Capital Markets Strategy

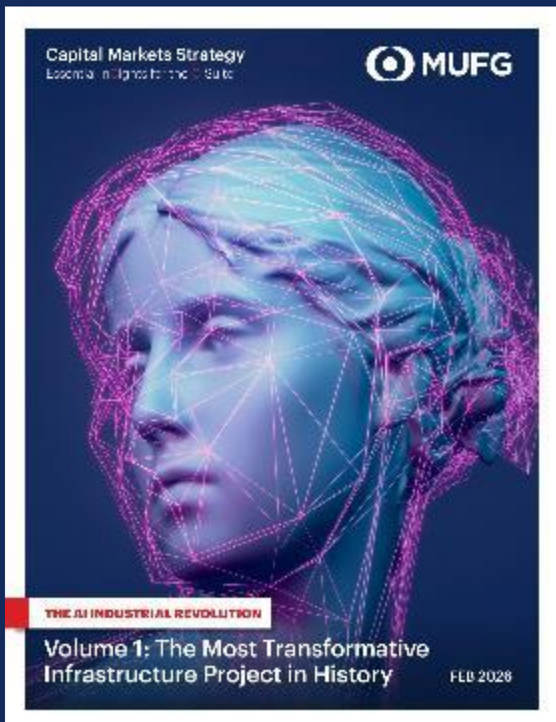
Essential inCights for the C-Suite

THE AI INDUSTRIAL REVOLUTION

Volume 2:
The AI Arms Race

FEB 2026

The AI Industrial Revolution



“The single most important thing for any processor is getting adoption by software developers."

Jensen Huang, CEO & co-founder of Nvidia

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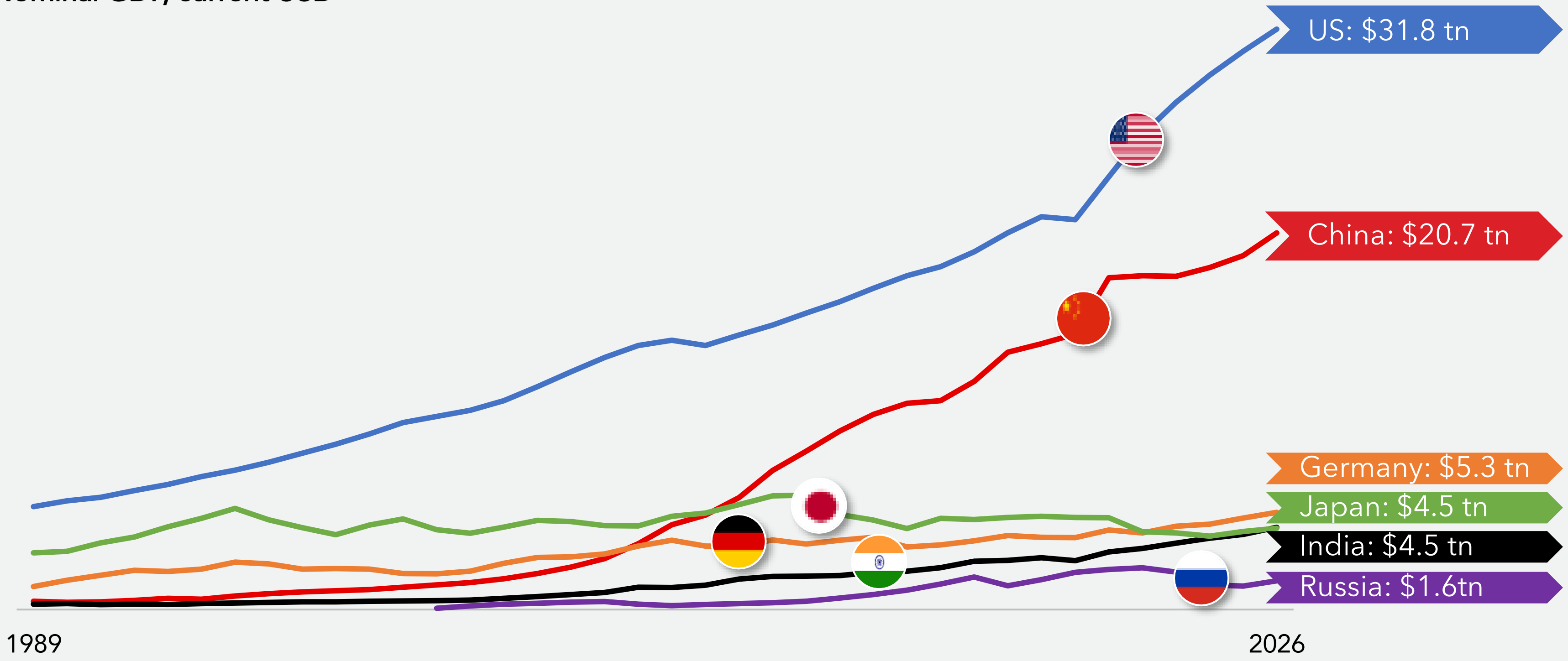
1 Relative Competitiveness Assessment

AI & Innovation Driving Outsized GDP Growth

Starting in the mid 1990s, the US and China embarked on radically different but complementary paths that led to a sharp growth divergence with other advanced economies, most notably, Europe and Japan. US innovation focused on the value layer of the digital economy, including internet platforms, software, semiconductors and cloud. China, by comparison, focused on the infrastructure and manufacturing layers of the physical economy, climbing the value chain over time with technology innovation. Looking ahead, the leadership, adoption and implementation of AI by both the US and China are expected to drive continued divergence in productivity and growth.

Nominal GDP, current USD



Source: (1) IMF. Data as of January 2026. 2026 GDP is an estimate.

Review of US-China AI Competitiveness

US-China AI competitiveness, relative advantage

	Advantage	
SEMICONDUCTOR SUPPLY CHAIN		
AI computational power		
Chip design & IP		
Advanced manufacturing		
Access to advanced chips		
Legacy chip manufacturing		
Control over critical raw minerals		
DATA CENTERS & POWER		
Data center capacity		
Overall energy production		
Power generation capacity		
Speed of grid expansion		

	Advantage	
LANGUAGE MODELS & INTEGRATION		
Fronter language models		
Open-source language models		
Multilingual performance		
Business applications		
AI & TECH SECTOR R&D		
Government investment		
Private sector investment		
Cost efficiency		
Engineering innovation today		
AI relevant pipeline & graduates		
Data volume & access		
Value of patents		
Quantity of patents		
Quality of research		
Quantity of research		

Computational Power is Core US Competitive Advantage

Across the numerous metrics for evaluating AI competitiveness, **the United States enjoys the largest, order-of-magnitude advantage in AI computational power** through its leadership in not only GPUs (i.e., NVIDIA), but the entire microchip supply chain and ecosystem including software, design and cluster performance.

Metrics for evaluating US-China AI competitiveness

Competitive Advantage

Energy

- US leads on energy production, but China moving much more rapidly and efficiently in adding power and grid capacity aligned with AI data center expansion

Computational Power

- **Most dominant area of US competitive advantage led by new generation of Nvidia Blackwell GPUs (and related system and software architecture)**
- **Significant US restrictions on export of Blackwell chips to China; older Hopper generation (H20, H200) permitted**

Infrastructure

- US leadership in data centers, software and hardware
- China moving rapidly with central planning and local gov't tax credits and subsidies

*Source: (1) IFP. Tom's Hardware. Various News Sources. *Some metrics are estimates based on reporting of the B30A having 50% of the performance power of the B300. Actual names and specifications may be different than those listed above.*

China More Competitive Longer Term on Implementation

Metrics for evaluating US-China AI competitiveness

Competitive Advantage

Engineering Talent / Innovation	• US institutions host largest share of world class AI talent, high quality research and labs; more depth and innovation in US private sector AI ecosystem (hyperscalers, start-ups) • China's growing pipeline of engineering talent and scale creating significant longer-term competitive advantage
Language Models	• Significant US leadership in frontier models, innovation and foundational research • China narrowing the gap with several notable cost-efficient breakthroughs (DeepSeek)
Data	• Significant Chinese structural advantages in data volume and ease of large-scale harvesting; more permissive legal environment; surveillance data; strong consumer apps • US strong on high quality, globally sourced enterprise data
Business Applications	• **Near Term:** US advantages in high-value enterprise AI • **Longer Term:** China more entrepreneurial and rapid with integration across a plethora of business applications

*Source: (1) IFP. Tom's Hardware. Various News Sources. *Some metrics are estimates based on reporting of the B30A having 50% of the performance power of the B300. Actual names and specifications may be different than those listed above.*

2

AI Data Centers

Top 10 Countries by Data Centers

Global data centers

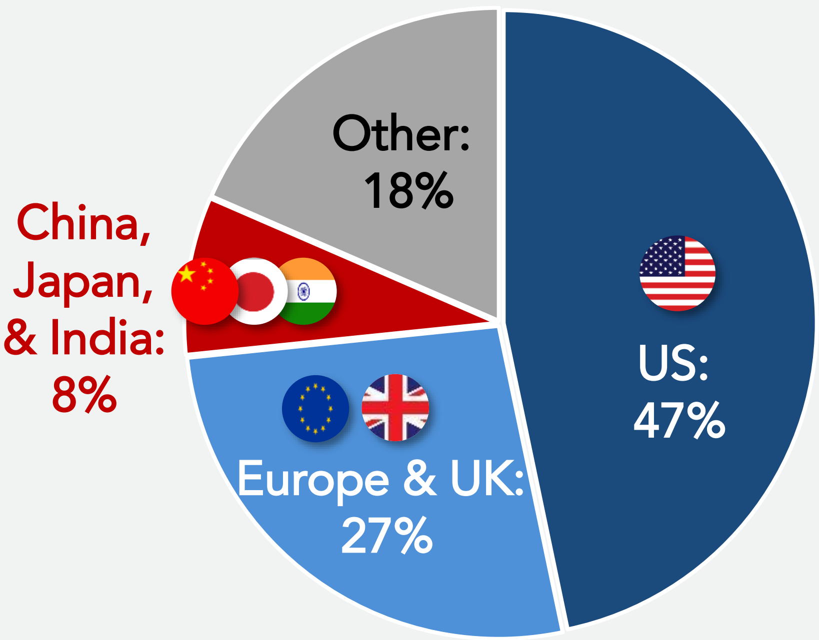
Rank	Country	Data centers
1	US	5,427
2	Germany	529
3	UK	523
4	China	449
5	Canada	337
6	France	322
7	Australia	314
8	Netherlands	298
9	Russia	251
10	Japan	222

Source: Cloudscene. Data as of February 2026.

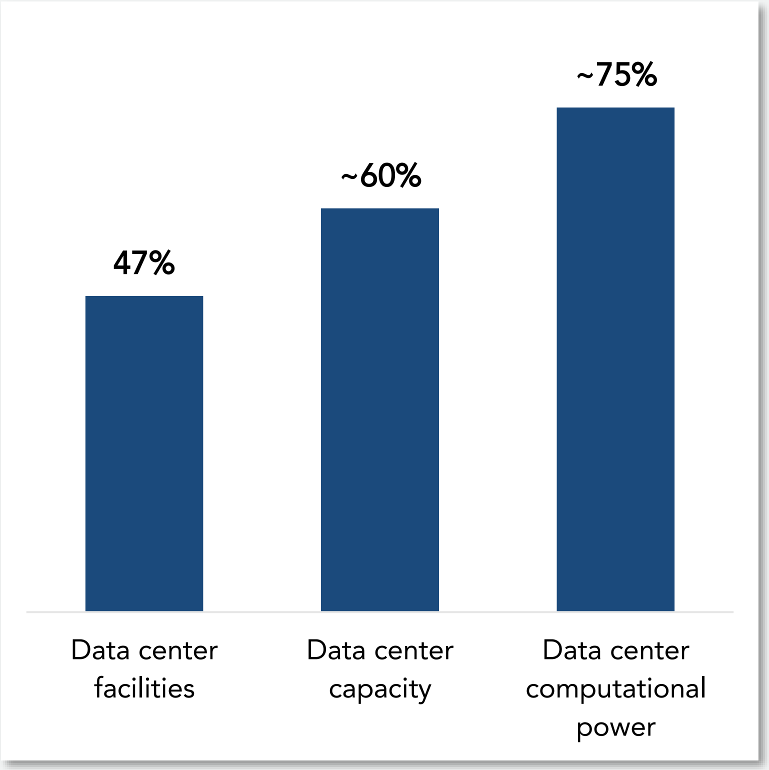
Distribution of Global Data Center Capacity

With well over 5,000 of approximately 12,000 existing data centers globally, and another 3,000 planned, the US houses roughly 45% of global data center facilities. However, measured in total capacity and computational power, US data center market share is much higher at approximately 60% and 75%, respectively.

Share of global data centers, by region



US data center market share

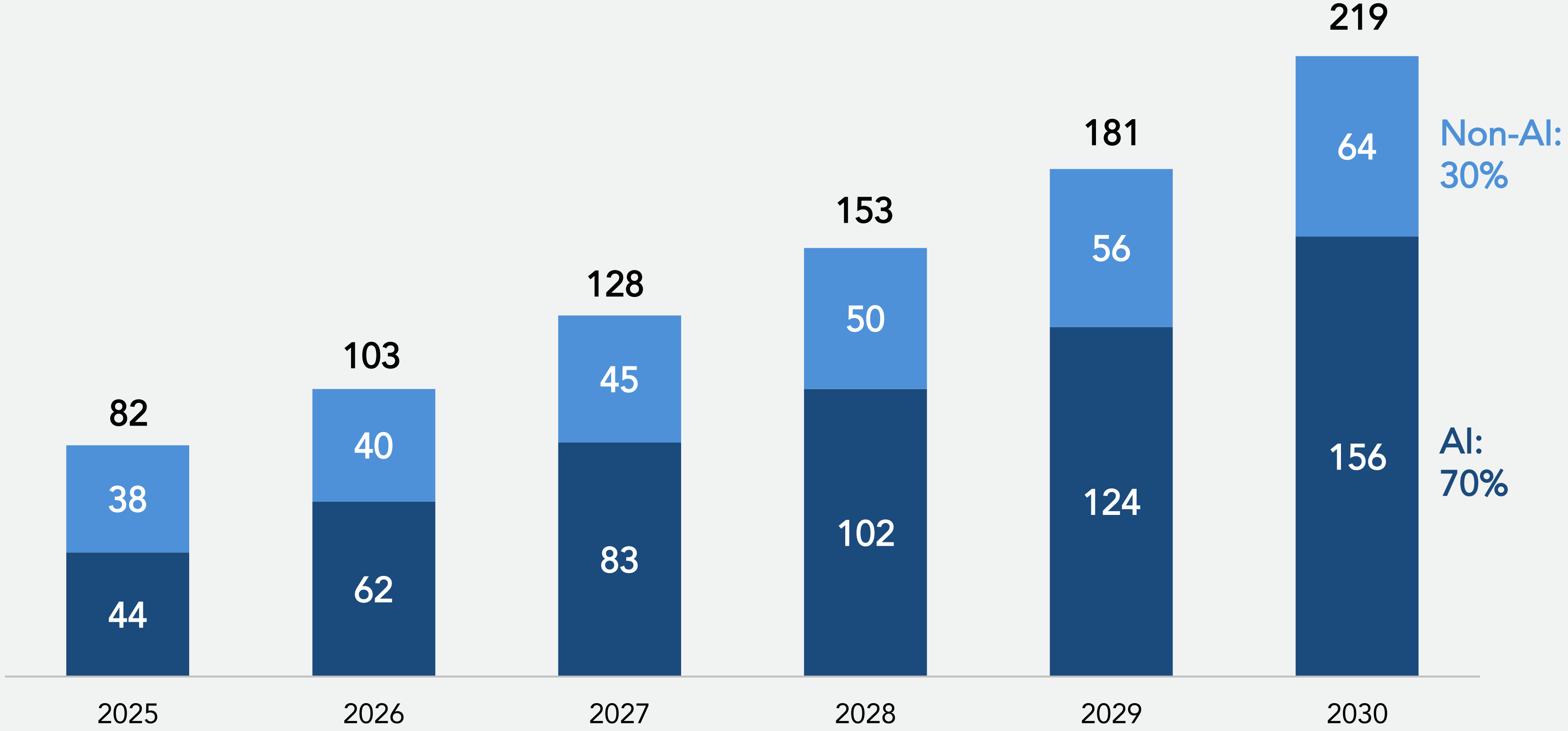


Source: (1-2) Cloudscene. Data as of February 2026. Europe includes Germany, France, Netherlands, Italy, Poland, Spain, Switzerland, Sweden, Belgium, Austria, Ukraine, Ireland, Denmark, Finland, Norway, Türkiye, Czech Republic, Romania, Latvia, Bulgaria, Luxembourg, Portugal, Lithuania, Hungary, Greece, Slovakia, Slovenia, Serbia, Croatia, Belarus, Moldova, Cyprus, Iceland, Macedonia, Malta, Georgia, Liechtenstein, Monaco, Gibraltar, Bosnia and Herzegovina, Azerbaijan, and Albania. China includes Hong Kong.

Data Center Capacity Will Nearly Triple by 2030

According to a McKinsey & Company analysis, global demand for data center capacity could almost triple by 2030, with 70% of that demand coming from AI.

Estimated global data center capacity demand, gigawatts

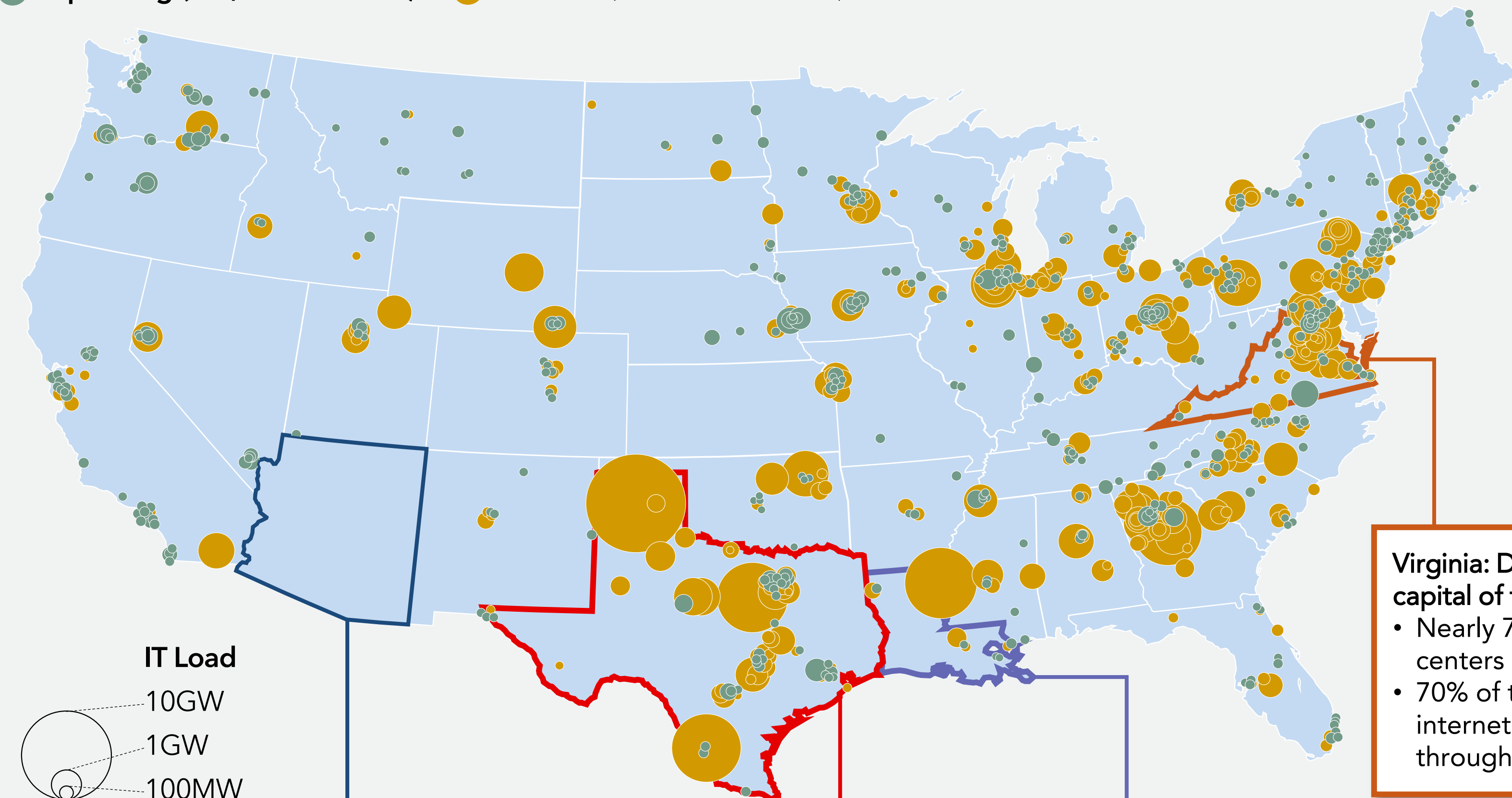


Source: (1) McKinsey, "The cost of compute – a $7 trillion dollar race to scale data centers." McKinsey Data Center Demand Model. Gartner reports. IDC reports. Nvidia capital market reports. Figures may not sum to totals, because of rounding. Forecasts are baseline scenario.

