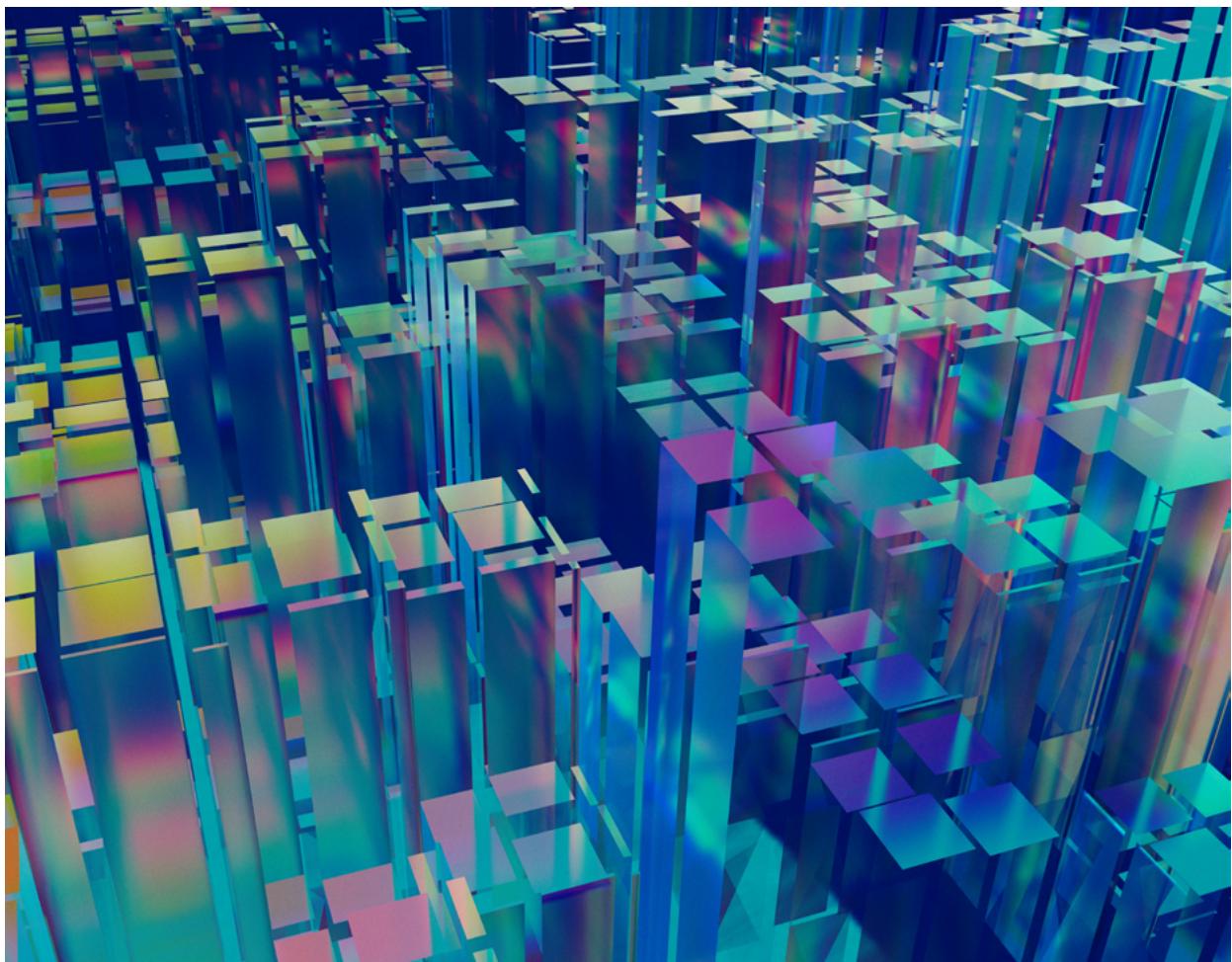


# AI infrastructure: The physical bottleneck of AI



AI is driving record valuations, but the real constraint isn't chips, it's infrastructure. Every GPU run depends on megawatts, reinforced floors and industrial-grade cooling. A single NVIDIA H100 draws up to 1,000 watts; racks exceed 100 kW. This is no longer a race for silicon – it's a battle for grid access, land and engineering capability. For investors, the opportunity lies in platforms that can deliver power, cooling and scalability at speed.

