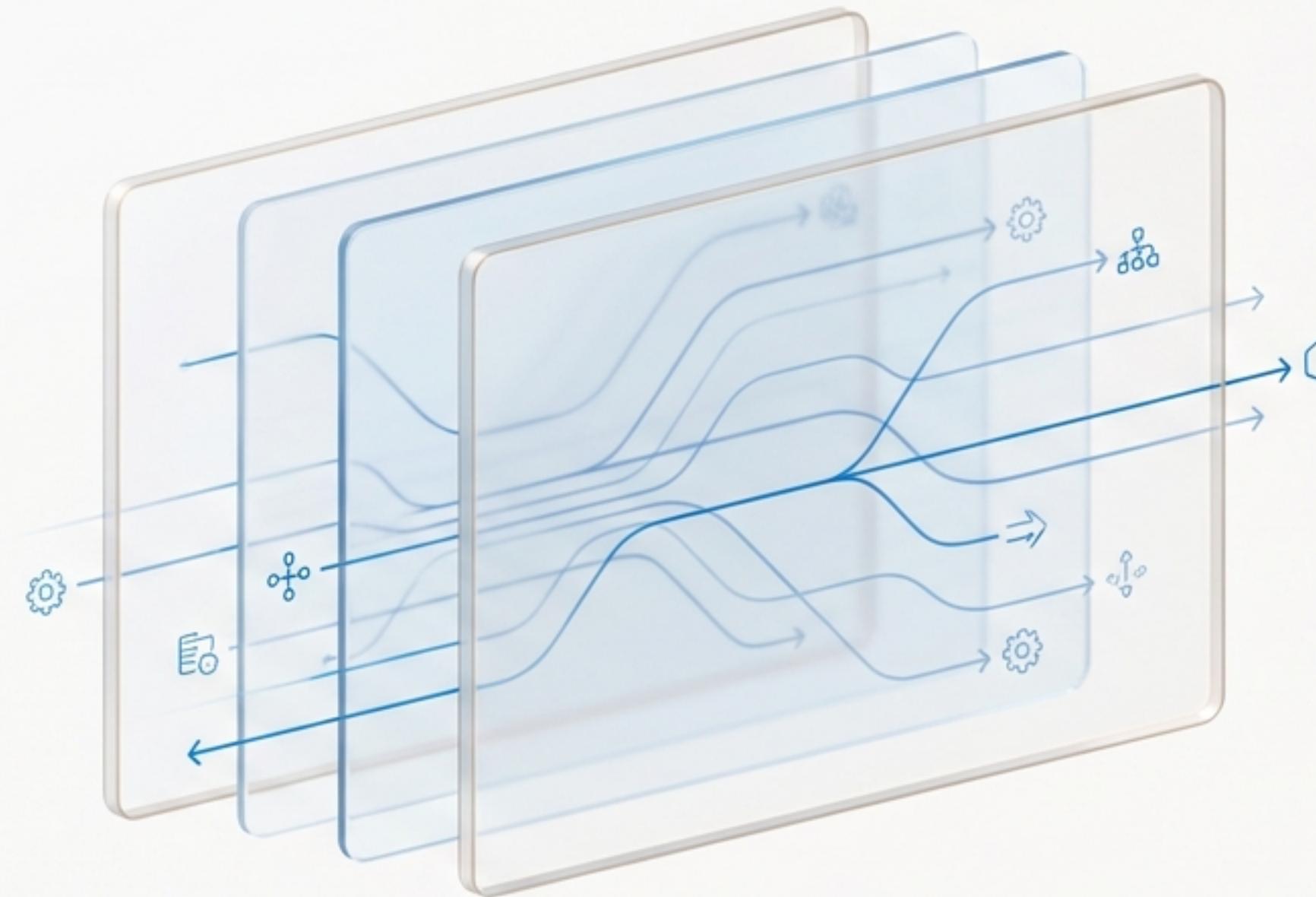


# Unveiling Microsoft Foundry

A Developer's Guide to the New Agentic AI Platform



Based on the Microsoft Ignite 2023 announcements. Currently in Preview.

