Chapter 1

Introducing Agentic AI

IN THIS CHAPTER

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Agentic AI represents a significant shift in the evolution of AI. Its capabilities are leaps and bounds beyond those of Generative AI (GenAI) and other traditional forms of AI, such as voice assistants like Siri and Alexa, or the technologies that drive autonomous cars. The most distinguishing feature that puts Agentic AI in a league of its own is *autonomy* (its capacity to make decisions and carry out a set of actions toward a goal without specific instruction at each step).

Put in a simpler way, GenAI is all talk, and Agentic AI is all action.

This chapter explores what defines an AI as agentic, how it differs from other AI types, and the foundational elements required to recognize such a system. Further, this chapter presents two examples of profound disruptions that Agentic AI brings: the rise of the AI web and the shift from e-commerce to A-commerce.

Defining Agentic AI

Agentic AI is a type of artificial intelligence that can act on its own to achieve goals, instead of just waiting for prompts from a human. It doesn't just respond to a human's commands at every step. It can decide what steps to take, make plans, change its approach if something doesn't

work, keep track of what it learns along the way, and reflect on its performance so that it can improve.

The word *agentic* comes from *agent*, meaning that the AI behaves like an agent on your behalf, an intelligent helper, or a problem-solver that has a degree of independence. Think of Agentic AI as AI that not only completes tasks, but also figures out how to complete them.

This isn't the AI of scary science fiction stories. However, technology experts widely view Agentic AI as a critical stepping stone on the path toward artificial general intelligence (AGI; the form of AI depicted in scary science fiction stories) and possibly the *technological singularity* — or simply *the singularity* — a hypothetical future point at which artificial intelligence surpasses human intelligence in a way that leads to unpredictable, rapid, and irreversible changes in society and technology.

Moving toward AGI with Agentic AI

By enabling systems to reason, plan, reflect, and take initiative across changing environments, Agentic AI helps bridge the gap between today's highly specialized models and the broad, self-directed intelligence that systems need to realize AGI.

In the broader vision of the hypothetical singularity, exponentially advancing artificial intelligence could emerge through self-improving, interconnected agentic systems. Such systems might continually refine their own architectures and methods, collaborate with other agents (even across different networks or domains), and pursue complex goals with diminishing need for direct human oversight.

However, Agentic AI and more autonomous systems bring us a step closer to the kind of self-directed intelligence imagined in singularity scenarios, and they also introduce new risks of unintended consequences and demand additional safeguards, including

>> **Strong alignment with human values,** training and guiding models by using data, feedback, and objectives that reflect humanity's shared ethical and social principles.

- **Robust guardrails** that provide clear, operational boundaries and fail-safes that define what the AI can and cannot do, even as it learns or acts independently.

- **Ethical oversight** to maintain human accountability in how developers design, deploy, and monitor agentic systems throughout their lifecycle.

REMEMBER Agentic AI is not only a technical milestone in the evolution toward AGI, but also a pivotal moment in which to decide what kind of AI future humanity will build.

Noting that agentic systems already exist

Developers often design Agentic AI to handle complex, multi-step processes, such as managing projects, conducting research, or solving technical problems. These systems can include tools such as memory (to track what's already been done), reasoning engines (to decide what makes the most sense), and planning modules (to map out steps and sequences). Although these systems aren't really human-like or conscious, they're moving closer to becoming trusted aides to the people using them.

TIP Despite the advances made so far in the development of Agentic AI, it's an emerging technology; people will likely take some time before they accept this technology as a routine entity in their work and daily lives.

Reasoning as AI's Way Forward

Whether people consciously recognize it (or not), instinct often drives them to fear an AI's ability to reason independently. This fear stems from

the understanding that the capacity to reason has long defined humanity's unique position at the top of the natural order.

If machines can also reason, the thinking goes, they could eventually become intellectually superior to humans, creating an unnatural hierarchy of reason. That perceived loss of uniqueness threatens the intrinsic value of being human and may also feel like a challenge to humanity's place as both the observer and steward of the natural world around them.

Exploring philosophy, reason, and fear

The instinctive fear of being knocked from nature's top spot is rooted deep in humanity's collective history. Across time, people have moved through this line of thinking:

» **Recognizing the importance of reason:** Classical Greek philosophers introduced the idea that *reason* is the defining characteristic separating humans from all other creatures, and is the source of our unique position in the natural order of the world.

» **Using reason:** Reasoning rose to be the centerpiece of Western philosophy and later of Western science. Although Western thought also includes faith and empirical observation, reason still serves as its guiding foundation; the method by which truth and knowledge are pursued.

