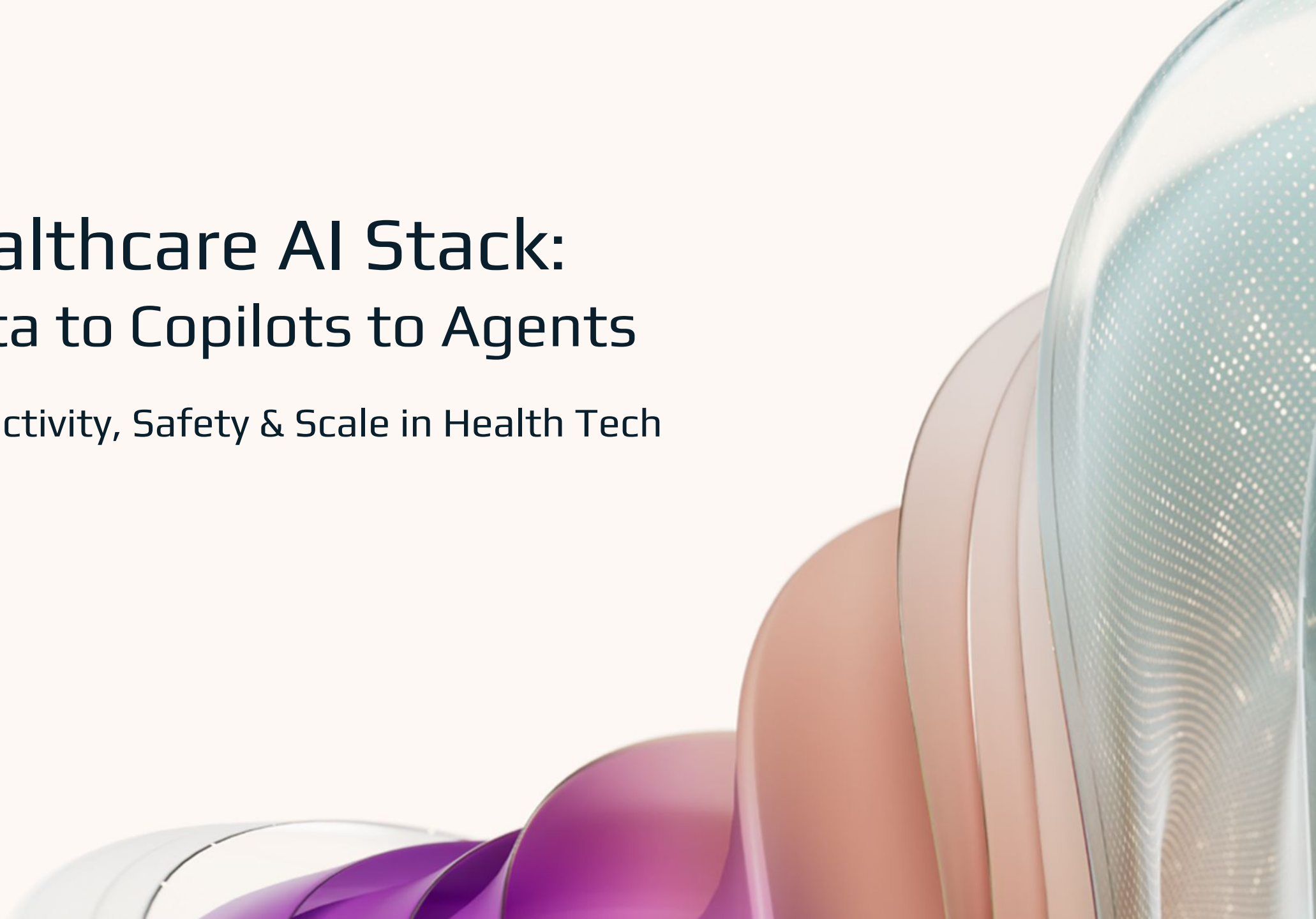# The Healthcare AI Stack:
From Data to Copilots to Agents

