Data Centre Trends Report 2026

Shifting up a gear

Soben
Part of Accenture

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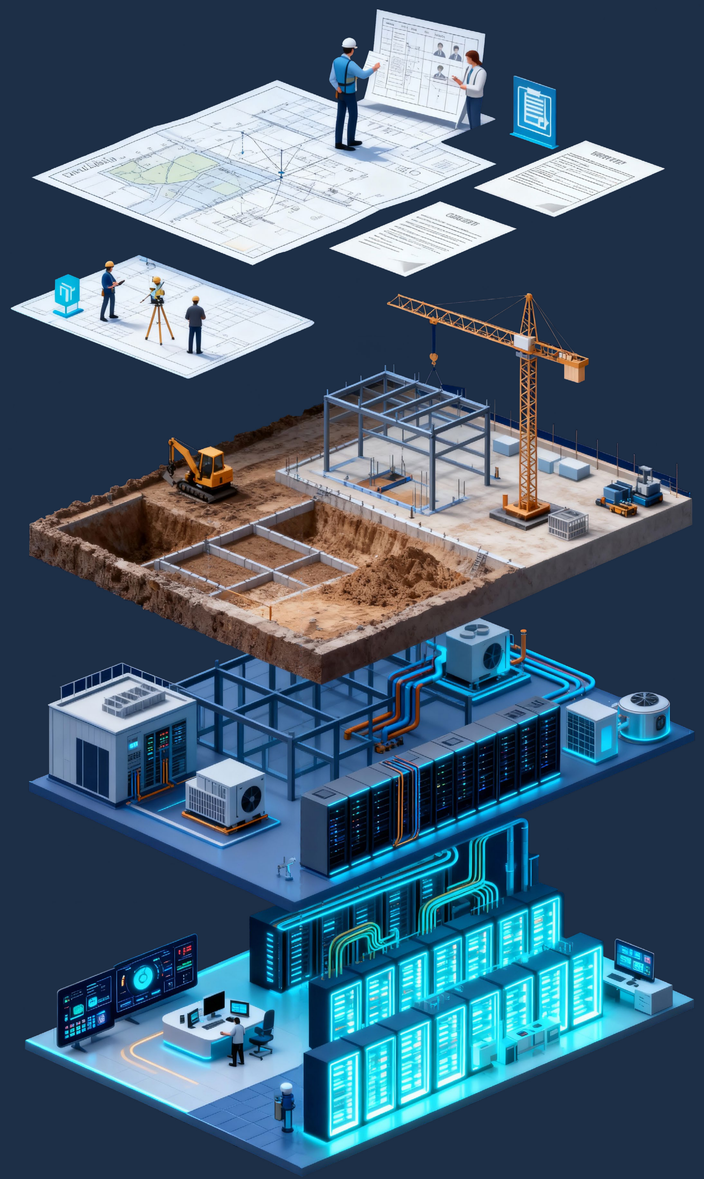

Foreword

More growth, greater efficiency

As we move into 2026, the big question for the industry is: **how do we pick up the pace in this accelerating sector?**

The last 12 months have been exciting, to say the least. Multiple new players have joined the game, with one of the biggest stories of the year being Oracle's meteoric rise to become the world's fourth largest hyperscaler.

And while much of the mainstream talk has been about the multi-gigawatt ambitions for AI data centres, existing data centre markets continue to expand. Some countries are only starting to develop their cloud data centres, while others continue on that journey. Edge data centres are growing with the spread of 5G. And, once AI models have been trained in large, out-of-town data centres, we will need to find space for inference data centres – close to cities and industrial hubs – to run those models.

In this report, we focus on areas where Soben, part of Accenture, is most active in the data centre market - although, there are new pins in our map almost every week. There are few regions in the world where data centre construction will not ramp up over the next 10 years.

These multi-front growth ambitions have exacerbated the challenges that the sector was already facing. Perhaps the most wicked of these is how countries will power their growing data centre infrastructure. In the shorter term, the industry is already coming up with solutions, protecting constrained grids by adding more renewable energy sources and turning to natural gas as a supplementary power source.

Looking only 12 months ahead, perhaps the biggest constraint is people. General contractors (GCs), mechanical and electrical contractors (MEP), construction and project managers, quantity surveyors and commissioning experts with the track record to handle these complex projects are in short supply. And, given the ambitions of many data centre developers to compress time spent on site, this is no market for novices.

A year for change

We cannot rise to these challenges with business as usual. Change is already coming to every element of data centre development from the chips and equipment they deploy, to land searches, permitting and regulations; from standardisation and automation of design to AI-optimised scheduling and modular builds.

In Europe, regulation is pushing greater energy efficiency in operation and low water usage. In other markets, 'sustainability' wears a different face, but the need to conserve power and water is just as great – out of necessity and to keep local politicians, communities and, in some cases, investors on side.

Underpinning these shifts is the move towards digital construction and the use of AI to create more efficient processes. We cannot create experienced planners, construction professionals and electrical specialists overnight. But we can use the people we have more efficiently.

Which brings me to our biggest story of 2025: Soben became part of Accenture in March. We have always been focused on finding ways to disrupt how capital projects are delivered – creating better outcomes for our clients in a rapidly-changing market. Our alliance brings together Accenture's vision of reinvention and digitalisation with Soben's industry expertise and commercial experience. It is already exciting to see how our teams are working together to combine delivery experience and new, AI-based tools to help our clients meet these challenges head on. 2026, we are ready for you!

Scott Smyth, December 2025

Scott Smyth
Founder and CEO
Soben part of Accenture

Data Centre Trends 2026

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2026 Data Centre Trends

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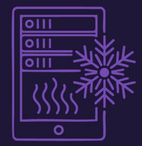

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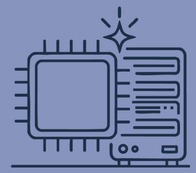

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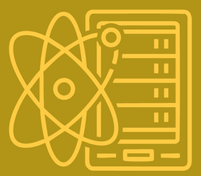


01 The need for speed

BACK

> **Speed equals revenue - whoever wins the speed race wins the revenue. Businesses still need to track their capex spending, but schedule is the priority over cost at the moment.**

Sophie Smith
VP - Americas
Soben Part of Accenture

- **Ambitious construction timelines**
- **Supply chains choosing projects**
- **Higher construction costs**

The biggest trend for 2026 will be faster delivery. Both established players and newcomers are looking to shift left, with incredibly ambitious timelines for their projects. And some have plans to deliver several projects in parallel.

Back in 2018, it may have been possible to construct a 400MW data centre in around 12 months. Today, with a shortage of contractors with data centre experience, longer equipment lead times and supply side power constraints in many parts of the world, this is a huge ask. For new entrants to the data centre development market, who don't have established supply chains, it may be impossible.

There are ways to accelerate delivery, all of which the leading players are looking to deploy. These include standardised design elements, more use of prefabricated elements and modular construction, and virtually constructing data centres using 3D design and BIM to de-risk builds before work starts on site.

The key to deploying such measures is a mature and competent supply chain. In existing data centre markets, general contractors (GCs) and mechanical, electrical and plumbing (MEP) contractors with the right credentials are already flat out. In newer markets, contractors and their supply chains will need time and support to climb the learning curve.

Supply chain chooses

There are many would-be data centre developers with big plans and enthusiastic investors, but this is not enough to secure the supply chains they need to deliver new buildings. With demand for companies and professionals outstripping supply, designers, consultants and contractors are being selective. Given a choice between a newcomer and an established player which has relationships and deals with the owner furnished, contractor installed (OFCI) equipment suppliers, it is not difficult to see which way a GC or MEP contractor would go.

Established players also learned some tough – but useful – lessons during Covid. These lessons have helped transform the way that long-lead time items such as transformers, switch gear and generators are ordered, stockpiled, and distributed among projects. New entrants won't yet have the long-term relationships with suppliers that enable these strategies.

In the US, we are seeing informal partnering-type arrangements, where pragmatic commercial decisions are being used to tie in GCs and MEPs with long pipelines of projects ahead. For instance, the pain of cost hikes and programme overruns that occurred as a result of the Covid pandemic are being shared between developer and GC, avoiding the time, cost and aggravation of disputes and court cases.

Rising costs

A certain impact of accelerated schedules in a resource-constrained market is higher construction costs, and we are already seeing this in the market. For instance, a US hyperscaler recently accepted a 25% uplift in tender price from a GC to deliver to a demanding timeline. This comes against a backdrop of already rising costs for data centre construction and construction generally. And there is also the impact of building more AI data centres to take into account when considering likely cost inflation.

Given the higher cost of chips needed to process AI workloads and of the supporting equipment and advanced cooling systems needed, AI data centres come at a premium when compared to cloud data centres. Research by Soben, part of Accenture, found that while cloud data centres currently cost between $8 million and $10 million per MW, GW+ AI data centres are costing as much as $17 million per MW. Contrary to popular belief, this signals that economies of scale are not driving the savings some would expect.

In parallel with working with mature clients to find new ways to deliver data centres faster, companies such as Soben, part of Accenture, must provide data-based reality checks to those who don't yet appreciate the constraints and complexities of the market. Pushing forward without these reality checks increases the risks of time and cost overruns, together with associated disputes, and leaves optimistic investors disappointed.

02 Tide turns for trade careers

> **It's absolutely vital that we get the message out to the next generation – we need skilled tradespeople to help create the infrastructure we need for a digital economy.**

Mark Smith
Delivery Lead
I&CP Accenture

- **> Nvidia CEO highlights boom for construction trades**
- **> More Gen Zs consider construction**
- **> National interventions on training required**

The narrative about construction trades jobs being unattractive to the next generation has been turned on its head. In September 2025, Nvidia CEO Jensen Huang told Channel 4 News in the UK that tradespeople were set to benefit as data centre infrastructure doubles every year for a decade.

Hundreds of thousands of electricians, plumbers and carpenters will be needed, said Huang. **"The skilled craft segment of every economy is going to see a boom,"** he predicted[1].

Translated into messages such as 'Plumbers and electricians will win AI race' and 'The Future Millionaires' on TikTok and YouTube, Gen Z can't help but take notice of Huang's predictions.

Other big AI voices have joined the call for more tradespeople. In October OpenAI made a submission to the US's Office of Science and Technology Policy, warning that tens of thousands of new tradespeople will be needed for data centre and energy projects. With OpenAI's Stargate project alone planning for 7GW of capacity in six huge data centres in Texas, New Mexico, Ohio, and Wisconsin, the company has estimated that 20% of the US's current skilled trades workforce would need to be deployed on data centres over the next five years to meet demand[2].

There are similar challenges in Europe. While demand for mechanical, electrical and plumbing (MEP) trades is set to rise, ageing workforces mean that numbers are falling. In the UK, the number of electrical workers fell by 19.8% between 2018 and 2024 according to Government statistics while the plumbing workforce shrank by 18% over the same period[3].

Skilled electricians and electrical specialists are also in demand for power transmission projects - which are vital to the development of data centres. In its Blueprint for Success report, Accenture cites a European utilities company which needed five times more electricity transmission specialists than it was currently employing to provide technical assurance to meet a fourfold increase in connection requests[4].

Gen Z eyes construction

There are signs that the tide is turning. In the US, an October 2024 survey of 2,091 adults by The Harris Poll found that 78% had noticed a recent growing interest from young people in pursuing trade careers. And while 23% of people who don't currently work in the trades said they planned to move into them, this proportion rose to 42% for Millennials and 50% for Gen Zs[5].

In the UK, the UK electrical sector trained 1,000 more apprentices between 20-21 and 2024 than it had done over the previous three years – although this is a small increase, compared to the numbers needed[6]. In November 2025, a survey of further education colleges in the UK revealed that 56% of them had waiting lists for construction-related courses starting in 2025. Construction had seen growth in enrolments for full-time courses, apprenticeships and adult education, with 77% reporting a growth in the numbers of 16-to-18-year-olds enrolling on courses[7].

The salaries on offer should be a draw for anyone considering a career as a data centre electrician. The Royal Examiner reported in September that data centre electricians average $61,391–$93,341 per year, with top earners commanding $122,921–$156,466 annually[8]. The caveat is that long working hours and working away from home are often a requirement for the job.