» REMEMBER **Defining humanity with reason:** Western philosophers view the ability to reason as both a noble pursuit of truth and a uniquely human capacity. Reasoning, as reason has it, is what makes humans — well, humans.

» **Expanding reasoning capabilities:** Because reason (philosophically) is held as a noble pursuit, many people feel driven to improve upon how, how fast, and how much they can reason — which leads to the creation of tools to extend human reasoning.

These tools range from mathematics and logic to computing — and now AI.

I generalize and minimize the description of philosophy because this is a book about AI's ability to reason — or lack thereof — and not about philosophy. But I bring philosophy to your attention so that you can see the root of humanity's unease. AI threatens not just to imitate human reason but to redefine it. That's the source of both the fear and the fascination, and the devilishly desirable urge to build something that can reason as we do, perhaps even better.

Putting AI reasoning into perspective

In the beginning — which is to say, a few years ago, when ChatGPT became a household word, and not decades ago, when Generative AI (GenAI) became a thing — the public wasn't sure what to make of the tool. But thoughts immediately turned to the deduction that if AI is intelligent, then it must be like (or even better than) humans, and therefore both capable of reasoning and inherently evil. Right? Never mind that various levels of intelligence, cleverness, and reasoning exist, some of which barely blip on the scale between instinct and thinking.

Although creators and marketers of GenAI models have heavily promoted their systems' supposed reasoning abilities, many industry observers and technology journalists, including myself, have long expressed skepticism about these claims.

EXPERIENCING THE ILLUSION OF THINKING

In June 2025, Apple (a technology giant) published a research paper from its Machine Learning Research team titled (in short) "The Illusion of Thinking," which systematically evaluated large language models (LLMs) and large reasoning models (LRMs) by using controlled puzzle environments and specialized datasets. The findings felt like an earthquake under the feet of AI designers. The groundbreaking study revealed critical limits in the reasoning capabilities of today's AI systems. In short, the researchers found that LLMs and LRMs don't really "think." They simply recognize patterns and imitate the steps of reasoning rather than truly understanding what they're doing.

The takeaway: While developers now have access to many AI models and tools, none of them can truly reason in a humanlike way. Still, some developers are working to create Agentic AI systems that can reason on their own with little to no human intervention. Is the effort doomed from the start? No. But serious challenges remain. For example, AI models tend to break down when tasks become too complicated or require deep, step-by-step logic. Apple's report points to a few ways researchers might get past these hurdles, such as creating smarter test environments that actually measure real reasoning, and teaching AI to check its own work as it goes along.

The path to truly autonomous AI agents is still blocked by basic limitations (such as needing more high-quality, well-structured data and lacking true common sense). Apple's research findings (see the sidebar "Experiencing the Illusion of Thinking," in this chapter, and the section "Differentiating between AI Agents and Agentic AI," later in this chapter) highlight a critical issue: Even the most advanced AI systems today are great at mimicking thought but not at genuinely understanding. They often rely on techniques like chain-of-thought prompting (a method that walks the model through a problem one step at a time) to appear more thoughtful, but they're still missing the logical depth and common-sense reasoning needed for full independence.

TECHNICAL STUFF When Apple researchers talk about a *reasoning collapse*, they mean that AI models can look brilliant on simple tasks but start to fall apart as problems get harder. The models don't understand logic, but instead, they follow patterns they've seen before. Once those patterns no longer fit, their "thinking" breaks down.

TIP Don't confuse reasoning behavior with reasoning ability. When an AI explains its steps or thinks aloud, it's not actually reasoning. It's replaying patterns from training data that look like reasoning. True reasoning means understanding cause and effect, spotting breaks in logic, and adapting on the fly. These are things today's AI still can't do (at least not yet).

Recognizing the operational challenges of Agentic AI

Beyond reasoning limitations, Agentic AI systems face substantial technical and operational challenges that complicate real-world deployment. Agentic AI architectures are complex and require robust infrastructure, sound data governance, and seamless interoperability with existing systems to function at scale. (Flip to Chapter 3 for more about the components that Agentic AI requires.)

Orchestrating multi-agent workflows, maintaining accuracy, and managing variability remain major technical hurdles. For Agentic AI systems to reach their full potential, designers and developers must overcome both reasoning gaps and practical constraints. Anything short of genuine autonomy is likely to appear as a connected series of specialized (but conventional) AI models, coordinated to perform tasks together rather than truly acting on their own.