McKinsey & Company

Operating & Planned US Data Center Sites

Operating (< 5,000 locations) Planned (< 3,000 locations)



Arizona: Western hub for hyperscalers
- Preferred hub for Microsoft, Google & Meta
- Low natural disaster risk & business friendly tax laws

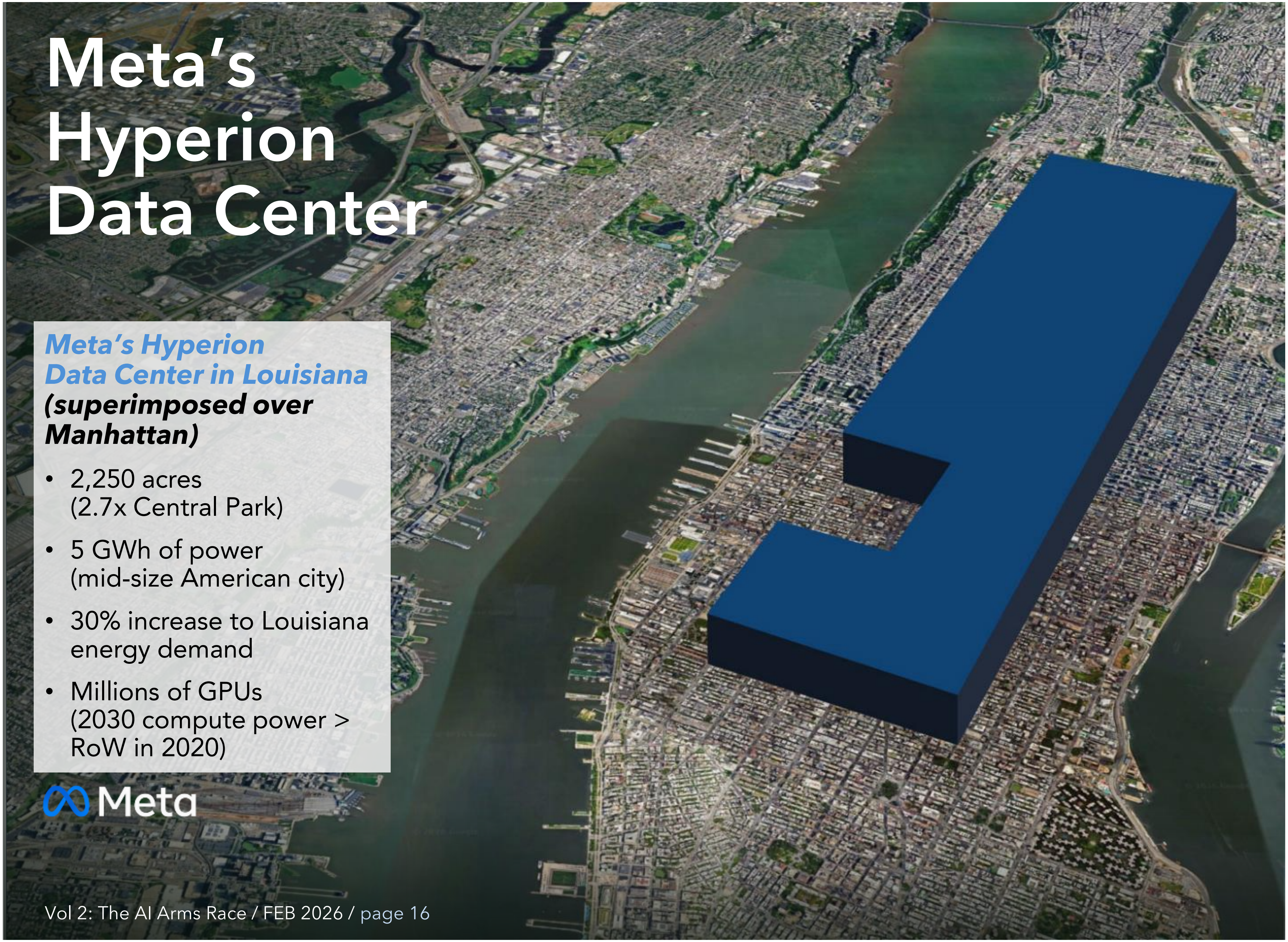
Texas: New Hotbed for AI data centers
- #2 in total facilities
- $100bn Stargate project & $25bn Vantage Frontier campus

Louisiana: Large construction pipeline
- Home to Meta's $10bn Hyperion data center
- > 5.5 GW in pipeline
- Tax incentives, less bureaucratic hurdles

Virginia: Data center capital of the world
- Nearly 700 data centers
- 70% of the world's internet traffic flows through VA daily

Source: DC Byte. CMRA. FT, "The Power Crunch Threatening AI's Ambitions."

Meta's Hyperion Data Center



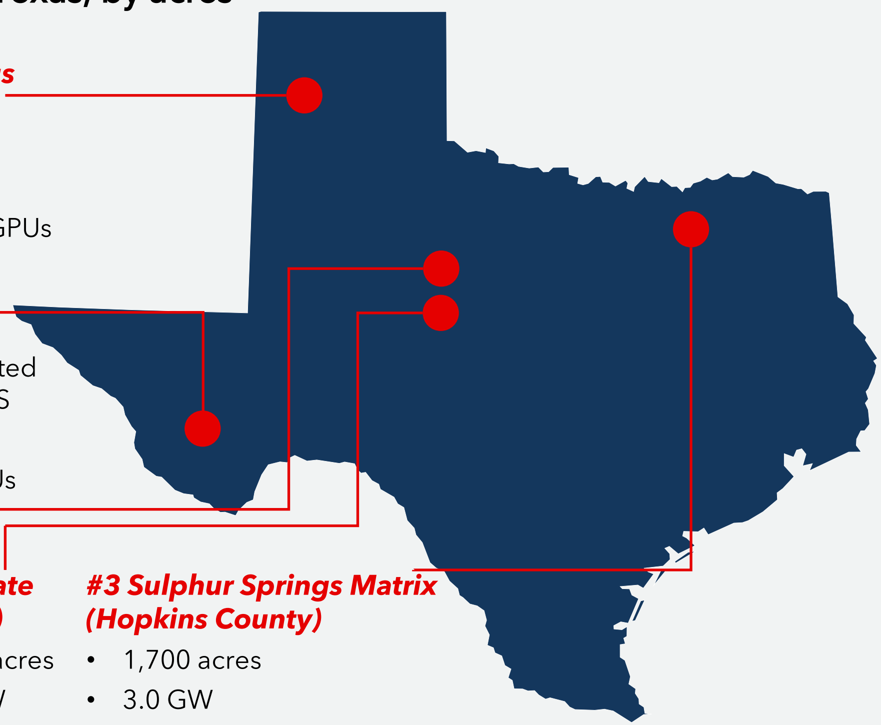
***Meta's Hyperion Data Center in Louisiana* (superimposed over Manhattan)**

- 2,250 acres (2.7x Central Park)
- 5 GWh of power (mid-size American city)
- 30% increase to Louisiana energy demand
- Millions of GPUs (2030 compute power > RoW in 2020)

Texas: New Hotbed for AI Data Centers

Texas is projected to overtake Northern Virginia as the nation's leading data center market by 2028, driven by a massive shift toward "Gigascale" campuses that generate their own power. Power independence, along with speed to market, massive land scale and financial incentives are all helping Texas "win the race" for new data center capacity. As of February 2026, Texas has over 400 data centers compared to Virginia's nearly 700.

Largest data centers in Texas, by acres



#2 Advanced Energy Campus (Amarillo)

- 5,800 acres
- 11 GW of capacity
- Phased for multiple cluster GPUs

#1 GW Ranch (Pecos County)

- 8,000+ acres, largest permitted data center campus in the US
- 7.65 GW
- Designed for 1 million+ GPUs

#4 Vantage Frontier (Shackelford)

- 1,200 acres
- 1.4 GW
- High density Blackwell pods

#5 Stargate (Abilene)

- 1,100 acres
- 1.2 GW
- 150k+ NVIDIA GB200s

#3 Sulphur Springs Matrix (Hopkins County)

- 1,700 acres
- 3.0 GW
- ~450k GPUs

- Total number of data centers: ***> 400***
- Total number of planned data centers: ***>100***
- Active construction: ***35 facilities***
- Current power capacity: ***8.5 GW (grid)***
- Current power capacity: ***57.9 GW (off-grid)***
- Planned power capacity additional: ***~38.1 GW***
- Commercial construction spend: ***$90bn / year***

Data Centers in Space?

Space-based data centers have evolved from a long-term research goal to a potentially achievable milestone inside five years. In January 2026, SpaceX filed an application with the FCC to launch up to one million satellites to facilitate orbital data centers. While the challenges remain formidable (high launch costs, unstable GPU environment), the daunting concept also promises several compelling advantages (i.e., obviates excessive demands on land & water, accessible solar energy, carbon neutral, low temperatures for natural cooling).

Power & Energy

- ✓ Solar panels in space are 5x more efficient than on Earth
- ✓ Unlimited access to solar power (>95% capacity)
- ? Power-conversion challenge of delivering energy to high-density GPU racks in orbit
- ? Launch energy (rocket fuel)

Infrastructure & Security

- ✓ Accelerated scalability (real estate, power, regulation)
- ✓ No local zoning / permitting
- ✓ Enhanced physical and digital security
- ? Limited maintenance capabilities
- ? Kessler effect (low orbit collisions)
- ? Potential radiation damage to GPUs

Environment & Cooling

- ✓ Naturally cold temperature (-270°C)
- ✓ Reduced impact on water, electricity, land
- ✓ Carbon-neutral long term
- ? "Thermos" effect (vacuum constraint, no air to "blow" away heat)
- ? Launch pollution

Amodei's "Country of Geniuses" Analogy

In a January 2026 paper, Anthropic CEO Dario Amodei warned of the non-linear, exponential growth in AI computational power, whereby a single data center could soon (i.e., 2027) become the equivalent of an entire country of 50 million geniuses, each more capable than a Nobel Prize-winning scientist, and operating 24/7. In his view, the ***irresolvable tension between opportunity and risk***, and the ***asymmetry between speed and society's corrective mechanisms***, are of most concern in the absence of governance and a regulatory architecture.

Key benefits:

- **Compression of scientific time** (medicine, discovery, eradicating disease)
- **"Genius-level" technical expertise in scale** (cognitive research, information processing)
- **Economic abundance in scale** (compounding impact of productivity, wealth creation)
- **Developing world leapfrogging** (AI enabled skill development and progress)
- **Extraordinary parallel processing**

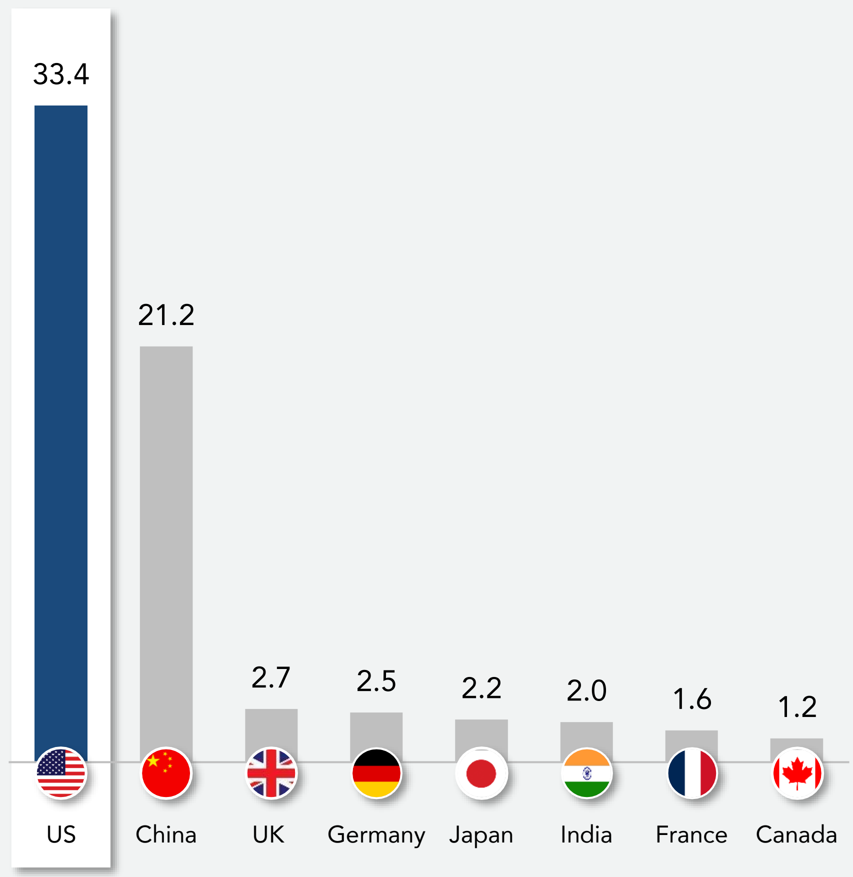
Key concerns:

- **Misaligned AI values in scale** (antithetical to human welfare)
- **Speed asymmetry** (with society's corrective mechanisms)
- **Concentration of power** (illegitimate, hegemonic impact by individuals)
- **Proliferation of malicious actors** (democratization of high impact capabilities)
- **Economic disruption** (labor displacement, social instability)
- **Existential** (bioterrorism, nuclear)

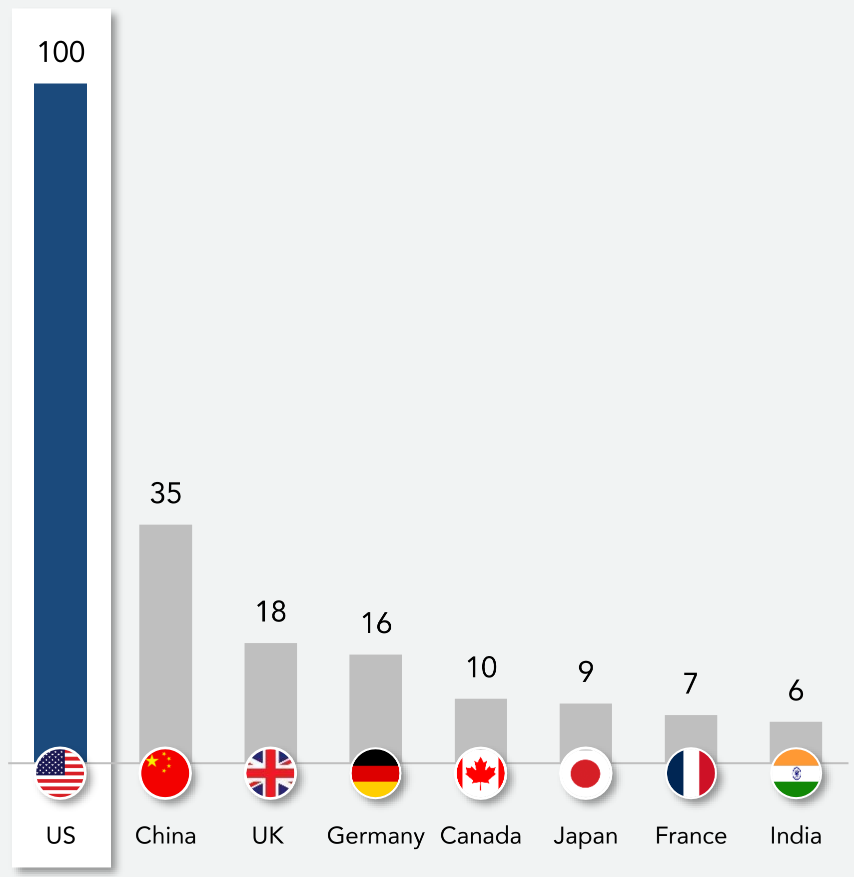
Installed Servers & Cloud Capacity by Region

Alongside GPUs, installed servers and cloud capacity are the physical foundation of US AI leadership. By concentrating compute, power and data within the scalable architecture of hyperscaler data centers, installed servers and cloud capacity give the US leverage in the explosive growth of frontier AI compute.

Installed servers, millions



Cloud service capacity index (US = 100)

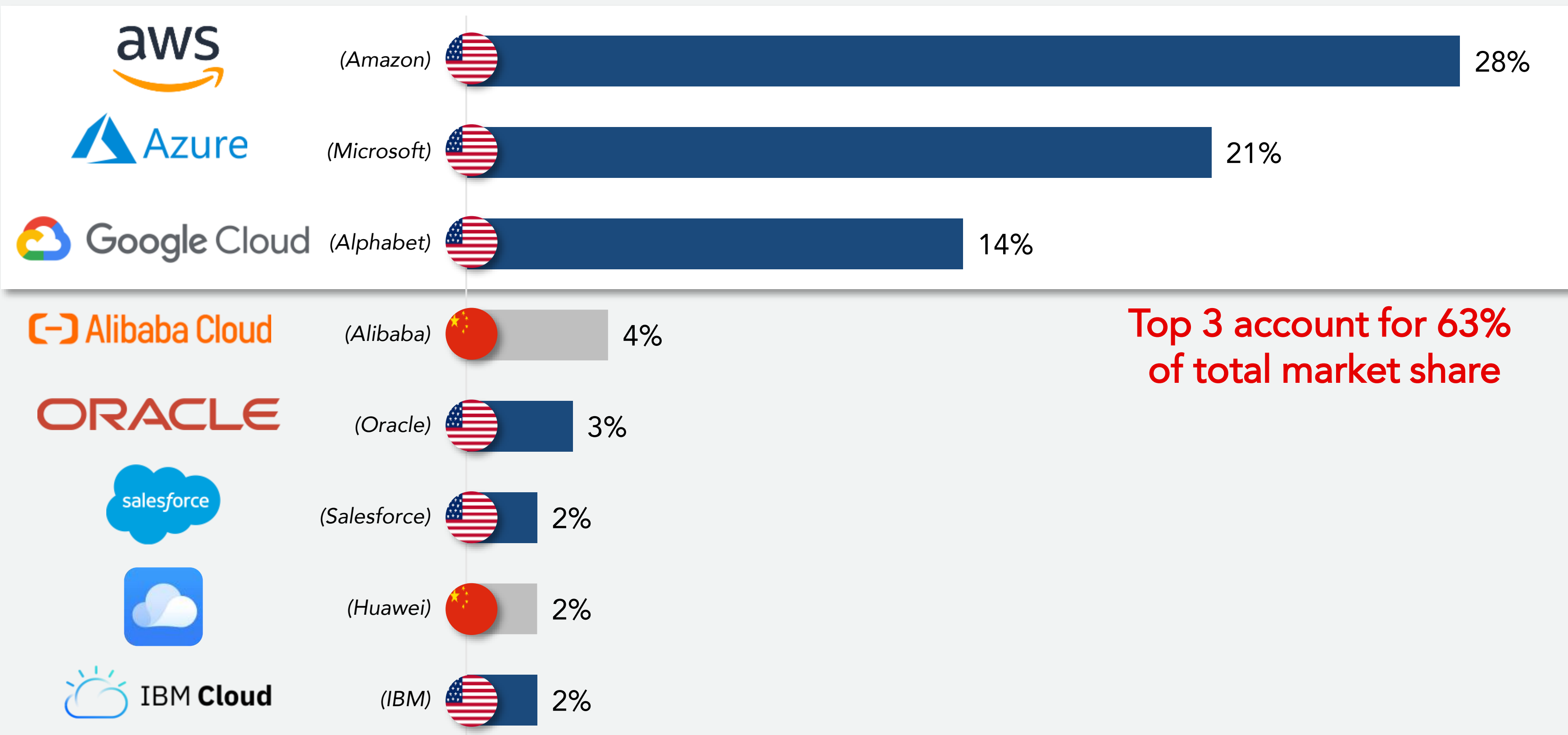


Source: (1-2) Federal Reserve. Tony Blair Institute for Global Change. Cloudscene.

US Leads in the Cloud Infrastructure Market

AWS, Azure and Google Cloud continue to dominate the global market, accounting for over 60% of the cloud infrastructure sector. Alibaba is the largest provider in China (36% of Chinese cloud market), though global expansion has slowed due to regulatory headwinds.

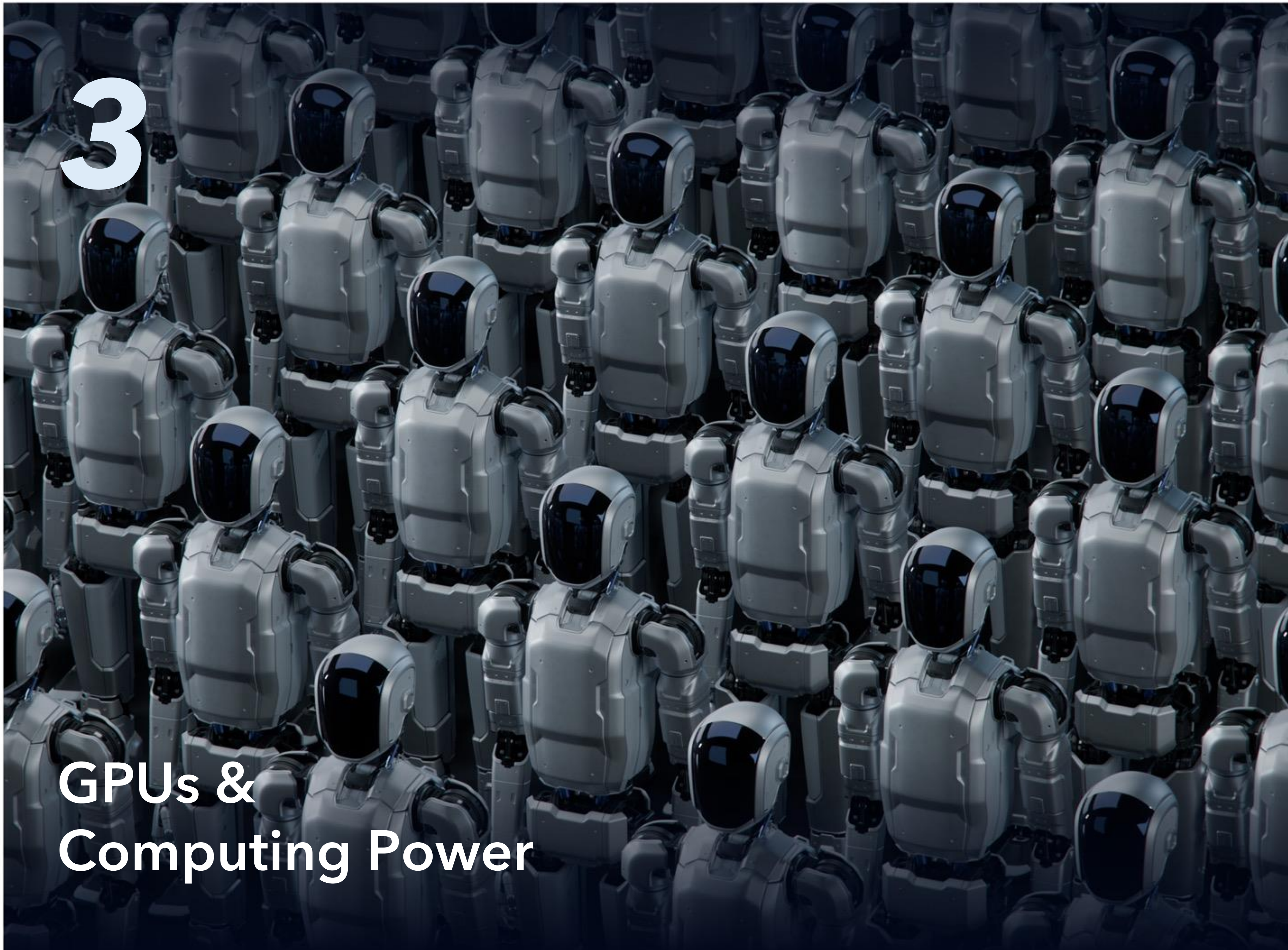
Global market share of leading cloud infrastructure service providers in Q4 2025



Source: (1) Statista. Synergy Research Group. Includes platform as a service (PaaS), infrastructure as a service (IaaS), and hosted private cloud services. Cloud infrastructure service revenues in Q4 2025 total to $119 bn (+30% y/y).