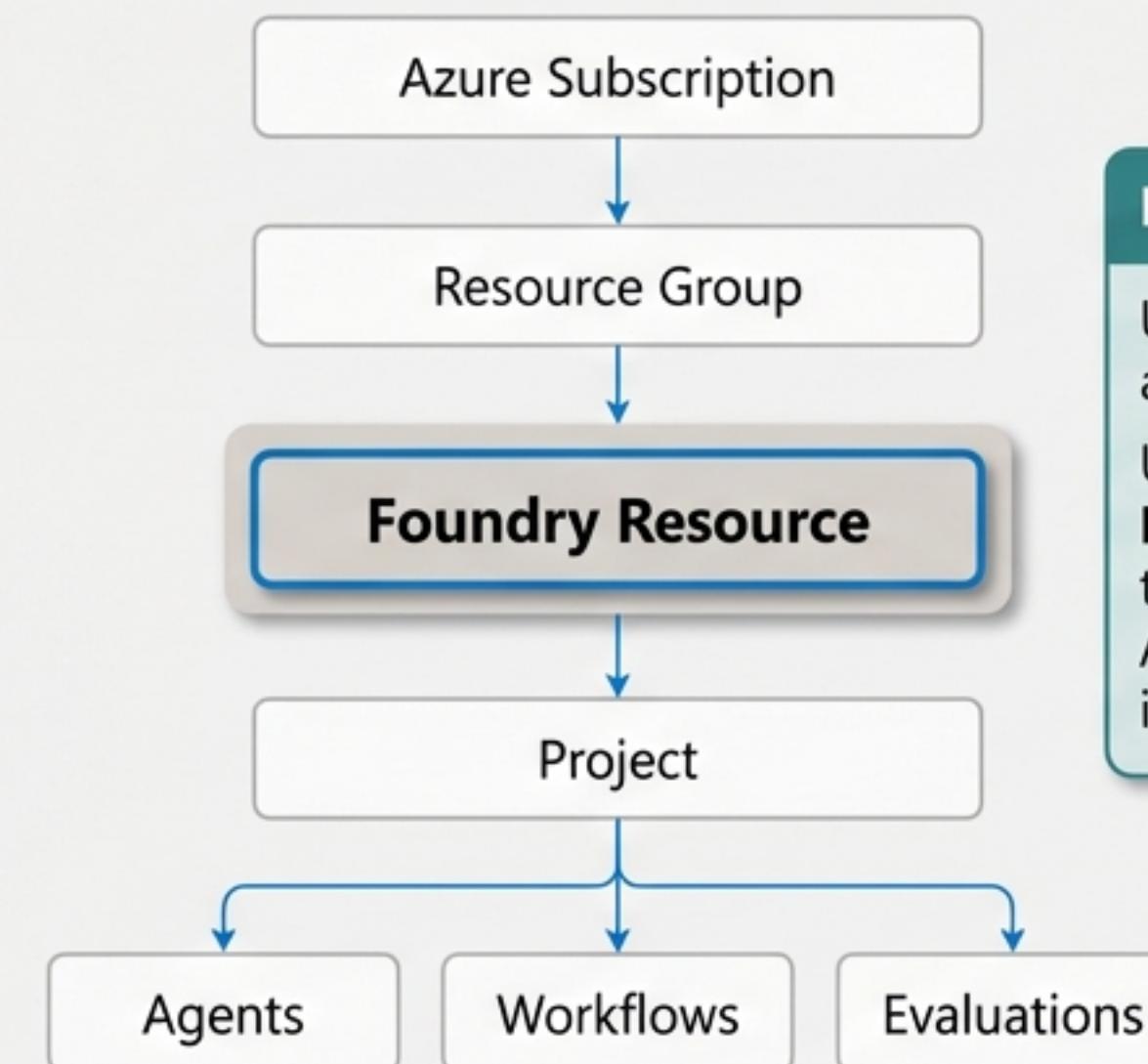
# A Strategic Shift to an Agent-Centric Workbench

Microsoft Foundry consolidates Azure AI tools into a single, unified platform for building, orchestrating, and operating sophisticated AI agents. This starts with a new resource hierarchy.

