Winter 2024

Powering the Future

BCS.

the digital built asset consultancy

iXConsulting

Executive Summary

In September 2024, the UK government designated data infrastructure, including data centres, as Critical National Infrastructure. This classification underscores the sector's importance and aims to enhance its security and resilience against threats. While primarily focused on operational security, this designation may influence planning by highlighting the national significance of data centres.

The government is considering categorising large data centre developments as Nationally Significant Infrastructure Projects. This would shift decision-making from local authorities to the national level, potentially expediting approvals for substantial projects. However, as of December 2024, this remains under consultation. Whilst this is a welcome step, without the necessary power, this will not solve the current deployment conundrum facing our industry.

Data centres are the backbone of the digital economy, housing the critical infrastructure that powers everything from streaming services to cloud computing and financial transactions. As the demand for data continues to surge, the power requirements of these facilities have become a pressing issue in the UK, raising concerns about sustainability, grid capacity, and energy resilience.

The UK is home to some of the largest data centres in Europe, particularly in and around London, where hyperscale facilities and colocation providers thrive. These centres consume vast amounts of electricity, with estimates suggesting they account for around 1-2% of the nation’s total energy usage—a figure that is only expected to grow. This high level of consumption is exacerbated by the rapid adoption of artificial intelligence, machine learning, and the Internet of Things, all of which demand significant computational power.
The issue is not merely one of scale but also of geography. Many of the UK’s data centres are concentrated in specific areas, such as the “M25 data centre corridor” around London. This clustering puts immense pressure on local energy grids, leading to bottlenecks in electricity distribution and potential outages. Recent reports have highlighted instances where new data centre projects were delayed or halted due to constraints on the grid’s capacity in high-demand regions.

Data centres are also under increasing scrutiny for their environmental impact. The UK's ambitious net-zero targets by 2050 have put a spotlight on industries with heavy energy footprints, and data centres are no exception. While many operators have made commendable efforts to adopt renewable energy and improve energy efficiency—such as by using advanced cooling technologies or leveraging heat recovery systems—there are limits to how far these measures can mitigate their impact.
Moreover, the intermittency of renewable energy sources like wind and solar presents another challenge. Data centres require consistent, reliable power, and even minor disruptions can have costly consequences. This means that despite efforts to transition to greener energy, many facilities still rely on natural gas or other non-renewable sources as a backup, creating a tension between sustainability goals and operational demands.

The UK government and energy regulators must play a proactive role in addressing these challenges. Investments in upgrading the national grid are essential to ensure it can handle the rising demand from data centres while supporting the broader transition to renewable energy. Policies that incentivise decentralised energy generation—such as on-site solar panels or local wind farms—could also help alleviate pressure on the grid.
Innovation will be key to tackling power issues in the long term. Technologies like liquid cooling, modular data centres, and artificial intelligence-driven energy management systems could dramatically improve efficiency. Additionally, partnerships between data centre operators and energy providers could pave the way for smarter, more resilient energy ecosystems.

Ultimately, the UK faces a delicate balancing act. Data centres are critical to economic growth and technological advancement, but their power needs must be managed sustainably and equitably. Addressing the power issues facing data centres requires a coordinated effort between government, industry, and energy providers. Without decisive action, the UK risks falling behind in its digital ambitions—or compromising its environmental commitments. The time to act is now.

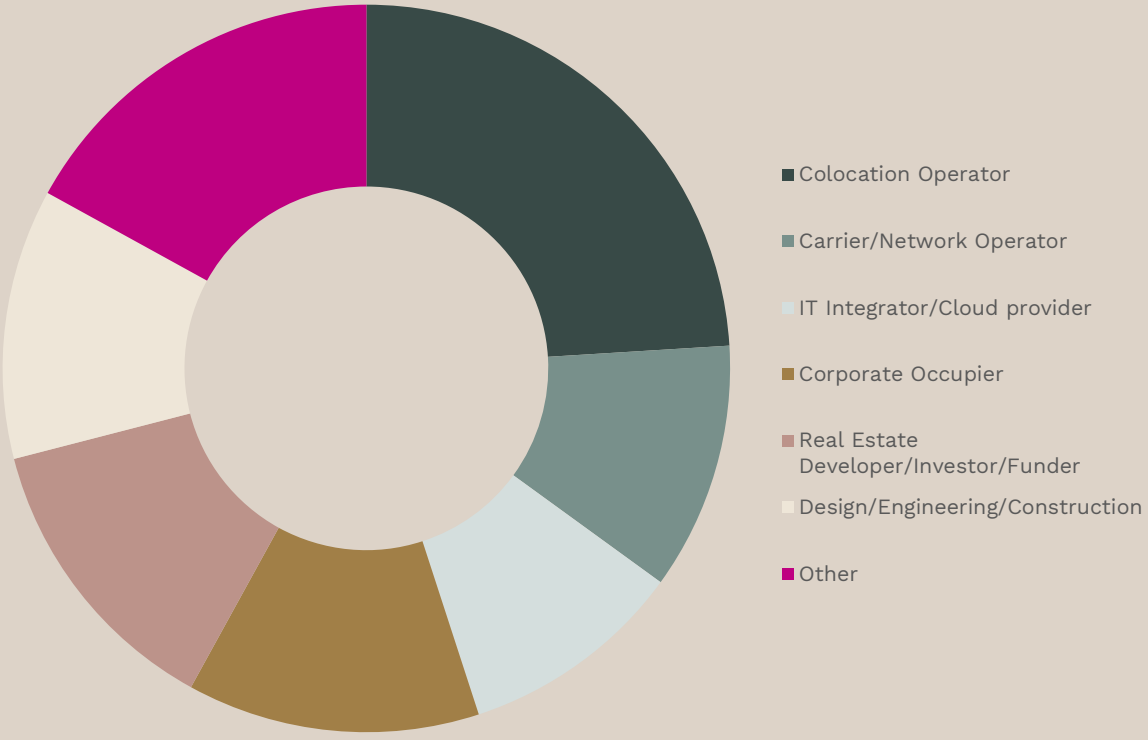
Contents

Introduction

Welcome to our latest Data Centre Survey, sponsored by BCS who offer integrated solutions and data centre services through IT Asset consultancy. The report – the 29th undertaken by data centre consultancy iXConsulting – provides analysis on the views of a broad selection of interested parties including owners, operators, service providers, developers, investors, consultants and end users of data centres across Europe.

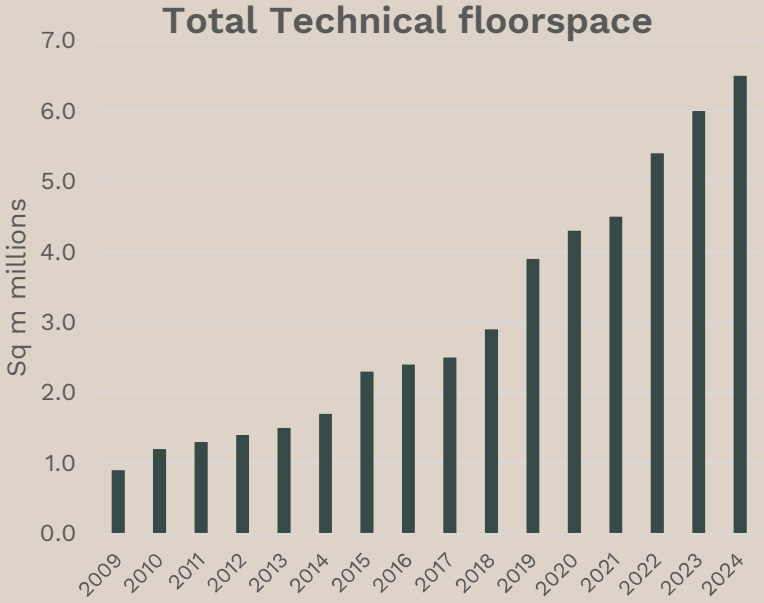
Undertaken in the autumn, the survey draws on the views of our respondents against a background of improving news regarding economic growth and inflation across Europe. Following a prolonged period of stagnation, the EU economy resumed growth in the first quarter of the year, with expansion continuing at a subdued, yet steady, pace through the second and third quarters, amidst further abating inflationary pressures.
Politically, the year is significant as being one that has seen an unprecedented number going to the polls globally; 1.5 billion across 50 countries which hold almost half the world's population. Whilst the US election managed to be resolved without the turmoil of the previous one, President-elect Trump's ability to cause instability across world economies through threats cannot be ignored.

What is your primary relationship with the data centre industry?



Whilst there are glimmers of hope, the wars in both Ukraine and Gaza continue to escalate and increasingly draw third-party countries into the narrative of the conflicts, dampening prospects of a full ceasefire and spreading economic instability within their respective regions. It is against this backdrop that the views of survey participants were sought on both the current state of the European data centre industry and its near/long term prospects.

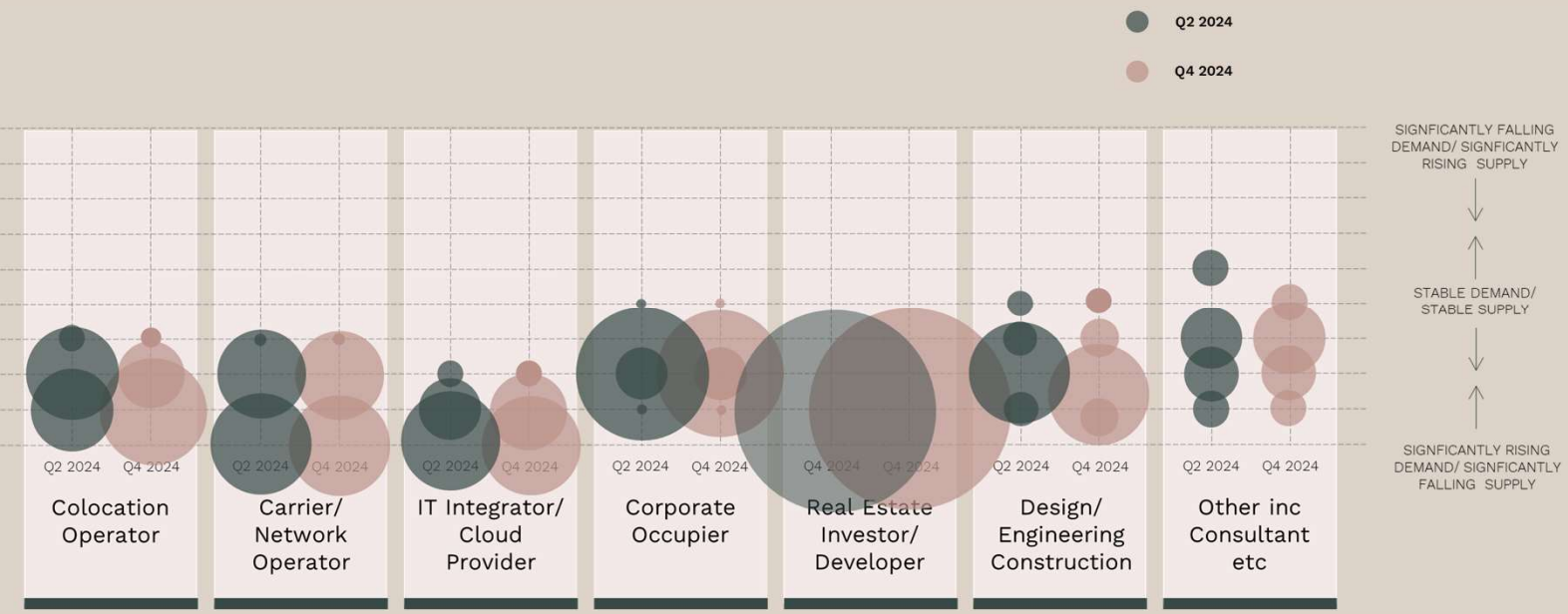
The well-documented growth in IT services demand that has been a fundamental feature of the global economy over the past two decades, shows no sign of abating. Whilst strong demand levels continue to underpin the market, we continue to acknowledge the challenges that are faced across the data centre industry. For example, sourcing of a sufficiency of renewable power; ensuring the availability of enough skilled staff; meeting the challenge of ongoing supply chain problems, all influence the ability to deliver enough of the right kind of data centre stock to meet requirements.



In our last publication, we addressed some of the issues surrounding the growth of Artificial Intelligence (AI) for the industry and how demand levels may influence the European product. In this edition we revisit these issues, building on our survey respondents' attitudes around these topics and looking more closely at how the use of AI itself may influence the delivery and operation of data centres.

In this 29th report, 15 years after our first edition was published, we have now collected the opinions of respondents who either own, operate or contract with data centre space covering over 6.5 million square meters of technical real estate across 41 European countries.

The Supply/Demand dynamic



- Demand for data centres continues to grow apace with the European data centre market likely to continue to flourish. Our latest survey once again indicating a continued trend of decreasing supply whilst demand is increasing – a sentiment shared by 94% of survey participants, similar to that recorded in our Summer 2024 survey.
- Once again, no single respondent expects to see demand falling. For the sixth successive survey there is agreement amongst respondents that demand will either increase or remain the same over the coming year.
- For the eighth successive survey – across four years - developer and investor respondents report that they expect a continuation of rising demand over the coming year, cementing this group's position as showing the most confidence in the industry.
- Most suppliers of data centre services continue to hold generally buoyant views regarding the balance between supply and demand in the market. For the fourth survey in succession all our colocation providers indicate they believe demand is rising.
- In addition, 97% carriers/network operators and IT integrators have expressed that the coming year will continue to see falling supply and rising demand; the third successive survey this high proportion has been attained.
- Amongst our corporate respondents, we have seen a small fall in those believing that the market is characterised by rising demand and falling supply levels, albeit the vast majority (90%) are still overwhelmingly positive.

Ownership & Management

For our suppliers of data centre services – colocation operators and IT integrators/web hosting providers – the requirement to manage their own facilities remains paramount with over four-fifths reporting that 80% or more of their data centre portfolio is internally managed. The attraction of such an approach ensures that these operators maintain a level of control which gives them the flexibility and agility to respond to changing client demands, without the technical, commercial or physical restrictions that a third-party managed facility may present.

At the other end of the spectrum, we continue to see our end user respondents favour outsourcing a higher proportion of their data centre management to third-party suppliers, with four-fifths indicating that they manage at least 80% or more of their portfolio externally; a proportion which has remained largely un-changed over the past three years. There continues to be evidence supporting the appeal of a blended approach especially amongst some end user respondents. Overall, around a third of our respondents have chosen to meet their data centre needs by adopting a mixed solution utilising both in-house and third-party managed solutions. Amongst our service providers this proportion sits at just over a quarter. It is amongst our corporate respondents that this approach is most popular – around 40%, an uplift from a third reporting the same some six months ago. This approach allows enterprise to take advantage of the cost and efficiency savings associated with an outsourcing approach whilst also maintaining control over areas of their IT infrastructure that they consider best suited to sit within an internally-managed solution.

Utilisation

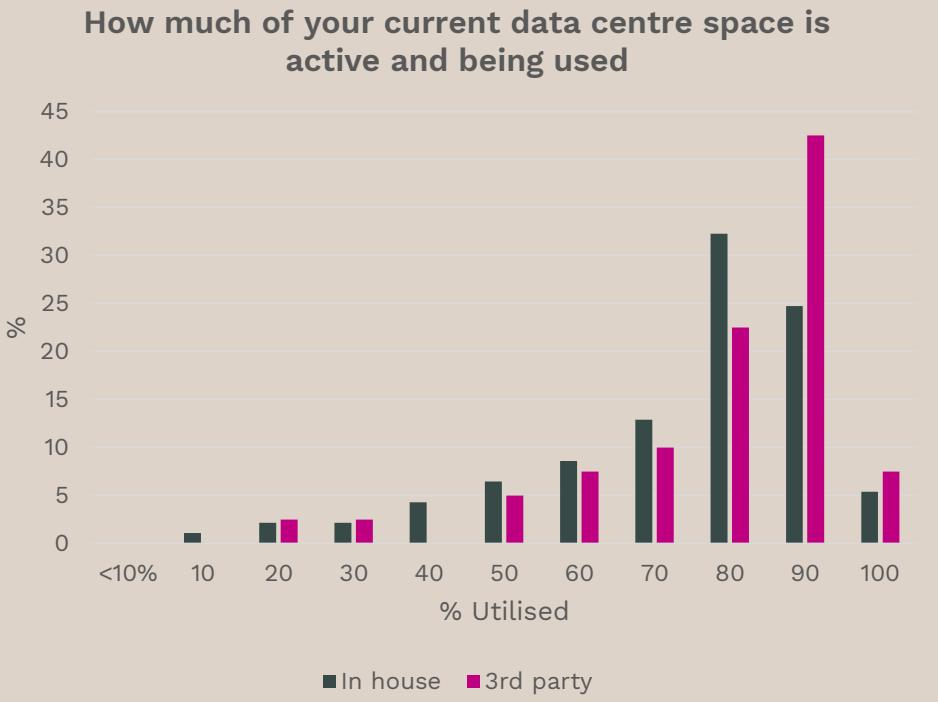
Across our respondent groups, there exists a fundamental requirement to ensure that data centre facilities – both in-house and outsourced - are being managed as efficiently as possible. We have continued to report that the pattern of utilisation amongst our respondents does, however, differ between self and third-party managed solutions.

In our latest survey, the proportion of respondents reporting that over 80% of their externally managed technical footprint was being actively used stood at 73%, an uplift from the two-thirds that we recorded in our summer survey. Using the same metric for in-house facilities, we see that the proportion stands at 65% extending the trend that utilisation rates amongst third-party facilities tend to be higher that in-house maintained facilities.

