



DCD>Survey: Data centre construction

Exploring attitudes and trends in
data centre construction in 2025

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Introduction

With the demand for compute power at an all-time high, the proliferation of generative AI and other high-density workloads has now catalysed a seemingly insatiable surge in data centre development. In a bid to meet this need, key industry players are projected to deploy an enormous amount of capital – approximately \$1.8 trillion between 2024 to 2030, [according to BCG](#).

Although industry expansion is, of course, excellent news for the sector, there are several factors at play slowing its progression. As the power required to operate AI-enabled data centres grows, so too does the strain on ageing electrical infrastructure, which was never designed to, nor is it capable of handling, the kind of fluctuating electrical loads posed by the kinds of applications we're seeing today.

Upgrading is the obvious answer to this dilemma, but with development periods for a typical greenfield data centre around two to three years, and the time needed for necessary infrastructure upgrades spanning four to eight, the maths don't match the reality. This leaves data centre developers contending with challenges around getting access to the power required, with lengthy wait times for interconnection and bottlenecks in power infrastructure making solving the power puzzle all the more complex.

Compounding the issue, supply chain constraints, a lack of skilled labour, and a renewed onus on the sustainability of these facilities via ever-evolving rules and regulations, make constructing a data centre on time and to budget seem nigh on impossible. In this survey, we examine how priorities in data centre construction have changed as a result of the AI era, exploring the barriers to development, as well as some of the sentiments and solutions surrounding this newfound data centre landscape.

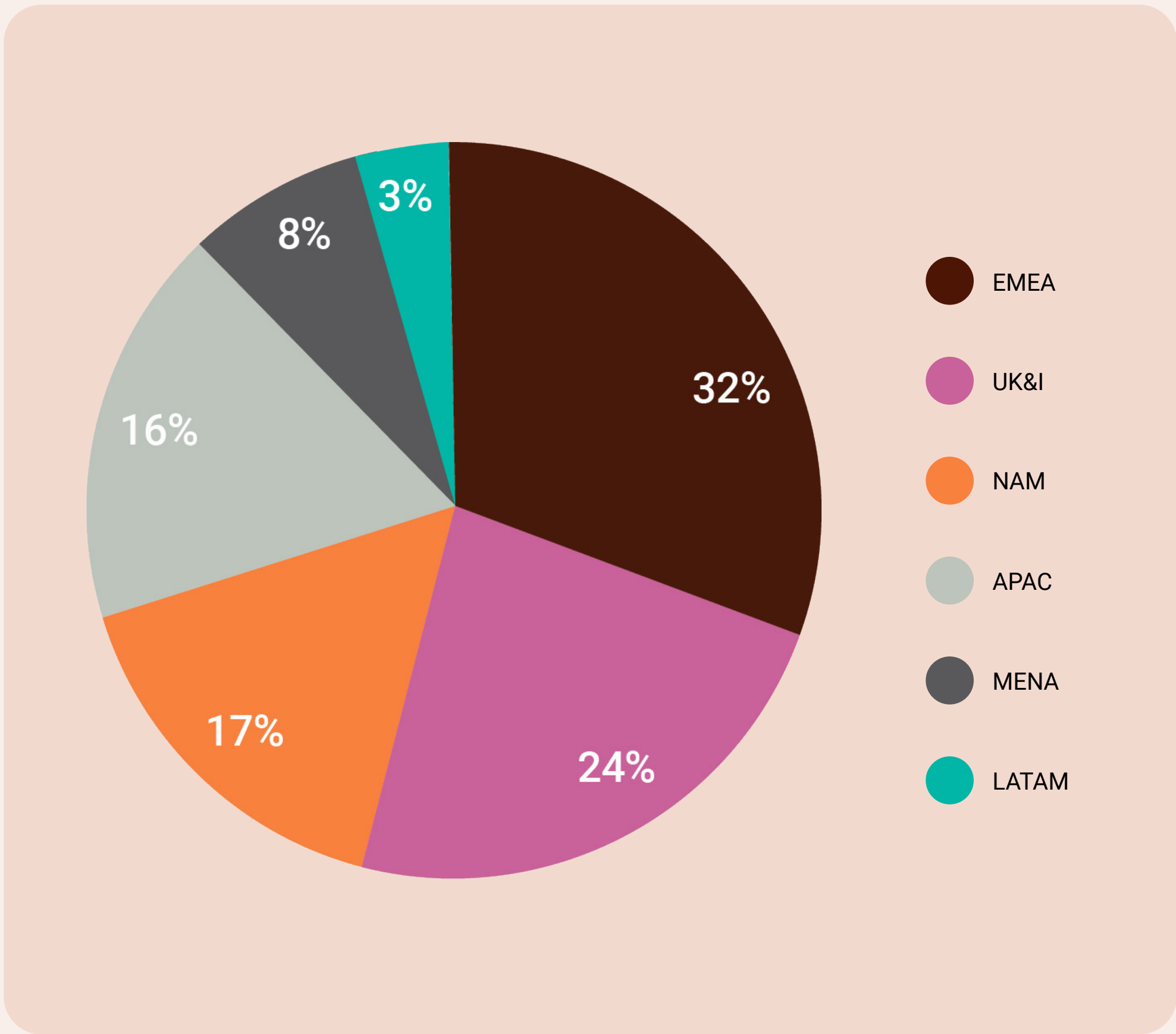
**Results based on feedback from 175 global respondents.*

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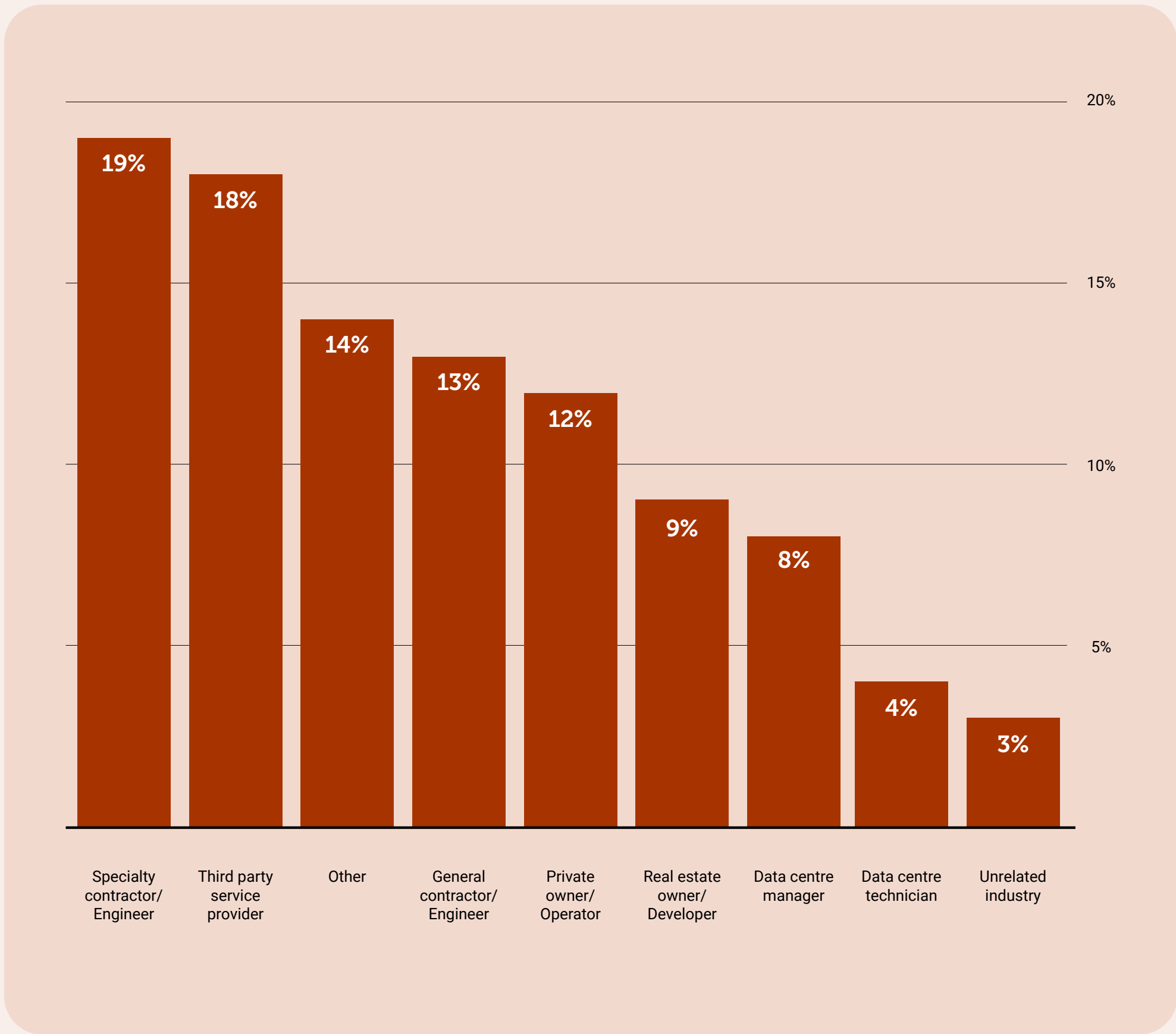
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Respondent demographics from 175 global respondents

Where are you located?



What is your job function?