3

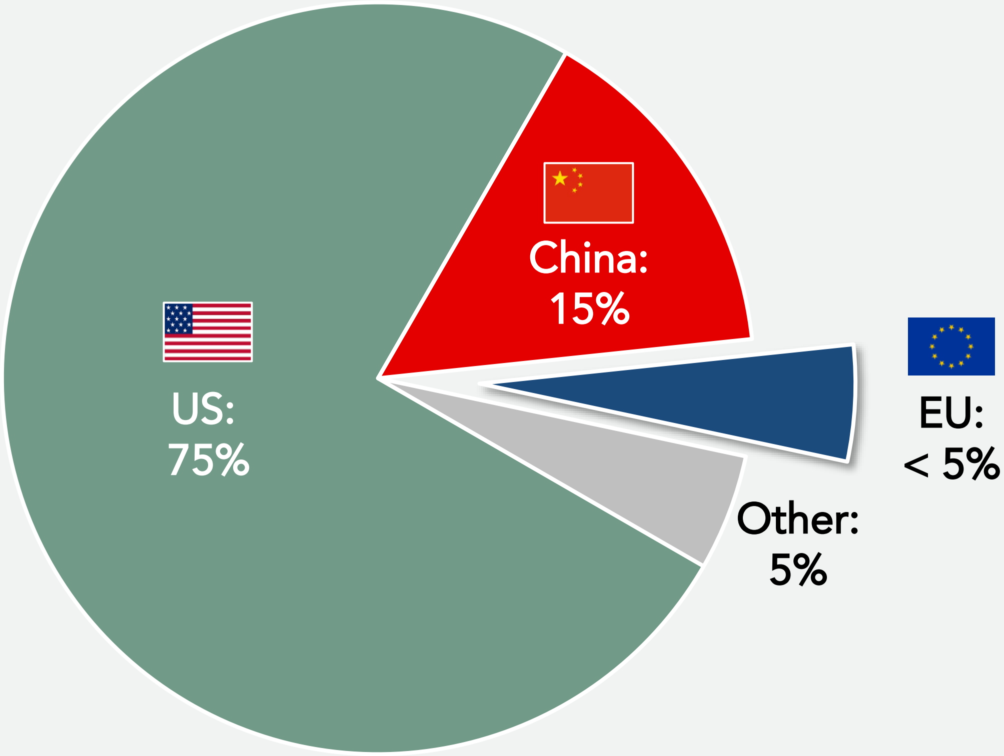
GPUs & Computing Power



Relative AI Computational Power

The United States currently controls about 75% of global frontier AI compute, a core competitive advantage in the global AI arms race. US innovation, led by the integration of advanced software and microchip hardware, has given it control of large GPU clusters and high-end AI supercomputing capacity.

Estimated AI computing power, by country

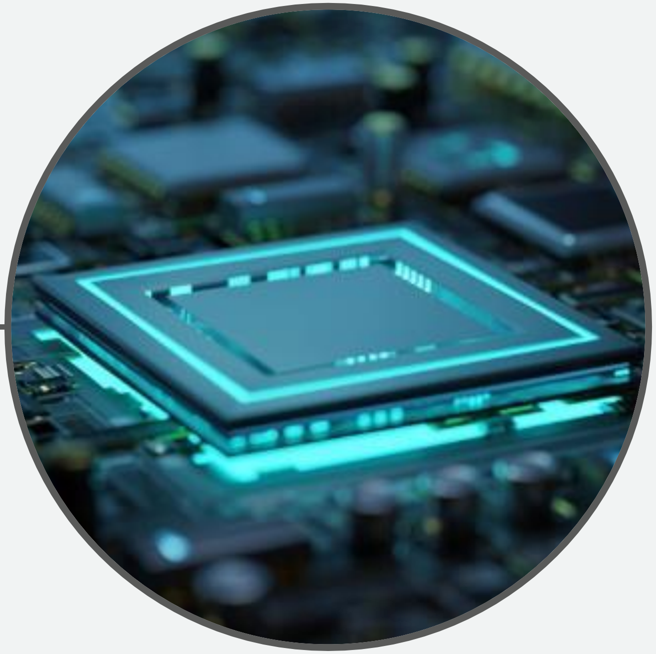


Source: (1) Epoch AI. Federal Reserve. Data shows 2025-26 estimates.

China’s Twin Technology Deficits

China has made extraordinary progress across a wide range of foundational technologies over the last decade, well establishing themselves as the world’s second most formidable global technology power. However, more so than most other areas, China notably lags US and western innovation in two fundamental, core technology arenas: software and advanced microprocessors.

Software

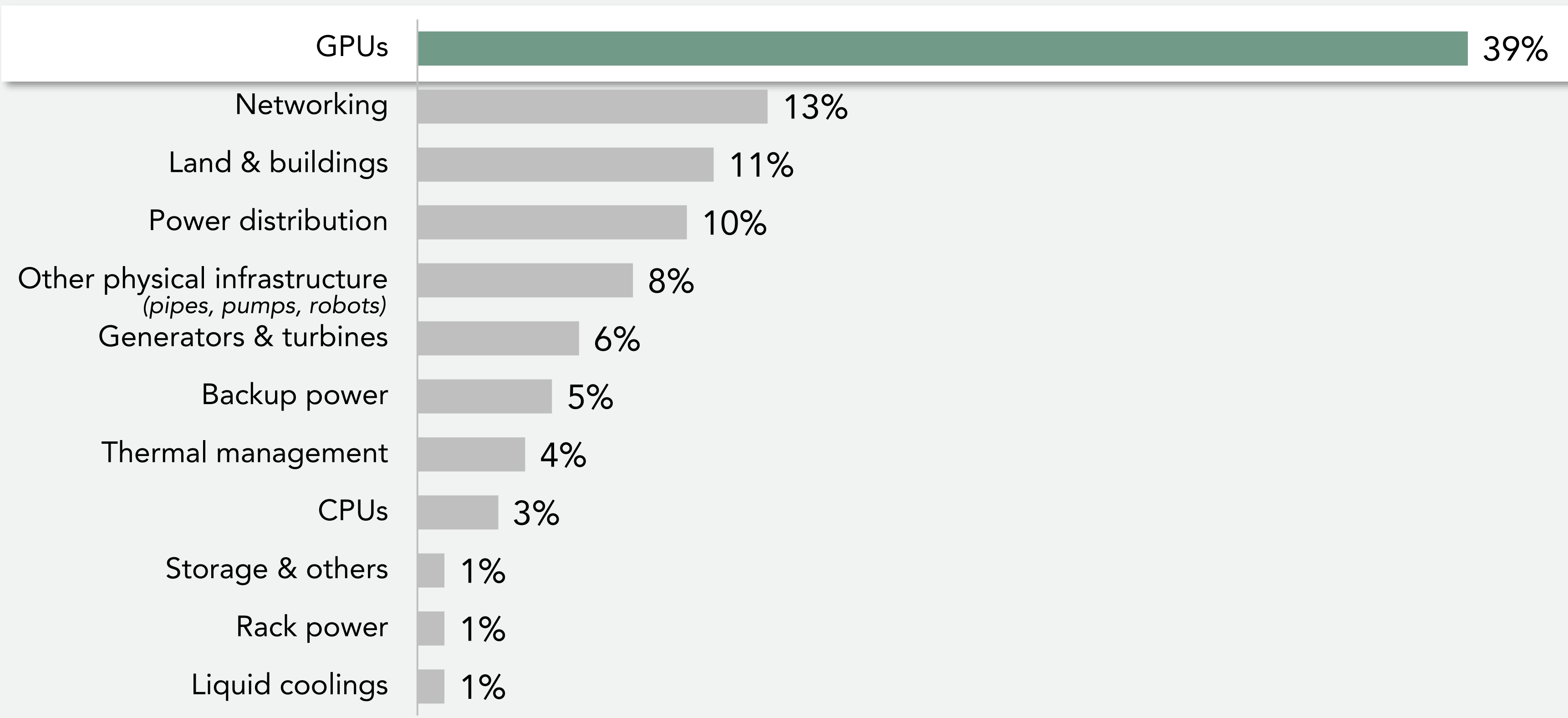


Advanced Semiconductors

GPUs Integral to Data Center Build-out

GPUs have become the organizing principle of today's data centers, which have essentially become AI factories whose value is measured in installed GPU FLOPs, rather than simply square footage or rack count. Utilizing a complex software architecture, the most advanced AI GPUs can now be clustered in groups exceeding 400,000 chips, creating a powerful ecosystem for scaling computational power. As a result, GPU demand has become the primary driver of new data center structures, power-purchase agreements and regional expansion plans.

Expenses per 1GW data center capacity, % of total capex

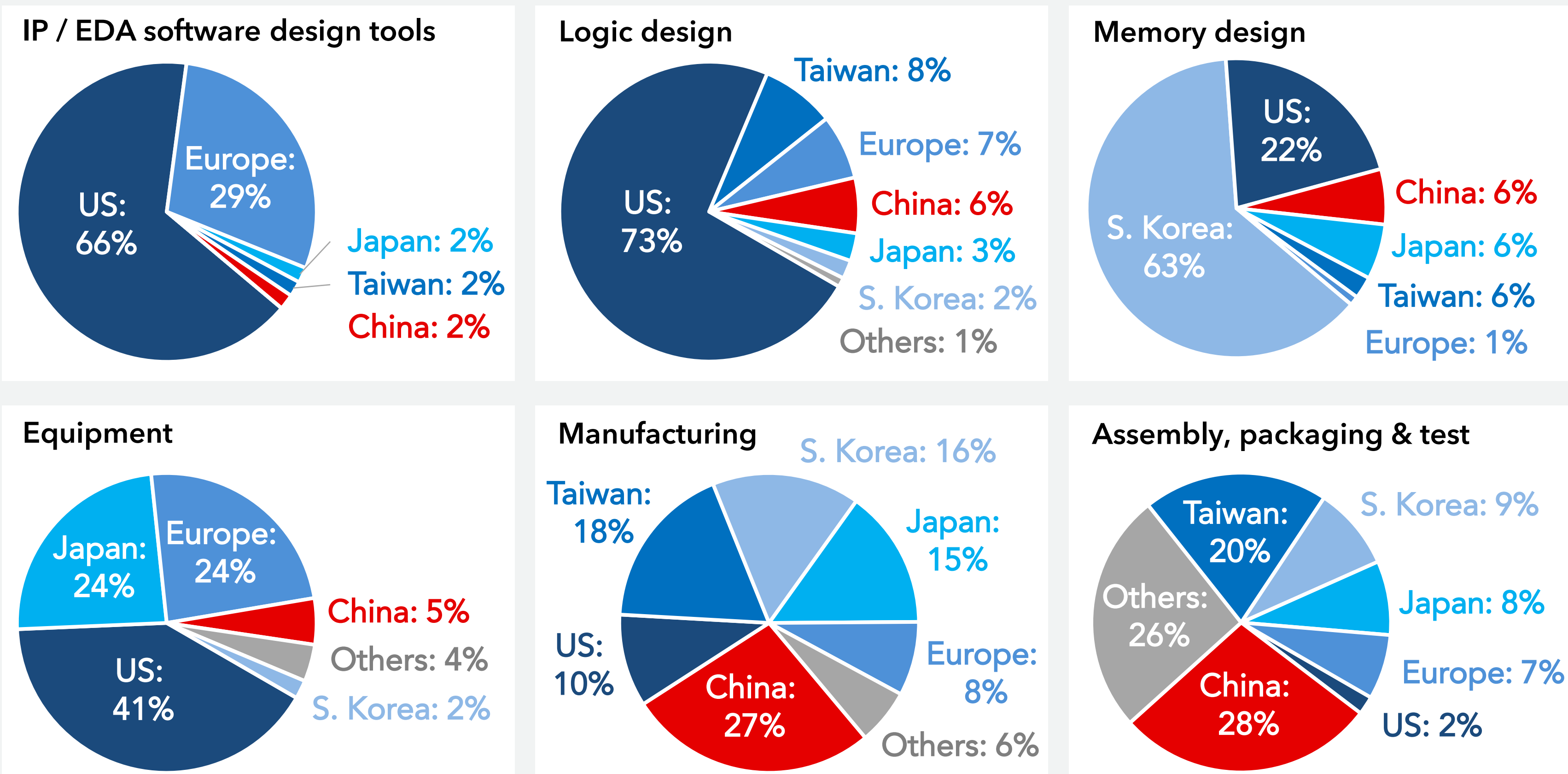


Source: (1) Bloomberg. Bernstein Research. Estimates based on $35 bn for 1GW data center capacity, using Nvidia's GB200 / NVL72 rack.

US-Aligned Bloc Dominates Semiconductor Supply Chain

The global semiconductor supply chain is highly complex and regionally specialized. While China has made enormous strides in numerous critical technologies, the US-aligned bloc (US, Europe, Japan, SK, Taiwan) enjoys enormous advantages in semiconductor software, design, equipment and high-end manufacturing. Globally coordinated restrictions on the sharing of microchip software, design and equipment have become a centerpiece in US-China policy.

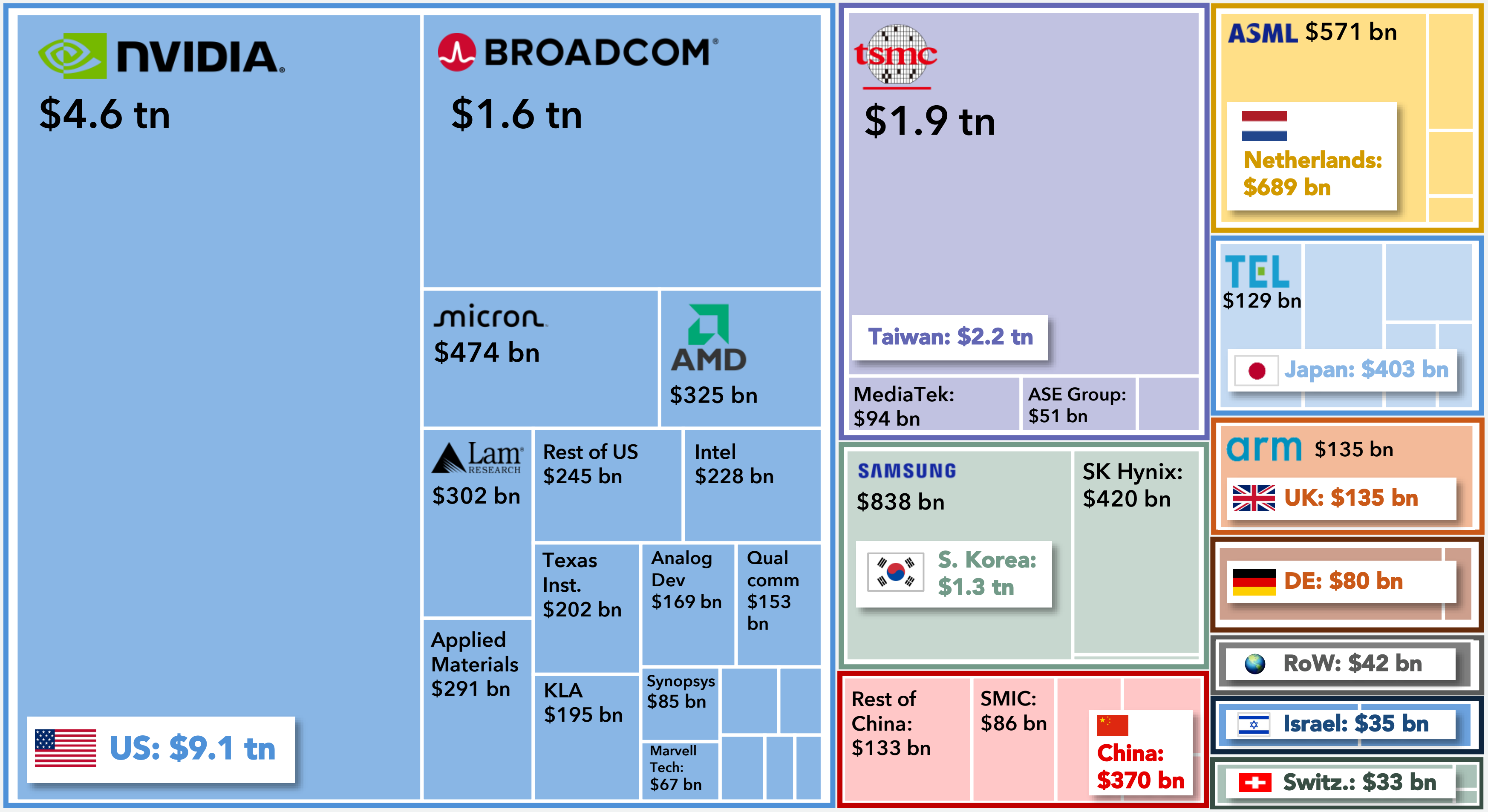
Semiconductor industry value added, by activity and region (2024)



Source: (1) Semiconductor Industry Association, "2025: State of the U.S. Semiconductor Industry". Data as of 2024.

US-Aligned Bloc Dominates Semiconductor Supply Chain

Global semiconductor companies by market cap, USD tn



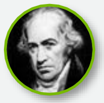
Source: (1) Visual Capitalist. Companiesmarketcap.com. Data as of February 18, 2026. RoW includes companies from Australia (2), Austria (1), Belgium (2), Canada (1), France (3), Hong Kong (2), Ireland (1), Italy (1), Luxembourg (1), Norway (1), Singapore (1). In most cases, companies with a market cap < $20bn were included in Other.

"Huang's Law" Replacing "Moore's Law"

NVIDIA

NVIDIA's remarkable chip product evolution each derive their names from acclaimed scientists. Over the last decade, NVIDIA has scaled the number of transistors per Blackwell chip to over 200 billion, increasing performance more than 1,000x (vs. the 30x Moore's Law would predict). More importantly, however, chip performance today relies less on scaling transistors and more on an innovative system-level architecture, which includes transistor hardware, tensor cores, scaling systems, algorithms, accelerators, complex software overlay (i.e., CUDA, CUDA-X libraries, domain tools) and parallel GPU architectures via stack co-design and clustering.