Driving productivity, Safety & Scale in Health Tech

Why this matters now

80% of data is unstructured: notes, images, signals

Documentation burden hurts quality and retention

Manual handoffs slow care and revenue cycles

Key takeaway: AI helps only when data and guardrails come first

The stack at a glance

Data Foundation
FHIR, DICOM, governed lakehouse

Copilots for People
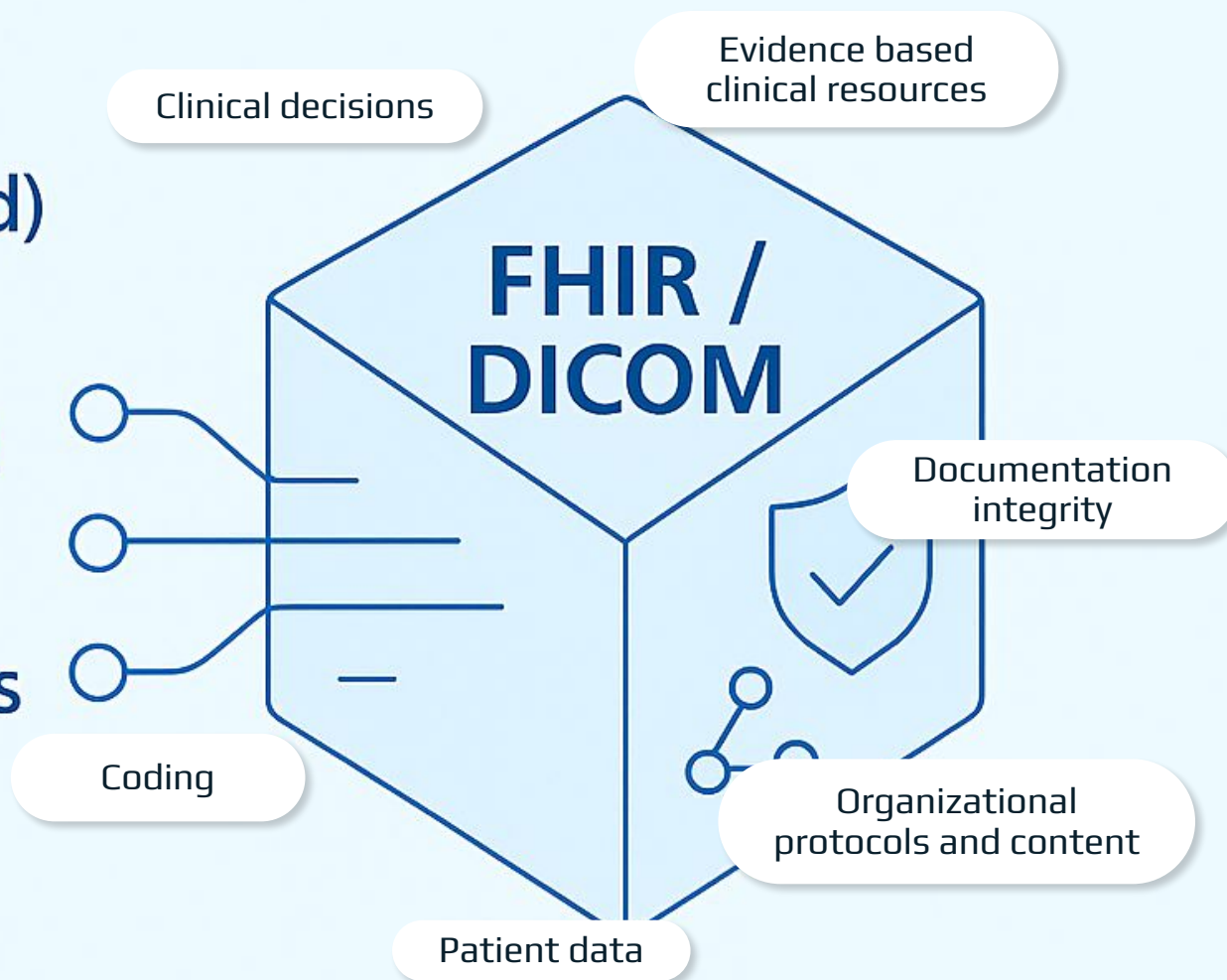productivity across clinical & ops

