

Architecting Intelligence: The Evolution of AI Agents in Enterprise Strategy

AI agents transform enterprise strategy, enhancing processes, decision-making, and customer engagement. This explores the AI maturity landscape, architectural considerations, and implementation frameworks to harness AI for digital transformation.

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Lead AI Engineer , Singtel

About me

Lead AI Engineer in Singtel

Over 15 years of experience in AI , Data Science & analytics domain.

Expertise Areas:

- Customer Analytics, Anti-Money Laundering/Counter-Terrorism Financing
- (AML/CFT), Credit Risk Modelling, Data Warehousing & GenAI Platforms.

Achievements:

- AI Strategy and Operationalize AI CoE at enterprise
- Reduced Customer Churn, Streamlined Processes, Enhanced Business performance.

Proven Record:

Delivering data-driven business improvements & GenAI platform.

Hobbies: Playing Piano  & Violin .

 **Contributions:** Open Source Projects in GenAI. [Falcon-evaluate](#)

 **Interests:** Tech Blogging.

 **Leisure:** Reading Books.



What is LLM ?

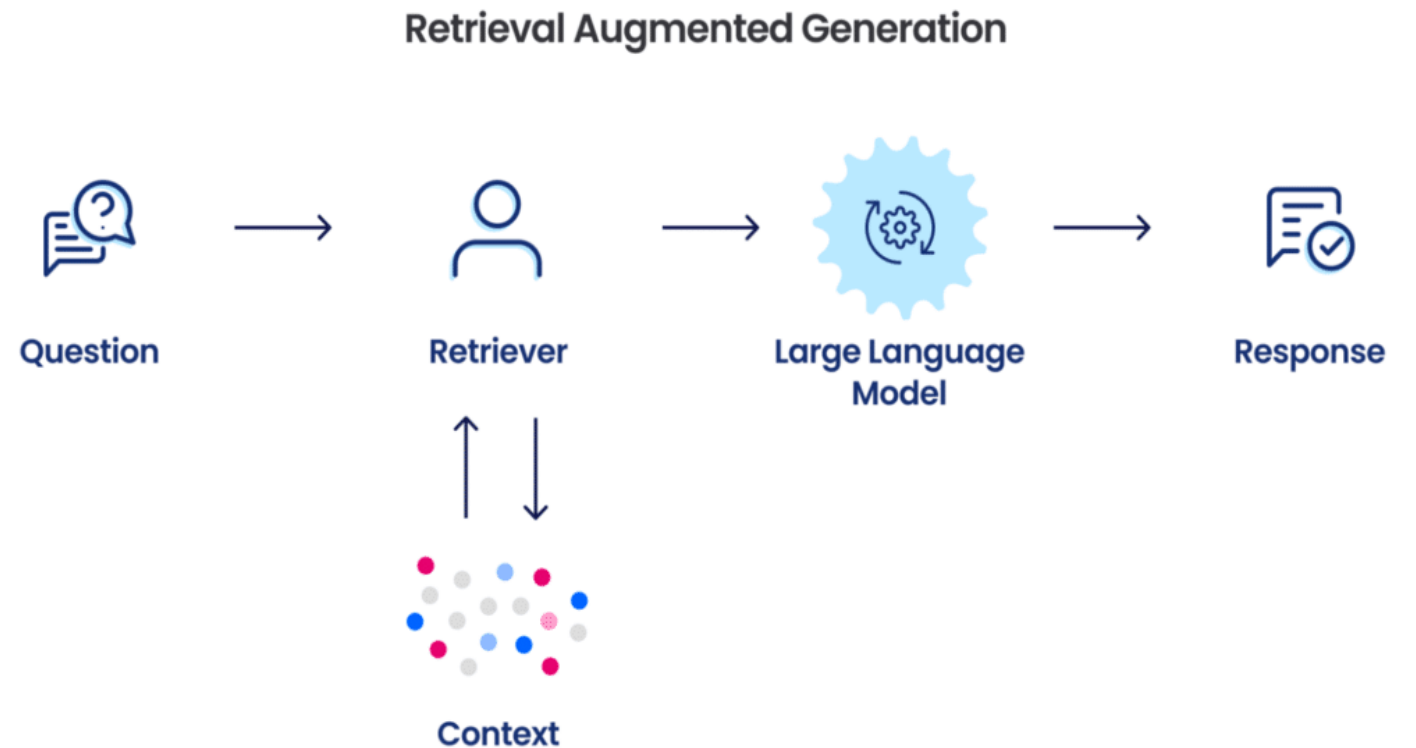
An LLM, or Large Language Model, is like a super-smart writing assistant. It learns from a massive amount of text to understand and mimic human language. This lets it answer questions, write stories, and more, just by analysing the words you give it.



What is RAG ?