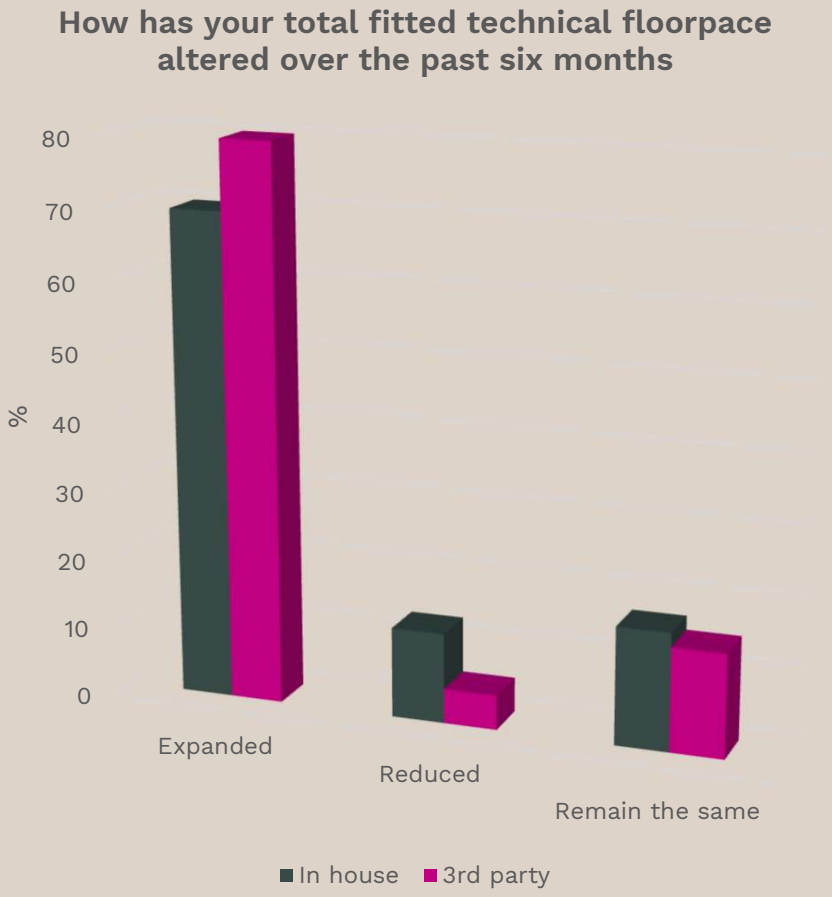
Interestingly, amongst end users the proportion of respondents reporting that over 80% of their externally managed technical footprint sits at 84% (albeit a decline on the 90% reported in the summer) whilst 60% of this same group reported this for their in-house managed facilities.

Service provider respondents indicate that they have maintained a relatively high utilisation rate with an average of 70% of their third-party technical footprint actively used, albeit a marginal decline from the 75% measured in the summer. Amongst these providers, average utilisation rates in their self-managed estates are lower at 61%, a slight rise on the 57% recorded last summer.

Indeed, within this group, there are some differences; our colocation survey participants for example report that 63% utilise 80% of more in their own facilities but this proportion jumps to 79% within our carriers and network operators. In contrast with regard to their third-party facilities these positions are reversed; colocation respondents report that 73% of them utilise 80% of more in externally managed facilities, whilst this same metric falls to 64% for our carriers and network operators

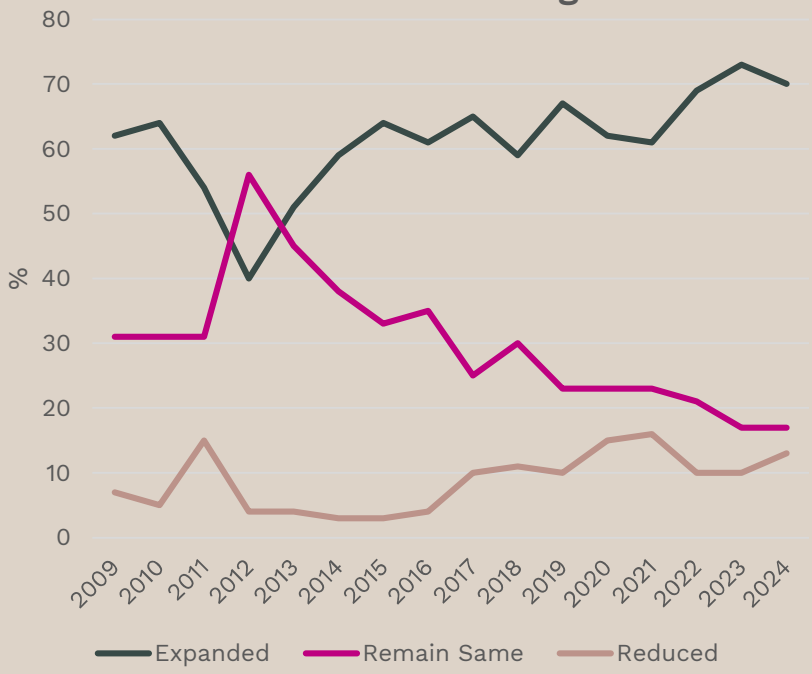


Expansion Ongoing



Over the past 15 years we have consistently seen the impact that IT services demand has had driving expansion within the European data centre market. This confidence continues, with 70% of respondents registering that they had increased their in-house managed data centre capacity in the last six-month period, a slight fall on the 73% reporting on this in Q2, but still well above the long-term average of around 60%. However, we have seen a marginal uplift in those reporting a reduction in their internal floorspace; 13% up from 10%.

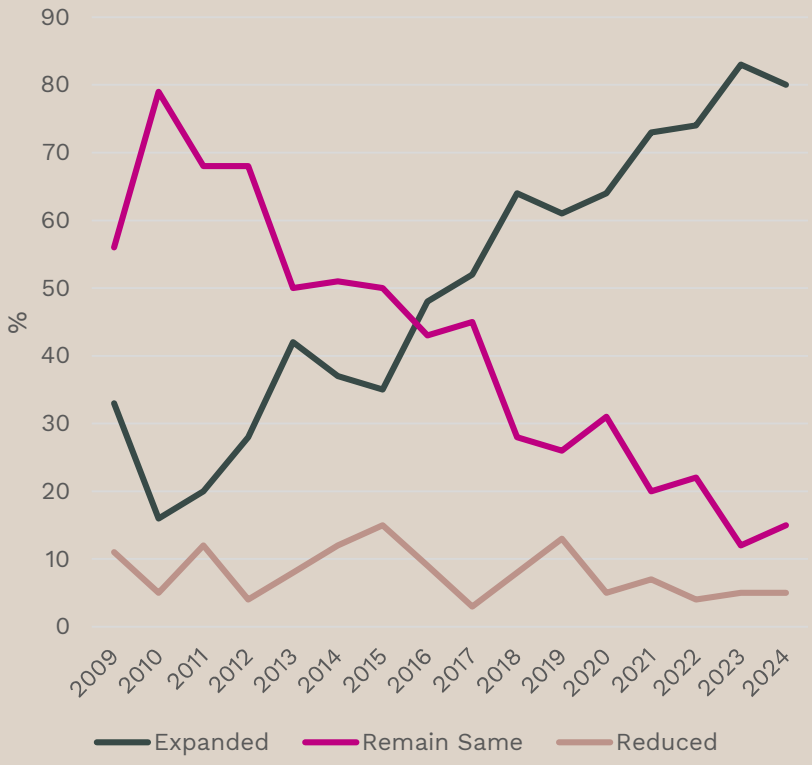
In-house Historical change



Regarding third-party space, some four-fifths reported an expansion over this period, the same as recorded in our preceding two surveys and notably higher than the long-term average of around 60%. In addition, the proportion of respondents who reported no change and those who noted a reduction in third-party floorspace are largely unaltered since the last survey, standing at 15% and 5% respectively.

There is nuance within our respondent sectors. For corporates, the desire to reduce the size of their self-managed estates is evidenced by 59% expressing that they had done so over the past six months - a small rise on the 56% reporting the same in Q2 – and 14% indicated an increase, up from the 11% reported last summer. Over the same period, 82% of these respondents indicated that they had expanded their third-party maintained estates suggesting that end users are increasingly seeking to adopt an externally managed solution to their data centre requirements.

Third-party Historical change



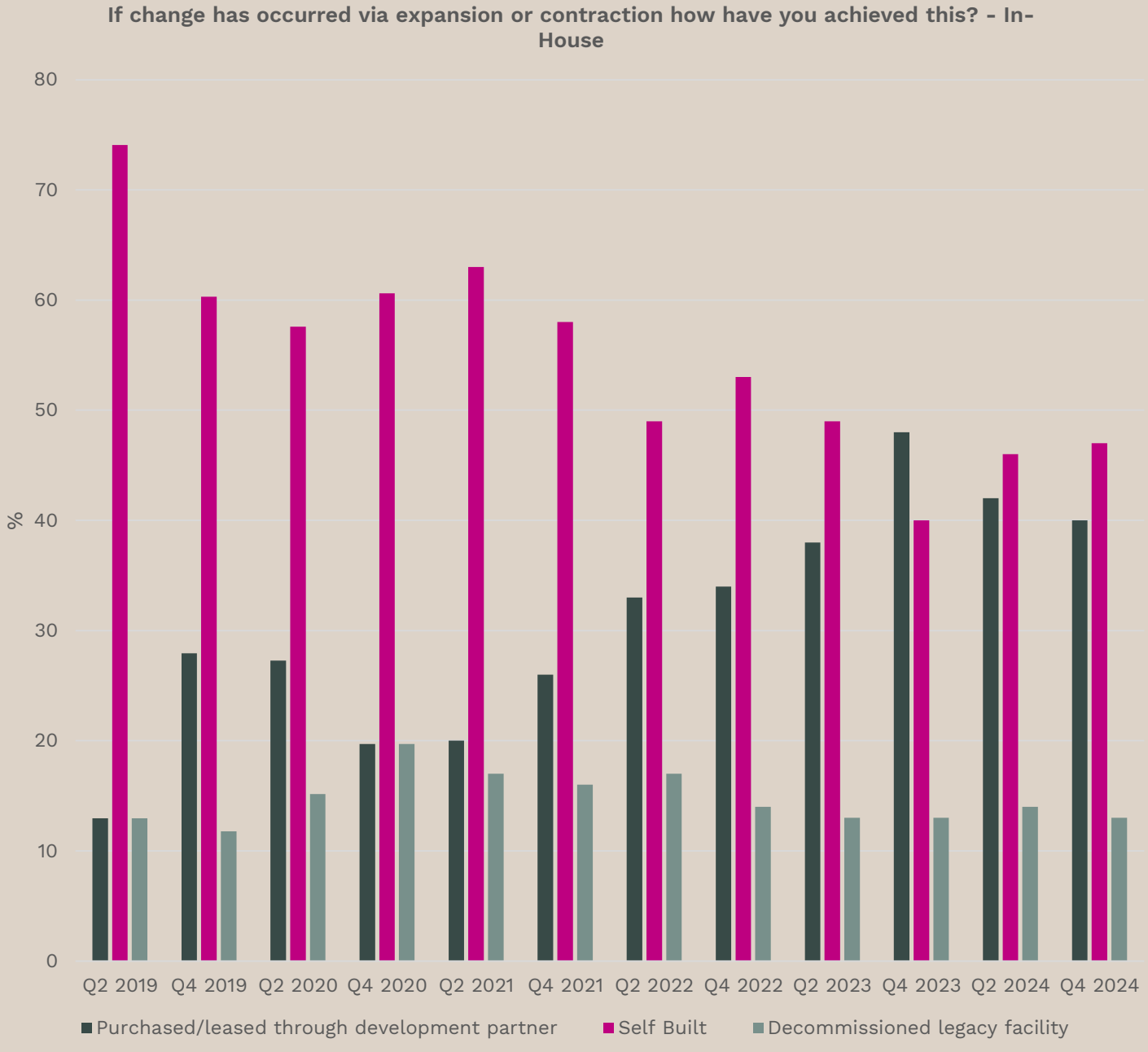
For our service provider respondents, their major focus remains on their own portfolios. Colocation operators continue to lead the way in terms of expansion, some 95% indicated increases of their own stock during the previous six months, marginally down on the 98% recorded in the summer. In addition, 94% of our carrier/network operator and IT integrator/cloud provider respondents reported similar expansions over the period; little change on the 95% recorded in our preceding survey.

Around four-fifths of colocation operators, IT integrators, carriers and network providers have expanded their third-party managed solutions over the past six months, largely unchanged since the summer, and continuing to reflect significant levels of commitment to demand for externally managed environments.

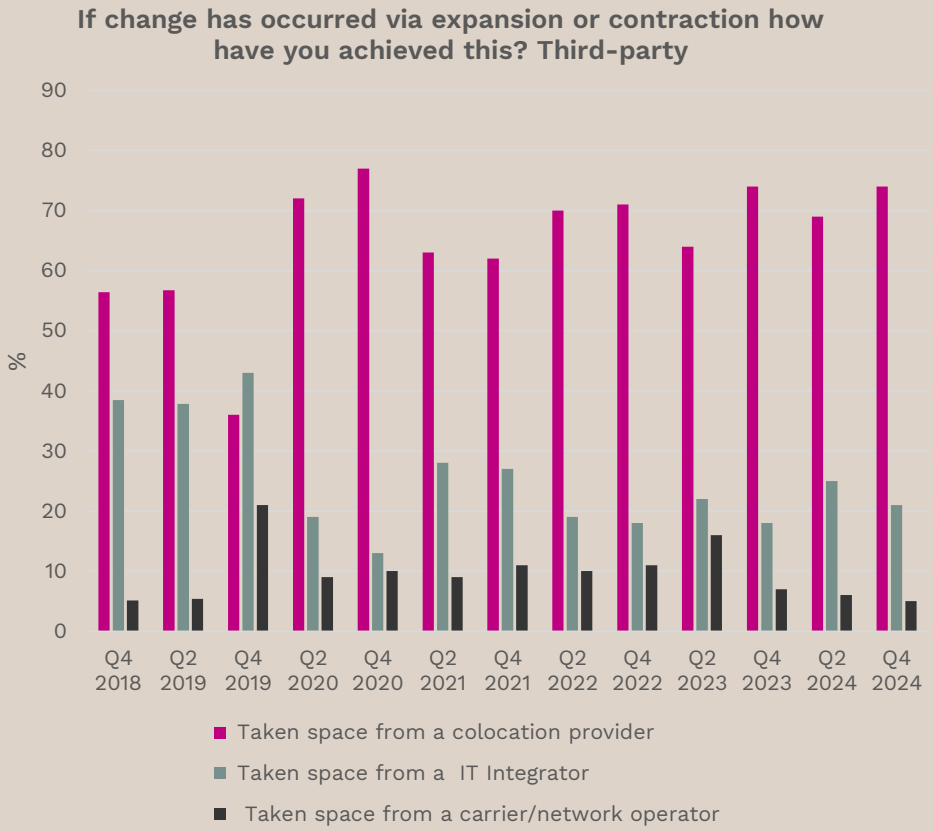
How was expansion achieved?

Of those who expanded their in-house data centre portfolio over the past six months, two-thirds chose to do so through a self-build solution; a rise on the 46% reporting the same in Q2. In addition, the journey of purchasing or leasing through a development partner was followed by just over two-fifths of respondents, a proportion un-changed for the last 18 months. It is worth noting that several respondents recorded the expansion of more than one facility over the period, also reported that they had followed different routes to achieve this expansion, using both self-build and purchase/lease from a development partner.

Around 15% reported that they have reduced their in-house tech space through the decommissioning of a legacy facility - the majority of these being corporates – reflecting a slight rise on the 14% recorded six months ago.

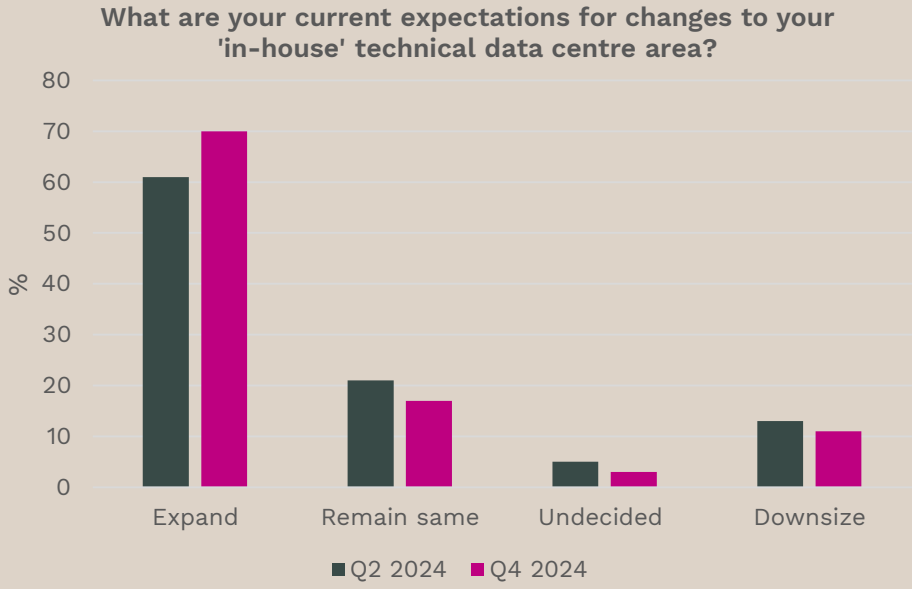


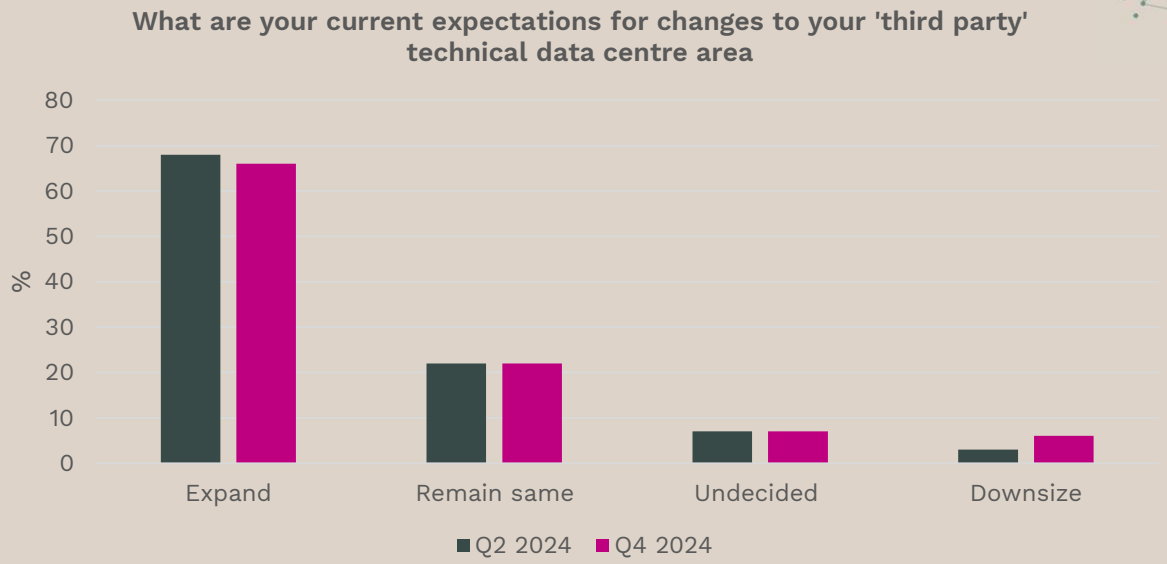
Of those who expanded their third-party footprint over the period, some three-quarters chose to do so by taking space from a colocation provider – up on the 69% noting the same in Q2. In addition, around 15% of respondents indicated that they had chosen a multi-supplier route, a level largely unchanged over the past 18 months. As previously noted, this will be influenced by several drivers, including availability of product, pricing, geography or changes in demand requirements.



