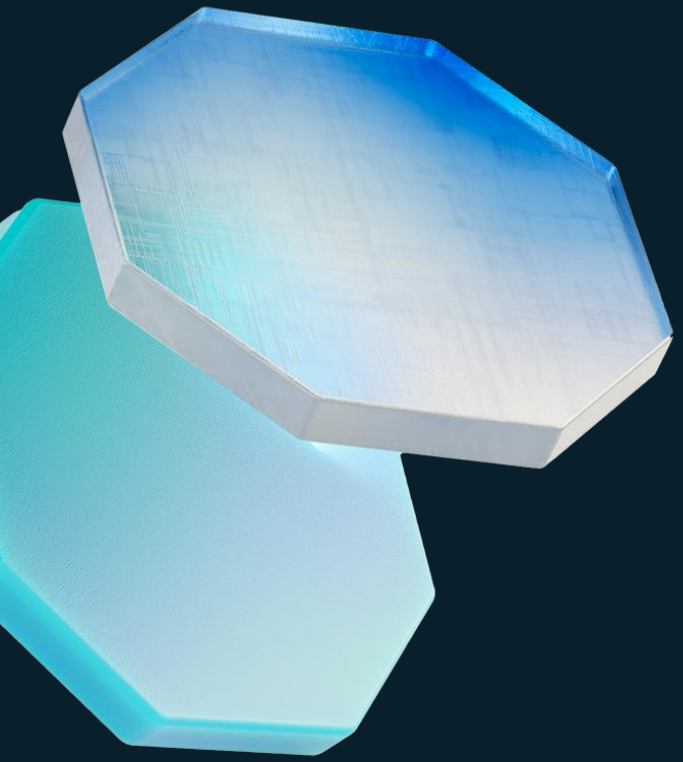
Example Queries

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

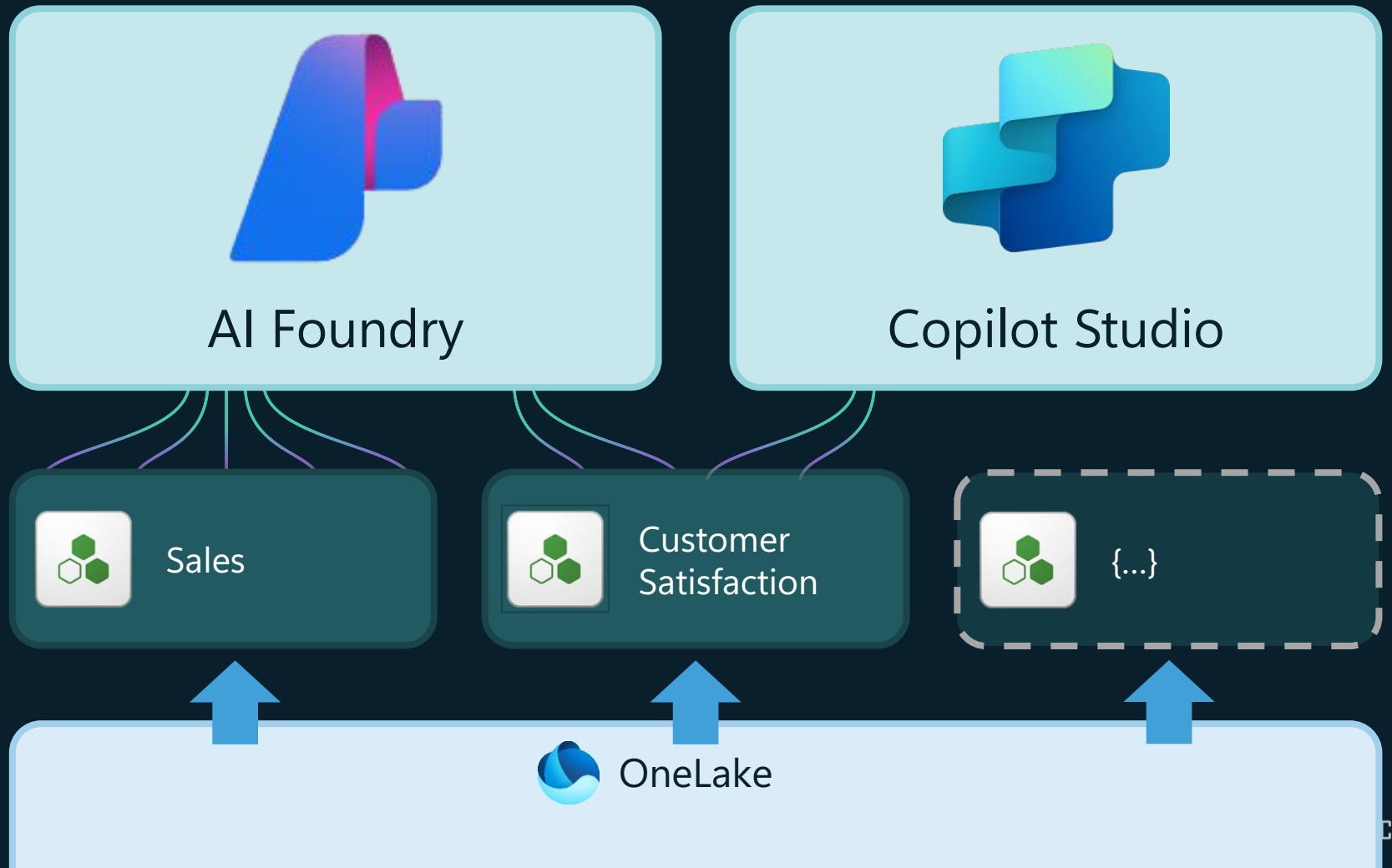


Demo

Data Agents

Agent architecture
One to rule them all?

No!



Future of Data Agents – announced at FabCon Europe

Private Preview

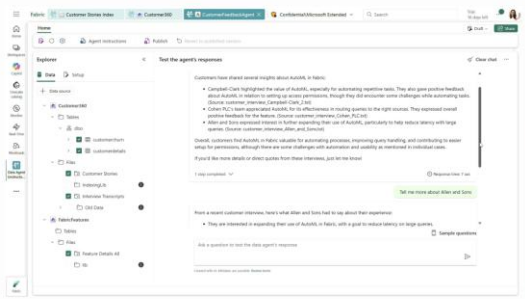
Unstructured Data in the Data Agent

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



Sneak peak

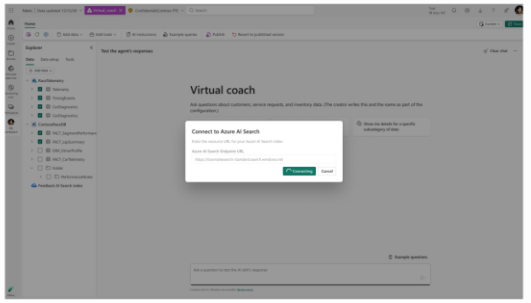
Bring your own AI Search index