## The Vision

-  Explains the name change from "Azure AI Foundry" to "Microsoft Foundry".
-  Emphasizes the focus on a unified developer experience where agents are the primary unit of creation.

## The New Architecture



### Key Distinction

Use **Foundry Resource** for all new capabilities.  
Use the legacy **AI Hub Resource** for advanced ML training, fine-tuning, and Azure Machine Learning integrations.

# Your Command Center for AI Discovery and Development

The screenshot shows the Microsoft Foundry interface. On the left is a sidebar with icons for Home, Projects, Discover, Resources, and Settings. The main area is titled 'Project Hub' and shows 'Recent projects' including 'Contoso AI Agent', 'Sales Forecasting Workflow', 'Contoso AI Personalization', and another 'Contoso AI Agent'. There's a button '+ Fleet projects'. To the right are sections for 'Quick Starts' (with 'Launch VS Code', 'Build New Agent', and 'Create Workflow' buttons), 'Community' (with 'Share your resources into your agents.' and 'Recent Projects' sections), and 'Documentation | GitHub | Discord Community' links. A blue callout box points to the 'Project Hub' section with the text '1. Project Hub: Quickly access and manage all your projects.' Another blue callout box points to the 'Quick Starts' section with the text '2. Quick Starts: Launch into VS Code or start building agents and workflows directly.' A third blue callout box points to the bottom right with the text '3. Embedded Resources: Direct access to documentation, GitHub, and the Discord community without leaving the platform.' A fourth blue callout box points to the bottom right with the text '4. AI Assistant: An integrated chatbot to answer questions about models, resources, and platform capabilities.' A blue icon of a speech bubble with a question mark is positioned between the third and fourth callout boxes.

- 1. Project Hub:** Quickly access and manage all your projects.
- 2. Quick Starts:** Launch into VS Code or start building agents and workflows directly.
- 3. Embedded Resources:** Direct access to documentation, GitHub, and the Discord community without leaving the platform.
- 4. AI Assistant:** An integrated chatbot to answer questions about models, resources, and platform capabilities.

## A Vast Toolkit at Your Fingertips

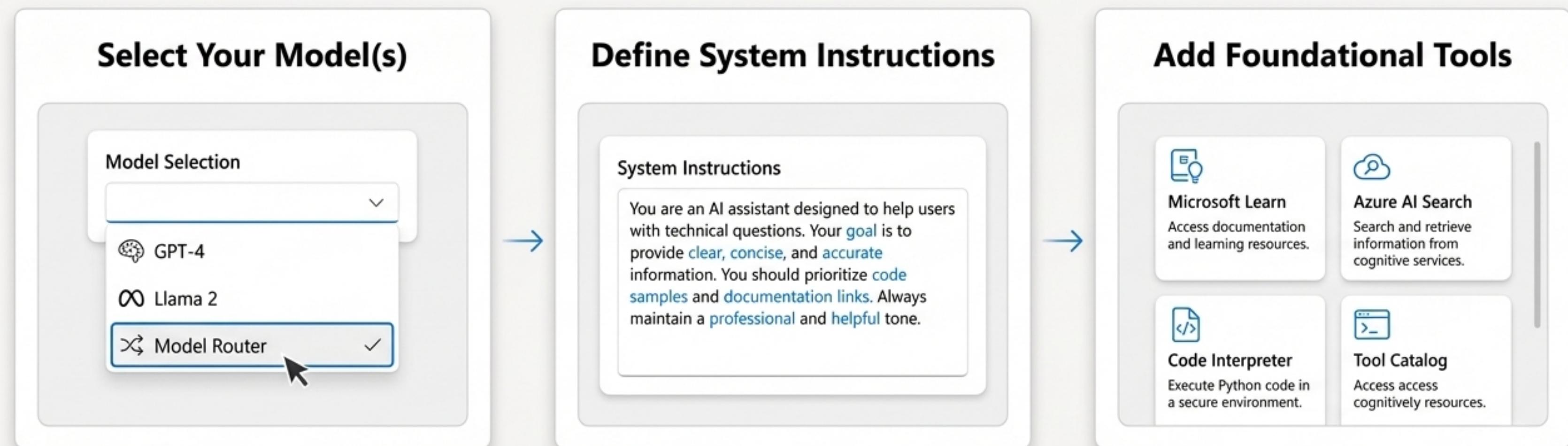
The 'Discover' tab is your gateway to the entire ecosystem.

