

AI Agents vs Agentic AI Cheat Sheet

A Practical Guide to Understanding Modern AI Systems

1. Introduction

1.1 Purpose of the Cheat Sheet

This cheat sheet provides a clear and concise overview of AI agents and agentic AI. Whether you're new to artificial intelligence or need a refresher, this guide will help you quickly grasp the essentials and make informed decisions about which technology to use for specific tasks.

1.2 What You'll Learn

- **AI agents basics:** What they are, how they function, and where you might encounter them.
- **Agentic AI basics:** How these more advanced AI systems differ from classic AI agents.
- **Key differences:** A clear comparison to help you distinguish between the two.
- **When to use each:** Guidance on choosing the right approach for your needs.

2. What Are AI Agents?

2.1 Definition (Task-Based Systems)

An **AI agent** is a software system designed to perform specific tasks by following set rules or patterns. These agents typically focus on a single objective, such as answering queries, recommending products, or filtering unwanted messages.

Think of an AI agent as a diligent office assistant: reliable, focused on one job, and always following instructions.

2.2 How They Work (Input → Process → Output)

- **Input:** The agent receives data or a request from a user or another system.
 - Example: A customer types a question into a chatbot.
- **Process:** The agent analyses the input using pre-programmed rules or algorithms.
 - Example: The chatbot searches its database for relevant answers to the question.
- **Output:** The agent delivers a response or takes an action based on its analysis.
 - Example: The chatbot replies with a helpful answer.

2.3 Key Characteristics

- **Rule-based:** Operate within a set of predefined instructions or logic.
 - Example: "If the email contains the word 'free', mark as spam."
- **Task-specific:** Designed for one particular function or a narrow set of tasks.
 - Example: A recommendation system suggests products but does not answer customer service queries.
- **Limited autonomy:** Cannot decide to perform tasks outside their programming or adapt substantially to new situations.
 - Example: A spam filter cannot suddenly start booking appointments.

2.4 Common Examples

- **Chatbots:** Automated assistants on websites that answer common customer queries.
 - Example: A bank's FAQ chatbot that provides information about opening hours and account services.
- **Recommendation systems:** Suggest products, movies, or music based on user preferences.
 - Example: Netflix recommending shows based on your viewing history.

- **Spam filters:** Automatically sort or delete unwanted emails.
 - Example: Gmail's spam folder that catches suspicious messages.

3. What Is Agentic AI?

3.1 Definition (Goal-Driven, Adaptive Systems)

Agentic AI refers to advanced artificial intelligence systems designed to pursue broader goals, make decisions, and adapt their behaviour as circumstances change. Unlike traditional AI agents that are locked into a single task, agentic AI can chart its own course to achieve a desired outcome.

Imagine an agentic AI as a resourceful project manager: able to juggle multiple tasks, adjust to new challenges, and choose the best strategy to reach its objectives.

3.2 How It Works (Goal Setting, Planning, and Learning)

- **Goal:** The system is given a broad objective, such as "plan a travel itinerary" or "optimise business operations".
- **Planning:** It breaks down the goal into smaller tasks, decides how to tackle them, and determines the best order of actions.
- **Learning & Adapting:** Agentic AI can learn from new information, adjust its plans if things change, and even recover from unexpected setbacks.

3.3 Key Capabilities

- **Autonomous decision-making:** Chooses actions based on goals rather than sticking to fixed rules.

- **Multi-step reasoning:** Can handle complex tasks that require several steps and adjust its approach as it goes.
- **Context awareness:** Understands the bigger picture and makes choices based on changing circumstances.

3.4 Common Examples

- **Personal assistants:** Advanced digital assistants that can manage your diary, book appointments, and adapt to your changing preferences.
- **Autonomous vehicles:** Cars or drones that navigate real-world environments, respond to obstacles, and reroute as needed.
- **Business process automation:** Systems that optimise workflows, allocate resources, and adjust strategies to meet business goals.

4. AI Agents vs Agentic AI (Comparison)

Feature	AI Agent	Agentic AI
Core Function	Executes specific, well-defined tasks	Pursues broader goals, often spanning multiple tasks
Decision-Making	Follows set rules or logic	Makes choices based on goals, context, and changing conditions
Autonomy	Limited; acts within strict boundaries	High; adapts actions and plans as needed
Flexibility	Low; cannot change behaviour or task mid-way	High; can adjust strategies, switch tactics, and recover from setbacks
Scope	Narrow, single-purpose	Broad, often managing multiple objectives or domains

Behaviour

Predictable, consistent

Dynamic, responsive to new
information and changing
goals

- **In summary:** Choose an AI agent for well-defined, repetitive tasks where predictability is key. Opt for agentic AI when you need a system that can handle complexity, adapt to new challenges, and operate with a higher degree of autonomy.

5. When to Use AI Agents

5.1 Repetitive Tasks

AI agents excel at handling repetitive tasks that require consistency and accuracy. These systems are perfect for jobs where the workflow rarely changes and the requirements are well-defined.

5.2 Structured Workflows

In environments where processes follow a clear structure, AI agents can reliably execute each step without deviation. This makes them ideal for automating tasks within rigid frameworks, such as data entry or routine checks.

5.3 Rule-Based Environments

AI agents thrive in scenarios governed by strict rules and logic. They can follow predetermined guidelines to deliver predictable results, making them suitable for settings where compliance and reliability are essential.