No slowdown in expansion plans

Looking forward there appears to be continued positivity amongst our respondents regarding demand prospects. Over the coming year nearly 70% of respondents expect to expand their in-house technical floor space, an uplift from the 61% who expressed the same sentiment in our preceding survey and a proportion now significantly above the long-term average of 57%.





The increase in expected demand for self-managed facilities is largely driven by service provider respondents; 91% of whom are expecting to see expansion over the coming year, similar to that reported six months ago. In addition, none of our service provider participants indicated they would reduce their in-house data centre space, with 7% believing that there will be no change over the next year and just 1% undecided.

In contrast, 59% of corporate respondents revealed they would reduce their in-house facilities over the coming year – relatively unchanged from the 61% last summer - whilst 7% suggested that they would be looking to increase self-managed data centre space over the period, a small rise on 6% reported in our last survey. The remaining third indicated that they would choose to retain floorspace at the same level, up from the quarter noted previously.

Further evidence that outsourced solutions are continuing to prove attractive is provided by some 66% of respondents who state that they expect to expand their third-party managed data centre estate over the coming year; a rise from the 60% who stated the same six months ago and above the long-term average of 55%. Those reporting that they expect no change remains at just over one-fifth, in line with our summer survey. The number of respondents who are undecided is also unchanged at 7%, and finally the proportion of those who expect to downsize their externally managed facilities over the period remains low at just 5%.

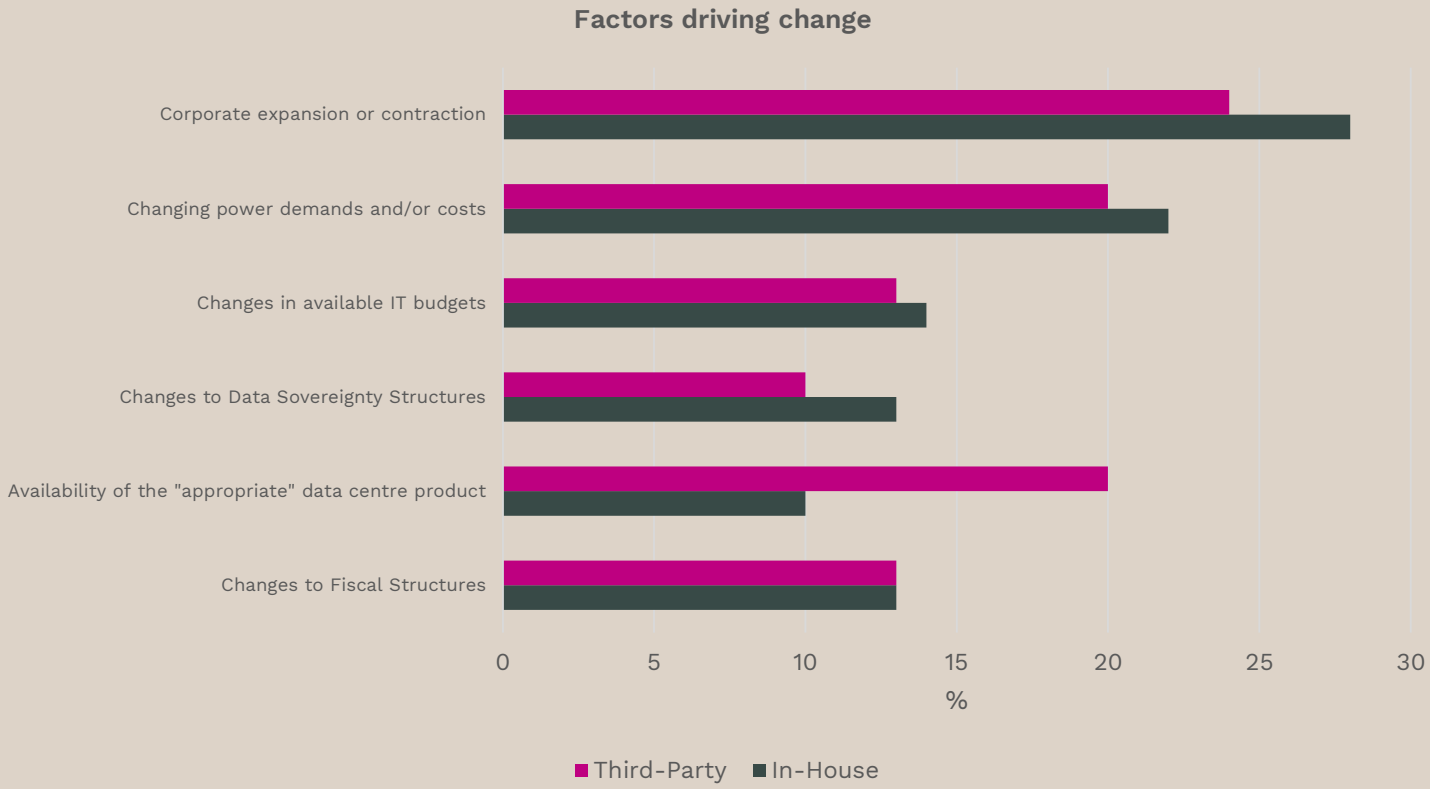
In contrast to the relatively limited approach to in-house facility expansion plans, around 80% of our corporate users stated that they intended to expand their operations with an external infrastructure partner over the coming year, a similar proportion to that reported six months ago. In contrast, amongst the service providers, 65% indicated they would expand their third-party managed estate and 24% indicated that they would retain the same exposure. The former does represent a decline from the three-quarters who cited the same earlier this year but remains well above the long-term average of just over 40%.

In addition, we have already noted that a third of our respondents (and some 40% of end users) have chosen to use a blended portfolio of in-house and third-party managed facilities, depending on the availability and suitability of their legacy facilities. We would expect that this approach will continue to prove attractive.

Drivers of change

Corporate expansion or contraction has long been the most important factor driving changes to both in-house and third-party technical floorspace. This reflects that IT continues to be the viewed as an integral tool for businesses driving productivity and profitability.

Within this survey, we have seen that its relative importance ahead of other factors appears to have dropped, with just over one-quarter identifying this as the number one priority, compared to the one-third who cited it as such earlier in the year. Whilst we believe that such activity is likely to continue to underpin the traditional core drivers of demand for IT real estate, this would seem to suggest that a broader pool of factors are being considered by respondents.



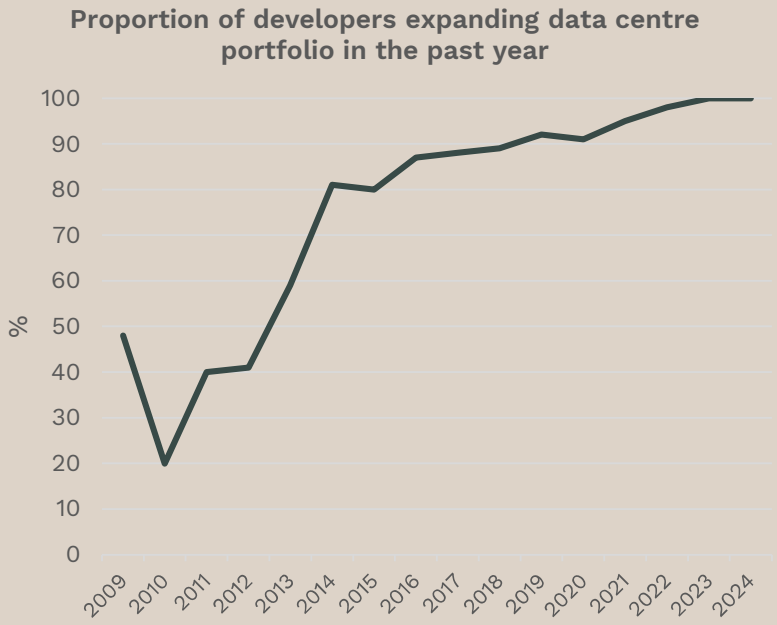
As was the case in the past two surveys, changing power demands and the costs associated with it has remined firmly in second place: the number of respondents citing it as an important driver of change to both in-house and third-party operated space standing at 22% and 20% respectively. Once again budgetary issues are ranked third overall, with around 14% of respondents reporting this, a proportion unchanged since Q2 2024. This is closely followed by changes to fiscal structures cited by some 13% for both in-house and externally managed facilities and changes in data sovereignty are ranked marginally behind power issues at around 13%, again un-changed over the past six months.

Once again, we noted differences amongst our respondent sectors. Whilst there has been little change in the relative popularity of the availability of appropriate data centre product it has been a more pronounced driver for third-party managed expansion, cited by around 20% compared to 10% for in-house solutions.

Developers and Investors

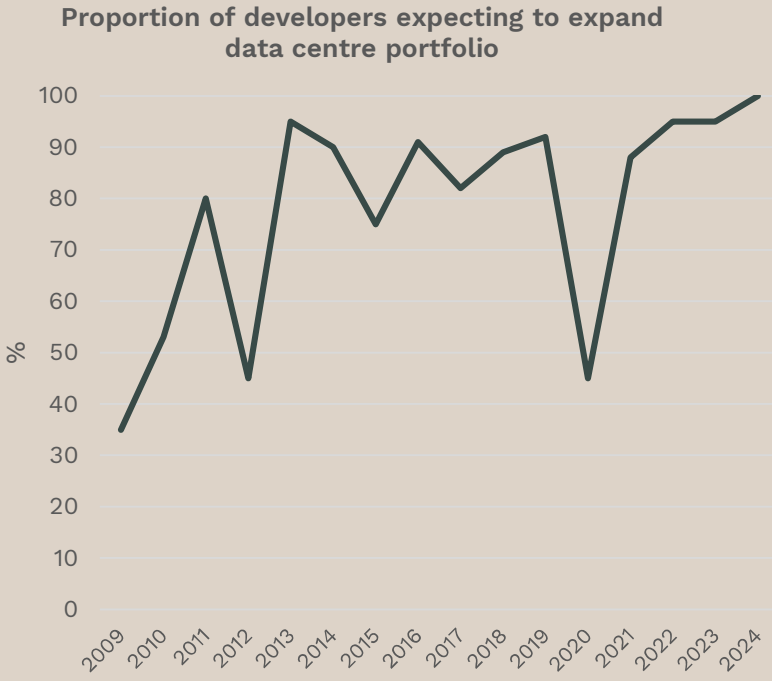
New supply plans continue apace

The health of the data centre market as measured by developer and investor activity remains buoyant, and apparently quite resistant to the geopolitical and economic headwinds that have been well publicised during 2024. Indeed, this level of positivity also exists within the context of more market-specific challenges such as supply chain disruptions and access to the skilled labour within the building industry.



According to our latest market survey, we have now seen universal reporting of expansion within our developer and investor respondent's technical real estate portfolios over the last six months – a rise on the 96% recorded earlier in the year, and notably the highest proportion since our survey work started in 2009.

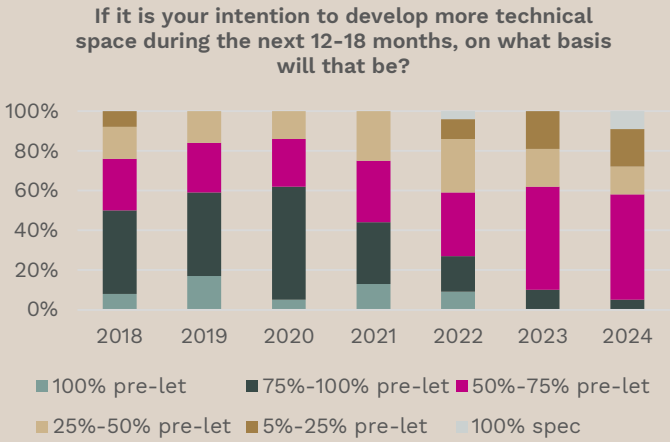
This favourable bellwether on its own would support a positive level of confidence shown by developers and investors regarding the outlook for the European data centre industry, but for the first time since our survey work began, it is also paired with a universal agreement amongst this sector of respondents that they expect to also see a further expansion in their data centre portfolio over the coming 12 months.

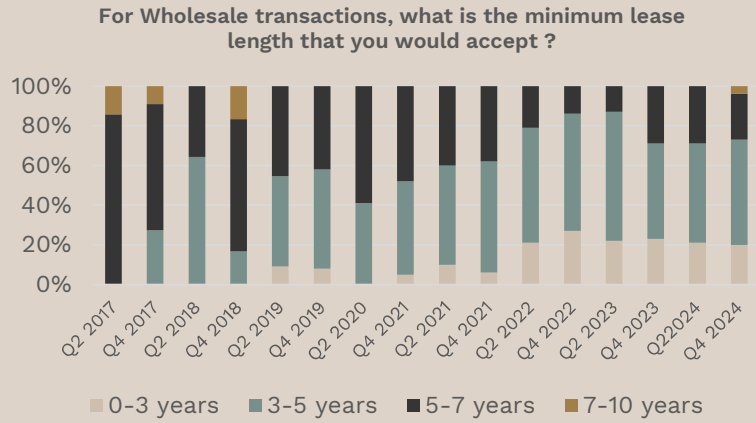


Having recorded these two remarkable sentiment markers, it is perhaps unsurprising that we have also recorded a fall in caution exhibited regarding the proportion of pre-letting required to secure a scheme development. In our latest results we see almost 30% reporting that they need just 25% or less of a pre-letting element before they would be prepared to commence their scheme, up from 19% recorded in the summer.

In addition, at the other end of the spectrum, just 5% of respondents reported that they required a pre-let of at least 75% before they would break ground, down significantly from the 22% recorded in our preceding survey, and one of the lowest levels we have seen since the survey work began. However, it is noted that no developer indicated that they would move forward on a 100% speculative basis, which provides some confidence that there is a maturity within the market and the risk of an overheating development side across Europe is limited.

For clarity, this metric reflects the build-out on a phased basis of larger data centres, and therefore measures the amount of pre-let requirement proportionate to each phase and not the entire site.





Regarding the minimum lease length for wholesale transactions required by our developer or investor respondents, our survey suggests a similar profile to that seen in the summer. Some 53% of respondents suggested a three-to-five-year period would be required (50% in Q2) whilst 27% would require lease-lengths of five years or more (29% in Q2) and 20% (21% in Q2) would accept a period shorter than three years.

The pattern where most respondents are relatively happy with shorter guaranteed lease terms suggests a greater degree of confidence in mid to long term prospects for the market, particularly the ability to re-let space, reduced risk of obsolescence, whilst responding to the nature of demand profiles for shorter term commitments.

Increasingly as the data centre market has matured, customers looking at wholesale occupation have also become aware of the possible creeping obsolescence of a building, particularly regarding power densities and around advances in PUE requirements. Therefore, the desire to benefit from wholesale economies of scale needs to be blended with the demand to limit getting caught in a facility that cannot keep up with market requirements on performance.

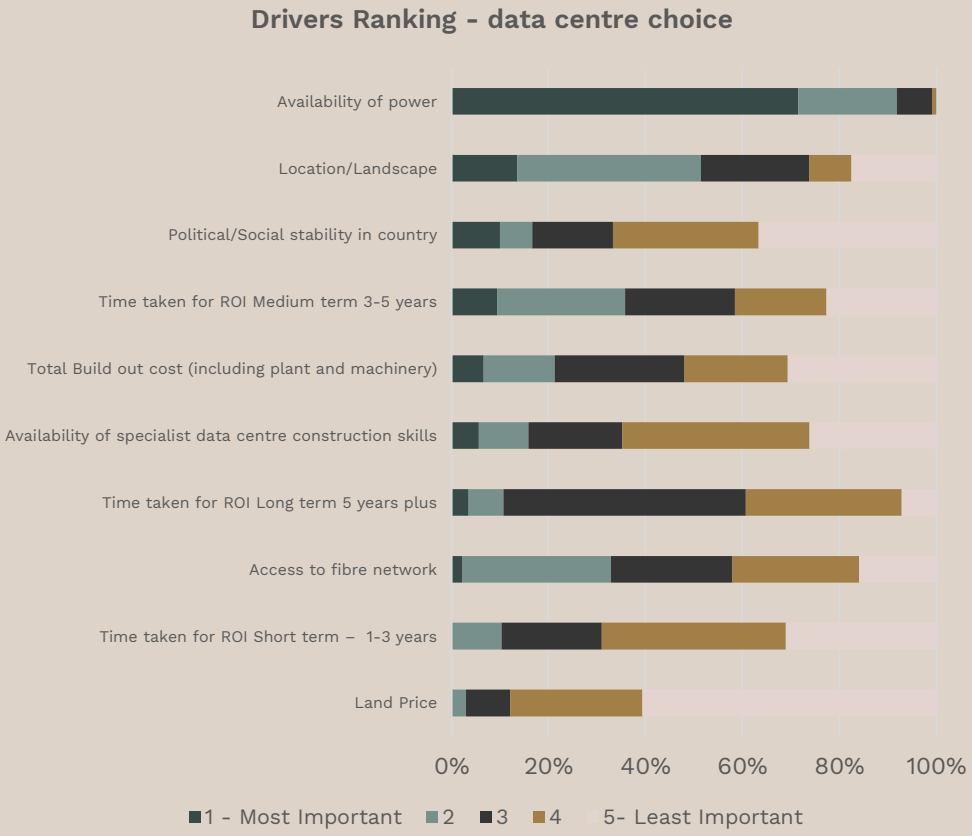
Ranking of choice factors for new data centre

The availability of power remains the single most important factor amongst our respondents with some 92% citing this in either of the top two positions in our latest survey. Whilst this is a marginal decrease on the 94% in the summer, it continues to dominate respondents' choices when either expanding or retracting their data centre space. Indeed, for our developer and investor respondents the ability to have access to a secure power source is unsurprisingly ranked in the top spot by all of them.

In line with the long-term trend, location is cited as the second most popular factor, with just over half of all respondents ranking it in their top two choices, although notably in this survey the proportion of respondents choosing it as their first choice has fallen to 14% from just over 20% last summer. Interestingly, amongst our corporate respondents, this decline is marked: in the summer survey around three-quarters ranked location as the top factor, this has now declined to just under half – 48%.