## From chips to capacity: the shift in value

Global data centre M&A is set to exceed \$80 billion in 2025, extending the record set in 2024. Private equity continues to dominate, accounting for up to 90% of deal value, but hyperscalers are reshaping the field. Microsoft, Amazon, Alphabet, and Meta are on track to invest more than \$400 billion this year to secure capacity. Deals over \$10 billion, once rare, are now routine.

The \$40 billion acquisition of Aligned Data Centers, backed by BlackRock, Microsoft, and Nvidia, marked a turning point. Control is shifting beyond compute to encompass land, energy, and thermal systems. Other landmark transactions reflect the same momentum:

- Blackstone and CPPIB's \$16 billion acquisition of AirTrunk secured grid-adjacent campuses across Asia-Pacific.
- DigitalBridge and Silver Lake's \$9.2 billion commitment to Vantage Data Centers will deliver 3 GW of future capacity.
- Schneider Electric's acquisition of Motivair and Daikin's purchase of DDC Solutions show industrial moves into liquid cooling, now essential for high-density AI workloads.

This is consolidation with strategic intent. Platforms are being valued not only on installed capacity but on expandable megawatts, retrofit potential, and proximity to reliable power.

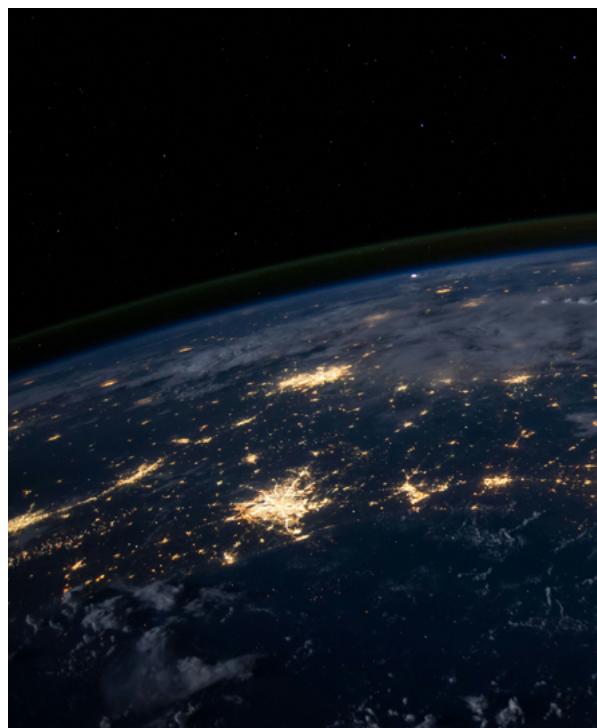
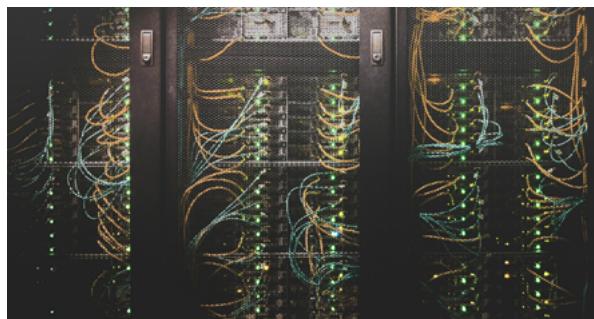


## Infrastructure must evolve – not just scale

AI has redefined what infrastructure must deliver. Where legacy data centres were engineered for predictable loads, AI demands thermally intense, rapidly scaling environments. Cooling is shifting from traditional air to liquid loops, immersion tanks, and submerged modules. Some operators are experimenting with offshore locations and deep-sea water for thermal efficiency.

