POLITICS OF POWER: HOW DATA CENTRES ARE SUPERCHARGING THE GROWTH AGENDA

eBook by

ONNEC

INTRODUCTION

The race for AI supremacy has seen AI-capable data centres become a major strategic resource – this has seen the topic of data centre investment and construction rise up the global political agenda.

Data centres are a foundational piece of the growth puzzle for global economies, presenting a huge opportunity for operators. But many are being held back by an operational inertia that threatens to see them miss out on being part of the growth agenda.

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DATA CENTRES' ROLE IN DRIVING GROWTH

The demand for data centres is skyrocketing. According to Gartner, spending on data centre systems will increase by a quarter (24%) in 2024. Data centre growth has been steadily building for years alongside digital adoption, but AI is catapulting this demand to a new level. International Data Corporation (IDC) forecasts Generative AI spending will reach $151.1 billion in 2027.

With growth and productivity high on the political agenda worldwide, international interest in AI has exploded. The race for AI supremacy is in full swing. Taking the lead on the technology is a strategic objective for many nation-states.

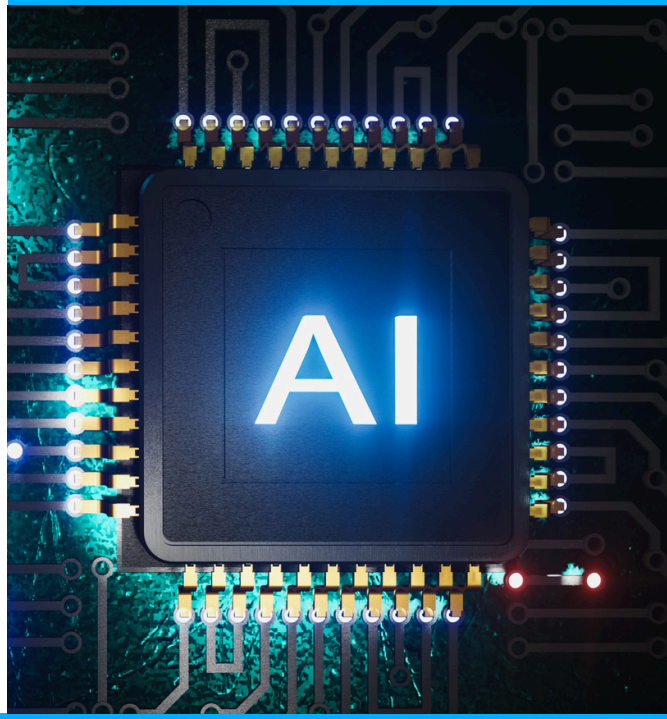
To achieve these objectives, governments need to ensure the right infrastructure is in place, and that there is enough power to go round. AI-capable data centres are therefore a strategic resource, which is why we're seeing a constant drumbeat of investment. There has been $22bn of global investment in data centres in the first five months of 2024 – this includes projects like the US, Kenya and Microsoft collaborating on a major new data centre in East Africa. This investment and government involvement will ensure there is robust support for the emerging digital economy.

But operators face a major challenge in exploiting this investment opportunity and being part of the growth agenda. An operational inertia – organisations' difficulty in adapting to a changing environment – is holding operators back.

Many data centre operators are unable to grasp the opportunity because they lack the support to help manage growing workloads and expand to emerging markets. They need strong partners and a strong channel ecosystem to navigate these new markets and understand local to help deliver complex data centre projects through holistic design principles. This support would enable operators to tap into the growth opportunity.

If you work for a data centre operator, or are responsible for data centre design or operations, read on to understand why governments are looking to data centres to help support economic growth.

> "THE COMPUTE POWER NEEDS OF GENERATIVE AI ARE BEING FELT ACROSS THE DATA CENTRE, AND SPENDING IN THAT SEGMENT REFLECTS THIS RAVENOUS DEMAND."
>
> - Gartner



WHAT IS HOLISTIC DESIGN?

A holistic approach to data centre design takes in every aspect of the data centre.

There are five key principles:

1 **FOCUSING ON PURPOSE**
Define the data centre's strategic direction and focus on business-driven decisions.

