> **Nvidia / Run:ai – Case M.11766**
>
> **Submission from a coalition of civil society organisations**

We welcome the opportunity to submit observations on the merger of Nvidia and Run:ai. We are a coalition of civil society organisations deeply concerned about the extreme and growing concentration of power in the artificial intelligence technology stack – particularly in the supply of computing power – which this merger threatens to make worse.

We worry that the merger will help Nvidia reinforce its super-dominance in the supply of advanced GPUs by integrating Run:ai software to build an additional barrier around its chip empire. This would be in line with its existing strategy which consists in developing its software business to strengthen its - already powerful - position in GPUs. We also fear that the merger will give Nvidia the ability and incentive to foreclose access to Run:ai software to competing chip suppliers and to tie/bundle Run:ai software to its GPU chips.

We therefore strongly encourage the Commission to launch a full investigation into the merger, focusing on the risks it poses to the entire AI sector.

The transaction will further weaken the resilience of the AI market

As we explain below, the merger will reinforce Nvidia's control over the supply of the advanced chips that are a critical input in downstream markets, particularly cloud and AI.

Nvidia has become a key input provider across the entire AI sector since it supplies both the dominant cloud providers – despite their efforts to develop their own competing chips – as well as smaller "neo-cloud" startups such as Coreweave, Crusoe or Lambda[1], all of whom subsequently provide cloud computing and AI services to a wide range of businesses in Europe and worldwide. As a major supplier whose inventory is reported to be booked up for the next year,[2] Nvidia has the ability to leverage its market power by deciding who gets access to chips and on what terms.

This bottleneck undermines the ability of European AI companies to remain competitive in global markets and ultimately increases costs and lowers quality for European customers (including governments and businesses). It also undermines Europe's resilience by increasing its dependence on a single supplier for a critical

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[1] https://techblog.comsoc.org/2024/11/10/ft-new-benchmarks-for-gen-ai-models-neocloud-groups-leverage-nvidia-chips-to-borrow-11b/. In that regard, Nvidia has been actively promoting neo-cloud startups - through partnerships and investments - to reach the widest possible range of customers.

[2] https://www.cloudcomputing-news.net/news/how-cloud-providers-are-tackling-gpu-shortages-with-custom-chips/.

technology, thereby exposing it to risks of coercion or supply chain disruption. In fact, these risks are already materialising. Production delays at Nvidia were a major contributor to the severe covid-era chip shortages,[3] and these shortages have continued due to a combination of exploding external demand and internal design flaws at Nvidia.[4]

The transaction will reinforce Nvidia's dominance in compute power

With an estimated market share of 88%, Nvidia is super-dominant in GPUs, far ahead of competing players such as Intel and AMD.[5] Over the years, Nvidia has expanded and entrenched its market power in several ways, including by raising additional barriers to entry to potential competitors.

It has been developing its software offer to build a moat around its chips. It has built a closed environment in which its GPUs and proprietary software are tightly integrated. For instance, its CUDA software is a toolkit that enables developers to write code more efficiently for programs running exclusively on Nvidia GPUs. CUDA also includes a large ecosystem of code libraries and IT support which enables faster application development.[6] It is considered a *de facto* industry standard in AI and cannot be used with competing chips.[7] This closed integration of software and hardware makes it far more difficult for Nvidia's rivals to compete on an equal footing, while increasing dependency on Nvidia's products. This issue has drawn concerns from the French Competition Authority.[8]

It is against this background that Nvidia is acquiring Run:ai. By optimising the use of scarce computing resources, Run:ai's GPU orchestration and virtualisation services have the potential to significantly improve the performance of Nvidia's (already market-leading) GPUs and reduce the computation costs associated with AI development. Orchestration is already considered an important asset by GPU users

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[3] https://www.tomshardware.com/news/nvidia-rtx-shortages.

[4] https://www.aiwire.net/2024/08/07/nvidia-reportedly-delays-launch-of-next-gen-ai-chips-amid-design-flaw/;
https://www.astutegroup.com/news/general/is-a-new-gpu-shortage-looming-signs-point-to-potential-supply-crunch-amidst-soaring-ai-demand/;
https://www.msn.com/en-us/money/technology/growing-ai-demand-may-lead-to-new-semiconductor-crisis/ar-AA1ri9Z4 .