Hyperscalers step in

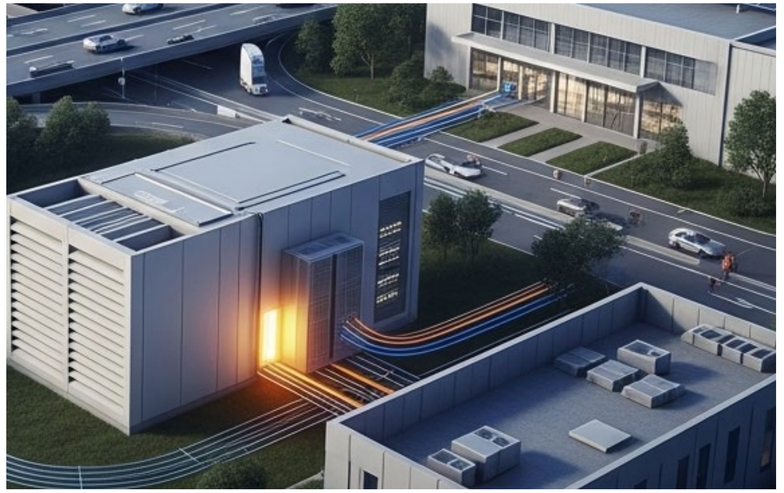
Hyperscalers have long been aware of the risks their construction programmes face due to a lack of skilled tradespeople, with companies investing in training initiatives alongside data centre developments. For instance, Google's Skilled Trades and Readiness (STAR) Program is a paid five-week programme which prepares people for entry-level jobs in construction in locations such as South Carolina, Nebraska, Northern Virginia and Ohio[9].

Google also announced in May 2025 that it would provide an initial $10m grant to the electrical training ALLIANCE, involving the International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractors Association (NECA). The grant will go towards both apprentice schemes and on programmes to upskill existing workers[10].

Suppliers are stepping in too. Schneider Electric offers training and upskilling through its Schneider Electric University[11].

Given the huge uplift in electricians and other tradespeople required to deliver the data centres planned, intervention from national governments is vital. This was a point underlined by OpenAI in an October 2025 open letter to the US's Office of Science and Technology Policy. It called for the federal government to fund workforce development at the state and local level[12].

03 Edge data centres: search for sites accelerates



> **2025 has been all about the Gigawatt AI data centre plans. But the new wave of edge data centres is going to be just as exciting.**

Pieter Schaap
Group Development Director
Soben Part of Accenture

- **Roll-out of 5G driving growth**
- **Inference AI data centres coming**
- **New deals to secure real estate**

While the world is marvelling at the giga-watt ambitions of hyperscalers, the growth in edge data centres – small facilities close to cities, industrial areas and transport corridors – is predicted to be even more meteoric. Research and Markets predicted in November 2025 that the market for edge data centres would grow from $15.4 billion in 2024 to $39.8 billion in 2030[13]. In North America alone, the edge computing market will grow by 32.2% annually from 2025 to reach $2.2bn in 2030, according to Accenture[14].

There are several factors driving the need for more edge data centres. One of the biggest current drivers is the roll-out of 5G, well-advanced in many parts of the US and Europe, as well as China, South Korea, Japan, India and Singapore, continues in countries such as Canada, Brazil, Chile, Saudi Arabia, Oman and UAE[15].

The principle of 5G is speed, with promises that it will provide network latency as low as 1 millisecond, compared to between 50 and 100 milliseconds for 4G. To do this, computing and data storage must be moved as close as possible to where the action is, whether that be gaming, augmented reality or entertainment. That means building data centres close to cities and industrial areas.

Smart cities, and the growing use of IoT-connected devices in homes, manufacturing facilities, healthcare and retail all require processing

capabilities to be located close by. Statista estimates that the number of IoT connections worldwide will grow from 19.9 billion in 2025 to 60.6 billion in 2034, with growing numbers of devices used for connected vehicles, IT infrastructure, asset tracking and monitoring and smart grids[16].

There is another wave of change coming that will demand more edge data centres. Today AI models are being trained in huge data centres, requiring vast amounts of power, and often built in remote locations. Tomorrow, we will see those models being deployed in every imaginable application – and in some that we can't even imagine yet. Inference data centres will run the trained models, located within edge data centres where low latency is needed for the application.

Fleets of sites

In selecting potential sites for edge data centres, proximity to fibre and last-mile resiliency is vital. As these facilities must be operational 24-7, power redundancy is also vital, which may be challenging to achieve within tight city footprints. It is also important to think about how these facilities will be built; modular solutions for edge data centre construction are growing fast, so any potential site should be assessed around the logistics of delivering a modular build[17].

Companies that already have 'fleets' of small sites are already well placed to benefit from the edge data centre explosion. When Nvidia announced it was to invest $1bn in Nokia in October 2025, working together to incorporate AI into Nokia's telecom networks and data centres, there was a telling comment from Michael Dell, the CEO of Dell.

Dell said: **"The telecommunications industry owns the most valuable real estate for AI — the Edge, where data is created...The operators who modernize their infrastructure today won't just carry AI traffic - they'll be the distributed AI grid factories that process it at the source, where latency matters and data sovereignty is critical."** [18]

04 Industrialisation revolution

> **Hyperscalers are really leading transformation in the construction industry, rethinking how we generate designs and treating construction sites more like factories.**

Luis Guadarrama
Lead Contracts Manager - Mexico
Soben Part of Accenture

- **Standardised design elements**
- **Modular goes hyperscale**
- **Foundations for build automation**

The only way to achieve the speed and scale of data centre builds planned for the next decade is to move from a traditional, bespoke construction approach towards one that is industrialised.

The big players already scale in the form of 'capacity blocks' of 30-to-50MW buildings, or they install halls one by one behind a moving screen within a large shell. Modularisation will super-charge this approach.

Think platform-based design, where prefabricated elements and modules are the building blocks of a scheme's design and delivery onsite is a matter of assembly with fewer labour resources needed on the ground.

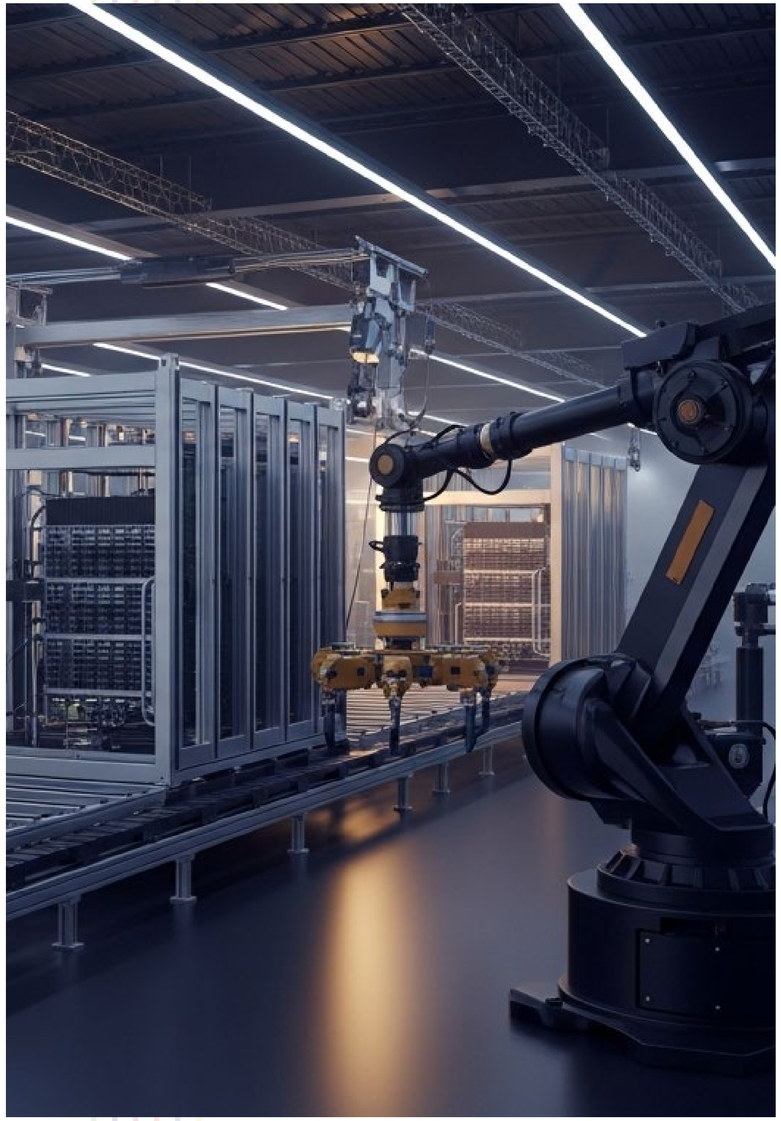
The foundations for this approach are already in place, with prefabricated electrical rooms, power skids and modular halls plugging into some of today's developments. But now, with some hyperscalers looking 50-plus data centres ahead, there is an opportunity to take this approach to the next level.

With these long pipelines of work, supply chains can be tied in early, with their components and equipment plugged into 3D BIM designs from the earliest phases. And constructing more and more elements inside manufacturing facilities, away from the variabilities of a site environment, means installations can be pre-tested and quality assured before they leave the factory.

Next-level modular

The deployment of modular data centres is already growing fast in the edge data centre. Since these tend to be smaller facilities, often in already built-up areas, fabricating offsite and craning into place can make perfect sense.

The modular data centre market is set to grow from $32.4bn to $85.2bn between 2024 and 2030, according to Research and Markets[19]. Multiple moves in the latter half of 2025 indicate that the market is shaping up to meet the surge in edge data centre development needed to service 5G, IoT and inference applications.



In October, Northstar Enterprise + Defence announced that it was partnering with construction materials giant Owens Corning to create lightweight and highly insulated modular data centres, which can be quickly deployed with smaller foundations or on roofs of existing buildings[20]. US company Armada announced in July 2025 the launch of its largest ever modular data centre Leviathan, liquid cooled and with ten times the compute capacity of its biggest existing module and designed to be stacked or to create megawatt facilities. At the same times it announced a $131 million funding round with a raft of new investors joining existing ones which include Microsoft's venture arm M12[21].

With ambitions to super-accelerate development timelines, hyperscalers are now working on modular design and delivery for large-scale data centre developments. Details are, of course, under wraps, but the concept is to construct the steel building shell on site and slot in fully contained rack modules, like mini data centres in themselves.

Data centre suppliers are developing off-the-shelf modular solutions for larger data centres. In August 2025, Vertiv launched One Core – for data centres between 5MW and 50MW - which sees cooling modules, MEP modules, racks power modules and corridor modules fitted into a steel shell[22].

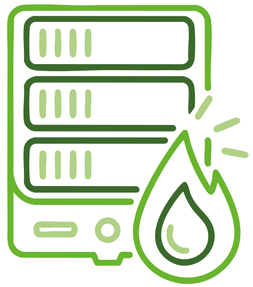
In November 2025, NVIDIA unveiled the Omniverse DSX Blueprint, an open blueprint for AI data centres which it says allows faster design by virtually assembling equipment and systems from Siemens, Schneider Electric, Trane Technologies and Vertiv to create a digital twin[23]. Vertiv has claimed that this approach could slash delivery times in half[24].

Future proofing

One possible advantage to an advanced modular approach could be that upgrades and updates can be more easily managed, with new modules simply replacing old ones. Modular design can also enable staged delivery, where data centre operators can start small and add infrastructure over time as demand ramps up.

Looking further ahead, an industrialised approach, with a kit of parts to plug into design could help the data centre industry increase automation. That certainly applies to the design process, but automation in manufacturing facilities – using robots for fitting and installation tasks – is on the far horizon too.

05 Gas is back in fashion



> **Electricity grids cannot cope**

> **Natural gas to the rescue**

> **Power Couples: a hybrid approach**

You need a mix of cheap power, green power and always-available power. The ones that get the mix right will get where they need to go.

Robert Kim
Head of Growth
I&CP Accenture

Power constraints in some of the world's leading data centre locations are well documented. Shortages in locations such as Virginia and North Carolina in the US, Querétaro in Mexico and the European cities of Frankfurt, London, Amsterdam, Paris and Dublin are slowing or stalling data centre developments there.

And demand for power from data centres is set to rise dramatically. Research by Accenture indicates that power consumption by data centres in the US could increase to over 7% of the country's total electricity consumption by 2028, rising to between 16% and 23% by 2033[25].

The focus has been on finding locations with plentiful supplies of power; proximity to renewable energy is a big draw.