1. What is the greatest challenge impacting data centre development today?

The results

As the demand for data centre development – primarily driven by generative AI and its voracious appetite for power – continues to outpace the capabilities of ageing electrical infrastructure around the world, it's no surprise that access to power, supply chain issues and availability of resources were cited as the top three factors impacting construction today, with 61, 23, and 11 percent respectively.

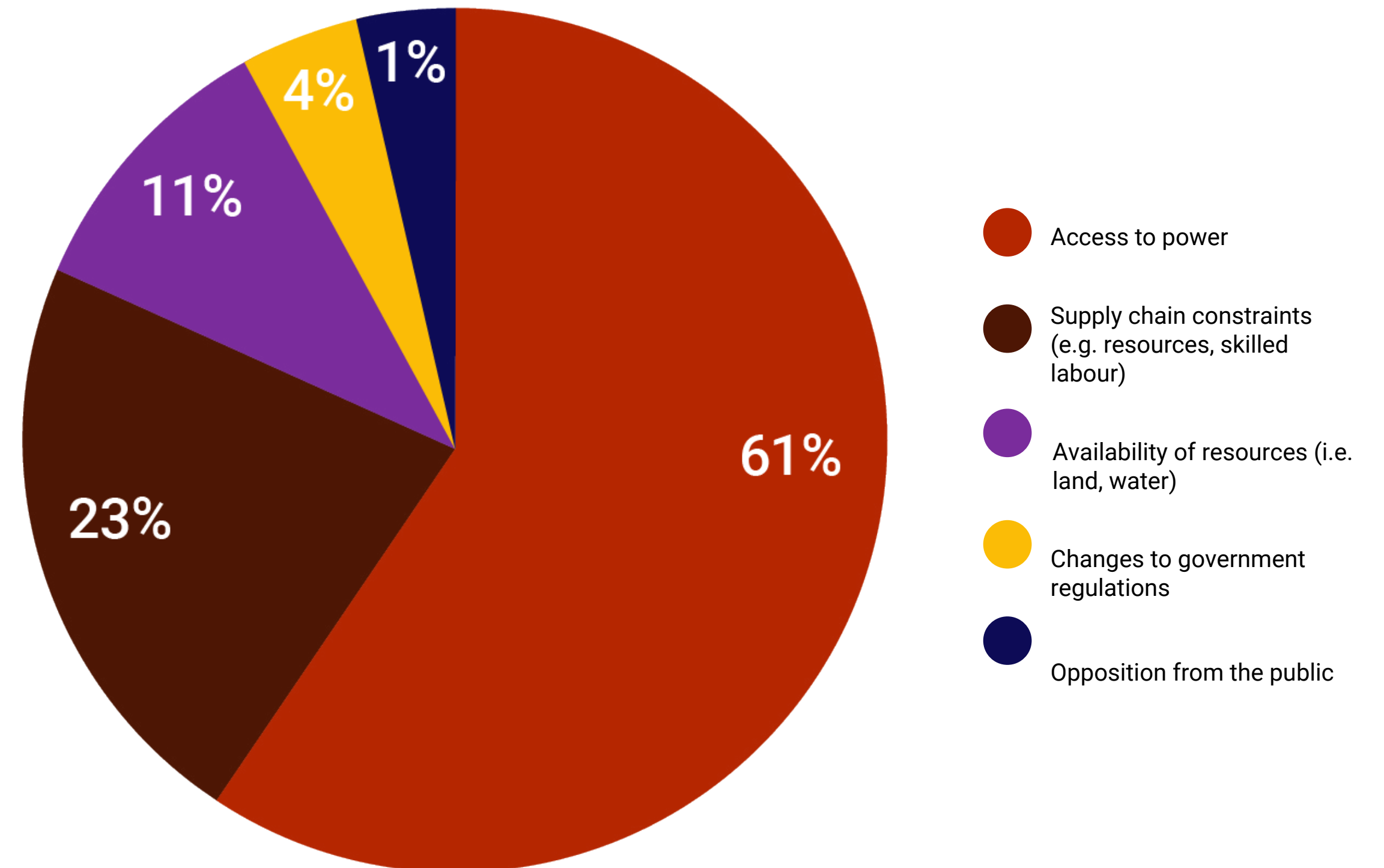
Suggested actions

Collaboration is key

Historically a highly secretive, siloed industry, the data centre sector is now starting to realise the benefit of collaboration with utilities. Early integration into utility planning cycles means facilities can be sited in such a way that is mutually beneficial to both parties, even bringing in regulators to push new builds in the direction of 'preferred' development zones (which can be done via incentives such as streamlined permitting processes).

A strong, independent data centre

Or more accurately, a strong, independent, supportive data centre. Showing a willingness to ease grid pressure, or better still, give something back, through the implementation of behind-the-meter (BTM) energy resources such as microgrids, on-site renewable generation or energy storage can potentially help mitigate grid bottlenecks and accelerate time to power. Although not a panacea, every contribution counts, and as technology continues to evolve in terms of ensuring the reliability of these off-grid solutions we expect to see more of an uptake from those operating mission-critical facilities.



2. Rank these by priority with respect to data centre delivery:

The results

With delivering ‘on time and within budget’ ranked as top priority when it comes to delivering on data centre projects and ‘minimising rework and costly errors’ cited as the second most important factor, it would seem that any barriers to a data centre build becoming operational are front of mind across the board. Pressure from stakeholders could be instrumental in this way of thinking, seeing as any ROI is on hold until the data centre is up and running.

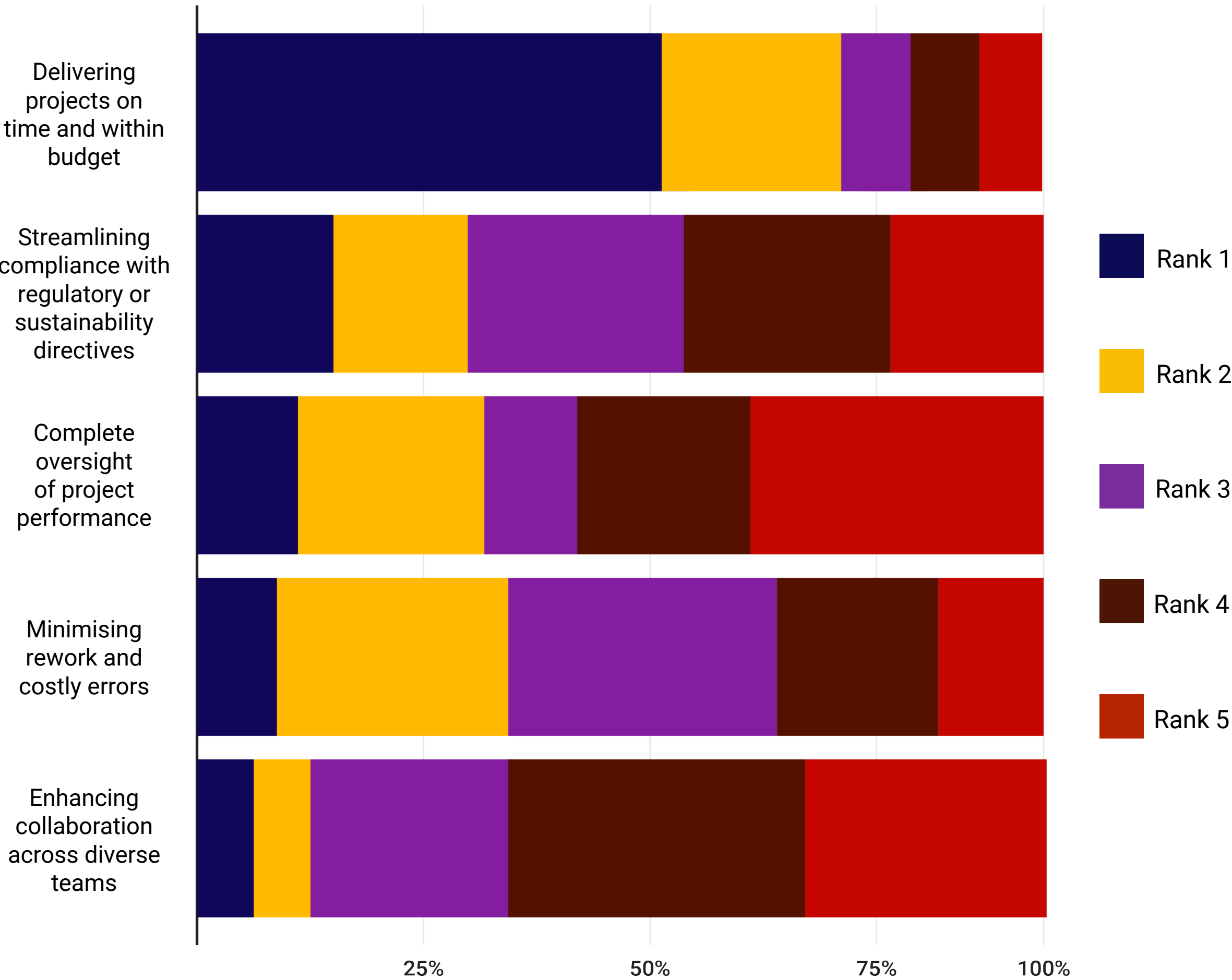
Suggested actions

Troubleshooting through value engineering

To help achieve that critical trifecta of budget, timeline, and performance, value engineering (or VE) is, well, invaluable. This is a systematic approach that aims to maximise project value by balancing cost, utility, and performance, without compromising on quality, whilst also looking beyond short-term solutions to solve potential problems. Take materials, for example, would a slightly pricier option be smarter in terms of maintenance and operational costs in the long run? Would a simpler solution suffice? How can we bolster safety and reliability without inflating the budget? Answering and acting on these questions can help streamline construction, cut costs, and enhance performance.

