

The outcome of the US-China rivalry hinges on the technology edge and how to use such technology.

# Promises and perils of the tech war



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As part of the Biden administration’s industrial strategy to revitalise domestic manufacturing, create jobs, strengthen US supply chains, and accelerate future industries, the CHIPS and Science Act of 2022 was launched last year, which is a \$280 billion package to be utilised over the next decade to support the US semiconductor chip industry.

Goodbye free markets, hello industrial policy. This is also interesting because the outcome of the US-China rivalry hinges on the technology edge and how to use such technology.

In 2018, the Trump administration’s ban on Chinese tech giant ZTE buying sensitive components and software from US companies signalled the start of a tech war. The same year, Huawei was put on the “entity list”, requiring US government approval for it to buy US technology. This story is rivetingly told in *Chip War: The Fight for the World’s Most Critical Technology*, written last year by historian Chris Miller.

In a recent interview, Miller cited three reasons why the US invoked the Chip War. First, the US concern over Chinese intentions about Taiwan, as Taiwan Semiconductors Manufacturing Corporation (TSMC) is the leading producer of cutting-edge semiconductor chips. Nano chips are essential for next-generation military and intelligence capabilities. Second, China has certain advantages in narrowing the US-China tech gap. Third, as export controls and sanctions have limited effects, such as those against Russia proved, there was no point in waiting to restrict Chinese access to foreign technology.

With Taiwan as a “choke point” in US-China competition, the Biden administration is adopting a two-prong strategy to compete or contain China in terms of technology. The first part would shift production partly out of Taiwan to “onshoring” or “friend-shoring” allies willing to de-risk dependence on Chinese production. The second part would bring US semiconductor production back home, which has fallen from 37 percent in 1990 to about 12 percent of global output. Moving TSMC and Samsung chip production to US soil are efforts in that direction.

The real killer is the “choke point” strategy, which means that you strangle your rival at their most vulnerable supply chain points. China has always been vulnerable to energy imports, hence the strategic importance of the Malacca Straits.

Avoiding this explains China’s remarkable shift to home-based solar energy, installing 413 gigawatts of solar capacity (or 44 percent of its own electricity usage) – electricity being the key driver of the digital economy. As Miller shrewdly points out, “China now spends more money each year importing chips than it spends on oil”.

Why are semiconductors so critical in the new Great Power rivalry? As Miller points out, “Last year, the chip industry produced more transistors

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than the combined quantity of all goods produced by all other companies, in all other industries, in all human history. Nothing else comes close.”

Semiconductors have become so small and so fast, with so much computing power, that they are the foundations of anything “smart”. My iPhone has 10 million times the processing capacity of the three-tonne IBM 360 mainframe business computer that I used to use in the early 1970s.

We have also moved from hardware to software, because it is the software applications that ultimately create the Artificial Intelligence (AI) computations beyond the capacity of mere human beings. The Chinese are great with hardware. But on the software side, there is still a huge gap with the US, partly because China has not yet created anything like the tech start-up ecosystem that exists in Silicon Valley.

It is illuminating to see that, even though China has its own versions of

ChatGPT and a NASDAQ equivalent in the Shenzhen stock market, ChatGPT sparked the equity revival of the US’ Magnificent Seven tech stocks (Alphabet, Amazon, Apple, Meta Platforms, Microsoft, Nvidia, and Tesla) with a combined market cap of over \$11 trillion. Nothing like this has happened in China this year.

While Chinese regulators worry about stock market bubbles, the Nasdaq tech bubble has taught US-Americans that tech bubbles are not systemically fatal, but their wealth creation, if ploughed into the next generation of start-ups, creates new commercial (and military) technologies. Funding market tech innovators is key to enhancing next-generation technology.

However, the real choke holds over the Chinese are extreme ultraviolet (EUV) lithographic equipment, which are so precise that they can etch nano chips into highly compact integrated circuits that are free of bugs and technical flaws. These need such a clean contamination-free manufacturing environment that all workers have to wear space suits and diapers. Unfortunately for the Chinese, only the Dutch ASML can manufacture the high-quality EUV lithography machines that TSMC and Samsung need to fabricate the most advanced logic chips. In essence, the US has a “weaponised interdependence” hold on the Chinese, who are at least a decade or more away from creating their own EUV machines.