The evolution of Nvidia's GPU architecture

Fahrenheit 1998

Daniel Gabriel Fahrenheit
Physicist, inventor

Celsius 1999

Anders Celsius
Astronomer, physicist, mathematician

Kelvin 2001

Lord Kelvin
Physicist, mathematician engineer

Rankine 2003

William Rankine
Mathematician, physicist

Curie 2004

Marie Curie
Physicist, chemist

Tesla 2006

Nikola Tesla
Engineer, inventor

Fermi 2010

Enrico Fermi
Physicist

Kepler 2012

Johannes Kepler
Astronomer, mathematician, philosopher

Maxwell 2014

James Clerk Maxwell
Physicist, mathematician

Pascal 2016

Blaise Pascal
Mathematician, physicist, philosopher

Volta 2017

Alessandro Volta
Chemist, physicist

Turing 2018

Alan Turing
Mathematician, computer scientist, logician

Ampere 2020

André-Marie Ampère
Physicist, mathematician

Hopper 2022

Grace Hopper
Computer scientist, mathematician, Navy admiral

Lovelace 2022

Ada Lovelace
Writer, mathematician

The Future

Blackwell 2024

David Blackwell
Statistician, mathematician

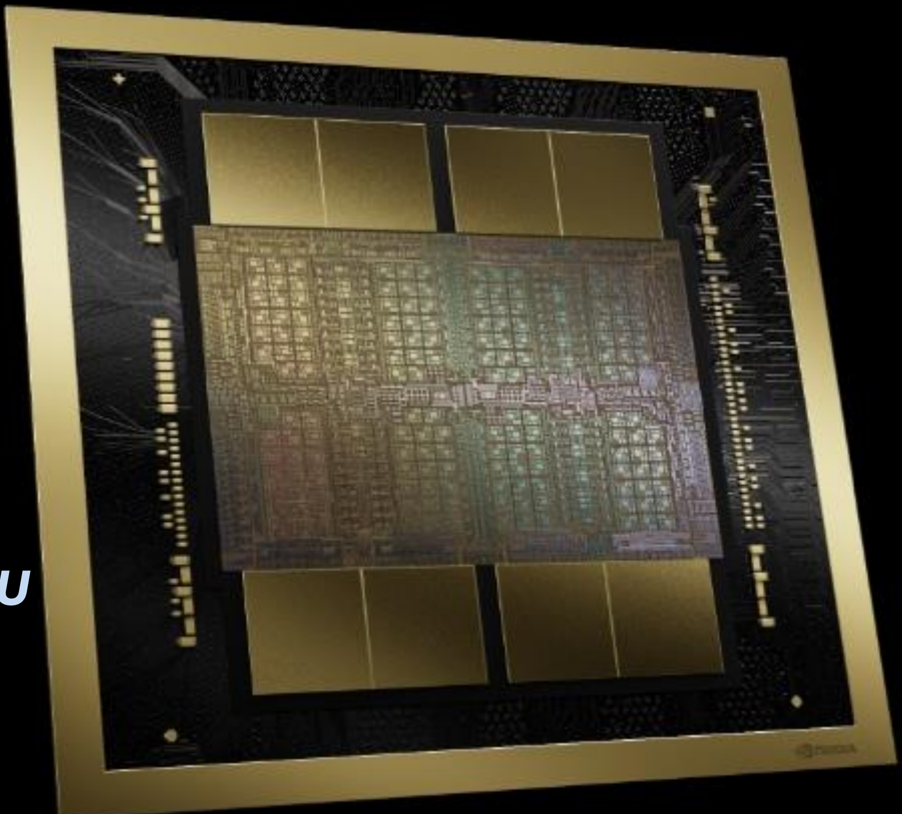
Rubin 2026

Vera Rubin
Astronomer

Feynman 2028

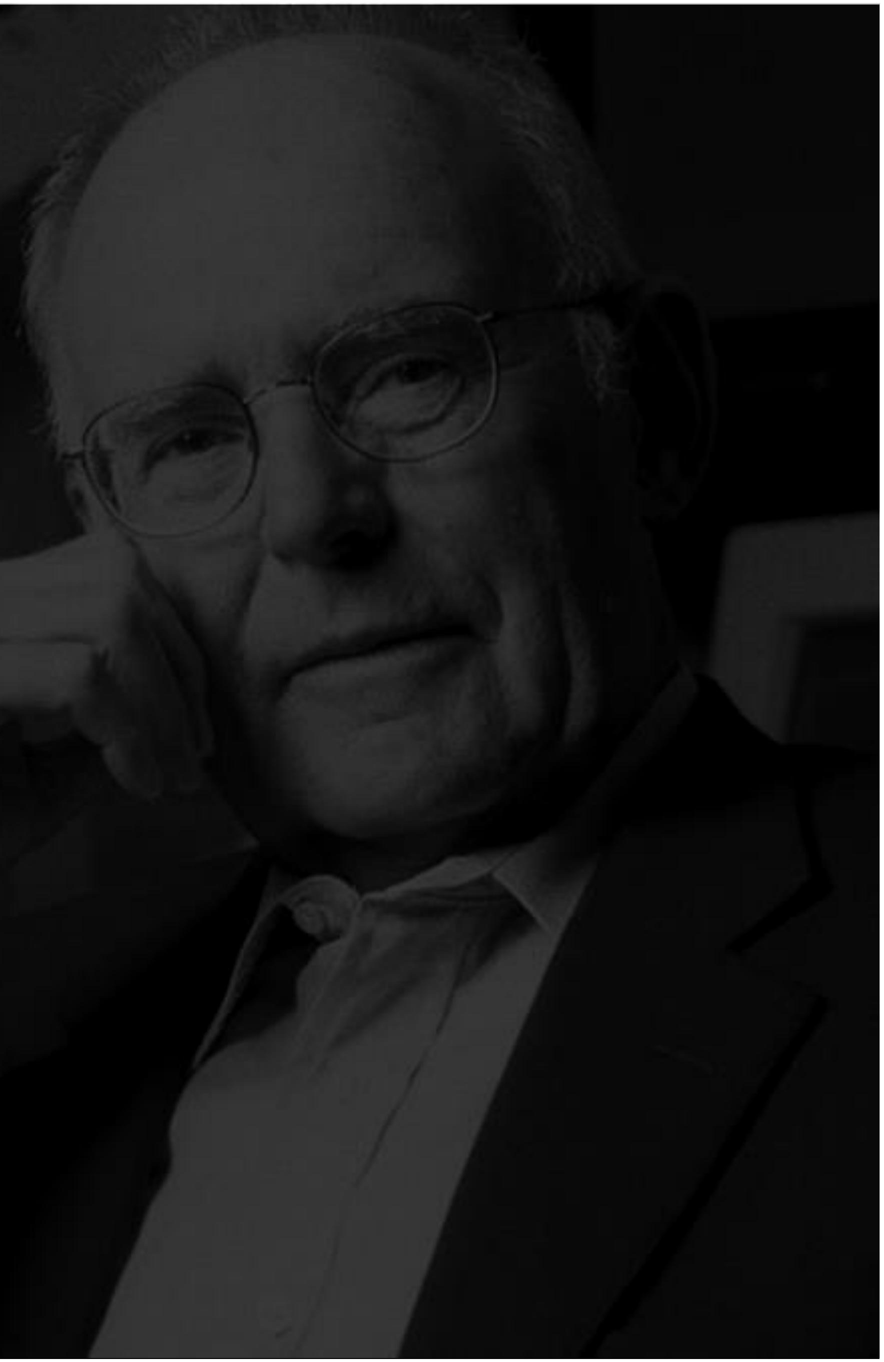
Richard Feynman
Theoretical physicist

World's Most Complex Piece of Hardware



NVIDIA's Blackwell Ultra B300 GPU

- 208 billion transistors per GPU
- Complex software architecture overlay
- CUDA platform for parallel computing
- Dozens of integrated domain tools for programmers



Gordon E. Moore

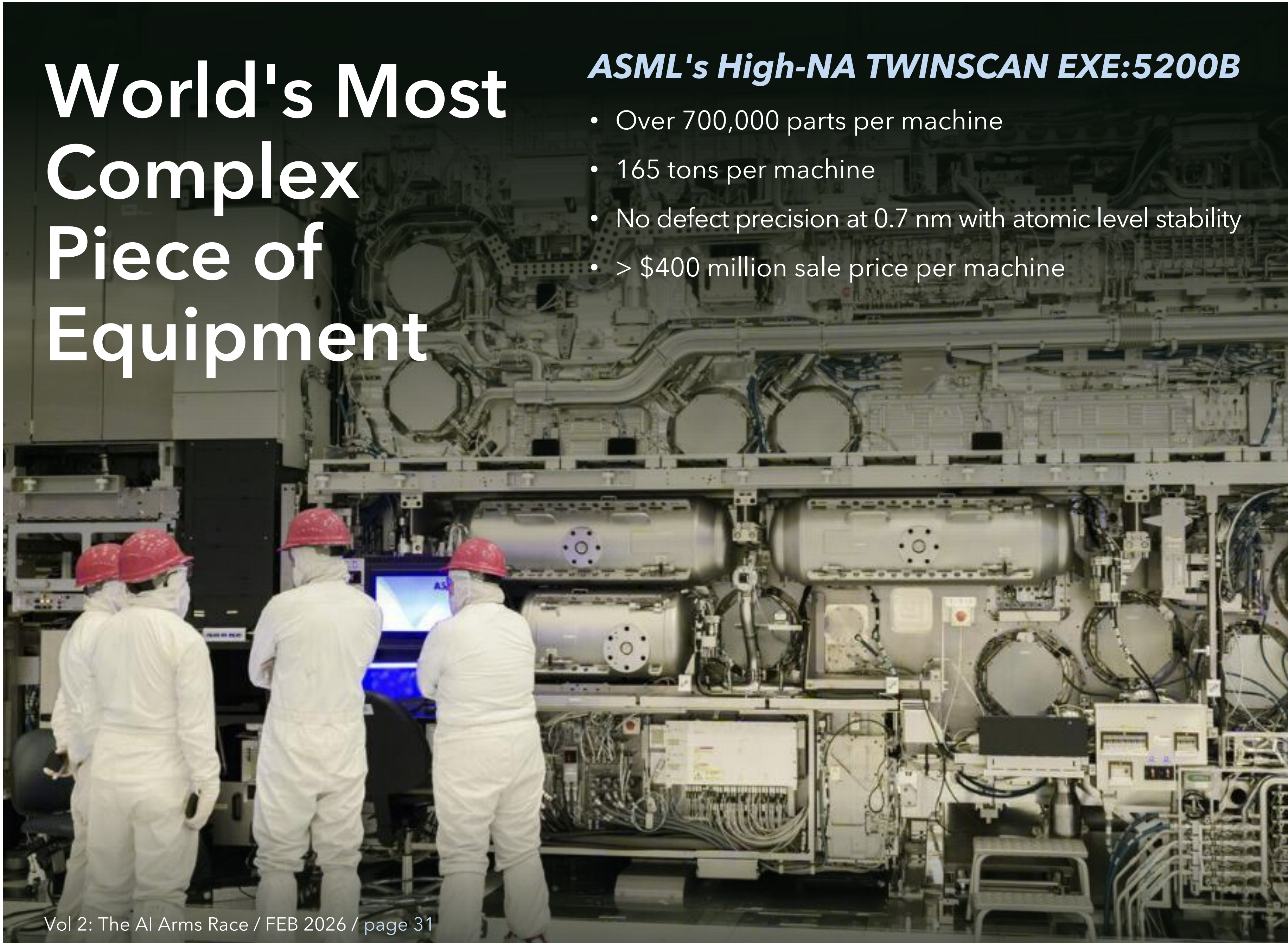
Intel Co-Founder Behind Moore's Law (1929-2023)

Astonishingly true for five decades, Moore's Law is effectively broken: Originally published in 1965, US semiconductor pioneer and Intel co-founder Gordon Moore predicted that microchip transistor count and performance would double every two years, while costs would decline. Though this remarkably prophetic observation held true until the mid-2000s, transistor scaling at lower cost has reached physical limits even with more than 200 billion transistors on advanced NVIDIA Blackwell chips. More importantly, performance no longer tracks transistor count alone, and relies more heavily on innovative software overlays and system-wide architecture.

World's Most Complex Piece of Equipment

ASML's High-NA TWINSCAN EXE:5200B

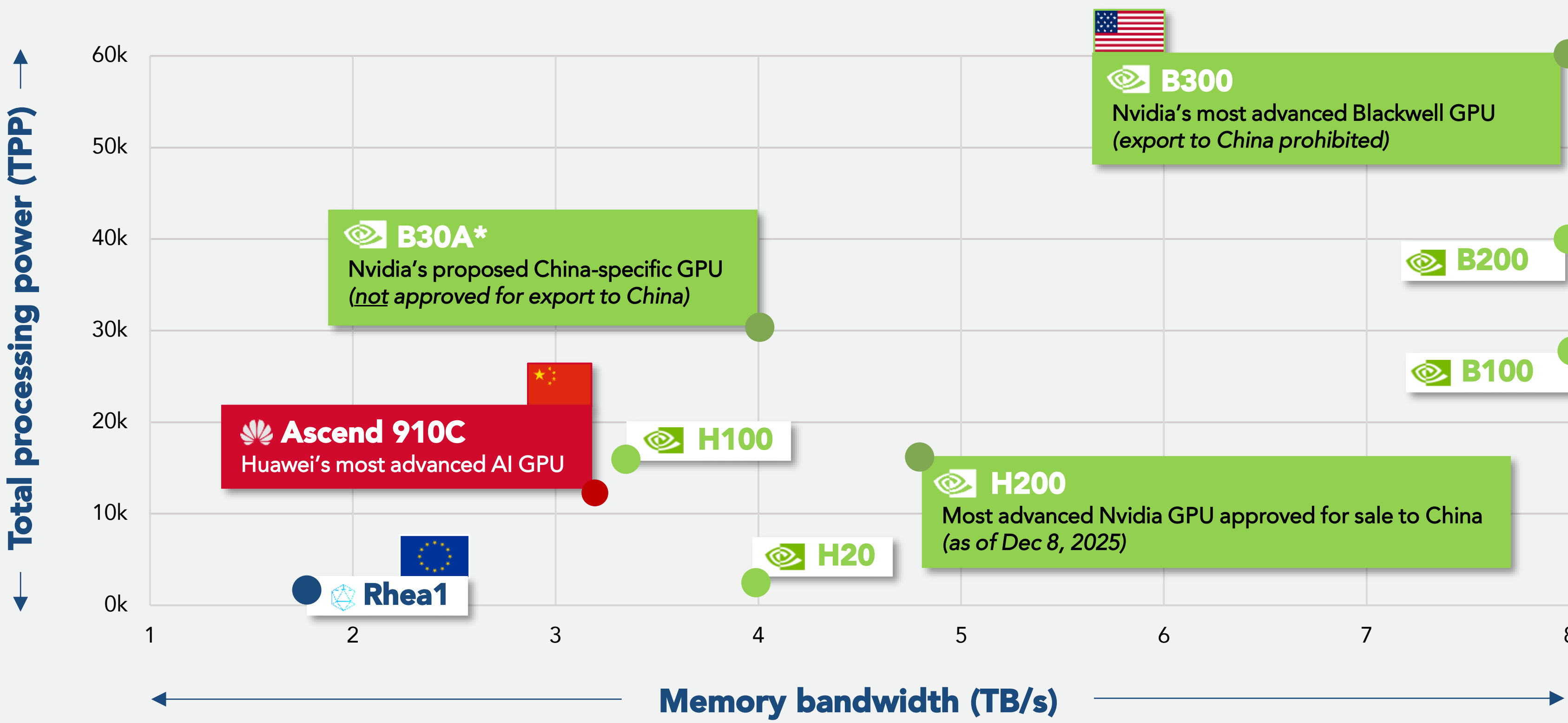
- Over 700,000 parts per machine
- 165 tons per machine
- No defect precision at 0.7 nm with atomic level stability
- > $400 million sale price per machine



GPU Design Leadership & Export Controls

The US Government has explicit restrictions on the sale of NVIDIA's most advanced **Blackwell generation B300 AI GPU** to China. However, on Dec 8, 2025, the US Government did approve exports of **NVIDIA's most advanced Hopper generation H200** chip, the most advanced US AI GPU approved for commercial use in China to date. While not nearly as high performing as the B300, NVIDIA's H200 is generally more capable than Huawei's most advanced chip, the **Ascend 910C.**

Nvidia & Huawei & SiPearl AI chip capabilities

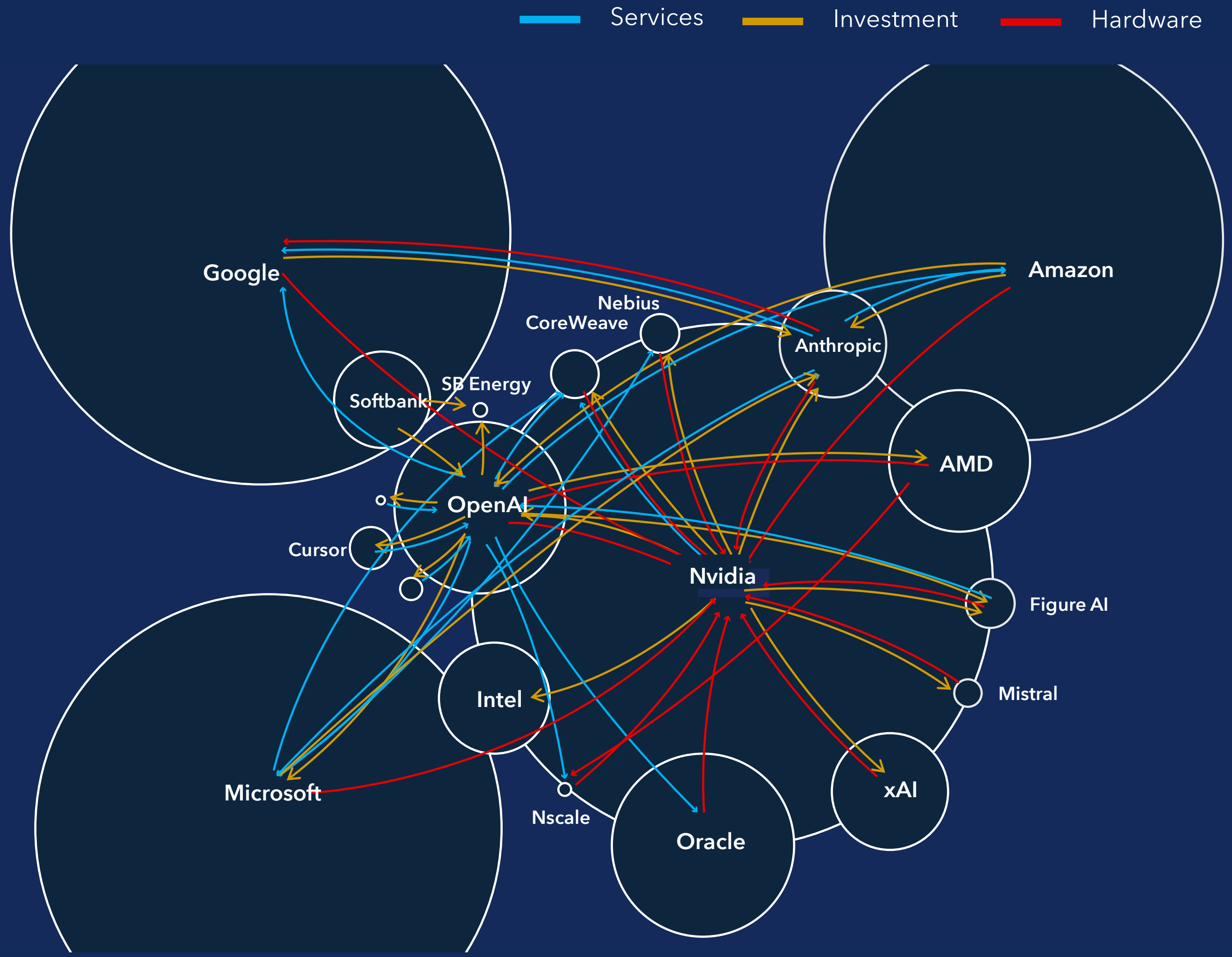


*Source: (1) Bloomberg, "Nvidia's H200 Could Turbocharge China's AI Clout". IFP. Tom's Hardware. *B30A performance is speculated based on public reporting. Some metrics are estimates based on reporting of components of the Rhea1. Actual names and specifications may be different than those listed above.*

Complex Web of AI Corporate Cross-Holdings

NVIDIA is at the center of circular AI deals

Over the last few years, NVIDIA has sat at the epicenter of an extraordinary and complex web of AI investment and cross-holdings in a multi-trillion capex buildout powered substantially by NVIDIA hardware and software. Notably, NVIDIA has become the indispensable supplier, customer, partner, and in some cases competitor, of every major AI hyperscaler, as well as numerous other critically important players in the AI ecosystem.



Source: Bloomberg, "Nvidia CEO Says New OpenAI Investment May Be Largest Yet." (February 2026). Size of circle denotes company market cap.

Leading AI GPUs by Region

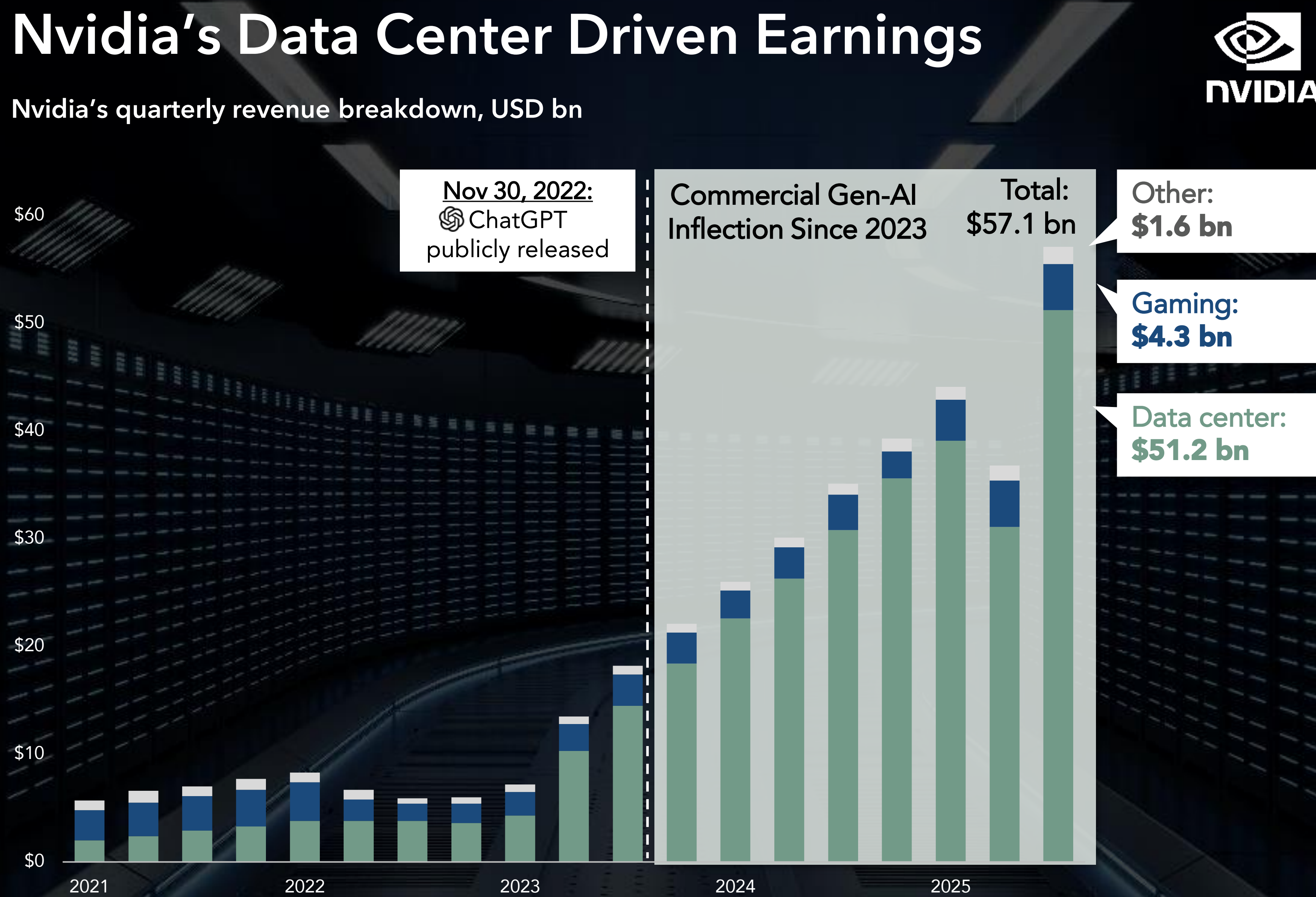
	Metric	Rhea1	Ascend 910C	H200	B300
Background	Chip Type	CPU	GPU	GPU	GPU
	Generation	**Rhea**	**Ascend**	**Hopper**	**Blackwell**
	Approved for export to China	**TBD (unlikely)**	Yes	Yes	No
Processing Power	AI processor die	1 die	2 dies	1 die	2 dies
	Total processing performance (TPP)	**< 200** *(estimated)*	**12k**	**15.8k**	**60k**
	GPU thermal design power (TDP)	N/A	310W	700W	1400W
Memory	Memory Bandwidth	**< 1.6 TB/s** *(estimated)*	**3.2 TB/s**	**4.8 TB/s**	**8 TB/s**
	Memory Capacity	64 GB HBM2E	128 GB HBM2E	141 GB HBM3E	288 GB HBM3E
	High-bandwidth memory stacks	4 stacks	8 stacks	6 stacks	8 stacks

Less computing power → More computing power

Source: (1) IFP. Tom's Hardware. Various News Sources. Some metrics are estimates based on reporting of components of the Rhea1. Actual names and specifications may be different than those listed above.