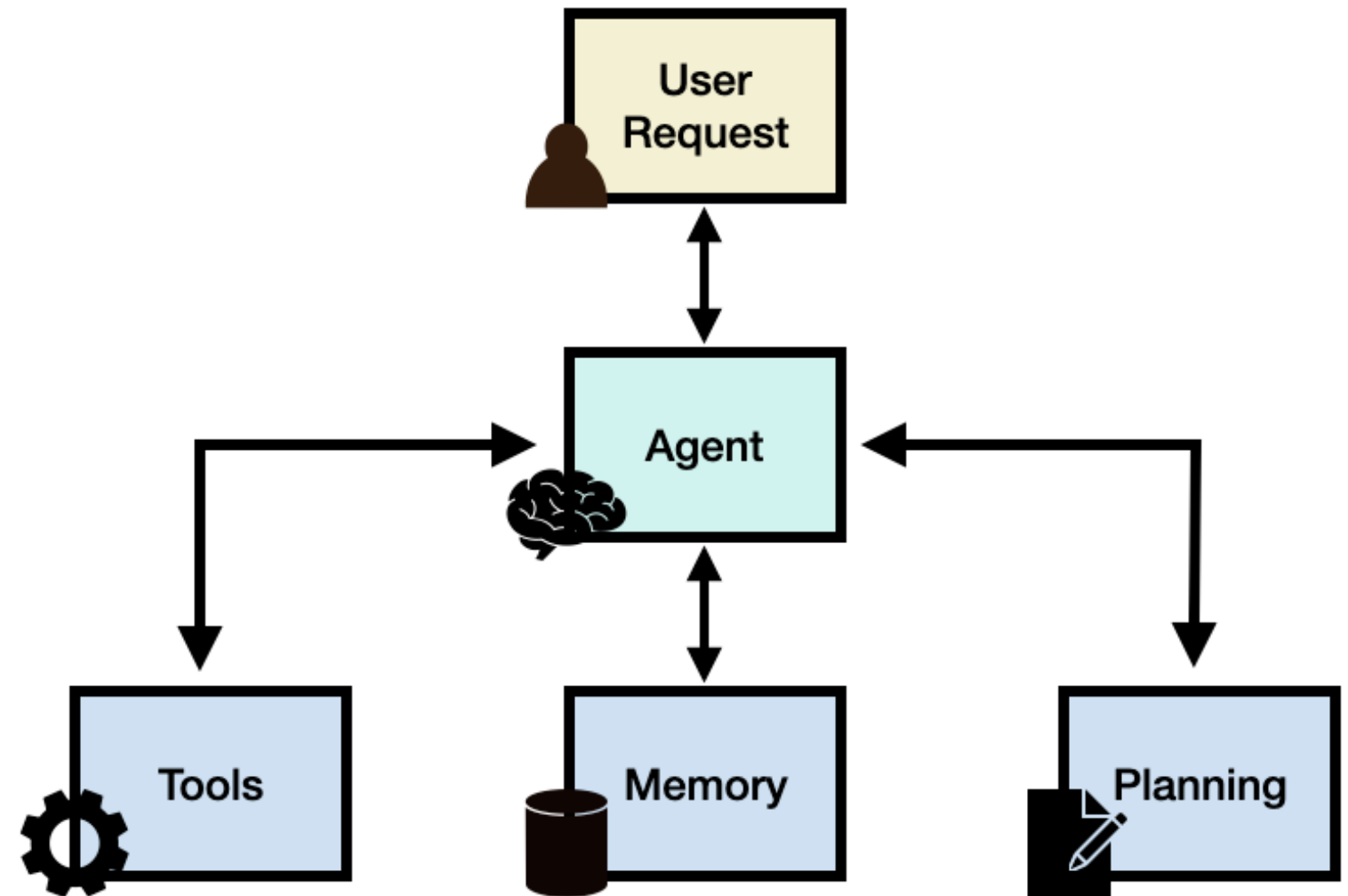
RAG, or Retrieval-Augmented Generation, is like a smart assistant that first finds relevant info from a big database, then uses it to craft detailed answers.

It combines quick research with creative writing, providing informed and engaging responses.



What is LLM Agent ?

Very smart digital assistants that can write text, answer questions, and even create stories or solve problems by learning from vast amounts of information on the internet via API calls and works well with other software tools



CHALLENGES OF SILOSED IMPLEMENTATION

Road to robust LLM Agentic systems

1

LLM Alone Workflows

- Lack of fact fullness led to hallucination.
- Bias

SOLUTION 01

LLM with relevant context information helps to mitigate the hallucination.

2

RAG workflows

- Good at sharing the relevant answer to question.
- Lacks recent information and connectivity. information.

SOLUTION 02

Equipped with tools and connectivity to internet and intranet to get the relevant information via API.

3

LLM Agent

- Complex system integration
- Quite hard to validate accuracy due to complex integration

SOLUTION 03

Ensure individual components are validated and tested as whole system.

Confluence of LLM , RAG and Agent

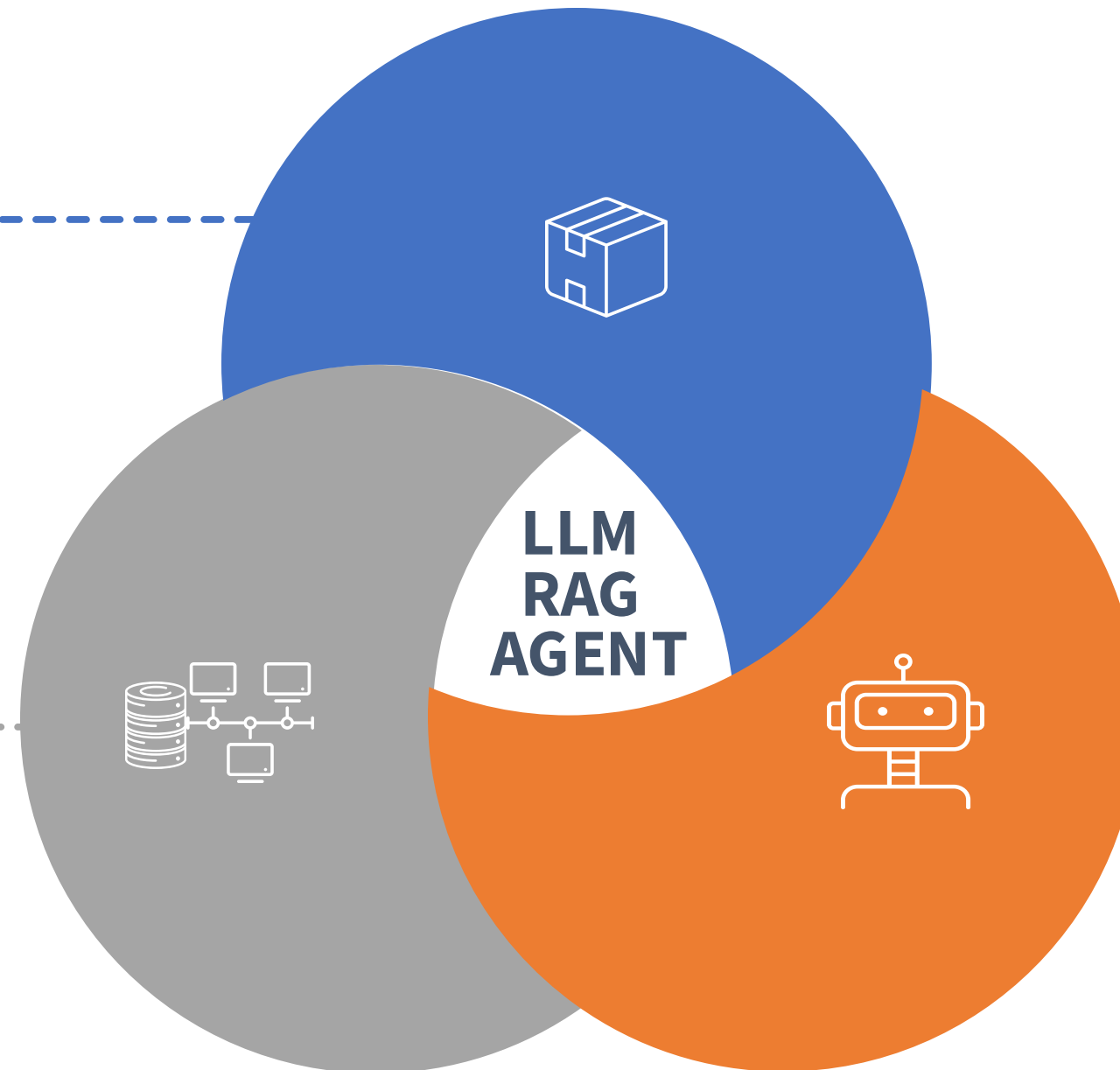
Collaborative Intelligence LLM,RAG and Agent Integration