Power architecture is also evolving, with vertical substations, on-site generation, and dynamic load balancing replacing legacy cabling and redundancy systems. The most valuable platforms are built to adapt, able to retrofit and reconfigure for changing chip designs, sustainability mandates, and regulation.

Engineering has become a source of strategic edge. The ability to design, build, and optimise now underpins asset value. Firms such as Accenture, WSP, and Turner & Townsend are expanding in digital infrastructure, recognising that delivery expertise now sits at the core of asset value.



## Scarcity and the new risk stack

Infrastructure is increasingly constrained by external forces. In markets such as Northern Virginia, Dublin, and Frankfurt, grid strain has triggered moratoria on new developments. Construction timelines now exceed five years in many regions.

Sustainability is no longer optional. With cooling accounting for up to 40% of total energy use, investors are targeting platforms with waste-heat recovery, district heating, and renewable baseloads. The ability to demonstrate low-carbon delivery is emerging as a pricing premium.

The risk stack has shifted. Energy access, permitting, and build viability now outrank tenant demand. Infrastructure is hard to build, power, and deliver. Capital is chasing platforms that can cut through constraint with speed, certainty, and scale.



## UK market perspective

The UK is fast becoming a critical hub for AI-ready infrastructure, driven by government policy, hyperscaler investment, and engineering capability.

The UK data centre pipeline exceeds £36 billion, with power capacity forecast to reach 6 GW by 2030 under the government's Compute Roadmap. This positions the UK as Europe's most competitive market for AI infrastructure, with hyperscale campuses anchoring long-term growth.

### Landmark projects underway:

- **Equinix Hertfordshire Campus:**  
£3.9 billion investment for 250+ MW capacity, creating 2,500 construction jobs.
- **Vantage Data Centers Bridgend:**  
£12 billion hyperscale campus in Wales, adding 11,500 jobs.
- **Colt DCS Hayes Campus:**  
£2.5 billion expansion in West London, adding 97 MW and an innovation hub with Brunel University.

UK engineering and construction firms such as Skanska, Mace, Mercury Engineering, Turner & Townsend are scaling to deliver hyperscale campuses, modular builds, and advanced cooling systems.

## Infrastructure as competitive advantage

Infrastructure is no longer a support function; it is the battleground of the AI economy. The platforms that outperform control three levers:

- Megawatts of scalable power
- Megabytes of high-speed bandwidth
- Mechanical resilience and operational depth