Make no mistake, the Chinese can manufacture or buy less advanced chips that are the workhorse of consumer Internet of Things products. But as AI exponentially demands more computing power, China will be stunted in producing cutting-edge technology without access to nano chips that are specifically designed and fabricated for dedicated usage. If quantum computing becomes commercially viable, the demand for high-end chips will be even more critical.

The Chip War is really about scale and imagination in industrial policy, with gorilla-sized resources and talent used for trying to wrestle the opponent to the ground, targeting key choke points. Techno-nationalism means that whoever has the best ecosystem of innovation, talent, funding, and production dexterity will have the edge over the others. This is not a 100-meter sprint, but a bruising, brutal, and ugly long march towards techno superiority. So far, the US and its allies have the edge, but China has the market scale. If, by 2030, China accounts for one-quarter of the market, versus 10 percent for the US (as the Semiconductor Industry Association has estimated), who knows who will really have a decisive edge in the Chip War?

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# An anticyclimactic Paris Summit

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In June, over 35 world leaders came together in Paris, France to address reforms that would help combat the climate emergency. The two-day meeting put a major focus on reaching a deal to impose a tax on greenhouse gas (GHG) emissions produced from international shipping. Essentially, French President Emmanuel Macron proposed taxes on shipping, aviation, and potentially wealth to fund climate action. Other leaders, such as Luiz Inácio Lula da Silva, Brazil’s President, emphasised the need to reform institutions to reduce inequality between the richest and the poorest. In contrast, US Treasury Secretary Janet Yellen announced that the Biden

three percent of total GHG emissions. Although this figure may appear low, the European Parliament has issued a warning that failing to address this issue could lead to a significant increase in emissions by 2050. As Macron pointed out, the shipping sector currently operates tax-free, and there is no good reason why taxes have not been imposed yet.

Among the suggestions put forward by Macron, one of the most significant proposals was to revise the calculation of risk for projects in the developing world. Additionally, the financing of such projects using local currency was emphasised.

There are currently over 50 countries that are unable to pay back their debts, mostly due to high interest rates and the strength of the US dollar. One of the purposes of the Paris summit was to ensure that rich countries would help poor countries relieve their debt through actions such as loan cancellations. Another topic addressed was the potential inclusion of a debt suspension clause for countries affected by extreme climatic events.

utilisation of Special Drawing Rights (SDRs), which are a type of currency provided by the International Monetary Fund. More developed countries, such as France, Japan, and the UK, will contribute \$80 billion of their SDRs to support these countries. Additionally, the United States will provide support amounting to \$21 billion, given the White House can secure approval from Congress.

Many leaders stressed the fact that we live in an unfair world when it comes to climate justice. For instance, Patience Nabukala, a member of the Fridays for Futures Uganda group, insists that it is impossible to achieve climate justice without making polluters pay. Mitzi Jonelle Tan, a climate justice campaigner from the Philippines, expressed her liking for climate finance but, according to her, if the fossil fuel industry is not stopped, then it is just a temporary solution.

Throughout history, poverty and climate change have impacted our planet, particularly the poorest countries. Actions need to be taken, and it seems that the Paris



Developed countries may feel that they already contribute enough to climate finance, or that it would cost them a significant amount of money and, more importantly, their global supremacy.

PHOTO: REUTERS

administration would consider the shipping tax. However, it was ultimately not approved.

Mia Mottley, the prime minister of Barbados, was the one who first proposed this meeting. Even though multiple countries attended the summit, determining which countries were supporting the proposal proved challenging. Macron suggested that several key European countries, along with China and the US, were not aligned with the new proposal. He emphasised that, without the involvement of these countries, implementing taxes on the mentioned activities would have limited impact.

It is worth noting that the imposition of taxation on shipping and related activities has the potential to generate funds that could be directed towards supporting developing countries. The funds would enable these nations to address the challenges posed by climate change and its impacts effectively. It is estimated that if a global shipping tax were imposed, it could raise about \$5 billion a year.