LLM

Large Language Models
good at generate relevant
response for prompts , It
has ability to reason &
reflect

RAG

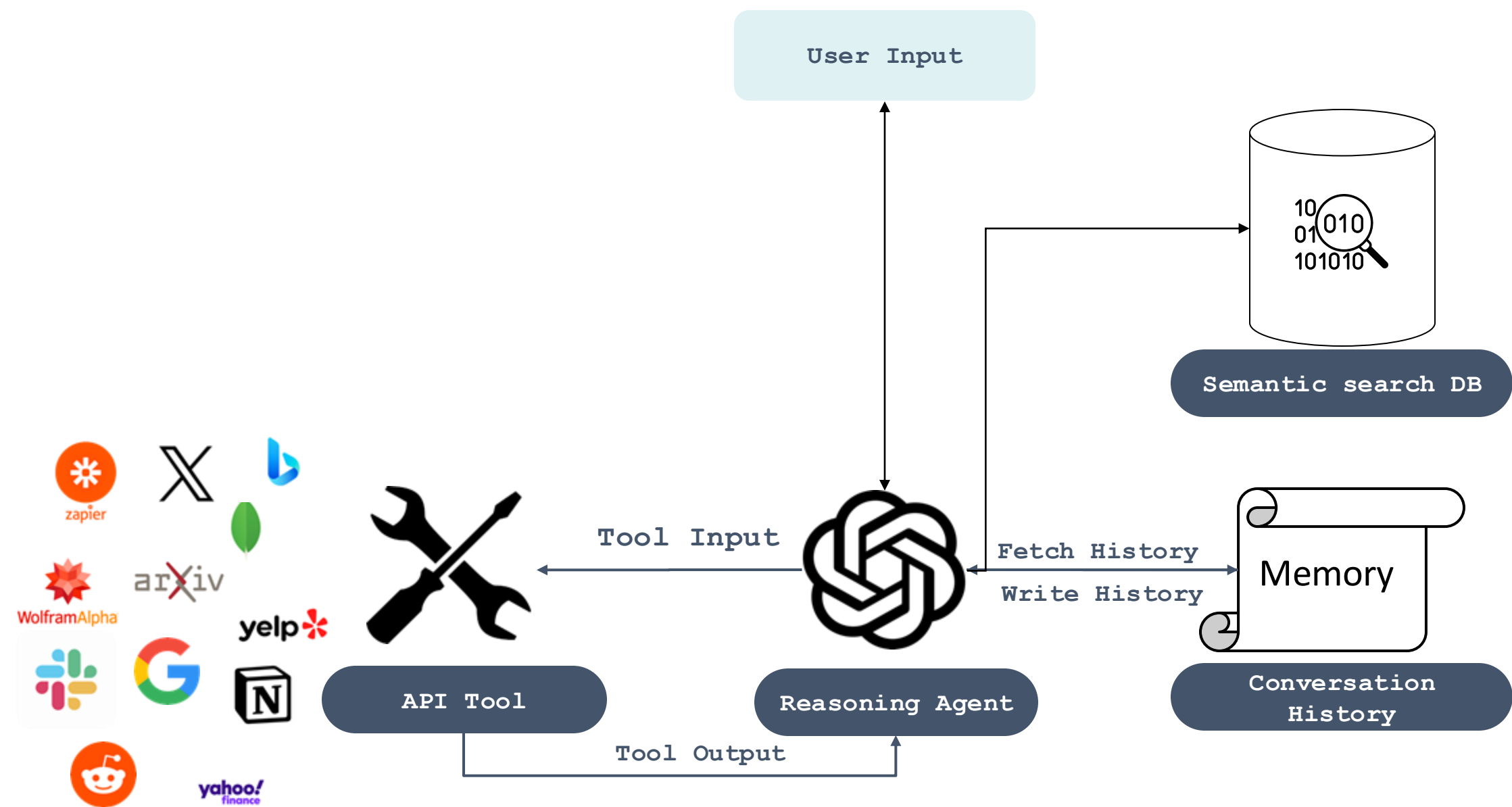
Empower LLM with
more relevant
context to mitigate
hallucination