**11,000+ models** available, including OpenAI, Anthropic, and the new **Model Router** for dynamic LLM selection.

**1,400+ tools** ready to be integrated into your agents.

# The Core Agent Creation Experience

Building an agent involves three key steps: defining its intelligence, providing its instructions, and equipping it with the right tools.



Choose from a vast catalog or let the Model Router select the best LLM for the task at runtime.

Provide a detailed persona, goals, behavioral guidelines, and capabilities, similar to creating a Copilot.

Instantly grant your agent new skills by connecting to pre-built tools.

# Introducing Foundry IQ: A Unified Knowledge Layer for All Agents

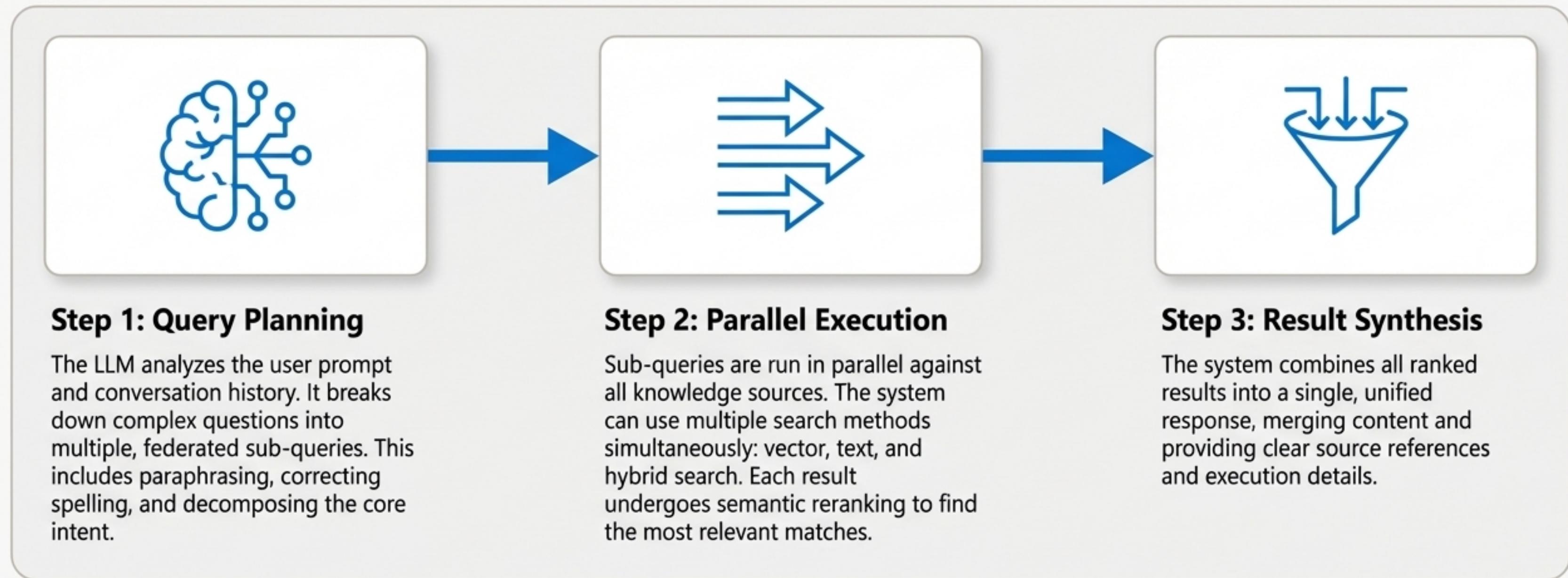
Move away from siloed, per-agent knowledge bases. Foundry IQ creates a central, reusable knowledge store powered by a more advanced retrieval mechanism.