But, given the widespread need for data centre delivery at speed there was always going to be a shortfall. Looking ahead, balancing the growth of AI with its need for power is one of the biggest challenges the world faces.

According to the International Energy Agency (IEA) data centres consumed around 1.5% of global electricity in 2024. The IEA predicts that by 2035, that proportion will have doubled to 3%, although it could be as high as 4.4% if AI takes off faster than expected, and faster adoption of energy efficiency for data centre technology could result in that proportion falling to 2.6%. In the US, where around 50% of the world's data centres are concentrated, the IEA forecasts an 130% increase in electricity consumption to 240 TWh by 2030[26].

Back to gas

While the world ponders this problem, data centre companies have found a new (old) solution to the limitations of electricity grids: natural gas. This was a trend that was emerging in the US at the beginning of 2025, with natural gas companies appearing at data centre events for the first time.

Now there are multiple examples of natural gas powering data centres, either for primary or back-up power. In some cases, natural gas generators are being used as a temporary measure, while data centres wait for grid connections or upgrades. Although labelled a bridging solution it could be one that bridges for several years, rather than several months.

Where natural gas infrastructure is already available, using natural gas for power generation can shorten the time to operation, and may take less time for permitting. One well-documented example is xAI, which is using natural gas generators for its Colossus data centre in Memphis, allowing it to get up and running in record time. However, xAI's permitting strategy was somewhat creative – achieving permits for the gas turbines after operation began[27].

A recent deal, announced in October 2025, will see Texas gas company Energy Transfer supply 2.3GW of natural gas capacity to Oracle Cloud Infrastructure's planned data centre developments. Power will be supplied through a modular natural gas system which can supply up to 200MW of power under a minor source air permit[28].

Accenture predicts that by 2030 gas will be supplying nearly 60% of power demand for data centres in the US, leading to a rise of between 8% and 11% in overall gas use for power generation[29].

Other markets are following the US's lead. In Ireland, where there is now limited capacity in the grid, the Irish Times reported in June 2025 that 11 data centres were contracted to connect to the gas network, with four of those waiting for a connection. A further 15 were waiting for a decision on whether they could be connected[30].

In the UK, there were 86 requests for data centres to connect to the gas network in the 12 months to August 2025, according to gas industry association Future Energy Networks[31]. And Alberta, Canada, with its substantial natural gas reserves[32], is experiencing a surge of interest from data centre developers with over 30 projects proposed as of September 2025[33].

Hybrid solutions

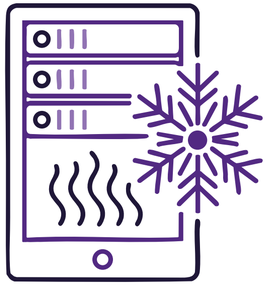
Natural gas is, of course, a fossil fuel. And although it produces fewer greenhouse gas emissions than diesel, it is still a polluter.

Hyperscalers are not necessarily turning their backs on renewable energy. Some suggest hybrid solutions, which combine renewable energy and power generation from natural gas - a 'Power Couple' – could be a good way forward. One of the arguments for turning to natural gas is that it allows a more reliable power source, given the fluctuating load demands of AI power centres and variable power from renewable energy sources.

There is also an argument that natural gas is a good transition solution until green hydrogen becomes a viable option, since gas pipelines and equipment could potentially be used for hydrogen. Rolls Royce, for instance, highlights the fact that its new range of gas engines for data centres have been designed to operate with a mixture of natural gas and hydrogen or with 100% hydrogen, should that become possible[34].

In the medium term, nuclear power will also become a viable option, either to back up renewable sources, or as the sole power source. The last 12 months have seen a flurry of announcements about plans and partnerships to develop small modular reactors (SMRs) alongside data centre campuses. For instance, Amazon and SMR company X-energy have announced plans to build 12 SMRs near Richmond in Washington with operation mooted to begin sometime in the 2030s[35]. And in the UK, US company Holtec International and EDF UK are eyeing up a former coal-fired power station site where they could develop multiple SMRs on a 100-acre area to support data centres, within a similar timeframe[36].

06 Breakthrough cooling solutions



> **These next-generation cooling technologies mean that data centres consuming vast amounts of water is definitely yesterday's news.**

William Ferreira
Director - Brazil
Soben Part of Accenture

- **Cold plates the norm for AI**
- **Immersion cooling advancing**
- **Microfluidics breakthrough?**

As vital to the future of AI as the advancement of chips is the evolution of cooling technology for those chips; higher processing capacity and denser racks creates greater quantities of heat than a cloud data centre does. With cooling systems specialists, hyperscalers and chip manufacturers all hard at work on R&D programmes to find new solutions, 2026 could be the year of a major breakthrough.

Microsoft suggested it was getting close to that with the announcement in September 2025 that it had deployed a new system that removed heat three times faster than a cold plate, although to date it had only done this in the lab. Working with Swiss start-up Corinitis, it is developing microfluidics, where tiny channels are etched into the back of a chip so that cooling liquid can flow through the chips themselves to remove heat[37].

Others, including Nvidia and TMSC which makes Nvidia's chips have also been working on microfluidics[38]. It's an idea that was first aired in the 1980s with research work ramping up seriously around five years ago[39].

Engineers are also working to make existing cooling technologies more efficient, to reduce the power needed to run them. These include liquid cooling systems, both the more commonly used cold plate - or direct-to-chip - systems and immersion systems which see the entire server immersed in a dielectric liquid.

Cold plate cooling ramps up

The use of cold plates, where a cold liquid is circulated in a metal plate sitting on the chip, grew significantly between 2024 and 2025, a trend that is set to continue in 2026. According to Trendforce, the deployment of liquid cooling in AI data centres rose from 14% in 2024 to 33% in 2025, with 40% of AI data centres expected to use them in 2026. As a result in this surge in demand, three of the four cool plate manufacturers which supply to the US have ramped up their production[40].

Microsoft, Google and Meta already use direct-to-chip cooling for the AI racks in data centres while colocation providers Digital Realty and

Equinix are building facilities that are ready for the technology [41]. AWS reported in June 2025 that it had developed its own cold plate system, which it says is adaptable so that it can be added when its needed and has a more powerful and efficient coolant distribution unit than off-the-shelf systems [42].

Research work is also underway on the design of the channels within the cold plates [43]. Chip manufacturers are also looking into systems where the cold plates are directly bonded to chips [44].

Immersion increases

Immersion cooling has pros and cons when compared to cold plate. It is more energy efficient but capital costs are higher, and it would not be a practical option for retrofit.

One-phase immersion cooling sees the coolant, usually hydrocarbon based, absorbing heat and circulating through heat exchangers. Two-phase immersion sees the coolant, liquid polyfluoroalkyl substances (PFAS), vaporise as it absorbs the heat to be turned back to liquid by a condenser. While two-phase is more efficient, PFAS contains potentially harmful chemicals that may face regulation in Europe and the US.

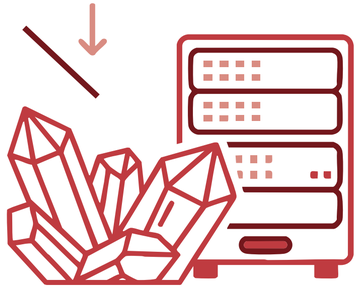
Whereas 12 months ago, immersion cooling was rarely used, there are signs that in 2026, it will be deployed more widely. In June 2025, Shell launched a new immersion cooling liquid aimed at data centres, Shell DLC Fluid S3, which it claims can improve power usage effectiveness (PUE) by up to 27% [45]. In November 2025, Vertiv introduced its CoolCenter Immersion system in Europe which it says can accommodate up to 240 kW per unit [46].

UK company XDS reports that it is building a series of immersion-cooled data centres in the Middle East: two 10 MW centres in Riyadh and Jeddah which its website says will be constructed by June 2026 and November 2026 respectively and two 7MW data centres with immersion cooling in Dubai which is says will be handed over in 2026[47].

It is worth noting that – at least in the near future – data centres will deploy a mixture of air cooling and versions of liquid cooling. Evaporative cooling which uses vast amounts of water will be phased out; in a world where the changing climate is already causing water shortages, data centres that exacerbate this problem will not be accepted by neighbouring communities.

The real challenge for data centre developers is how to futureproof their facilities so that the right cooling systems, with optimised energy efficiency, can be deployed in the right places. Designers and suppliers are turning to advanced modelling and digital to help them optioneer and navigate the changes that might occur.

07 Rare earth elements become rarer



> **Should rare earth shortages deepen, regional priorities may shift—and Europe could face significant supply vulnerability.**

Claire Jones
Group Marketing Director – Global
Soben Part of Accenture

- **Further restrictions by China**
- **Europe most at risk**
- **Recycling ramps up**

As 2025 drew to a close, China played a strong hand against the US in its trade negotiations by further restricting its export of rare earth elements (REE) and technologies. Used in several elements of data centre developments and in connected infrastructure, such as fibre optic cables, the possibility of REE shortages in future years is a cloud on the horizon of data centre expansion programmes – particularly in Europe.

According to the International Energy Agency (IEA), China was responsible for 60% of the world's REE mining output in 2024, followed by Myanmar, Australia and the United States. It is even more dominant when it comes to separation and refining, delivering 91% of global production. And it also dominates the manufacture of permanent magnets, which contain REE and are widely used in equipment for data centres, accounting for 94% of global production[48].

In April 2025, China introduced export controls on seven REE (samarium, gadolinium, terbium, dysprosium, lutetium, scandium, and yttrium), related compounds, metals and magnets. Then in October 2025 it extended controls on five additional elements (holmium, erbium, thulium, europium and ytterbium) and added further restrictions related to items containing Chinese-sourced REEs and any internationally made products containing its REEs or manufactured using Chinese technologies. It had already banned the export of rare earth extraction and separation technologies in 2023.

Europe at risk?

The concern is that, should shortages of available REEs begin to impact on data centre equipment, the US will have to look after its own. And that could leave Europe out in the cold.

The good news is that the 12 controlled REEs do not include those used in the manufacturer of chips, according to Taiwan's Ministry of Economy. The bad news is that the company which makes Nvidia's GPU chips – and therefore the majority of GPUs used in data centres - Taiwan's TSMC, relies on suppliers that are dependent on China's REEs[49].

Restricted REEs are also used in other parts of a data centre. Dysprosium is used (with neodymium) in high-strength permanent magnets for server cooling fans; neodymium and terbium are used in hard disk drives; and erbium and ytterbium are used to amplify signals in fibre optics[50].

There is a further twist in the supply chain tail in that Dutch company ASML is the world's only supplier of extreme ultraviolet lithography machines which are vital to TSMC's chip manufacturing operations. ASML said in October that it had sufficient reserves to allow production to continue, once China's restrictions came into force.

Planning for the future

Though the fluid nature of global trade deals may see changes on restrictions in coming months, the dominance of China in the mining and processing of REEs is stirring the creation of new supply chains. Mining projects are being developed in the United States, Australia, Brazil, Tanzania and India and refining operations are expanding or planned in the US, Australia and Malaysia[51].

In the shorter term, recycling of REE – currently at below 1% of consumption[52] - becomes a more attractive option. Microsoft, as part of its strategy to become zero waste by 2030, is pursuing the recovery of rare earth elements and precious metals from end-of-life hard disk drives through its Circular Centers. With four up and running in the US, Ireland and Singapore, it has plans for four more in Cardiff, UK, New South Wales, Australia and San Antonio in Texas[53].

The challenge is that, in a data centre market that demands hundreds of new facilities tomorrow, new mines, processing and recycling operations take years to come to fruition and require significant amounts of investment. However, new players with deep pockets have stepped into the game. US mining companies report a surge in interest from Gulf state investors who are keen to play their party in establishing new supply chains for REE and other critical minerals such as copper, lithium, nickel and cobalt[54].

08 The race for faster permitting

> **Permitting speed is becoming a competitive differentiator as governments race to attract nationally strategic data centre investment.**

Helena Mubiru
Senior Marketing Manager EMEA
Soben Part of Accenture

- **National and state level zoning**
- **BYO energy and low water usage helps**
- **AI does permitting leg work**

Now that data centres have been elevated from behind-the-scenes facilities to nationally important infrastructure, the race between national and state governments to attract new facilities to their regions is on. National and state governments are looking for ways to streamline the permitting process, often with tax incentives thrown in.