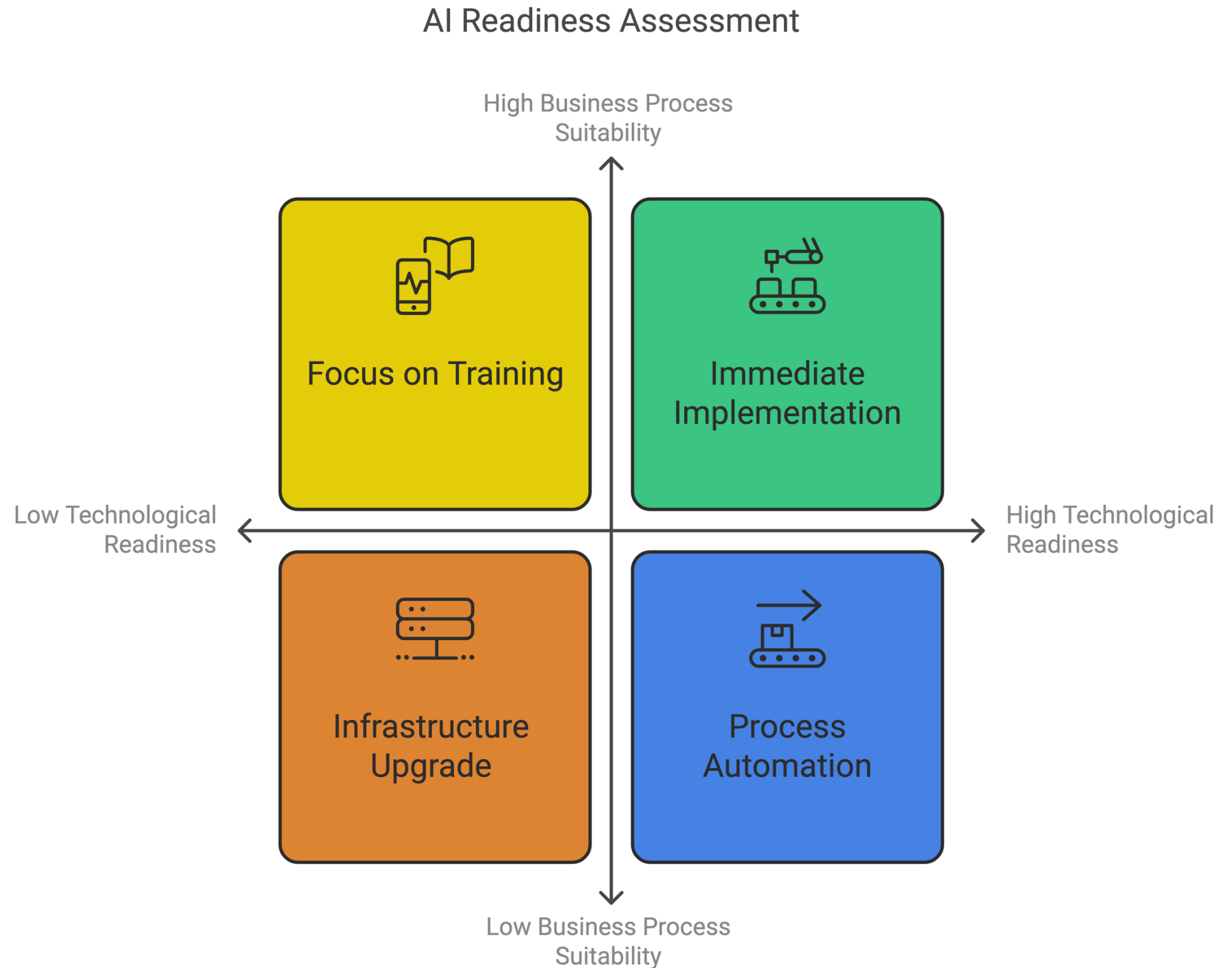
AGENT

It has tools , memory and
planning ability coordinate
plan and execute things get
done