- **Centralized Management:** Update knowledge in one place for all connected agents.
- **Reusable Intelligence:** Build one comprehensive knowledge base and leverage it across multiple projects.
- **Powered by Agentic Retrieval:** Employs a sophisticated multi-query pipeline for more robust and context-aware answers.

# Under the Hood: How Agentic Retrieval Works

Agentic Retrieval is a multi-query pipeline that intelligently deconstructs, executes, and synthesizes information to find the best possible answer.



# Giving Agents Persistent Memory

A brand-new capability allows agents to retain context and learn from user interactions across multiple sessions, enabling truly personalized and continuous experiences.

## The Past (Stateless Sessions)



### Short-Term Memory

Context within a single session.  
Wiped after session ends.



### Long-Term Memory

Static system instructions and tool definitions.  
Does not change based on interaction.

## The Future (Persistent Memory)



### Managed Memory Store



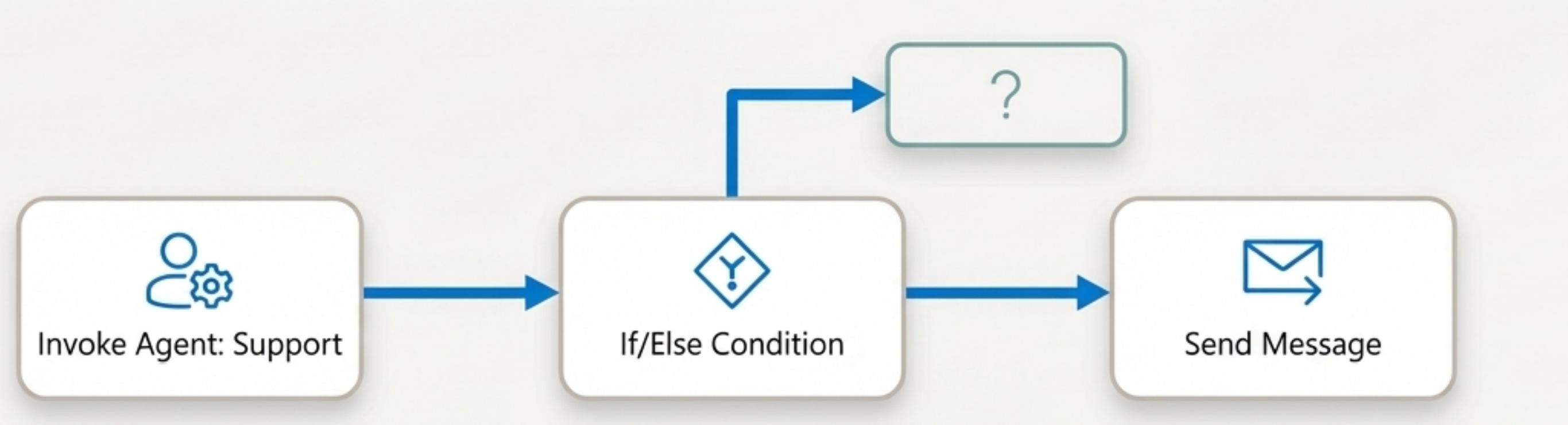
An agent can now recall a user's preferences, history, and context from previous conversations to inform the current one.

## Developer Notes

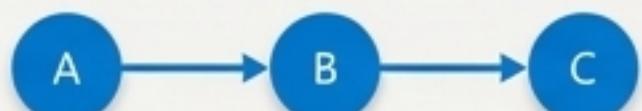
- ✓ **Current Support:** Works with Azure OpenAI models.
- ✓ **Activation:** Must be explicitly enabled.
- ✓ **Implementation:** Requires using the '`scope`' parameter in your code to associate memories with a specific user or context.

