



Data Centre Supply Chain

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The data centre supply chain has evolved rapidly in response to the increasing global demand for data storage and processing. Centralised procurement, standardisation of equipment, and modular construction techniques have simplified logistics and accelerating project timelines. Certain contractors have established themselves as the go-to specialists in the sector.

Yet, these same developments have inadvertently created new risks and bottlenecks.

While the industry has made significant strides in streamlining procurement and operations, the over-reliance on a limited pool of suppliers and contractors is a growing concern. These risks, if not mitigated, could destabilise the data centre ecosystem at a time when demand is only accelerating.



1. Equipment

Centralised procurement: Streamlined control vs. supplier over-reliance

One of the most significant shifts in the data centre industry has been towards centralised procurement. Developers are increasingly managing the supply chain for key equipment themselves, moving away from reliance on general contractors (GCs) for strategic sourcing.

By negotiating long-term contracts directly with OEMs, data centre developers have reduced costs and ensured more predictable delivery timelines. This has allowed hyperscale operators including Google and Microsoft maintain a firm grip on key components such as generators, UPS systems, and switchgear, securing the equipment required to meet surging demand.

However, while centralised procurement offers increased supply chain visibility and economies of scale, it can still lead to a greater risk of supplier over-reliance and concentrates dependency on a few key manufacturers. With a small number of manufacturers providing critical components, any disruption—be it from delays, material shortages, or production issues—can cause cascading problems across multiple projects.

“The industry is over-reliant on a few key suppliers. If we don’t diversify, we’ll continue to face delays and increased costs.”

Data centre construction executive

Moreover, the impact is more acute for smaller data centre developers. Unlike hyperscalers, these players lack the financial resources to stockpile equipment or negotiate preferential terms, leaving them vulnerable to market fluctuations and supply chain disruptions.

Our database of hundreds of players in the data centre supply chain shows that there are many vendors, suppliers, and integrators in the data centre ecosystem that are small and could be consolidated—under the radar, across the ecosystem. Private equity firms are keen to consolidate these more fragmented aspects of the supply chain to build critical scale, addressing over-reliance on key suppliers and enhancing supply chain resilience.

Vertical Integration: Supply chain control vs. bottleneck risk

Many hyperscalers are also adopting vertical integration strategies by developing their own hardware components. This move can both diversify and concentrate their supply chains. On one hand, creating proprietary technologies allows companies like Meta to reduce dependence on traditional suppliers, potentially widening the supply chain through collaborations with specialised manufacturers and fostering innovation within the ecosystem. For example, Meta’s development of custom silicon for AI workloads aims to achieve greater efficiency compared to commercially available GPUs, potentially avoiding severe supply chain delays such as those experienced with the NVIDIA Blackwell AI Chip due to increasing demand.



Again, there are potential pitfalls. Vertical integration can concentrate supply chain dependencies within the company. By relying more heavily on in-house manufacturing capabilities, hyperscalers may inadvertently increase the risk of bottlenecks. If internal production faces challenges—such as technological setbacks or resource constraints—it can have amplified effects across the supply chain. This concentration can make the supply chain more vulnerable to disruptions unless robust contingency planning and redundant manufacturing processes are in place, in turn mitigating the potential advantages of vertical integration.