Typical LLM Agent

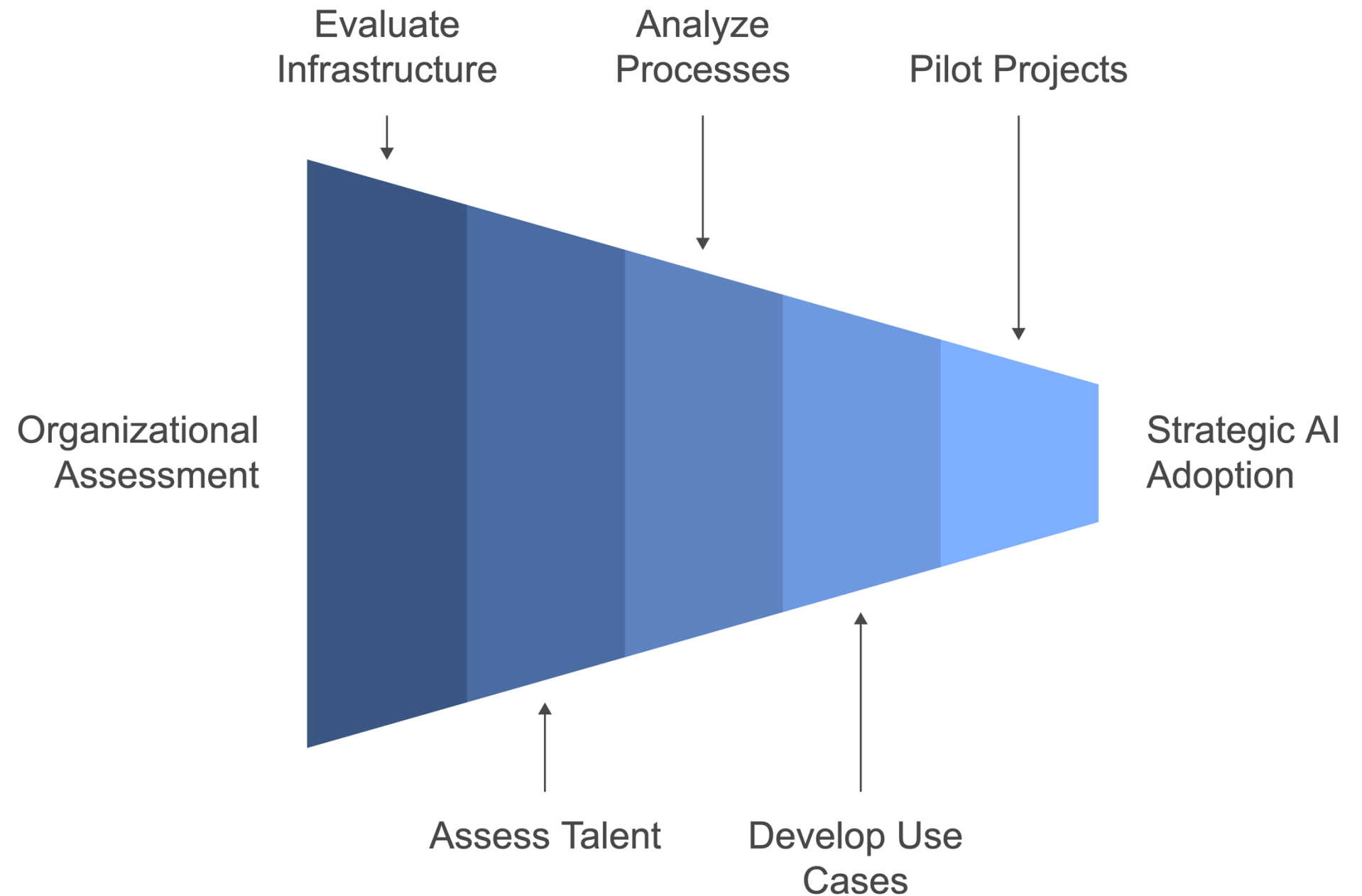


Assessment Quadrant

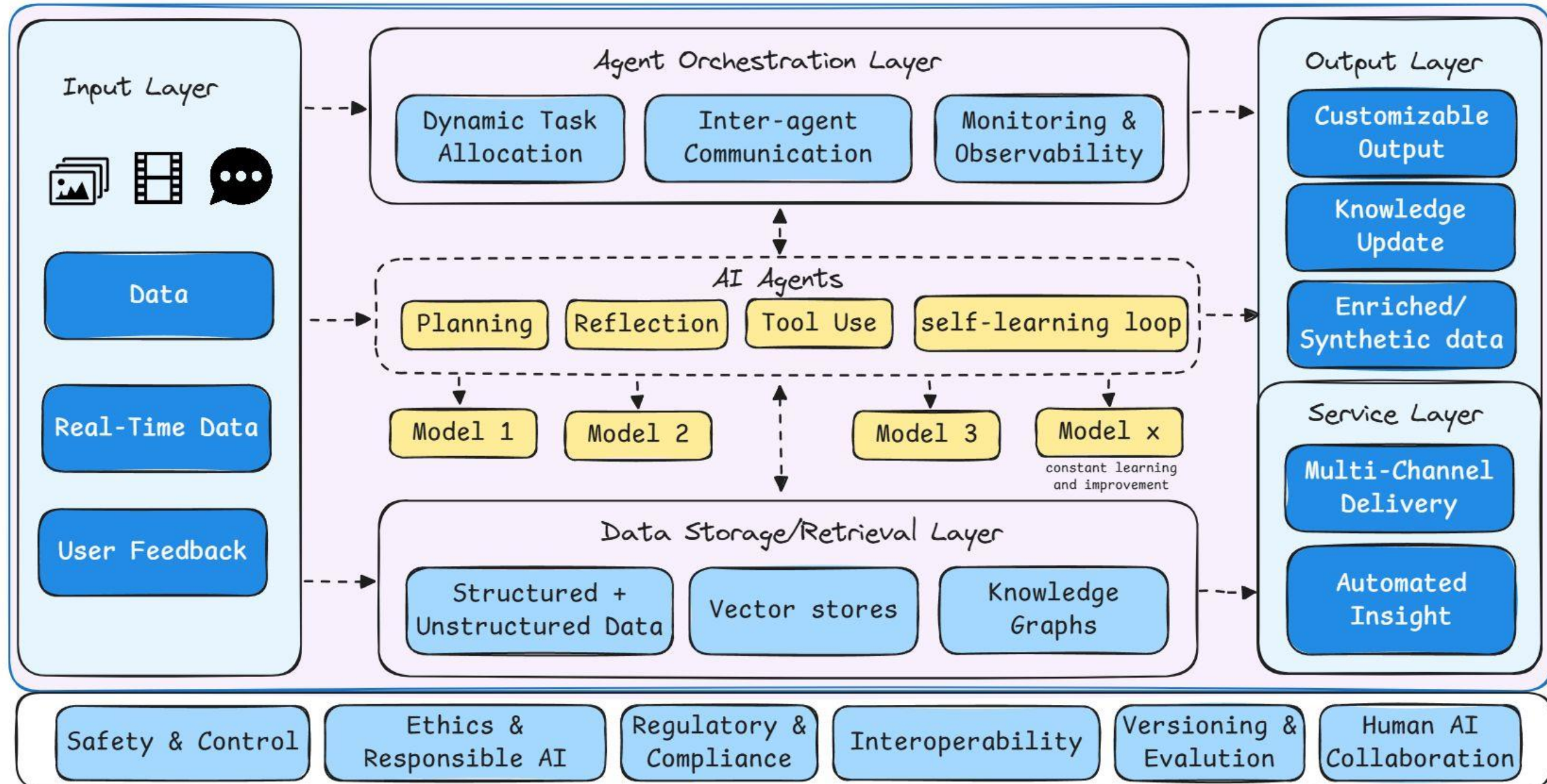


Assessing Organizational Readiness for AI Integration

AI Integration Readiness Funnel



Future Architecture of AI Agents



The GenAI Maturity Landscape: A Journey of Evolution

GenAI Solution Spectrum



Data Foundry



Prompt Explorer



Retriever Basics



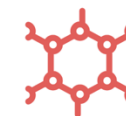
Retriever Pro



Advanced Tuner

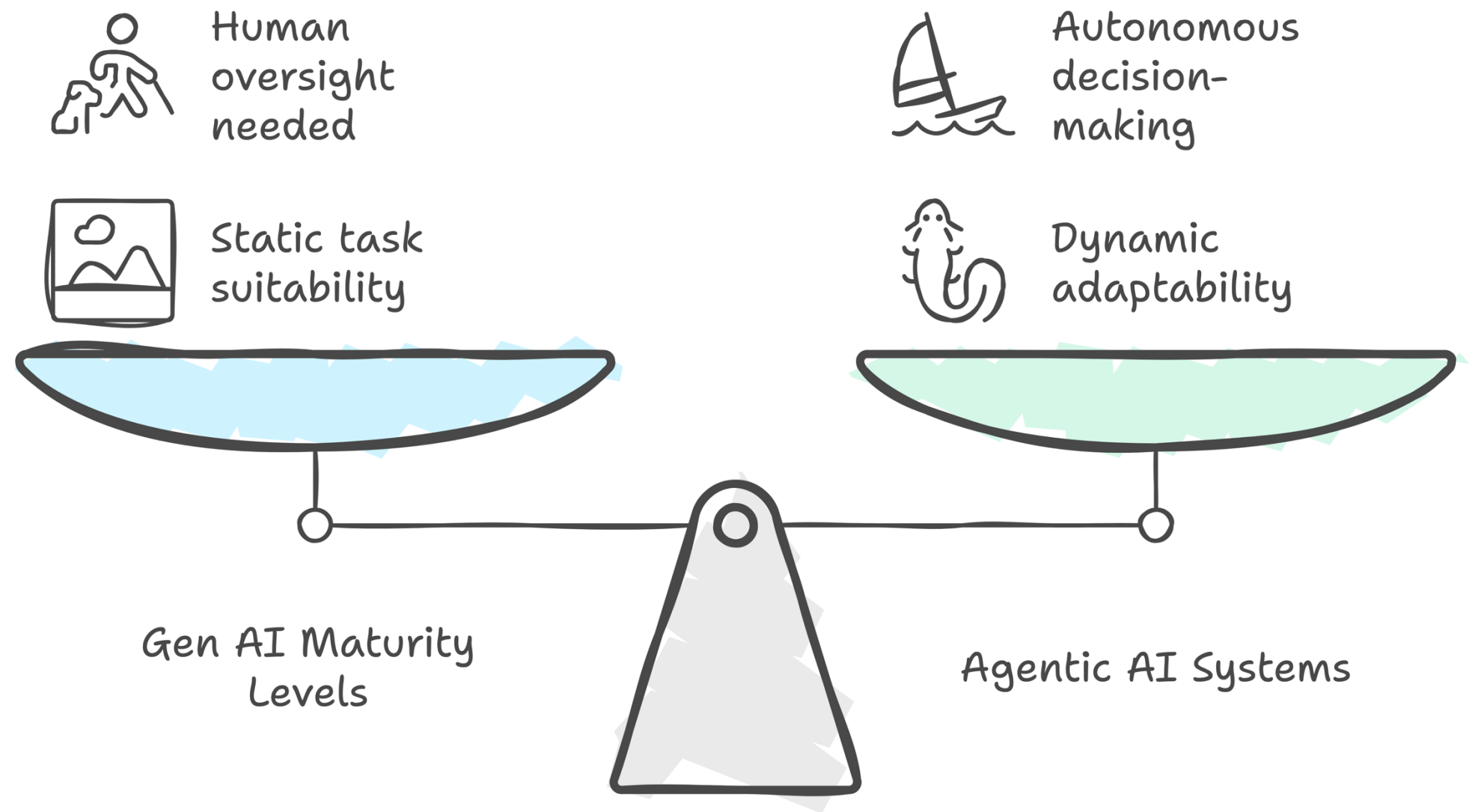


AI Orchestrator



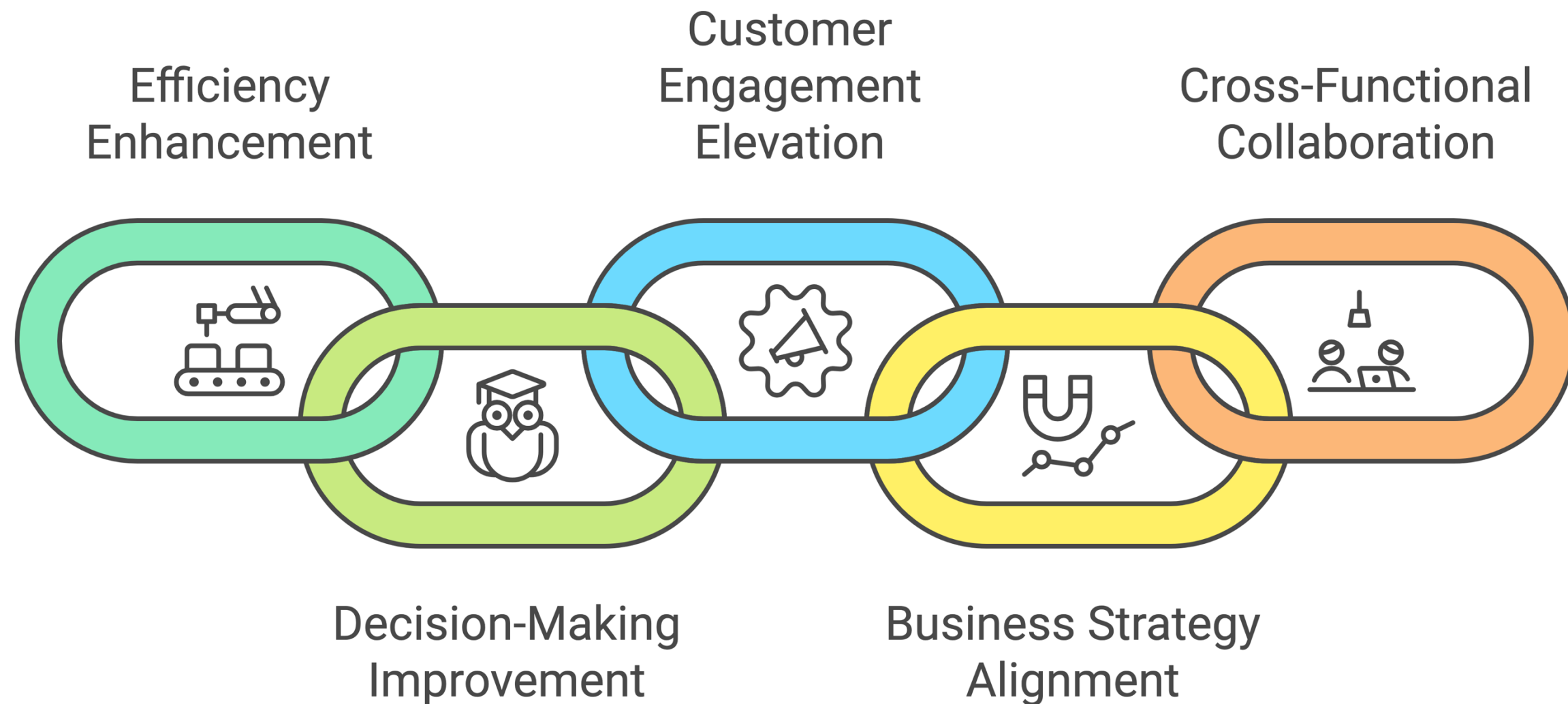