Increased awareness among the public brings tensions too. With news stories and social media posts about data centre facilities causing droughts and power shortages, challenges from communities are becoming more frequent. Data Center Watch, which tracks opposition to data centres in the US, reports that between March 2024 and March 2025, $18 billion worth of data centre projects were blocked and a further $46bn of projects were delayed due to opposition from residents and activist groups[55].

Data centre developers, particularly hyperscalers, are also playing their part in easing the permitting process. With concerns over water shortages in many regions, closed loop and liquid cooling can mitigate permitting issues and reduce local opposition to schemes. **'Bring-your-own'** energy eases strain on electricity grids and, in the case of natural gas, can lead to quicker permitting.

Getting it right

Recent mega projects provide inspiration for how authorities and developers can together create the right recipe for a speedier start on site. Early zoning of land for industrial use or, better still, for data centres can prepare local communities.

OpenAI's Stargate 900 MW AI campus is located on a site in Abilene, Texas, that had already been zoned for industrial use. The City of Abilene granted an 85% property tax abatement in return for the $3.5 billion investment and the project gained environmental permits for natural gas generators[56]. Originally earmarked for a crypto-mining campus, plans to develop the site for AI data centres were only announced in 2022, and the first data centre came online in September 2025[57].

In Mississippi, AWS built one of its data centre campuses for Project Rainier, which will power Anthropic's AI model training. Located in two pre-zoned industrial parks, the deal also saw a reported $30bn in incentives and saw permits granted for AWS to build dedicated solar parks and make upgrades to the grid. After a special session of the state legislature in January 2024[58], site preparation began in Spring 2024, with buildings expected to come online from 2026.

The UK is looking to go down the early zoning approach with its strategy to create AI Growth Zones which have the land, power and local backing to host data centres. Over 200 locations have bid to become an AI Growth Zone with three announced by the Government by mid-November 2025: Culham in Oxfordshire[59], Blyth and Cobalt Park in the Northeast of England[60] and Anglesey and Trawsfynydd in North Wales[61].

Aragon, Spain, has attracted a huge amount of data centre investment around its capital Zaragoza by easing permitting, adding to the appeal of the region's menu of plentiful green power and proximity to power cables[62]. However, the region has to some degree become a victim of its own success. Connections to the grid have become a bottleneck[63] and farmers have blamed data centres for water shortages[64], a perception that AWS is looking to counter with a programme of projects to reduce water leaks in the area[65].

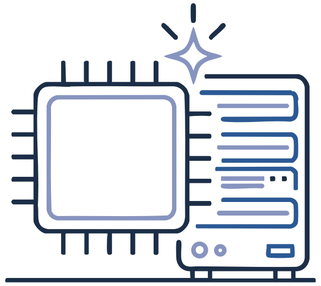
AI streamlines permitting

With the plethora of permitting and planning procedures that any data centre development must go through, and with the myriad variations between countries and states, some hyperscalers are turning to AI for help with the leg work.

Microsoft has reported on its use of AI to speed up planning and permitting for nuclear projects, a process which could equally be applied to data centre projects. By using a combination of generative AI for automated drafting, copilot to help permitters find answers to queries among regulatory data and automated pre-submission reviews to identify gaps in information, Microsoft says it has made productivity gains of between 25 and 75%[66].

On the permitting authority side, there are already several examples of governments starting to use AI to speed up their side of the process, initially for more straight-forward residential applications. These include Austin, Los Angeles and Honolulu in the US[67] and Qatar – where officials say that approval times have reduced from 30 days to 120 minutes[68].

09 New chips on menu



Hyperscalers are no longer willing to rely on a single supplier; in-house and custom AI chips are reshaping the competitive landscape.

Joe Cusick
Operations Lead
I&CP Accenture

- **Nvidia still dominates**
- **Hyperscalers developing their own chips**
- **Global politics creates waves**

Nvidia continues to dominate the market when it comes to the GPU (graphics processing unit) chips that are used for many AI training and inference tasks. Estimates put its share of the market at around 80%.

Given the predicted increase in AI data centre developments, there has been concern that there simply won't be enough chips to go round, although 2025 has seem some significant changes for Nvidia due to trading issues between the US and China. Whereas sales to China had accounted for between 20% and 25% of Nvidia's data centre revenue, the company is now expecting it to be 0%[69].

Looking to reduce their reliance on one supplier, hyperscalers and other chip manufacturers have been hard at work developing their own chips for AI processing. We expect some of these new chips to be ready for deployment over the next 12 months.

Hyperscaler's in-house chips

Google already produces its own range of chips, TPUs (Tensor Processing Units). While Amazon makes its Tranium AI chips for in-house use.

There were reports mid-2025 that OpenAI was planning to deploy Google's TPUs . This was later debunked by OpenAI who said that it was merely testing the TPUs[70] in its AI labs[71].

Then in October 2025, we learned that OpenAI has been working with Broadcom in a $10billion deal which will see custom chips produced for OpenAI to be used in its own facilities[72]. Word is that production of OpenAI's chips will begin in 2026.

We had been expecting the arrival of Microsoft's Maia 200 chips in 2025. However, after additions to the chip requested by OpenAI reportedly made the chip unstable in simulations, Microsoft has now pushed back mass production of the new chip until 2026[73].

AMD is working hard to win market share from Nvidia, planning to launch its next-generation GPU chip in 2026. AMD and Open AI announced a partnership agreement in October 2025 which could see OpenAI deploy 6GW of AMD's GPUs from the second half of 2026[74].

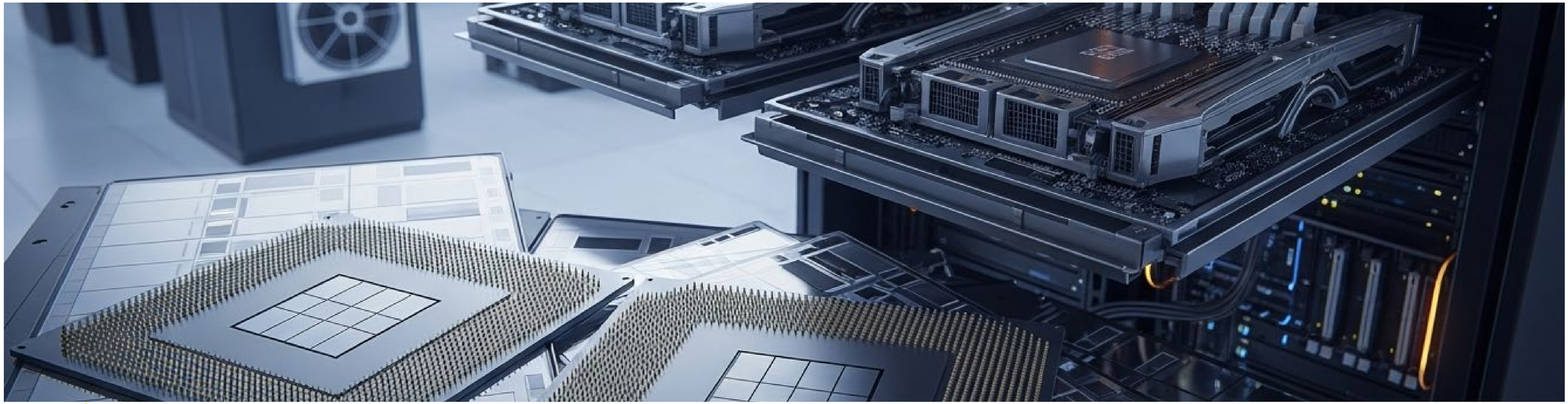
The UK's Arm Holdings is also nipping at Nvidia's heels. In October 2025, Meta announced that it would be using Arm Neoverse GPUs for some of their AI workloads due to their higher energy efficiency[75].

China catches up

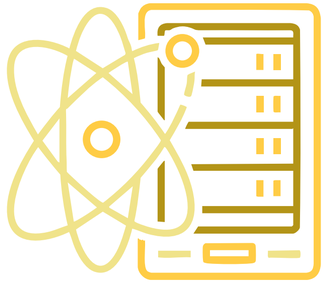
Perhaps even hotter on the heels of Nvidia are chip developers in China, with Nvidia CEO Jensen Huang telling the UK's Financial Times in November 205 that China will win the AI race with the US[76]. China has made some strong power moves involving chips, with its government issuing guidance requiring any data centres receiving state funds to use only chips made in China and ordering any data centres that were less than 30% complete to remove all installed foreign chips and cancel orders[77].

Chinese chip manufacturers are rushing to fill the void. Huawei is the current market leader, but there are start-ups working hard to take Nvidia's place too such as Cambricon Technologies, Moore Threads, Biren Technology, MetaX, Enflame and Hygon Information Technology[78]. Once developed, these chips will almost certainly be exported to other countries that are not limited by trade restrictions.

US president Donald Trump threw another spanner into the global chip supply chain works in November 2025. In an interview with CBS, he suggested that Nvidia's most advanced Blackwell chips would only be sold to American companies[79].



10 The year to get quantum ready



Commercial quantum data centres are no longer theoretical; early deployments in New York, Tokyo, Barcelona and London signal the start of a new era.

Dakini Montañez
Americas Marketing Manager
Soben Part of Accenture

- **Hyperscalers' secretive deployments**
- **Industry organisation prepares standards**
- **Commercial deployments closer**

There is consensus that quantum computing will be big. But little consensus on just how big. McKinsey says that it could generate up to $97 billion in revenue from $4billion in 2024[80]. Bain & Co reckons that it could reach between $5 billion and $15 billion by 2035[81]. The World Economic Forum estimates that quantum computing could generate $622 million in value in the financial services sector alone by 2035[82].

Stories released publicly show that we are moving towards commercial quantum data centres. In September 2025 Oxford Quantum Circuits (OQC) and Digital Realty, partnering with Nvidia, launched a quantum-AI data centre in New York. Based at Digital Realty's JFK10 site, the facility combines OQCX's GENESIS quantum computer and Nvidia's GH200 Grace Hopper superchips[83].

As well as Digital Realty's JFK 10 data centre, OQC has also supplied quantum computers to Equinix's TY11 data centre in Tokyo, in CentreSquare's colocation data centres in the UK[84] – it has LHR2 in London and LHR3-A in Reading[85].

In November, quantum computing company Qilimanjaro announced the opening of its Quantum Data Center in Barcelona. With 12 quantum computers, the centre aims to give companies, researchers and universities in Europe access to through the cloud[86].

Special environments

The consensus on next steps for quantum computing and data centres is that we will see hybrid arrangements where AI and quantum racks are co-located, since high-performance computing will be needed to carry out supporting processes. The quantum racks would be in dedicated rooms or areas that can provide the right environment.

As technology stands today, quantum computers require special treatment: extremely cold and stable environments, isolated from mechanical vibration and shielded from electromagnetic interference. That means cooling using liquid helium, floating floors – with springs beneath them to dampen movement[87] - and

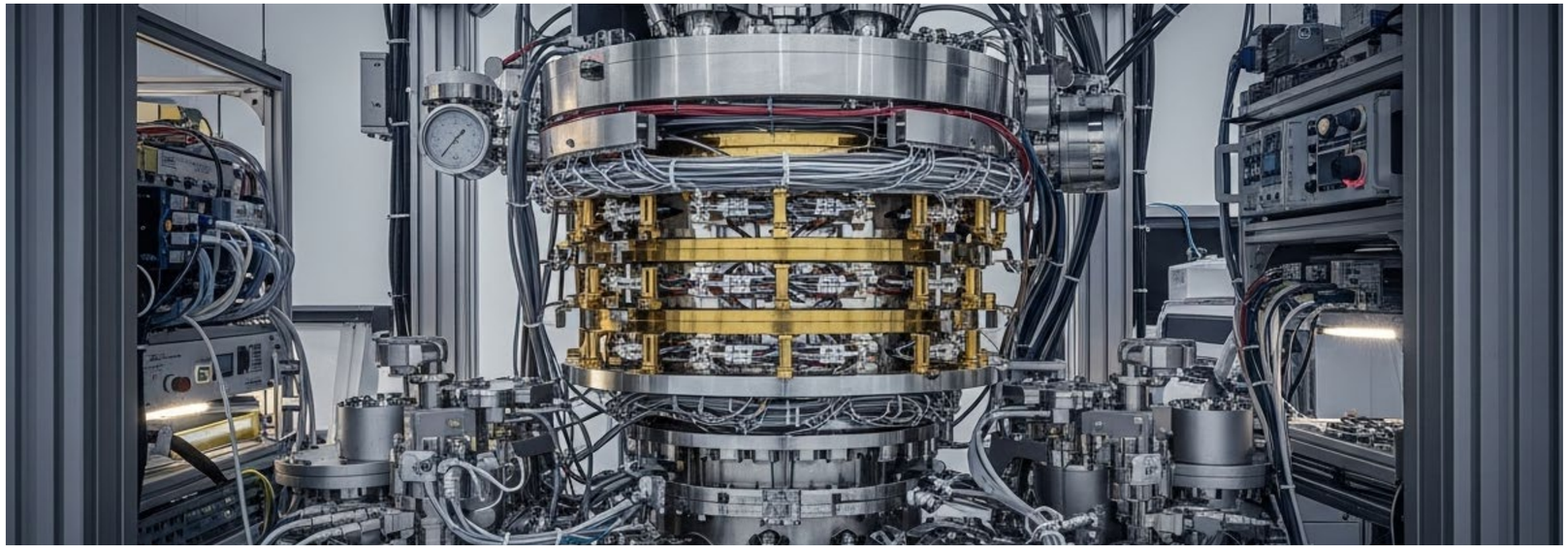
faraday cages to provide shielding. Although quantum processors require little energy themselves, cooling systems will need significant supplies of constant power, as well supporting electronic equipment for tasks such as error correction.