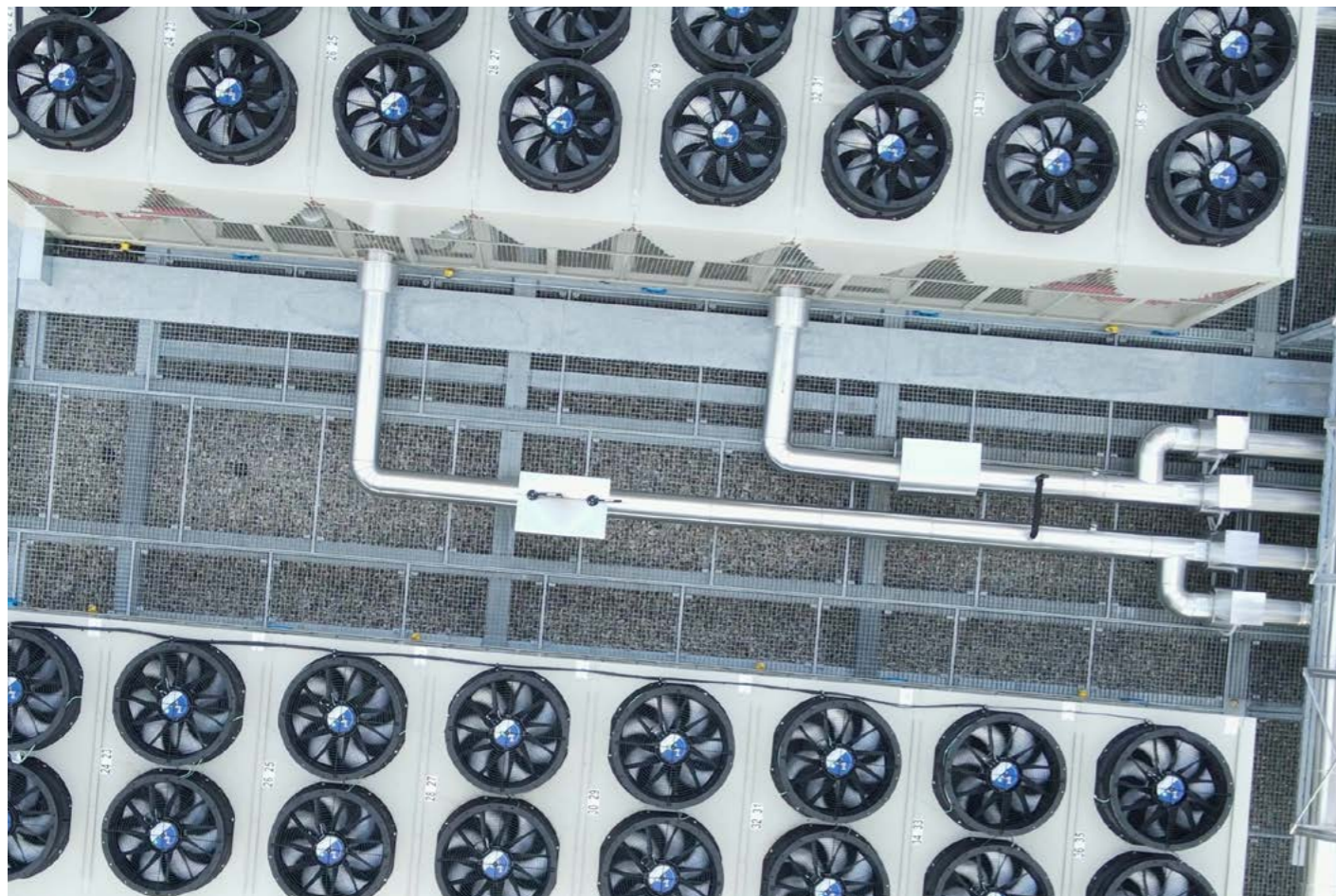
Cultivating a thriving and diverse OEM ecosystem may require data centre developers and hyperscalers to move away from centralised single or dual-source procurement and to self-limit their reliance on vertical integration. By implementing multi-sourcing strategies to diversify their supplier base and reduce dependency on single sources, they can enhance the overall resilience of the industry. Acting solely in self-interest could potentially harm the entire sector.

Standardisation: Efficiency gains vs. single points of failure

The push towards standardisation has brought several advantages to the data centre industry. By adopting uniform designs across multiple projects, developers can reduce the complexity of procurement, facilitate easier maintenance, and improve scalability. Standardised data halls allow for bulk

purchasing of components, simplifying logistics and securing cost-effective long-term agreements with manufacturers. Additionally, replicating tried-and-tested system design philosophies and standardising equipment, such as switchgear, UPS systems, and power panels, ensures quicker and more consistent construction and maintenance, giving developers greater confidence that the data centre will achieve the desired Tier classification.

The downside, however, is that standardisation introduces the risk of single points of failure. If a particular component becomes scarce, or if a particular supplier faces production delays, it could significantly disrupt the flow of the supply chain. This bottleneck is exacerbated when several operators are dependent on the same few suppliers for standardised equipment. As the industry increasingly adopts uniform designs, the need for diversified sourcing and alternative suppliers becomes critical.