Nvidia's Data Center Driven Earnings

Nvidia's quarterly revenue breakdown, USD bn

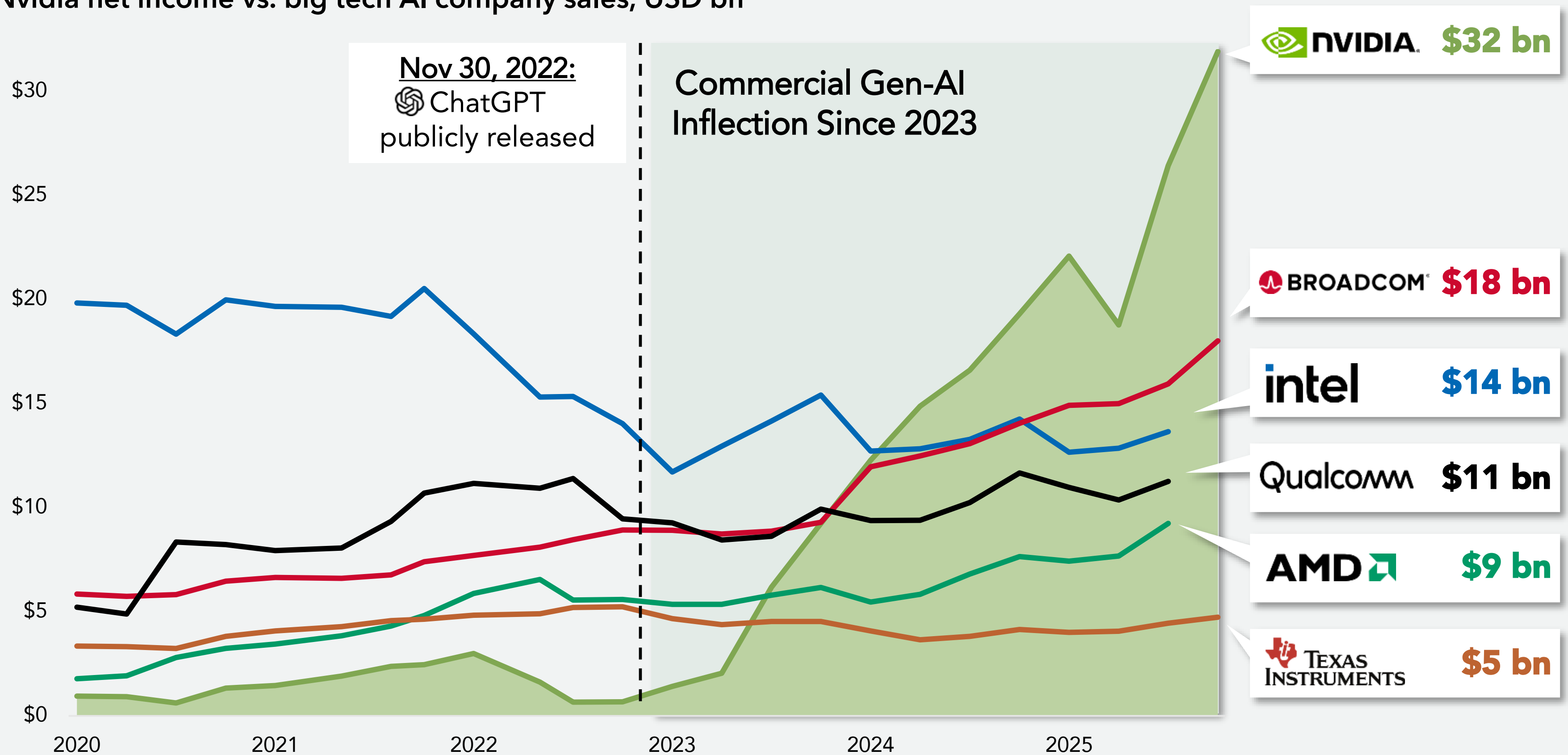


Source: (1) App Economy Insights. Nvidia uses the fiscal year that runs from Feb 1 – Jan 31. Most recent bar represents Q3 FY26, ending in October 2025.

Nvidia's Earnings Surge Post Gen-AI Release

The release of ChatGPT on Nov 30, 2022 was a critical inflection point in the commercial gen AI revolution. NVIDIA, a US semiconductor design firm and the world's most valuable company, controls over 80% of the AI accelerator market and more than 90% of the data center GPU market. As demand for data center AI GPUs surged over the last three years, NVIDIA's market leading GPU designs positioned the company as the central toll-collector in AI frontier compute.

Nvidia net income vs. big tech AI company sales, USD bn



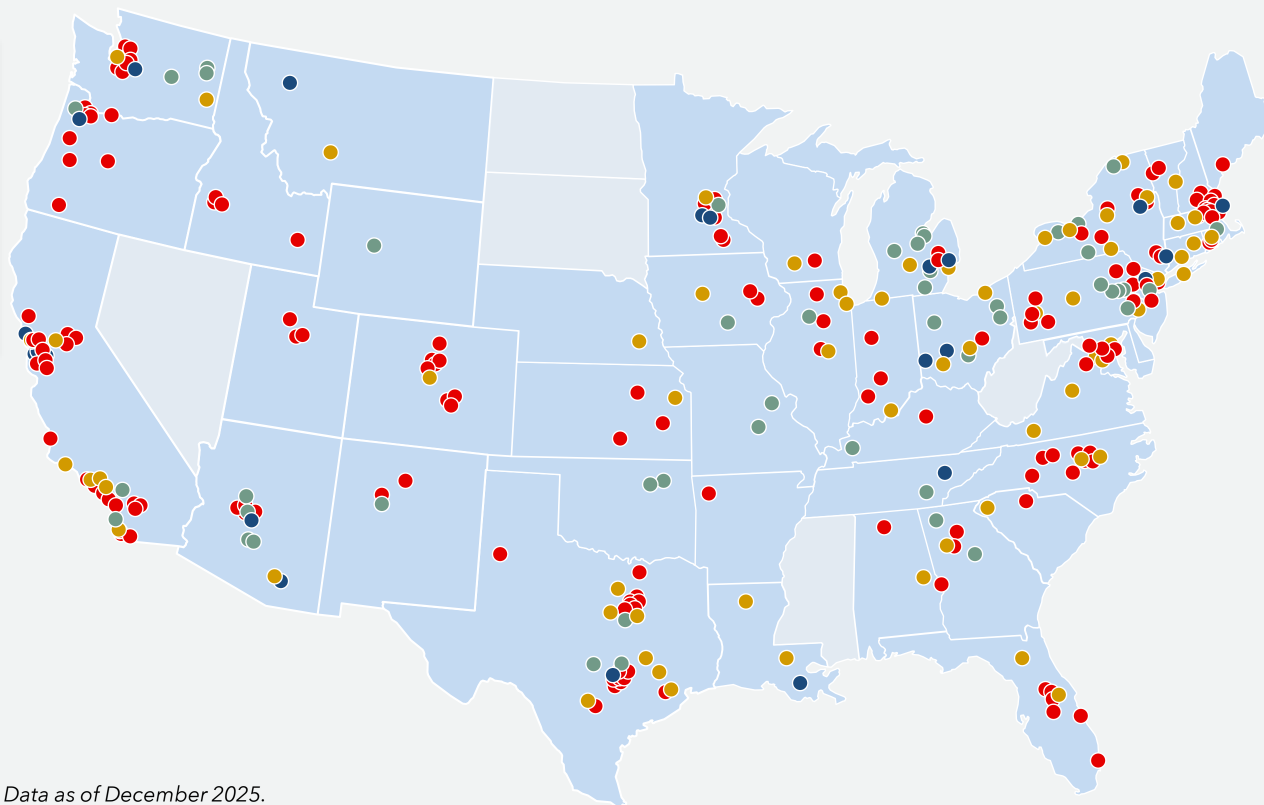
Source: (1) Bloomberg. Latest data available through year-end 2025. Nvidia data is net income.

Rapid Expansion in US Semiconductor Manufacturing Since 2022

According to the Semiconductor Industry Association (SIA), **more than 80 new semiconductor-ecosystem projects across 25 US states with aggregate private investment close to $500 billion** have been announced since passage of the CHIPS Act in August 2022. The scale of private investment includes materials, equipment and **manufacturing fabs (leading-edge logic, DRAM, analog, mixed-signal, specialized MEMS/sensors).**

Since Aug 2022 CHIPS Act:

- > 80 investment projects
- > Nearly $500 bn private investment
- > 25 US states



- Semiconductors
- Equipment
- Materials
- University R&D Partner

Source: Semiconductor Industry Association. Data as of December 2025.

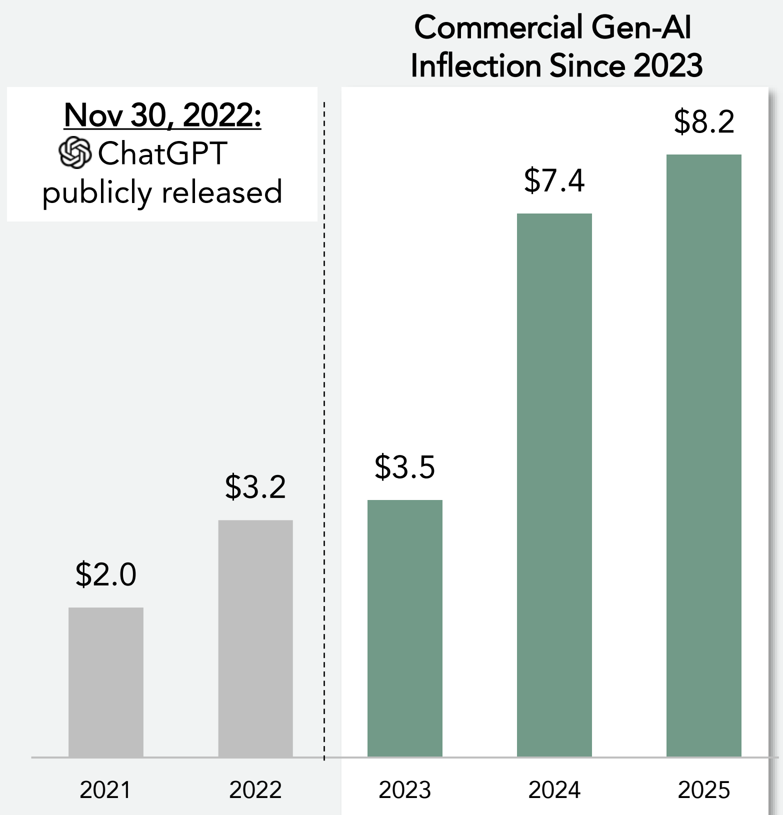
TSMC's Arizona Semi Fab

- Largest direct investment in US history ($165 - $465 bn)
- 1,100 acres (3.5 million square feet)
- 600k wafers (150-200mm chips) per year
- 4.7 mm gallons of water (per day)
- 2.8 GWh of electricity (per day)
- 6 fabs, 2 packaging plants & 1 R&D center

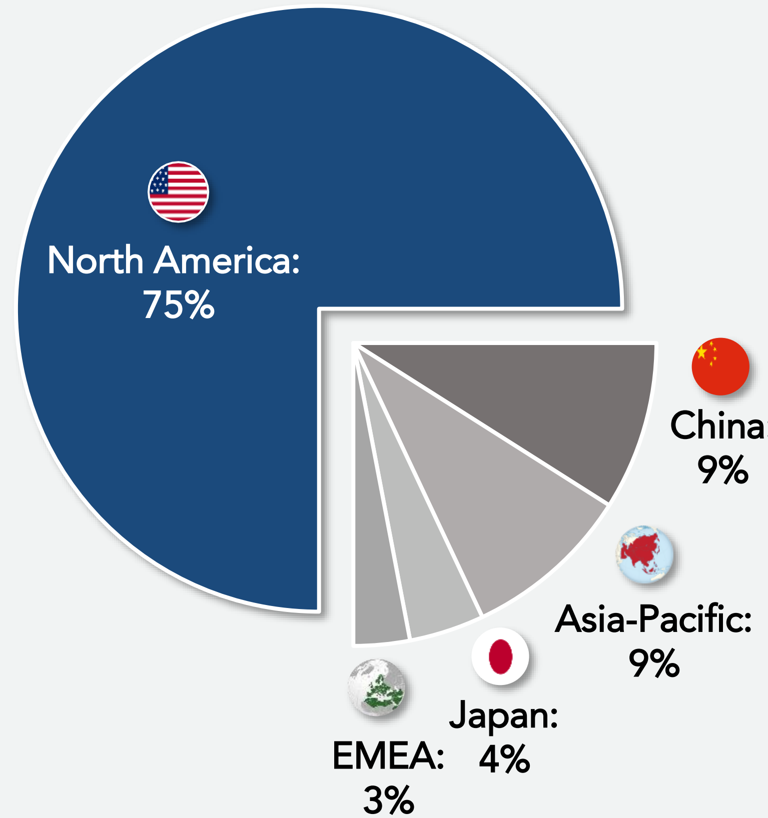
75% of TSMC's Revenue from North America

TSMC's revenue and earnings are highly dependent on US design and demand, never more so than since the explosive growth of GPUs following the Gen-AI commercial inflection point of the last three years. Against this backdrop, TSMC has committed to the largest direct FDI investment project in US history with its announced fabrication and R&D facilities in Arizona.

Taiwan's chip exports to US, USD bn



TSMC's net revenue (2025), by region

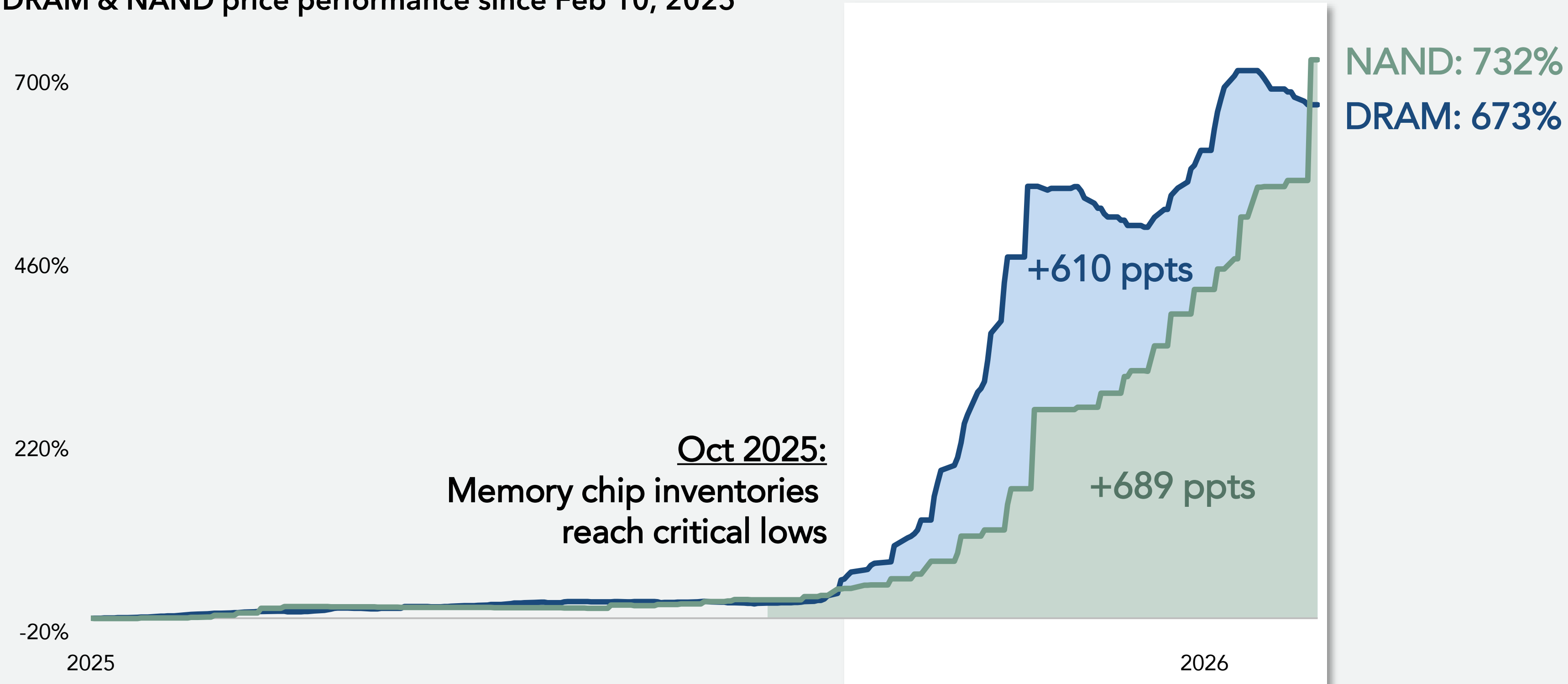


Source: (1) FT, "TSMC's US investment plans at heart of $250bn puzzle for chip sector". Taiwan's Customs Administration. Company reports.

Memory Chip Shortages Ripple Through Markets

A sharp global shortage in memory chips has driven DRAM and NAND prices up more than 600% in recent months as hyperscaler AI data centers lock-in multi-year supply, crowding out other applications. The largest memory chip manufacturers – Samsung, SK Hynix and Micron – have been reallocating wafer and packaging capacity toward the higher margin growth opportunities of high bandwidth memory AI accelerators. This, in turn, has created structural undersupply for traditional applications such as PCs, smartphones and auto. Given multi-year fab lead times and bookings, globally tight memory supply is likely to persist well into 2026.

DRAM & NAND price performance since Feb 10, 2025



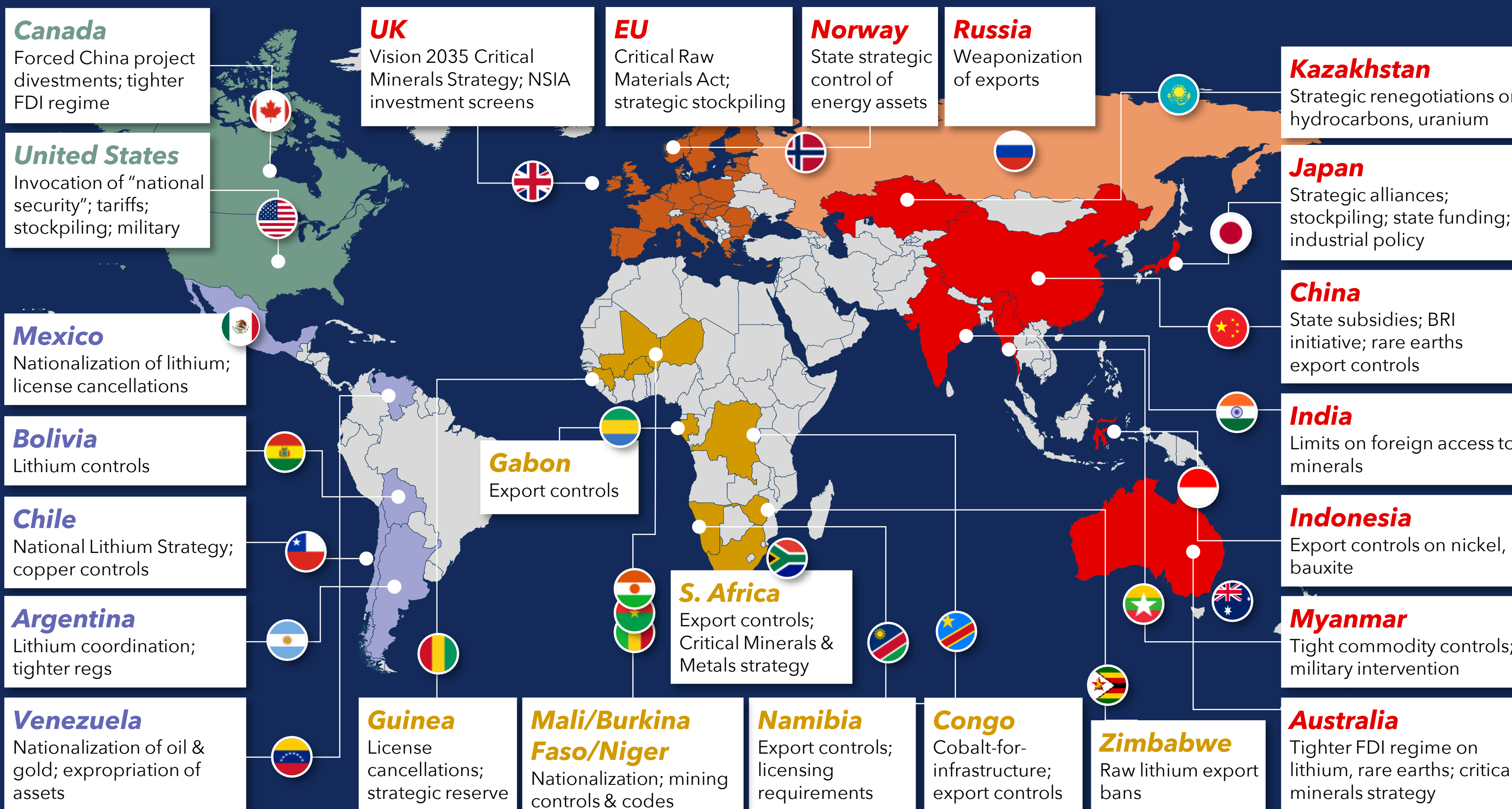
Source: (1) Bloomberg, "Memory Chip Squeeze Widens Gap Between Market Winners and Losers". Data as of February 19, 2026.

4

Resource Nationalism

New Era of Resource Nationalism

Countries are layering a broad range of traditional resource nationalism tools with newer geoeconomic and industrial policy instruments that target entire supply chains and the most strategically significant minerals for high-end manufacturing (EVs, defense, semis, AI).