Delivery on demand

When it comes to delivering on time and within budget, utilising a construction management platform will pay dividends. These platforms are essential for optimised task management, acting as a single source of truth that has engineers, architects, and project managers singing from the same hymn-sheet. Used in tandem with building information modelling (BIM) tools in the design phase, the chances of error, rework, or miscommunication are reduced, enhancing overall collaboration across teams.



3. What is the greatest risk to your data centre projects?

The results

Supply chain issues (30 percent), skills shortages (25 percent) and time delays (23 percent) were cited as the top three greatest risks to data centre projects – and with lead times for some essential equipment having doubled since 2022, coupled with a sharp rise in legal disputes with contractors causing costly delays, it's easy to see why. These disputes are largely due to the fact that traditional procurement models now tend to push most of the risk onto suppliers and trade partners, resulting in defensive behavior, bottlenecks, and budget overruns.

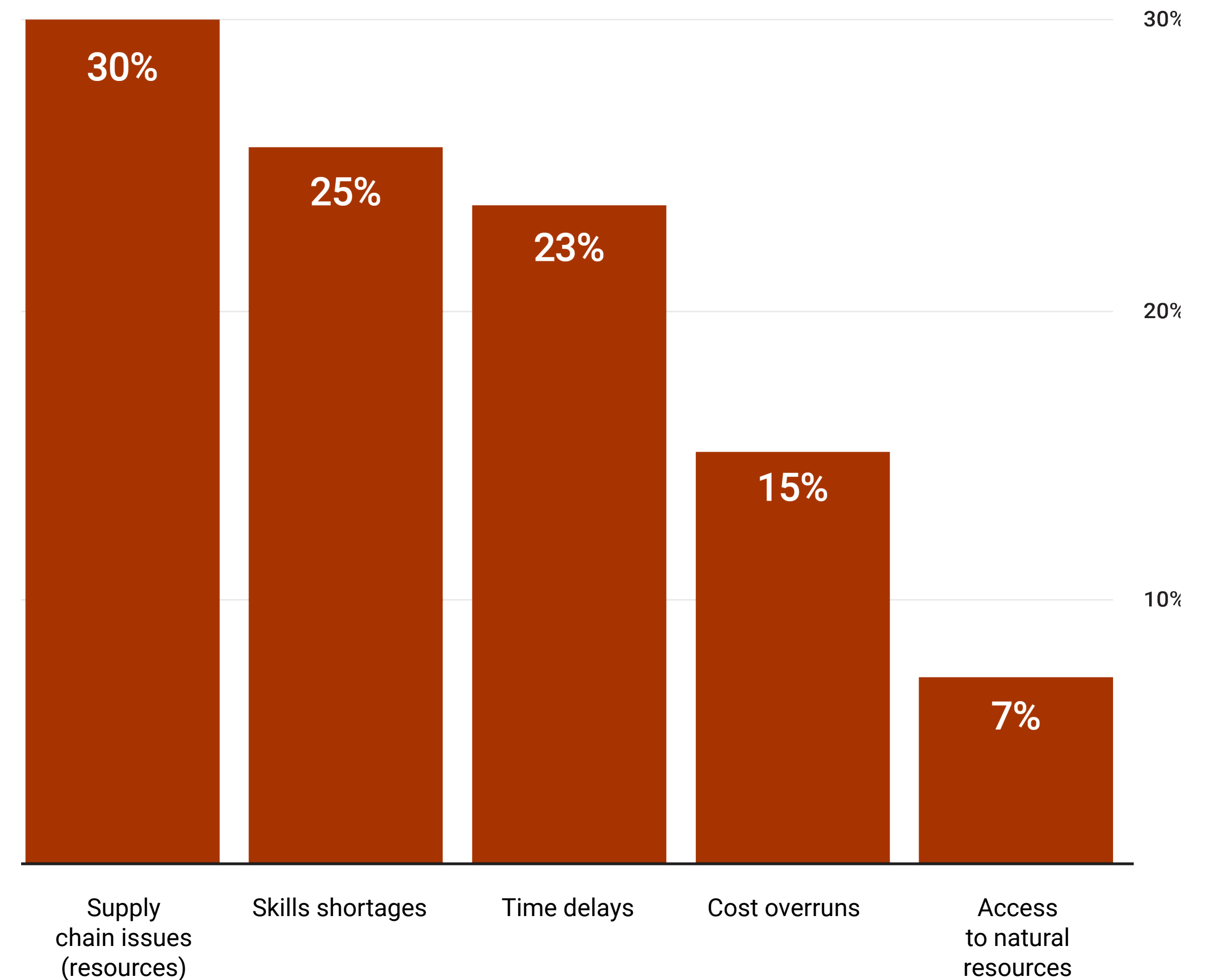
Suggested actions

Balancing risk and reward with integrated project delivery

Also known as IPD, Integrated Project Delivery brings together all project stakeholders early doors to improve planning, foster stability between suppliers, contractors and developers and importantly, help avoid any potential disputes. Using IPD ultimately means better supply chain visibility, lowering the risk of last-minute procurement delays, helping to create more reliable, scalable supply chains in the long term. IPD often uses technologies like Building Information Modeling (BIM) too, further enhancing collaboration and communication during the design phase of a project.

Create your own unicorn

When it comes to data centre construction, the desired skillset is often one consisting of X years' experience in general construction and Y years' that is data centre specific. With the industry as it stands today being relatively new, finding someone that can do it can end up a hopeless search for a unicorn, also thanks in part to an ageing workforce and the industry struggling to attract new talent. Upskilling the existing workforce is essential, whether through certifications, training, or on-the-job programmes. Embracing digital tools is also key – not only to boost efficiency, but to meet the expectations of younger talent entering the industry.



4. How have your construction costs changed over the past year?

The results

The results here speak for themselves, with a collective 79 percent of our respondents having experienced an increase in construction costs over the past year, with 62 percent of those citing the increase as 'significant' When compared to the responses we got for the same question last year, under 50 percent experienced an increase in construction costs, with under 20 percent highlighting the increase as significant. This is a testament to how quickly the industry is evolving, the speed at which new technology is proliferating and the challenges it presents.