Modularisation and prefabrication: Speed and efficiency vs. lack of visibility

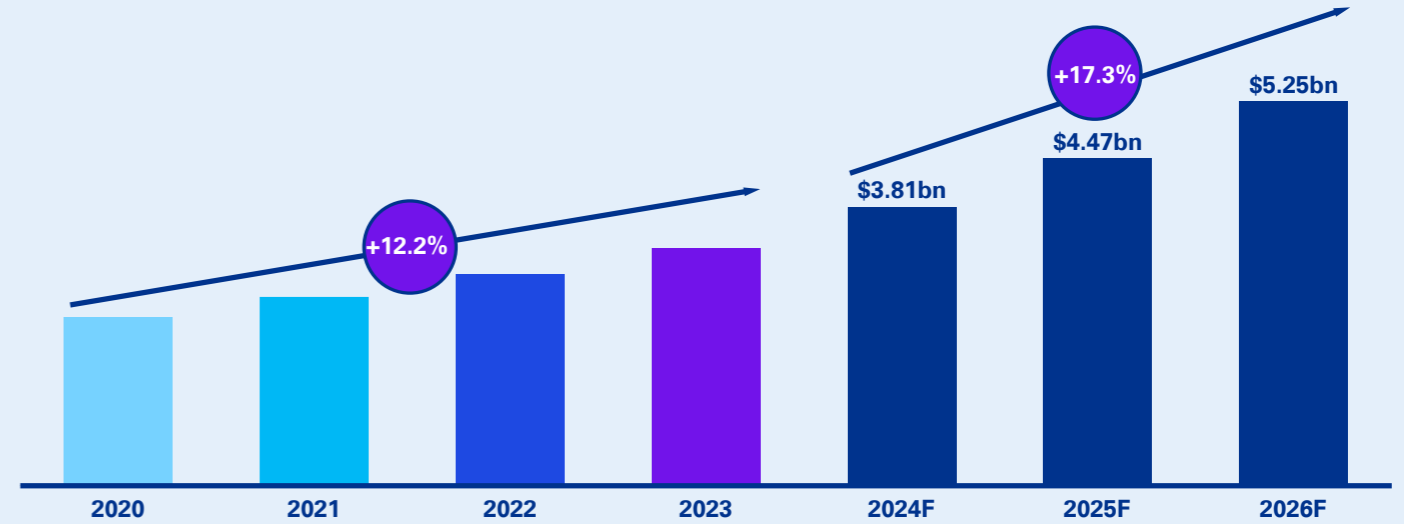


Figure 1. Growth of the prefabricated modular data centre market ¹

Prefabricated components, such as containerised generators and power systems, are assembled offsite, reducing on-site labour, improving safety, and enhancing quality control.

This approach has accelerated data centre deployment, particularly in new or remote markets where local skilled labour is limited. Offsite modularisation also allows developers to scale projects more efficiently, delivering larger data centres without the logistical headaches of traditional construction methods.

The use of modularisation and prefabrication has revolutionised data centre construction, in an OMDIA survey of data centre professionals, 99% said that prefabricated modular design was part of their future strategy while 93% stated that they would use prefabricated modular data centres as part of their construction process.²

However, modularisation brings with it significant risks related to lack of visibility. When everything was built on-site, delays and issues could be detected and addressed immediately. Now, with offsite assembly, developers lose that direct oversight. Suppliers and contractors may be reluctant to disclose delays or problems early on, as it might damage their credibility, or risk contractual penalties.

“Offsite assembly means we can’t see what’s happening in real-time. By the time we know something’s gone wrong, it’s too late, and the whole project suffers.”

Paul Henry, Head of Data Centre Construction and Delivery, EMEA, Google ³

The need for greater transparency and collaboration between developers, suppliers, and contractors is evident. Only now are some clients starting to become progressive in collaborating to reduce build times, showing interest in downstream supply chain feedback on how to improve things. Without it, the benefits of modularisation—speed and efficiency—could be undermined by hidden risks and last-minute delays.