# Orchestrate Complex Processes with Workflows

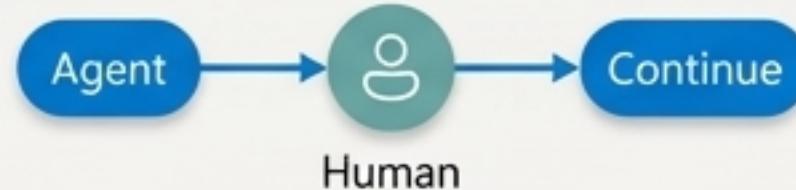
Workflows are a powerful visual paradigm for connecting multiple agents, injecting custom logic, and designing sophisticated, multi-step AI applications.



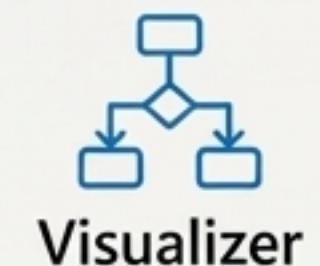
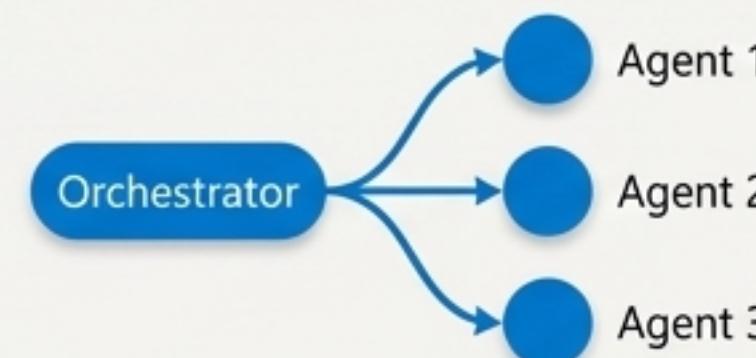
Sequential



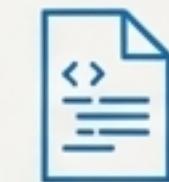
Human-in-the-Loop



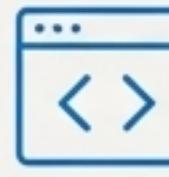
Group Chat



Visualizer



YAML



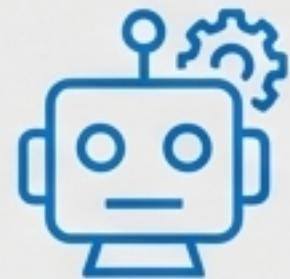
Code

Seamlessly switch between Visual, YAML, and Code views.

# The Building Blocks of a Workflow

Go beyond simple agent invocation with a rich set of logical and data manipulation tools.

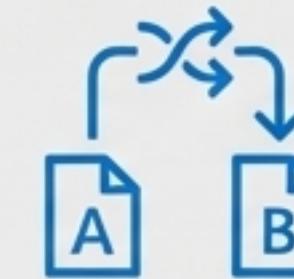
## Agent Control



Invoke any agent in your project. Pass inputs and use outputs from previous steps.

Invoke Agent

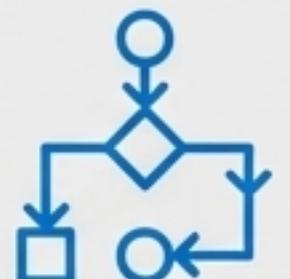
## Data Transformation



Manipulate data within your workflow.

Set Variable  
Reset Variable  
Parse Value

## Flow Control



Create dynamic paths with conditional logic and loops.

If/Else  
For Each



## Expressions & Basics

Use Power Fx-like formulas for complex logic and interact with the user.

Send Message  
Ask Question  
Power Formulas

# A Comprehensive Suite for Testing and Debugging

The integrated playground provides deep visibility into agent performance, token usage, and tool execution, with a seamless connection to VS Code.

