

Edge AI Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Abstracts

The Global Edge AI Market, valued at USD 12.5 billion in 2024, is projected to expand at a robust CAGR of 24.8% from 2025 to 2034, driven by the rapid surge in demand for intelligent, decentralized computing solutions. As industries continue to embrace digital transformation, edge AI is emerging as a game-changing technology that enables businesses to process and analyze data directly at the source — reducing latency, improving security, and minimizing dependency on cloud infrastructures. The increasing penetration of IoT devices, coupled with growing investments in 5G and AI chipsets, is further fueling the adoption of edge AI across critical sectors, including healthcare, manufacturing, retail, automotive, and telecommunications.

Companies are prioritizing solutions that empower real-time decision-making and automation, particularly as industries shift toward Industry 4.0 and AI-driven ecosystems. Edge AI solutions are playing a crucial role in enabling faster insights, reducing operational bottlenecks, and delivering personalized experiences. The growing need to handle massive amounts of data generated by edge devices efficiently and securely has also prompted enterprises to invest heavily in AI algorithms that can run on-device without relying on continuous cloud connectivity. Moreover, advancements in AI processors and dedicated edge AI hardware are making these solutions more accessible, cost-effective, and scalable for businesses of all sizes. As data privacy concerns escalate, organizations are increasingly turning to edge AI for secure data handling and regulatory compliance, further strengthening market growth.

The edge AI market spans several end-use industries, including healthcare, manufacturing, banking and financial services, government, retail, telecommunications, transportation, and logistics. Among these, healthcare dominated the global market with a 43% share in 2024, as AI at the edge continues to revolutionize patient care.

Healthcare providers are using AI-powered wearables, remote monitoring systems, and advanced diagnostics tools to enable real-time patient tracking, automated medical image analysis, and faster clinical decision-making. These innovations not only improve patient outcomes but also streamline operations and reduce healthcare costs.

Based on components, the market is segmented into software, hardware, and services, with software accounting for 51.7% of the total market share in 2024. The rising prominence of software solutions is attributed to their critical role in deploying AI models, facilitating real-time analytics, and ensuring data security at the edge. AI software frameworks are essential for enabling edge devices to process and analyze data independently, support AI model updates, and optimize system performance without cloud reliance, addressing the growing need for instant, intelligent insights.

The U.S. edge AI market is anticipated to reach USD 20 billion by 2034, backed by the country's widespread adoption of AI across healthcare, smart cities, and industrial automation. The strong presence of leading tech giants and semiconductor companies developing AI chips and edge platforms, coupled with government initiatives promoting AI innovation and infrastructure modernization, is accelerating growth. Rapid advancements in 5G, IoT, and cloud-edge integration continue to shape a dynamic ecosystem for edge AI deployment in the U.S.

Contents

CHAPTER 1 METHODOLOGY & SCOPE

- 1.1 Research Design
 - 1.1.1 Research Approach
 - 1.1.2 Data Collection Methods
- 1.2 Base Estimates & Calculations
 - 1.2.1 Base Year Calculation
 - 1.2.2 Key Trends For Market estimation
- 1.3 Forecast model
- 1.4 Primary research and validation
 - 1.4.1 Primary sources
 - 1.4.2 Data mining sources
- 1.5 Market scope & definition

CHAPTER 2 EXECUTIVE SUMMARY

- 2.1 Industry synopsis, 2021 - 2034

CHAPTER 3 INDUSTRY INSIGHTS

- 3.1 Industry ecosystem analysis
 - 3.1.1 Hardware providers
 - 3.1.2 Software providers
 - 3.1.3 Cloud service providers
 - 3.1.4 Managed service provider
 - 3.1.5 End use
- 3.2 Supplier landscape
- 3.3 Profit margin analysis
- 3.4 Technology & innovation landscape
- 3.5 Patent analysis
- 3.6 Key news & initiatives
- 3.7 Case studies
- 3.8 Regulatory landscape
- 3.9 Impact forces
 - 3.9.1 Growth drivers
 - 3.9.1.1 Increasing adoption of edge devices across various end use verticals
 - 3.9.1.2 Growing investment in AI technology

- 3.9.1.3 Growing adoption of 5G network
- 3.9.1.4 Surging adoption of cloud computing technology
- 3.9.2 Industry pitfalls & challenges
 - 3.9.2.1 Privacy and security concerns
 - 3.9.2.2 Interoperability issues
- 3.10 Growth potential analysis
- 3.11 Porter's analysis
- 3.12 PESTEL analysis

CHAPTER 4 COMPETITIVE LANDSCAPE, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
- 4.3 Competitive positioning matrix
- 4.4 Strategic outlook matrix

CHAPTER 5 MARKET ESTIMATES & FORECAST, BY COMPONENT, 2021 – 2034 (USD MILLION)

- 5.1 Key trends
- 5.2 Hardware
 - 5.2.1 Graphics Processing Unit (GPU)
 - 5.2.2 Application Specific Integrated Circuit (ASIC),
 - 5.2.3 Central Processing Unit (CPU)
 - 5.2.4 Field-Programmable Gate Array (FPGA)
- 5.3 Software
- 5.4 Service
 - 5.4.1 Training & consulting
 - 5.4.2 Support & maintenance
 - 5.4.3 System integration and testing

CHAPTER 6 MARKET ESTIMATES & FORECAST, BY APPLICATION, 2021 – 2034 (USD MILLION)

- 6.1 Key trends
- 6.2 Video surveillance
- 6.3 Remote monitoring
- 6.4 Predictive maintenance
- 6.5 Others

CHAPTER 7 MARKET ESTIMATES & FORECAST, BY END USE, 2021 – 2034 (USD MILLION)

- 7.1 Key trends
- 7.2 Manufacturing
- 7.3 Healthcare
- 7.4 BSFI
- 7.5 Government
- 7.6 Retail & e-commerce
- 7.7 Telecommunication
- 7.8 Transport & logistics
- 7.9 Others

CHAPTER 8 MARKET ESTIMATES & FORECAST, BY REGION, 2021 - 2034 (USD MILLION)

- 8.1 Key trends
- 8.2 North America
 - 8.2.1 U.S.
 - 8.2.2 Canada
- 8.3 Europe
 - 8.3.1 UK
 - 8.3.2 Germany
 - 8.3.3 France
 - 8.3.4 Italy
 - 8.3.5 Spain
 - 8.3.6 Russia
 - 8.3.7 Nordics
- 8.4 Asia Pacific
 - 8.4.1 China
 - 8.4.2 India
 - 8.4.3 Japan
 - 8.4.4 Australia
 - 8.4.5 South Korea
 - 8.4.6 Southeast Asia
- 8.5 Latin America
 - 8.5.1 Brazil
 - 8.5.2 Mexico

8.5.3 Argentina

8.6 MEA

8.6.1 UAE

8.6.2 South Africa

8.6.3 Saudi Arabia

CHAPTER 9 COMPANY PROFILES

9.1 Anagog

9.2 Amazon

9.3 ADLINK

9.4 Clearblade

9.5 Cloudera

9.6 Dell

9.7 Google

9.8 Gorilla Technology

9.9 Huawei

9.10 IBM

9.11 Intel

9.12 Microsoft

9.13 MediaTek

9.14 Mavenir System

9.15 Nutanix

9.16 Nvidia

9.17 Synaptics

9.18 Qualcomm

9.19 Veeva

9.20 Xilinx

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