5.4 Example Use Cases

- **Customer support:** AI agents can handle frequently asked questions, resolve common issues, and escalate complex queries as needed.

- **Email filtering:** These agents sort incoming messages, identify spam, and maintain inbox organisation efficiently.

6. When to Use Agentic AI

6.1 Complex Decision-Making

Agentic AI is best suited for situations that demand multi-step reasoning and adaptive strategies. It can analyse large volumes of data, weigh competing priorities, and make informed decisions even as conditions evolve.

6.2 Dynamic Environments

When circumstances are constantly changing, agentic AI stands out by adjusting its approach to meet new challenges. It is highly effective in unpredictable settings where flexibility is vital.

6.3 Cross-Functional Workflows

Agentic AI can coordinate tasks across multiple teams or domains, ensuring seamless integration and optimisation throughout complex projects or operations.

6.4 Example Use Cases

- **Risk analysis:** Agentic AI models can assess evolving threats and recommend proactive measures to mitigate potential risks.
- **Compliance monitoring:** These systems monitor regulatory changes and adapt business processes to maintain compliance without manual intervention.

- **Intelligent automation:** Agentic AI orchestrates end-to-end workflows, automating decision-making and resource allocation beyond simple task execution.

7. Real-World Use Cases

7.1 Compliance

AI agents are widely used in compliance management to ensure that organisations adhere to regulatory requirements. They automate monitoring tasks, flagging potential breaches and generating reports for auditors. Agentic AI takes this further by adapting to new regulations and recommending process updates, helping companies stay ahead of changing compliance landscapes.

7.2 Audit

Automated audits benefit from AI agents' ability to consistently review transactions against set criteria, detecting anomalies with high accuracy. Agentic AI enhances the audit process by analysing complex patterns and dynamically adjusting audit strategies based on evolving risk profiles. This leads to more thorough and responsive audit outcomes.

7.3 Risk Management

AI agents support risk management by systematically tracking key metrics and alerting teams to predefined risk thresholds. In contrast, agentic AI evaluates multiple risk factors, models potential scenarios, and suggests adaptive mitigation strategies, making it invaluable for organisations facing uncertain and rapidly changing environments.

7.4 Operations Automation

Routine operational tasks such as scheduling, inventory tracking, and process optimisation are efficiently handled by AI agents. Agentic AI can orchestrate entire operations, coordinating multiple workflows, allocating resources dynamically, and resolving issues as they arise, ensuring smooth and efficient business performance.

8. Challenges

8.1 AI Agents

- **Limited flexibility:** AI agents are constrained by their programmed rules, making it difficult to adapt when workflows or objectives change unexpectedly.
- **Dependency on predefined rules:** These systems rely heavily on clear guidelines; if the rules are incomplete or inaccurate, performance can suffer and errors may go unnoticed.

8.2 Agentic AI

- **Governance complexity:** Managing agentic AI systems requires robust oversight to ensure their autonomy does not lead to unintended consequences.
- **Data dependency:** Agentic AI's effectiveness hinges on access to large amounts of accurate, up-to-date data, which can be challenging to maintain.
- **Ethical concerns:** The decision-making autonomy of agentic AI raises questions about accountability, transparency, and potential biases, necessitating careful ethical review and governance.

9. Key Takeaways

9.1 AI Agents = Task Execution

AI agents are best deployed where the primary need is efficient, consistent execution of well-defined tasks. They excel in environments with predictable workflows, ensuring reliability and accuracy without deviation.

9.2 Agentic AI = Decision + Ownership

Agentic AI systems stand out when the situation requires autonomous decision-making and adaptive strategies. These models take ownership of complex processes, adjusting their approach to meet evolving goals and challenges.

10. Quick Decision Framework

10.1 Use AI Agents → Predictable Tasks

Choose AI agents for scenarios where tasks are routine, the rules are clear, and the outcome is expected. Their strength lies in consistency and adherence to established procedures.

10.2 Use Agentic AI → Dynamic Scenarios

Opt for agentic AI when facing situations that demand flexibility, multi-step reasoning, and the ability to navigate uncertainty. Their adaptability makes them ideal for dynamic environments and complex problem-solving.

Conclusion

AI is no longer just about automating tasks—it's about enabling systems to think, decide, and act with purpose. Understanding the difference between AI agents and agentic AI is key to making the right technology choices as organizations move toward more intelligent automation.

AI agents continue to play an important role in handling structured, repetitive tasks with efficiency and consistency. They are reliable, predictable, and ideal for well-defined workflows. On the other hand, agentic AI represents the next step—systems that can plan, adapt, and manage complex processes with minimal human intervention.

The real value lies not in choosing one over the other, but in knowing when to use each. Businesses that apply AI agents for efficiency and agentic AI for adaptability will be better positioned to scale, innovate, and respond to change effectively.

As AI continues to evolve, the shift from execution to decision-making will define the future of work. Organizations and professionals who understand and embrace this transition will have a clear advantage in building smarter, more resilient system

AGENTIC AI PROFESSIONAL CERTIFICATION

AGENTIC AI IS BASED ON THE IDEA OF CREATING AI THAT CAN THINK AND ACT ON ITS OWN TO GET THINGS DONE, LIKE A HELPFUL ASSISTANT.



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