Differentiating between AI Agents and Agentic AI

The two terms *AI agents* and *Agentic AI systems* are often used interchangeably in discussions about artificial intelligence, but they actually describe different concepts that share overlapping features. Understanding their differences can help clarify the different types of AI that exist today and where they might be headed as they evolve toward more capable and autonomous systems:

>> **AI agents:** Software entities designed to perform specific tasks autonomously within defined parameters. They operate based on programmed rules (rule-based agents), machine learning models (learning-based agents), or large language models (LLM-based agents) to achieve particular objectives by perceiving their environment, making decisions, and taking actions. Examples

include customer-service chatbots, game-playing bots, web navigation agents, and recommendation systems.

» **Agentic AI systems:** Also software entities, but they extend basic task automation into the realm of complex, multi-step process management. These systems can plan their own actions, coordinate multiple tools or agents, and adapt their workflows to reach broader objectives, often across less predictable environments.

Apple 2025 research study, "The Illusion of Thinking: Understanding the Strengths and Limitations of Reasoning Models via the Lens of Problem Complexity" (which you can read about in the sidebar "Experiencing the Illusion of Thinking," in this chapter), focuses primarily on large language models (LLMs) and large reasoning models (LRMs), and not explicitly on Agentic AI. However, because Agentic AI systems are typically built on top of similar LLM foundations, the study's findings apply by extension. The research confirms that both AI agents and, by association, Agentic AI systems rely heavily on pattern matching, rather than genuine reasoning. This dependence limits their performance on tasks that demand abstract, logical, or novel reasoning.

TECHNICAL
STUFF For Agentic AI systems, Apple's study points toward several potential directions for improvement. These include hybrid neurosymbolic architectures (which combine neural networks' pattern-recognition strengths with symbolic reasoning's logic and structure) and the use of advanced datasets such as GSM-Symbolic to better evaluate and train reasoning skills. The study also introduces Twisted Sequential Monte Carlo (TSMC), a technique for improving multi-step reasoning and inference. It is an approach that could be particularly valuable for agentic systems striving for higher autonomy, whether that autonomy is designed in or gradually self-emerges through adaptation.

## *Meeting examples of agents and agentic systems*

Examples of AI agents include chatbots such as ChatGPT
(www.chatgpt.com; see Figure 1-1), recommendation systems that
suggest what to watch or buy, or simple robotic agents, such as a
Roomba vacuum cleaner. These agents typically have a narrow scope
and focus on well-defined tasks with limited adaptability to new
contexts.

www.chatgpt.com

FIGURE 1-1: A screenshot of ChatGPT chatbot user interface.

An Agentic AI system goes further than a chatbot such as ChatGPT.
Agentic systems often combine multiple AI agents and add capabilities
such as goal-setting, planning, reasoning, and task monitoring over
extended periods. One example is Godmode (www.godmode.space),
shown in Figure 1-2, an online interface that lets you launch and manage
autonomous AI agents such as AutoGPT (www.agpt.co) and BabyAGI
(www.babyagi.org). Godmode doesn't crowdsource from these projects;
instead, it provides a user-friendly control panel that connects to and
coordinates open-source agent frameworks behind the scenes.
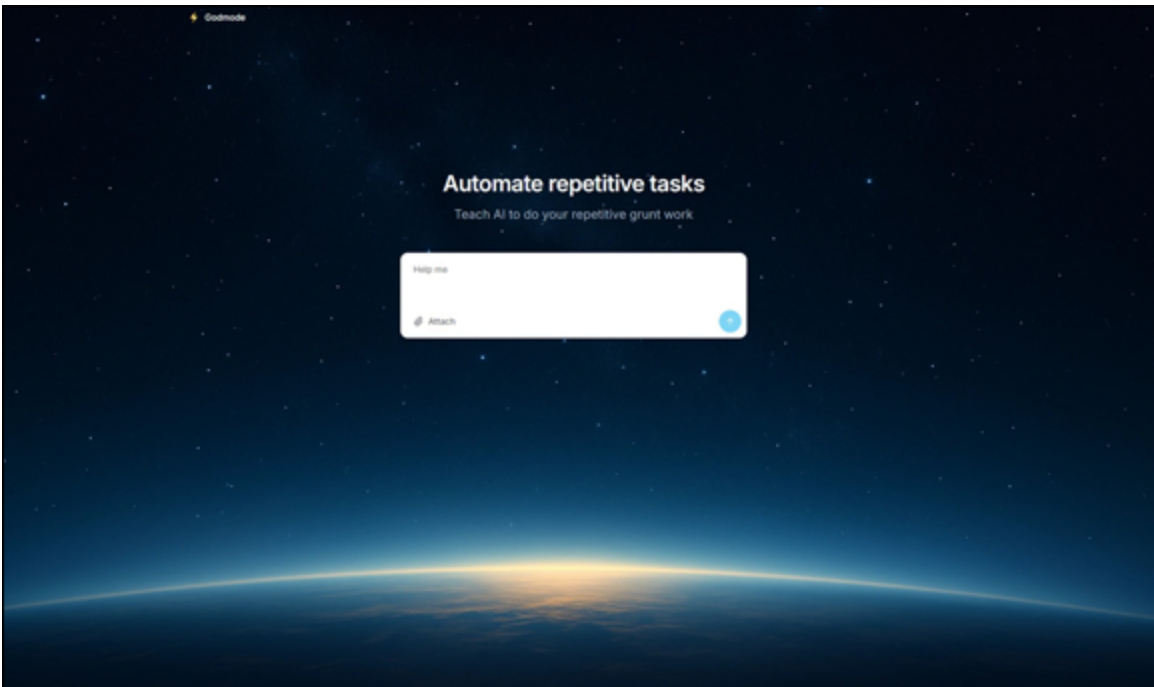
FIGURE 1-2: A screenshot of the Godmode interface.