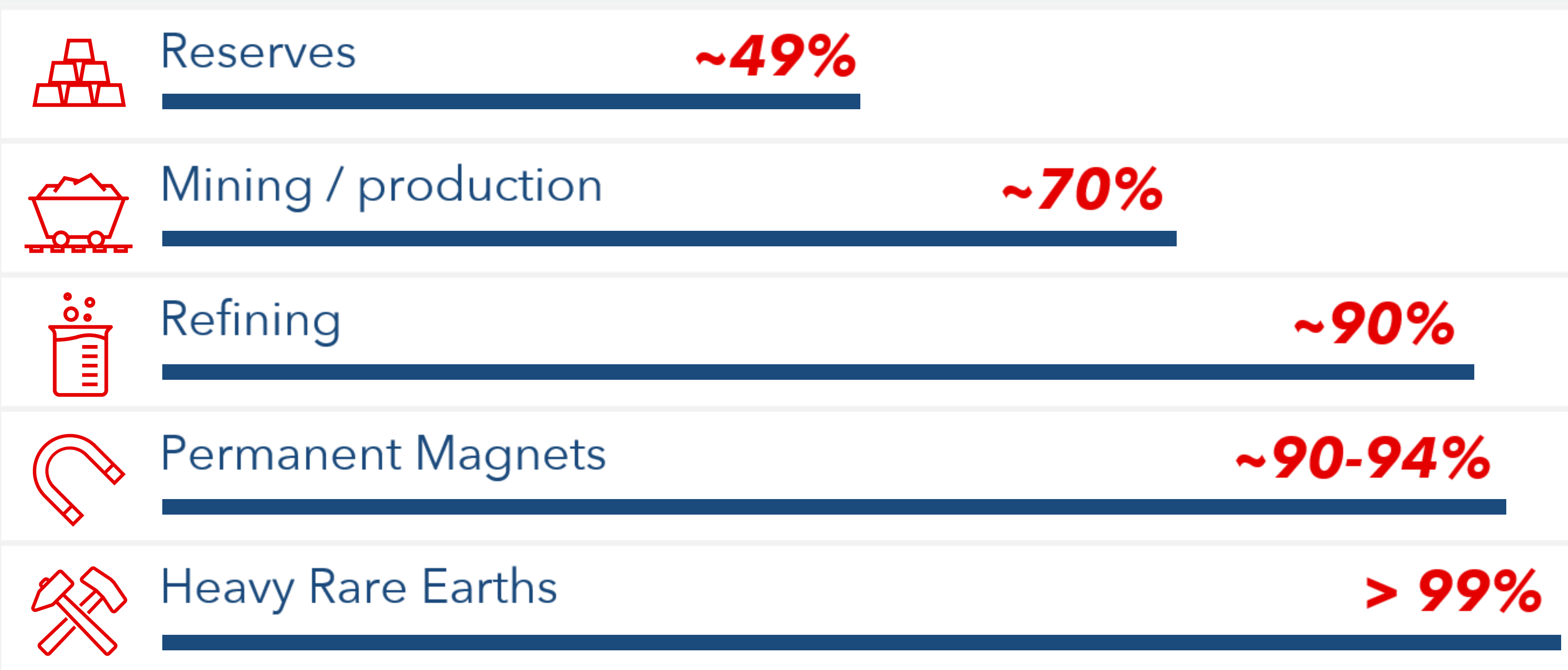


Source: US Geological Survey. Mineral Commodity Summaries 2025.

China's Dominance of the Rare Earth Value Chain

China's dominance of the complete rare earths value chain – from reserves to refining – and the 10+ year lead to the West in this regard, is one of the most consequential and underappreciated structural stories in the global economy and geopolitics. Further, as evidenced by policy decisions in 2025, China has demonstrated a willingness to use this leverage.

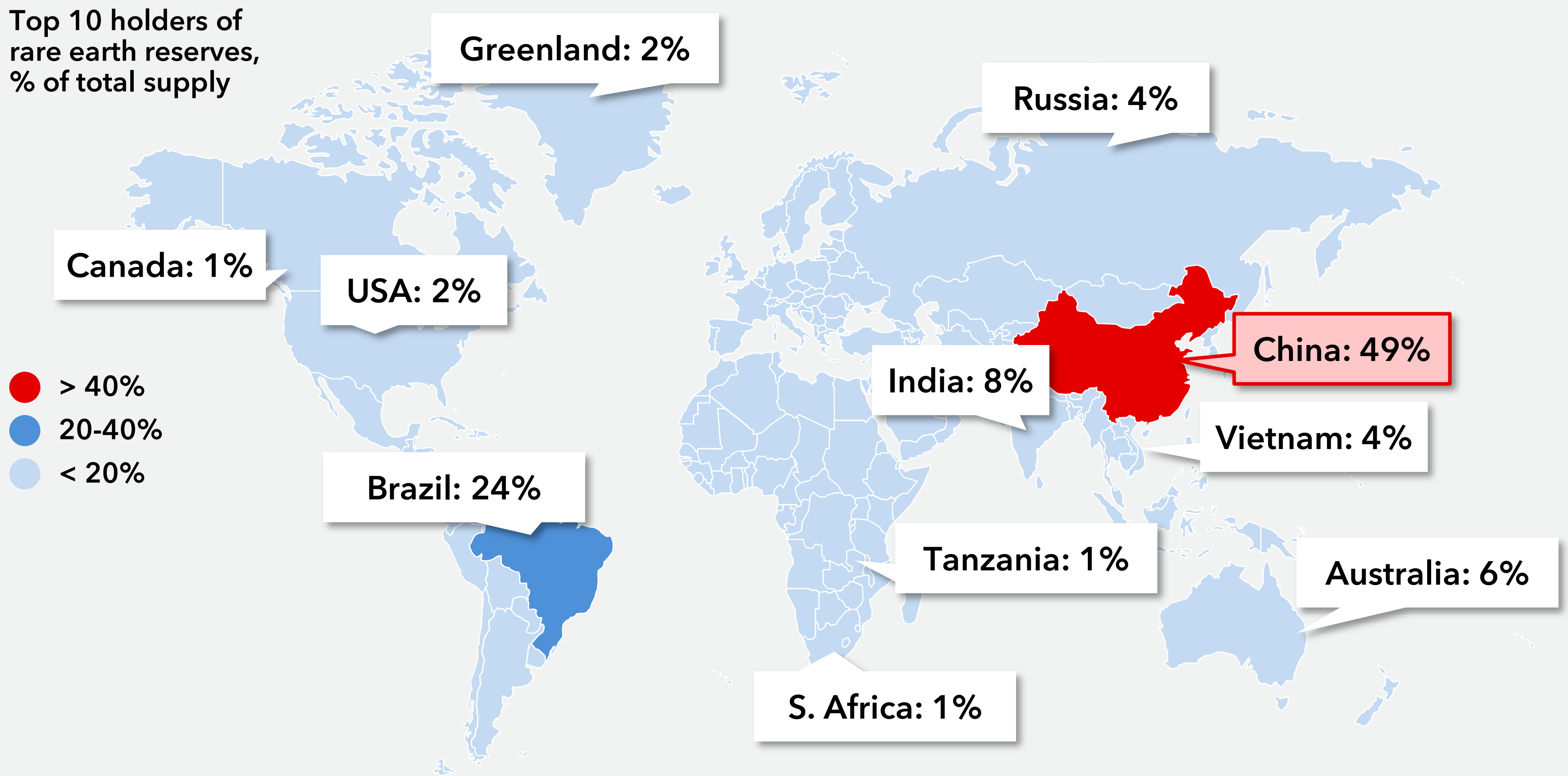
China's global share in the rare earth value chain



Source: Reserves is US Geological Survey data as of 2025. Mining / production is IEA 2025 data. Refining is CSIS 2025. Permanent magnets is IEA / CFR 2026. Heavy rare earths is IEA data.

China's Leadership on Rare Earth Reserves

China holds a commanding lead in rare earth reserves, though many of the most important critical minerals for technology and AI exist in significant scale outside of China. China's true dominance on strategic minerals lies further up the value chain in production and refining.

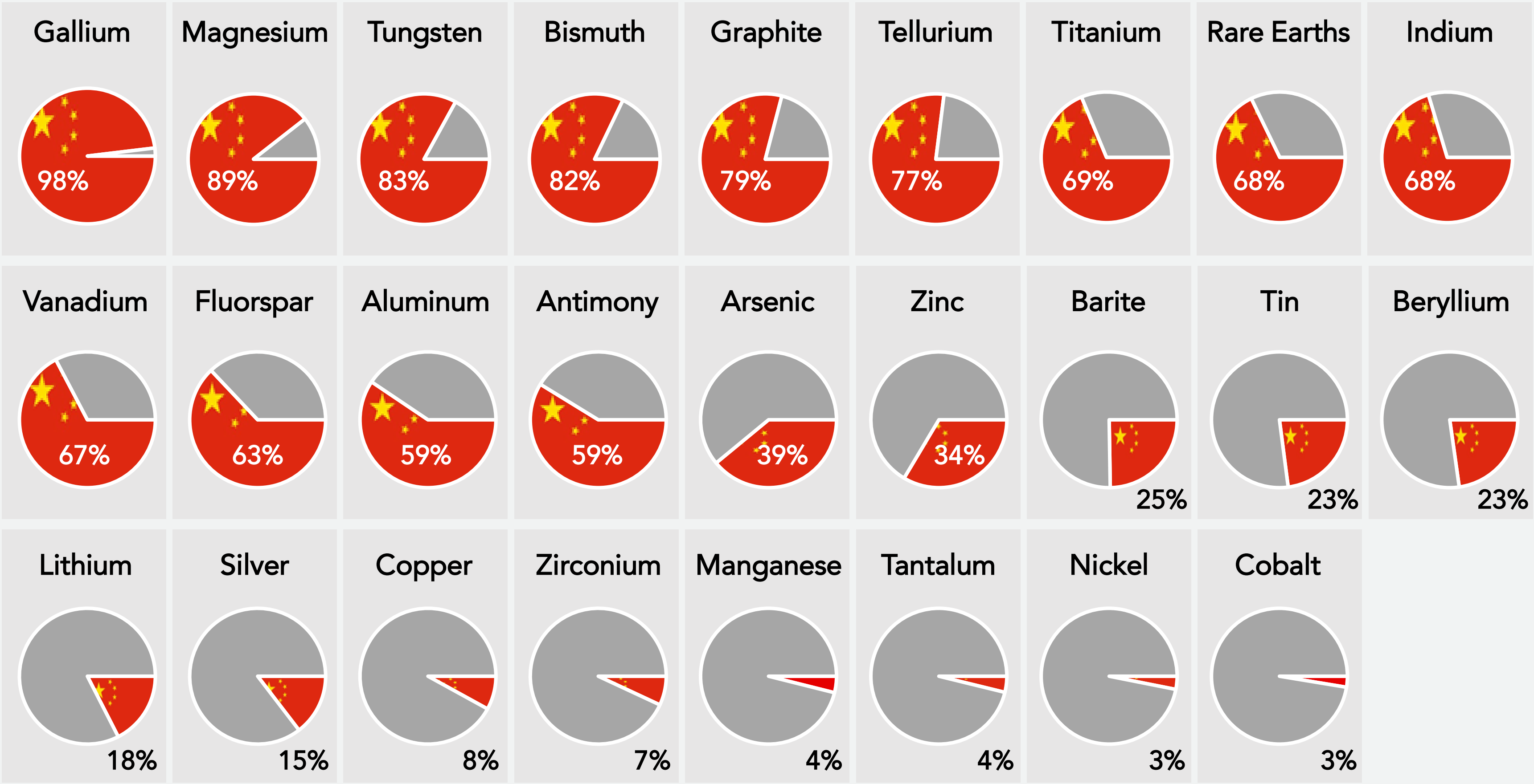


Source: (1) US Geological Survey. Data as of 2025.

China's Commanding Lead in Mineral Production

While rare earths are not rare, China is the undisputed global leader in both the **production** and **refining** of strategic minerals that are critically important to a wide range of technologies including EV, aerospace, industrial and defense applications.

China's market share in the production of rare earths and critical minerals

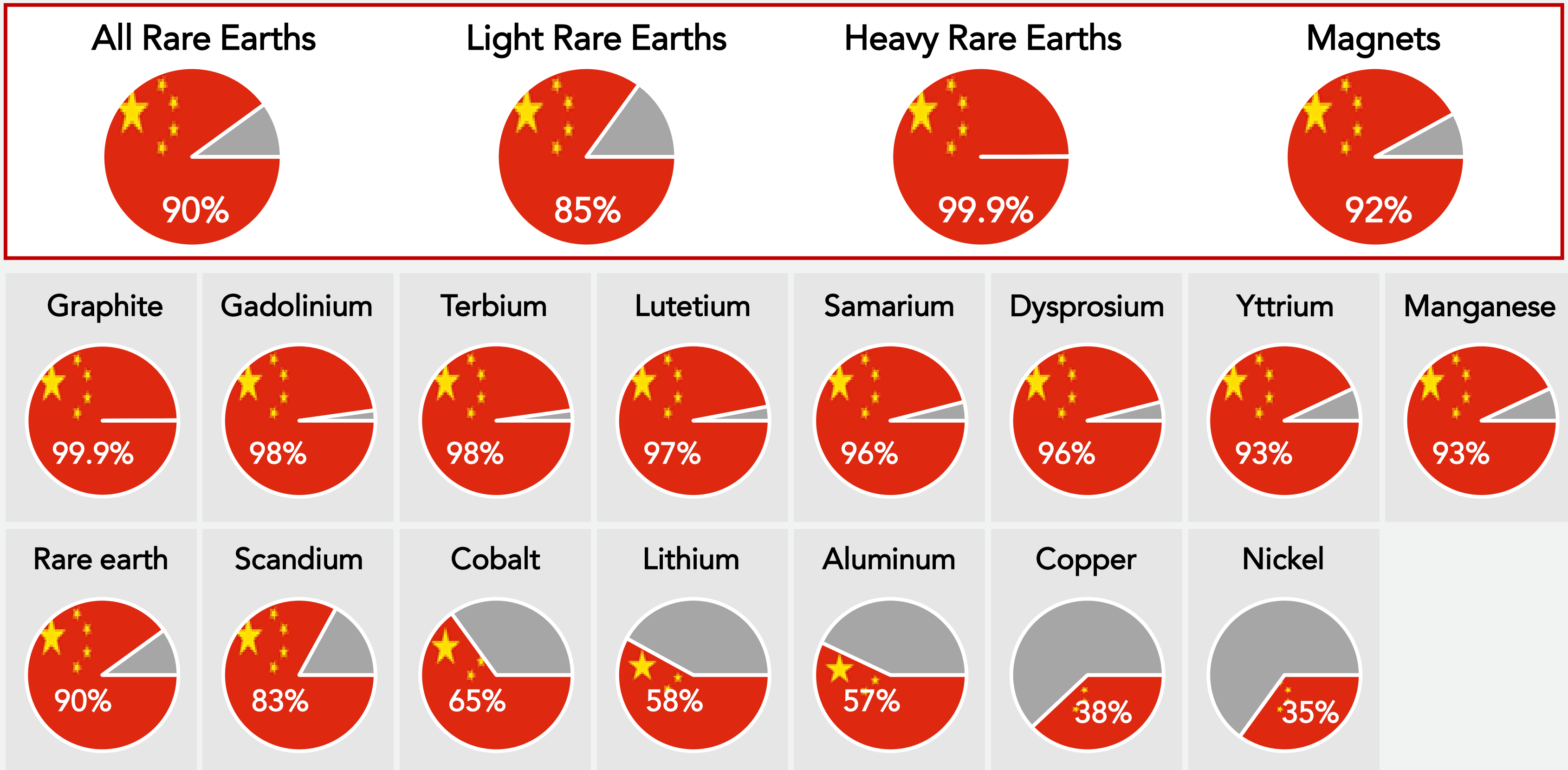


Source: (1-26) US Geological Survey – Critical Minerals Atlas. Data as of 2023. Aluminum, copper and cobalt are UNCTAD – Digital Economy Report (2024). Data as of 2023.

China's Dominance in Refining Minerals

China's formidable leadership in strategic minerals is even more entrenched in the **refining** and **processing** of rare earths, with market share > 90% in many key areas. While the US may have advantages in waging economic warfare on semiconductors, China's leverage lies squarely in the mineral arena, a gap that could take 10-20 years to close.

China's market share in the refining of rare earths and critical minerals

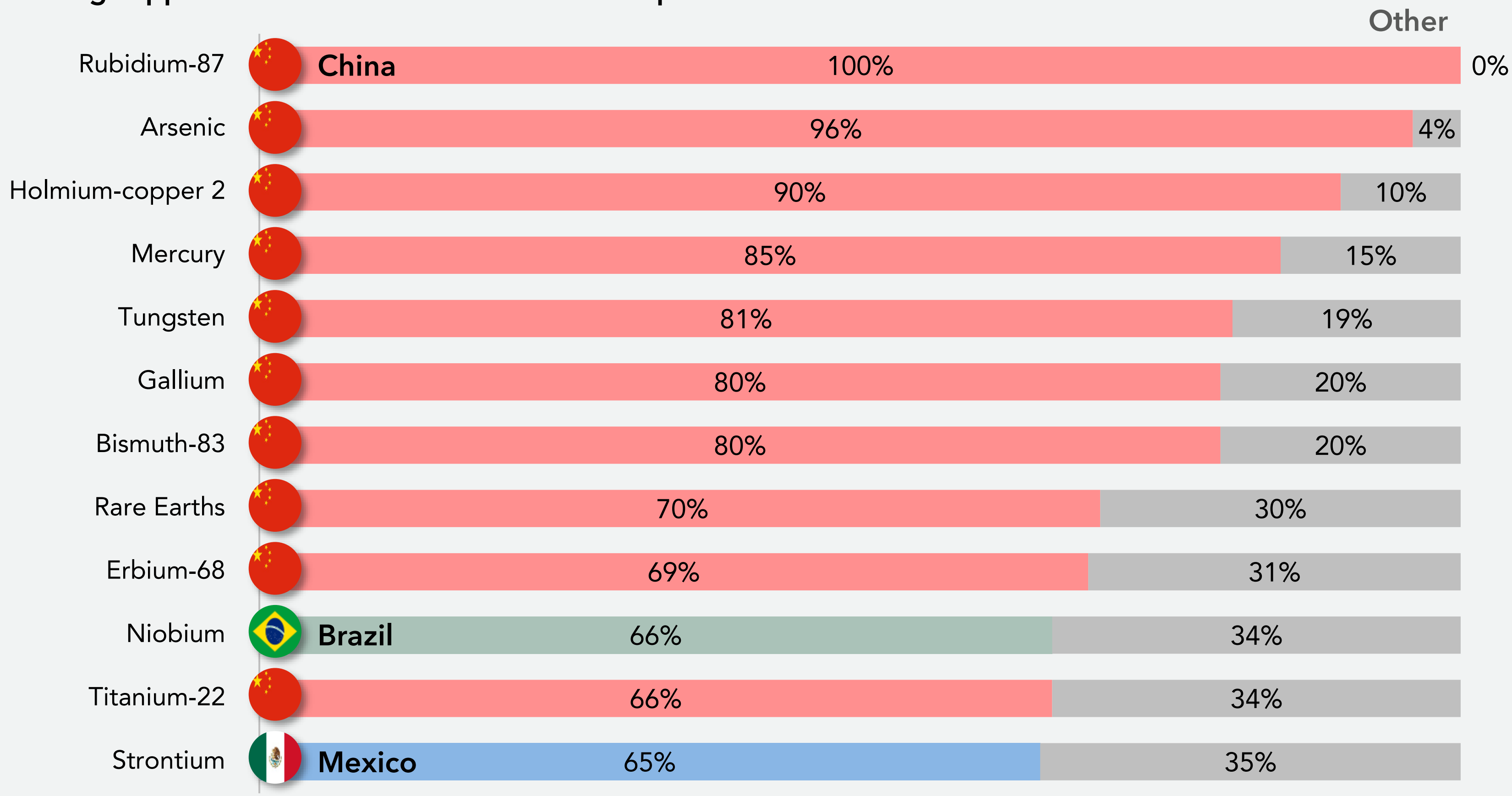


Source: (1-4) Polytechnique Insights, "China has a monopoly on rare earth metals". CSIS, "What China's Ban on Rare Earths Processing Technology Exports Means". (5-19) US Geological Survey. UNCTAD – Digital Economy Report (2024). Data as of 2023.

China Dominates US Imports of AI Critical Minerals

China dominates more than a dozen major categories of critical mineral groups that the United States has become dependent on for AI's expansion. Notably, the US is more than 80% reliant on China specifically for numerous critical minerals.

