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The Global Neural Networks Market 2027–2040

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Abstracts

Neural networks have become the organising principle of the global computing industry. Every frontier language model, every image and video generator, every autonomous-driving perception stack and most modern speech, vision and recommendation systems is a neural network. The hardware that trains and runs them, the models themselves and the software used to deploy them now make up one of the fastest-growing and most heavily capitalised markets in technology. The scale of investment is unprecedented. OpenAI closed a US$122 billion round at an US$852 billion valuation in April 2026, and Anthropic raised US$65 billion at a US$965 billion valuation in May 2026. Mistral AI raised €3 billion, AMI Labs US$1.03 billion and SambaNova US$1 billion. Cerebras raised US$5.55 billion in the largest US IPO of 2026. NVIDIA licensed Groq's inference technology for about US$20 billion. Consolidation is reshaping edge AI and photonics, through onsemi–Synaptics (about US$7 billion), Marvell–Celestial AI (US$3.25 billion), ADI–Alif (US$1.35 billion) and Microchip–Hailo.
NVIDIA remains the reference platform for data-centre accelerators. Custom chips from Google, Amazon, Meta and OpenAI are gaining ground, as are inference specialists such as Cerebras, Groq, Etched and Rebellions, and China's domestic GPU makers.

Five shifts define the outlook:

Inference overtakes training as the dominant workload. Reasoning models and agentic AI multiply the compute used per task.

Architectures diversify. Mixture-of-experts transformers dominate today. State-space, liquid, diffusion and other post-transformer designs from Liquid AI, Inception, Pathway and others are gaining traction.

Neural networks move into the physical world. World models and robot foundation models are carried into vehicles, robots and devices.

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New computing substrates begin to commercialise. These include neuromorphic, photonic, analog, thermodynamic and biological computing.

Value migrates towards models, software and Asia. Sovereign AI programmes in Korea, Japan, India, the Gulf and Europe build national capacity.

There are also serious constraints:

grid power;

HBM memory and advanced packaging capacity;

export controls dividing the US and Chinese markets;

EU AI Act obligations;

the gap between infrastructure spending and end-user revenue.

How companies handle memory bandwidth, power, custom silicon and inference economics will decide who captures value through 2040.
The Global Neural Networks Market 2027–2040 is an analysis of the hardware, models, software and applications behind modern AI. It contains more than 160 tables and 28 figures. Detailed forecasts to 2040 are broken down by:

market segment;

hardware type;

training vs. inference;

cloud vs. edge;

architecture family;

end-use sector;

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region.

Bull, base and bear scenarios are included, and the report reconciles its figures with third-party estimates. The report goes beyond market sizing to assess how close each company is to delivering working commercial products. Every one of the 194 profiled companies has a full one-page profile covering:

company overview;

neural network technology and products;

dated developments for 2025–2026;

market position and outlook.

Each profile also carries a commercial readiness rating on a five-stage scale: Commercial at scale, Commercial – early, Integrating, Transitioning or Development. Alongside it are an estimated time to a working commercial product or model and a statement of the readiness evidence. This lets investors, strategists and procurement teams see at a glance which companies are shipping today, which are piloting with customers, which are in transition after acquisitions or pivots, and which remain years from market. Summary tables and a chart break readiness down across seven company groups. They show that established chipmakers and leading model developers are overwhelmingly commercial, while neuromorphic, photonic, analog and thermodynamic computing developers are mostly still integrating with customers or in development.

The report covers:

data-centre GPUs and custom ASICs;

challenger and Chinese accelerators;

edge neural processors;

neuromorphic, photonic, analog and biological computing;

HBM memory, packaging and interconnect;

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foundation and open-weight models;

post-transformer architectures;

token economics;

applications in automotive, healthcare, robotics, defence and finance.

It also includes regional analysis, a full record of funding, M&A and IPOs, regulation and a 2027–2040 technology roadmap.

Report contents include:

Global market forecasts 2025–2040 by segment, hardware type, workload, deployment, architecture, end use and region, with bull, base and bear scenarios

Data-centre accelerators: NVIDIA and AMD roadmaps, hyperscaler custom chips, challengers, China’s chip ecosystem, Korean and Japanese developers

Edge neural processors for smartphones, AI PCs, vehicles, industrial systems and robots, plus edge AI consolidation

Neuromorphic, photonic, analog and in-memory, thermodynamic, quantum and biological computing

HBM roadmap, the memory wall, advanced packaging and optical interconnect

Architectures: CNNs, transformers, mixture of experts, state-space models, liquid, graph and topological networks, spiking networks, world models, quantum and biological networks

Foundation model developers, valuations, open-weight models, token economics, MLOps and AI memory infrastructure

Applications: cloud, enterprise and agentic AI, consumer devices, automotive, healthcare, robotics and physical AI, finance, defence, telecoms, science

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Regional analysis: North America, China, South Korea, Japan, Taiwan, Europe, UK, India, Middle East, Russia and Australia

Funding rounds, M&A, IPOs and strategic compute partnerships for 2024–2026

Regulation: EU AI Act, US export controls, UK, China, ISO/IEC 42001, FDA–EMA principles, litigation

Risks: power, memory supply, geopolitics, capital intensity, safety

Technology commercialisation timeline and ten predictions to 2040

Commercial readiness assessment of 194 companies, with stage, time to product and evidence

194 one-page company profiles including 1X Technologies, Agibot (Zhiyuan Robot), Aidoc, Akhetonics, Alchip Technologies, Aleph Alpha, Alibaba Group (Qwen, T-Head), Alif Semiconductor, Ambarella, AMD, AMI Labs, Ampere Computing, Analog Devices, Anduril Industries, Anthropic, Arago, Arlequin AI, Arm Holdings, Aspinity, Astera Labs, Axelera AI, Axera Semiconductor, Ayar Labs, Baidu (incl. Kunlunxin), Baseten, Biren Technology, Black Forest Labs, Black Sesame Technologies, Blaize, Blumind, BrainChip, Broadcom, ByteDance, Cambricon Technologies, Cartesia, Celestial AI, Cerebras Systems, ChipAgents, Chipmind, CogniFiber, Cohere, CoreWeave, Cortical Labs, Crusoe, d-Matrix, Darktrace, Databricks, DeepSeek, DeepX, EdgeCortix, ElevenLabs, EnCharge AI, Enflame Technology, Engramme, Etched, Extropic, Ferroelectric Memory Company (FMC), Field AI, Figure AI, FinalSpark, Fireworks AI, Fractile and more.....

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