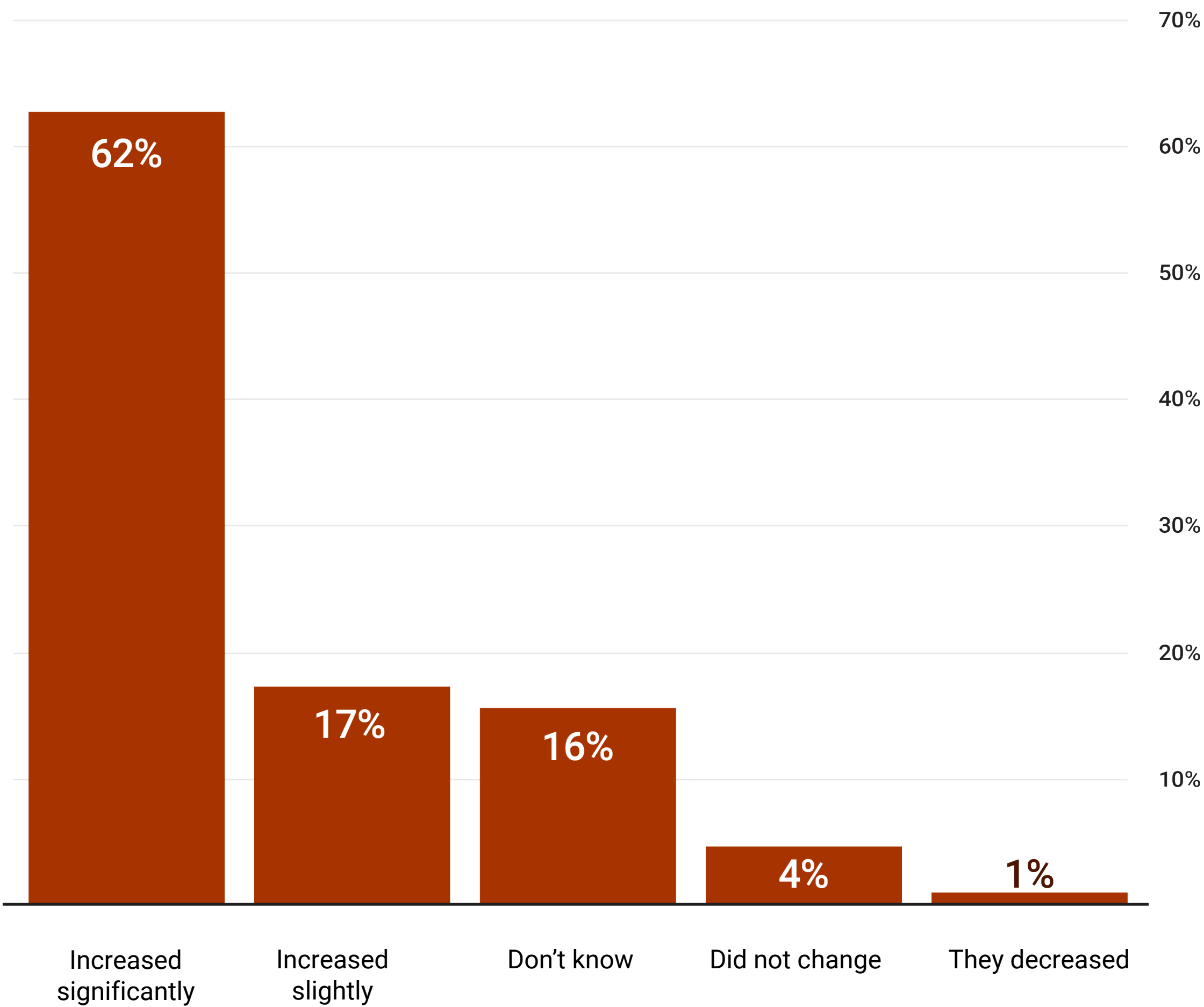
Suggested actions

Modular thinking

Modular data centres are increasingly coming to the fore as a cost-effective alternative to traditional construction methods. These prefabricated feats of engineering can bring down design and management costs by up to 30 percent, largely by getting more of the data centre built, with less people involved. And we're not just talking electrical skids, but whole walls, conduit runs and fibre banks can be pre-fabricated.

Success on site

While BIM systems may be great in terms of assisting with design, ensuring this virtual vision translates seamlessly into the real world is a different matter. A construction management platform on the other hand uses BIM models to empower teams to cut through the chaos, managing on-site logistics, streamlining sequencing and improving interface quality. To further enhance efficiency and accuracy on site, some platforms also incorporate robotics and layout optimisation, with the ability to help reduce waste through smart procurement and just-in-time delivery.



5. What is the greatest point of friction when delivering data centre projects?

The results

Echoing the sentiments of questions one and three, supply chain issues (alongside regulatory hurdles) have once again come up as the top bone of contention (44 percent) when it comes to delivering data centre projects, followed by communication breakdowns between stakeholders (24 percent) and a lack of transparency or real-time updates on project progress at 22 percent. Although there were votes for ‘difficulty managing sustainability or energy efficiency targets,’ this could hold up a project later down the line, the other answers are likely to have a more immediate impact.

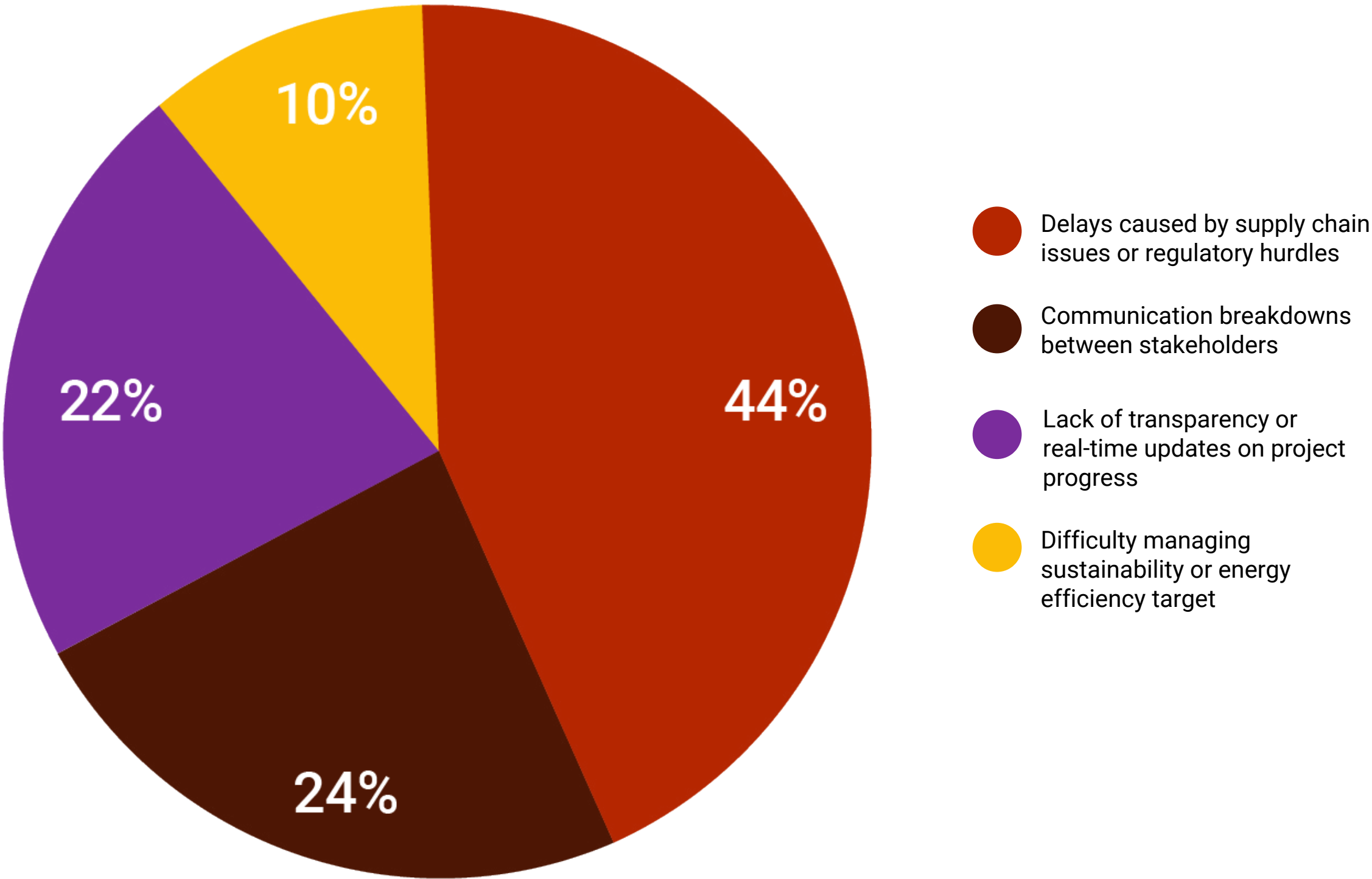
Suggested actions

Put data front and centre

We all know how frustrating it can be when communication breaks down in the workplace, causing delays, rushing to catch up or things not being done altogether. Luckily for most people, the knock-on effects of poor communication don’t have the potential of costing millions to resolve. This is why in the world of data centre construction, data is your friend. Utilising a centralised data management platform provides all stakeholders with a real-time, holistic view of the whole project, from monitoring progress, to tracking budgets and identifying potential risks early on.

Buy in bulk

It’s no secret that lead times for some critical equipment have gone from months to years in some cases. If you have the available capital, securing equipment with long lead times in bulk and in advance may be a wise investment. Working with engineering, procurement, and construction partners, as well as setting up standing orders with suppliers can be advantageous in doing so. Stockpiled equipment can then be stored with a third-party logistics provider – a far cheaper option than not having a vital piece of equipment when it’s needed.



6. How many software programmes are you using to manage projects?

The results

With breakdown in communication among stakeholders cited as a key cause of friction in the previous question, the answers here may give us an indication as to why. With the majority (47 percent) of our respondents currently using two to three software programmes to manage projects and 24 percent using four or more, it's easy to see why multiple (and perhaps conflicting sources of information, likely with varying degrees of access, could cause confusion. As for the 10 percent of respondents that don't use software at all, it would be interesting to follow up with them to ascertain what methods they are implementing and how that impacts communication during a project.