According to the International Maritime Organization, shipping activity is responsible for nearly

Despite world leaders agreeing that they wanted to transform their current approach to the world, as well as help countries escape poverty, the reality is that the Paris summit ended without any major announcements. Instead, a roadmap (promised earlier) was released, which intends to fulfil Macron’s suggestion of reforming the international finance system over the next two years. Consequently, climate NGOs and activists witnessed a lack of ambitious responses to combat climate change and address the world’s inequalities. Walter Mawere, an advocacy coordinator for Care International in Somalia, expressed his disappointment because the summit did not provide sufficient support for nations that bear the brunt of climate impacts.

Additionally, the World Bank has decided to offer support by pausing debt repayments for countries grappling with climate disasters. However, this will only apply to future loans. The UK will follow the World Bank’s initiative for its existing loans, but only for twelve countries in Africa and the Caribbean. An estimated \$100 billion will be allocated to less developed countries through the

summit was not enough. The idea of imposing a tax on shipping, like on the majority of other activities out there, seems to be a good one. On one hand, it would incentivise countries heavily involved in shipping to reduce their shipping volume or seek greener alternatives, leading to a significant decrease in pollution. On the other hand, if those countries don’t decrease their shipping volume, more money would be collected due to the tax imposition. As proposed in the Paris summit, that money would go to countries struggling to fight poverty and climate change due to their scarce resources.

The most powerful nations, however, would be the most harmed by this initiative – and they seem reluctant to do so. These countries may feel that they already contribute enough to the cause, or that it would cost them a significant amount of money and, more importantly, their global supremacy. It’s high time they changed their attitude. Millions of people die every year as a direct consequence of poverty and climate change. For that reason, it is important for nations to come together and work towards the same goal of eradicating these severe issues.

## CROSSWORD BY THOMAS JOSEPH

### ACROSS

- 1 Herring’s kin
- 5 “Skyfall” singer
- 10 Lukewarm
- 12 Styling site
- 13 Cartoon genre
- 14 Sluggish
- 15 Roadhouse
- 16 React to a punch
- 18 “Macbeth” prop
- 20 Stout relative
- 21 Rocker Clapton
- 23 Maiden name label
- 24 Pound hound
- 26 Against
- 28 Pool unit
- 29 Rational
- 31 Antique
- 32 Graffiti artist

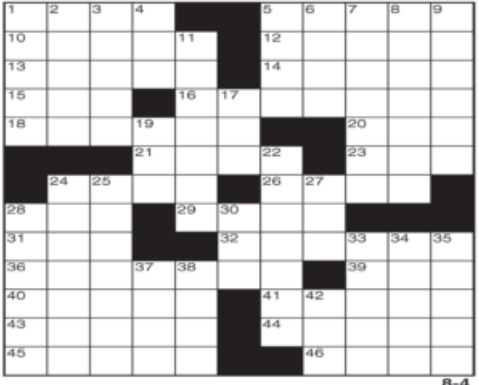
- 36 Cockiness
- 39 Quarterback
- Manning
- 40 Home run, in slang
- 41 “Hamlet” extras
- 43 Peace goddess
- 44 Painter’s wear
- 45 Snappish
- 46 Touches lightly

- 9 Main dish
- 11 Barren areas
- 17 Numerical prefix
- 19 Obtain
- 22 Baseless stories
- 24 Dangerous apps
- 25 Breaking news reports
- 27 Not pos.
- 28 Went ballistic
- 30 Chowd down
- 33 Columbus’s home
- 34 Put in office
- 35 Hazards
- 37 Nice guy
- 38 Dreary shade
- 42 Band blaster

### DOWN

- 1 Solemn
- 2 Reddish dye
- 3 Doing impressions
- 4 Badly lit
- 5 Gobi setting
- 6 “Phoey!”
- 7 Posh
- 8 Rhine temptress

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## YESTERDAY’S ANSWERS

A	B	A	S	E	D			T	W	O	S
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