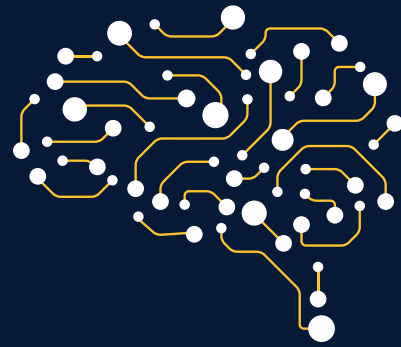


AI agents and robotics: Key drivers of future tech innovation?

In the Loop



Key Insights

- Our 2025 outlook for global technology remains optimistic as information technology spending increases and demand continues to surge for the semiconductor chips that are crucial for artificial intelligence (AI) innovation.
- The fast-moving evolution of generative AI could ramp up productivity as companies make progress on autonomous applications, advanced robotics, and AI “agents” that execute tasks on behalf of humans.
- Leading tech companies at the forefront of AI innovation are well positioned to do well over the next 12 months. Valuations across the global technology universe are broadly reasonable.

Our annual trip to Silicon Valley underscored for us that AI is likely to be a key driver for equities in 2025. It could also transform the global economy over the long term. The possibilities of an AI future are becoming clearer, from AI agents that can interact with humans and complete digital tasks, to advances in self-driving vehicles and humanoid robots. This article explores some of the key investment themes we are focused on today as the tech sector shapes the world of tomorrow.

Promise of productivity is fueling chip demand

AI has the potential to reduce costs and boost efficiency across industries, acting as a deflationary force on the global economy. The technology could be the biggest productivity enhancer since electricity as companies deploy AI for automation and decision-making.

Companies involved in producing the advanced semiconductors powering the AI revolution appear well positioned as accelerating innovation on the AI application front bolsters demand. We expect spending on AI and new technology to stay strong over the next 12 months, as big companies continue to invest heavily in the infrastructure underpinning AI. In particular, we are observing the broadening of digital semiconductors from just general purpose graphics processing units (GPUs) to custom application-specific integrated circuits (ASICs). We are also monitoring the disruptive impact of new and inexpensive AI models on the market. We expect there to be a variety of models—some large and some small. For optimal consumer applications, larger AI models may be required and could be costly. More affordable models, however, could be crucial to boosting real-world demand for AI applications. As a result, in the medium term, the demand for training and inferencing should rise as AI is adopted more widely.



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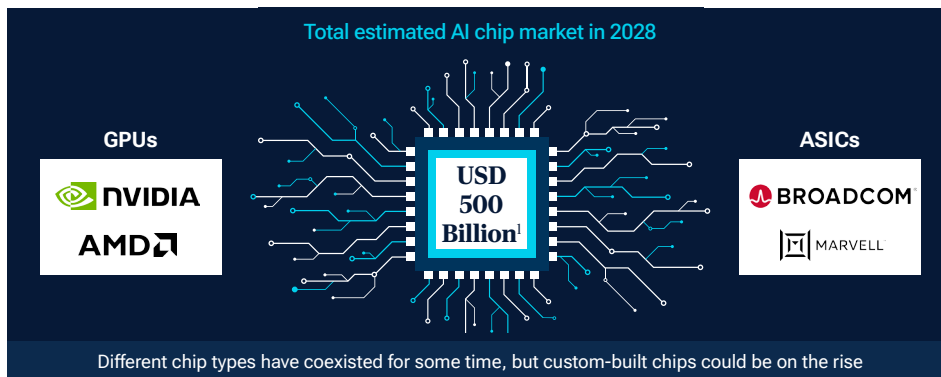
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“The idea of ‘AI forever’ does not mean that AI is not cyclical.”

— Dominic Rizzo
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The competitive landscape of AI chips

(Fig. 1) Some of the key competitors across GPU and ASICs markets



Note: For illustrative purposes only. Chart only depicts examples of large companies in the GPU and ASICs space and does not represent all market participants that might contribute to AI chip market growth.

¹AMD Advancing AI Event 2024 for 2028 estimates. Estimates provided are for the AI Chip Total Addressable Market (TAM). TAM is the total potential market for a product or service. There is no guarantee that any forecasts (AMD forecast, October 2024) made will come to pass, and actual outcomes may differ materially.

Innovations like those from Chinese AI company DeepSeek could bring a level of utilization efficiency to AI hardware. It remains to be seen, but a real possibility is that U.S. AI labs could adopt many of these efficiency gains, throw the same (if not more) compute and money at the AI problem, and get an even better result than they would have before.

Could all this excitement lead to speculative excess? Currently, we do not see valuations near the excessive levels they reached during the late 1990s dot-com bubble, but that always remains a possibility. Our role as active managers is to navigate any potential bubbles responsibly. The idea of “AI forever” does not mean that AI is not cyclical. With waves of technology innovation, the market often anticipates a linear ramp and can be caught off guard by an S curve² trajectory. Supply chain issues also bear monitoring in the first half of this year, but we expect the market to look through any near-term hiccups.