Largely, hyperscalers are keeping their futureproofing strategies – quite literally - under wraps. One design engineer reports the deployment of 'quantum pods' where a quantum stack is delivered inside a black box, ready to be slotted into a prepared area[88].

Commercial operations

The billion-dollar question is when will quantum computing become commercially viable. It could come into play slowly over the next 10 years, although we can't overlook the possibility that a breakthrough could compress that timeline.

Some industrial organisations are already trialling possible uses for quantum computing. Accenture in its October 2025 report for the World Economic Forum (WEF) on the potential opportunities of quantum technologies highlights the following examples: automotive company Ford Otosan demonstrating it can halve vehicle manufacture time; Taiwan Semiconductor Manufacturing Company predicting quantum sensors could transform semiconductor manufacture; and the Port of Rotterdam piloting quantum technology for secure communications[89]. However, as the WEF report outlines, moving from pilots to adoption will require investment in training and technology, as well as regulatory action and the development of new codes and standards.



Some reports suggest that China is further ahead with quantum data centres. In October 2025, The China Daily reported that China Telecom Quantum Group (CTQG) and QuantumCtek had put its quantum computing into commercial operation, so that companies and researchers can pay to access computing through the cloud. It is based in Hefei, a city which is home to several national quantum laboratories and startups[90].

Chinese quantum firms are working with companies in Europe. Shanghai venture capital firm ChinaLink ESGt and Chinese quantum computing company Origin Quantum said that they will be building a quantum computing centre in Malaga. Italian company Omnia Quantum has partnered with Shenzhen company SpinQ Technology to provide computing services to companies and universities[91].

The Open Compute Project[92], whose members include Meta, Google, Microsoft and Nvidia, is already working to develop standards for quantum computing. Set up to share data centre product designs and best practice, it has said that it plans to have a first draft of quantum certification scheme in 2026[93].

Industry Focus

Soben
Part of Accenture

EMEA

North America

Latin America

Delivery with AI

Focus on EMEA

Soben
Part of **Accenture**

Focus on EMEA

Established businesses such as Google, Microsoft, Amazon and Digital Realty are very well positioned to push ahead with their plans for larger AI projects because they have the right partners and the right supply chains.

Pieter Schaap
Group Development Director
Soben Part of Accenture

Having started with an undercurrent of uncertainty, as the swiftly developing AI landscape forced hyperscalers to pause and remap their way forwards[94], 2025 saw a steady stream of announcements from established and new developers. There are plans to build in existing, secondary and emerging markets, with cloud, AI and edge facilities in the pipeline – and some very ambitious delivery programmes.

By the third quarter of 2025, there was an estimated project pipeline of $351.7 billion for data centres in Europe, according to Accenture. Power shortages in existing hubs is driving moves to new regions, such as the Nordics and the Mediterranean; data centre capacity in the Middle East continues to grow, with Saudi Arabia pushing hard to become a major data centre hub[95]; and there were moves to challenge China's dominance in Africa where data centres markets are largely in their infancy[96].

Different markets face different constraints. However, a common theme is the struggle to source competent construction professionals and contractors to oversee and deliver these builds. In established markets, those with experience are in short supply while in newer markets, skills need to be built up. And this comes against the backdrop of the tight timelines that many data centre companies are promising their investors.

Diversification in Europe

In Europe's established hubs of Frankfurt, London, Amsterdam, Paris and Dublin (FLAP-D), viable sites are few and far between. Power is the constraining factor in these markets.

In Frankfurt, AI data centre developments are on hold until new capacity comes online in 2031. In both London and Paris, developments are spreading further out from the centre. In Amsterdam, authorities have taken a harder line on limiting data centre development: Amsterdam city council has said it will only consider new data centre developments from 2035[97]; in Ireland, the Government passed a law to allow data centres to generate their own power[98], however gaining permissions for such schemes is proving far from straightforward[99].

In the UK, Government policy to grow its AI economy has seen a raft of new data centres announced over the past 12 months. Markets outside London, including Manchester, Leeds and Scotland were already attracting regional and edge investments, with hyperscalers now unveiling plans.The Government has announced its first three designated AI Growth Zones – in Oxfordshire, the Northeast of England and North Wales – with prioritised power and planning aimed to attract data centre investment[100].

Given the issues facing FLAP-D, developers are moving to fresh fields where power is in strong supply. Nordic countries are seeing a surge in development. With cooler climates and plentiful supplies of renewable energy, these locations are ideal for data centres where power-hungry processors will train AI.

Developers looking at the Nordics must be aware of environmental regulations and the need to gain support from local communities. Both Sweden and Norway are offering tax incentives, with Sweden also streamlining permitting for hyperscale developments[101]. Finland is perhaps a less attractive proposition than it was since, in March 2025, its government abolished tax breaks on electricity for data centres, moving the rate from 0.05 cents per kWh to the standard 2.24 cents per kWh[102].

Meanwhile in Southern Europe, markets such as Madrid and Zaragoza in Spain and Milan in Italy, which benefit from encouraging regulatory environments and solar power are seeing rapid hyperscale expansion. Currently planned projects for Milan would see its data centre capacity grow ten-fold, from 200MW to 2GW with power availability through the national grid and local energy production and heat recovery on the agenda[103].

Around the Mediterranean, data centre action is hotting up. Marseille, in the South of France, is already a major connectivity hub with undersea cables from Europe, Africa the Middle East and Asia landing there. Further connections are planned such as Orange's Medusa cable which was landed there in October 2025[104.] Barcelona, Genoa and Crete are all emerging as new locations[105].

Eastern and Central Europe remain underserved by data centres. If geopolitical tensions ease, countries such as Poland, Romania and the Baltics could become major players, supported by sustainable energy and pro-investment policies.

Middle East rising

The past 12 months have seen significant moves by Gulf State governments, as they look to transition from oil-based to digital economies. With deep pockets, big plans for renewable energy and modern infrastructure, both Saudi Arabia and UAE are well positioned to attract international investment.

In May 2025, US companies including G42, OpenAI, Oracle, Nvidia, SoftBank Group, and Cisco revealed plans for UAE Stargate which plans to create 5GW of AI capacity, with the first 200MW to come into operation in 2026[106]. Among the incentives that the UAE is offering to precipitate data centre developments are lighter regulation and long-term visas for data scientists, engineers and researchers[107].

In June 2025 Saudi Arabia announced its National Data Center Strategy which aims to see the Kingdom's data centre capacity reach 1.5 GW by 2030[108]. In May 2025, its public investment fund launched national AI company Humain, which aims to build 6GW of data centre capability by 2034 to put Saudi Arabia in third place – behind China and the US – in the AI race[109].

Beyond the public announcements, there is real traction in the Middle East, whereby a healthy mix of local, regional and international developers are keen to accelerate their programmes. Hyperscale demand is picking up, although it remains somewhat tricky for them to self-build. Hence, there is a golden opportunity for independent developers to sign long-term agreements around their single tenant initiatives.

And in good Middle Eastern fashion, ambitions are not limited to the Middle East. Multiple developers are dipping their toes in global programmes. Damac Digital has announced several developments outside the Middle East and has been very active in mergers and acquisitions to increase its global presence. Similar rollouts are expected throughout 2026 for other Middle Eastern developers.

Constraints and opportunities

The pause for thought in early 2025 meant that the volatile cost rises experienced in EMEA in 2024 were levelling out at the beginning of the year. However, that trend has reversed in the second half of 2025 and costs will continue to rise above those of general construction through 2026.

This does not mean that the market is stalling. Rather, developers are being creative in finding the right solutions for their projects and have been displaying a healthy appetite for risk. This is leading to updated contract forms, new joint ventures and heavy financial injections from investors who realise that the data centre industry is at a pivotal point, where speed to market is the key to success.

One of the biggest factors driving cost escalations is Europe's limited contractor pool. Fewer than ten trusted general contractors (GCs) dominate the data centre market in EMEA and that simply isn't enough to go around. Experienced GCs command a premium and can choose to work with mature clients where the risk-reward profile is well understood.

Mechanical, electrical and plumbing (MEP) contractors with track records in data centre construction are similarly in short supply. Further moves to modularisation are expected, allowing resources to be used more efficiently in manufacturing facilities and reducing the need for on-site resource.

Newcomers to the market are promising their investors accelerated delivery schedules. However, even those with the funding to pay for the premium that fast-tracking would attract are likely to struggle to attract GCs, MEPs and their supply chains in a market where demand is outstripping supply.

Early procurement of generators, gas insulated switchgears, transformers and other critical items remains essential, with strategic stock buffers built into schedules to mitigate delays. Hyperscalers and large colocation companies have tied in their supply chains for years to come, which could increase lead times for those without such agreements in place.

Perhaps one of the biggest challenges over the next 12 months is a shortage of the construction professionals needed to manage and oversee data centre developments in Europe. Individuals with experience are moving frequently between companies and projects, lured by better salary packages. And now there is the potential draw of the Middle East, as development ramps up, with the possibility of tax advantages alongside attractive pay packets.

View from Norway

> **Given the complexity of these projects and sites, it becomes even more important to have experienced Nordic leadership.**

Sigmund Fiveland
Director - EMEA
Soben Part of Accenture

Snow, mountains and hydropower. It's not surprising that eyes are turning towards Norway as a good location for the power-hungry data centres that will train up the next generations of AI.

But there's a challenge for anyone wanting to develop here. Large-scale data centres are a new phenomenon for this region, which means that projects require a different approach from those in established markets in mainland Europe.

"This is not a mature market yet," explains Sigmund Fiveland, a director of Soben, part of Accenture, who is based in Oslo. **"If you want to deliver a £3b zn project, you need a general contractor with big financial muscles and well-developed work package systems. There are a very limited number of contractors like that."**

Selecting the right location is as much about finding the right community as finding the right plot of land, says Fiveland. There have been historic cases where developments have reached an advanced stage of planning only to be vetoed by those living around the proposed new data centre.

“The local politicians understand that data centre developments are a big opportunity for their areas,” says Fiveland. **“But it’s important that local people understand what’s going on. The politicians may have designated an industrial zone, but that doesn’t mean that everyone is aware of it.”**

There’s a perception that data centres are big, noisy facilities, says Fiveland, but that isn’t the case for a well-built, high-quality scheme. He recounts a fact-finding mission to a data centre in Berlin, where visitors from a Norwegian municipality were surprised about the low levels of noise.

Some areas will be more welcoming than others, advises Fiveland. For instance, communities where there have been large-scale energy developments, such as wind farms, recognise the job opportunities and economic benefits that new schemes bring.

Developing the supply chain

With the scarcity of heavyweight general contractors (GCs) in the country – even fewer with a track record in data centres – developers may have to think about breaking projects down into smaller packages than they might do in a mature market. It’s also important to think about what contract forms will be deployed.

Medium-sized GCs in Norway are not used to working under international contract forms such as FIDIC, says Fiveland. Most building contracts are let under local contracts such as NS8407, starting with a professional service agreement (PSA) during the design phase and then switching to a fixed price once details are pinned down.