Cognitive Conductor

What Agentic Systems bring into table

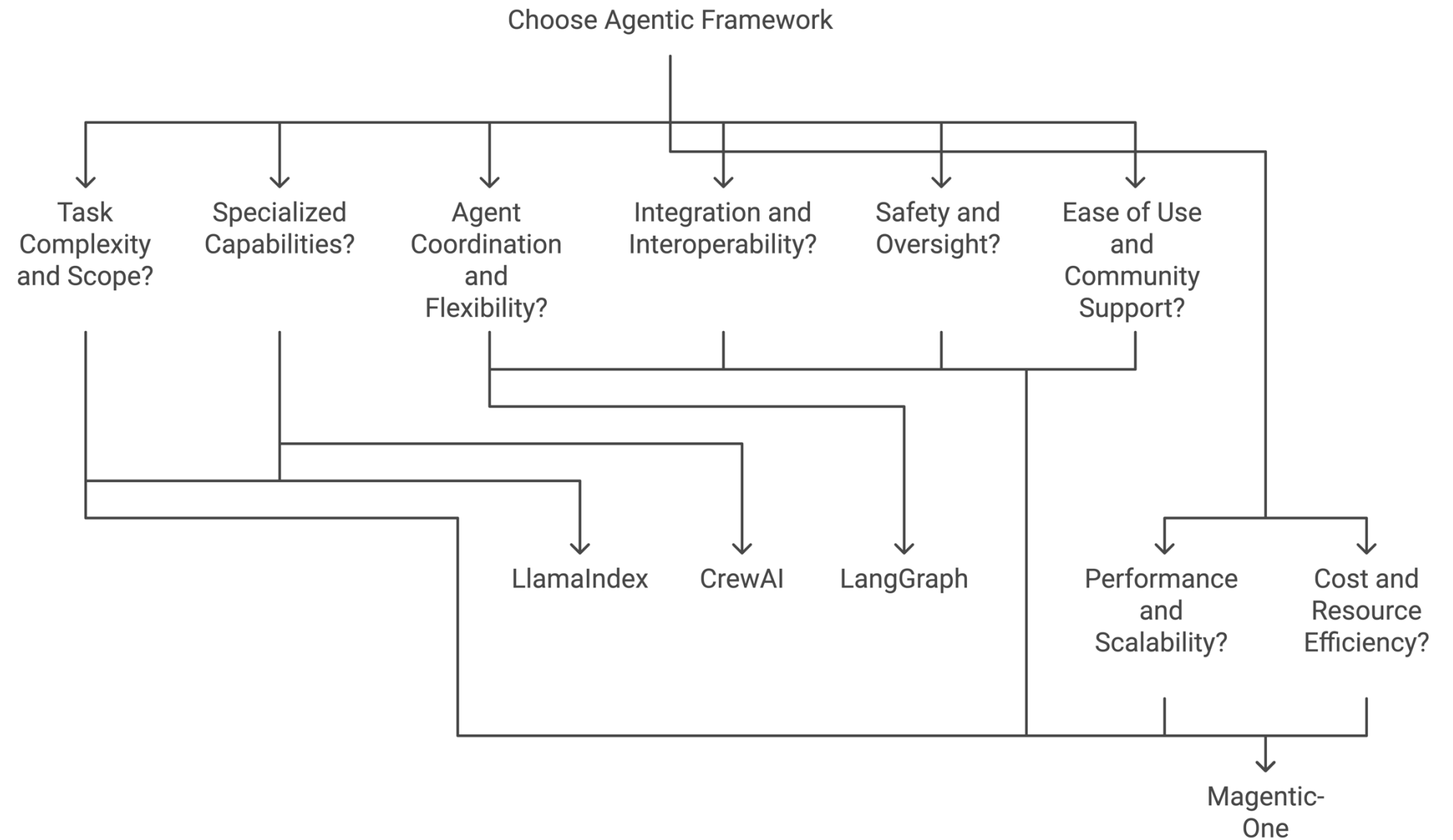


Comparing AI Autonomy and Adaptability

Agent Deployment Strategy

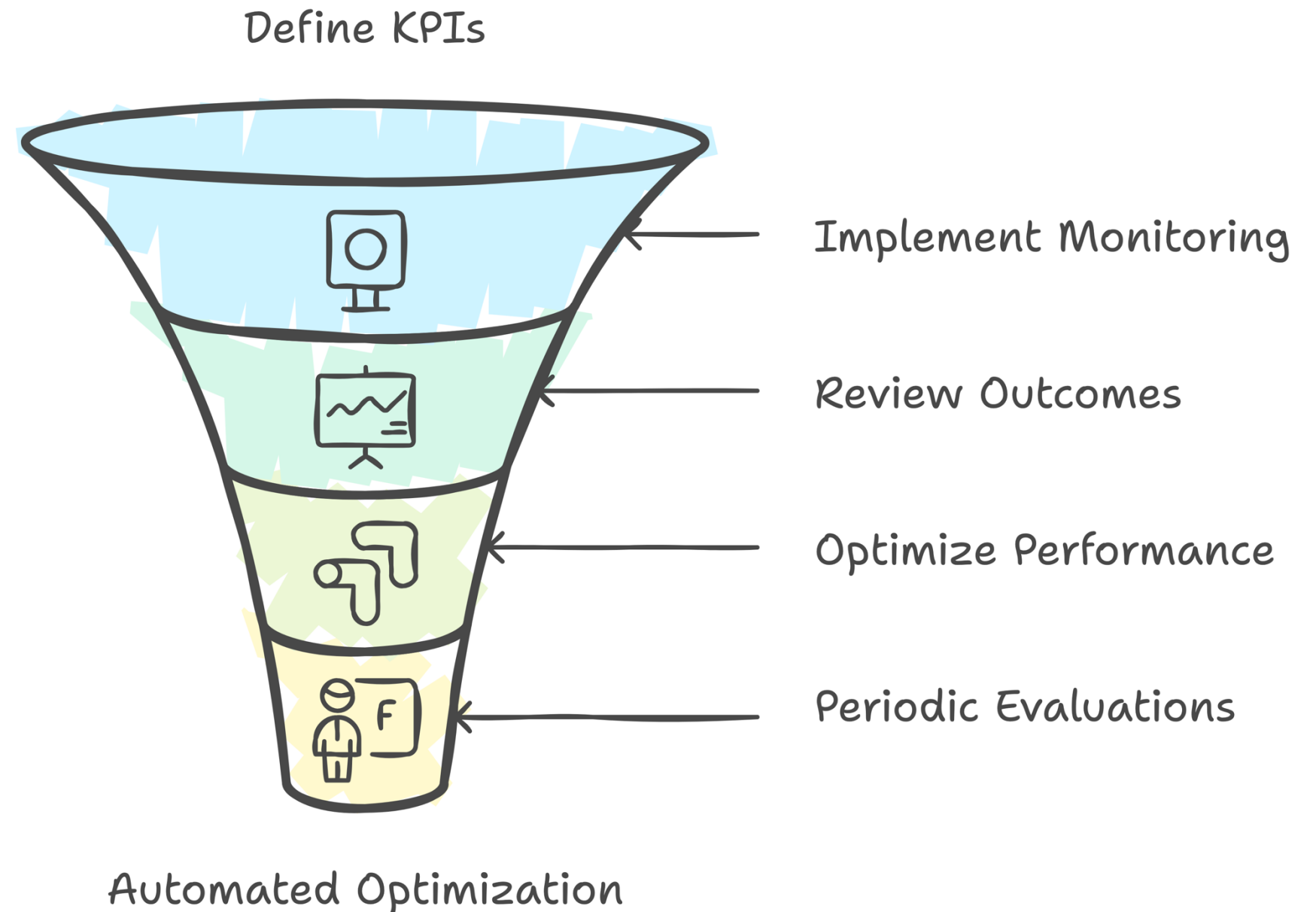


Agent Framework Decision criteria



Agent Optimization Funnel

AI Performance Optimization Funnel



An abstract digital cityscape composed of glowing blue cubes and rectangular structures. The surfaces of these structures are covered in binary code (0s and 1s). Several bright blue, green, and red light beams emanate