Global edge AI market

The global market for edge artificial intelligence was valued at $8.7 billion in 2024 and is expected to grow at a compound annual growth rate (CAGR) of 36.9% to reach $56.8 billion by the end of 2030.

Edge computing refers to data processing that occurs closer to where the data is generated—at the "edge" of a network—rather than on centralized data centers or cloud. Edge AI builds on this concept by using AI algorithms and machine learning models on local devices, such as edge servers, sensors, and other Internet of Things devices, to improve on the real-time data processing benefits of edge computing.

Three recent developments illustrate the effectiveness of implementing AI models at the edge:

- **Maturation of neural networks:** Neural networks and related AI infrastructure have evolved to allow for generalized machine learning, which allows organizations to deploy AI models in production.
- **Advances in computer infrastructure:** Distributed computational power is required to run AI at the edge. Recent advances in highly parallel graphics processing units enable the units to execute neural networks.
- **Implementation of Internet of Things devices:** The rapid proliferation of data collection capabilities through industrial sensors, smart cameras, robotics, and other connected devices enables the technological infrastructure necessary for edge AI. 5G allows these devices to operate faster and more securely.

Despite its market potential, edge AI faces some challenges with deployment. The computing, memory, and storage capabilities of edge devices are limited, restricting their potential for inference and training. This limitation is especially relevant for edge AI solutions, as machine learning models often rely on dedicated hardware and require a lot of memory.

The development of edge-native AI models will help address the issues of deploying complicated AI algorithms on devices with limited computational resources. Other hardware components that can aid in edge AI deployment are

- **AI accelerators:** Specialized hardware components designed to accelerate the execution of AI algorithms on edge devices. They are implemented either as dedicated chips or integrated components, and they are optimized for the parallel processing of AI workloads.
- **Field-programmable gate arrays:** Unlike general-purpose processors, field-programmable gate arrays allow for parallel processing and reprogramming based on the task. Because they are reconfigurable, they balance efficiency and flexibility, making them suited for use in autonomous vehicles and industrial automation.

In 2024, the IT and telecom industry was the largest end-user segment of edge AI (Table 1). This ranking is due to the industry's rollout of 5G networks, growing reliance on real-time data processing for network optimization, and the need to support billions of connected devices. Telecom operators are leveraging edge AI to manage traffic efficiently, reduce latency, and enable new services such as immersive virtual/augmented reality experiences and autonomous systems.

North America held the largest share of the global market for edge AI in 2023 (39.6%). This ranking is attributed to its ecosystem of tech companies and their high levels of investment in R&D. However, China, Japan, and Korea are increasingly investing in AI-driven edge computing, semiconductor production, and AI-powered automation.

Table 1. Global market for edge AI, by end-user industry, through 2030 ($ millions)

End-user industry	2024	2025	2030	CAGR % (2025–2030)
IT and telecom	2,323.3	3,145.7	15,271.6	37.2
Healthcare	1,948.8	2,615.1	12,150.5	36.0
Automotive	1,564.0	2,164.3	11,702.7	40.2
Retail and consumer goods	1,133.1	1,547.9	7,854.5	38.4
Manufacturing	1,004.7	1,323.4	5,623.7	33.6
Other*	758.9	1,006.0	4,172.9	32.9
Total	8,732.8	11,802.4	56,775.9	36.9

*Other end-user industries include smart cities, energy and utility, smart farming, and security and defense.

About the author

BCC Publishing Staff provides comprehensive analyses of global market sizing, forecasting, and industry intelligence, covering markets where advances in science and technology are improving the quality, standard, and sustainability of businesses, economies, and lives. Contact the staff at utkantha.srivastava@bccresearch.com.

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BCC Publishing Staff, "Global edge AI market," BCC Research Report IFT310A, June 2025. https://bit.ly/June-2025-edge-AI ■