2 **CREATE A SHARED VISION**
Bring together teams to agree a design vision and make design decisions.

3 **BE ADAPTABLE**
Place flexibility and interchangeability at the core of the data centre.

4 **USE THE AI ADVANTAGE**
Consider how AI can help to manage or design data centres.

5 **BEWARE OF FALSE ECONOMIES**
Invest in the early design stages and aim for long term efficiencies.

HOW DATA CENTRES HAVE RISEN UP GLOBAL GOVERNMENT AGENDAS

The emergence of Generative AI has seen organisations and governments alike fight for position in a suddenly crowded market. Growth is the driving force behind this interest, but so too is finding ways to train and develop new skills, foster new ways of working, and build the required digital infrastructure.

Data centres are a foundational piece of the growth puzzle for global economies. They provide the critical digital infrastructure that ensures everyone can grasp the AI opportunity, enabling governments to ride the wave of AI to supercharge economic growth and productivity. As such, the topic of data centres is rising up global government agendas.

The UK has recognised data centres as a critical component to boosting the UK's AI sector. In September 2024, the UK's government declared data centres powering the economy be designated as Critical National Infrastructure, providing protections from cyber criminals and IT blackouts.

Across the Irish Sea, Ireland is set to generate more than €4.5 billion in inward data centre investment by 2025. This is being driven by the Irish government's position on the importance of data centres to the economy and attracting investment. Ireland has recently revised these statements to ensure sites adhere to new green principles.

“

I'M HERE TO TALK ABOUT A GREAT COMEBACK STORY IN AMERICA.”

- President Biden on the announcement of a new $3.3 billion Microsoft data centre

In mainland Europe, the German government has said that data centres are, “the lifeline of the digitalised world.” While Berlin’s regional government, “understands the importance of data centres to the region”. Before its hung parliament, the French government was seeking to pass a law allowing large data centres to be classified as projects of major national interest, part of a push to expand an industry it sees as the backbone of the digital economy.

Outside of FLAP-D economies (Frankfurt, London, Amsterdam, Paris, and Dublin), President Biden publicly attended and supported a new $3.3 billion Microsoft data centre in the US, saying it would play a role in kickstarting a US recovery. Arizona, Georgia, Illinois, Iowa and Texas also offer tax exemptions for data centre operators.

However, despite these pledges, major data centre hubs are under pressure. Both the Dutch government and Irish government were forced to pause new developments due to concerns over power and space. Data centres in Ireland consumed 21% of all electricity generated in 2023 – more than all Irish urban homes combined. Germany is also becoming more strictly regulated with Frankfurt legislating to have more control over new developments. And both the UK and Germany have introduced rules that ensure data centres are energy efficient.

We’re also seeing some regions pull funding for AI and other tech projects. For example, despite its data centre pledges, the new UK government also shelved £1.3bn of funding promised for tech and AI projects.

DATA CENTRES BECOME THE NEW OIL IN EMERGING ZONES OF POWER

Rising pressure on the FLAP-D markets is creating an opportunity for new centres of power to emerge. Many regions recognise the opportunity created by the global thirst for AI and its supporting infrastructure – data centres are set to become the new oil for many regions.

Those in the Nordic region are racing to grasp this opportunity, with many Nordic nations developing national AI strategies to bolster growth and attract major data centre players. This AI focus has naturally led to greater investment and support of data centre strategies.

The Norwegian Government's data centre strategy 2.0 makes it easier to establish data centres in Norway, but also outlines ways to better manage resource utilisation of waste heat from data centres. It also established a public committee to investigate how connections to the transmission grid can be streamlined.

> DATA CENTRES ARE IMPORTANT BUILDING BLOCKS OF OUR DIGITAL INFRASTRUCTURE. WITHOUT THE DATA CENTRE INDUSTRY, IMPORTANT AREAS OF SOCIETY WITHIN THE HEALTH, ENERGY AND TRANSPORT SECTORS WOULD STOP FUNCTIONING. NORWAY HAS AN IMPORTANT ROLE TO PLAY IN FURTHER DEVELOPING THIS INDUSTRY."
>
> - Linda H. Helleland, Norwegian Minister of Regional Development and Digitalisation

> SWEDEN IS DEVELOPING A COST-ATTRACTIVE ENVIRONMENT TO BOLSTER GROWTH IN THE CONSTRUCTION AND OPERATION OF DATA CENTRES, AND THERE IS MOUNTING COMPETITION FOR NEW PROJECTS AMONG THE NEIGHBOURING NORDIC STATES."
>
> - Ebba Busch, Sweden's Department of Energy, Business and Industry Minister

Meanwhile the Danish government issued a new directive making it easier for data centres to connect to district heating systems.