Agentic Automation
tool-calling, approvals, action logs

Responsible AI & Governance surround every layer

Layer 1: Data foundation

- **Ingest FHIR & DICOM into a lakehouse (Bronze/Silver/Gold)**

- **Standardize metadata; preserve lineage and consent**

- **Make PHI queryable for analytics, copilots, and agents**

Quality data ⇒ grounded, auditable AI

Clinical decisions

Evidence based clinical resources

FHIR / DICOM

Documentation integrity

Coding

Organizational protocols and content

Patient data

Copilots

Query

What can Copilot help you with? ⓘ

Was the patient experiencing ear pain?

Code

What can Copilot help you with? ⓘ

What is the ICD-10 code for Alzheimer's disease?
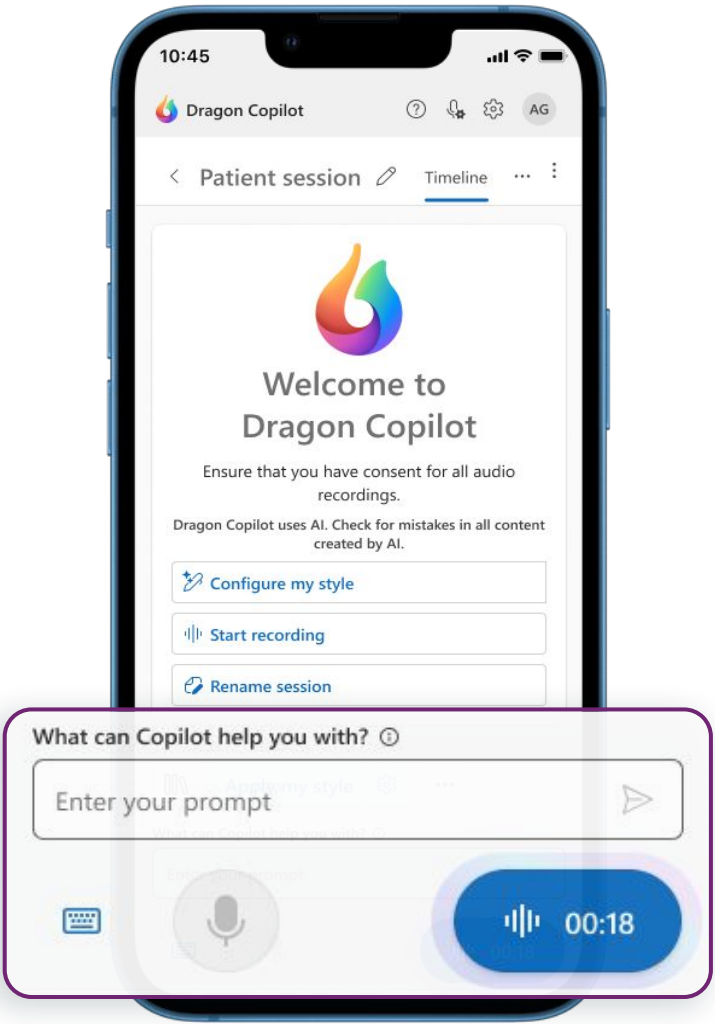
Research

What can Copilot help you with? ⓘ

Outline the key steps and postoperative care for a laparoscopic cholecystectomy

Edit and append

What can Copilot help you with? ⓘ

Update the fever reading to 101

Summarize

What can Copilot help you with? ⓘ

Summarize the ear issues briefly for a referral to an otolaryngologist

Create

What can Copilot help you with? ⓘ

Draft a prior authorization letter for a new biologic treatment for the rheumatoid arthritis patient

Assist

What can Copilot help you with? ⓘ

Generate a concise APSO note summarizing this visit

10:45

🔥 Dragon Copilot   ⓘ 🎙 ⚙ AG

‹ Patient session ✏   **Timeline** ⋯ ⋮

Welcome to Dragon Copilot

Ensure that you have consent for all audio recordings.