[5] https://www.techradar.com/computing/gpu/nvidia-now-owns-88-of-the-gpu-market-but-that-might-not-be-a-bad-thing-yet.

[6] https://www.linkedin.com/posts/armand-ruiz_the-magic-behind-nvidias-ai-chips-and-cuda-activity-7253359300893396992-87Hx/.

[7] The Economist, « Why do Nvidia's chips dominate the AI market? https://www.economist.com/the-economist-explains/2024/02/27/why-do-nvidias-chips-dominate-the-ai-market and https://www.investors.com/news/technology/nvidia-stock-nvda-cuda-software-ai-artificial-intelligence/ .

[8] See the French Competition Authority ongoing investigation into the CUDA software: https://www.autoritedelaconcurrence.fr/en/press-release/general-rapporteur-autorite-de-la-concurrence-indicates-unannounced-inspection-was.

as it scales resources across workloads to maximise performance and reduce cost, and it is therefore quickly becoming a standard market practice.[9]

We are concerned that Nvidia will use ownership of Run:ai to dig an additional moat around its chip empire. By further improving the performance of its chips (and potentially denying these improvements to rivals), challengers will find it harder to compete in the market while customers will face even higher levels of lock-in.

The merger will significantly affect competition

<u>First</u>, the transaction would give Nvidia the ability and incentive to foreclose access to Run:ai software to its rivals.

Given its desire to protect its super-dominance in GPUs, Nvidia would have strong incentives to restrict access to Run:ai's technology to prevent rivals from developing competitive chips. Such concerns of technological lock-in have been raised by competition authorities before, for instance in relation to Nvidia's proposed acquisition of the chip designer Arm, which was eventually abandoned in the face of regulatory scrutiny.[10]

The potential rivals that could be harmed by this conduct include not only dedicated semiconductor firms such as AMD, Intel and ARM, but also digital gatekeepers – including Amazon, Google and Meta – that are developing their own chips in an attempt to reduce their dependence on Nvidia.

In addition, the Commission must not be misled by Nvidia's announcement that Run:ai services will remain open source.

First and foremost, Nvidia's open source proposal will not tackle the extreme dependency of the entire AI sector on Nvidia's computing power, which will be worsened by the merger. There are different degrees of openness and AI companies frequently use "open" rhetoric in ways that actually reinforce their market power.[11] For instance, "open source" can include serious limitations to competition such as the prohibition to use or develop a competing product. Such an approach would not preclude Nvidia from restricting access to the relevant technology or shutting it off completely at a later stage. In the field of generative AI, the French Competition Authority has already raised concerns about companies granting open access to a technology and later on shutting it off to lock-in customers.[12] We therefore strongly encourage the Commission to scrutinize in detail the proposal made by Nvidia and to reject it if it finds it is inadequate to tackle this competition issue.

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[9] Competing chip suppliers, Intel and AMD, are also partnering with orchestration software providers to boost the performance of their GPUs.
[10] https://www.cnbc.com/2022/02/08/nvidia-arm-deal-may-have-been-doomed-from-the-start.html
[11] For a detailed analysis; Widder, D.G., Whittaker, M. & West, S.M. Why 'open' AI systems are actually closed, and why this matters. Nature 635, 827–833 (2024). https://doi.org/10.1038/s41586-024-08141-1.
[12] French Competition Authority report on Generative AI, para 282.

<u>Second</u>, the merged entity will have the ability and incentive to tie or bundle Run:ai's services with its GPUs.

This scenario is highly likely to occur since Nvidia is already doing this with its CUDA software. For instance, Coreweave has been using both Nvidia chips and CUDA for several years, and recently decided to also use Run:ai's services. This points towards a future in which Nvidia's chips, CUDA and Run:ai are sold together in a package that rivals have little chance of competing with.

Again, this would help Nvidia defend its dominant position in GPUs, while also allowing it to acquire further market power in GPU software by forcing customers to use Run:ai orchestration services alongside its chips.

Conclusion and requests

For the reasons noted above, we strongly encourage the Commission to pursue a full investigation of this acquisition. The reinforcement of Nvidia's dominance and the even greater dependence of the whole AI stack on one supplier raises serious concerns for competitors, customers and end-users.

Signatory organisations

AI Now Institute

Article 19

Balanced Economy Project

Foxglove

Gentium

Instituto Brasileiro de Defesa do Consumidor (Idec)

IT for Change

Open Markets Institute

SOMO