If you'd like to try these systems directly, you can access a hosted version of BabyAGI in your browser (with no local setup needed) at `https://babyagi-ui.vercel.app`. For open-source enthusiasts, both AutoGPT and BabyAGI also offer their own graphical user interfaces (GUIs) through GitHub:

» **AutoGPT UI:** `https://github.com/neuronic-ai/autogpt-ui`

» **BabyAGI UI:** `https://github.com/miurla/babyagi-ui`

Other examples of Agentic AI systems include autonomous supply chain management platforms that optimize logistics in real time, and AI-driven research assistants that design experiments, gather data, and summarize findings. Another emerging example is GPTConsole (`www.gptconsole.ai`), which uses autonomous agents such as Pixie to generate complete, production-ready apps and websites from simple landing pages to full data dashboards. Figure 1-3 shows the free landing-page generator interface that you can try yourself.
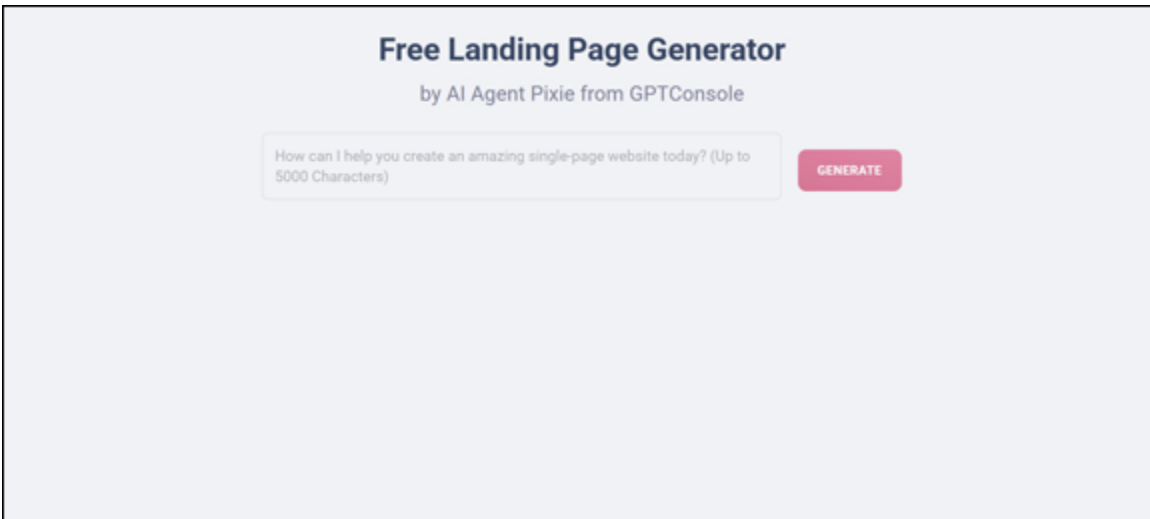
FIGURE 1-3: A screenshot of an AI agent pixie that offers a free landing-page generator.

Seeing what agents and Agentic AI systems have in common

Although I define AI agents and Agentic AI systems earlier in this chapter (see the section "Differentiating between AI Agents and Agentic AI"), it's worth restating for clarity's sake that the term *AI agent* is broader than either Agentic AI or GenAI tools. Using the term doesn't automatically imply that an AI agent is agentic or generative when in fact it could be neither but instead a different type of AI altogether. In this book, AI agent means any software entity that can perceive its environment, make decisions, and take actions toward a goal, with or without direct human control.

Both AI agents and Agentic AI systems operate with some degree of autonomy so that they can make at least some decisions without constant human intervention. For instance, a chatbot (AI agent) responds to user queries independently, while an Agentic AI system that manages a logistics network adjusts delivery truck routes in direct response to traffic data, weather conditions, road conditions, and/or real-time supply updates.