from the structures, creating a sense of dynamic activity and connectivity. The background is a deep blue gradient, and the overall aesthetic is futuristic and technological.

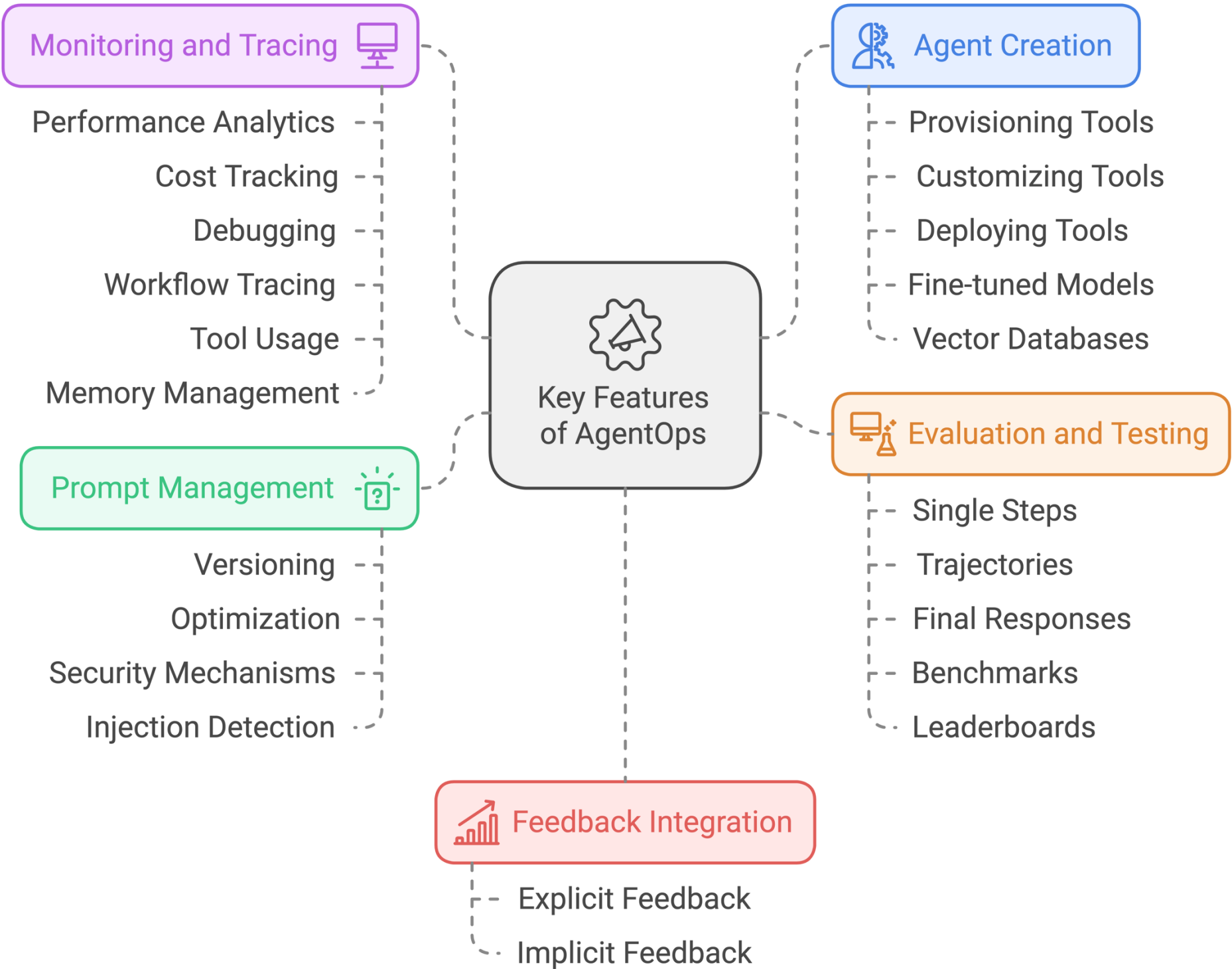
AgentOps

Emergence of AgentOps

Definition: AgentOps, inspired by DevOps/MLOps, is an end-to-end platform designed for managing the development, deployment, monitoring, and observability of autonomous AI agents.

Objective: To enhance the reliability and observability of Foundation Model (FM)-based autonomous agents.

AgentOps Capability



Take away

- Glimpse of GenAI Solution
- AI Maturity Assessment
- Agent Architecture capability
- AgentOps Optimization & Capability





Thank you

Presentation materials



Appendix

A red pushpin is prominently placed in the foreground, its sharp point resting on a map. Two blue pushpins are visible in the background, slightly out of focus. The map itself shows various geographical features like roads and rivers. The overall scene suggests a theme of navigation or research.

Reference

AgentOps - <https://arxiv.org/abs/2411.05285v1>