

Below are extracts from two AI-focused articles, published by The Financial Times (ft.com 2<sup>nd</sup> & 8<sup>th</sup> April 2024), as referenced below.

## **TSMC, the world's largest chipmaker to build cutting edge production facilities in the US, as the latter signs a bi-lateral agreement with the UK to monitor and regulate emerging AI technologies.**



### **TSMC boosts Joe Biden's AI chip ambitions with \$11.6bn US production deal.**

In a recent Financial Times report, Hille, K. (2024) reveals how the Taiwan Semiconductor Manufacturing Co (TSMC), plans to locate more factory facilities in Arizona, with support from the USA government which has, in recent years, introduced legislation to boost semi-conductor chip manufacture on home soil:

The world's biggest chipmaker, Taiwan Semiconductor Manufacturing Co, has agreed to make its most advanced products in Arizona from 2028, in a boost to White House efforts to bring semiconductor production on to home soil.

TSMC will make the latest cutting-edge 2-nanometre chips in a fabrication plant, or fab, it is building in Phoenix, Arizona, marking an upgrade from its previous plans. That facility will be the company's second in the US. The first, which is also in Arizona and was announced in 2020 under the Trump administration, will begin production next year. TSMC also said on Monday that it will increase its total investment in the US from \$40bn to \$65bn to build a third fab, with 2nm or even more advanced technology, which will be operational by 2030.

The Taiwanese company and the US commerce department said on Monday that Washington would provide it with support worth \$6.6bn in grants and up to \$5bn in loans. The subsidies fall under the Chips Act, which was passed in 2022 to boost US chipmaking. Last month, the Biden administration unveiled a deal for \$8.5bn in grants and up to \$11bn in loans for Silicon Valley's Intel, which has pledged \$100bn in new investment.

Hille, K. (2024)

According to Hille, K. (2024), the move is aimed to bring the manufacture of the most advanced semiconductor chips on earth, to the United States, and it is believed by White House sources that the TSMC deal helps to strengthen national security, in light of growing fears of a Chinese invasion of Taiwan:

TSMC's commitment helps the White House move towards its goal of bringing 20 per cent of the world's advanced semiconductor manufacturing onshore by 2030. Growing fears of a Chinese invasion of Taiwan, where 90 per cent of cutting-edge chips are currently made, have prompted the US to step up efforts to boost its domestic semiconductor production. "TSMC is expanding its manufacturing capabilities in Arizona such that for the first time ever we will be making, at scale, the most advanced semiconductor chips on the planet here in the United States of America," said US commerce secretary Gina Raimondo. "[We are] massively strengthening our national security position." "Our US operations allow us to better support our US customers, which include several of the world's leading technology companies," said Mark Liu, chair of the leading contract chipmaker.

The latest plans will bring semiconductor production in the US closer to the state of the art, as artificial intelligence drives demand for ever more computing power. TSMC previously planned to run its US fabs on older manufacturing technology than its most advanced mass production in Taiwan. By 2026, most AI chips will run on 3nm, meaning that the production capabilities of TSMC's first Arizona plant will fall short. By the time TSMC's second Arizona fab opens in 2028, Nvidia and other AI chip vendors are likely to have migrated to 2nm, said an engineer familiar with the process. Therefore, TSMC's original plan to have that plant run on 3nm "didn't make sense", a company executive said.

Hille, K. (2024)

Hille, K. (2024), admits that this initiative will certainly mean that some of the most advanced chip manufacturing facilities will be located in the United States, but that the US still lags behind Taiwan when it comes to production of cutting-edge semi-conductors, particularly applicable to emerging artificial intelligence technologies:

The US hopes the TSMC deal will mean that some of the most advanced chips used in AI could be partly made in the US by the end of the decade, reducing the reliance of chipmakers such as Nvidia and AMD on Asian production.