Dragon Copilot uses AI. Check for mistakes in all content created by AI.

✨ Configure my style

▫ Start recording

✎ Rename session

What can Copilot help you with? ⓘ

Enter your prompt

⌨   🎙   ▫ 00:18

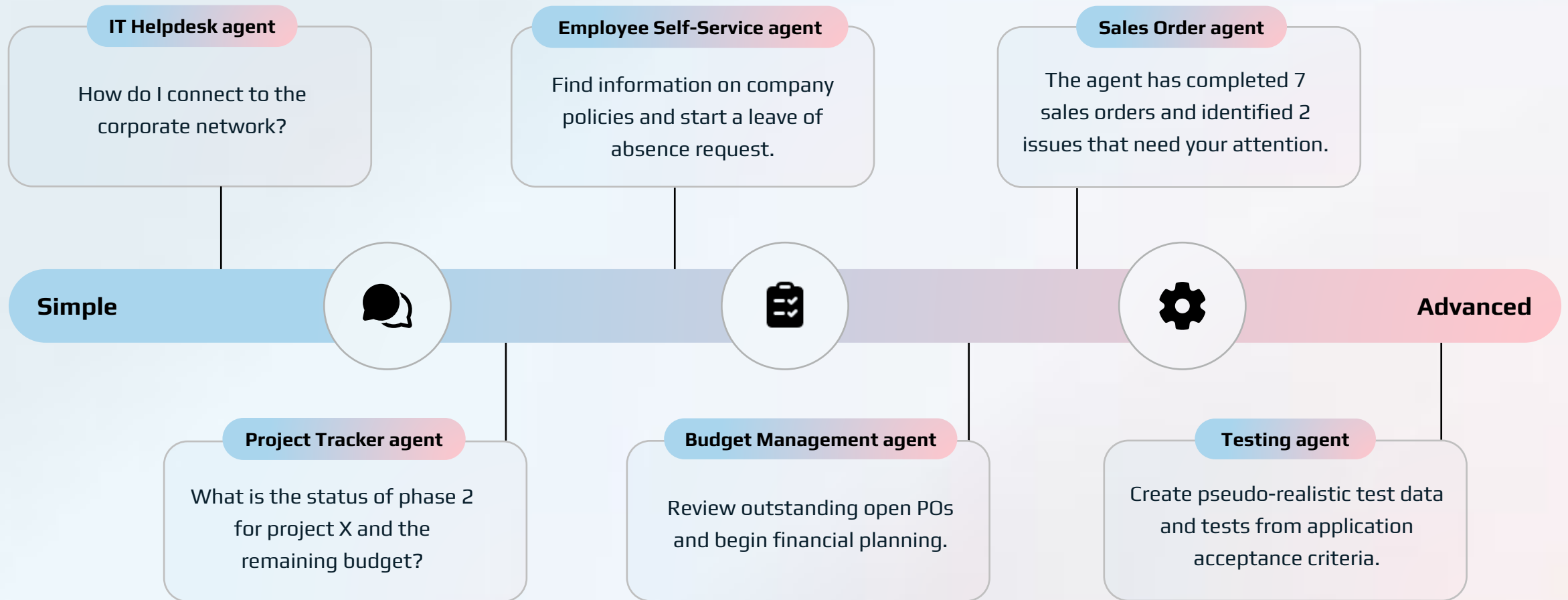# Layer 3: Agentic automation

- Agents plan→call tools/APIs →request approval→complete

- Patterns:
  - human-in/on-the-loop