¹ Data Center Knowledge, “Data Centers: When They Work, and When They Don’t,” 2024. [Online]. Available: <https://www.datacenterknowledge.com/modular-data-centers/modular-data-centers-when-they-work-and-when-they-don-t>
² Omdia, “Prefabricated Modular Data Center Report – 2023,” 2023. [Online]. Available: <https://omdia.tech.informa.com/om032922/prefabricated-modular-data-center-report-2023>
³ Speaking at DCAC (Data centre antic-conference) Europe, Dublin, October 2024.



2. Construction

Preferred contractors: Reliability vs. capacity constraints

Typically, developers prefer to engage with the small pool of data centre specialist general contractors that have established their reputations in the data centre sector.⁴ Similarly, GCs maintain a list of trusted subcontractors whom they approach first when managing a project. This approach is driven by established relationships and the invaluable experience these subcontractors bring to data centre construction. Since data centres tend to follow standardised designs, GCs prefer to work with these seasoned subcontractors who are familiar with essential aspects like design, delivery, program management, and health and safety.

However, the data centre industry's reliance on a limited pool of general, mechanical and electrical and other sub-contractors is a major risk. Over-reliance on a limited supplier base introduces risks related to capacity, cost, innovation, and vulnerability to disruptions. To mitigate this, developers must seek to bring in new entrants who can help diversify the supply chain.

“The industry is crying out for more capacity and expertise. We can't keep relying on the same big contractors. We need more players who can help us scale our operations and de-risk our supply chains.”

Hyperscale data centre developer

The opportunity for new players to enter the market is significant, particularly as developers are expanding into new regions such as Southern Europe and the Nordics, where local supply chains are underdeveloped. These new entrants can offer localised expertise, faster response times, and the potential to ease the load on overstretched global suppliers.

However, the barriers to entry are high. Data centres are often seen as a contentious aspect of modern infrastructure due to the massive energy demands they place on national grids, already under strain as governments work to transition towards greener energy solutions. This political sensitivity has led developers to be highly selective about their supply

chain partners – both in terms of equipment providers and contractors – prioritising those who meet rigorous standards in health and safety, environmental sustainability, and quality. Any failure in these areas could trigger a public relations crisis, adding another barrier for new suppliers to overcome.

Instances where operators have engaged contractors without sufficient local experience have led to challenges, for example one hyperscaler faced significant delays in Belgium when it engaged a contractor with limited experience, underscoring the importance of leveraging experienced subcontractors to ensure project success.

Introducing new contractors, may involve short-term challenges due to their learning curves and potential mistakes from inexperience. Without the specialised expertise of established players, new contractors may lack knowledge of the most efficient methods or best practices in data centre construction, leading to errors in design, execution, and compliance that can result in delays and cost overruns.

New entrant contractors might also struggle with accurate project pricing, often submitting lower bids to win contracts only to realise later that they have underestimated costs. This mispricing can lead to financial strain, potentially affecting their ability to deliver and compromising project quality.

“Without the know-how of the established players like Mercury, Winthrop or Jones Engineering, new contractors inevitably stumble over design and compliance hiccups, adding delays and extra costs. And when they bid to win a contract, they often learn the hard way that their numbers didn't quite add up. All that makes it even more challenging for them to succeed and stay in the sector. Seasoned developers really need to adopt a duty-of-care approach to nurture these contractors into the industry.”