This will allow data centres to supply surplus heat from cooling systems and servers to local communities, encouraging circularity and sustainability.

> A NEW POLITICAL AGREEMENT MUST ENSURE THAT THE EXCESS HEAT FROM REFRIGERATION SYSTEMS AND SERVERS IS NOT LOST, BUT TO A MUCH GREATER EXTENT ENDS UP IN THE DISTRICT HEATING PIPES."
>
> - Denmark's Ministry of Climate, Energy and Utilities

Outside of the Nordics, Spain has been making major inroads to attract investment. With the support of the local government, AWS is set to expand its cloud infrastructure. This followed major investments from Microsoft and Google. Key to these Spanish deals has been access to renewable energy sources. Italy is another major European growth zone, with its government declaring data centres as 'critical infrastructures,' on which the lives of those connected to them depend in a state of alert, on par with electricity or water services.

Finally, in the Middle East, there has been significant investment in data centres, which has been driven by government digital initiatives in Kuwait, Oman, Bahrain, UAE and KSA to help revamp economies.

THE ROADBLOCKS TO DATA CENTRE GROWTH

Across FLAP-D and emerging markets there is opportunity for operators to provide the infrastructure required to enable AI and help drive economic growth.

However, agility is required to capitalise. Many operators are held back by an operational inertia that prevents them from adapting to a rapidly evolving environment. This inertia can be broken down into six distinct roadblocks that limit interchangeability or an operator's ability to adapt:

1 THE PACE OF CHANGE IS IN OVERDRIVE

- The breakneck speed at which the world is adopting cloud, Internet of Things and AI has driven huge demand.
- Soon we could see another breakthrough, similar to the emergence of ChatGPT, that will kickstart another race for technical supremacy. For example, there is already research and development in progress on algorithms for quantum processing, which is set to enable wider usage of quantum computers (QPU) once available.
- This constantly evolving environment introduces a lot of change, creating shifting requirements that makes it hard to predict demand. Most data centres built ten years ago had a capacity of less than 10MW, but today it's not uncommon to hear new builds of 100MW. But what will this capacity look like in another ten years?
- Operators are already struggling to keep pace with demand, which is unlikely to slow down anytime soon. This speed of transformation leave operators little room to predict demand and ensure sites are ready to adapt to the 'next big thing'.

2 POWER ACCESS CONTINUES TO BE A PROBLEM

- A worldwide power shortage is significantly inhibiting the global data centre market's growth. But this is where secondary markets with ample power can attract more data centre investment.
- AI-compute requires high-performance processors (GPUs & DPUs) that draw more power than traditional CPUs.
- Data centre designers must be conscious of how many KW per rack they need and where this may fluctuate to create hot spots.
- Data centres are also competing for power with other infrastructure projects and local communities or services.
- Gaining access to power requires much planning; operators risk developing sites in areas with poor power access or local resistance, delaying projects.

3 ESG CONCERNS CONTINUE TO DOMINATE THE INDUSTRY AGENDA

- Data centre teams are under pressure to accurately measure and report on supply chain sustainability.
- Demand for digital services, including AI workloads, will create more compute intensity, challenging the cooling and power capabilities of existing and future sites.
- These challenges have a significant impact on an operator's drive to achieve ESG goals. For example, a data centre in North Holland consumed 84m litres of water in 2021, during a year of severe water shortages.
- Further innovation is required to ensure sites adhere with sustainability legislation – for example, the adoption of AI to optimise cooling.
- Circularity is also rising up the agenda – many operators are seeking to move away from the make-break-dispose model to one that sees them seek to reuse waste heat and recycling water, as well as using sustainable building materials and processes to reduce emissions.
- Failure to properly address ESG concerns risks operators falling foul of local sustainability legislation and causing delay to projects.