“Even if the GC is happy to work under a FIDIC contract, contracts have to be back-to-back, so FIDIC would have to be used down the supply chain,” says Fiveland. “**Smaller companies don’t have the legal resources that large ones do, so that introduces uncertainty and risk. NS8407, and NS8406 for smaller contracts, adopt and divide the risk in a fairer way.”**

Extra risk, of course, means that contractors have to add extra cost into the contract. And, if a contractor has the choice of working on a project under a familiar form of contract or an unfamiliar one, they are likely to choose the less risky option, Fiveland says. **“I think developers will get a much better price if they work under local contracts,”** he advises.

As in most data centre markets, finding mechanical, electrical and plumbing (MEP) contractors with the skills to work on a data centre project could be a difficulty in new markets, says Fiveland. However, he is looking to the oil and gas sector. These contractors have been working flat out on gas projects due to the global political landscape, but that workload is now levelling out, which means MEP companies could find data centre work attractive, says Fiveland:

“There are huge similarities in the skills sets needed for oil and gas and for data centres,” he says. **“Everything is time critical, everything is done in modules, it’s a high-quality and high-octane environment.”**

Given the fact that GCs and their supply chains may be new to the sector, experienced supervision is vital, says Fiveland. **“Given the complexity of these projects and sites, it becomes even more important to have experienced Nordic leadership,”** he says.

Last, and by no means least, environmental considerations are very important for a nation of nature lovers who enjoy the legal right to roam, hiking among Norway’s beautiful mountains. Projects that minimise lorry movements and make efficient use of resources – including electricity from hydropower – are likely to get a warmer reception from planners and locals alike.

New policies drive waste heat re-use

> **Regulation in the EU means that we are going to see many more schemes where waste heat is used in district heating systems.**

Joe Cusick
Operations Lead
Accenture I&CP

Historically the transfer of waste heat from data centres into district heating systems has been a novel move, driven by a serendipitous location or by an operator with the greenest of credentials. However, new regulations and national policies, particularly in Europe, mean that we will see many more such arrangements in the coming years.

European Union (EU) Energy Efficiency Directive (EU/2023/1791) has required operators to report on the energy performance of data centres since September 2024 and encourages the use of waste heat for heating and cooling networks. In the first quarter of 2026, the EU will propose a new Data Centre Energy Efficiency Package, expected to ramp up requirements[110].

In Germany, under the Energy Efficient Act (EnEfG) which came into force in November 2023, data centres of 300kW or more have been mandated to report on their waste heat since 1 January 2025. And for data centres that go into operation after 1 July 2026, a proportion of their waste heat must be reused[111].

Having said that, there are exemptions to this requirement which mean that many data centres will not be reusing their waste heat. Broadly, the exemptions say that data centre operators will not be held to account if the necessary infrastructure, or agreement with a heat network operator, are not possible.

In the UK, the Department for Energy Security and Net Zero (DESNZ) has published a list of around 60 district heating networks that are under development, several of which are linked to data centres[112]. The UK Government is providing capital support and funding through the Heat Networks Investment Project and the Green Heat Network Fund Transition Scheme.

Among the published DESNZ projects that are due to start construction soon are the £83m E14 project by energy company E.ON involving three data centres and seven residential developments; the £68m Hemiko North Crawley heat network which includes a data centre at Manor Royal.

Data centre provider Deep Green, best known for using heat from its data centres to heat swimming pools, is working with the Paddington Village District Energy Network in Liverpool to decarbonize its heating network, replacing its current gas setup with a heat pump that will draw in waste heat from a Deep Green deployment[113]. And Google's planned expansion in Germany will see waste heat from a new data centre in Dietzenbach, south of Frankfurt, heating 2000 homes through a local district heating network[114].

Proven technology

In the Nordics, there are several examples of waste heat being used in district heating networks. Meta's Odense data centre campus in Denmark has been heating homes since 2020[115]. In Diemen in the Netherlands, Switch Datacenters is working with the local municipality to use waste heat from its AMS4 facility[116].

Digital Realty's Stockholm data centre has been connected to the district heating system since 2015 with the city's Stockholm Data Park initiative looking to use waste heat from over 30 data centres[117].

In Finland, Microsoft is developing data centres in Espoo, Kauniainen, and Kirkkonummi which it says will supply 40% of the area's district heating needs[118]. And Google says that its first heat recovery project in Finland will see heat from its Hamina data centre providing 80% of the annual heat demand for the district[119].

There is plenty of scope for more of these schemes in Northern Europe where district heating networks are well established. In Finland, district heating accounts for around 45% of residential and commercial heating, in Denmark 66% and growing, in Poland and the Czech Republic it accounts for around 40% and up to 45% in Baltic countries[120].

Barriers to deployment

There are barriers to recycling heat from data centres. Since the temperature of waste heat from data centres is typically low, heat pumps are generally required to raise the heat. This requires a considerable capital investment, and ongoing operational costs; in many cases, it is not clear who will bear these costs. The fact that heat loads tend to fluctuate, depending on the data centre operation, further complicates the picture.

There are a handful of data centre operators who taking a very proactive stance to heat recycling to homes. Switch Datacenters in the Netherlands is guaranteeing the amount of energy it will supply. Sustainable data centre operator GreenScale is also guaranteeing the heat it will supply and offering to provide energy at a lower rate than standard providers.

Further regulation to mandate heat recycling seems likely in Europe. Those companies that are already deploying the technology today will be ahead of the game.

Focus on North America

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Focus on North America

> **There's a race for space in AI. The market will still fundamentally be driven by the large AI companies.**

Robert Kim
Head of Growth
I&CP Accenture

The last eight months have seen unprecedented changes in the North American data centre market, driven by the need to anticipate the demands that both AI training and deployment will bring. At the same time, long-standing constraints linked to power, skilled resources and supply of critical equipment and materials remain a challenge, exacerbated by the increased AI-driven activity.

After a lull around March and April 202[121], while hyperscalers took stock of their future plans and pulled back from some deals , development plans have returned with a vengeance. Hyperscalers Meta, Alphabet, Microsoft, Amazon and Oracle are projected to allocate $342 billion to capex in 2025, a 62% increase on 2024, according to JP Morgan[122].

With these burgeoning capex budgets to allocate, speed is now the number one priority with some eye-wateringly ambitious schedules on the table for forthcoming projects. General contractors are rising to the challenge – with construction costs rising accordingly. Towards the end of 2025, we have seen uplifts in tender prices of up to 25% in some cases to deliver at speed. Compressed construction programmes will require more resources on the ground, military level logistics and a scale of development that will see modular construction become a viable option.

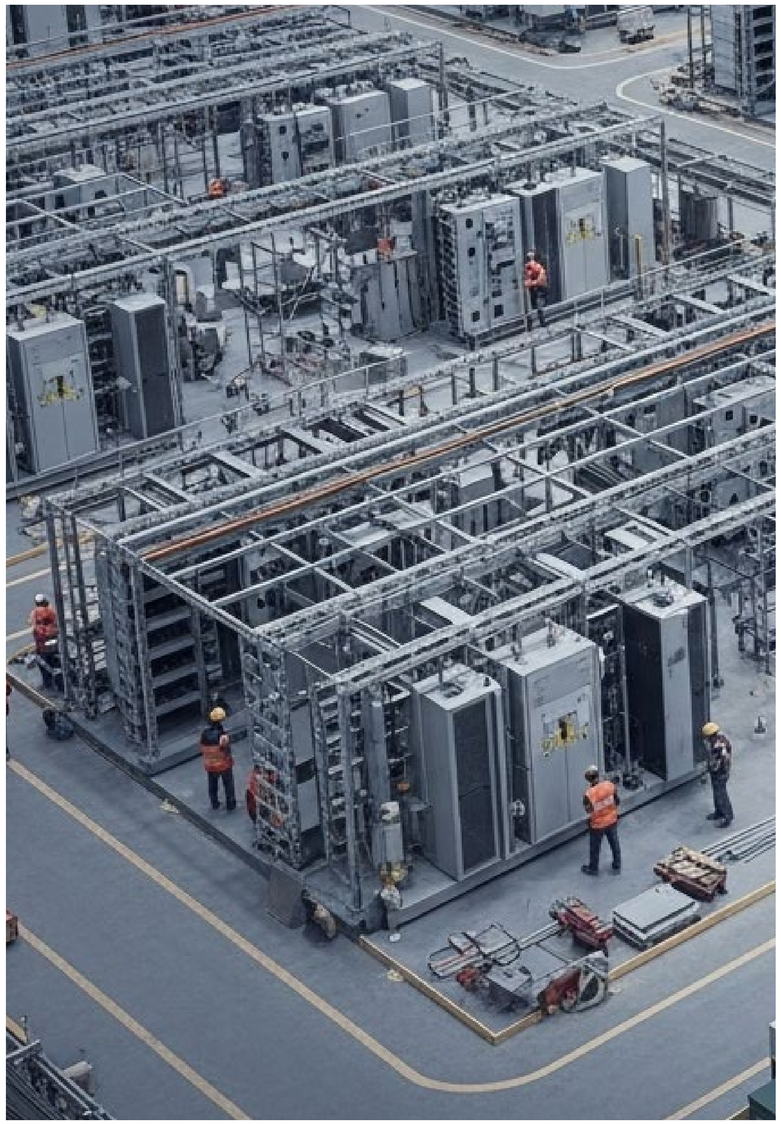
Locations

Given the scale of investment planned, data centre development is burgeoning in primary, secondary and tertiary locations around the US. As of the third quarter of 2025, the value of the project pipeline in the US stood at $799 billion, according to Accenture estimates, accounting for around 50% of the global pipeline.

Although development still continues in traditional data centre hubs such as Virginia, Iowa and Wyoming, power and land constraints mean that developers are looking to new regions. Over the past two years, Phoenix and Atlanta have emerged as significant growth areas due to their lower land prices and tax incentives on offer.

Secondary markets in Nevada, Texas, Ohio, Indiana and Louisiana, with available power capacity and lower regulatory burdens, will be vital to meet the next source of data centre demands. Texas, where the first Stargate AI data centre has commenced in Abilene, and a second and third are planned in Shackelford County and Milam County, offers some attractive incentives[123]. Google announced in November 2025 that it was to invest $40bn there, with new data centre campuses in Armstrong and Haskell Counties[124].

There will also be a Stargate site in Lordstown, Ohio as well as Doña Ana County in New Mexico and in Wisconsin in the Midwest[125].



Constraints and opportunities

Shortages of skilled tradespeople and professionals in certain specialisms prevail, leading to project delays and rising costs. Competition from the energy sector means that those with skills in electrical installation, low-voltage systems and commissioning are in high demand.

In equally short supply are the professionals managing data centre construction projects. Project managers and project controls consultants are in high demand, with ever-more-attractive employment packages causing individuals to move frequently between companies and projects.

Hyperscalers are taking things into their own hands, providing funding to train up future workforces. In May 2025, Google announced that it would provide funding to train 100,000 electrical workers and 30,000 new apprentices in the US through the electrical training ALLIANCE[126]. In Texas, it proposes to double the number of new electricians joining the sector[127].

Geopolitical forces and competition from other sectors are lengthening lead times and causing some concerns for the future. Lead times for power equipment are now at between 24 and 36 months, up from 6-to-12 months in 2024.

For hyperscalers and established developers, mitigation strategies learnt through the Covid pandemic period are proving vital. Ordering equipment well ahead of time has become a business-as-usual practice which helps mitigate the challenges of limited supply and accelerated delivery timescales.

If the rate of data centre build is to meet the expected rate of AI demand in the US, some suggest that state-level intervention is required. In November 2025, Open AI wrote to the White House, asking that tax breaks applied to the manufacture of chips be extended to AI data centres, servers and electrical grid components, such as transformers. The open letter also called for faster transmission line development and faster permitting and environmental reviews for developments built on federal land and national efforts to skill up the workforces required to build and operate data centres[128].