The screenshot illustrates the integrated playground interface, showing a side navigation bar with 'Playground' and 'Chat' tabs, and a main area with a chat history and a 'Type a message...' input field. To the right, a 'Debug' panel displays a 'Conversation Trace' with five steps: User Input, Agent Processing, Tool Call, Tool Output, and Final Response. Each step shows timestamped details and raw JSON data. A 'Metrics' panel at the bottom right shows scores for Coherence, Fluency, and Groundedness. Callouts provide details on each feature:

- Open in VS Code:** Move directly from the web UI to a local or web-based code environment.
- Full Traceability:** See the step-by-step execution, including all inputs and outputs.
- Metadata View:** Inspect the raw JSON for every interaction.
- Tool Usage Logs:** Verify which tools were called and with what parameters.
- Quality Evaluation:** See scores for metrics like Coherence, Fluency, and Groundedness.

**Conversation Trace Data (JSON Format):**

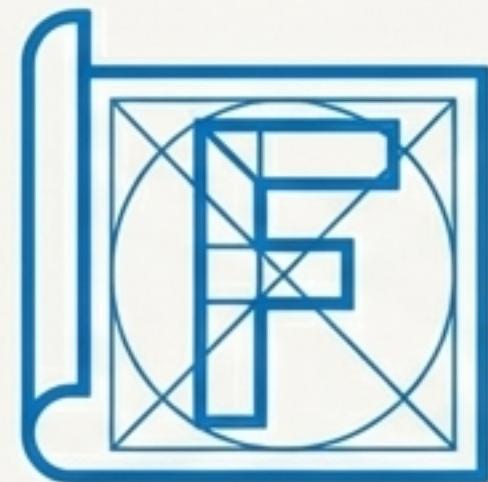
```
Conversation Trace
Step 1: User Input
User 1: Summarize the latest sales data
Timestamp: 12:37:58
{
  "name": "agent",
  "message": "Summarize the latest sales data"
}
Step 2: Agent Processing
Agent: 15%
Timestamp: 12:37:58
Output: Tool Call: Sales_API
Timestamp: 12:37:58
{
  "data": {
    "numt": "15%",
    "luency": "10",
    "events": "Oinilu.oun",
    "demensions": "Reshe"
  }
}
Step 3: Tool Call: Sales_API
Tool Call: Sales_API
Timestamp: 12:37:58
Step 4: Tool Output
Detail: Output
Timestamp: 12:37:58
Step 5: Final Response
Detail: Final Response
Timestamp: 12:37:54
```

**Metrics:**

Metric	Score
Coherence	4.8/5
Fluency	4.9/5
Groundedness	4.5/5

# Deploy Your Agent to the Enterprise in One Click

Seamlessly publish agents and workflows directly into the Microsoft 365 ecosystem, making them available in Teams and as skills for Microsoft Copilot.



**Build in Foundry**

**Publish**



**Use in...**



**Microsoft 365  
Copilot**



## **Shared Scope**

Publish to your own Copilot store for personal use or sharing with specific colleagues. No admin approval needed.