As we noted in the summer, the initial aftermath of the pandemic saw access to fibre networks become an increasingly important factor amongst respondents when expanding their data centre footprints. The latest survey underpins that it is now established as one of the top ranked choice factors, with at least 33% of respondents ranking it in either their first or second positions.

Political and social stability has become more regularly cited in recent years. Our latest findings show that around one-fifth of respondents placed this as one of their top two ranked factors, in line with that recorded earlier in the year.



Of course, for our developer and investor respondents and Design, Engineering, and Construction (DEC) participants, the highest rated factors following power availability are factors such as total build-out cost, availability of specialist data centre construction skills and land price, all of which are rated more highly than is the case with other respondents. Amongst the financial factors notably return on investment ranks reasonably highly with those seeking such a return over the medium term (3-5 years) being the most highly ranked.

Opinions

Skill shortages – an ongoing worry

During the past decade of research, we have tracked respondent's views on the effects of a dearth of suitably qualified professionals within multiple arenas surrounding the development and operation of European data centres. Our respondents continue to report that shortages of skilled labour across the data centre industry are concerning with real consequences.
Our latest survey shows that some 99% believed that 2025 will see a fall in supply of suitably qualified staff, and whilst this is a slight drop from the universal agreement seen in our summer survey, it remains concerning as to whether the industry can continue to meet demand pressures.

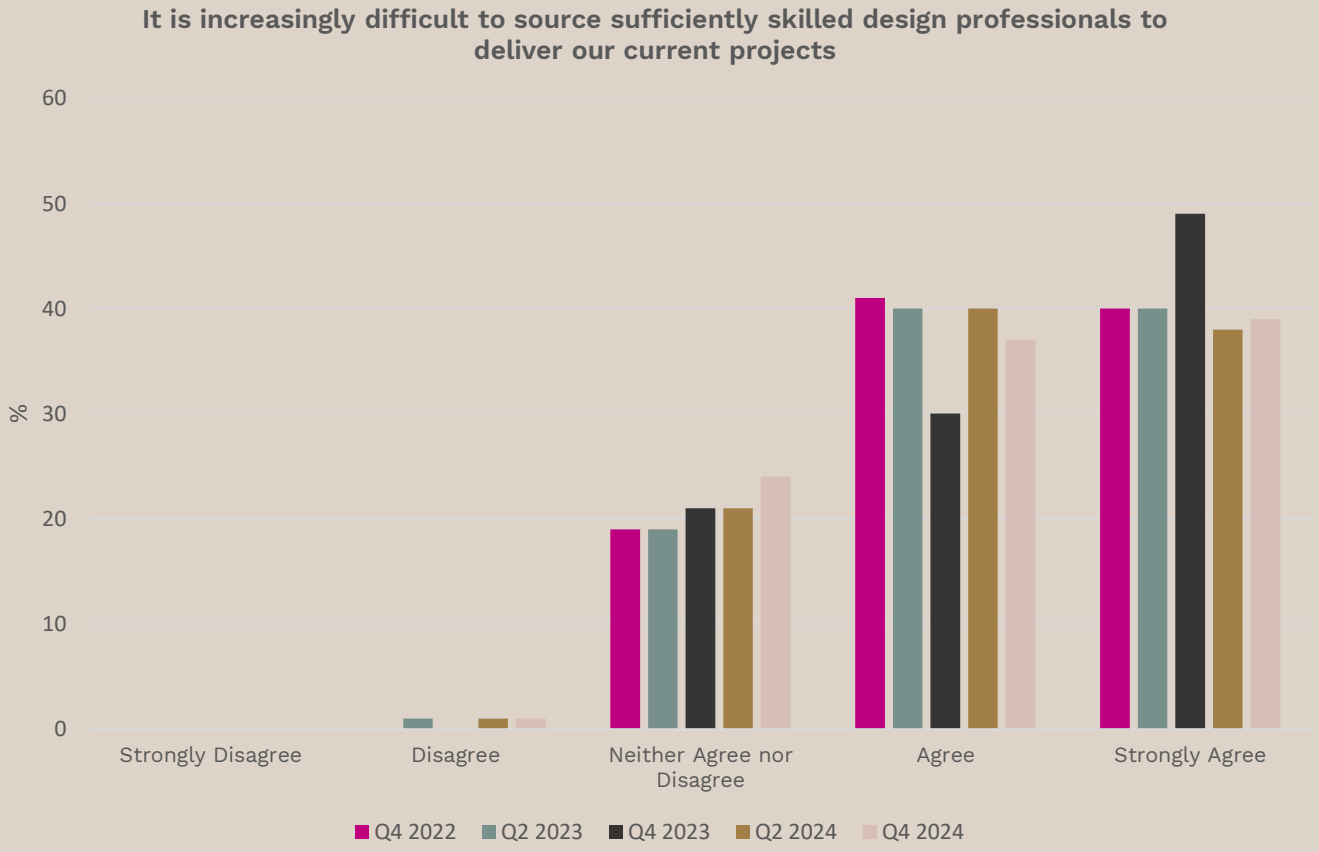
Within that group, some 95% continue to believe that this shortage of available professionals will go together with an actual rise in demand from the industry for staff with these skill sets, further magnifying the potential issues.
Amongst our developer and investor practitioners the level of concern is the most pronounced at the highest level - some 86% agreeing that the coming year will be characterised by the double issue of significantly falling supply of staff whilst demand for those skill sets also rises significantly. The remaining 14% also see demand and supply both rising but at a less concerning level.

Amongst our colocation providers carriers/network operators and IT integrators, views on this issue appear to have solidified, with those who believe the coming year will see falling supply and rising demand of qualified professionals – and expressing this concern at its highest level - has remained relatively unchanged at 52%. Amongst our end user respondents, we see concern slightly easing with some 90% now believing that a rising demand of skilled staff would be met with falling supply, a small fall from the 95% recorded in Q2.

Who's in short supply?

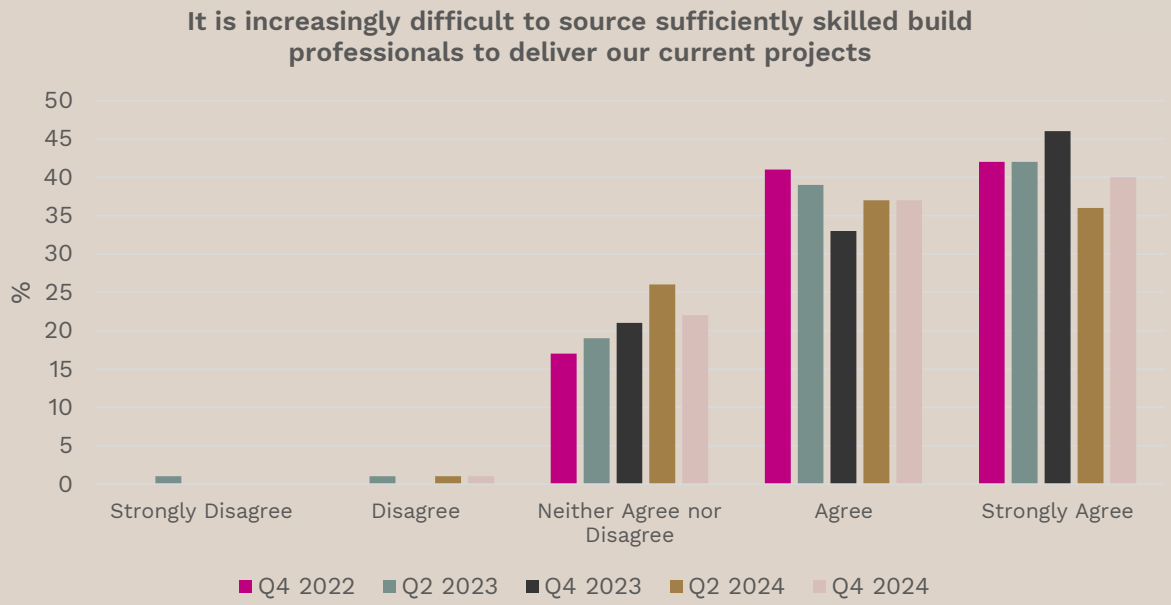
The levels of engagement with potential skilled labour shortages in the data centre industry will of course vary amongst different survey participants given their differing roles as either providers of real estate, suppliers of IT and supporting services, hardware and software provision or consumer of such services. Despite this there is broad agreement that there are general shortages amongst design, construction and operational professionals, although the strength of that agreement does vary albeit relatively marginally.

We have seen a slight drop in the highest level of agreement amongst our survey participants regarding shortages of suitably qualified design professionals since our survey a year earlier, however the overall level of 76% remains concerningly high. Indeed, over the last five surveys, the overall levels of participants expressing their agreement that sourcing such labour was becoming increasingly difficult has remained at around four-fifths.



Amongst respondents, those considering construction professionals as being in short supply have seen a slight hardening of sentiment, with 77% indicating their concerns up from the 73% we reported six months ago. In addition, this uplift is driven by those expressing this sentiment in the strongest possible terms; some 40%, compared to 36% six months ago.

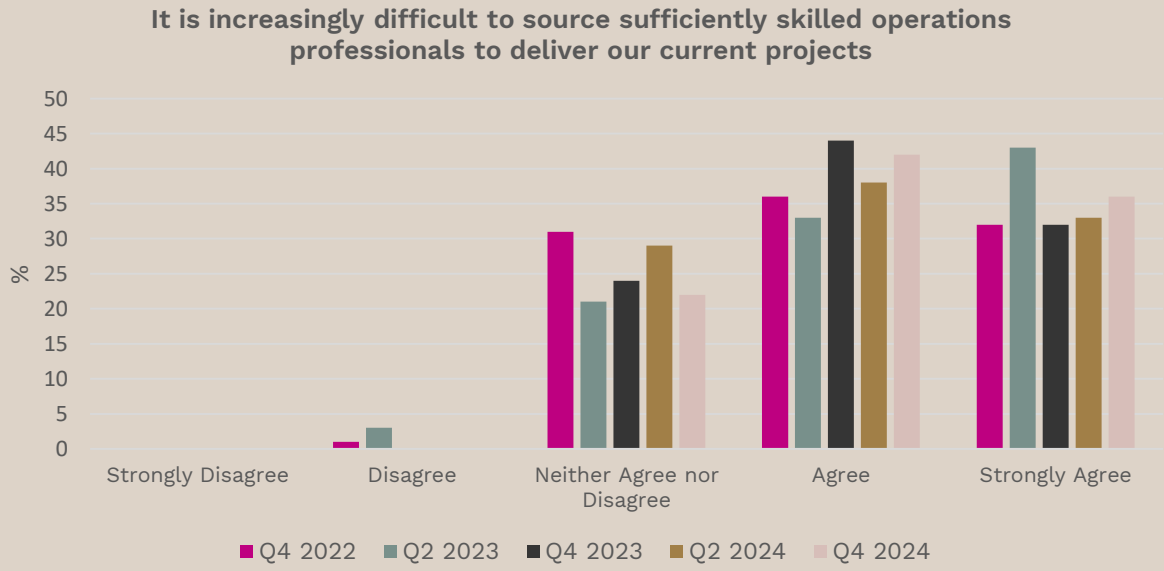
With regards to data centre operations, around 76% of respondents stated that they have had direct experience of shortages of operational staff over the last 12 months. As with build professionals this represents a small rise on the 70% who reported the same some six months ago.



Perhaps unsurprisingly, those most involved in the building process – our developer/investors and DEC respondents - have stated strongly their belief that there was a shortage of both design and build personnel (91%) compared to the 88% who expressed the same belief a year ago.

In addition, some 80% of service providers shared concerns regarding shortages of build professionals– up from 77% reported in our last survey, but a fall on the 85% seen a year ago. Interestingly, there has been a drop amongst this group regarding design professional shortages; around two-thirds reported that they believed this to be the case, a fall from the 85% who stated the same earlier in the year. Whilst this is noteworthy, given the strength of opinion on this subject exhibited by other responding groups, this may be an outlying result to track.

Regarding shortages of skilled operational staff, a significant proportion of our corporate respondents (91%) agree that shortages of skilled operational staff pose a significant problem, a sharp rise on the 75% reporting this six months ago. Also of note is that our service providers have become more concerned in this area with some 90% expressing this view compared to the 83% earlier in the year.



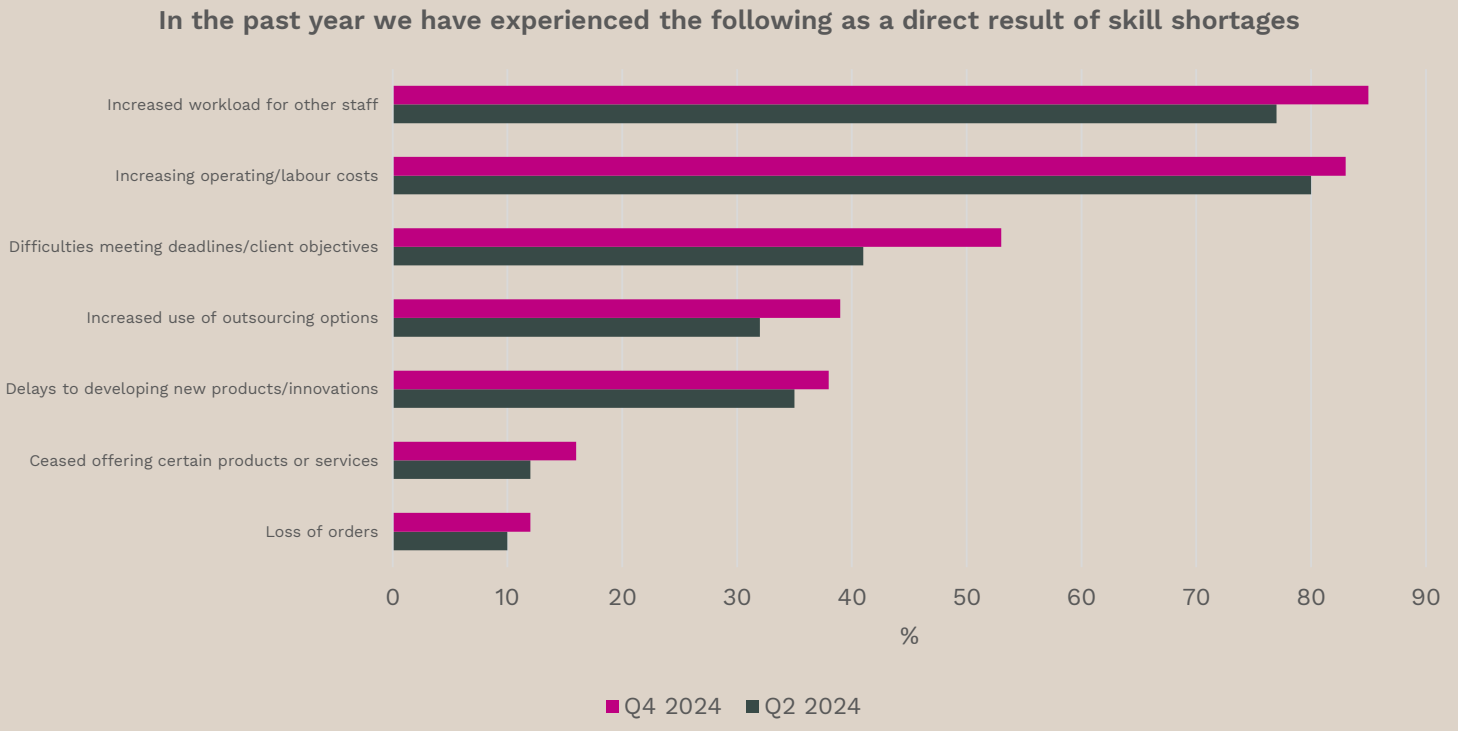
Impact of skill shortages

Underlying our conversations around shortages of skilled professionals is the potential impact on the delivery of new stock and subsequent consequences for the end user. The survey findings provide support to the notion that these insufficiencies have already had tangible consequences and affected respondents directly. Indeed, when queried about the impacts they had experienced due to shortages of professionals over the past 12 months, most respondents cited multiple factors.

Once again, the two largest impacts of skill shortages have been increasing operating and labour costs and increased workload for other staff. Six months ago, this duo were the most cited results at 80% (labour costs) and 79% (increased workload) whilst in our latest survey these have risen to 83% and 85% respectively.

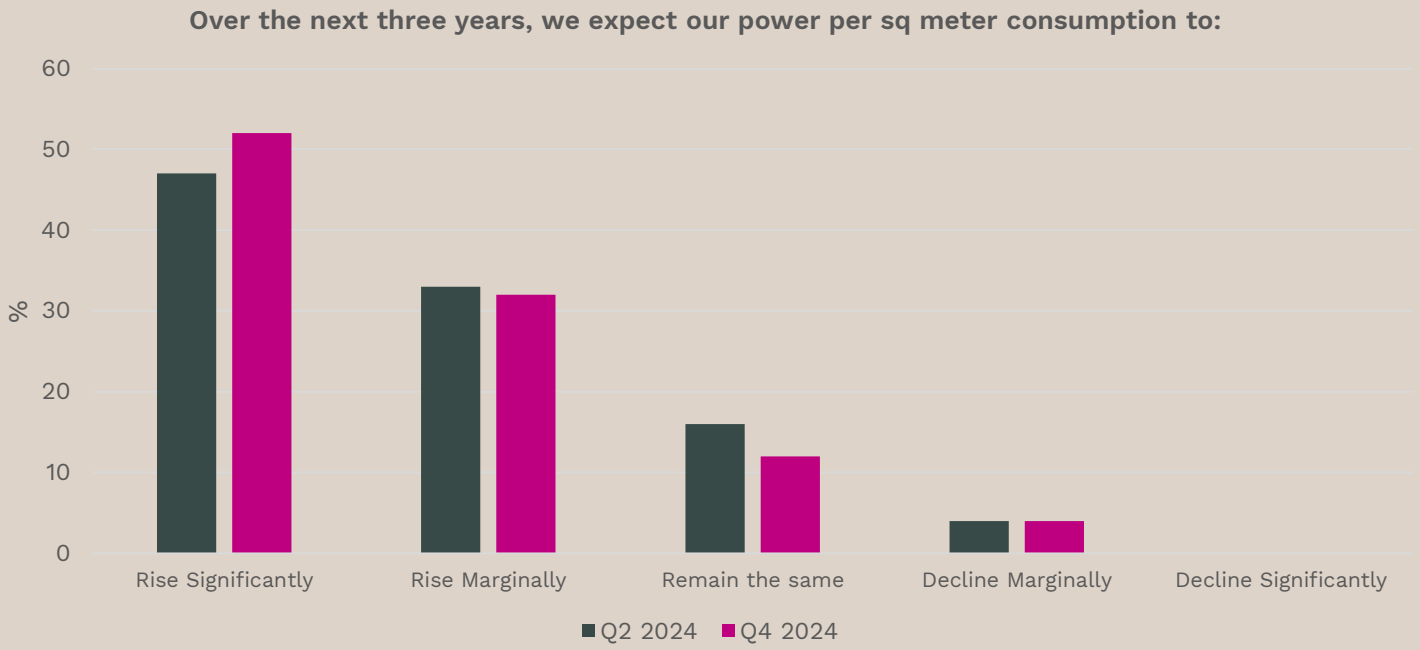
Of course, both are potentially placing inflationary pressures on occupier costs, whilst greater workloads for existing staff can also lead to difficulties in resourcing existing work. Just over half of respondents stated that they had experienced difficulties in meeting deadlines or client objectives, although this proportion has dipped from around two-thirds earlier this year.