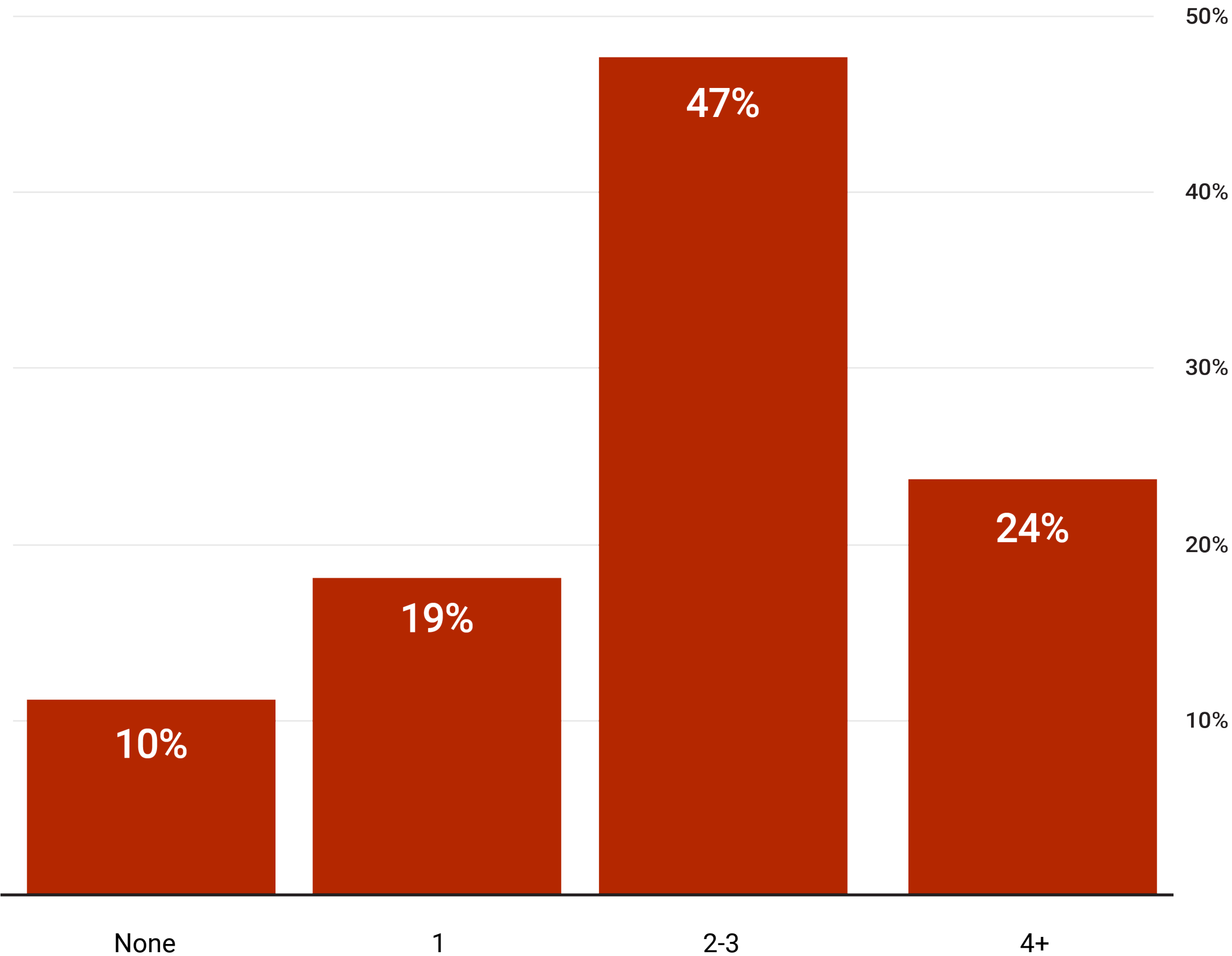
Suggested actions

Communication on a local level, at global scale

In comparison to other commercial construction projects, data centers tend to have many more stakeholders, which is partly why communication breakdowns are so rife. And while many data centre owners are multinational corporations trying to coordinate their efforts globally, builds will of course have varying local standards and regulations, meaning these owners often set their own standards to ensure the quality and safety of their facilities. Therefore, ensuring everyone involved is on the same page, with access to the same, real-time, accurate information can help mitigate the potential of any crossed wires.

Standardise and streamline

Due to the fact owners and their chosen contractors often partake in projects spanning the globe, having systems that help standardise the way they develop, store, and share plans, schedules and designs will help ensure the project runs smoothly, enhancing speed to revenue and streamlining communication. Additionally, this will help provide repeatable references that could be used in future projects.



7. When using a construction management software to manage your day-to-day activities, what are the most important features to keep your projects on track?

The results

It would appear that when it comes to tracking day-to-day activities using construction management software, our respondents want it all. Answers were relatively evenly split, with ‘user-friendly interfaces for non-technical teams’ and ‘integration with existing tools and workflows’ both garnering 20 percent respectively. That said, ‘cloud based access for better collaboration’ was a close second with 16 percent, followed by ‘strong analytics tools to improve reporting and performance monitoring’ with 15 percent. The ability to scale up or down depending on the project was also notable, with 12 percent.

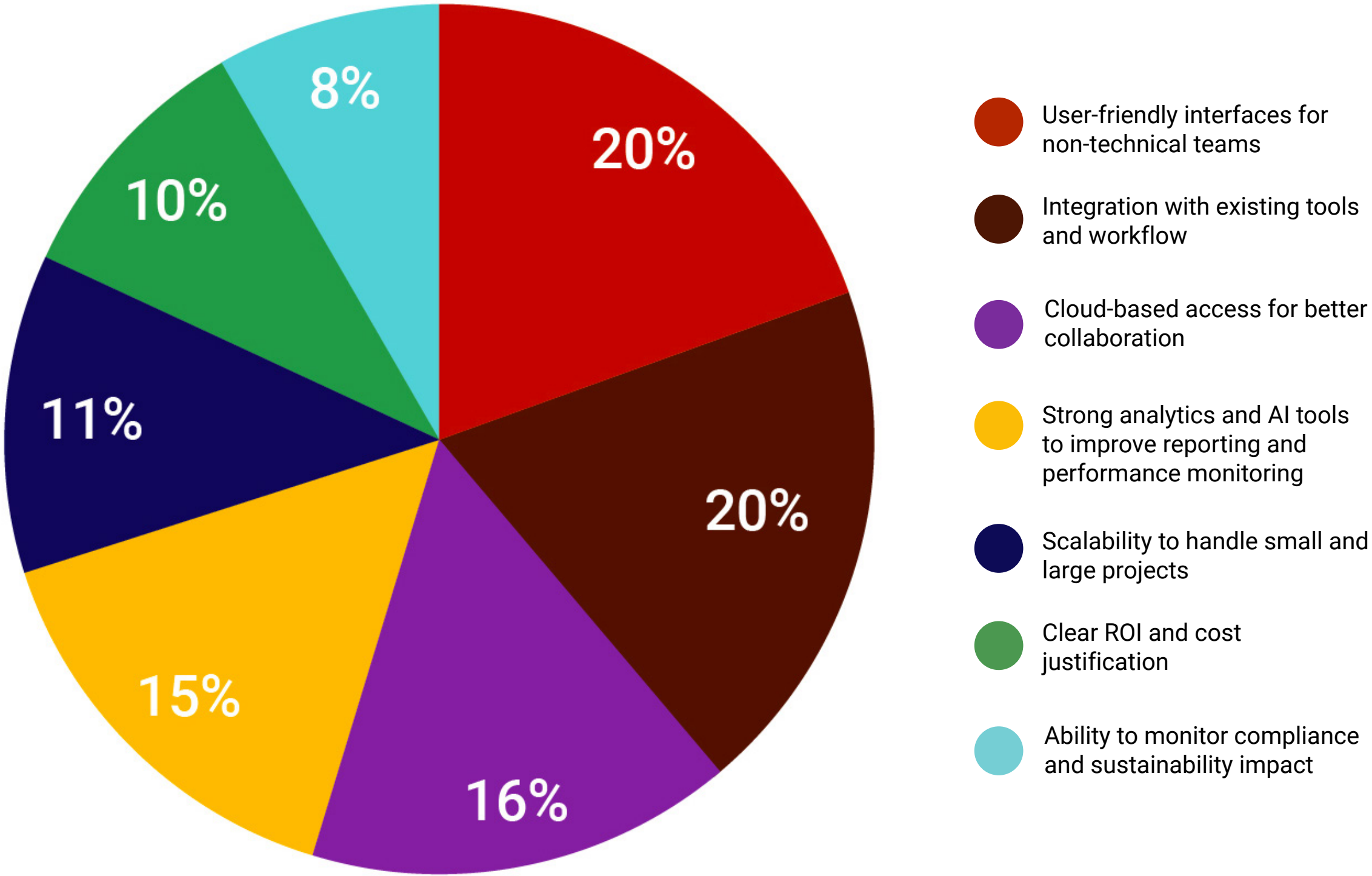
Suggested actions

Define your delivery goals

With 20 percent of our respondents seeking ‘user-friendly interfaces for non-technical teams’ from their construction management software, it makes sense to start small. Ask yourself how you’d like projects to be delivered, handed over and reported on, then once clear on the basics, digital solutions can be ramped up over time. To an extent, tools of any kind are only as effective as the hands they’re in, so scaling digital maturity gradually will avoid any overwhelm and increase the chances of positive engagement across all teams.

An embedded experience

With ‘integration with existing tools’ also cited as a priority, when it comes to selecting construction management software, future-proof your investment by ensuring you choose a platform that not only integrates well with your current setup, but offers flexibility withi the tech stack. This way, information from multiple systems can be combined, enabling access to best in class point solutions, integrated into a single platform that makes sense of all of that valuable data.



8. How strongly do you agree or disagree: ‘It’s not possible to build out at speed for AI and be sustainable’

The results

Although the data centre industry is a strong advocate for environmental responsibility, regulatory pressures, the seismic shift in power demand, and the rapid proliferation of AI have led 43 percent of our respondents to agree (12 percent ‘strongly’ agree) that it isn’t possible to build out at speed for AI sustainably. And with 22 percent on the fence, it is clear there is a staunch awareness that we have our work cut out. That said, a collective 30 percent do disagree in some capacity, meaning the industry has faith that speed and sustainability can co-exist. But how do we get there?