  - activity logs
  - rollback

- Multi-step flows: triage, eligibility, prior-auth, discharge
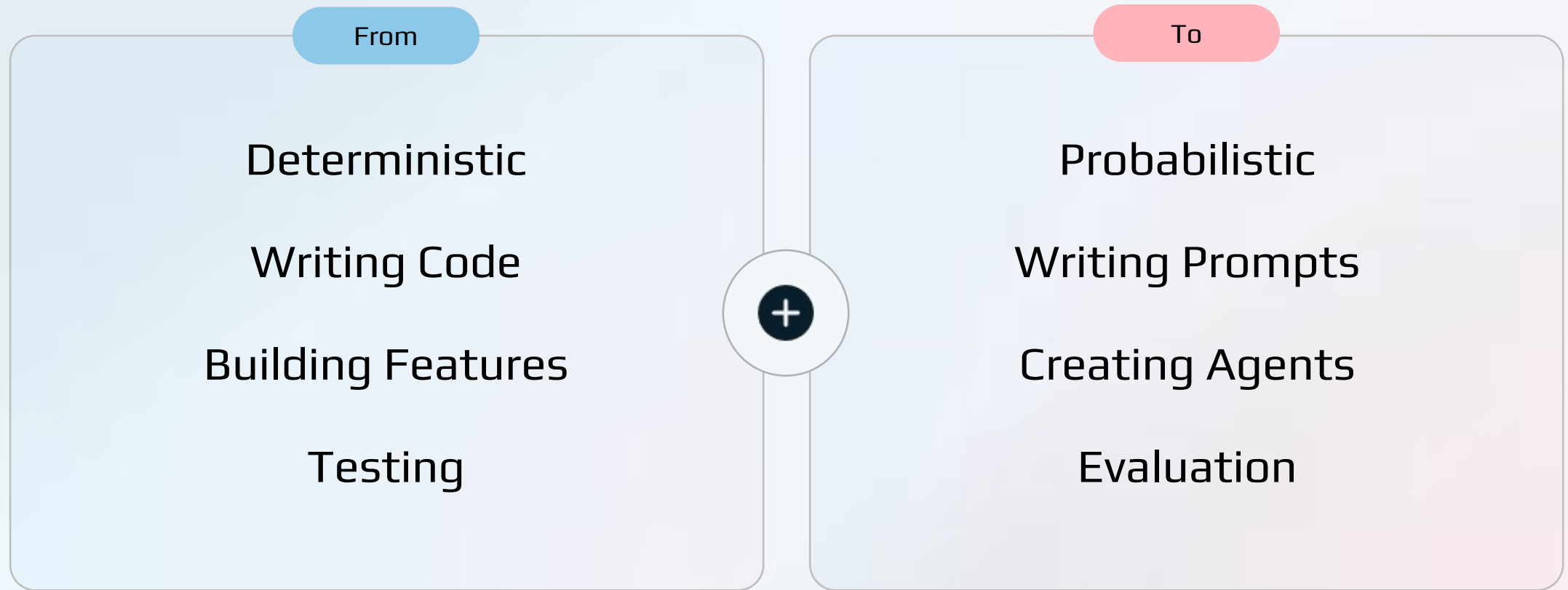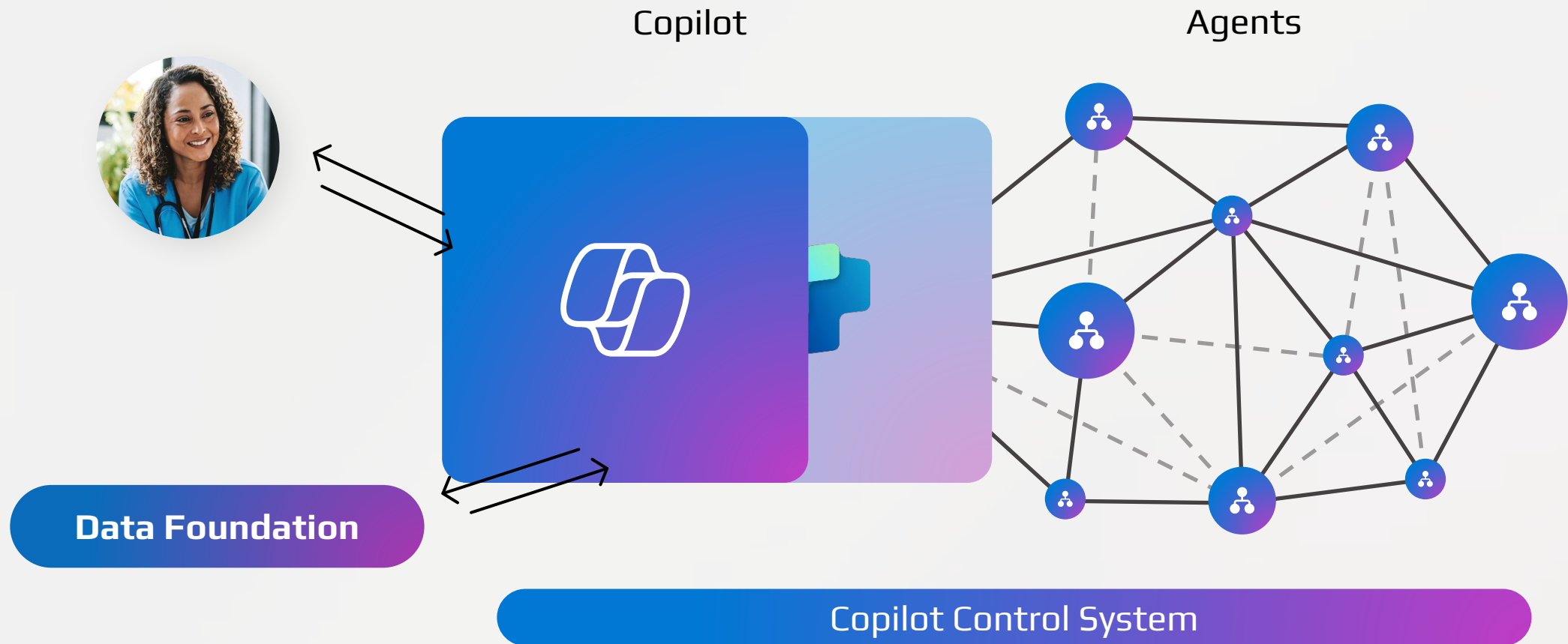
What is an agent?