These shortages have also contributed to the growing popularity of outsourcing options, with approximately 40% of respondents acknowledging it as a factor. It is worth noting that this percentage has increased from the one-third recorded in our previous survey, and the more extreme consequence of skills shortages - lost orders – remains around 12%, broadly in line with that identified six months ago.
Other consequences included delays to developing new products/innovations stated by 38% (a slight increase on the 35% recording in Q2) and ceased offering certain products or services noted by 16%, a rise from 12%.



Power

Consumption continuing to climb



The escalation in demand for data centre services due to the surge in the adoption and implementation of digital technology has led to a major challenge for the data centre and energy industries not only within Europe but across the world. The challenge is to ensure a sufficiency of supply to meet these growing demands aligned to the requirement that such power comes from renewable, sustainable and cost-effective sources.

This looks increasingly difficult, particularly if latest forecasts around demand are accurate. According to McKinsey & Company's latest published research, power consumption by data centres in the European Union, Norway, Switzerland and UK could be set to triple by 2030 and will therefore require a significant increase in electricity supply. The research found that the total IT load demand for data centres could rise from 10 gigawatts to 35 gigawatts in that period, with Europe's data centre power consumption expected to reach 150 terawatt hours (TWh) by the same date, up from approximately 62 TWh at present.

The scale of the problem is unlikely to diminish, with the growth of AI cited as the significant cause of the rise, as power-hungry technology consumes significant levels of electricity to perform. Some 84% of respondents reported that they expect their power consumption levels to rise over the next three years, a proportion which has moved marginally up since the last survey. Notably, just over half of these respondents expect that rise to be significant whilst 12% predict that their levels of consumption to remain the same, a fall from 16% noted in Q2.

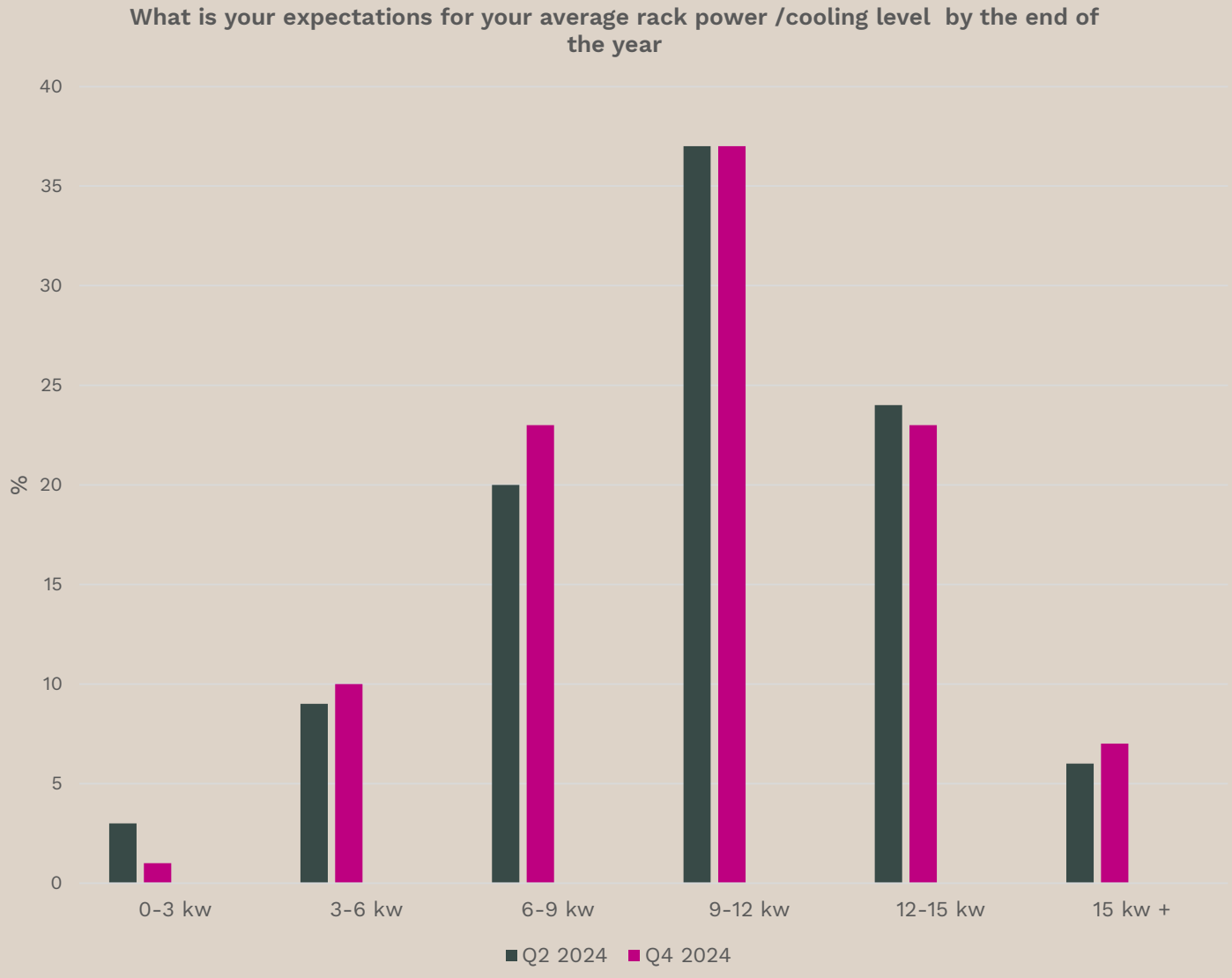
Within our respondent groups, nearly all our developer and investors expect to see an increase in power usage, whilst within our services provider response, this proportion stands at 87%. Notably, amongst our end user respondents this proportion drops to around 75%, although this is a rise on the two-thirds who reported six months ago.

Average Rack Power/cooling levels on the rise

An analysis of the expectations of our latest respondents regarding their average rack power/cooling levels in the upcoming year reveals only minimal changes to the results recorded in Q2 2024. Around 37% of respondents expect to see an average rack power/cooling level of 9kw-12kw over the coming 12 months; the fourth successive survey that we have reported the highest proportion anticipating average rack power/cooling level in this range.

Whilst 23% expect to see an average rack power/cooling level in the higher band of 12kw-15kw over the course of the coming year, the proportion of respondents indicating a level higher than 15kw per rack remains low at 7%

Amongst our corporate respondents, views have remained static since our last survey; around a third are expecting to see average rack power/cooling level of 9kw-12kw and 27% suggest their average levels will be in the 6kw-9kw range. In comparison, amongst our service providers, the 9kw-12kw range is favoured by around 43% of respondents whilst 28% are in the 6kw-9kw range.

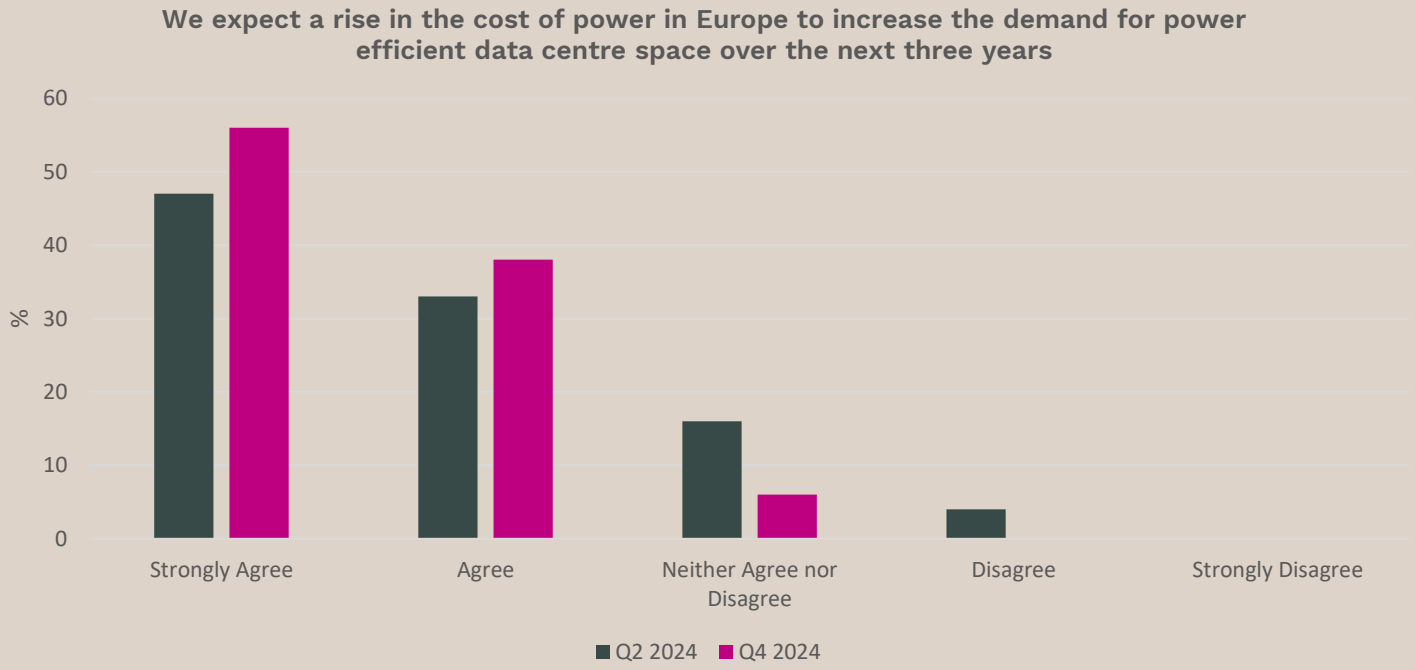


Rising power cost to drive efficiencies

Whilst the peak in energy costs experienced in the wake of the Russian invasion of Ukraine in February 2022 have now stabilised, wholesale prices for gas and electricity have still not returned to their previous lower levels. Indeed, according to GreenMatch/Eurostat, current prices remain approximately 30-40% higher for electricity compared to pre-crisis levels in most European countries.

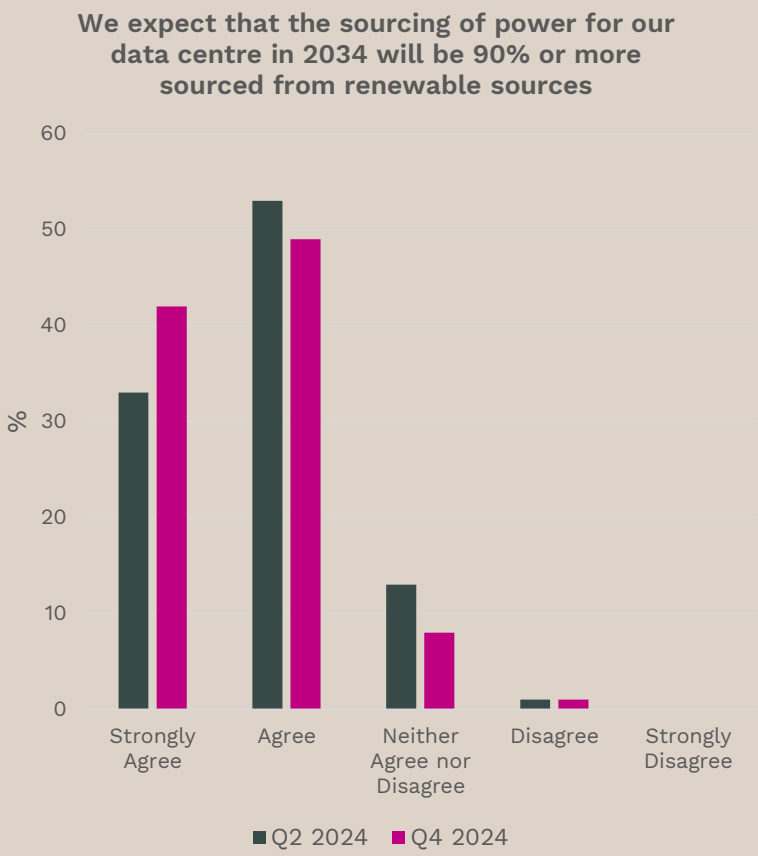
With the expected rise in overall demand for power, it is not surprising that organisations will look to control their exposure to rising energy costs through the demand for power efficiency where possible. Some 94% of our respondents expect a rise in the cost of power to increase the demand for power efficient data centre space over the next three years, a notable increase from the 80% noted six months ago.

Amongst our respondent groupings, 97% of service providers expressed their agreement - up from 83% - and cementing their position as the most resolute on this issue. Interestingly, 82% of corporate respondents also indicated their agreement, a rise on the 68% who reported the same six months before.



Move to renewables

It is clear that the data centre industry is following most of the major industries by continuing to prioritize enhancing energy efficiency and the utilisation of renewable energy sources. The financial carrot that power efficiencies bring to operators is evident but there remains a wider political and social stick for stronger protection for the environment. As the data centre industry increases its relative importance as a user of power, a move to renewable energy represents an important step towards the creation of a more sustainable and environmentally conscious digital infrastructure.

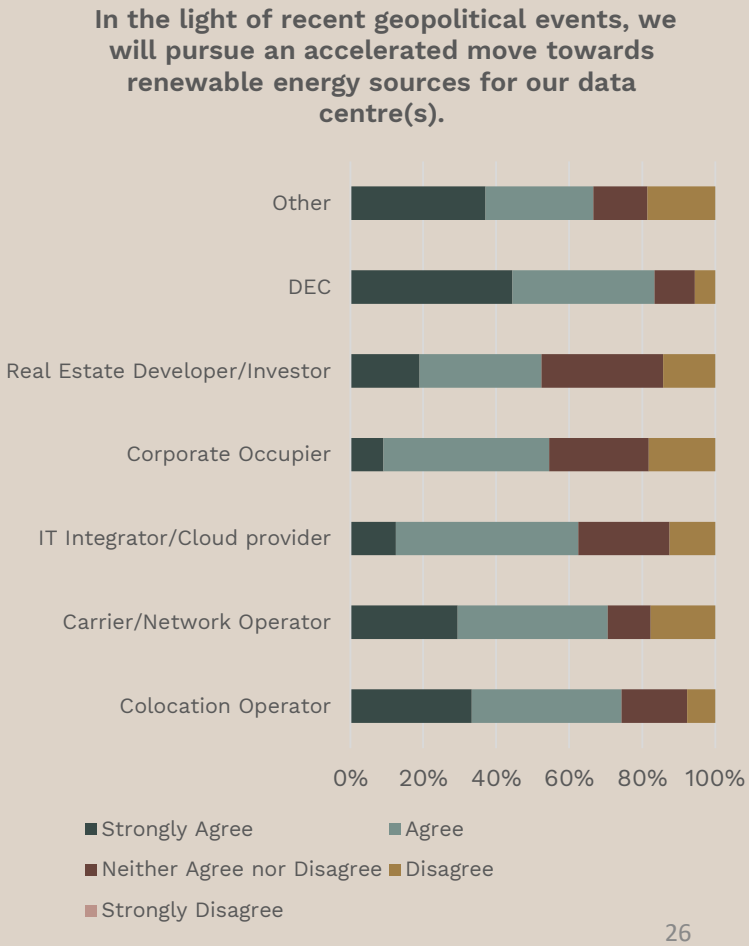


Results from our survey suggest strongly that the industry remains deeply engaged in providing appropriate power solutions; 91% of respondents expect to see at least 90% of their data centre energy usage sourced from renewable generation over the next decade. This reflects an increase from the 86% we recorded in our last survey and once again, just 1% disagreeing with the statement.

Amongst our service providers the proportion in agreement jumps to 94%; up on the 87% reported six months ago, whilst 85% of our end user participants agree. Once again, our developer and investor respondents are at near universal agreement on this issue, the sixth successive survey this level of agreement has been recorded.

The desire to ensure energy supply chains are robust in a world of ongoing geopolitical uncertainties is likely to continue a move towards locally generated renewable energy sources which should make it less susceptible to global bad-actors and improving energy security and pricing.