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



Public Preview

Evaluate data agents

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

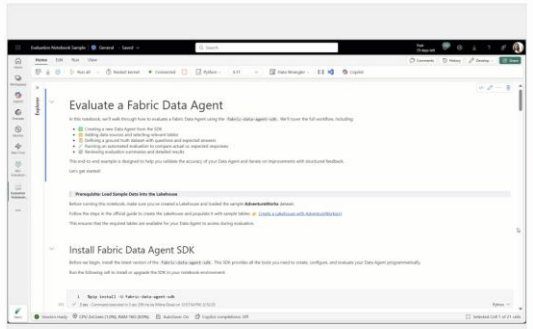
Run structured evaluations using Python from notebooks

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



Sept 2025

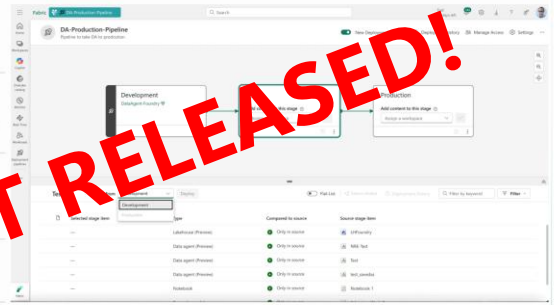
CI/CD and ALM for Data Agents

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-Ops** and **streamlined AI development**



JUST RELEASED!