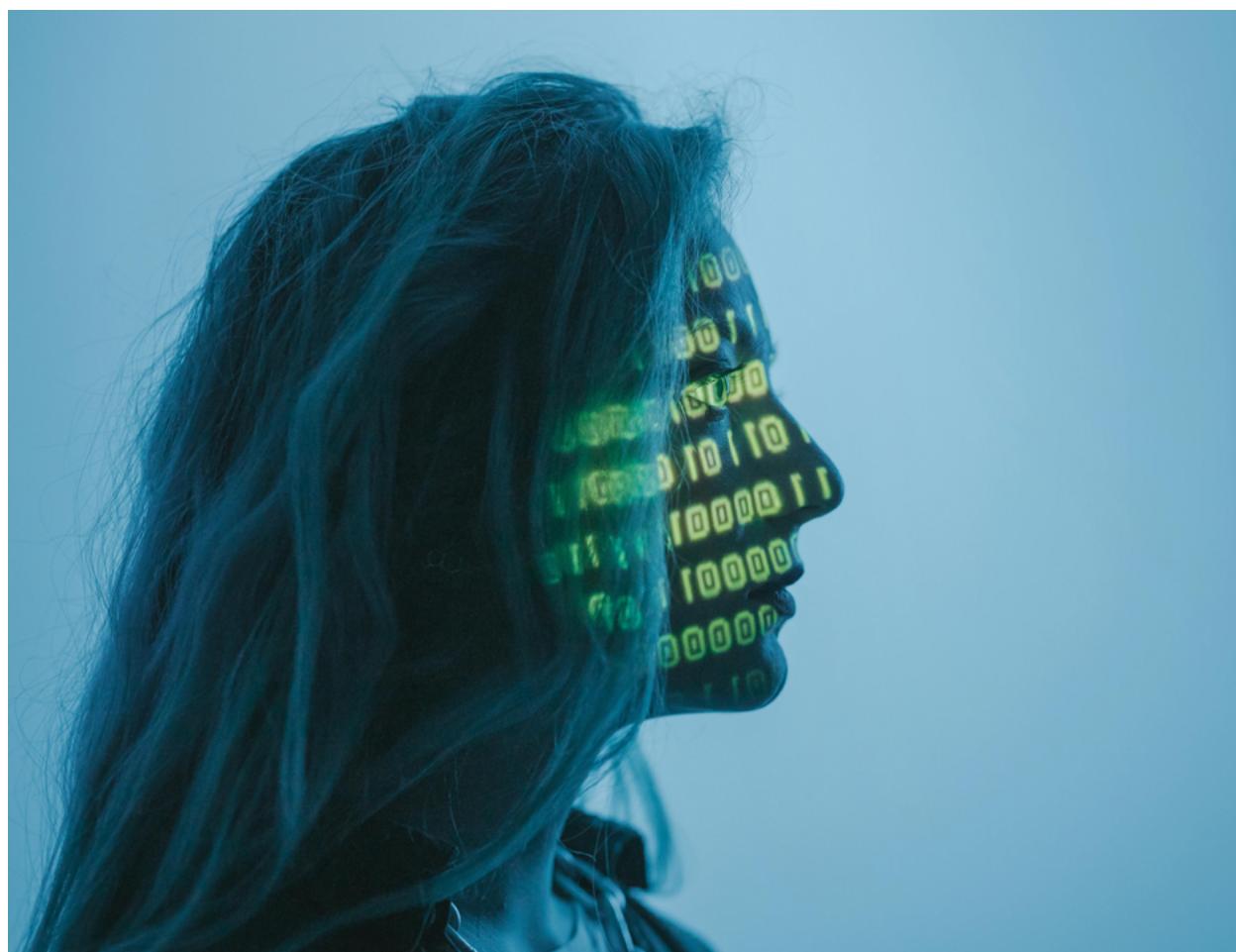
This dynamic favours operators with integrated models combining land acquisition, grid negotiation, and engineering delivery. These are high-spec, high-return platforms engineered for perpetual reinvention.