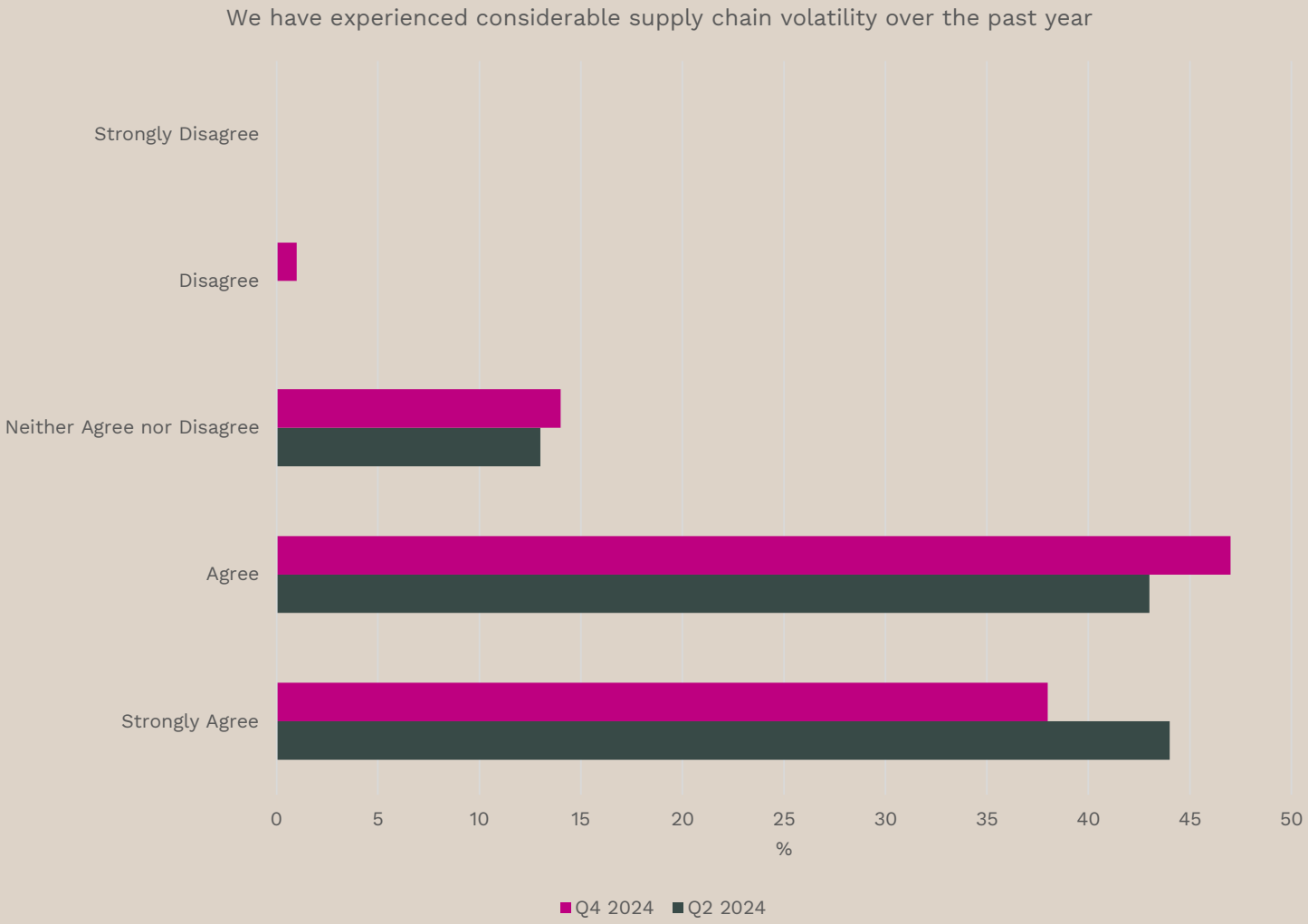
The latest survey offers evidence to support this, with 67% of survey participants agreed that recent events would prompt them to accelerate their transition towards renewable energy sources. However, we have also noted that there remained 13% who disagreed, and 20% adopted a neutral position although this may well be that this reflects respondents who have already chosen to pursue a move towards renewable energy sources or indeed achieved it and thus have no need to speed up the process.



Supply chain disruption still troublesome

There is evidence that the European data centre industry continues to be plagued by ongoing supply chain difficulties. Initially a legacy of the global pandemic, the post-COVID period has continued to be characterised by shortages of materials and components - such as generators, UPS batteries, transformers, servers, as well as general building materials - aggravated further by ongoing conflicts in Ukraine and the Middle East which are disrupting both transport routes as well as bottlenecks in production.

Evidence from our survey suggests that 85% of our respondents stated that they had experienced supply chain problems in the last 12 months, a similar proportion to that recorded in Q2 (87%) but marginally lower than the 92% we monitored a year earlier.



For our third successive survey there is universal agreement of supply chain disruption amongst our developer/investor respondents responsible for delivering new data centre stock to the market, as well as our DEC professionals. Amongst our service providers, there also continues to be a high level of agreement regarding this disruption, with 95% recording that they had experienced such supply chain issues.

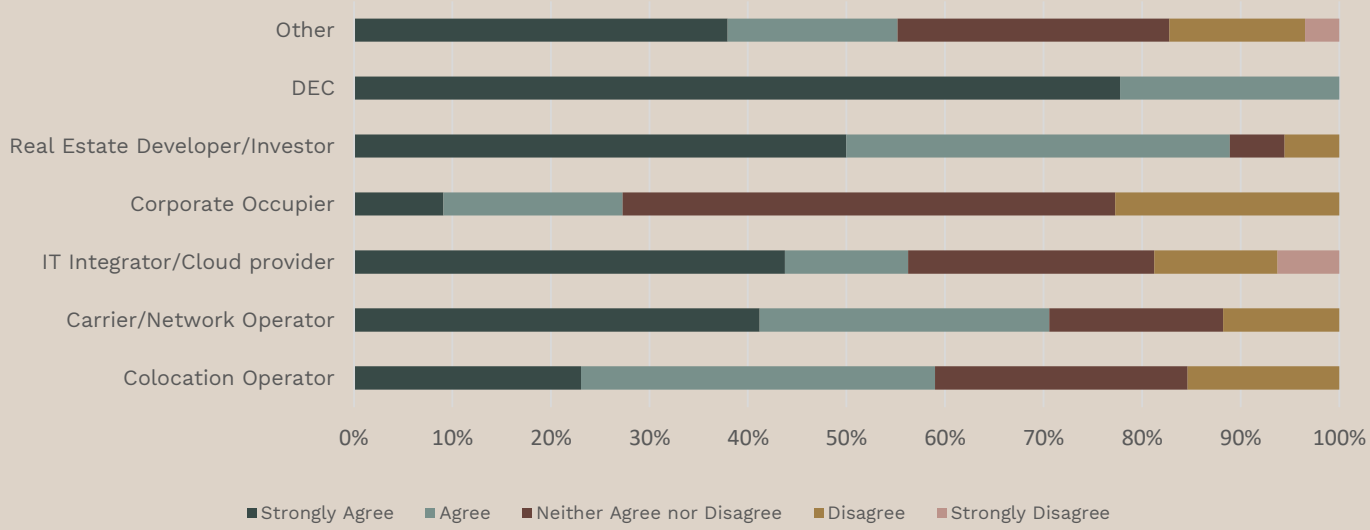
Supply chain disruption impacting future data centre locations

Location is a major contributing factor in choosing a new a data centre for our respondents. Over the course of the past 15 years, we have noted a long-standing record of location influencing our respondent's data centre decision making, second only to availability of power as a driver. Our latest findings suggest that our survey participants appear to have an ongoing concern that continuing supply chain disruption will have a real impact in their decision making regarding future data centre locations. Some 63% state that supply chain disruption could influence their choice for future sites for new facilities, albeit a small decline on the 69% who reported the same some six months ago but in line with the 64% who reported on this one year earlier.

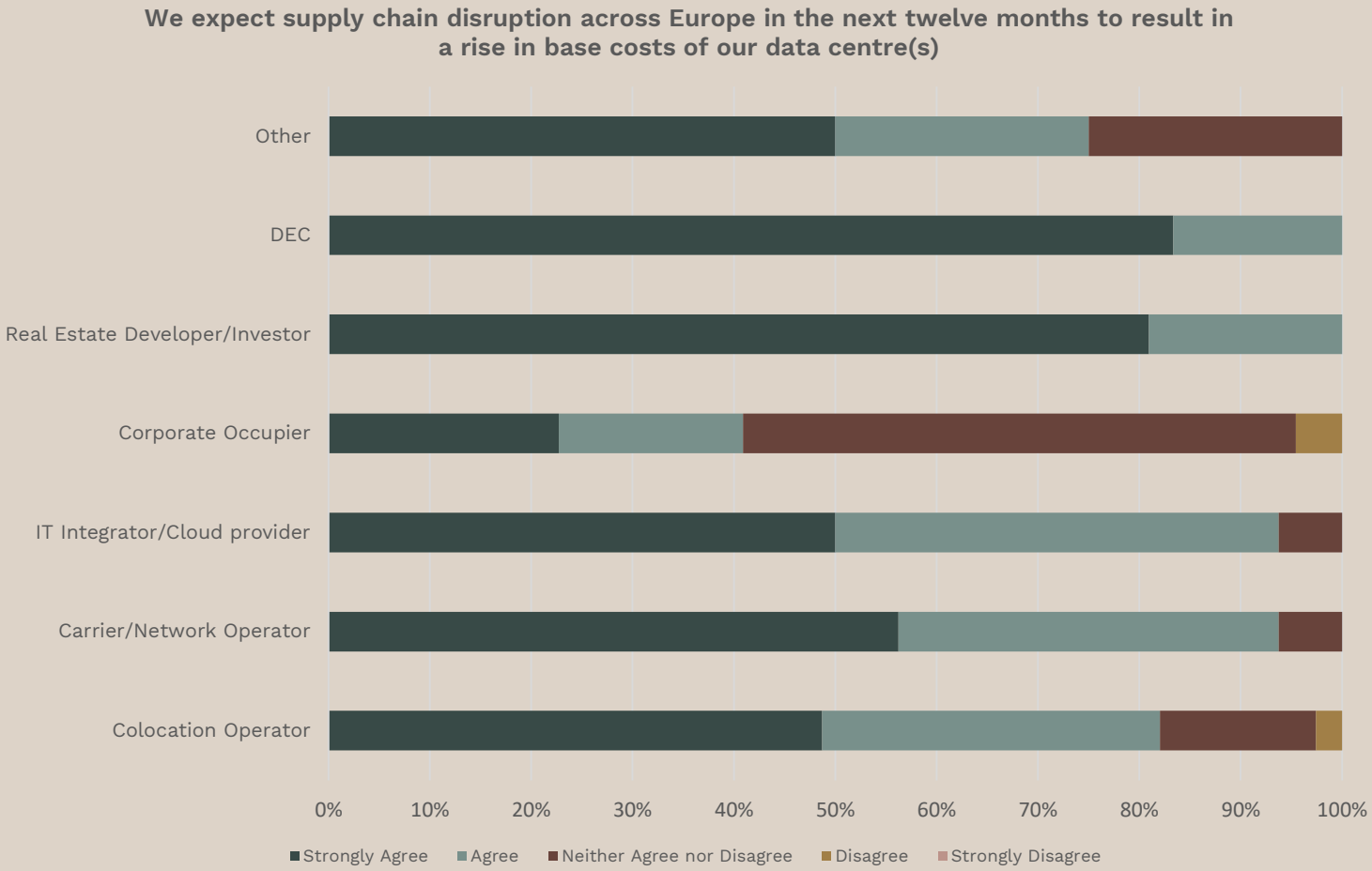
Our DEC respondents remain one of the most fervent in agreement, with near universal agreement amongst this group, as was the case earlier in the year. Of these, 78% expressed agreement in the strongest possible terms, a small rise on the 75% seen in Q2. In contrast, service providers appear slightly less concerned than previously with 61% in agreement, down from the 71% recorded six months ago.

For the sixth survey in a row, corporate respondents expressed the lowest level of assent, at 27%, however this represents an uplift on the 16% recorded in our summer survey. End users also recorded the highest levels of disagreement; 23% reflecting a small rise on the 18% recorded in Q2, whilst around 50% reported a neutral position. Whilst this is a decline from the two-thirds noted last summer, it may also be influenced to some extent by the fact that end users (particularly when contracting outsourced solutions) are one or two steps removed from direct exposure to supply chain issues other than those in their rack, which could shield them against the worst excesses of such disruption.

Potential long term supply chain problems will impact significantly on our decision making regarding the future location(s) of our data centre(s)



Inflationary impact – still an issue



In recent years there has been significant concern that the higher inflationary environment across Europe may impact on economic growth. Whilst these pressures appear to have declined over the year, the potential threat to the base costs of data centres resulting from supply chain disruption remains of real concern for our survey participants.

Some 82% of our respondents expect to see future rises in their data centre costs over the coming year driven by further supply chain disruption, in line with the 83% who suggested the same some six months ago. Amongst our survey respondent groups, service providers remain concerned on this issue with 87% expressing their agreement, up from the 81% recorded in Q 2024. As was the case last summer, our DEC and developer respondents share almost complete agreement that this will be the case.

The challenge for our survey participants is to look for alternative solutions to mitigate the risk of further supply chain disruption. For many, this can involve a diversification of their suppliers to reduce reliance on a single source or single region. One possible method can involve looking for alternatives to traditional materials to try to speed up the supply chain. Of course, any potential action may also result in inflationary pressures, with a subsequent impact on the data centre base costs.

The Impact of AI

Following on from our summer survey, where we highlighted Artificial Intelligence (AI) adoption amongst organizations, we continue to build on our analysis on what will undoubtedly be an area responsible for one of the largest drivers of data centre development and expansion that we have experienced since our survey began 15 years ago. Most public commentators agree that AI adoption will grow significantly over the next few years. For example, Marketsandmarkets suggest that the AI market is projected to reach some US $1,339 billion by 2030, experiencing substantial growth from its estimated US$214 billion revenue in 2024.

It is these predictions that are helping to drive the confidence in demand levels for data centres, although arising from these are the concerns whether the industry can keep up and deliver the necessary infrastructure power, power densities and cooling solutions to address the requirement for extreme high-performance servers, storage systems, and superfast networking infrastructure and specialised hardware accelerators – all of which use substantially more power and cooling.

Indeed, there is evidence that power constraints are already limiting growth in data centre space in some mature markets where competing demands on the grid have seen developers and investors looking elsewhere for alternative opportunities. According to Savills World Research, London, Frankfurt, Amsterdam, Dublin, Northern Virginia, Seoul, Singapore and Tokyo have all already suffered from a tightening of power availability, whilst other peripheral and less power-competitive locations will have become more attractive to data centre market growth.

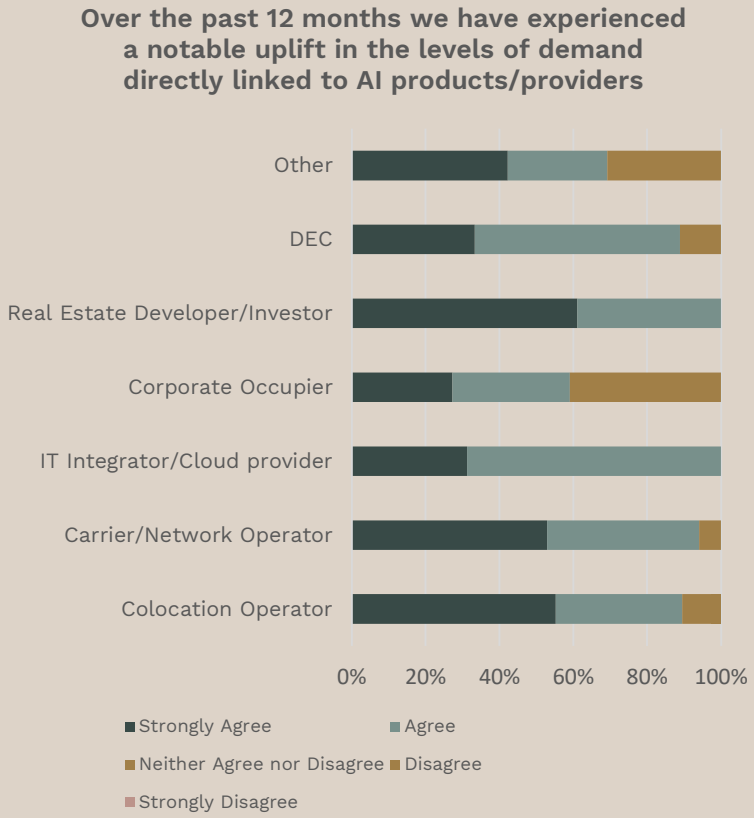
Demand Growing

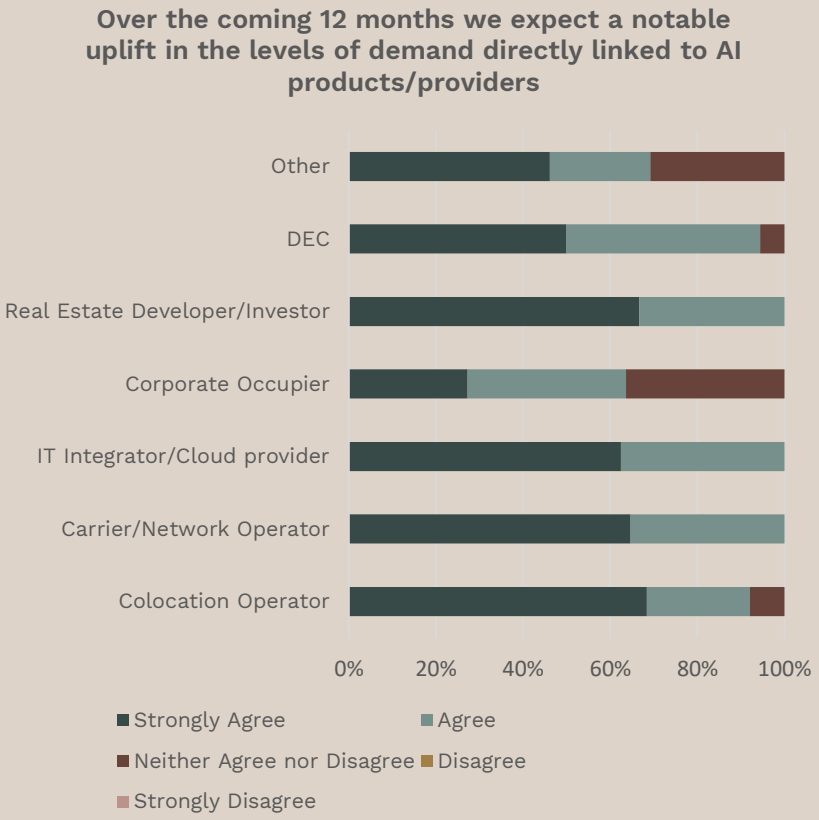
Some 85% of our respondents have reported experiencing an uplift in demand as a direct result of AI over the past year, this is up on the four-fifths who reported the same some six months ago. On a sectoral basis, our developers and investors now provide universal agreement that this has been the case, a rise on the 95% recorded earlier in the year, whilst 92% of our colocation providers, integrators and cloud providers agree.

There is divergence in these views amongst corporates, where some 59% now agree that they have seen an uplift in demand as a direct result of AI over the past year, a significant rise on the 40% recorded in Q2, the majority of the increase appearing to come from those who had previously adopted a neutral position, their proportion now dropping to 41%, down from 60% seen six months ago.

Demand growing

Looking forward, our survey respondents remain firmly convinced that that demand will continue to be driven by AI growth in the coming year. Some 87% believe that the next 12 months will see a notable uplift in demand directly linked to AI products/providers, a proportion unchanged on that seen six months ago.