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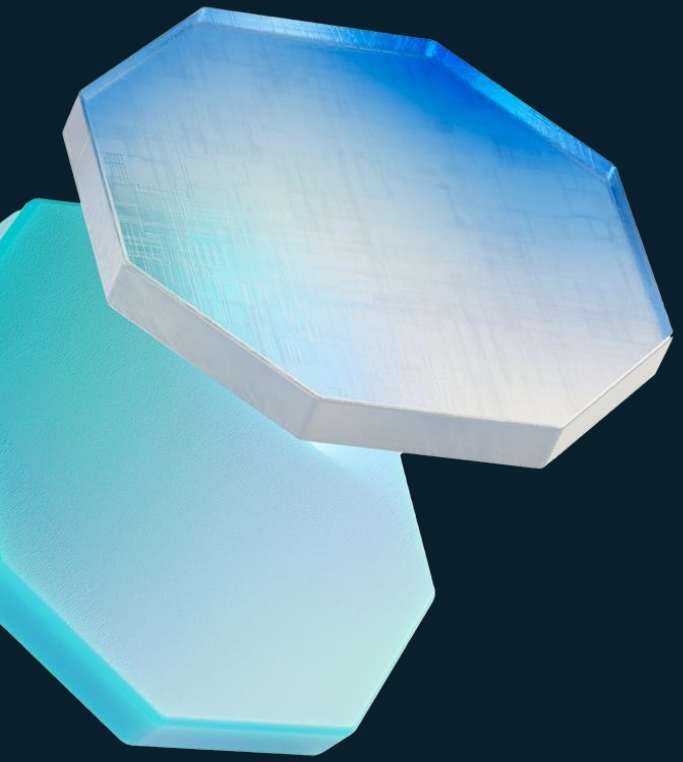
Fabric Data Agent SDK

- **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!