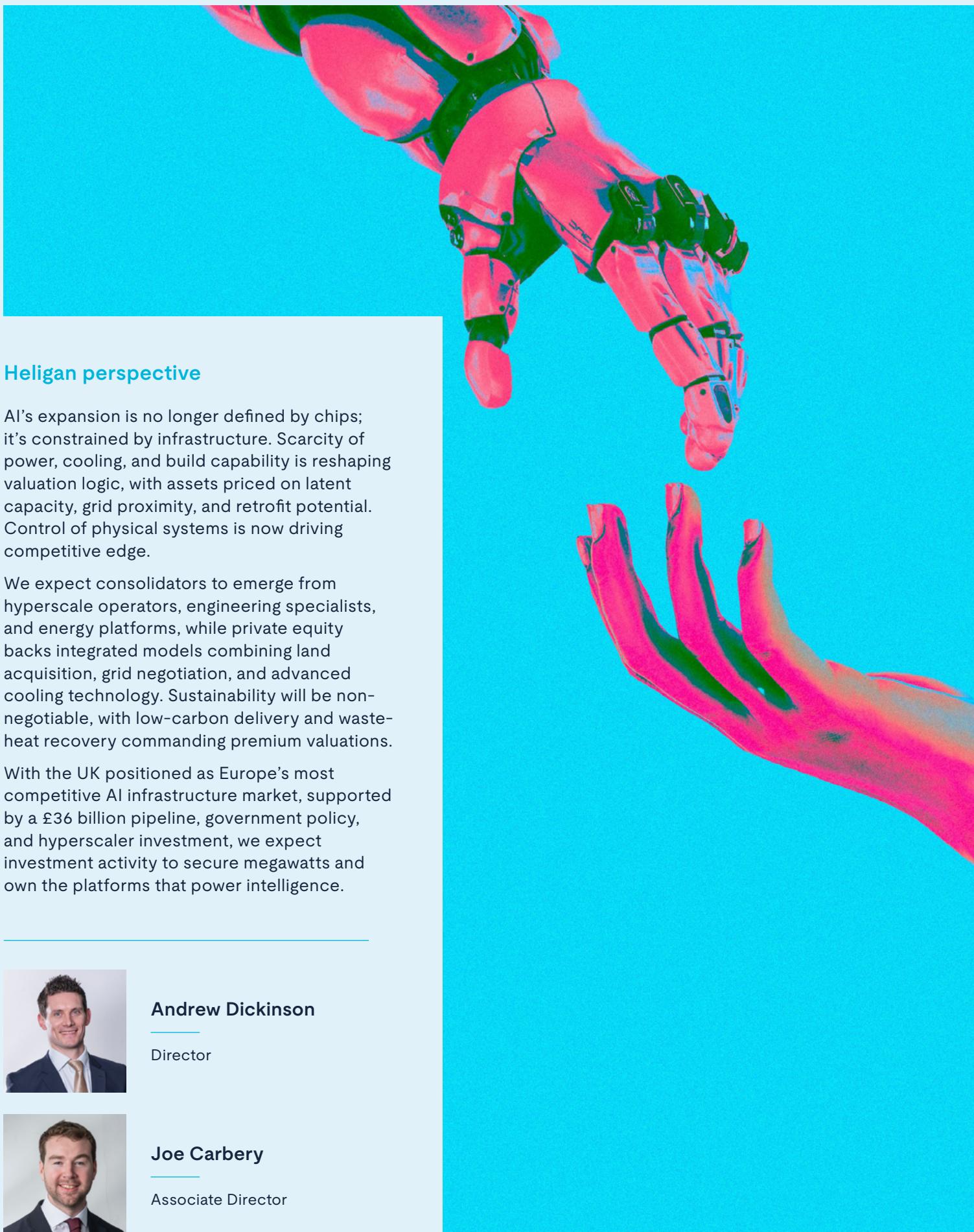
For investors, focus is shifting from capital deployment to operational control. Success depends on assets built for higher densities, stricter regulation, and sustainability scrutiny. The winners won't compete on capital alone but on control of land, grid access, engineering execution, and performance excellence.

## Why infrastructure grounds the AI bubble

Talk of an AI bubble is growing as software and silicon valuations stretch historic norms. Yet unlike earlier tech cycles driven by speculation, today's AI expansion is anchored to hard infrastructure. Every model and GPU run is constrained by physical throughput – power, cooling, and concrete.

This is not a weightless bubble; it's a build cycle measured in megawatts and materials. Investors backing grid-adjacent land, thermal systems, and engineering-led platforms are underwriting the foundations of the digital economy.





## Heligan perspective

AI's expansion is no longer defined by chips; it's constrained by infrastructure. Scarcity of power, cooling, and build capability is reshaping valuation logic, with assets priced on latent capacity, grid proximity, and retrofit potential. Control of physical systems is now driving competitive edge.