"The chips that TSMC makes . . . underpin all AI. Tens of thousands of leading-edge chips are required to train a single frontier AI model [such as OpenAI's GPT4]," Raimondo said. "And now, because of this announcement, these chips will be made in the United States of America." But industry executives and analysts said that claim went too far. "Having 2nm in the second fab doesn't mean Nvidia will not be buying chips made in Taiwan anymore," said a person familiar with TSMC's plans, "it just means that they will have an option to issue a special requirement that a certain amount of their chips come from that [Arizona] fab."

TSMC's leading-edge fab investment at home continues to far outpace that in the US. It will start 2nm mass production next year and plans to build "multiple" more fabs operating on that technology in three locations in Taiwan, Liu told investors in January.

Hille, K. (2024)



## US and UK sign landmark agreement on testing safety of AI.

In a recent Financial Times report, Murgia, M. (2024) reported on how governments in both Washington and London will pool technical knowledge, information, and talent on AI safety. This appears to be in a similar manner as matters relating to intelligence and security, with a particularly focus on how it impacts cyber security, for example. This is the first formal bi-lateral agreement of its type in the world, and an indication of the need for speed when it comes to monitoring the safety of emerging AI technologies.

The US and UK have signed a landmark agreement on artificial intelligence, as the allies become the first countries to formally co-operate on how to test and assess risks from emerging AI models.

The agreement, signed on Monday in Washington by UK science minister Michelle Donelan and US commerce secretary Gina Raimondo, lays out how the two governments will pool technical knowledge, information, and talent on AI safety. The deal represents the first bilateral arrangement on AI safety in the world and comes as governments push for greater regulation of the existential risks from new technology, such as its use in damaging cyber-attacks or designing bioweapons.

“The next year is when we’ve really got to act quickly because the next generation of [AI] models are coming out, which could be complete game-changers, and we don’t know the full capabilities that they will offer yet,” Donelan told the Financial Times. The agreement will specifically enable the UK’s new AI Safety Institute (AISi), set up in November, and its US equivalent, which is yet to begin its work, to exchange expertise through secondments of researchers from both countries. The institutes will also work together on how to independently evaluate private AI models built by the likes of OpenAI and Google.

The partnership is modelled on one between the UK's Government Communications Headquarters (GCHQ) and the US National Security Agency, who work together closely on matters related to intelligence and security.

"The fact that the United States, a great AI powerhouse, is signing this agreement with us, the United Kingdom, speaks volumes for how we are leading the way on AI safety," Donelan said. She added that since many of the most advanced AI companies were currently based in the US, the American government's expertise was key to both understanding the risks of AI and to holding companies to their commitments. However, Donelan insisted that despite conducting research on AI safety and ensuring guardrails were in place, the UK did not plan to regulate the technology more broadly in the near term as it was evolving too rapidly.

Murgia, M. (2024)

According to Murgia, M. (2024), this agreement may not be as tough as some of the regulation now in place for Europe, China and even the US itself. But the partnership will equip both the UK and the US with the tools to monitor and test AI technology, even before its release, with regard to the misuse of AI in particular. It is hoped that the collaboration will have positive safety and national security benefits as well as protecting broader society:

The position stands in contrast to other nations and regions. The EU has passed its AI Act, considered the toughest regime on the use of AI in the world. US President Joe Biden has issued an executive order targeting AI models that may threaten national security. China has issued guidelines seeking to ensure the technology does not challenge its long-standing censorship regime. Raimondo said AI was "the defining technology of our generation".

"This partnership is going to accelerate both of our institutes' work across the full spectrum of risks, whether to our national security or to our broader society," she said. "Our partnership makes clear that we aren't running away from these concerns — we're running at them. Because of our collaboration, our institutes will gain a better understanding of AI systems, conduct more robust evaluations, and issue more rigorous guidance."

The UK government backed AISI, which is chaired by tech investor and entrepreneur Ian Hogarth, has hired researchers such as Google DeepMind's Geoffrey Irving and Chris Summerfield from the University of Oxford to start testing existing and unreleased AI models. OpenAI, Google DeepMind, Microsoft and Meta are among the tech groups that signed voluntary commitments to open up their latest generative AI models for review by Britain's AISI, which was established following the UK's AI Safety Summit in Bletchley Park.

Murgia, M. (2024)

## References

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