Focus on
Latin America

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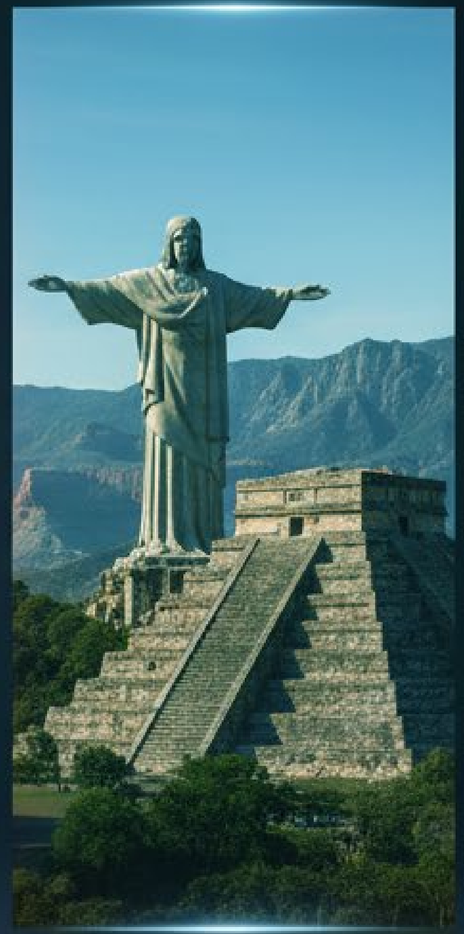


Focus on Latin America

> **Designs are evolving constantly to meet AI infrastructure demands, and that's pushing project costs higher, especially in technology and equipment.**

Luis Garcia
Lead Cost Manager - Mexico
Soben Part of Accenture

The data centre market in Latin America is growing fast with Governments introducing new strategies and incentives to attract development to their countries.

The region's major hubs are located in São Paulo, Rio de Janeiro, Fortaleza, and Porto Alegre in Brazil; Querétaro and Monterrey in Mexico; Santiago, Chile; and Bogotá, Colombia with growing interest in secondary locations in those countries and in Peru, Argentina and Uruguay.

New markets in Mexico

The Mexican Data Center Association (MEXDC) estimates that installed capacity in the country could reach 1,516MW by 2030, representing over US$18.1 billion in direct investment and an estimated US$54 billion in total economic impact. This growth is expected to generate more than 20,000 direct jobs and 75,000 indirect jobs. However, MEXDC warns that, without addressing critical challenges such as limited power and water supply, some of this investment could shift to other markets such as Colombia and Chile[129].

The cost of delivering data centres across Latin America, particularly in Mexico, remains volatile. While prices have stabilised for traditional tech solutions, the pivot towards AI-ready facilities has introduced new unpredictability in design and equipment specifications. In Querétaro, Mexico's primary data centre hub, construction costs have risen sharply, now averaging between US$9 and US$11 per watt, an increase of between 20 and 25% compared to 2024, driven by surging demand and supply chain constraints.

Development in Querétaro is increasingly constrained by energy shortages, forcing operators to adopt temporary power solutions. For example, in Colón, Querétaro, reports suggest that Microsoft has been forced to operate a data centre on gas generators, waiting for a grid connection to be available in 2027[130].

Water scarcity is another pressing issue. Data centres in Querétaro and secondary market Monterrey have also been linked to local water shortages, prompting sustainability initiatives. Amazon Web Services (AWS) has announced a series of water recovery projects, aimed at returning more than 2.5 billion litres of water annually to communities in Mexico City, Querétaro, and Monterrey. These projects include installing smart valves and pressure management systems in 11 zones in Querétaro and using AWS technology to reduce leaks and optimise water distribution[131].

Given the challenges in Querétaro, cities including Monterrey, Guadalajara, Aguascalientes, Guanajuato, will see increased investment in the coming years. But as MEXDC warns, new developments must improve on their power usage effectiveness (PUE) and switch to waterless cooling systems for growth to be sustainable.

Brazil's green energy draw

São Paulo remains Brazil's strongest data centre hub with growing markets in Rio de Janeiro, Fortaleza, and Porto Alegre. Edge data centres, linked to Brazil's 5G rollout, are expected to develop in interior São Paulo and logistics corridors.

Brazil has the highest proportion of renewable energy in any Latin American company, with around 56% coming from hydropower and 25% from wind and solar[132]. With strengthening sustainability requirements for data centres, developers should be aware of national and local requirements.

The Brazilian Government is keen to attract more data centre investment to its country, with its National Data Center Plan aiming to attract R$2 trillion (US$ 380bn) in investment over ten years. As part of this strategy, the Government has just introduced the Special Regime for Attracting Data Centers (Redata)[133]. Redata will suspend some federal taxes, particularly on imported equipment but comes with obligations that include sustainability requirements to use clean energy and reduce water consumption[134].

Growing ambitions:
Chile, Colombia, Argentina, Uruguay

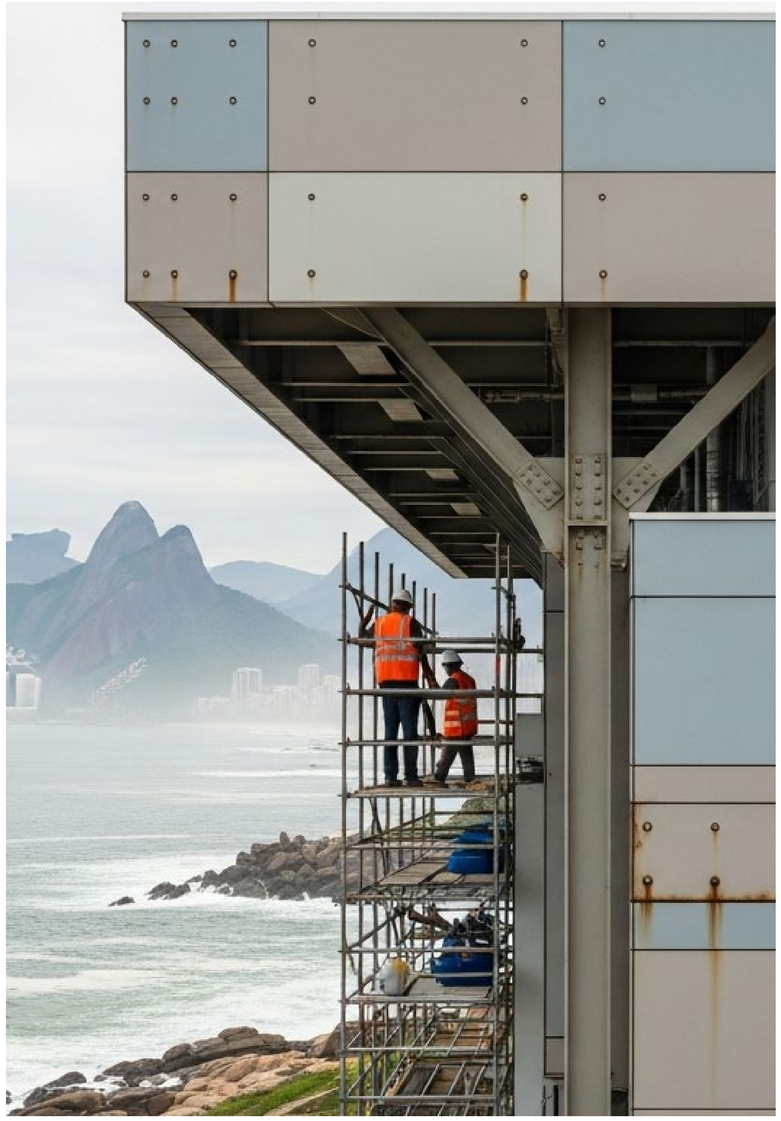
Santiago, with its proximity to hydropower, is Chile's main data centre hub, with Valparaíso set to expand from 2026. Google and state-owned infrastructure company Desarrollo País, are laying a cable between Valparaíso and French Polynesia which is expected to go into operation at the end of 2026[135].

In 2025, the Chilean Government began implementing its National Data Center Plan aimed to attract more investment, while boosting environmental standards. Among the measures that the plan will introduce are a digital tool that identifies information land, energy, connectivity and socio-economic factors and guidance on permitting and regulation and environmental requirements.

Colombia has been described as the 'sleeping giant' of the Latin American data centre market[136], with several major hyperscalers reported to have land holdings there. With the next presidential election starting in May 2026, there are hopes that a change in political climate could lead to more favourable development environment for would-be investors.

Currently, Colombia's data centres are concentrated around its capital Bogotá with developments underway in free trade zones in Mosquera and Tenjo, both in Cundinamarca. Medellín and Barranquilla are both promising locations[137].

Recently, Argentina has been catapulted into the spotlight, with OpenAI and Sur Energy announcing plans for a $25bn AI data centre in Patagonia, which is developing its expanding its wind power capacity. Already dubbed 'Stargate Argentina', the development is backed by Government scheme RIGI - Incentive Regime for Large Investments or Régimen de Incentivo para Grandes Inversiones[138] – which aims to attract local and foreign investments in infrastructure.



Building in Brazil

> **Developers must be aware of the differences and challenges of building in a tropical climate.**

William Ferreira
Director - Brazil
Soben Part of Accenture

Brazil's tropical climate means that data centre designs honed in North America may not be the right choice there. With the country's main data centre hubs – São Paulo, Rio de Janeiro, Fortaleza, and Porto Alegre – largely located on the coast, the combination of salinity and humidity need to be considered during design.

Data centres built with steel structures can suffer from corrosion, an issue that has already affected some facilities. Design decisions should take into account the whole lifecycle of the building, thinking about issues such as the thickness of protective coatings and the frequency of monitoring for the steel during operations.

"One data centre that was built back in 2016 on the coast, in the Southeast of the country, where there is a high index of salinity, is now undergoing significant repair work due to corrosion," reports William Ferreira, Soben, part of Accenture's director for Brazil.

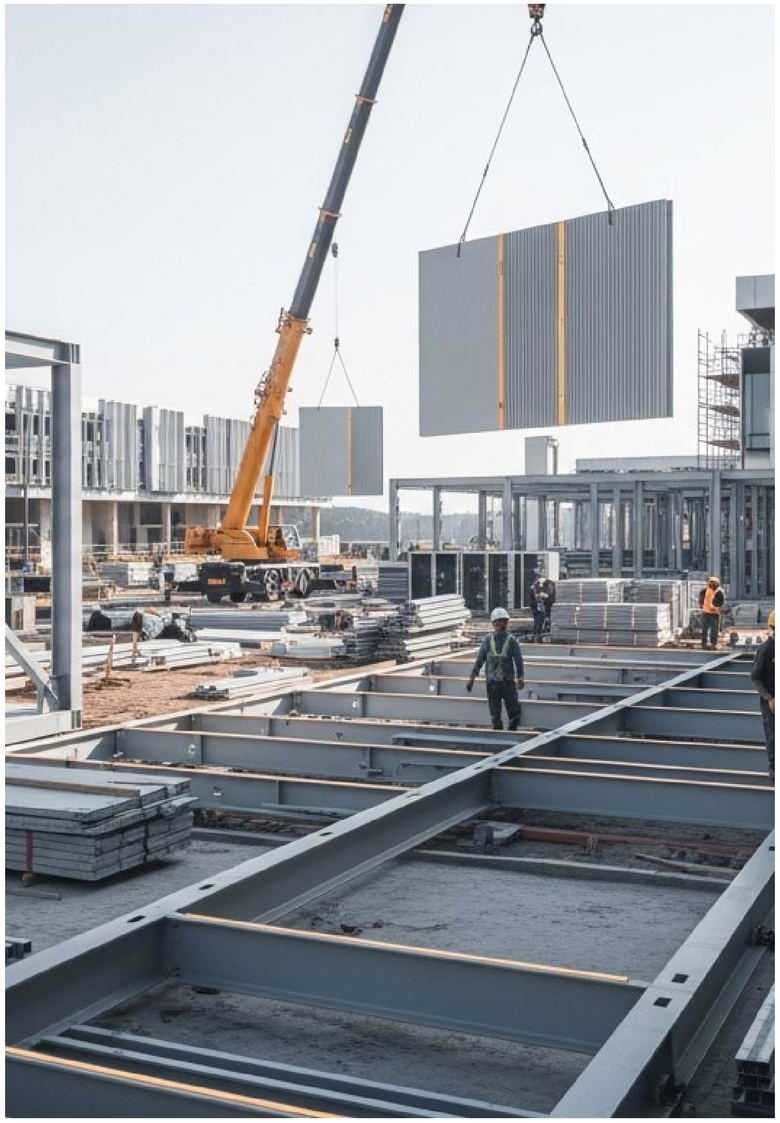
Instead, precast concrete is often a better choice for the structural frame of a data centre, advises Ferreira. There are other advantages too: manufacturing times for precast concrete are generally faster than those for steel and the thermal mass of the concrete helps reduce the cooling needed for the buildings.