## **Organization Scope**

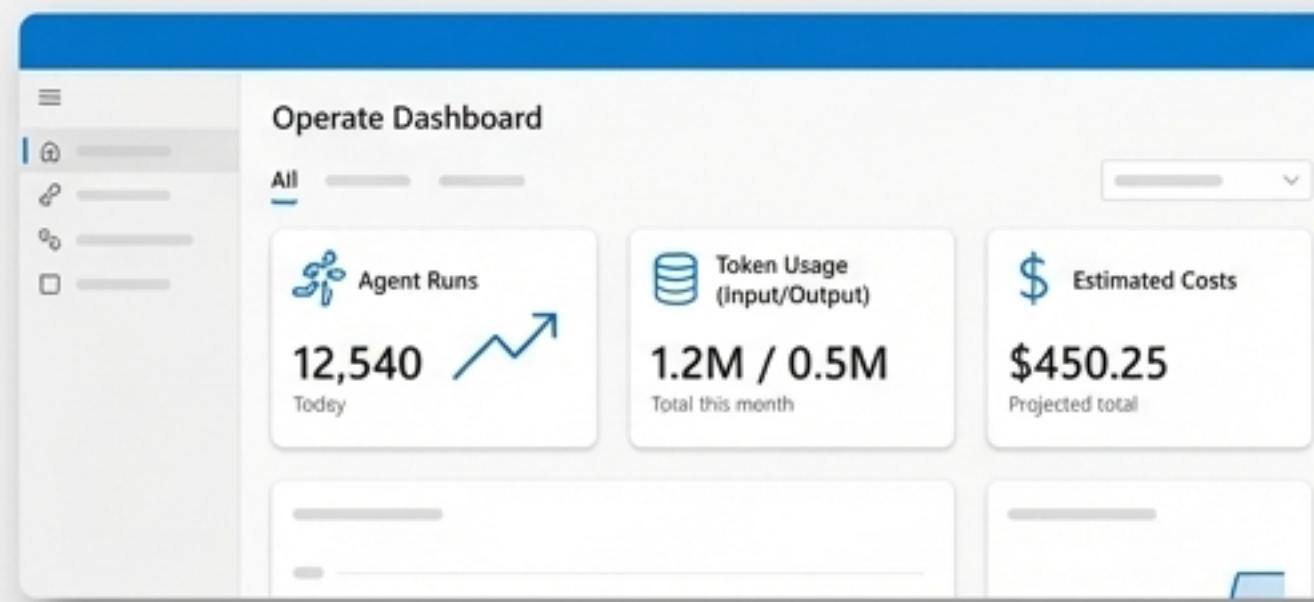
Submit the agent or workflow for tenant-wide availability. Requires admin approval in the Microsoft 365 Admin Center.

# Operate with Confidence and Governance

The platform provides a centralized dashboard for monitoring all active agents and robust tools for evaluation and safety.

## Monitoring & Operations

### The Control Tower



- Total Agent Runs
- Token Usage (Input/Output)
- Estimated Costs
- Filterable by Project
- Deep monitoring via Application Insights connection

## Governance & Safety

### Responsible AI Built-In



#### Evaluations

Create automatic and human-in-the-loop evaluations for metrics like groundedness and fluency.



#### Guardrails

Leverage Microsoft's default safety policies or create and assign your own custom guardrails.

# What This Means for AI Developers

## A Unified Workbench



From disparate services to one integrated, agent-centric platform.



**Before:** Juggling multiple Azure services.

**After:** A single **Foundry** resource for the **entire lifecycle**.

## Deeper Intelligence



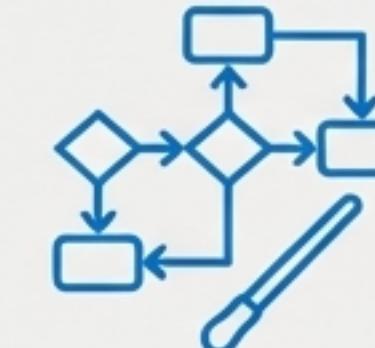
From simple retrieval to agents that learn and reason more effectively.



**Before:** Basic RAG and stateless sessions.

**After:** **Agentic Retrieval** and **Persistent Memory**.

## Powerful Orchestration



From single-purpose bots to complex, multi-agent applications.



**Before:** Standalone agents with limited interaction.

**After:** **Visual Workflows** with **logic, loops**, and **human-in-the-loop** capabilities.

# Explore the New Frontier of Agentic AI

The tools are here. Start building the next generation of AI agents today.

## Start Building

Access the Microsoft Foundry Preview



[aka.ms/foundry-preview](https://aka.ms/foundry-preview)

## Dive Deeper

Explore the official documentation, embedded directly within the Foundry UI.



## Join the Community

Connect with other developers, ask questions, and share your work.