By design, both AI agents and Agentic AI systems can

» **Perceive and interact with their environments.** A recommendation system (an AI agent) analyzes user behavior and preferences, while an Agentic AI system in healthcare might monitor patient data and adjust treatment plans based on vital signs, lab results, or medication responses.

» **Achieve specific objectives.** A virtual assistant (an AI agent) aims to answer questions accurately, while an Agentic AI system for urban planning seeks to optimize traffic flow across an entire city.

» **Leverage AI technologies,** such as machine learning, natural language processing (NLP), and/or rule-based systems. Large language models (LLMs), for example, can power both a conversational AI agent and components of an Agentic AI system.

Recognizing the distinctions between agents and Agentic AI systems

Although AI agents and Agentic AI systems have similarities (see the preceding section), you can find marked differences, as well. Here are some examples:

» **Their strengths:**
- *AI agents:* Offer simplicity and efficiency because they're highly optimized for repetitive, well-defined tasks, and deliver fast response times. They're also cost-effective and generally reliable in their narrow domains and tasks.

- *Agentic AI systems:* Excel in adaptability and scalability in handling complex, multi-step problems that require coordination across multiple agents and tools. They are also showing emerging potential for advanced reasoning and collective decision-making.

» **Their weaknesses:**
- *AI agents:* Have limited scope of data and functionality, *reasoning deficits* (they may fail to grasp the full intent of a prompt), *brittle performance* (producing nonsensical results in

complex real-world situations), and low capacity for *generalization* (applying training to new data).

- *Agentic AI systems:* Present complexity for developers and users, reasoning limitations (because of limitations of available data and training), high development and operational costs, and their still-experimental nature.

» **Their ideal use cases:**

- *AI agents:* Work well as customer support chatbots, shopping and other recommendation systems, simple automation (of data entry or appointment scheduling, for example), and robotic process automation (RPA).

- *Agentic AI systems:* Can optimize supply chains (to increase efficiency and reduce costs), support healthcare decision-making (providing patient data analysis and actionable insights for treatment), do scientific research (for handling large datasets and predicting outcomes), and manage smart cities (including optimizing transportation services and urban planning).

Mapping the Path from Prompt Engineering to AI Autonomy

The path from prompt engineering to AI autonomy doesn't involve outright replacement of one by the other, but an evolving relationship (which I talk about in Chapter 4). You'll still need foundational prompting skills to work with increasingly intelligent systems. While AI becomes more *agentic* (that is, autonomous), the role of human input shifts in its focus, but not in its value.

TIP   In my opinion, people who now claim that AI users don't need to learn how to prompt the systems that they use are (at best)

foolishly misguided. In my previous book, *Generative AI For Dummies* (Wiley), I discuss how this technology enables machines to speak like humans, but to effectively use them, humans must think like machines. By that, I mean people who use AI need to think in a logical, step-by-step progression, in the same way that developers do when they write computer programs. Prompting skills teach you how to think like a developer.

Further, prompts will remain the primary interface for you (and other humans) to communicate with AI agents — especially in Agentic AI systems. The reason is simple: You can more easily command the AI in your own language than in computer code; then a large language model (LLM) understands your command and parses the necessary instructions to different AI agents to perform the feat that you commanded. Chapter 4 goes into detail about how to interact with Agentic AI.

REMEMBER Even advanced agentic systems use prompting under the hood to pass instructions, context, and goals between modules or agents. Despite their complexity and apparent autonomy, much of the system's internal coordination still happens through prompt-based messages. And prompting isn't the only way agents communicate. Some frameworks also use function or API calls, shared memory, or symbolic reasoning layers to exchange data and results.

Simply put, prompting isn't just for humans' use when talking to AI; it's one of the key ways that AI components use to talk to each other inside modern Agentic AI systems.

Engineering your prompts for successful AI interaction

Prompt engineering involves crafting precise, contextual instructions for LLM-based agents and tools so that you get the results you want. You can use it in all kinds of applications, from content generation and coding, to research assistance, data transformation, and even tool

automation. Prompt engineering teaches you how to use structured language to interact with and direct powerful GenAI systems. Think of good prompting like giving instructions to a very smart assistant who understands your language but still needs clarity and direction.

As developers began experimenting with more complex interactions, they started chaining prompts — using the output from one prompt as the input for the next. Frameworks such as LangChain and AutoGPT made this easier by allowing AI systems to simulate multi-step reasoning or tool use. Chaining prompts connect actions such as using memory, making decisions, and calling application programming interfaces (APIs) or plugins. This approach moves AI from answering one-off queries toward executing full workflows. In that sense, prompt engineering at this level is less like writing a single question and more like designing a system or scripting a process. It is the creative foundation of Agentic AI behavior.