Input

🔔 System events

💬 User messages

⬡ Agent messages

Agent

LLM

Instructions

Tools

Tool calls

🔍 Retrieval

✍️ Actions

🧠 Memory

Output

⬡ Agent messages

🛠️ Tool results
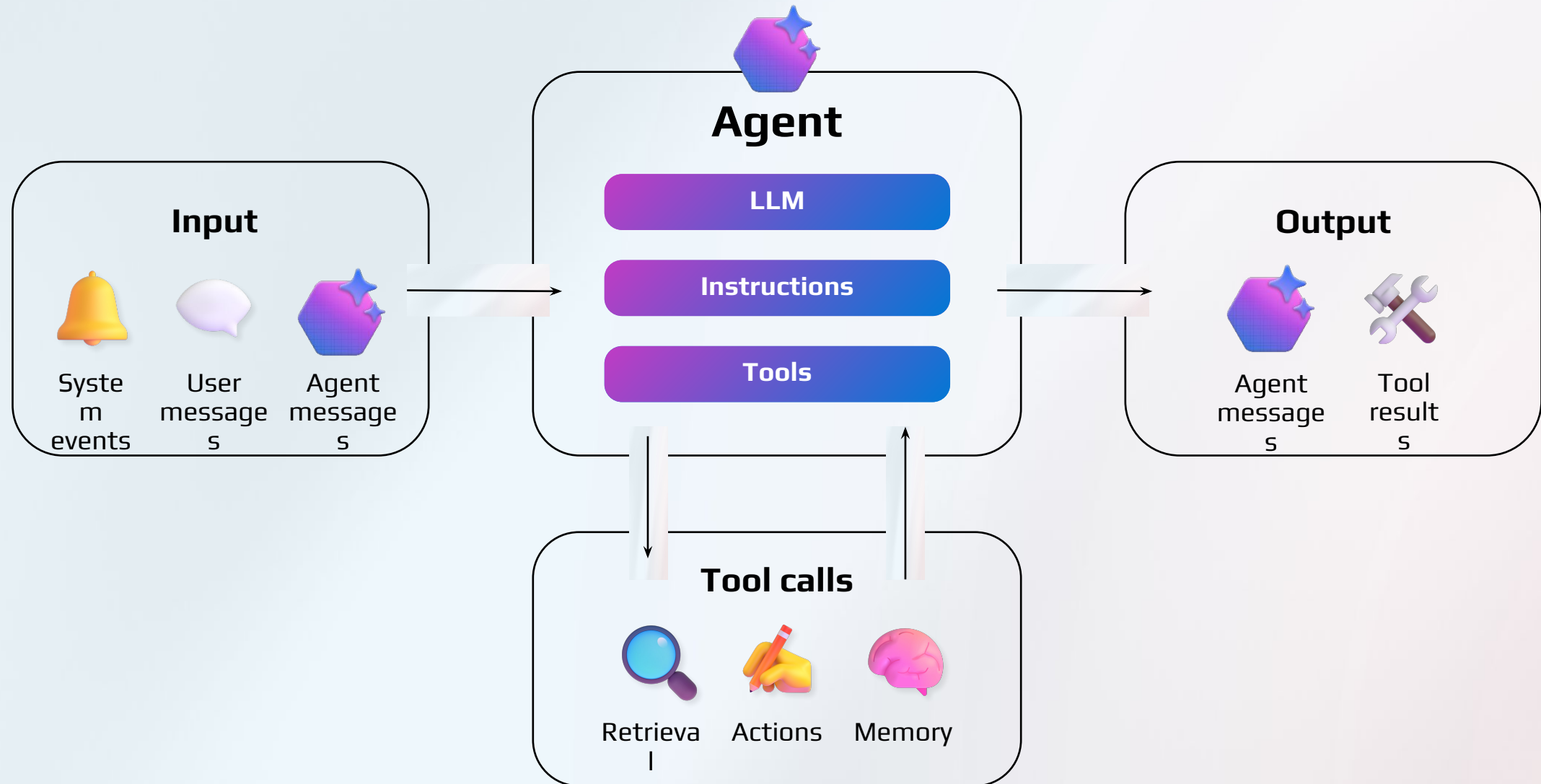
...with customized solutions...

IT Helpdesk agent

How do I connect to the corporate network?

Employee Self-Service agent

Find information on company policies and start a leave of absence request.

Sales Order agent

The agent has completed 7 sales orders and identified 2 issues that need your attention.

Simple

Advanced

Project Tracker agent

What is the status of phase 2 for project X and the remaining budget?

Budget Management agent

Review outstanding open POs and begin financial planning.

Testing agent

Create pseudo-realistic test data and tests from application acceptance criteria.