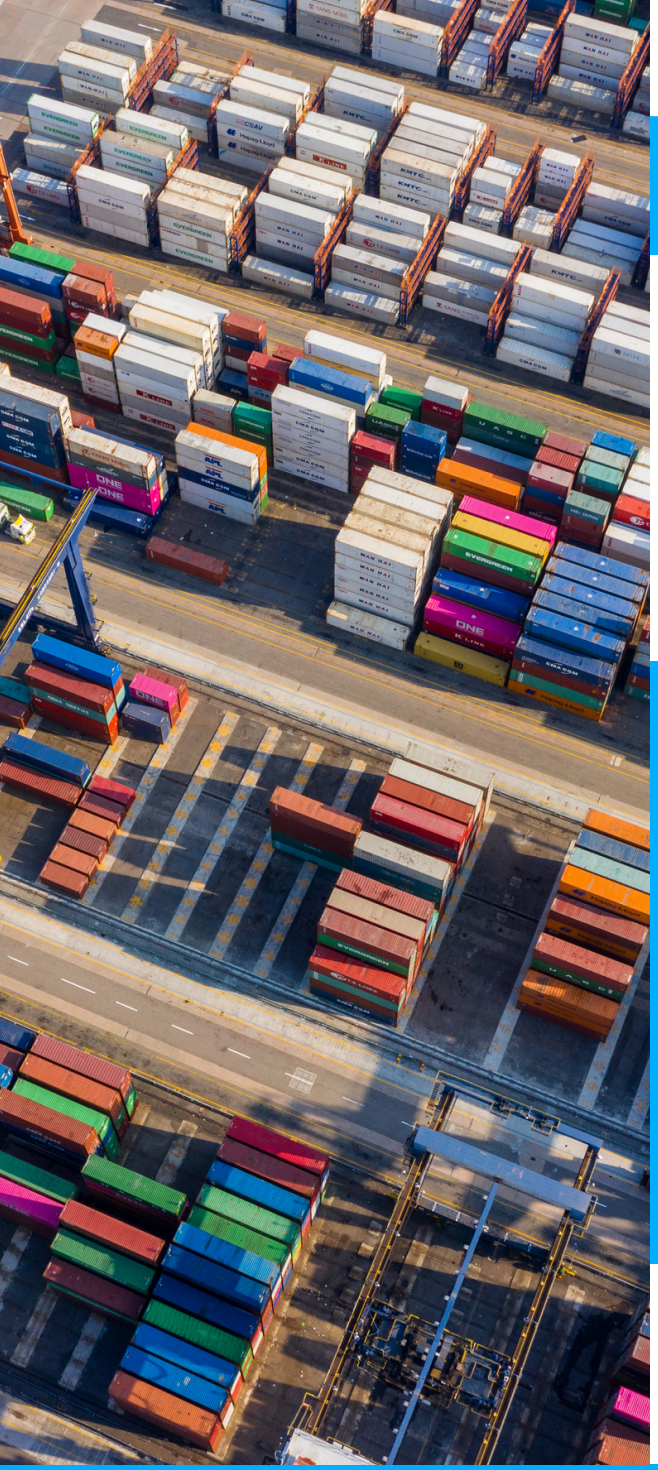
4 FINDING AND RETAINING TALENT

- Attracting and retaining talent is a constant challenge that is about to become even harder amidst rising demand for skills.
- More than half (53%) of operators face difficulty finding qualified candidates, while 42% have difficulty retaining staff, with many being hired away.
- Operators desperately need to fill this gap with people familiar with data centre operations, because sites are more than just the servers, or the water and power they consume.
- Without the missing human element or the right skills mix, data centres will be unable to cater to the growing demand facing them.

HOW TO BUILD A PIPELINE OF SKILLS FOR TODAY, AND THE FUTURE

Operators must consider how to build a pipeline of talent. This includes typical skills such as cabling and cooling, and future skills, such as AI or analytics. To build this pipeline, operators should:

- Partner with vocational establishments to create education pathways and apprenticeships for those leaving school.
- Collaborate with educational institutions to promote cabling as a career path for underrepresented communities.
- Build excitement and passion for working in the data centre industry – showcasing career paths, opportunities and skills learned.
- Create programmes that offer retraining and on-the-job shadowing – such programmes could be targeted at veterans or other job seekers looking for a new career.