For example, an Agentic AI system for customer support might use a prompt *pipeline* (chain) to classify queries, retrieve relevant data, and generate responses, with prompts ensuring tone, context, and accuracy. Although Agentic AI systems can set sub-goals, evaluate their own outputs, and operate in open-ended, dynamic environments, they still rely heavily on well-crafted prompt templates, safety guardrails, and human review cycles. Even autonomous agents are largely built atop *prompt scaffolding*, which is a prompt engineering technique that uses a series of prompts to guide an AI system.

REMEMBER Even AI that developers see as autonomous has no will, no self-awareness, and no inherent motivation to do anything. Humans must give AI a reason to act, even the over-industrious Agentic AI systems. Without a call to action and a cause to complete, any AI will sit idle for centuries.

Controlling AI system actions with effective prompting

Prompting gives you a way to guide and influence unpredictable systems and perhaps stop unsafe actions (which you can read more about in Chapter 7). Effective prompting can reduce hallucinations, align outputs with your intent, and promote safer, more ethical system behavior. As AI agents grow in autonomy, troubleshooting their behavior often involves analyzing their internal prompts and instruction chains to understand what went wrong. Users must have the necessary prompting skills to do this kind of work. Think of it as AI quality assurance or cognitive debugging.

In enterprise environments, prompt engineering goes even further. Organizations often build custom prompt libraries, design domain-specific prompts, and develop fine-tuned instruction sets for areas such as law, medicine, or customer service. These libraries are growing quickly because well-crafted prompts are often more scalable and cost-effective than retraining or fine-tuning models from scratch.

In short, the ability to frame questions, shape outputs, and design workflows through prompts is a creative and strategic skill, not just a technical one, which remains critical in human-AI collaboration, no matter how autonomous AI becomes.

Viewing prompting as foundational

Ultimately, prompting acts as a core design layer in AI interaction and development. In the same way that knowing SQL doesn't become irrelevant when databases get more complex, prompt engineering won't disappear while AI becomes more autonomous. It will simply evolve into AI literacy and collaborative creativity for individual AI users.

At the maker and enterprise levels, prompt engineers will likely evolve into AI system architects, agent behavior designers, and human-AI interaction specialists. The essential skill of translating human intentions into AI-understandable instructions remains fundamental, even as it operates at higher levels of abstraction and complexity. Chapter 8 dives

into the potential changes to how people will work when they have Agentic AI in the picture.

The Budding Agentic AI Web

Today, the internet mostly reacts to what people ask it to do. You click a link, fill out a form, or type a question, and something responds. But in the near future, I predict that AI agents will start to do these things on their own — behind the scenes — based on what they know about your goals, habits, desires, and preferences.

The idea of the Agentic AI web is the next big shift in how people use the internet. Essentially, the internet will transform into an environment where people rarely visit but where smart AI assistants work together and get things done for people. You can see that beginning to happen now as more people use AI rather than search engines to find information and rarely bother to go to the website or original source. Chapter 9 looks at the role Agentic AI will play in the online marketplace.

Expanding the duty of agents online

In the future, the AI agents won't just live in one app or service; they'll connect across websites, platforms, and tools. One agent might handle your schedule, another could manage your online shopping by acting as your personal shopper, and another might track job openings or negotiate a better deal with your ISP or streaming service on your behalf. The various agents can talk to each other, use tools, search the web, write e-mails, fill out forms, and even call APIs. They'll take action largely on their own initiative and without needing you to hover over them.

So you won't go to the internet to watch videos, listen to music, shop, or do research. Instead of going to websites directly, you'll rely on a network of smart helpers working quietly in the background. Instead of having to log in to ten different websites to get something done, you might just tell your agent what you want to do (for example, compare the prices of an item offered by three vendors), and it takes care of the rest. You're still in charge, but the agents handle the details for you.

For example, suppose you ask an AI assistant to plan a trip. As part of an Agentic AI system, the assistant could pass tasks to other AI agents — one agent books flights, another checks traffic, and a third picks activities that it thinks you'd love to do. The AI agents work together smoothly to get the job done without further input from you.

Scaling up to a citywide, nationwide, and global reach

A broader span of agent authority in the future could also scale up to big stuff, such as Agentic AI systems running cities, managing energy, or speeding up the impact of science by sharing discoveries globally. These AI agents could learn on their own, teaming up for large tasks, such as disaster relief or prevention perhaps by using drone data and weather updates to save lives from a disastrous storm.