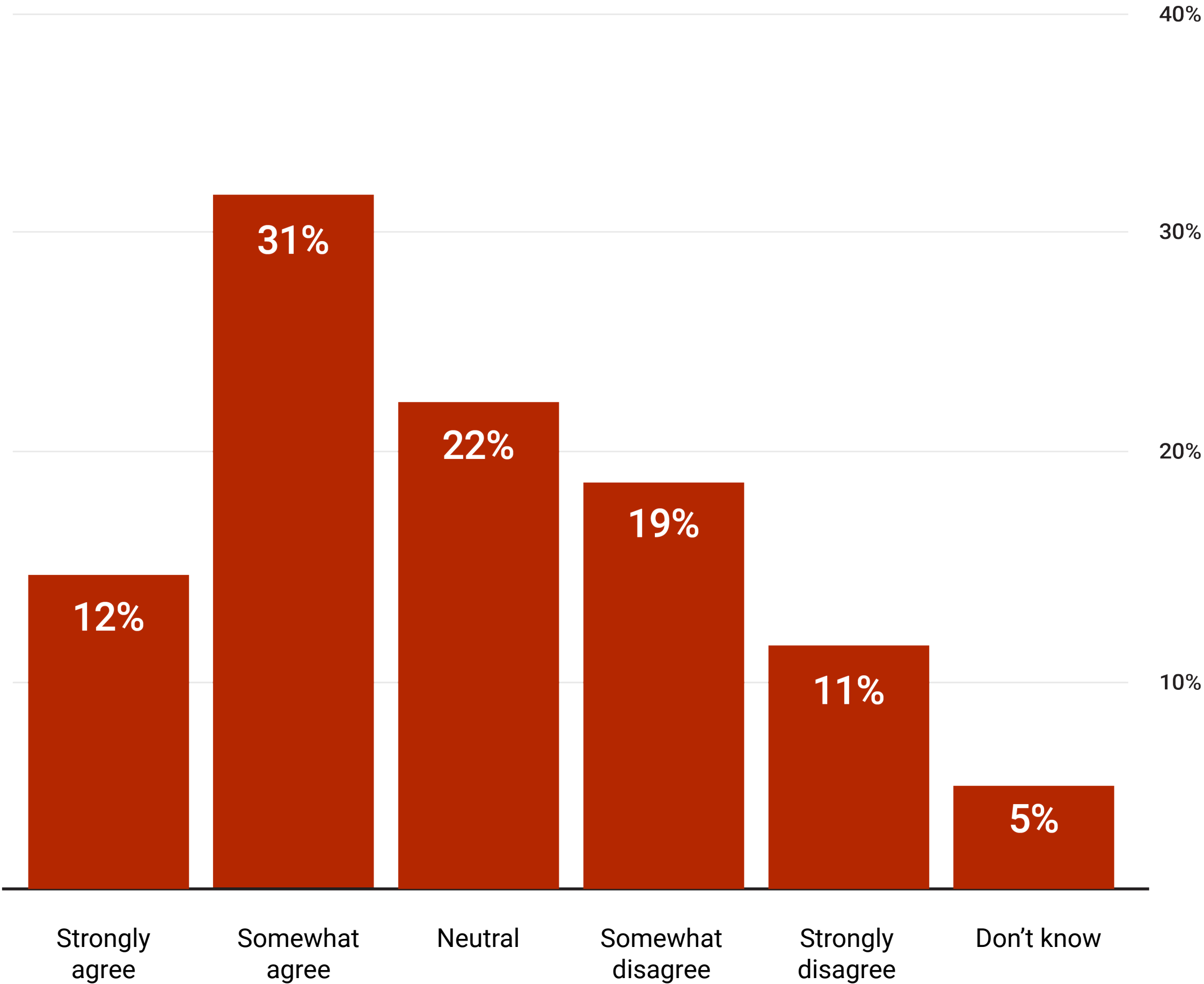
Suggested actions

Lean into AI

On the face of it, it may seem counterintuitive to use more AI, but it can actually be an integral tool in the quest for sustainability. Construction management software can leverage AI algorithms to monitor energy consumption in real-time, analysing data on energy use, material utilisation and waste management to pinpoint any areas for improvement. AI can also effectively anticipate equipment failures before they happen, meaning predictive maintenance can be implemented allowing for timely repairs to prolong the life of equipment.

Cut down carbon with hybrid construction

With hyperscalers projected to account for around 60 percent of global data centre capacity by 2029 (according to Synergy Research Group) the onus is on the big players to make the big changes. Microsoft is now building data centres using mass timber (specifically cross-laminated timber, or CLT) in a bid to reduce the use of steel and concrete. This hybrid construction approach that combines CLT with steel and concrete, is projected to reduce embodied carbon emissions by 35 percent compared to traditional steel construction and by 65 percent compared to concrete-heavy designs.



9. How well has data centre construction been able to keep up with demand over the last year?

The results

Having also asked this question in our 2024 construction survey, the results have remained largely the same in that the majority of respondents considered data centre construction to be keeping up with demand ‘fairly well’ over the past year. That said, when compared to last year, where around 10 percent of respondents cited ‘not very well’, this year we have seen this increase three fold to 33 percent, indicating that as demand has ramped up since the last survey, construction’s ability to keep up has lessened, likely due to challenges such as the availability of adequate land and power for new developments.

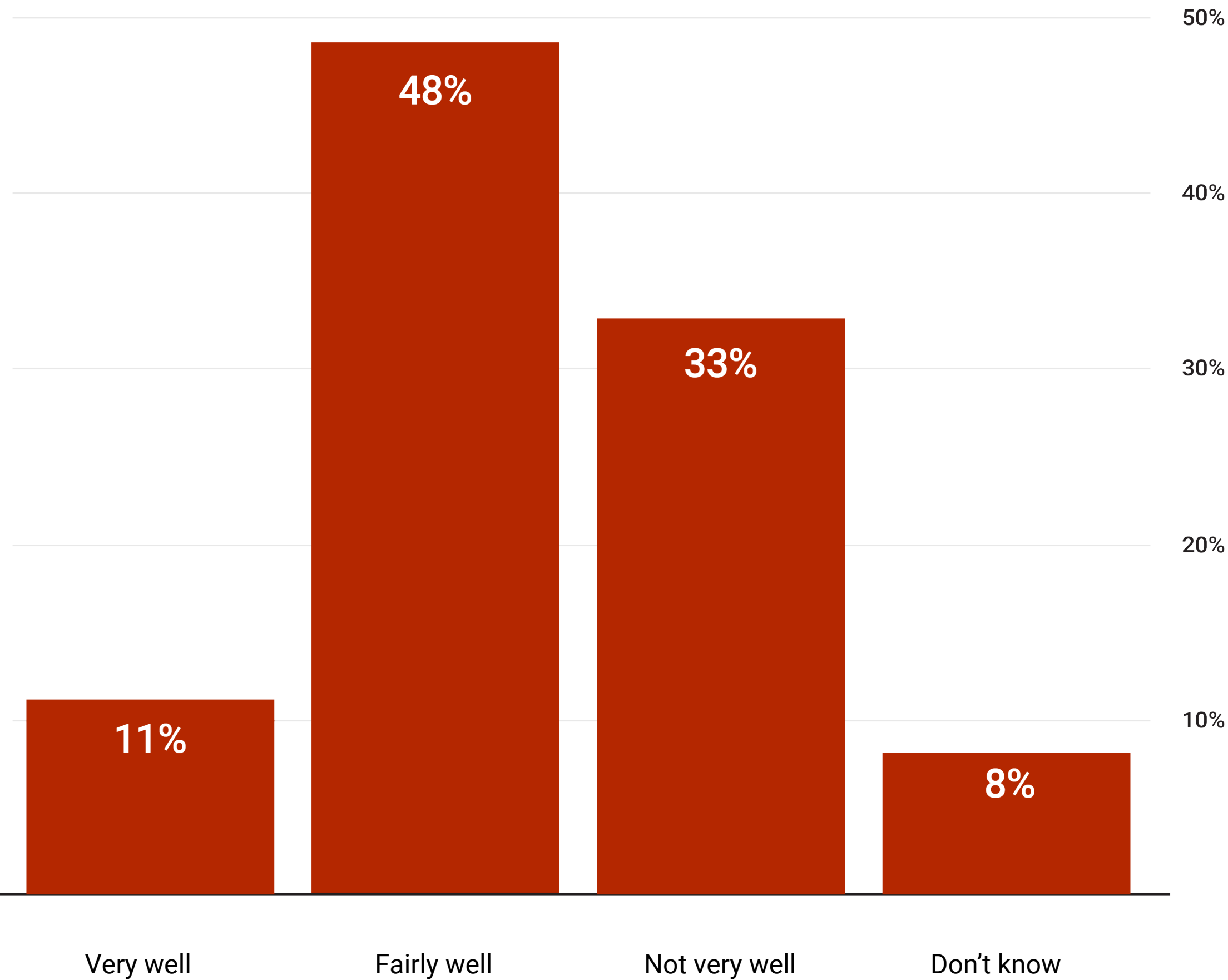
Suggested actions

Think outside the box

Or outside of key metropolitan areas, anyway. Yes, in some ways it is advantageous to build in areas of high demand, but where there is demand, there is a lack of land, and the land that is available comes at a premium. In areas like London, for instance, land prices can be as eye watering as £17 million per acre, so to avoid this, it would be wise to assess your options. For example, the redevelopment of industrial spaces, retrofitting existing data centres, or pushing deployments out to Edge locations close to demand, but in areas with more space are all solutions worth considering.

Learn, improve, repeat

We can all learn from our mistakes, and in data centre construction, you can’t accelerate delivery if you don’t know what slowed you down the last time, so the explicit use of data from previous projects to improve future deliveries is advisable. But of course, not all data is created equal, nor is all data useful, therefore access to robust analytics and benchmarking tools to track KPIs and continually assess project health is essential. This abundance of actionable data not only improves project efficiency, forecasting and financial predictions but can also aid in expansion when it comes to scaling up.



