Because compute has these properties...

Detectability

Large-scale AI training and deployment is highly resource intensive, often requiring thousands of specialized chips in a high-performance cluster hosted in a large data center consuming large amounts of power.

Excludability

The physical nature of hardware makes it possible to exclude users from accessing AI chips. In contrast, restricting access to data, algorithms, or trained models is much more difficult.

Quantifiability

Computational power can be easily measured, reported, and verified.

Supply chain concentration

AI chips are produced via a highly inelastic and complex supply chain, several key steps of which (e.g. design, EUV lithography, and fabrication) are dominated by a small number of actors.

It can enable these critical governance capacities...

Visibility

The ability to track and assess the development and use of advanced AI.

Allocation

The ability to influence which AI systems are built, when, and by whom.

Enforcement

The ability to ensure compliance with AI regulations and standards.

"Computing Power and the Governance of Artificial Intelligence"
Sastry, Heim, Belfield, Anderljung, Brundage, Hazell, O'Keefe, Hadfield et al., 2024