For the internet to morph into this AI-run version of itself, it needs a few key things to come together:

- » **A shared language that enables agents and systems to talk to each other:** Several emerging standards already work toward that goal and one of the most promising is the Model Context Protocol (MCP). MCP acts like a USB-C cable for AI: a universal connector that allows different AI systems to plug into tools, apps, and data sources without needing a custom setup each time. It solves the problem of one-off integrations by creating a standard way for AI to access external resources such as files, databases, or web services.

- » **Secure ways to share knowledge between systems and agents:** For example, healthcare systems (such as hospitals and clinics) need to swap patient data, treatment plans, or medical advice without exposing private information. An AI system working in this environment must manage multiple tasks simultaneously, maintain strict data security, and comply with privacy regulations such as HIPAA. To support this, some developers explore using trust-enhancing technologies, including blockchain or other tamper-evident record systems, to securely log transactions, verify data sources, and track information access across agents and systems.

The key components of an AI-run internet are still in their early days, but developers are addressing the issues of shared language and secure data while increasingly setting the stage for huge advances in autonomous AI operation.

Following the Shift to A-Commerce

You probably won't just get up one day to find that Agentic AI systems have completely restructured the internet into some alien digital landscape. Instead, you'll likely note subtle changes in your online interactions first, followed by bigger leaps of disruption. Indeed, you likely noticed a few changes online already, especially in how you search for and consume information.

Online search used to be simple: You typed a few keywords into a search bar, got a list of links to source websites in return, and then had to dig through websites and pages to find what you needed. GenAI tools such as ChatGPT, Google's Gemini, Microsoft's Copilot in Bing, and Perplexity AI (the first major AI-native search engine that doesn't rely on results from traditional providers) have changed that experience dramatically.

Now, instead of just returning links to source websites and a few paid ads, search engines serve up concise answers from AI responses. Today, you can commonly get conversational, direct answers to your query from an AI tool with nary a source cited.

Recognizing the fallibility of AI answers

Having AI provide concise answers can be dangerous because many users think all AI results are dependable, when in truth, they're not. Even Perplexity AI, which routinely serves up sources with its narrative results, can lead you astray. Any AI can make up sources as easily as it can make up facts. Yes, I mean AI can outright lie to you about who said

what and where and when. Source citations often aren't worth the pixels used to display them.

Any AI outputs, even the summaries given on search engine results, need to be fact-checked before you accept and use them. First, click through the source links the AI provides (if it does provide them) to ensure the source exists and that it is the original source of that particular information. You can also scroll down and use the search engine results that appear below the AI summary to find reputable sources to peruse so that you can validate and verify the answer that the AI gave you as a summary.

All told, that doesn't provide much of a time saver or a convenient service, now does it? Still, it makes a step in the direction of A-commerce.

Reducing specific website interaction

Online search results are changing fast. Even traditional search engines now place AI-generated summaries at the top of the page, ahead of the familiar list of website links that formerly defined search. The reason is simple: Competition for use and user trust is fierce. Tech companies are racing to make their AI systems the first stop for everything people want to know. As users increasingly accept these instant summaries instead of clicking through to source websites, overall web traffic is dropping across the board.

This shift can drastically limit how many page viewers a news article gets, how many online sales a merchant makes, how many students a university attracts, and so on. In other words, e-commerce and content-driven industries alike suffer in innumerable ways as AI tools become the new intermediaries between information and its audience.

Adding insult to injury, while AI-powered summaries gather more eyeballs, the classic search engine optimization (SEO) strategy of ranking high on a results page matters less if users no longer click through to websites. If organizations can't improve their website's visibility and number of click-throughs via SEO and search result ad

strategies, then why bother having a website? And how can those organizations survive and prosper without direct traffic?

The tipping point will come when AI systems, not human users, handle most product discovery and purchasing decisions online. That moment marks the shift from e-commerce (electronic commerce) to A-commerce (short for autonomous commerce) where AI agents search, compare, negotiate, and even complete transactions on behalf of users.

Relying on personal AI shoppers

Although e-commerce sees people browsing websites, comparing prices, and clicking a Buy button, A-commerce flips that model completely. In the A-commerce scenario, AI agents will act as your personal shoppers, deal hunters, and decision-makers by handling the shopping process for you based on your goals, desires, preferences, and budget. Agents may even purchase the items for you — using your credit card, of course — and have the item sent to you. All of that shopping and buying may happen with you doing little more than expressing an interest or intent to buy an item or service.