10. Where is the construction skills shortage most prominent?

The results

As per our last question, keeping up with data centre demand is not easy when the skills required to do so are in short supply, and this is made starkly apparent in the responses to this question. Electrical work has been cited as the most prominent skills shortage with 30 percent of the responses, followed by 'preconstruction and modularity' with 14 percent and 'project monitoring and onsite management' coming in third with 13 percent. This is somewhat concerning, particularly given the fact preconstruction and modularity are seen as one of the key solutions to keeping pace with developmental demand.

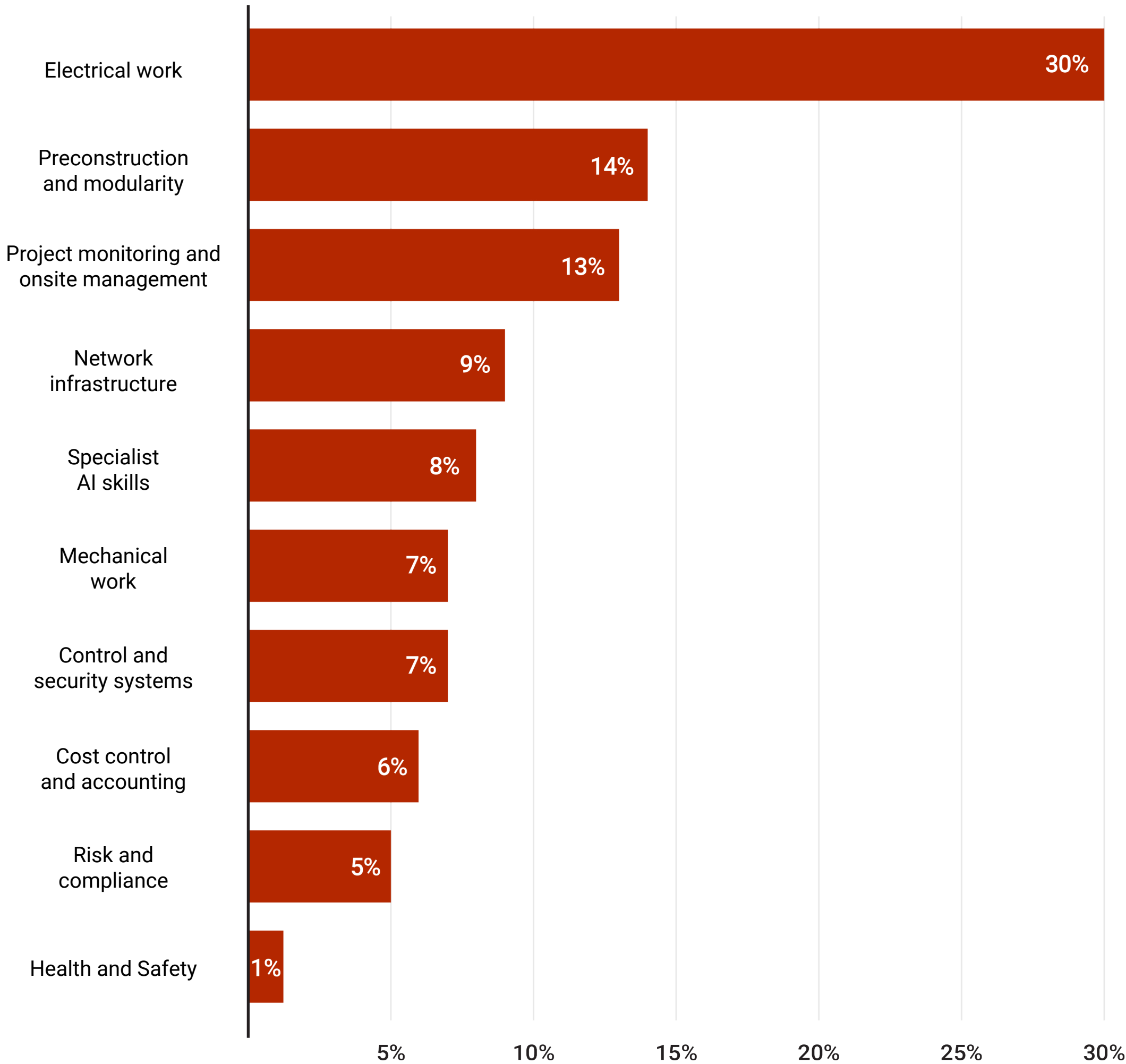
Suggested actions

Widen the talent pool with transferrable skills

Many of the skills required for AI data centre projects are not exclusive to data centres, therefore 'borrowing' skills from other construction sectors, such as mission critical healthcare developments, energy infrastructure, aviation and military facilities could help bridge the skills gap should you be unable to source specialist data centre labour. It's about looking for what is already there and utilising the skills available to help broaden the scope.

Inspiring new talent

In order to succeed in an industry grappling with an ageing workforce, these next-gen facilities require the next generation. That said, when you were at school can you recall any mention of data centres as a viable career path? Many young people don't actually know what a data centre is, so it's up to those in the industry to raise awareness of how integral to our daily lives this sector really is. Whether that's a casual conversation with a younger person, or offering training and apprenticeships, everyone can do their part to help future-proof our industry.



11. Which of these is having the biggest impact on the way your data centres are delivered?

The results

In terms of the biggest impacts on the way data centres are delivered today, it is not surprising that our top three answers are all relatively new phenomena, unprecedented if you will. We have never before had to build this fast to keep up with demand this great, or built to accommodate facilities where 1MW racks are becoming a reality, nor has the industry experienced the sheer amount of capital expenditure now required to successfully get an AI facility operational. But as the saying goes, Rome wasn't built in a day, and as the industry continues to evolve, all we can do is work together to evolve – and innovate – alongside it.

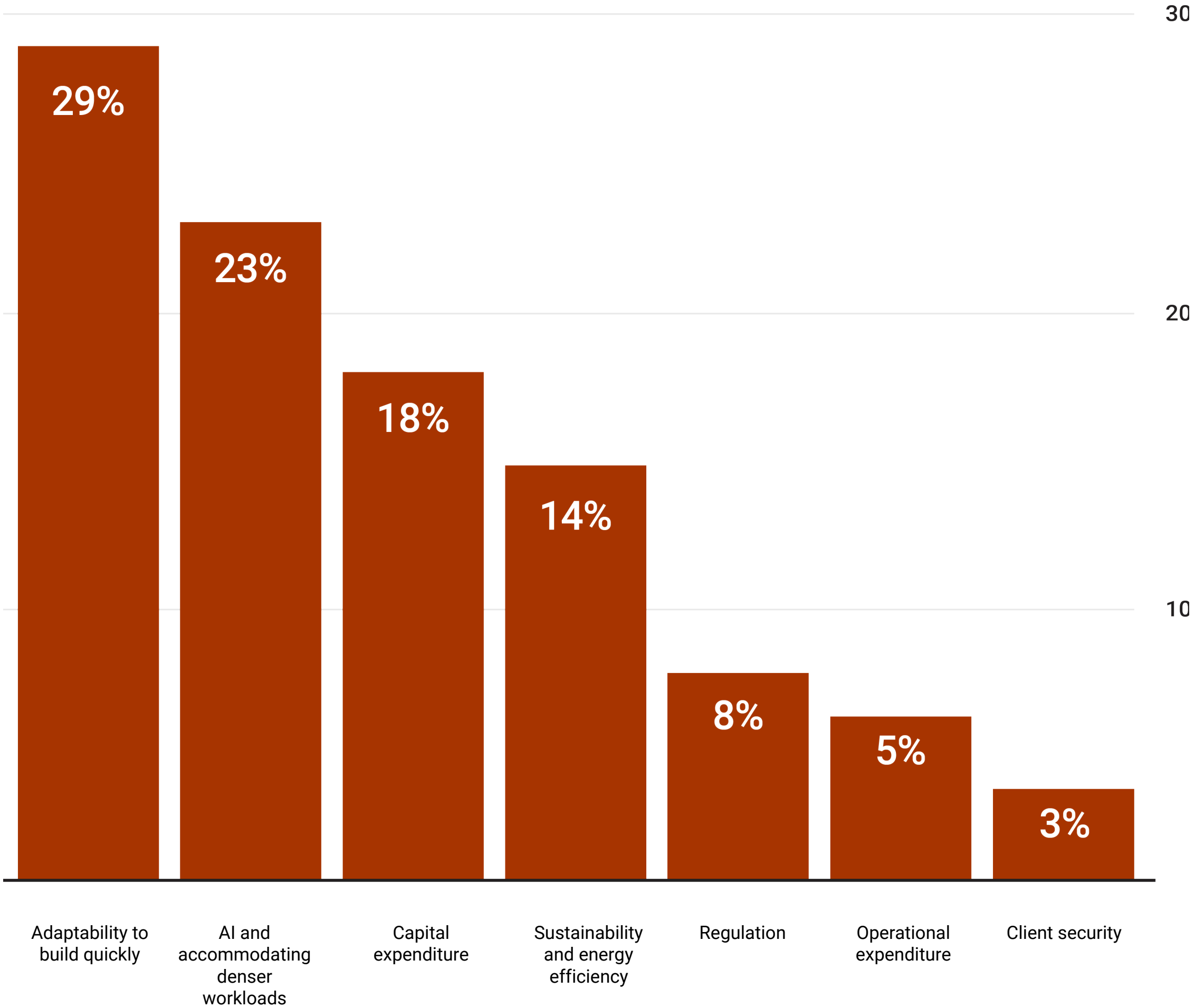
Suggested actions

Assess your AI applications, action accordingly

Some AI workloads require ultra-low latency, meaning that deploying these facilities near population centres is often desirable. However, these kinds of locations can significantly increase delays with multiple parties vying for power, land and other resources. This is where clear visibility into what applications your facility will be running can be advantageous. For example, when training AI models, the onus on factors such as low latency and network redundancy aren't as important, widening the scope for site selection and the option to build in more remote locations which may help lessen red tape and restrictions.

