

TECHNOLOGY

Agentic AI 101

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Intelligent AI agents that solve complex problems proactively, reshaping business, economy and society

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The rapid evolution of artificial intelligence (AI) is ushering in a transformative era of autonomous decision-making that promises to revolutionize business operations. Agentic AI represents a quantum leap beyond traditional AI systems, introducing intelligent agents

capable of independent problem-solving, proactive action, and continuous learning.

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Marcus Holgersson, Linus Dahlander, Henry W. Chesbrough, and Marcel Bogers, “**Open Innovation in the Age of AI**,” California Management Review, 67/1 (2024): 5-20.

Michael Haenlein and Andreas Kaplan, “**A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence**,” California Management Review, 61/4 (2019): 5-14.

Not the AI You Know

Unlike previous generations of AI that relied on explicit instructions or generated content based on specific prompts, agentic AI systems operate with unprecedented autonomy. Three critical attributes characterize these advanced systems:

1. **Autonomous execution:** AI agents can independently navigate complex tasks, determining and implementing necessary steps without constant human supervision.
2. **Adaptability:** These systems continuously learn and refine their performance by analyzing outcomes and integrating new data.
3. **Goal orientation:** Designed to achieve specific business objectives, agentic AI proactively develops innovative solutions.

Mechanics of Agentic AI

The functionality of an AI agent unfolds through a sophisticated, cyclical process:

1. **Perceive:** An agent gathers and processes data from various information sources;
2. **Reason:** It uses GenAI to understand tasks, generate solutions, and coordinate specialized AI models for specific functions such as content creation and recommendation systems;
3. **Act:** The agent executes tasks using various tools, such as spreadsheets or customized user interfaces, based on the goal to be reached. What makes agentic AI very powerful is therefore these two steps that enable an agent to “ReAct” – **reasoning** and **acting**;
4. **Learn:** The agent improves its performance through feedback and experience; becoming more effective and efficient in making decisions over time;
5. **Orchestrate:** An agent shares information and collaborates with other AI agents to solve increasingly complex problems, delivering better user performance.

In essence, these agents function like highly skilled personal assistants, understanding objectives and working proactively without constant human direction.

Impact Across Industries

Agentic AI is poised to revolutionize various industries including:

Healthcare: Medical AI agents can analyze complex data, assist in diagnostics, and provide continuous patient monitoring. These systems support healthcare professionals by offering real-time insights and suggesting treatment protocols, potentially improving patient care quality.

Financial services: Financial institutions are deploying agentic AI to streamline critical processes. For instance, companies like Nexus FrontierTech use agentic AI techniques to help the lending teams at global banks collect and analyse environmental and sustainability data. This enables them to efficiently approve new loans and monitor existing ones in real time.

Supply chain management: AI agents can optimize inventory management, predict potential disruptions, and reconfigure supply chains dynamically. By autonomously managing logistics, these systems can reduce fuel consumption and enhance global

operational efficiency.

Navigating Challenges

Despite its immense potential, agentic AI introduces complex challenges that demand careful navigation:

- **Workforce transformation:** The technological shift will dramatically alter business economics, moving from traditional employee payroll to software subscription models, which means companies will invest more in technology while offering fewer jobs. The emerging job market will be characterized by unprecedented volatility, requiring workers to embrace continuous learning and rapid skill adaptation. The primary challenge will not be a complete absence of jobs, but rather the complex process of workforce transition, demanding robust support systems to help individuals navigate skill retraining, manage potential financial instability, and address the psychological impacts of rapid technological disruption.
- **Accountability and misuse:** The emergence of agentic AI raises critical accountability questions: if an AI agent makes a mistake, who is responsible? The AI? The company itself? Or the technology provider? And how do businesses buy insurance against the financial consequences of such mistakes? AI agents could be abused to generate sophisticated scams or pursue unethical objectives. These in turn will make robust guardrails and comprehensive legal frameworks essential.
- **Security:** As agentic AI systems become increasingly embedded in enterprise infrastructure, safety and privacy are critical challenges demanding comprehensive security strategies. Organizations must develop rigorous security frameworks that protect sensitive data, ensure regulatory compliance, and defend against potential cyber threats that could exploit AI agent vulnerabilities. Establishing robust security protocols is no longer optional but a fundamental requirement for maintaining operational integrity, protecting corporate reputation, and preserving customer trust in an increasingly sophisticated intelligent systems era.

A New Pathway to Innovation and Business AI Democratization

Agentic AI stands poised to become a transformative innovation engine, generating entirely new economic landscapes by enabling AI agents to solve complex challenges across industries autonomously. These intelligent systems will spark unprecedented entrepreneurial opportunities, allowing startups and established companies to create specialized AI tools that seamlessly work with AI agents. Current trends have also shown that technology companies are developing compact, purpose-built language models (so-called “small language models”) that can operate with much lower computational overhead, enabling organizations to deploy AI agents more efficiently and cost-effectively. They can potentially threaten their significantly larger counterparts.

All these developments will finally make it sufficiently easy and inexpensive for small- and medium-sized enterprises (SMEs) to take on AI. A recent global survey has shown that only one in ten SMEs uses AI regularly. The reasons are a lack of knowledge and confidence about implementing AI effectively, safely, and compliantly.¹ In short, the barrier is not skepticism—it is accessibility. By dramatically lowering the cost and complexity barriers to sophisticated problem-solving, agentic AI will likely empower these SMEs to automate their tasks and make workflows and processes more efficient. This, in turn, will likely help reduce operating costs—and open up new opportunities for them.

References

1. **“Only one in ten SMEs regularly use AI,”** Credit Connect, (2024)



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