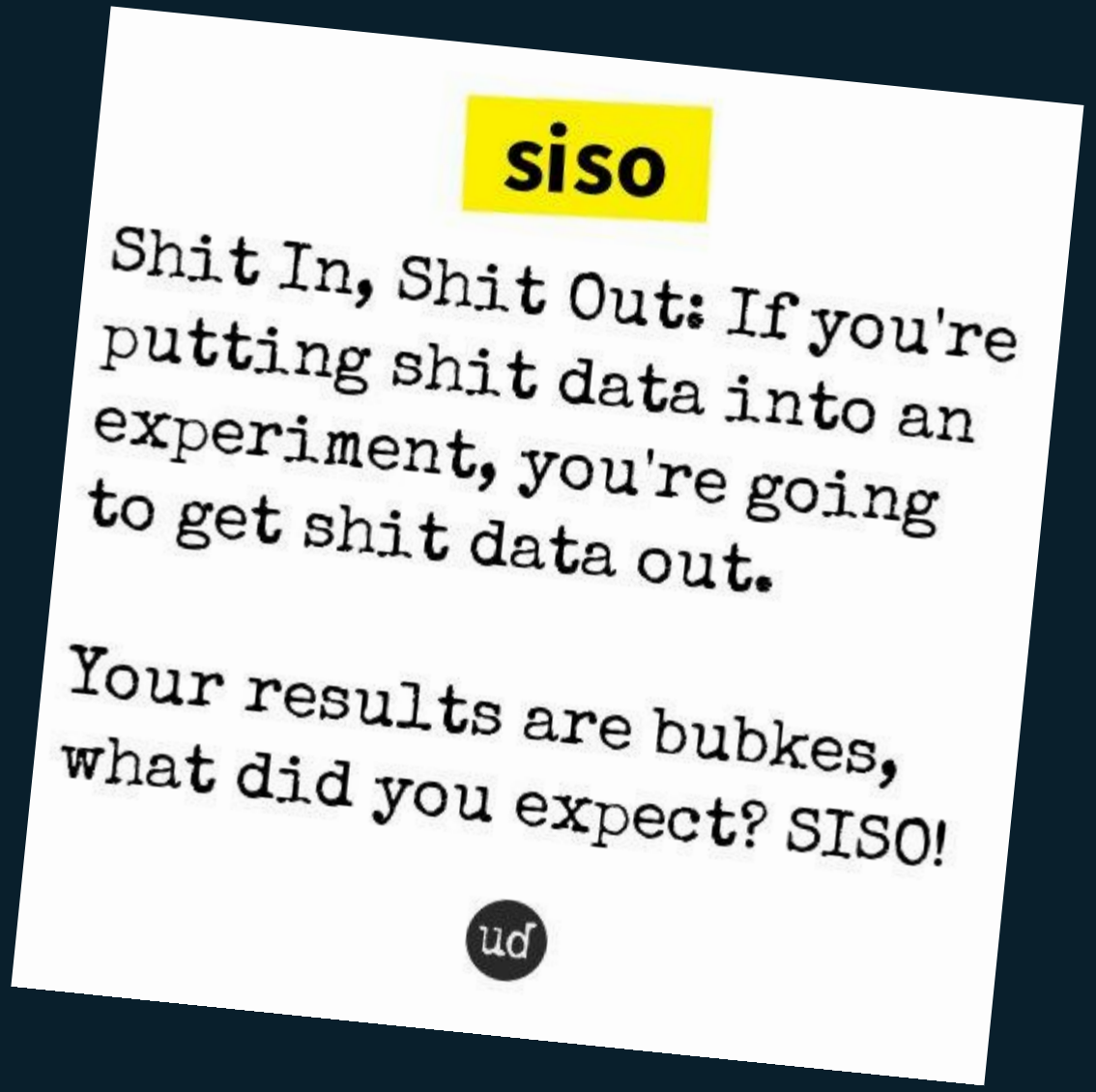
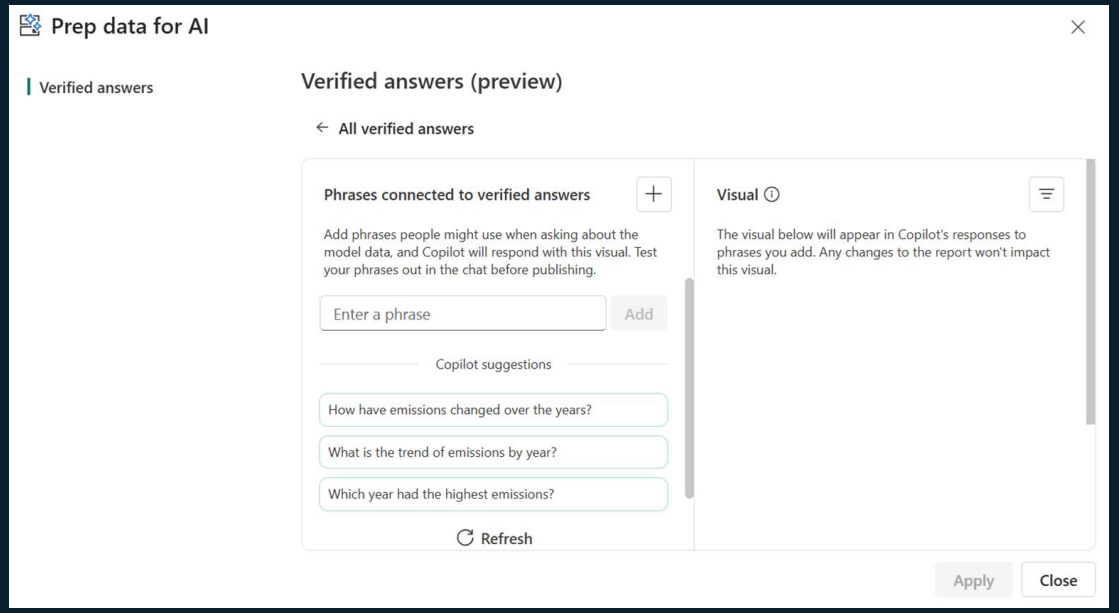
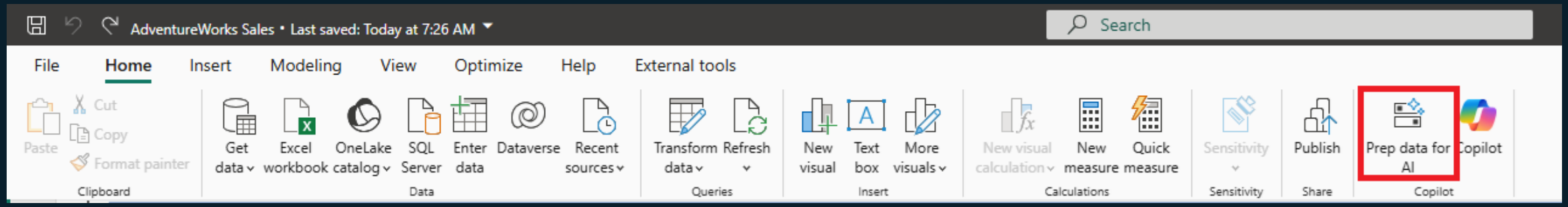