Learn from the leaders

In terms of learning from key players, with power constraints a key barrier to speedy construction, in a bid to increase the capacity of power delivery, tech giant Google has recently introduced its **+/-400 VDC power delivery (in addition to the specs for a new CDU)** enabling IT racks to scale from 100 kilowatts up to 1 megawatt. Selecting 400 VDC as the nominal voltage means the supply chain established by electrical vehicles can also be leveraged for greater economies of scale, more efficient manufacturing, and improved quality control.



12. What are the longest construction delays that you have experienced over the past year?

The results

In terms of the longest construction delays our respondents have experienced over the last year, aside from our 12 percent that ‘didn’t know’ and the lucky 12 percent that haven’t experienced any kind of holdup, delays of various timeframes were cited by the rest of the respondents – a collective 76 percent – with three to six months contributing 22 percent of that total. So although delays on the shorter end of the scale seemed most prevalent, we still saw 14 percent of respondents having encountered delays of over a year, with seven percent exceeding the 18 month mark.

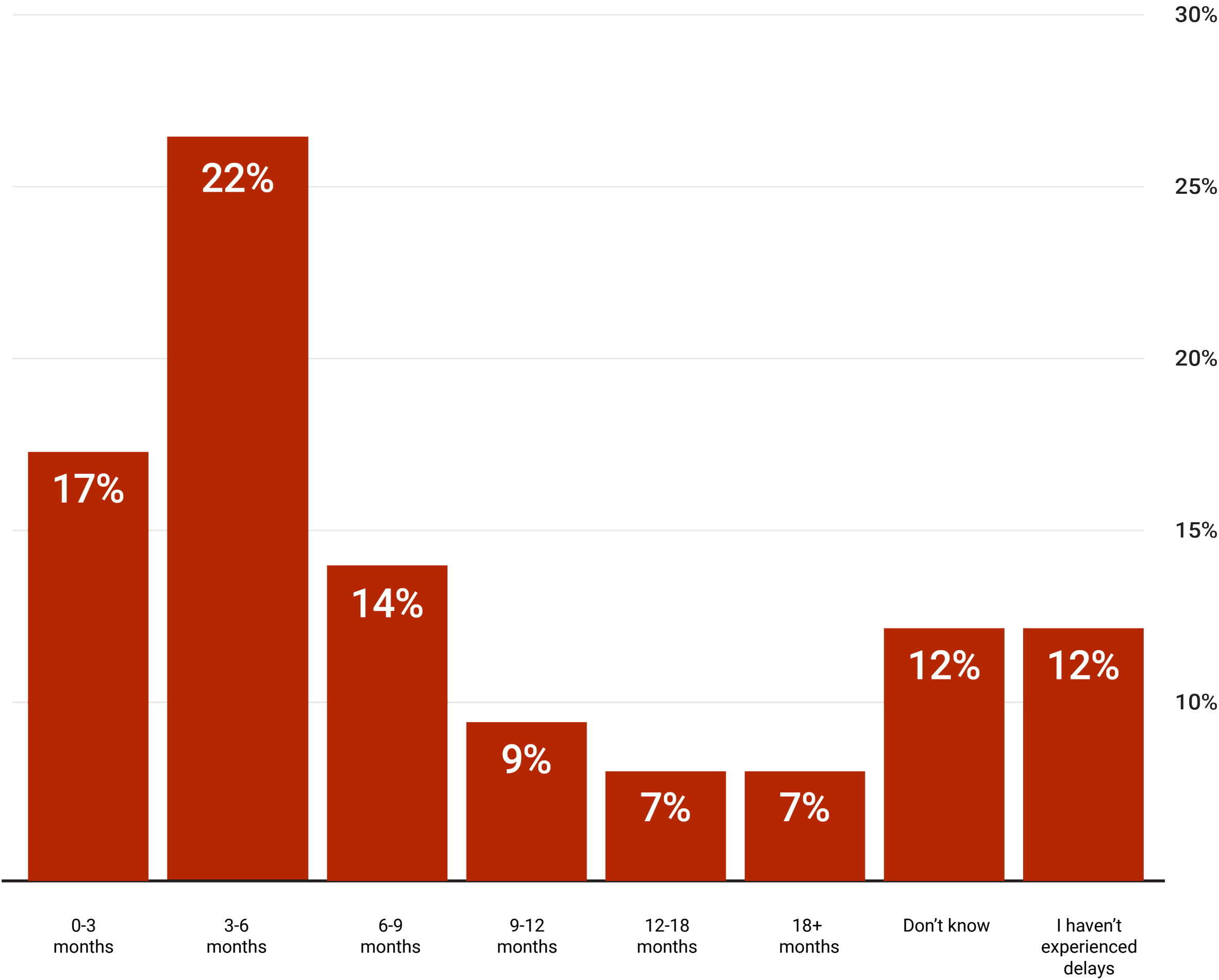
Suggested actions

Plan from the past

The difference between minor setback and major delay often hinges on a team’s understanding of potential issues before they arise. Without a crystal ball, one way to achieve this is through proactive scenario planning. This involves leveraging historical project data to pinpoint recurring areas of disruption, affording teams the opportunity to proactively deploy damage control, with some organisations even utilising predictive ‘wargaming’ workshops to run simulated crisis scenarios to test response speed and effectiveness.

Third party expertise

Again, without the ability to see into the future, predicting what is likely to go wrong before it goes wrong is no easy feat. Consider bringing in consultants or contractors experienced in complex projects to leverage their expertise, rather than relying solely on internal teams. This can open your eyes to scenarios you may not have even considered, helping de-risk construction planning and delivery. Overall, teams that regularly partake in predictive practices based on a variety of experience, are better equipped to handle real-time disruptions with speed and confidence



The results

While BCG estimates that \$1.8 trillion will be deployed between 2024 and 2030, McKinsey projects total global CapEx could reach \$6.7 trillion by 2030 when factoring in all infrastructure spend. It's no surprise, then, that although construction was largely seen as keeping up 'fairly well', the same question (Q9) saw a threefold year-on-year rise in those who felt the opposite.

Bringing a data centre from design to delivery is more challenging than ever in light of issues like supply chain constraints, limited access to power, and a shortage of skilled labour. Delays can be extremely costly – according to [STL](#), a typical 60MW US data centre project can cost owners up to \$14.2 million for every month it falls behind schedule. The phrase 'time is money' is more relevant than ever.

Adding additional pressure are the practical implications of poor on and off-site communication, as well as regulatory restrictions and a lack of transparency. However, today, powerful technological solutions are at our disposal to support success at every stage of a project.

Building upon the foundational benefits of BIM systems in minimising costly design mistakes, the critical need now is to bridge the gap between design and delivery.

A centralised construction management platform is paramount to bringing BIM models and digital twins to life, translating invaluable information from design into real-world applications for those on the ground. Such a platform connects often disparate disciplines, data, and stakeholders, fostering true collaboration.

It's not merely about accumulating more data; it's about surfacing the right data at the right time in a format that all parties can easily understand and engage with. As evidenced by the fact that the majority of professionals currently use multiple software programmes for project management, fragmented data is a significant issue. Data centre teams don't need fewer systems, but rather a platform capable of integrating existing tools into a single source of truth, eliminating duplication, delays, and data loss.

This accurate, real-time data becomes a powerful asset, enabling teams to 'plan from the past' by leveraging historical project data. This allows for the modelling of different scenarios, running

simulations, conducting risk workshops, and utilising predictive dashboards, all of which help identify potential points of failure before they result in millions of dollars in losses.

While a construction management platform cannot miraculously eliminate all delays, magically fill labour gaps, or arbitrarily shrink budgets, it is instrumental in predicting problems, maximising the efficiency of your workforce, and preventing costs from spiralling out of control by unifying teams in a centralised environment.

Final thoughts

The benefits of collaboration go far beyond the time and budgetary pressures synonymous with large-scale data centre projects – it has planetary significance. With 43 percent of respondents expressing skepticism about building AI data centres quickly and sustainably, collaboration is key to achieving environmental responsibility on the ground. Net-zero targets, no matter how ambitious, are likely to falter during delivery if project teams, contractors, and suppliers are not fully aligned.

For data centre build professionals facing a complex landscape where precision, speed, and sustainability are paramount, relying on a comprehensive construction management platform is no longer optional – it's a strategic necessity. In fact, when it comes to constructing a data centre, advanced planning and collaboration are five times more critical than on any other commercial project – shifting the platform from a nice-to-have to a non-negotiable necessity in today's ever-evolving data centre landscape.