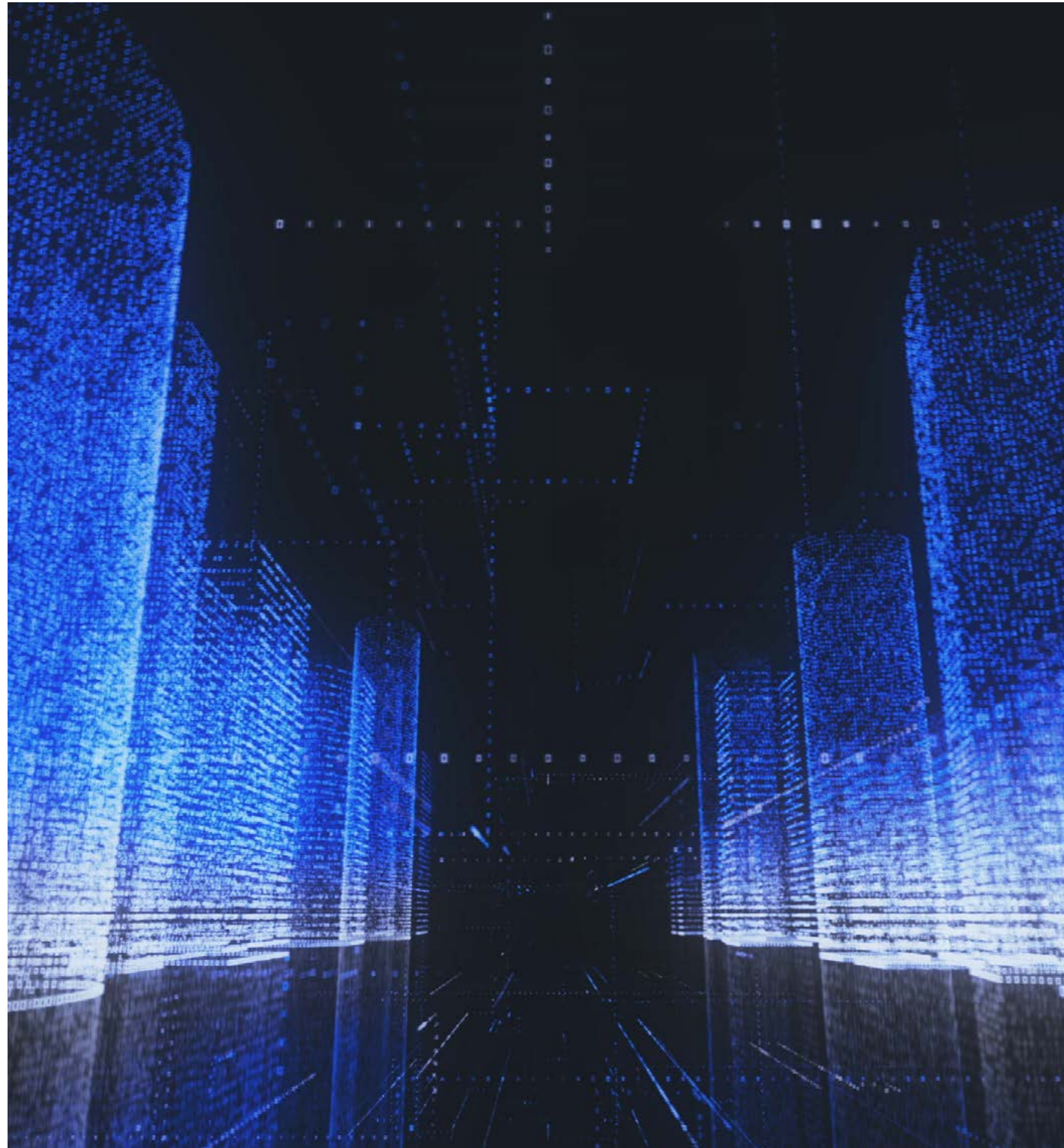
Senior quantity surveyor

⁴ We have observed some hyper-scalers reverting to splitting their data centre construction projects between two general contractors for some projects. GC1 is responsible for major structural components, or the “powered shell,” and other heavy construction tasks, while a second contractor, GC2, handles the Mechanical, Electrical, and Plumbing (MEP) systems, as well as lighter interior fit and finish work. While this approach can help in managing supply chain issues, it removes the advantage of having a single point of contact for risk transfer and management, potentially complicating coordination and accountability across the project.

Developers may be able to support new entrants through partnerships, mentorship, guidance, and being prepared for initial setbacks. By working together to lower barriers and support the onboarding of new players, they can offer opportunities for smaller suppliers to scale their operations. This collaborative approach is crucial for fostering a more resilient and adaptable supply chain.

By investing in new contractors now, clients can foster competition, hold established contractors accountable, and potentially reduce long-term costs, thereby preventing monopolistic practices.

Furthermore, there may be a potential ‘first-mover advantage’: by supporting a new contractor through their growth phase, clients and contractors can develop a deep sense of trust and mutual reliance. A nurtured contractor is more likely to prioritise the needs of the developer who provided their initial opportunity in the data centre sector over those of other clients.