…and the way we write code is changing

From

Deterministic

Writing Code

Building Features

Testing

+

To

Probabilistic

Writing Prompts

Creating Agents

Evaluation

Copilot + Agents

Copilot

Agents

Data Foundation

Copilot Control System

Governance & safety

- Identity & access; least privilege; data minimization

- Content safety & prompt shielding; evidence-backed answers

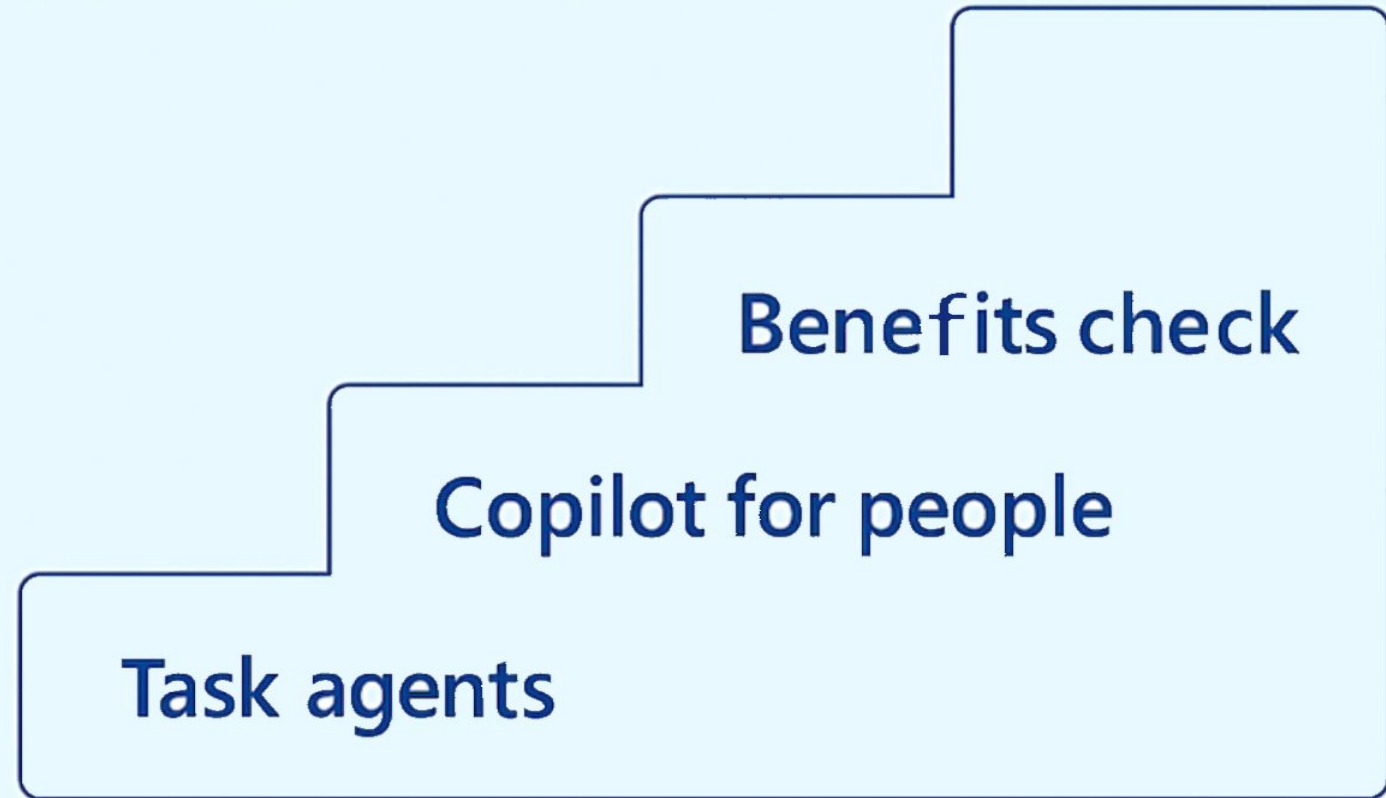- Audit trails for clinical oversight and incident response

Value & impact (example ranges)

- Data:
Documetion time ↓ 45–60%

- Prior-auth cycle time
prior-auth packet;

- Meeting-to-action conversion

- Governance posture ↑
auditable & compliant by design

Adoption ladder: Start small, scale fast

Benefits check

Copilot for people

Task agents

90-day motion: pick one workflow
→ pilot → measure → expand

Real-world use cases where data, copilots and agents can help

Transform clinical workflow

Streamline documentation, surface information and automate tasks

Simplify tasks like summarizing emails, managing meetings, writing letters, or creating presentations

Accelerate clinical research and patient care, including Trusted Research Environments

Enable safeguarded search of clinical and institutional knowledge like medical protocols and treatment information

Help clinicians and researchers navigate and analyze drug documentation

Generate and validate clinical coding such as SNOMED, ICD-10, HCC codes within complex clinical conversations

Personalize patient engagement

Automate appointment scheduling, triage patient inquiries, and guide patients through post-care instructions

Allow patients to interact with an agent on hospital websites and ask questions about health conditions or unfamiliar terms

Enhance care management with actionable insights

Provide accessible insights by extending copilots and healthcare agents with real-time information to better personalize care

Compile the latest medical research and categorize studies by drug efficacy, side effects, and patient quality of life

Thank you