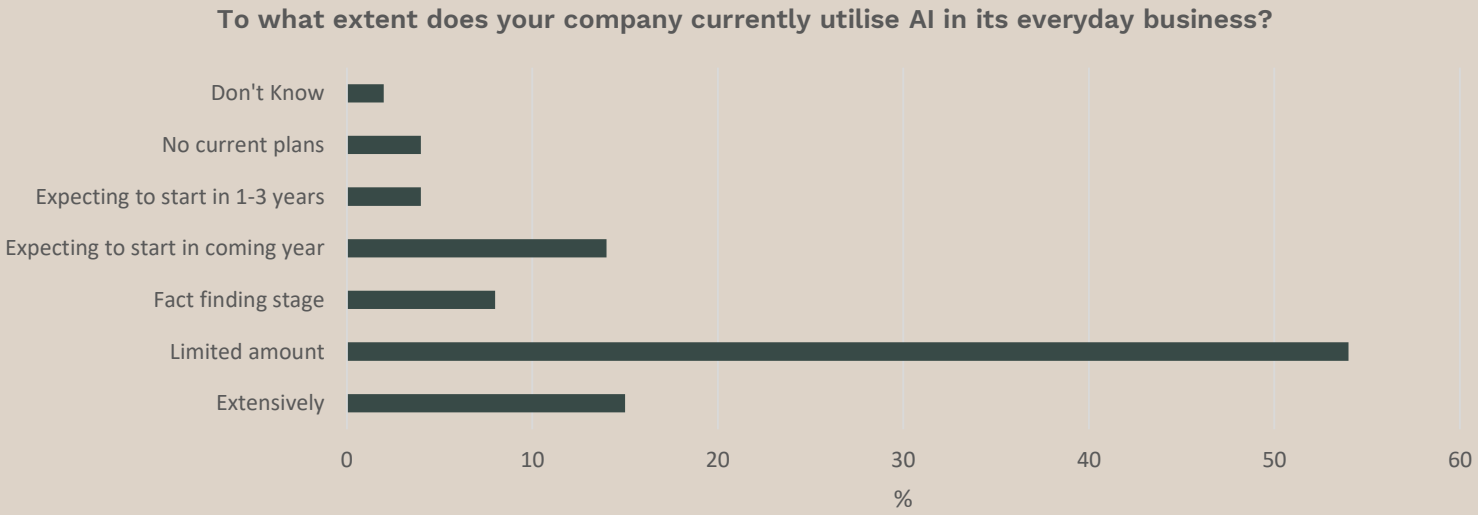




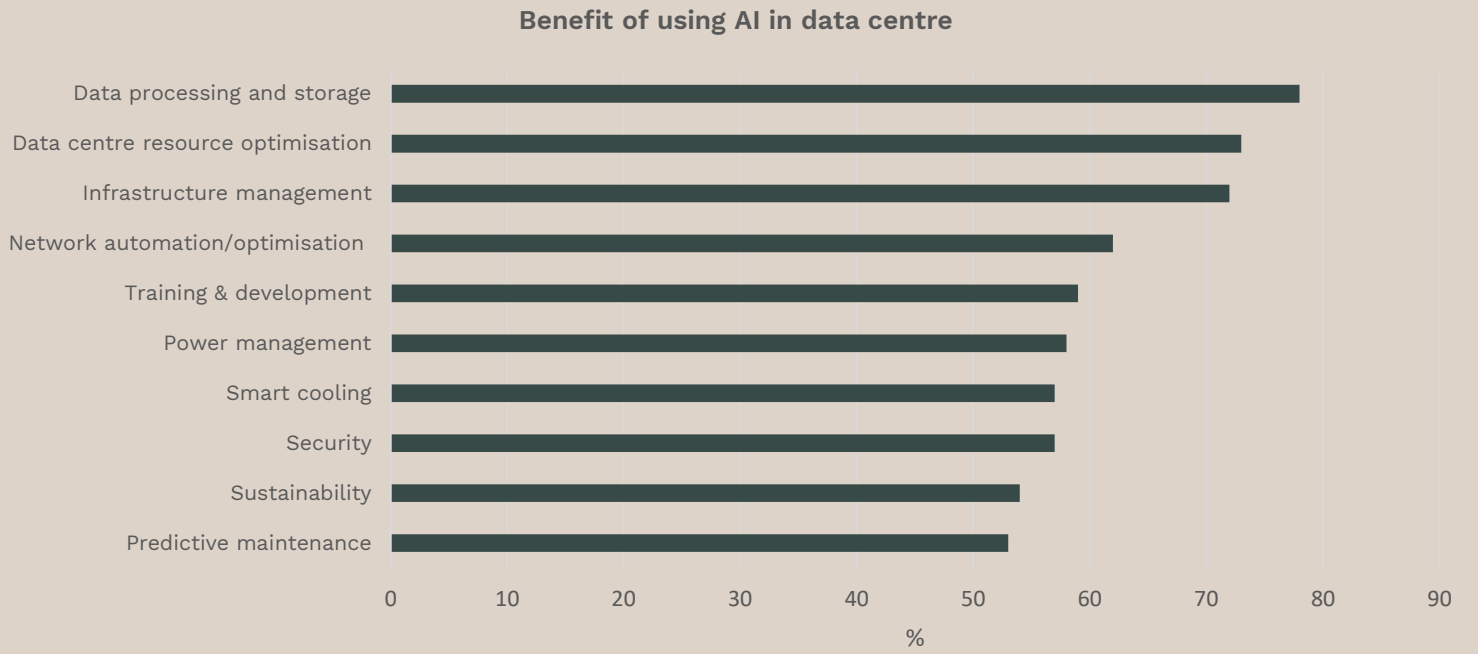
For our service providers this proportion stands at 96% in line with that reported last summer, whilst once again there is universal agreement amongst our integrators and cloud providers as well as carrier/network operator respondents who believe this to be the case. Notably, a significant influence on the increasing proportion appears to be led by our end users who have altered their position since Q2, with around 63% now indicating they thought this rise will occur, up from 45% who responded this way in the summer.

Data centre AI use

Whilst data centres are crucial in servicing demand for AI, they also utilise AI to help facilities drive to be more efficient, resilient and reliable. The survey provides more evidence that our respondents are using a variety of tools to try to achieve those aims, with 70% of participants reporting its use in their business. Of these, 15% use it extensively whilst around 56% use it to a limited degree. In addition, a further 14% suggest that they expect to use AI to some extent in the coming year and 8% are currently investigating it for their future use. Just 4% state they have no current plans for the use of AI.



Amongst our service providers, three-quarters are currently using AI in some form in their business with the remainder either expecting to use it in the coming year or are at the fact-finding stage. Amongst our developers and investors 95% report some degree of current use. In contrast just under half of our end user respondents say they are currently using AI tools in their business, however almost all the remainder state their intention to use it at some stage in the next three years.



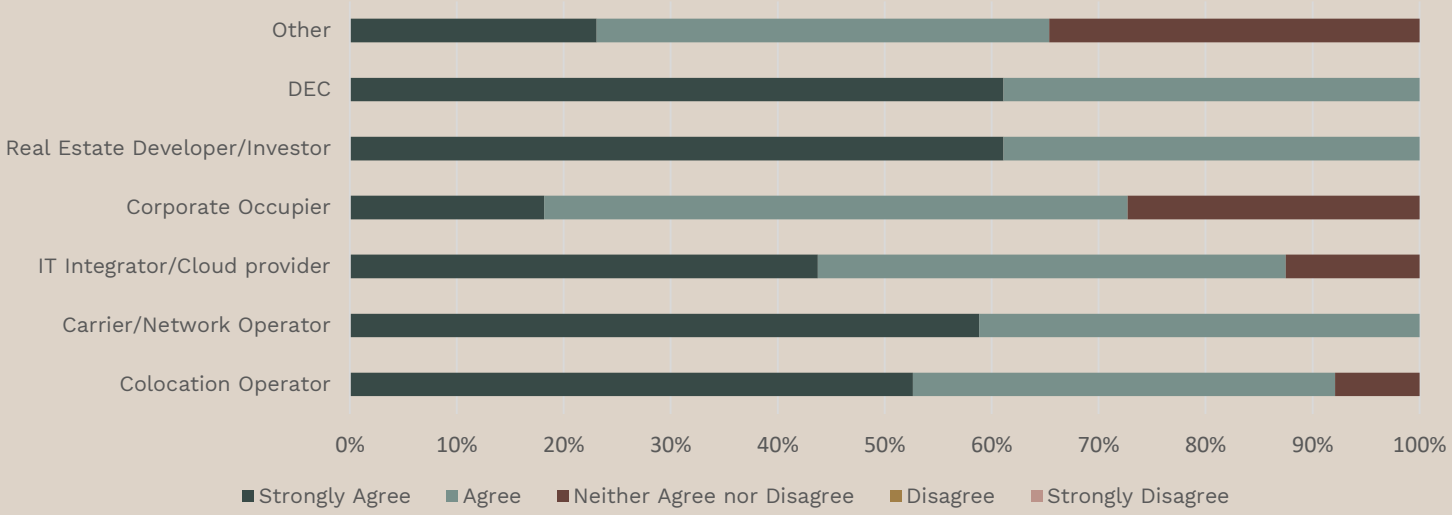
As we have highlighted, AI is not just a single tool of use for businesses, but more like a mattress underpinning infrastructure and affording business many advantages across working operations as well as customer solutions. Our survey participants have cited multiple areas they believe are currently and most likely to benefit from the use of AI tools. Indeed, over 90% of respondents identified a minimum of at least three areas which they believed would gain advantage from AI, whilst most cited a minimum of at least two.

Resource optimisation and infrastructure management are cited by around three-quarters of our respondents. Both are collective terms with the aim to make data centres more efficient, resilient, and effective. These cover aspects such as improving the physical infrastructure, the cooling and power systems, and optimizing the software and building management platforms, the deployment of hardware and software, asset and service configuration management and performance monitoring.

Almost four-fifths of our respondents consider data processing and storage to see a major benefit of AI usage, allowing system parameters to be continuously monitored and adjusted to facilitate optimum processing performance and ensuring processing is executed as efficiently as possible. It also allows for data to be moved automatically around different storage tiers dependent on usage patterns, maximising efficiencies in hardware use and data location and recall.

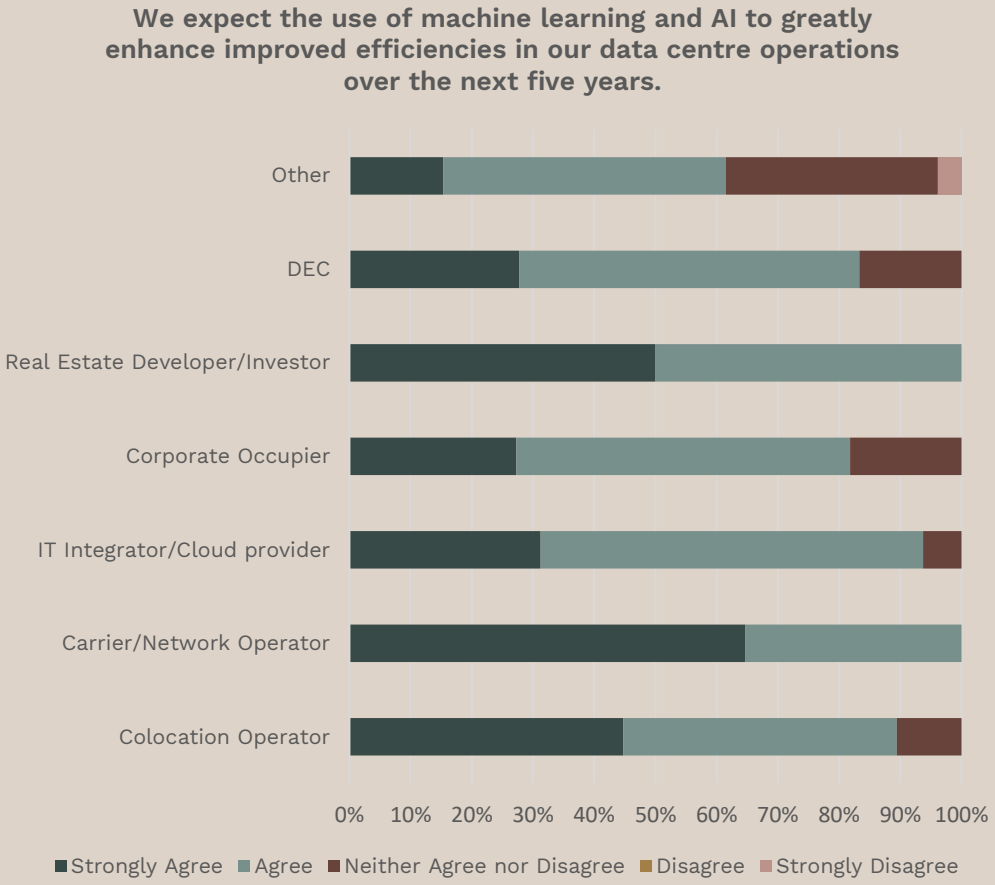
Aiding the process of automating the configuring, managing, testing, deploying, and operating of physical and virtual devices within a network - Network automation/optimisation – was cited by 62% of our respondents as a beneficial area for the use of AI. Here it can enhance efficiencies, reliability and performance in several ways, including real-time monitoring and automatically configurating network settings; supporting compliance with security policies by updating configurations automatically; scaling network resources in real-time as workloads change. All strive for optimal network performance, reducing costs and enhancing reliability without the need for human intervention.

The pace of widespread adoption of AI is currently being restricted by the scarcity of available power and facilities tailored for AI workloads.



Cited by some 53% as a benefactor to AI incorporation is Predictive maintenance; averting problems within the physical infrastructure of the data centre before they arise. Around 60% of our respondents cited benefits to Training & Development with the use of AI, potentially helping to alleviate the current deficiency of professionally skilled workforce highlighted earlier.

Power management, Smart cooling and Security were all mentioned by around 58% of our survey participants. Power management includes balancing power usage across the data centre as well as predicting power usage allowing allocation of non-critical tasks to off-peak times thus avoiding excessive energy consumption and maximising power efficiency. Smart cooling uses AI and machine learning to adjust cooling parameters helping to further optimise energy use through predictive conditioning. Whilst AI can help Security by monitoring and learning of both network traffic and user behaviour, allowing anomalies and potential security threats to be instantly detected and neutralised.



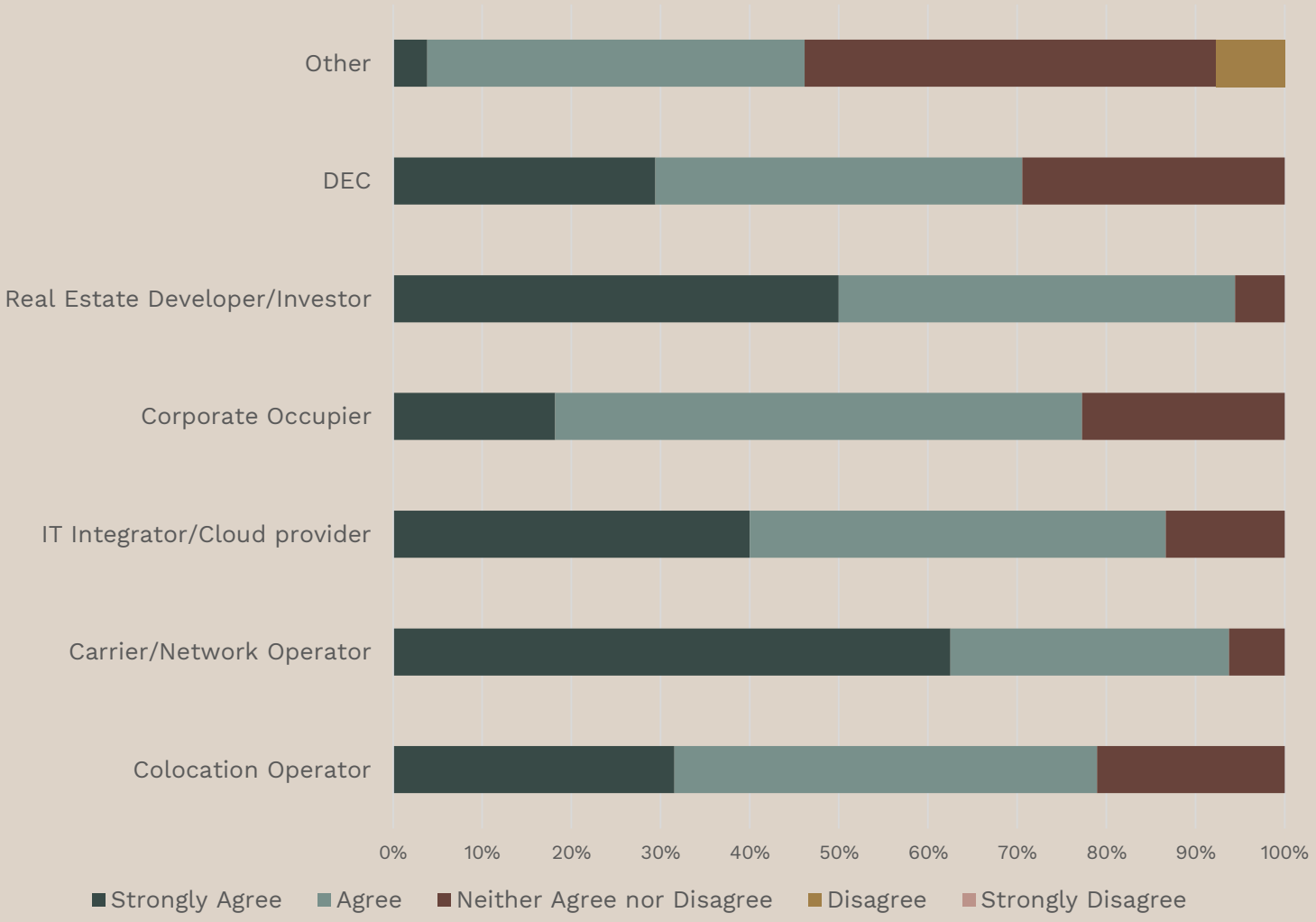
Some 87% of our survey participants agree to some extent that restricted power availability and appropriate data centres with the capability to handle concentrated workloads is already impacting the speed of AI adoption. This is a similar level to the 85% who held the same view earlier in the year. Amongst our service providers, the level of agreement is even higher at 93%, whilst all our carriers/network operators, developer and investors and end users agreed.