Image from Urban Dictionary: https://x.com/urbandictionary/status/958044898212630528

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

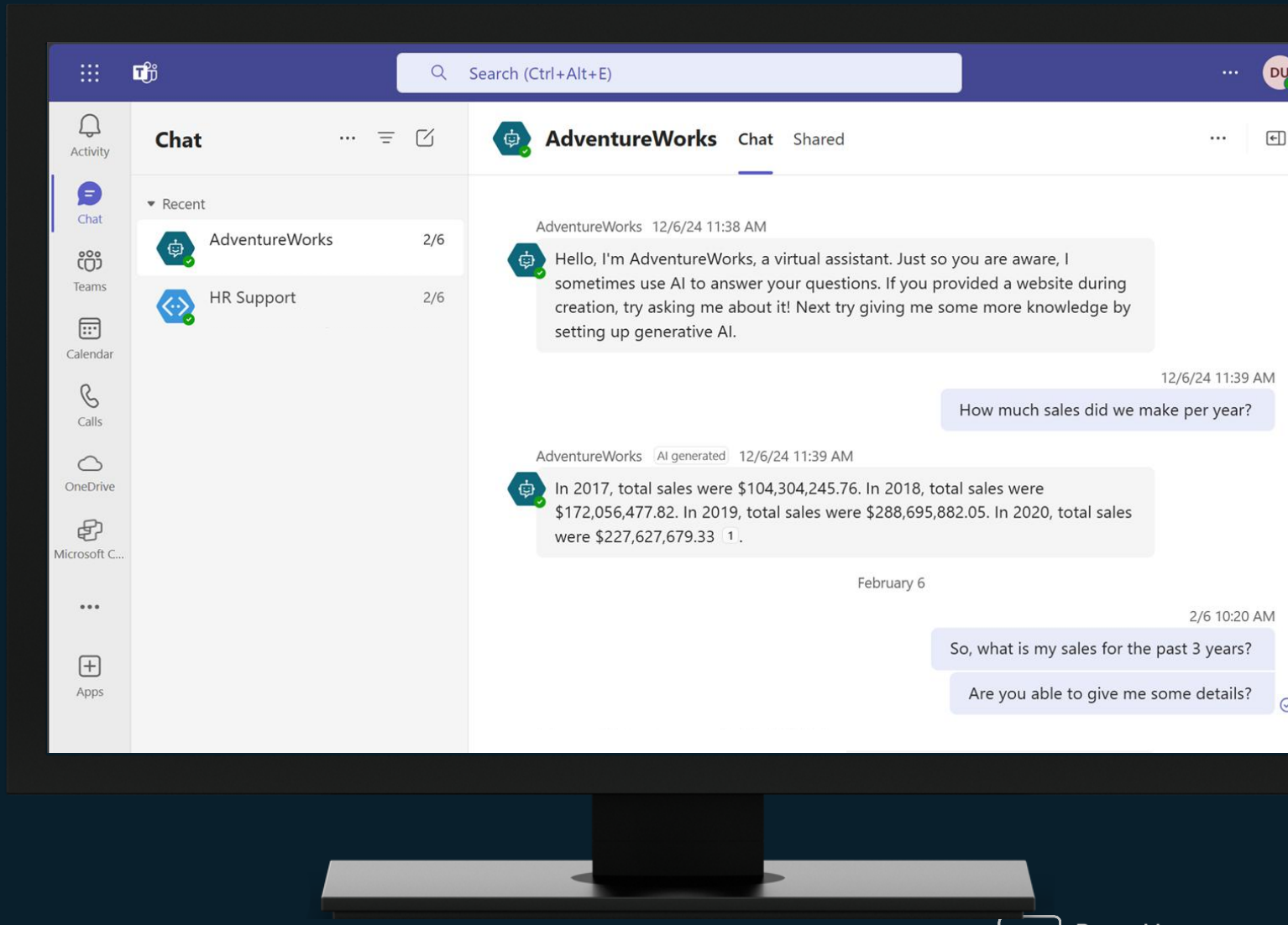
Tools we use day in, day out

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