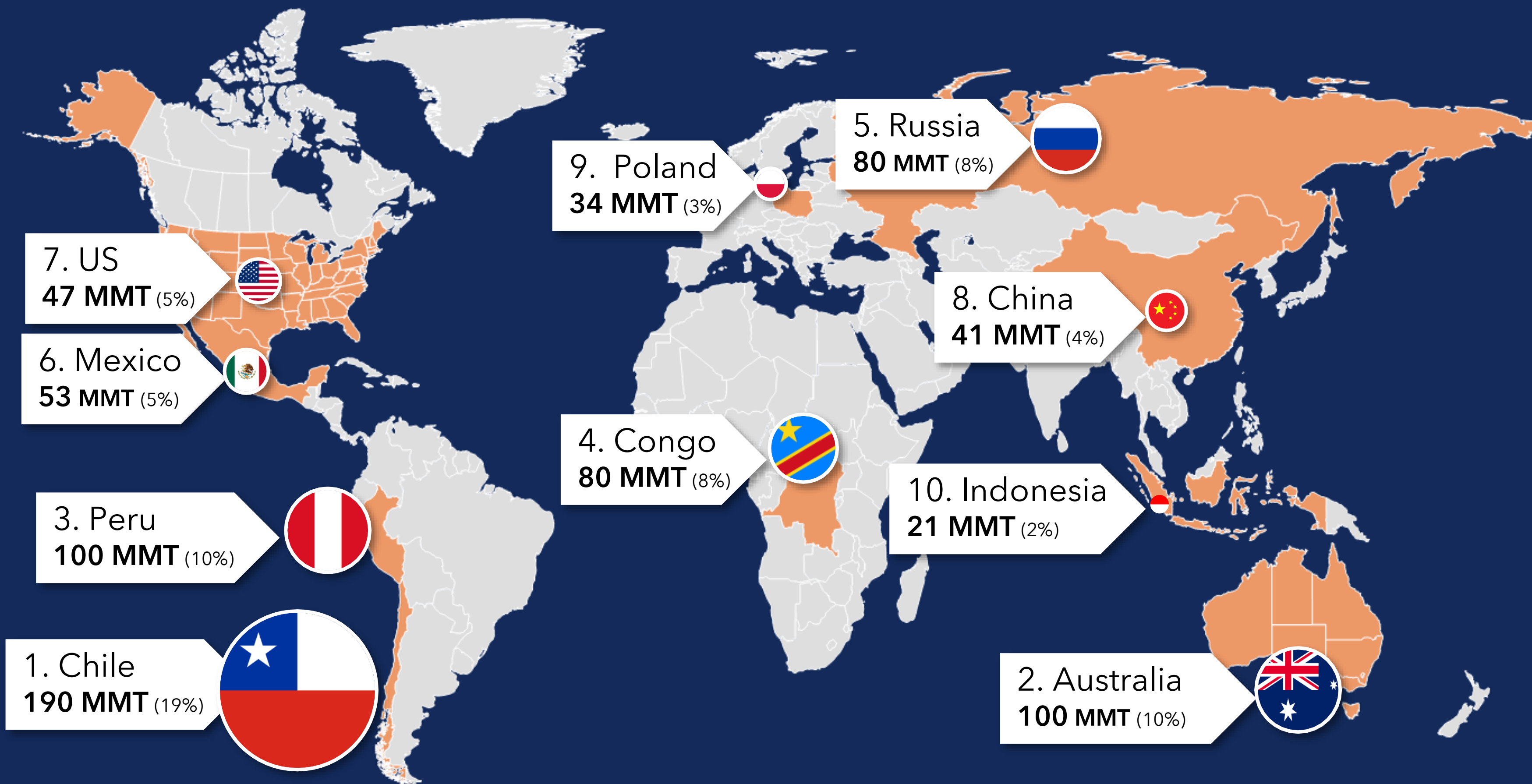
Leading supplier's share of US critical mineral imports for AI



Source: (1) CFR, "US Economic Security – Winning the Race for Tomorrow's Technologies". US Geological Survey. Values for mercury, holmium-copper 2, and gallium are approximated due to lack of data on global production and US imports. Data shows critical minerals where the US is at least 65% dependent on a single country

Top 10 Sources of Global Copper Reserves

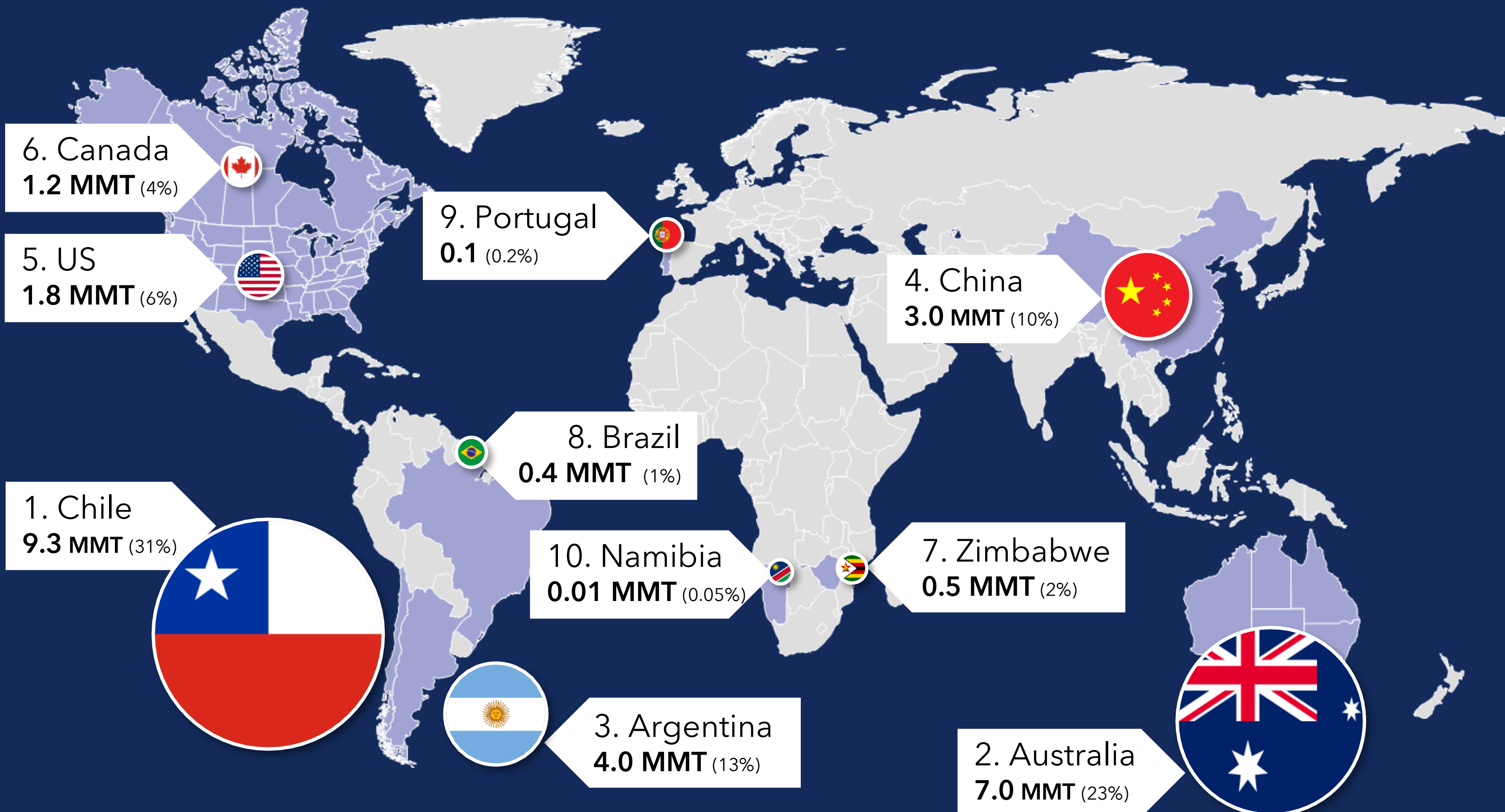
Global copper reserves, million tons (2024)



Source: US Geological Survey. Mineral Commodity Summaries 2025.

Top 10 Sources of Global Lithium Reserves

Global lithium reserves, million tons (2024)

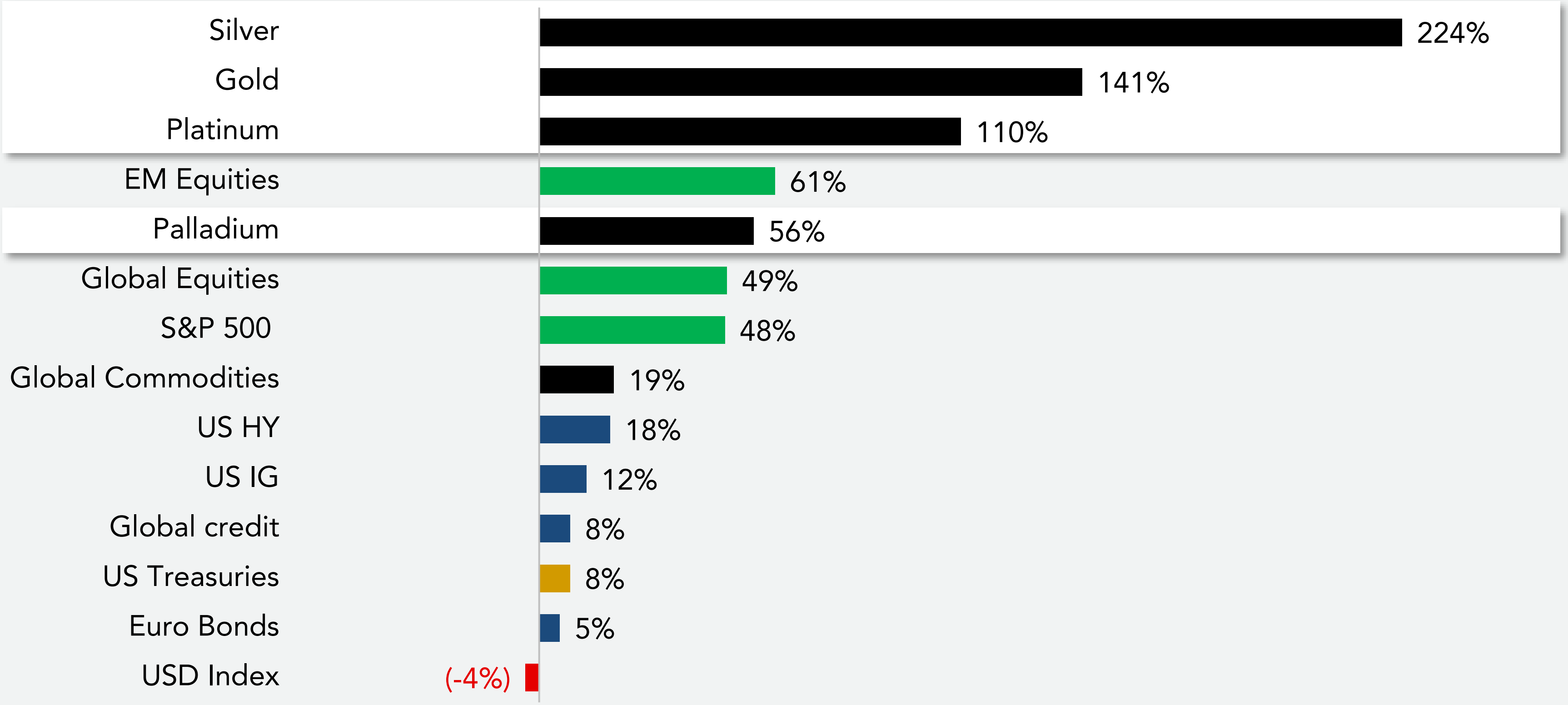


Source: US Geological Survey. Mineral Commodity Summaries 2025.

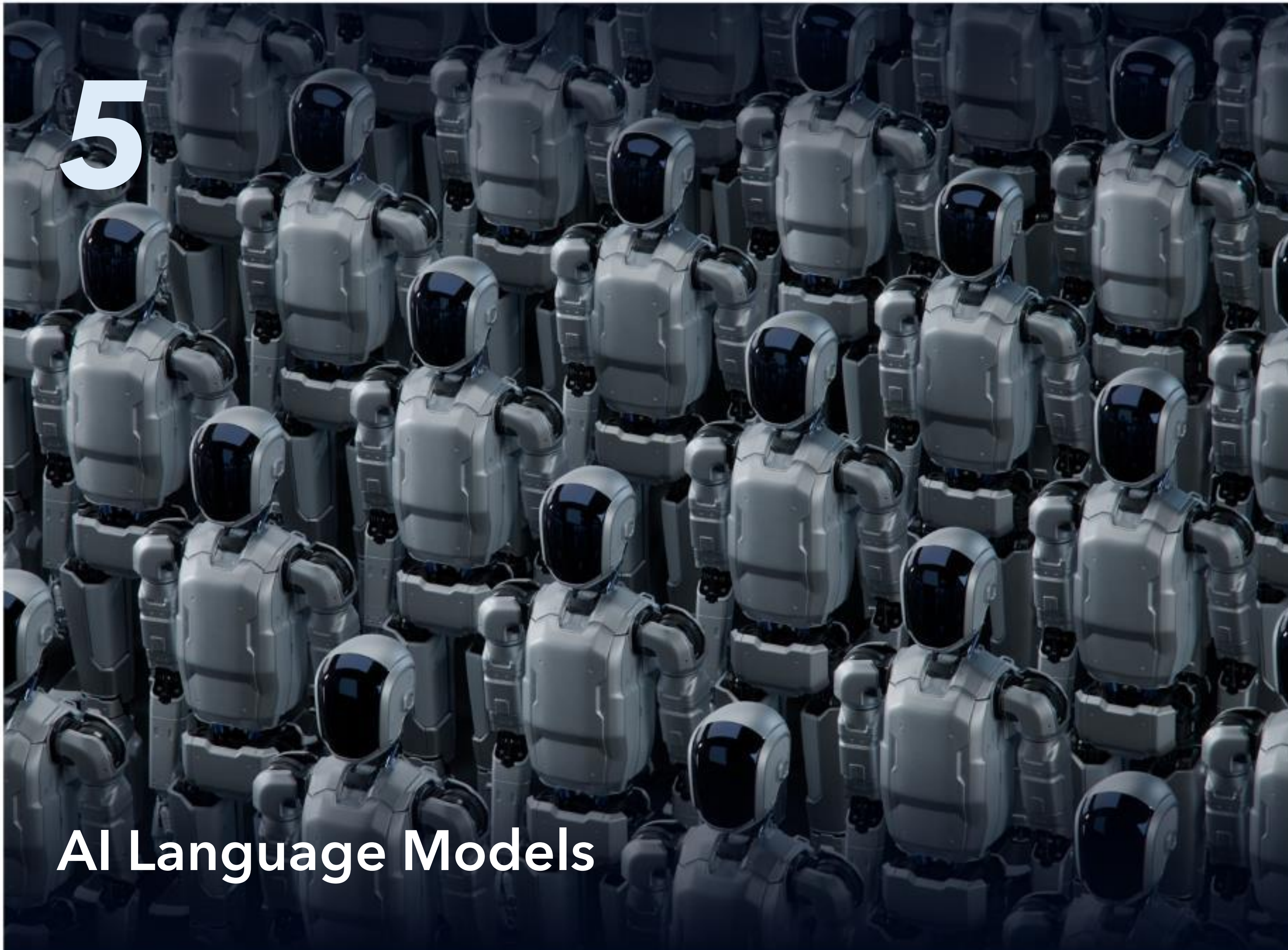
Geopolitical Uncertainty Increasing Demand for Hard Assets

For more than 5,000 years, gold has been a store of value for individuals, with a safe haven appeal for today's investor that is closely linked to the depth and liquidity of the market. The other core precious metals - silver, platinum and palladium - have also demonstrated upside convexity compared to stocks and bonds since 2024, as evidenced by their disproportionate gains in the current bull market regime vis-a-vis more linear historical trading patterns.

Total returns since Jan 1, 2024



Source: (1) Bloomberg. Data as of February 19, 2026.


5
AI Language Models

The Structural Evolution of AI Language Model Rankings

Over the last three years, there has been a notable structural shift in AI language model (LM) rankings across several dimensions. For one, China's DeepSeek has demonstrated that the **open-closed LM gap** has narrowed. **Task specialization** has also surpassed general rankings as the most competitive framework for analysis. Increasingly, specific capabilities matter more. A **geopolitical overlay** has also become a larger part of interpretative assessment, with consideration to training data source, privacy laws, security architecture and export controls.

Historical ranking of top 10 AI language models

2024

Rank	Language model
1.	Chat GPT 4o
2.	Gemini Advanced
3.	Gemini 1.5 Pro
4.	Gemini 1.5 Pro Preview
5.	Chat GPT 4 Turbo
6.	Chat GPT 4-1106 Preview
7.	Claude Opus 3
8.	Chat GPT 4-0125 Preview
9.	Yi Large Preview
10.	Gemini 1.5 Flash

2025

Rank	Language model
1.	Grok 3 (Chocolate)
2.	Gemini 2.0 Flash Thinking Exp
3.	Gemini 2.0 Pro Exp
4.	ChatGPT 4o Latest
5.	DeepSeek R1
6.	Gemini 2.0 Flash
7.	Chat GPT o1
8.	Chat GPT o1 Preview
9.	Qwen 2.5 Max
10.	Chat GPT o3 Mini High

2026

Rank	Language model
1.	Claude Opus 4.6
2.	Claude Opus 4.6 Thinking
3.	Gemini 3.1 Pro Preview
4.	Gemini 3 Pro
5.	Dola Seed 2.0 Preview
6.	Grok 4.1 Thinking
7.	Gemini 3 Flash
8.	Claude Opus 4.5 Thinking
9.	Claude Opus 4.5
10.	Grok 4.1

Source: (1) Arena.AI. Data as of February 20, 2026. 2024 is earliest available ranking (June 2024). 2025 and 2026 rankings are February.

Highest-Ranked AI Language Models Globally

The highest-ranked AI large language models globally cluster around a small group of companies in a hierarchy that evolves quickly over time. While performance on raw benchmarks may be similar, comparisons diverge when analyzed through specific metrics such as reasoning, speed, openness and cost.

ArenaAI global ranking of top 40 AI language models

Rank	Language model
1.	Claude Opus 4.6
2.	Claude Opus 4.6 Thinking
3.	Gemini 3.1 Pro Preview
4.	Gemini 3 Pro
5.	Dola Seed 2.0 Preview
6.	Grok 4.1 Thinking
7.	Gemini 3 Flash
8.	Claude Opus 4.5 Thinking
9.	Claude Opus 4.5
10.	Grok 4.1
11.	Gemini 3 Flash Thinking
12.	Chat GPT 5.1 High
13.	GLM 5
14.	Ernie 5.0 – 0110
15.	Claude Sonnet 4.5
16.	Kimi K2.5 Thinking
17.	Claude Sonnet 4.5 – Thinking
18.	Gemini 2.5 Pro
19.	Ernie 5.0 Preview – 1203
20.	Claude Opus 4.1 Thinking

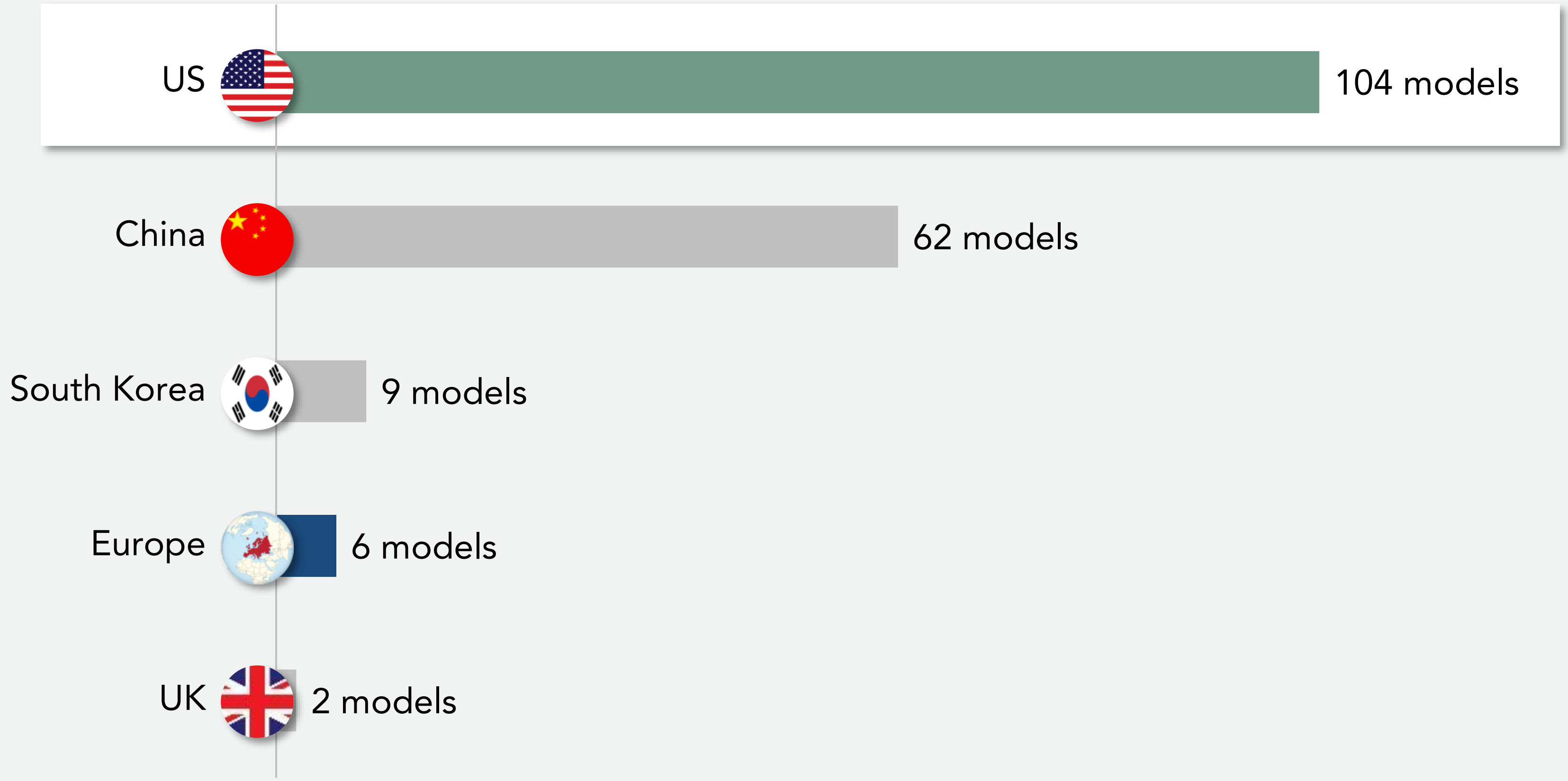
Rank	Language model
21.	Qwen 3.5 397b-a17b
22.	Claude Opus 4.1
23.	Chat GPT 4.5 Preview
24.	Chat GPT 4o
25.	GLM 4.7
26.	Chat GPT 5.2 High
27.	Kimi K2.5 – Instant
28.	Chat GPT 5.2
29.	Chat GPT 5.1
30.	Chat GPT 5 High
31.	Qwen 3 Max Preview
32.	Chat GPT o3
33.	Grok 4.1 Fast Reasoning
34.	Kimi K2 Thinking Turbo
35.	Chat GPT 5 Chat
36.	GLM 4.6
37.	Qwen 3 Max
38.	Claude Opus 4 Thinking
39.	DeepSeek v3.2 – Exp Thinking
40.	DeepSeek v3.2 – Exp

Source: (1) Arena.AI. Data as of February 19, 2026. Ranking is based on user-submitted prompts and relative performance of language models. Based on over 250 million real conversations and over 3.5 million head-to-head votes.

Compute Infrastructure Translates to LLM Development

Large language models (LLMs) such as Chat GPT, Claude, and Gemini rely heavily on computational power. Recent policy analysis on AI compute notes that about 70% of the world's most compute-intensive AI language models in recent years have been developed in the US, underscoring how infrastructure dominance translates into language model market share.