To better help you imagine how this AI shopping agent will work, consider the following examples:

» **You need a new pair of running shoes.** Your agent knows your size, preferred brands, past purchases, and current deals across the web. It finds three great options, checks reviews, and presents you with the best one — or just buys it if you previously gave it permission.

» **You're planning a trip.** Instead of jumping between flight, hotel, and rental car sites, your travel agent AI bundles the whole thing, rebooks if prices drop, and gives you one neat itinerary.

» **You run a small business.** Your AI handles supplier orders, monitors inventory, and even renegotiates contracts when better options appear.

» **You have an important event on your calendar.** Your AI notes the event and appropriate attire, and searches for the best deals on each

item of the perfect outfit — from shoes to hat. All of the outfit fits your size and list of preferences. The AI can then ask you to choose between outfits or items, and then purchase it. Or, if it has your permission, simply buy it and have it shipped to your home or the hotel where you'll be staying during the event.

In short, A-commerce is the next evolution in online commerce, where AI agents handle purchasing decisions, product research, and transaction completion on behalf of you, your family, or your company. This shift will create profound changes in how SEO strategies and websites must evolve.

Optimizing commerce sites for AI

Traditional SEO and websites target traditional search engine rankings to increase visibility before people who are interested in buying their products or services, but A-commerce requires optimizing for AI agents that make purchasing decisions without a person looking at any of their wares. So site designers need to structure content for AI comprehension, rather than solely for human readability. Sites need to present product information in formats that AI agents can easily parse, compare, and evaluate.

Consider these factors that can reshape the content of commerce-related websites:

» **Structure and focus of website content:** AI agents rely heavily on structured data to make decisions. For example

- E-commerce sites will need to prioritize schema markup, product APIs, and machine-readable formats over traditional content optimization. The focus shifts from keyword density for making the website visible to human searchers to data clarity and accessibility for AI agents.

- AI agents will evaluate different trust signals than human consumers. Things such as API reliability, data accuracy, real-time inventory status, and transaction security will become more important than traditional brand signals. Emotional and

impulse buying will likely fall to the wayside unless merchants can find a way to get the AI to consider more than its precise objective.

- Traditional SEO focuses on attracting human visitors to websites, but A-commerce SEO focuses on helping AI agents find information and complete transactions. That means web designers must prioritize machine-readable, conversion-friendly signals — things AI agents can easily recognize and act on, such as clear pricing, real-time availability, shipping details, and return policies.

» **Variety of inputs and interactions:** A-commerce AI agents will process text, images, video, and audio to make purchasing decisions. SEO strategies must optimize across all these formats, ensuring product information is accessible, regardless of how the AI agent consumes data. For example, an AI shopping assistant might read a product description, verify price tags embedded in an image, watch a short video to assess features, and even analyze customer-review audio clips for sentiment — all before recommending or completing a purchase on your behalf.

- A-commerce SEO will need to be optimized for voice- and chat-based interactions, where AI agents gather product information through conversational queries. This optimization requires content that answers specific questions that AI agents ask when comparing products or evaluating purchases.

- You and other users may even make custom stipulations for their AI assistants, for example, by excluding suppliers based on political affiliations, DEI policies, or sustainability practices. Understanding how different AI agents make purchasing decisions will become a core SEO competency.

» **Updating content in real-time:** A-commerce operates at machine speed, requiring SEO strategies that can adapt instantly to changing inventory, pricing, and demand patterns. Traditional static optimization approaches (such as periodic keyword tuning or quarterly content refreshes) will become less effective because AI

agents will expect current, verifiable information for decision-making. AI agents may even ignore or down-rank websites, vendors, or service providers if their data appears out-of-date by even a few minutes, especially in fast-moving markets like travel, logistics, or retail.

Navigating the transition to A-commerce

Ultimately, the transition to A-commerce won't eliminate SEO, but it will transform it into a more technical, data-driven discipline, focused on AI agent behavior, rather than human search patterns. Success will require understanding both traditional search optimization and the decision-making processes of AI systems that increasingly mediate between consumers and commerce platforms.

If A-commerce takes off, it may lead to a dramatic drop in a person's screen time. If your agents are doing the searching, comparing, and transacting for you, you have to step in only when decisions matter or exceptions arise. You'll no longer have to deal with endless tabs, pop-up ads, or e-mail floods from retailers. Your attention can become more focused and your time freer because you won't need to go online to shop for or book something — your AI agent is already online 24/7, quietly optimizing your life in the background.

Over time, the widespread use of AI agents could radically reduce people's daily dependence on screens. Kids may no longer learn to surf the web as we know it; they'll grow up learning how to manage and supervise AI agents instead. (Check out Chapter 14 for more ways that your life may change thanks to Agentic AI.)