Developers must also understand that Brazil's tropical climate means that more energy is required to cool the data centre than would be needed in a more temperate climate. **"This impacts on both the capital and operational costs for a data centre, and needs to be factored in,"** says Ferreira.

"And then there's the rain. There is a lot of it between December and February, which needs to be understood when scheduling projects," says Ferreira.

Resources are another consideration, warns Ferreira: **"The availability of direct labour in Brazil is a point of concern in the near future, as the local construction market is booming,"** he says.

However, the market is rising to these challenges, says Ferreira, as investments from hyperscalers into Brazil look set to continue: **"We see the construction sector preparing to build using the latest technologies, employing highly skilled professionals for data centre projects,"** he says.



Better regulations

Given Brazil's aspirations to grow its digital economy, there are some changes on the horizon which could help prevent costly mistakes such as building with steel. Currently there are no building standards, the Norma Brasileira (NBR), which apply directly to data centres, but there are plans to develop these, says Ferreira.

Brazil is also reforming its tax system, which is notoriously complicated. The changes will introduce a dual value added tax (VAT) system, with the transition beginning in 2026, which aims to simplify compliance and make the economy more competitive[139].

"The Government is also discussing tax incentives for data centres," says Ferreira. **"One of the challenges we face at the moment is that, as well as being complex, tax laws can change frequently. We have even seen that happen part way through a build."**

Plentiful power

One problem that Brazil doesn't have is power shortages, given its plentiful supplies of hydro and solar generated electricity. However, early conversations with energy companies are advised: it may be necessary for developers to factor in the costs of installing transmission lines to a data centre location, says Ferreira, together with the cost and time needed to negotiate with landowners.

Brazil has both general contractors and MEP contractors who can handle data centre builds, says Ferreira, bringing competencies gained in other critical mission sectors such as refineries, laboratories and hospitals. However, he warns that the preferred lump sum or guaranteed maximum price contracts deployed in Brazil can lead to contract cost rises when changes to designs come during construction – not an unusual situation in the current data centre market. In the longer term, with a good pipeline of data centre projects to show to GCs and their supply chains, perhaps other forms of contract could deliver more cost certainty, Ferreira muses

Delivery with AI

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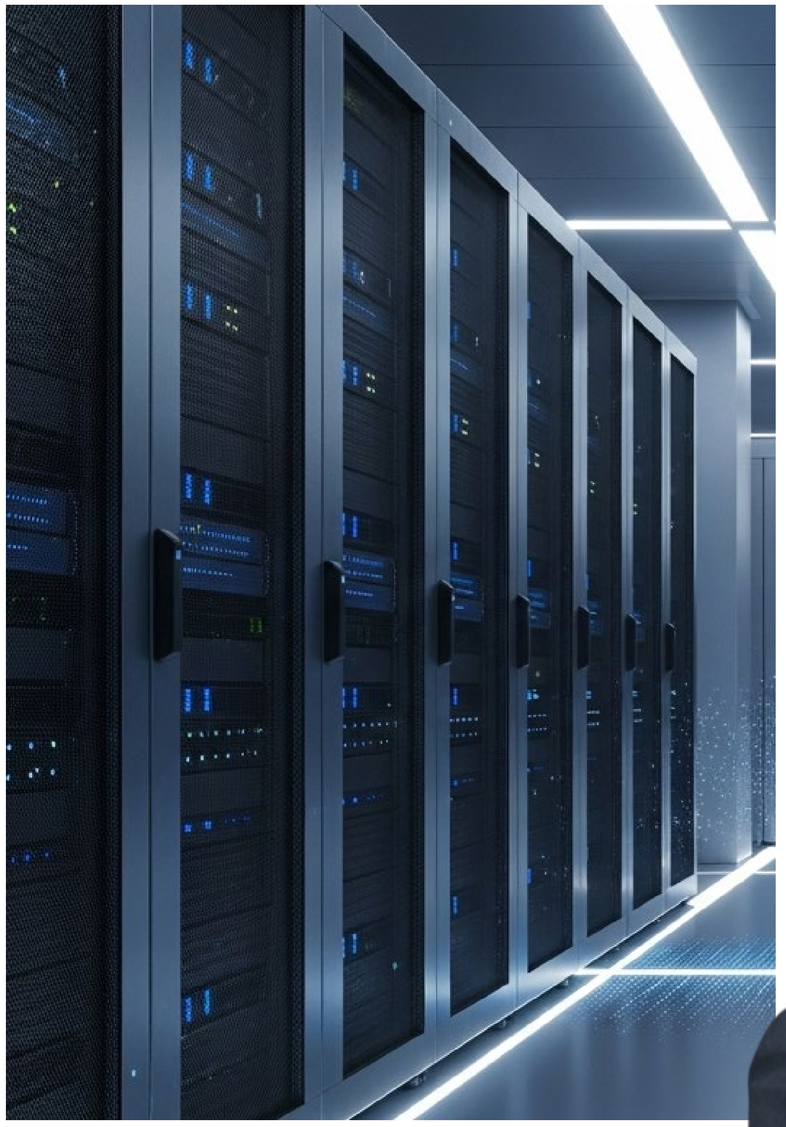

Reinventing data centre delivery with AI

> **The construction industry should be watching hyperscalers in the same way that the automotive industry watches Formula 1.**

Phil Townsend
Chief Technology Officer - USA
I&CP Accenture

Given the number and size of data centre scheme pipelines around the world, and the speed at which owners would like to commission them, business as usual will not be good enough. Since time is quite literally money in a market where demand is outstripping supply, there is now a robust business case for major innovation across the board, as hyperscalers look to overcome constraints at any and every stage of development.

"The whole construction industry should be watching hyperscalers in the same way that the automotive industry watches Formula 1, as a source of inspiration and innovation," says Phil Townsend, CTO, managing director of infrastructure and capital projects at Accenture.

Making small improvements here and there to existing processes will not deliver the transformational changes needed, warns Townsend. **"For AI to be effective you have to reshape and reinvent your flows,"** he says. **"Many established workflows and practices not only contribute to construction and commissioning problems but are also unsuitable for AI enhancement."**

Successful deployment of AI on data centre projects would enable upfront analysis of potential pitfalls ahead, says Townsend, in contrast to the current situation where project managers and contractors are constantly firefighting, dealing with a barrage of issues from delivery hold-ups to damaged equipment to inadequate resources and subcontractor issues.

"We need to use AI to proactively identify risks by analysing all available data," Townsend notes, referencing traditional dashboards and analytics that focus on past events. He highlights owner furnished contractor installed (OFCI) equipment supply chain analytics as an example, which enables equipment to be automatically reviewed and tracked from factory acceptance to installation, monitoring upstream disruptions for downstream impacts.

As you might expect, hyperscalers and large colocation providers are already working to address the challenges. Large language models are sifting through sheaves of documents, extracting and analysing data to produce paperwork for permitting, interrogating designs and rethinking construction schedules. But their application still requires a human in the loop, says Townsend:

"We wouldn't expect anybody to take verbatim what is coming out of any AI agent, and we wouldn't encourage it," he says. **"We would expect a human to initiate the request, establishing the guard rails associated with that request, and to validate the results."**

Leading construction platform providers are embedding AI capabilities into their software. Procore added Procure Helix to its platform in 2025, allowing users to access project data through natural language dialogue and to create agentic AI workflows to carry out tasks[140].

Data centre builds vary widely due to differing standards, regulations, and planning needs across regions, creating a demand for adaptable AI tools. Accenture AI Refinery, developed with Nvidia technology, offers an Agentic AI environment trained on company expertise and public policies. This system organizes agents into orchestrated workflows and integrates project data into a "digital brain" a centralized knowledge core that fuses project information with learned insights to minimize inconsistencies and conflicts.

Some data centre projects are using AI to create more efficient schedules or to re-schedule in the light of supply chain disruption or unexpected events. ALICE Technologies' AI-based tool can quickly compare multitudes of pathways to find the optimum solution. The company's website cites a data centre project threatened with a month's delay due to supply chain issues; ALICE generated a solution involving overtime for critical crews over a limited period, saving a potential $32 million in lost revenue.[141]

Saving energy in operation

In operation, AI is being used in real time to optimise cooling systems using automated thermal management. Schneider Electric and Nvidia have developed this capability which can lead to energy savings of up to 40% for cooling, giving a rapid return on investment, says Townsend.

The evolution of digital twins will be the key to further improving efficiencies and reducing energy consumption. Information flows between virtual and actual infrastructure may not be quite real-time yet, but companies including Schneider Electric and Equinix are already creating digital twins for power and thermal modelling from grid to chip.

There are hurdles to clear before AI-enabled workflows are transformational for the whole data centre industry. User interfaces need to be far more friendly, says Townsend, especially given the ageing demographic of construction managers and supervisors. There is also the need to develop trust that the technology will provide reliable information.

Ultimately, Townsend doesn't believe that the way forward for wider deployment of AI in data centre development is through point solutions, isolated tooling, or incremental improvements. Instead, he suggests, organisations need to commit to its deployment.

"You have to determine what value you want to get out of AI and where the biggest opportunity set is," he says. **"And then you commit to making it happen. And I really think it starts with reinvention."**

Conclusion

Shifting up a gear

The next 12 months will see the big players, both hyperscalers and colocation providers, shifting up a gear to move projects faster through all the stages from site selection to operation. Given the strength of investment in data centre companies, and the supply chains that feed them, the momentum is there to drive improvements and innovation in processes, equipment, power sources and methods of construction.

Policy makers who have woken up to the potential economic growth that data centres can bring, will have to move fast. National strategies are not enough; these will have to be backed up on the ground with more streamlined planning and permitting processes, national power strategies for generation and transmission that factor in the demands of data centres and workforce development plans that will enable the delivery of both data centres and the enabling energy infrastructure.

Competition for consultants, contractors and other construction professionals will be fierce, with established players in a stronger position than newcomers to the sector. The same goes for chips, electrical and cooling equipment. Inevitably, not all the ambitious multi-developments announced over the past 12 months will come to fruition as quickly as their creators – and investors – have anticipated. In a market where suppliers can choose who they work with, longstanding relationships and fair allocation of risk will be key to successful delivery programmes

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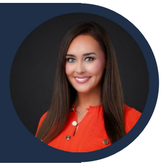

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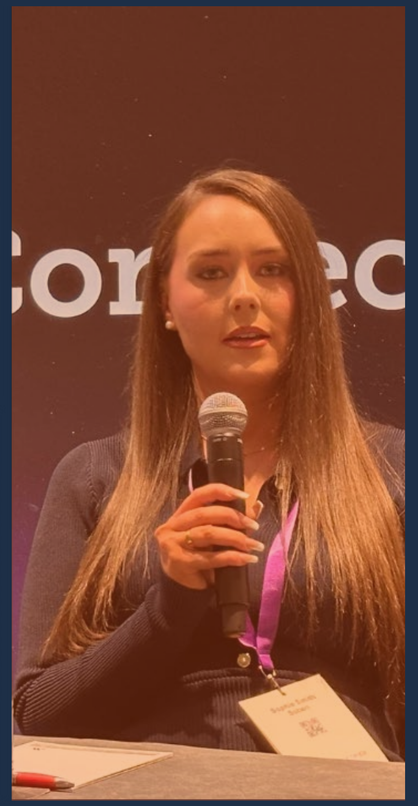
Soben is the industry leader in innovative data centre construction consultancy. Our global data centre specialists provide construction consultancy solutions to the world's leading data centre providers and tenants. Our services range from cost, project and programme management to strategic advice around sustainability, procurement and risk.

To date Soben has delivered over $18 billion and 5000 MW of projects across six continents. We are currently working with the global leaders in hyperscale and colocation data centre development on some of the world's largest, most complex schemes.

About Soben

Soben offers something different: world-class construction consultancy, paired with hands-on commercial experience. We increase certainty in our clients' investments through cost, schedule, risk, and project management. With a track record of successfully delivering major construction projects, we pride ourselves on going the extra mile.

In March 2025 Soben was acquired by Accenture, bringing together Accenture's vision of reinvention and digitalisation with Soben's industry expertise and commercial experience. As part of Accenture's Industry X Infrastructure and Capital Projects practice Soben is realizing their vision of disrupting how capital projects are delivered - creating better outcomes for our clients in a rapidly-changing market.



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