3. The path forward

Widening the ecosystem: Fostering collaboration and transparency

The future of the data centre supply chain depends on greater collaboration and transparency across the industry. Historically, companies have been secretive about their supply chains due to competition concerns, but this secrecy has become a major hindrance as demand outpaces supply. By fostering a more open and cooperative approach, developers and suppliers can reduce the risk of delays, improve efficiency, and build a more resilient supply chain.

One proposed solution is the creation of industry forums and working groups, where developers, contractors, and suppliers can share best practices, address common challenges, and collaborate on innovative solutions. These forums would also provide a space for new entrants to engage with established players, helping them integrate into the supply chain and meet industry standards.

However, in a highly competitive market where supply is limited and demand is high, companies may be reluctant to share insights that could erode their competitive advantages. This reluctance can hinder efforts to foster the very collaboration needed to address industry-wide challenges. While the idea of industry forums and working groups is beneficial in theory, implementing such collaboration represents a substantial leap in practice.

To all stakeholders in the data centre sector: Are you prepared to embrace open collaboration to enhance supply chain resilience, even if it requires rethinking traditional supply chain strategies?

Technology: Lagging Adoption of Best Practices

Technology plays an essential role in modernising the supply chain, especially for projects as large and complex as data centres. Digital platforms that offer real-time tracking of supply chains, predictive analytics for managing deliveries, and seamless coordination between stakeholders have the potential to revolutionise how data centres are built. Platforms like EIDA's Offsite Manufacturing Software [\[Link\]](#) streamline logistics, offer real-time insights into the location and status of materials, and reduce the likelihood of delays caused by unexpected bottlenecks.

However, the industry's adoption of best-in-class supply chain management tools has not been universal. While some hyperscalers and industry leaders are investing in cutting-edge software to manage their procurement and delivery schedules, many data centre construction teams and procurement departments still rely on manual processes. Some GCs do

have internal data systems in place, such as Datascope [\[Link\]](#), a project management and logistics platform that enhances visibility and coordination across supply chains; used by GCs active in the data centre sector, such as Mercury, Mace, and Laing O'Rourke. These platforms allow subcontractors—who often interact with them more than GCs themselves—to track material deliveries, manage access control, and optimise onsite resources in real time.

“Some contractors might be using supply chain software, but I haven’t really seen it catch on in data centre construction. Maybe I’m old fashioned, but in my view, a good project manager can handle supply chain issues without relying on software—it’s not a magic fix and may just add more work. Plus, someone has to manage the software, and often project managers aren’t experienced enough to do that right.”

Senior quantity surveyor



While this perspective highlights valid concerns about the potential complexities of integrating new technologies, it also underscores the importance of balancing traditional project management skills with modern tools to enhance overall efficiency.

“Projects in more space-constrained urban areas face different logistical challenges than those in locations outside major cities or in less densely populated regions, where there is greater flexibility for streamlined deliveries and offsite stockpiling. For those tricky urban builds – like in West London, lack of investment in modern tools leaves us vulnerable to delays, miscommunications, and inefficiencies.”

Data centre construction project manager

In emerging data centre markets, where supply chains are strained, developers who fail to adopt digital platforms may also struggle to synchronise deliveries, further compounding the risks of late or incomplete shipments.

Acknowledging the concerns raised by some industry professionals, it is evident that successful integration of supply

chain technologies requires adequate training and a strategic approach to implementation. By addressing these challenges, companies can mitigate the perceived drawbacks and fully leverage the benefits of digital transformation.

Consequently, failing to adopt advanced supply chain automation technologies could risk project-level profitability and timelines, especially as data centre projects extend into new regions and grow in complexity and scale. In a sector where precision and timely delivery are paramount, the lack of real-time tracking, predictive analytics, and seamless coordination can lead to costly delays and missed opportunities.

To all stakeholders in the data centre industry:
Are you ready to commit to full-scale digital transformation in supply chain management to enhance efficiency and resilience, even if it means overhauling traditional practices?



At KPMG Ireland, we understand the critical role data centres play in today's digital economy. Our Data Centre Ecosystem Hub is dedicated to providing comprehensive advisory services that span the entire data centre lifecycle.



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<https://kpmg.ie/datacentresupplychain/>

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