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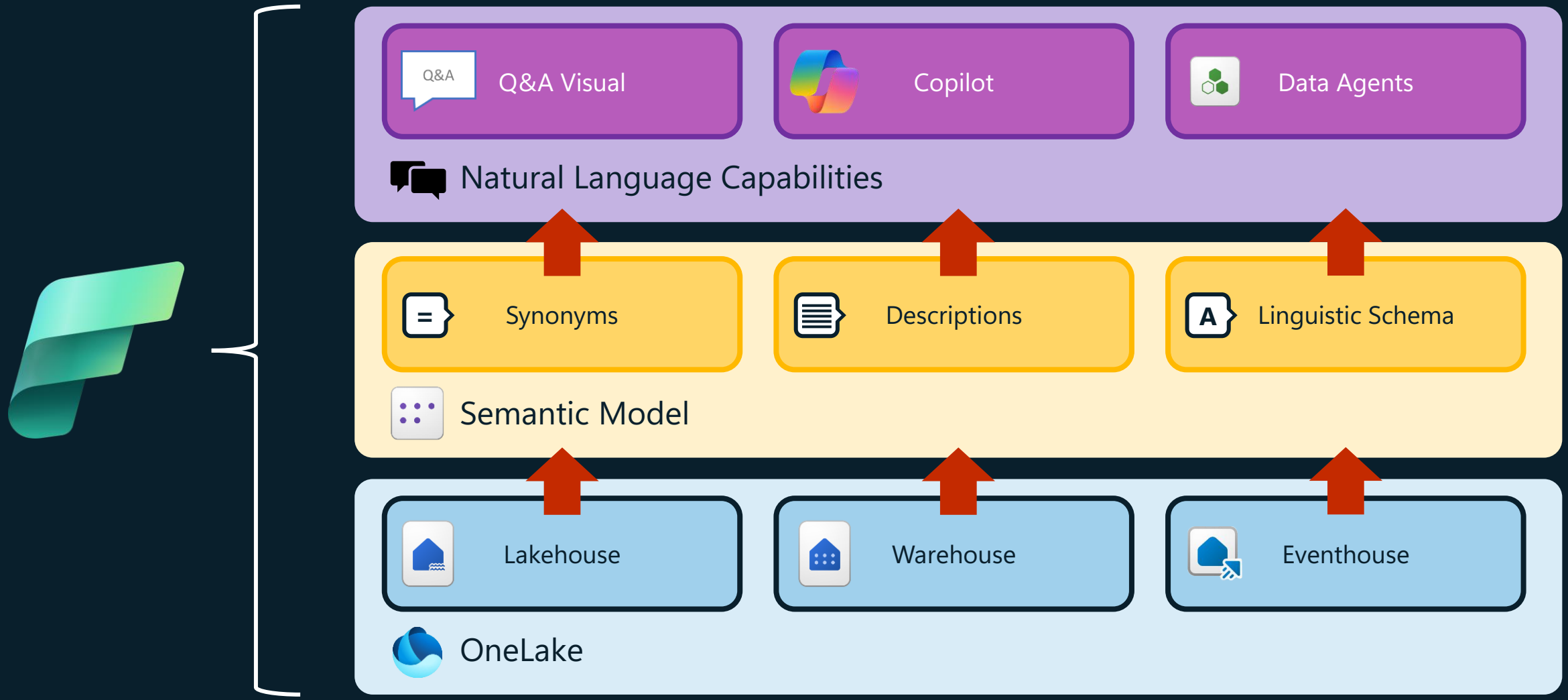
Wrap up & take-aways



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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 (AI skills) 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

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