We expect consolidators to emerge from hyperscale operators, engineering specialists, and energy platforms, while private equity backs integrated models combining land acquisition, grid negotiation, and advanced cooling technology. Sustainability will be non-negotiable, with low-carbon delivery and waste-heat recovery commanding premium valuations.

With the UK positioned as Europe's most competitive AI infrastructure market, supported by a £36 billion pipeline, government policy, and hyperscaler investment, we expect investment activity to secure megawatts and own the platforms that power intelligence.



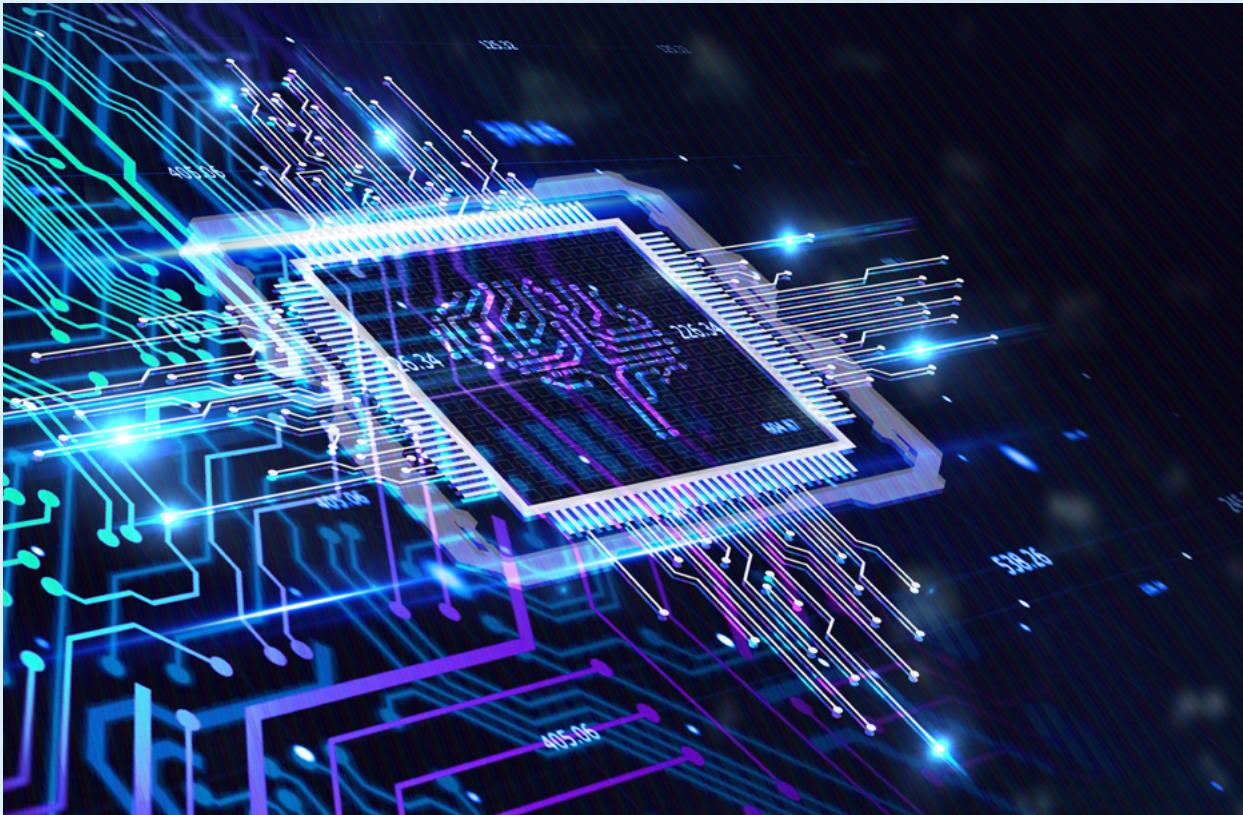
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