5 SUPPLY CHAIN DISRUPTION HALTS PROGRESS

- Operators are racing to build new sites and update existing ones, but they do so at a time when supply chains are under more pressure than ever.
- More than eight in ten (83%) operators have reported delays to projects due to global material shortages.
- Supply chains have become brittle, and short-staffed teams are spread too thin to manage three significant supply chain problems:

MATERIAL ACQUISITION

Minerals, materials and chips are in diminishing supply, with every vendor and operator after the same items.

SHIPPING

Shipping – Climate change and geopolitical issues make getting materials from A to B difficult, creating delays that impact construction timelines.

PRODUCTION MANAGEMENT

Production management – Complex supply chains must avoid single points of failure, with single-source suppliers creating potential risk.

- Operators must find ways to identify and mitigate these challenges or risk significant delays to projects.

6 HEALTH & SAFETY IS RISING UP THE AGENDA

- The speed at which new data centre's must be built creates a requirement to fully understand the importance of health & safety procedures and processes.
- Operators need a full process that can match existing and upcoming standards. Health & safety on site isn't about being compliant with existing rules. It must become an ever evolving process where lesssons are learned, near misses are reported and followed up on to ensure accidents that could happen, don't.
- Operators must put greater emphasis on conducting H&S audits to ensure they are meeting zero-incident policies – this includes engaging partners to ensure they are adhering to the highest industry standards.
- There are many rules for operators to consider related to health & safety, including:

NOISE

Noise exposure from prolonged shifts with noisy fans and servers.

HEAT STRESS

High temperatures of equipment creating hot aisles and surfaces.

ELECTRICAL SAFETY

Variety of electrical hazards from power generation to backup power.

ERGONOMICS

The load weight of equipment, awkward size of equipment, and lifting repetition creates ergonomic hazards.

- Failure to address H&S concerns could result in injuries that result in operational delays or financial penalties.

SUMMARY: WHY DATA CENTRES CAN'T HANDLE GROWTH AND THE POLITICAL AGENDA ALONE

To overcome operational inertia, data centre operators must take a more holistic approach to data centre design and operations. Maintaining the right balance between all aspects of the data centre – from the infrastructure impact of AI, to skills, health and safety and sustainability – and ensuring plans and partners are in place well in advance to help overcome every roadblock.

But operators cannot do this alone – they need support. This can come in the form of strong partners that become an extension of their team, helping to manage projects and providing the vital expertise required to understand local markets and their requirements. This knowledge will be critical in ensuring operators have support on everything from addressing power and ESG concerns, to overcoming supply chain challenges and ensuring proper health and safety protections are in place.

Strong partners can also provide a pipeline of talent and resources with which operators can successfully exploit the global data centre investment opportunity and be a vital part of the growth agenda.

IF YOU'D LIKE TO LEARN MORE ABOUT THE BENEFITS OF STRONG PARTNERSHIPS, SPEAK WITH ONNEC TODAY, OR CHECK OUT OUR EBOOK: THE SUPPLY CHAIN CHALLENGE: HOW VALUED PARTNERSHIPS CAN DE-RISK DISRUPTION.

GET IN TOUCH

Discover how Onnec can help operators lay the foundations today that can support new data centres for years to come.

Connect with us to learn how we help to deliver business growth and certainty in your data centre.

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ABOUT ONNEC

Onnec is a leading Infrastructure Solutions and Services company for tech and enterprise, specialising in structured cabling, managed services, and network solutions. Our team of experienced designers, project managers, and engineers, supported by world-class vendor partnerships, delivers top-tier services and solutions.

Onnec's expertise spans all data centre environments, and can support customers with:

- Structured cabling design and installation
- Installation of cabling, ODFs, PDUs and containment solutions
- Network hardware installations, changes and support
- Connectivity and equipment upgrades and changes
- Smart Hands Support Services

Learn more about the unique capabilities we've built over 30 years, delivering IT Network and Structured Cabling at scale, in multiple locations across the globe.

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