Earlier we reported on the variety of ways that our respondents believe AI can benefit their data centre environments, most centred around the underlying drive to greater efficiency, increasing sustainability and reducing cost. These efficiencies can be derived from the utilisation of a combination of tools with the aim of achieving improving power usage effectiveness, workload management, boosting security, aiding business continuity and of course, minimising overall operational costs.

Some 86% of our survey participants expect their data centres to be more efficient as a direct result of AI applications, a small drop on the 90% who reported on the same metric in our summer report, but still overwhelmingly supportive. Proportionally, some of the strongest agreements sit amongst our service providers (94%) and universal agreement amongst our developer and investor respondents, whilst 80% of corporate respondents showed their agreement. These results were all similar to those measured six months ago.

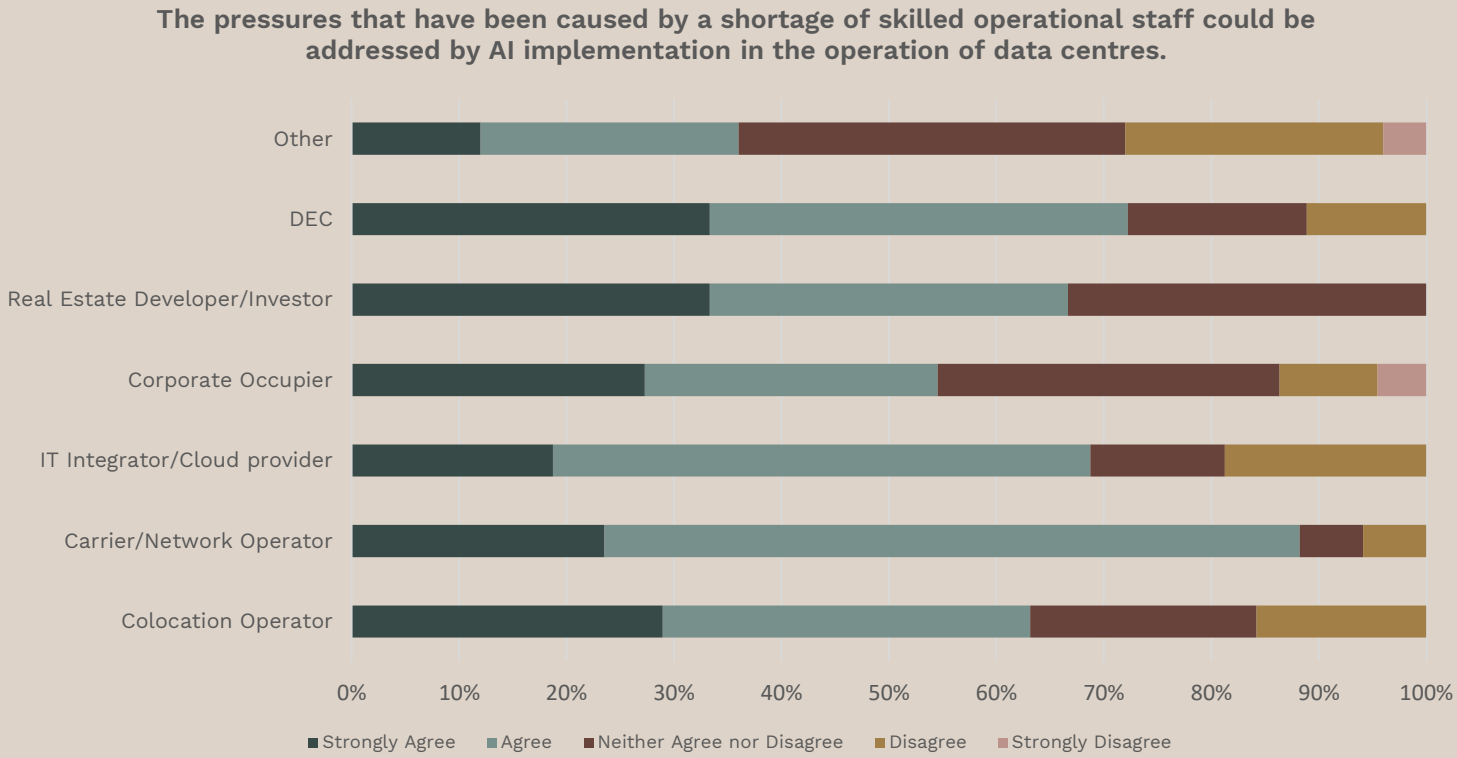
One major benefit that AI is expected to deliver through enhanced efficiencies is one of savings on operational costs of these facilities. Around three-quarters of our respondents expect this to be the case, a small drop on the 82% reported in Q2 2024. Amongst our service providers this portion has risen slightly to 84% - up from 77% in Q2 - whilst in contrast the proportion of end users agreeing has in the opposite direction to 77%, down from 83% reported in the summer.

AI will deliver substantial savings to our data centre operational costs in the next five years



Throughout our report we have seen evidence of widespread concerns regarding the availability of sufficient power to meet the needs of the data centre industry, undoubtedly accelerated further by the supercharged power demands from AI exponential development. Indeed, we have seen respondents believe that such requirements threaten the pace of adoption of AI as a result.

As highlighted last summer, in some locations, concerns over increasing power draws by the data centre industry have led to policy makers at both local and national level introducing provisions limiting the volume of data centre development. This may represent an opportunity for more peripheral locations where power availability is higher, and a more favourable governance exists. Many of our respondents (71%) agree that such locations will benefit in this way, similar levels to those measured six months ago.
Amongst our service providers, this proportion sits at 83% - up from 74% last summer - and 83% (up from 78%) for our developer survey participants. Overall, around a quarter of respondents have chosen to adopt a neutral position compared to 20% previously.

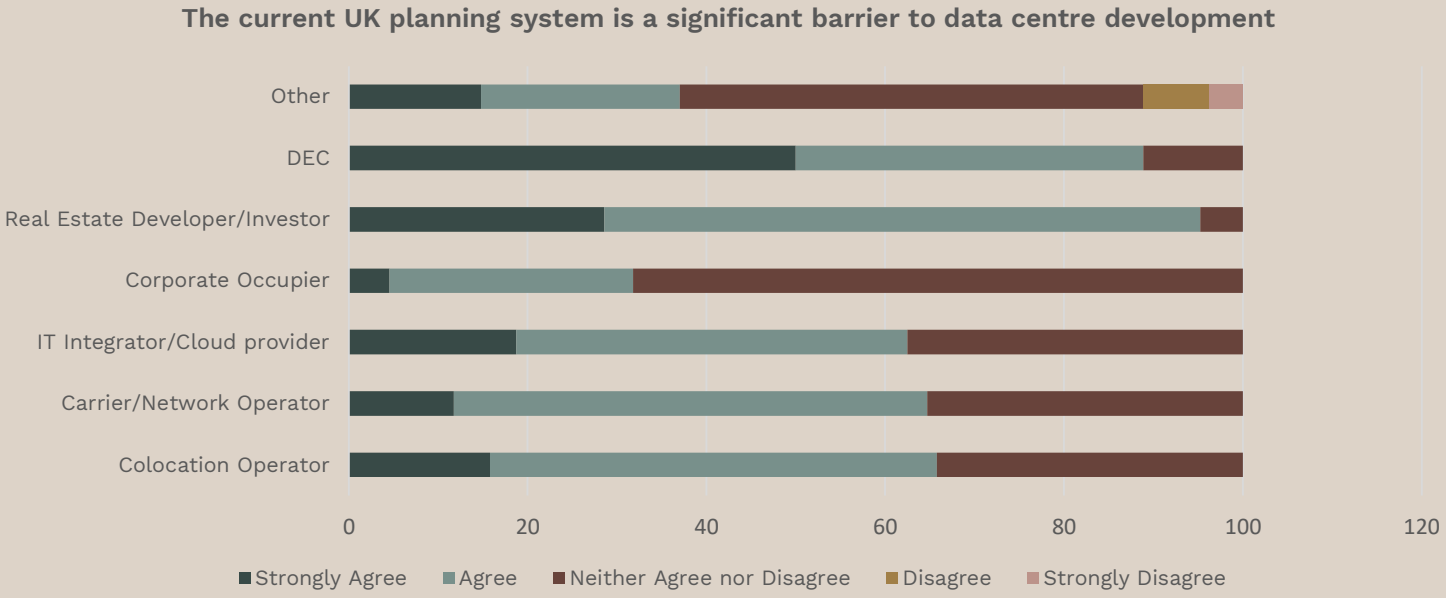


Amongst our survey participants some 62% believe that AI may help to ease the pressures of staff shortages, representing a decline from the 69% who reported the same some six months ago, whilst a quarter adopted a neutral position and 14% disagreed.
There are some differences within our individual respondent groups, for instance 70% of service providers (albeit a fall from the near 80% six months earlier) believe that AI may help to ease the pressures of staff shortages across the data centre estate. Amongst developers, investors and DEC professionals these levels are slightly lower at 66% (no change on Q2 2024) and 72% (63%) respectively, whilst just half of our corporate respondents agree.

UK Focus - planning constraints and reform

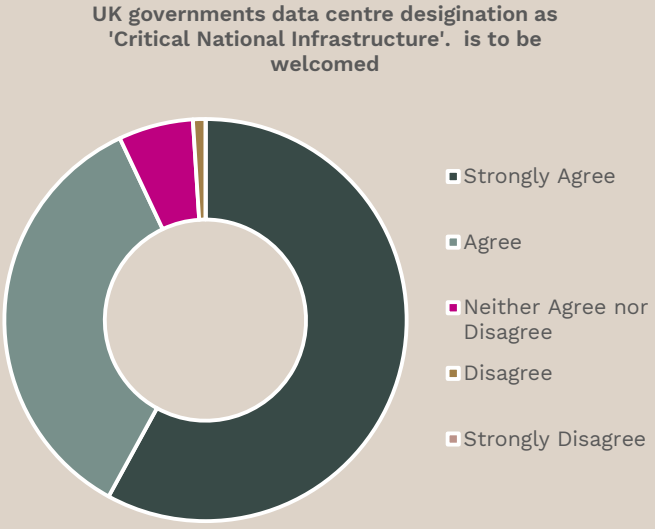
We have already noted several generic issues that can impact the smooth delivery of data centre stock, i.e. shortages of skilled staff, supply chain disruption and availability of renewable power. Another specific area of concern can be the planning process within a country, which can often lead to development bottlenecks or blocking, based as it is on systems and processes that have changed little over the decades.

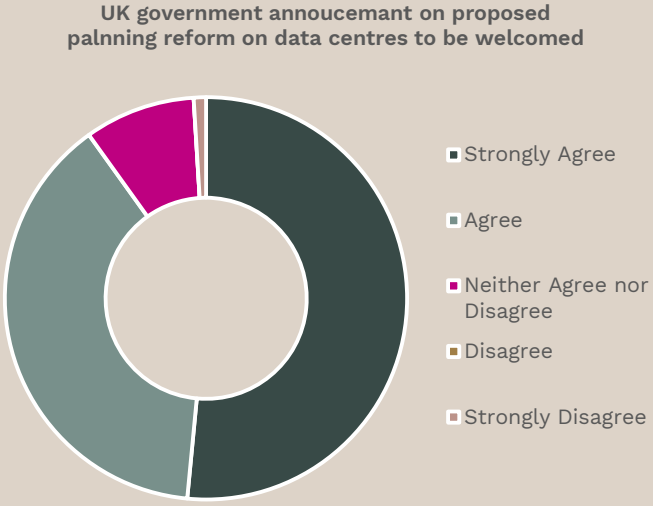
Within the UK, some commentators have long argued that the planning process needs reform to become fit for purpose and more reflect the changing nature of the development environment and encourage economic growth. There are arguments that the development of data centres in the UK has been hindered by an overly complex planning system that has lacked clarity and often become politicised, particularly regarding large more complex projects. Data centres do not fit easily into current UK planning use-classes which can create complications and allows local planning regimes to adopt different approaches to technical real estate planning applications.



Amongst our respondents, there is no doubt that the UK planning system is an area of concern, with almost two-thirds identifying it as a significant barrier to the development of data centres. Not surprisingly, our developers/investors (95%) and DEC professionals (89%) are most fervent in their agreement. Amongst our service providers, 66% of colocation operators, 65% of carriers and network operators and 63% of IT Integrators/cloud providers agree. In contrast, two-thirds of our corporate survey participants maintain a neutral stance on this issue, perhaps reflecting a lack of direct involvement in the planning process for most end users using third-party managed space.
Recently, the new UK government has chosen to address this issue within the context of wider planning reform. It has suggested that it would like to restructure the current system to accelerate the pace of large-scale infrastructure projects, revising the National Planning Policy Framework (NPPF). Additionally, they have announced that data centres are now classed as ‘Critical National Infrastructure’, putting it alongside energy and water supplies, transportation, health and telecommunications.

This designation will see the establishment of a dedicated data infrastructure team of senior government officials whose role is to monitor and anticipate potential threats and provide prioritised access to security agencies, such as the National Cyber Security Centre as well as co-ordinating access to emergency services, in the event of an incident. CNI coverage will include both the physical data centres and the cloud operators that use them to supply services.



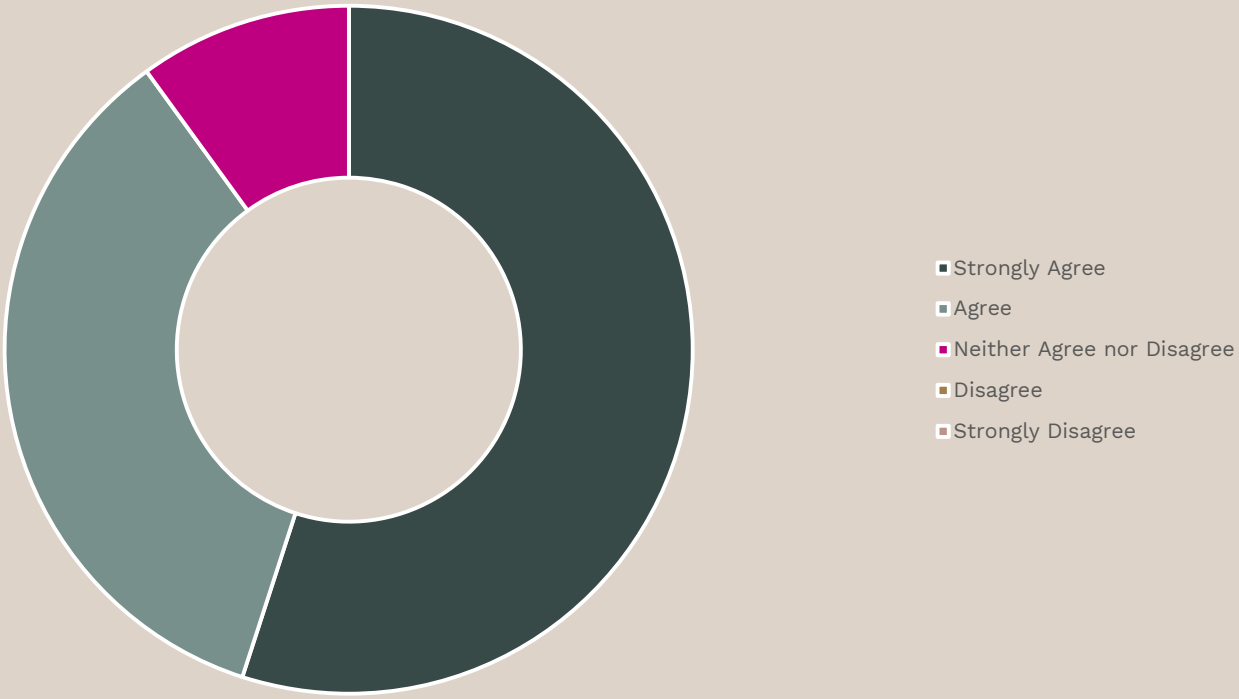


The move to label Critical National Infrastructure has proved a popular one; a majority 93% of our respondents reported that they welcomed such an initiative, perhaps believing it represents a sign of a more prominent profile for the sector under the new UK administration. Almost all other respondents remained neutral on the position and just a small 1% disagreed.

The vast majority (92%) of our respondents welcomed the government's decision to reform the UK planning process, particularly supported by universal agreement from our developer/investor and DEC participants. The proposed revised NPPF is designed to address the challenges to delivery of stock, outlining the importance of the sector to the country in its consultation paper. In particular, it is focussed on the contribution of data centres to the national economy, which in 2021 was worth an estimated £4.6 billion in revenue. This in turn is forecast to support a UK tech sector worth an additional £41.5 billion and around 678,000 jobs by 2025.
One element of the NPPF consultation suggests that local plans identify suitable sites or locations for data centres to be developed, giving explicit recognition to a requirement to provide support for proposals covering facilities and infrastructure such data centres. This is seen as a notable shift in policy around the support for data centre developments by simplifying the development cycle and thus encouraging investment to the sector.

Furthermore, suggestions include the introduction of measures that would allow data centre developments to be consented under the Nationally Significant Infrastructure Projects (NSIPs) process, assessed by an Examining Authority in public and decided by the Secretary of State. These NSIPs allow the streamlining of the planning process for large-scale infrastructure schemes of national importance as part of the Planning Act 2008. Currently these include utility essentials such as energy, water, wastewater and waste development projects, as well as transport. Data centres would be a notable addition to this elite list.

The limited provision of a suitable and efficient power source remains the largest constraint on new data centre development in the UK



Despite this potential progression in the planning process, however, there remain some headwinds to data centre development, not least the concerns regarding availability of a suitable, renewable power source. As we have already noted, some 92% of respondents cite availability of power in either of the top two positions as the key driver to the location of their data centre expansion.

Indeed, in this survey 90% of our respondents agreed the single largest constraint on new data centre development in the UK is the limitations of power supply, with universal agreement amongst our developer/investor and DEC respondents that this is the case. So, whilst planned improvements to the planning process represents a welcome reform for the data centre industry in the UK, it is vital that measures to ensure issues over providing a sustainable, renewable and secure power source are baked into that process.

the digital built asset consultancy

MEET THE EXPERTS

IF YOU WOULD LIKE TO HEAR MORE, PLEASE GET IN TOUCH

James Hart
CEO, BCS Data Centres
+44 (0) 345 204 3300
+44 (0) 7909 682 452

Scott Shearer
COO, BCS Data Centres
+44 (0) 345 204 3300
+44 (0) 7810 850 027

Paul Ryan
Senior Consultant, iX Consulting
+44 (0) 207 952 5300
+44 (0) 7971 551 335