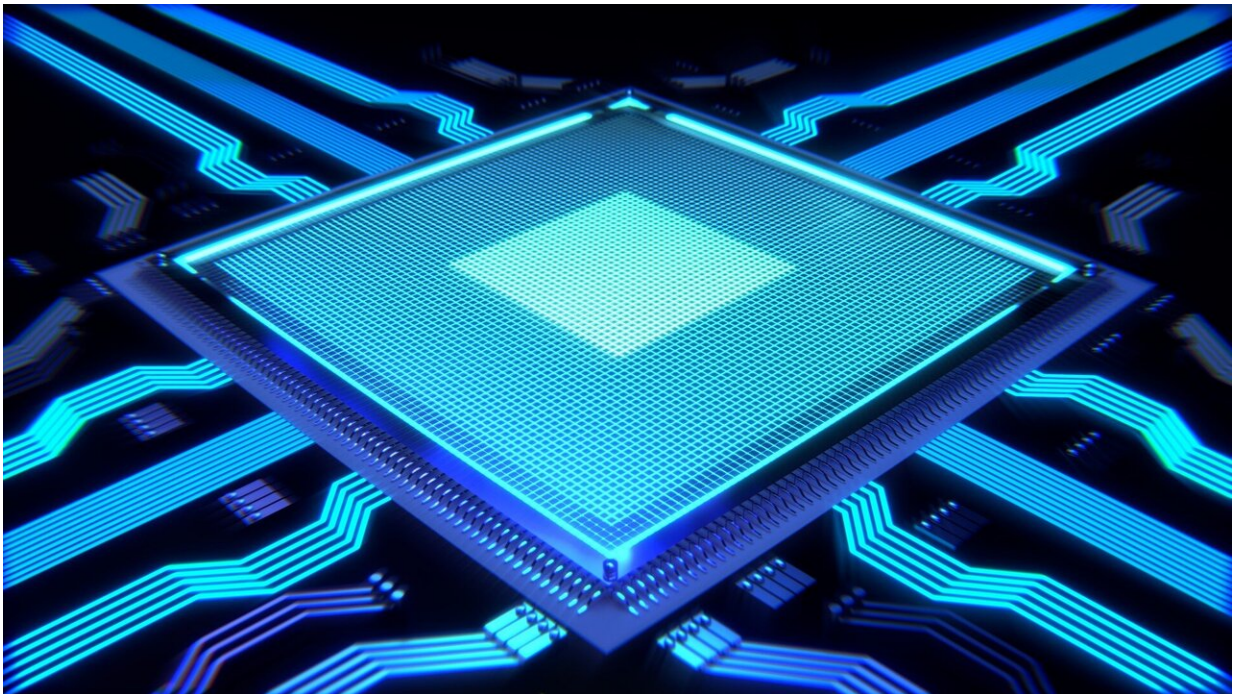


Demand for computer chips fueled by AI could reshape global politics and security

March 4 2024, by Kirk Chang and Alina Vaduva



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A global race to build powerful computer chips that are essential for the next generation of artificial intelligence (AI) tools could have a major impact on global politics and security.

The US is currently leading the race in the design of these chips, also known as semiconductors. But most of the manufacturing is carried out

in Taiwan. The debate has been fueled by the call by Sam Altman, CEO of ChatGPT's developer OpenAI, for [a US\\$5 trillion to US\\$7 trillion](#) (£3.9 trillion to £5.5 trillion) global investment to [produce more powerful chips](#) for the next generation of AI platforms.

The amount of money Altman called for is more than the [chip industry](#) has spent in total since it began. Whatever the facts about those numbers, overall projections for the AI market are mind blowing. The data analytics company GlobalData [forecasts that the market will be worth US\\$909 billion](#) by 2030.

Unsurprisingly, over the past two years, the US, China, Japan and several European countries have increased their budget allocations and put in place measures to secure or maintain a share of the chip industry for themselves. China is catching up fast and is [subsidizing chips, including next-generation ones for AI](#), by hundreds of billions over the next decade to build a manufacturing supply chain.

Subsidies seem to be the [preferred strategy for Germany too](#). The UK government has announced its [plans to invest £100 million](#) to support regulators and universities in addressing challenges around artificial intelligence.

The economic historian Chris Miller, the author of the book Chip War, [has talked about how powerful chips have become a "strategic commodity"](#) on the global geopolitical stage.

Despite the efforts by several countries to invest in the future of chips, there is currently a shortage of the types currently needed for AI systems. Miller recently explained that 90% of the chips used to train, or improve, AI systems are [produced by just one company](#).

That company is the [Taiwan Semiconductor Manufacturing Company](#)

[\(TSMC\)](#). Taiwan's dominance in the chip manufacturing industry is notable because the island is also the focus for tensions between China and the US.

Taiwan has, for the most part, [been independent since the middle of the 20th century](#). However, Beijing believes it should be [reunited with the rest of China](#) and US legislation requires Washington to [help defend Taiwan if it is invaded](#). What would happen to the chip industry under such a scenario is unclear, but it is obviously a focus for global concern.

The disruption of supply chains in chip manufacturing have the potential to bring entire industries to a halt. Access to the [raw materials](#), such as rare earth metals, used in computer chips has also proven to be an important bottleneck. For example, China [controls 60% of the production of gallium metal](#) and 80% of the global production of germanium. These are both critical raw products used in chip manufacturing.

And there are other, lesser known bottlenecks. A process called [extreme ultraviolet \(EUV\) lithography](#) is vital for the ability to continue making computer chips smaller and smaller—and therefore more powerful. [A single company in the Netherlands, ASML](#), is the only manufacturer of EUV systems for chip production.

However, chip factories are increasingly being built outside Asia again—something that has the potential to reduce over-reliance on a few supply chains. Plants in the US are being subsidized to the tune of [US\\$43 billion and in Europe, US\\$53 billion](#).

For example, the Taiwanese semiconductor manufacturer TSMC is planning to build a multibillion dollar facility in Arizona. When it opens, that factory will not be producing the most advanced chips that it's possible to currently make, many of which are still produced by Taiwan.

Moving chip production outside Taiwan could reduce the risk to global supplies in the event that manufacturing were somehow disrupted. But this process could take years to have a meaningful impact. It's perhaps not surprising that, for the first time, this year's Munich Security Conference [created a chapter devoted to technology](#) as a global security issue, with discussion of the role of computer chips.

Wider issues

Of course, the demand for chips to fuel AI's growth is not the only way that artificial intelligence will make major impact on geopolitics and global security. The growth of disinformation and misinformation online has transformed politics in recent years by inflating prejudices on both sides of debates.

We have seen it [during the Brexit campaign](#), during [US presidential elections](#) and, more recently, during the [conflict in Gaza](#). AI could be the ultimate amplifier of disinformation. Take, for example, deepfakes—AI-manipulated videos, audio or images of public figures. These could easily fool people into thinking a major [political candidate had said something they didn't](#).

As a sign of this technology's growing importance, at the 2024 Munich Security Conference, 20 of the world's largest tech companies [launched something called the "Tech Accord"](#). In it, they pledged to cooperate to create tools to spot, label and debunk deepfakes.

But should such important issues be left to tech companies to police? Mechanisms such as the EU's Digital Service Act, the UK's Online Safety Bill as well as frameworks to regulate AI itself should help. But it remains to be seen what impact they can have on the issue.

The issues raised by the chip industry and the growing demand driven by

AI's growth are just one way that AI is driving change on the global stage. But it remains a vitally important one. National leaders and authorities must not underestimate the influence of AI. Its potential to redefine geopolitics and global security could exceed our ability to both predict and plan for the changes.

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