New large language models (LLMs) by country (2024-25)

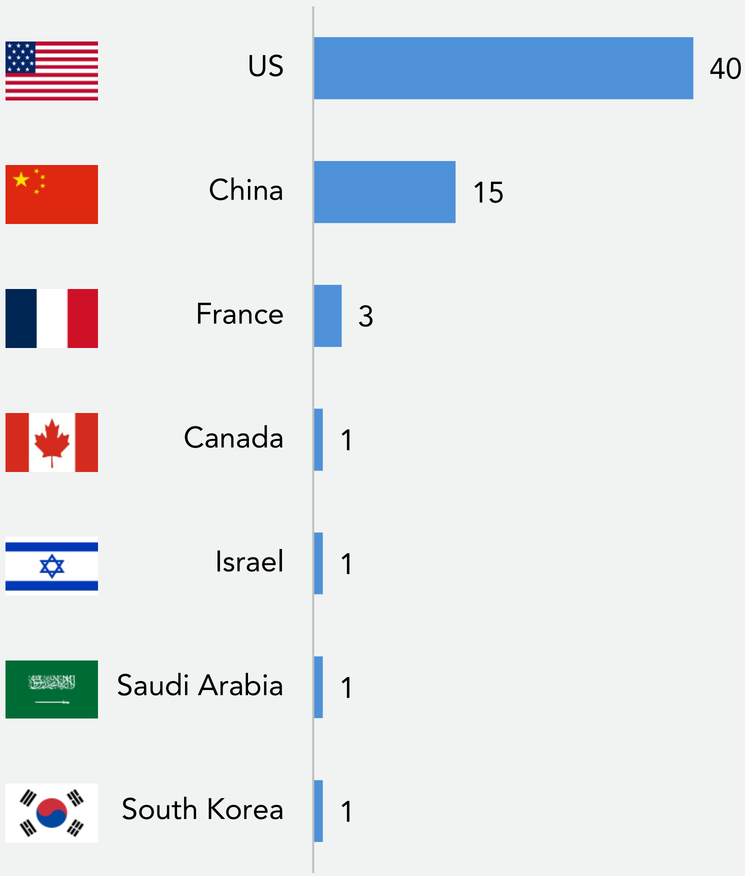


Source: (1) Epoch AI. Data shows notable LLMs in 2025.

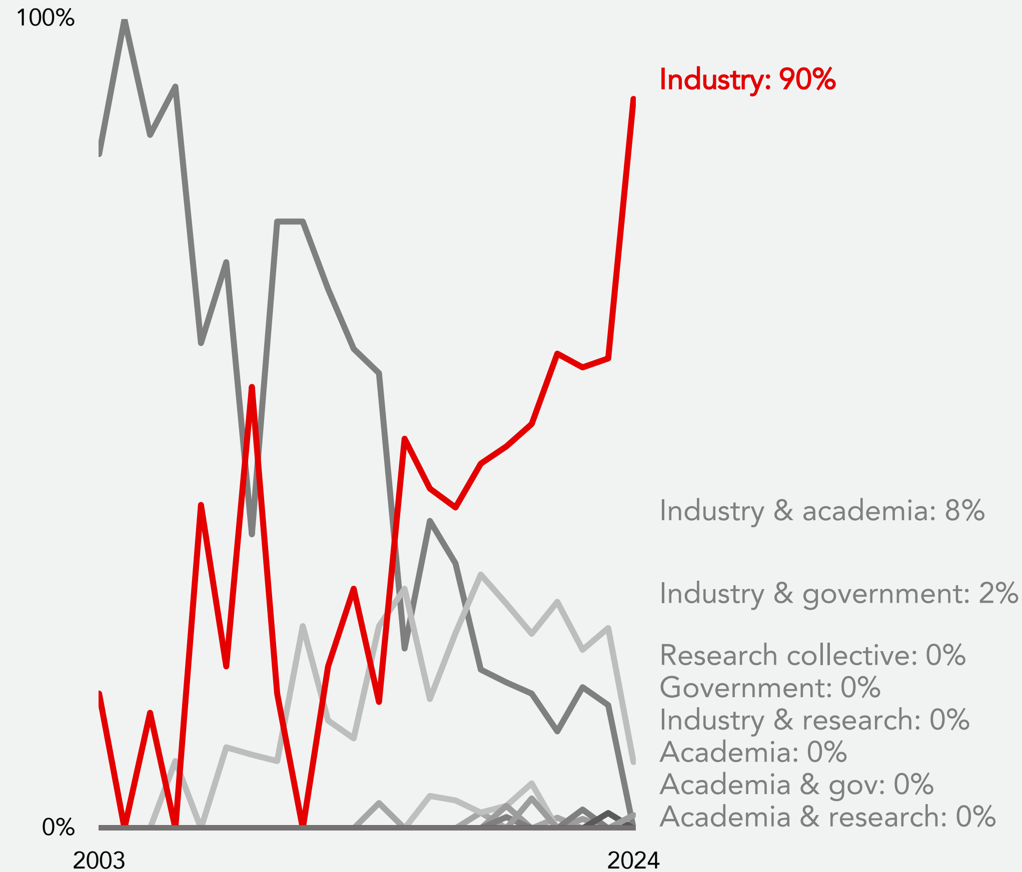
Industry Dominates AI Language Model Creation

According to Stanford University's Artificial Intelligence Report (2025), industry accounted for over 90% of AI model creation in 2024, continuing to benefit from outsized capex and R&D investment spending.

Notable AI models by country, # of models



Notable AI models by sector, % of total



Source: (1) AI Index Steering Committee, Stanford University Institute for Human-Centered AI, "The AI Index 2025 Annual Report" (April 2025). Epoch AI (2025).

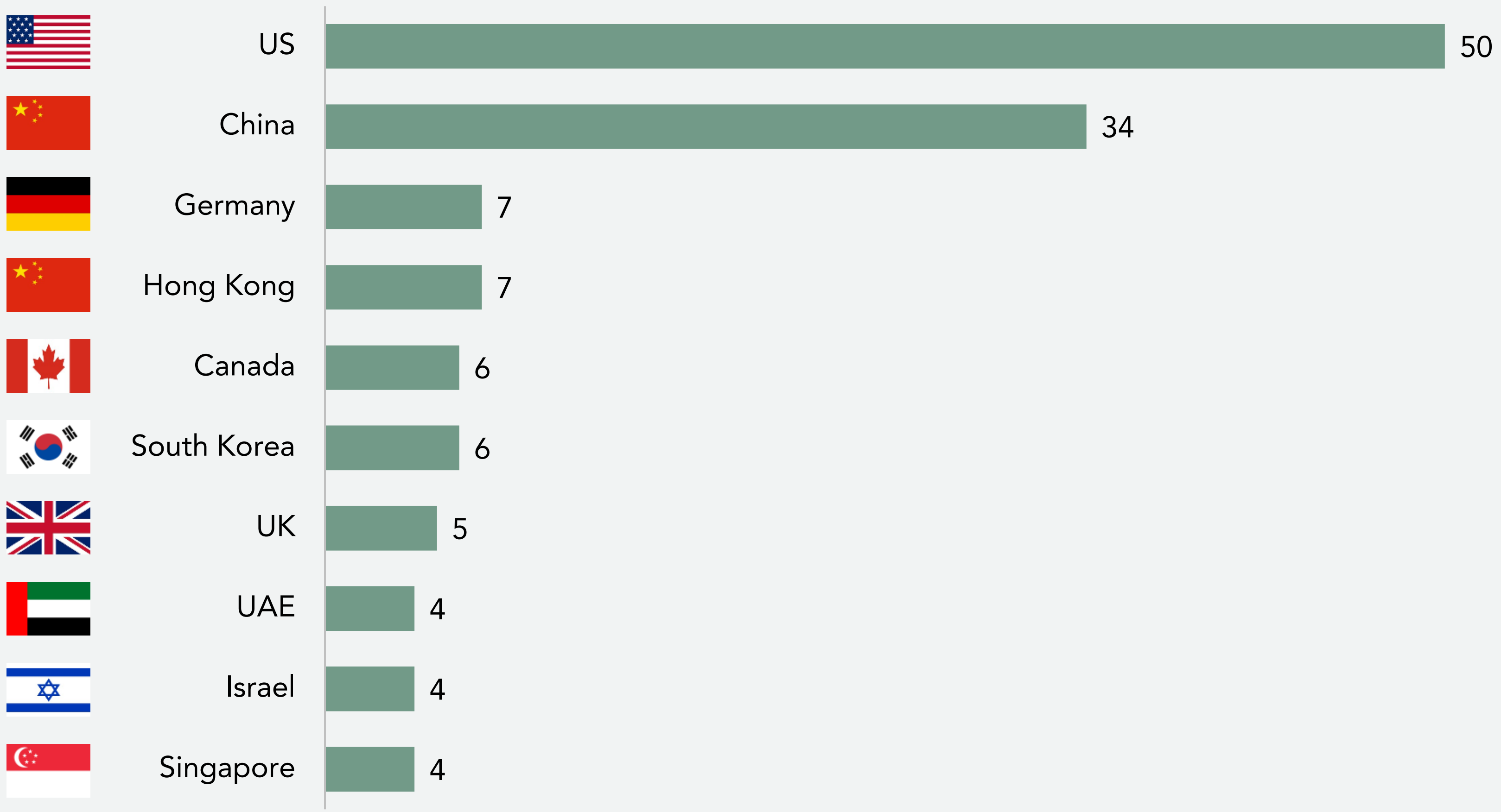
6

Research & Patent Applications

The Most Influential AI Research

According to Stanford University's Artificial Intelligence Report (2025), China leads in total number of AI research publications, while the US leads in number of highly influential research.

Number of highly cited publications in top 100 by country

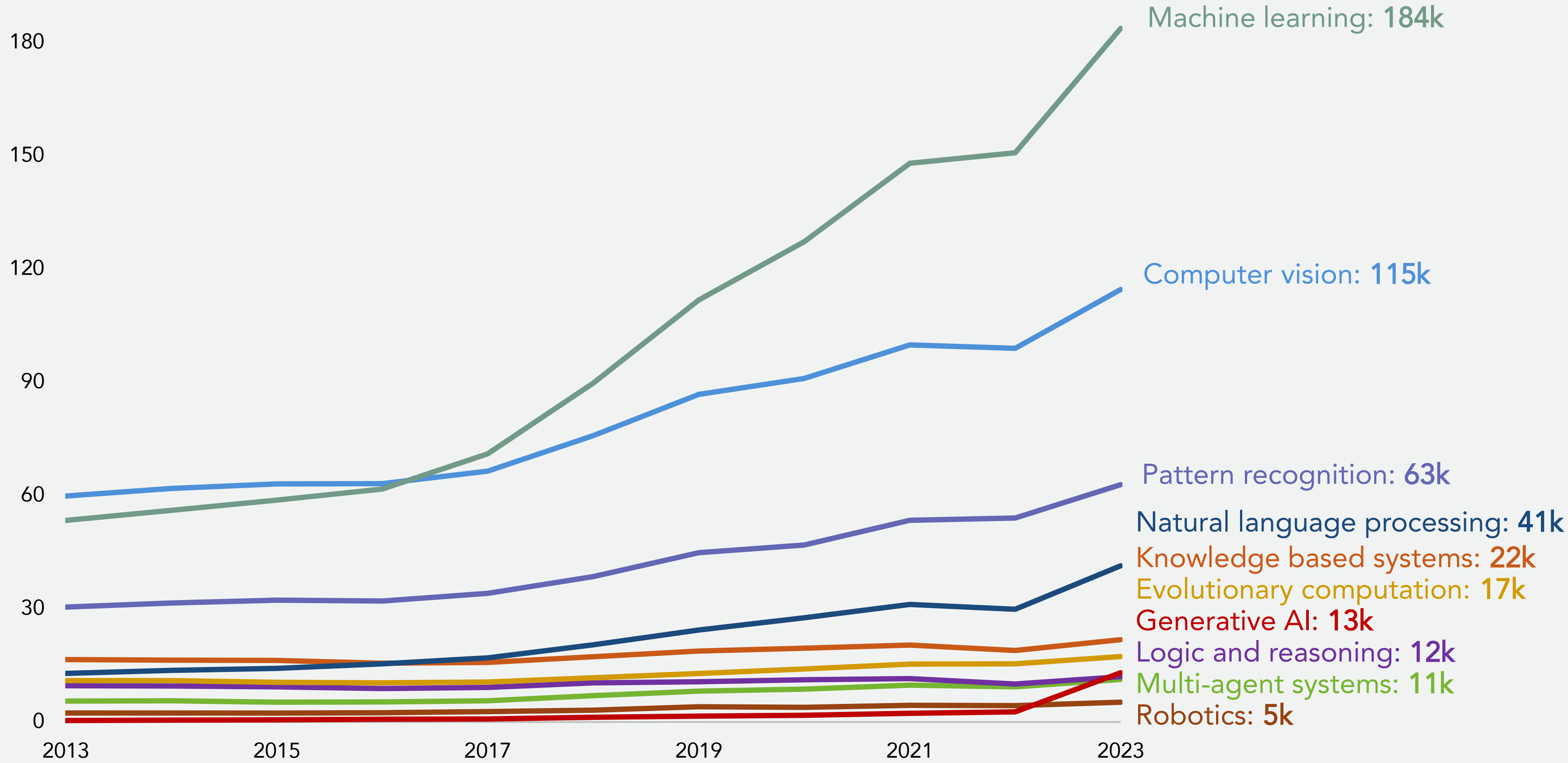


Source: (1) AI Index Steering Committee, Stanford University Institute for Human-Centered AI, "The AI Index 2025 Annual Report" (April 2025).

Machine Learning Dominates AI Research

According to Stanford University's Artificial Intelligence Report (2025), machine learning has been the most prevalent research topic in AI publications, comprising 75.7% of publications, followed by computer vision (47.2%), pattern recognition (25.9%), and natural language processing (17.1%). Over the past year, there has been a sharp increase in publications on generative AI.

AI publications by select topics, thousands of publications

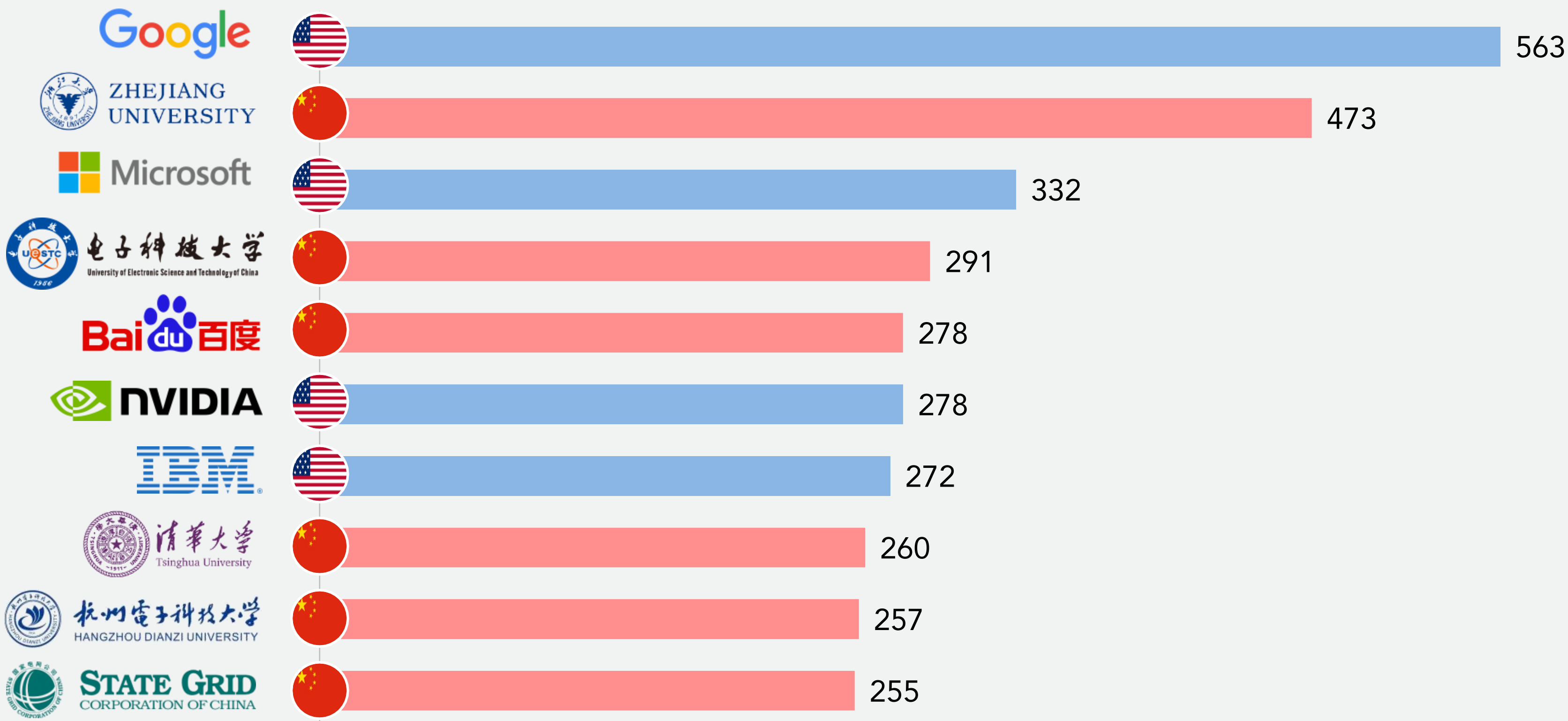


Source: (1) AI Index Steering Committee, Stanford University Institute for Human-Centered AI, "The AI Index 2025 Annual Report" (April 2025). Data is through 2023.

US & China Dominate Gen AI Patent Applications

The US and China dominate Gen AI patent applications globally, though the headline numbers require careful decomposition to accurately assess their impact. In particular, very few of China's patent applications are filed internationally (<10%), thereby only meeting China's review standards. This, in turn, limits overseas enforcement mechanisms, providing a low ceiling on the global commercial scalability of China's innovations. By comparison, US patents and publications receive significantly more global citations.

Top generative AI patent applicants, # of patents



Source: (1) IFI Claims Patent Services. Data as of May 2025.

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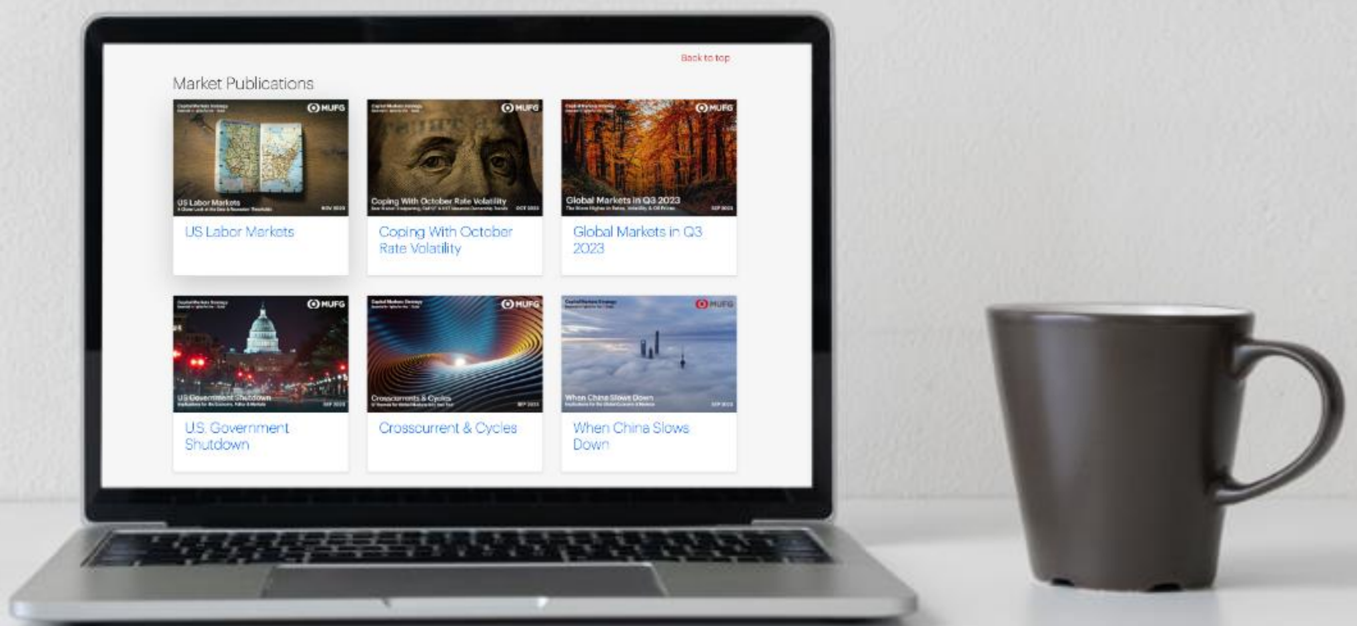

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Role

Tom Joyce is a Managing Director and Capital Markets Strategist within MUFG's global capital markets and investment banking business. Based in New York, Tom heads a team that creates customized analytical content for multi-national S&P 500 companies. His team provides in depth analysis on the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Experience

Tom has over 30 years of Investment Banking experience in New York, London, Hong Kong, and San Francisco. Tom created and built the Capital Markets Strategy role, advising corporate C-Suite executives (Boards, CEOs, CFOs, and Treasurers) on the pervasive macro forces driving markets. Tom also presents at dozens of corporate events each year including Board meetings, CEO ExCo sessions, CFO and Treasury off-sites, corporate leadership events and conferences.

Education

Tom's educational background includes a year of study at Oxford University from 1991 - 1992, a Bachelor of Arts in Political Science from Holy Cross College in 1993, and a MBA from Kellogg Business School, Northwestern University in 2000.

Personal

Tom resides in New Canaan, CT with his wife and four sons, where he previously served on the Board of Trustees of the New Canaan Library. Tom also serves on the President's Council of Holy Cross College.

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Stephanie Kendal is a Vice President in MUFG's Capital Markets Strategy group within the global capital markets and investment banking business. The team provides market based content for corporate clients to assist in strategic decision making. Focus areas include the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Experience

Stephanie has spent nearly eight years as a Capital Markets Strategist. She is an active member of the University of Michigan recruiting team and is focused on the diversity recruiting effort at MUFG. Stephanie is also a part of MUFG's DEI, Culture & Philanthropy (DCP) Council.

Education

Stephanie graduated with honors from the University of Michigan's Ross School of Business with a BBA .

Personal

Stephanie is involved in NYC's iMentor program, mentoring high school students with their journey to college graduation. She also volunteers at Experience Camps, a free summer camp program for grieving children, as the associate program director.

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Role

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Experience

Angela previously interned at MUFG working in Capital Markets within the Equity Capital Markets and Leveraged Finance divisions. She is also an active member of the Carnegie Mellon University recruiting team.

Education

Angela graduated with honors from Carnegie Mellon University's Tepper School of Business with a BS in Business Administration with an additional major in Statistics and a minor in Media Design. She was a member of Alpha Kappa Psi business fraternity and the Undergraduate Entrepreneurship Association.

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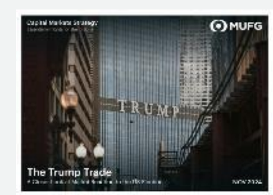

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