The battle for “lighthouse” status in enterprise software

As spending increases on AI infrastructure, we can expect to see more exciting developments across AI applications throughout 2025 and beyond. The emergence of AI agents has added a fast-moving and far-reaching layer to the AI landscape. These advanced AI systems are capable of planning and executing tasks within an enterprise, similar to a guiding beacon. These agents go beyond basic chatbots that are copiloted by humans—functioning as virtual employees that can autonomously handle tasks, such as gathering data, making decisions, performing tasks, and improving its effectiveness over time. The enterprise software battle is centered around which major player can be the “lighthouse agent,” or the primary AI agent that pulls on disparate data and conducts the other agents in an enterprise. Moreover, data accumulation within a platform only attracts even more data and applications, making it increasingly difficult to move away from that system. This “data gravity”

Evaluating the rise in specialized chips

The total addressable chip market (TAM) could reach USD 500 billion¹ by 2028. Despite recent market volatility affecting U.S. technology stocks, including the leading semiconductor companies that specialize in chips for AI applications, we still expect the chip landscape to evolve. Over time, there will be a growing need for custom-built chips, such as application-specific integrated circuits, to deal with more specific and larger workloads. This rise in specialized chips does not necessarily threaten the more general-purpose graphics processing units. Different chip types have coexisted for some time, and there are potentially attractive opportunities across companies in both segments.

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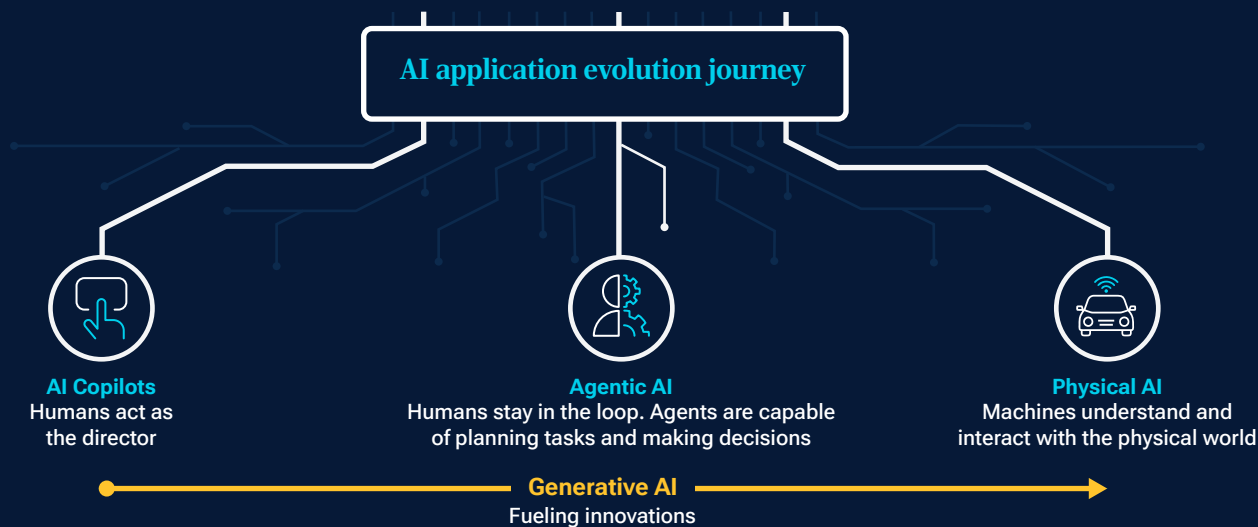
and the rise of AI agents will be pivotal factors in determining software market leadership in 2025, and tech companies will need to modernize their data to take advantage of these AI developments.

Despite the compelling backdrop of accelerating innovation and overall technology spending, elevated valuations in pockets of software could warrant caution in some instances.

²The adoption of a new technology is often held to follow an “S curve,” proceeding slowly at first, followed by a phase of rapid growth that later tails off into slower growth as adoption of the new technology becomes widespread.

Beyond the digital realm: Bringing AI applications into the physical world

(Fig. 2) AI innovation is accelerating from copiloted applications to agents and autonomous systems, such as self-driving vehicles



Source: T. Rowe Price.

Thoughtful scrutiny of earnings estimates and a focus on improving fundamental business performance are also crucial. Investors can focus on the application developers that appear to be best positioned for their significant spending on AI infrastructure to translate into profits in the coming years. However, as the recent emergence of more affordable models (and the resulting market reaction) have shown, the AI landscape is dynamic and fast-moving, and investors should remain vigilant.

Vertical integration: The untapped advantage in robotics

An interesting example of how the acceleration of AI computing is boosting innovation can also be seen in the physical world. We expect further advances in autonomous vehicles in 2025 as part of the race to bring new technologies to consumers. AI is clearly playing a crucial role in helping major tech companies advance self-driving vehicles and humanoid robots. Investors should focus on companies that not only have a strong data advantage but are

also able to streamline their operations through a vertically integrated approach. While there is still some way to go until certain applications or robots can scale commercially, “agentic” advancements could also be a major productivity boost.

AI as a global catalyst for growth

In our view, the 2025 outlook for global technology remains optimistic—with valuations across the global technology universe looking broadly reasonable. Key industry players at the forefront of AI innovation are well positioned to do well in the next phase of the cycle. Technology companies not only need the data and compute capital but also the distribution and the customers, so some stocks will benefit as the economy improves—and there is lots of potential opportunity for dispersion. Ultimately, AI continues to serve as a significant catalyst for growth across several subsectors. This rapidly evolving area is well suited to active managers who can keep pace with the fast-changing and global nature of AI—both in terms of identifying opportunities and managing the risks.

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