



Q1 2021

EUROPE DATA CENTRES

FRANKFURT, LONDON,
AMSTERDAM & PARIS MARKETS

CBRE

FLAP MARKET RECORDS BEST PERFORMING QUARTER FOR TAKE-UP



Colocation supply
1,978MW (+16.4%)



Colocation availability
392MW (+6.9%)



Quarterly take-up
92MW (+33.8% QoQ)

Note: Arrows for supply and availability indicate change from same quarter in previous year. For take-up, this is based on the previous quarter.

RECORD START FOR 2021

- Data centre providers in the leased data centre market (wholesale and retail colocation) saw record quarterly take-up in Q1. 92MW of take-up was realised compared with 69MW in Q4 2020, which is now the second highest quarter recorded. 92MW is just short of half of the 201MW seen during 2020, the current record for annual take-up.
- Paris realised more than 40MW take-up, more than Paris has seen in a whole year. The largest year for take-up in Paris was 2018 when 26MW was realised.
- Some large deals contributed to the high amounts of growth across FLAP – mostly hyperscale contracts each offering close to 20MW or more.
- 136MW of new supply came online during Q1. This is compared to 173MW that came online during the whole of 2020.
- The vacancy rate remains stable. While vacancy has decreased in markets such as Frankfurt and Paris, it has risen to around 27% in Amsterdam and 25% in London.
- Land-banking activity by providers and hyperscalers has been high across all markets.

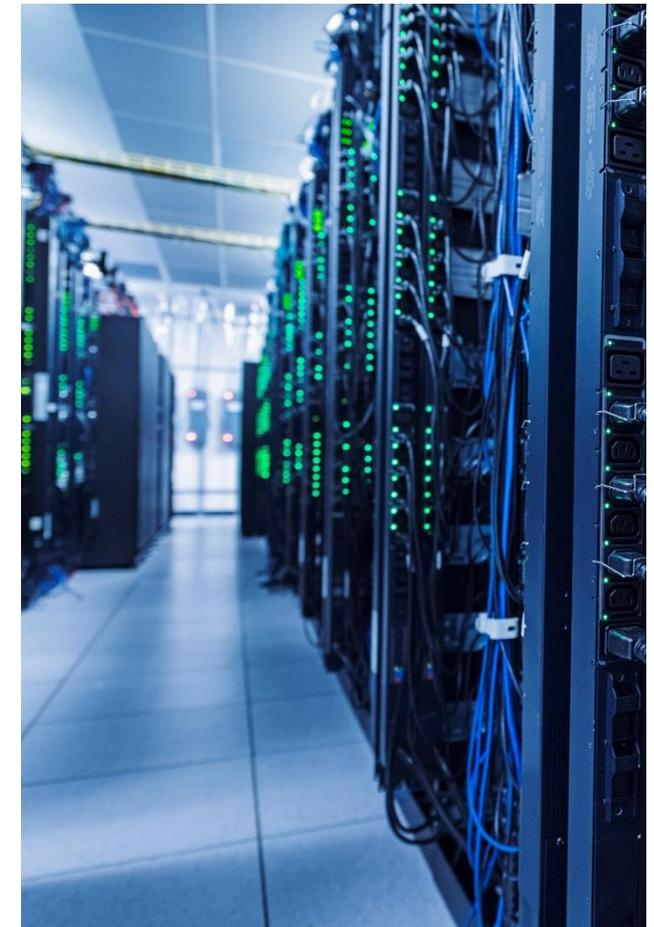
MARKET HIGHLIGHTS

- Digital Realty sold 11 European data centres for \$678m to Ascendas REIT, which is sponsored by CapitaLand. The portfolio includes four data centres in the UK, three in the Netherlands, three in France and one in Switzerland.
- In Paris, AWS' plans to build a data centre on land it owns in Bretigny-sur-Orge, south Paris, were made public. It could be its first self-build in the market. CyrusOne brought the market's first large-scale hyperscale build online – a 27MW shell and core.

Figure 1: FLAP market supply and take-up 2020 actual versus full-year 2021 forecast

YEAR	NEW SUPPLY	TAKE-UP
2020	173 MW	201 MW
2021F	399 MW	370 MW

Source: CBRE Research, Q1 2021



SUPPLY

Earlier this year we predicted that 415MW of supply would come online across the FLAP markets in 2021. This has been slightly adjusted to 399MW. So far, we have seen 136MW enter the market. Of this, 66MW was in London – this is more than half of the 96MW expected to come online in London during the year. Paris also recorded a new annual record with just one quarter’s worth of supply, with 37MW coming online. Last year providers added almost 29MW to the Paris market, a figure that then created a new annual record.

In all markets, most new supply that came online was wholesale in nature. Many of these builds were for single-tenant hyperscale customers. Amsterdam was the exception with 18MW of retail supply coming online. Build-to-suit activity is growing in many of these markets. Some wholesalers are providing build-to-suit with the provision that they will operate the data centre until it is fully populated, at which time it will become a hyperscale self-operated data centre. Due to this trend, CBRE will start reporting on build-to-suit as well as hyperscale self-build activity in our Q2 report.

Q1 build activity

London

CyrusOne added 18MW with London V in Slough, Equinix added 4MW of retail capacity at LD7 in Slough and brought LD11x online, a wholesale site offering 20MW. Virtus also launched LONDON9 adding 24MW to the market.

Amsterdam

The Amsterdam market saw mostly smaller retail colocation expansions by Equinix, Iron Mountain among others.

Paris

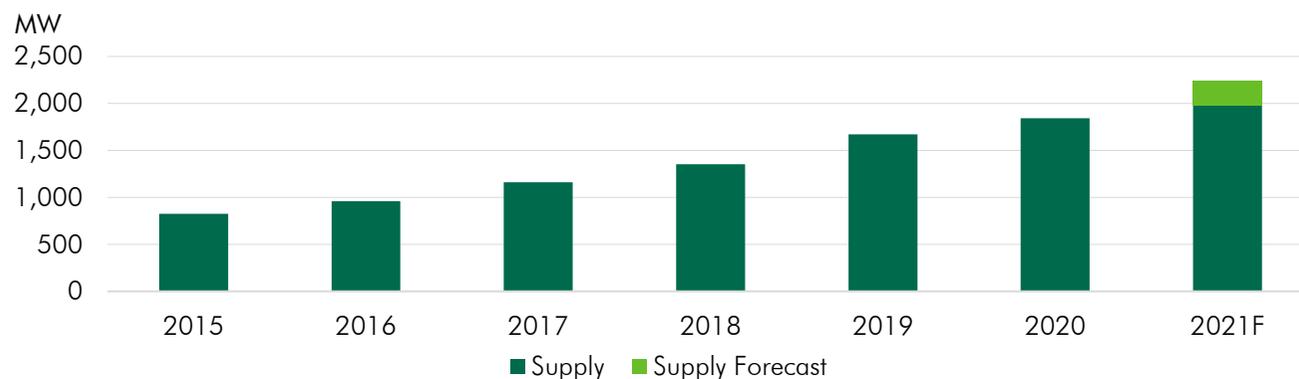
Paris’ record growth can be attributed to one extra large shell-and-core coming online – CyrusOne’s build for a large hyperscale client with 27MW. Equinix also brought its PA9x data centre online in Saint Denis (10MW). Both sites have come online pre-let.

Figure 3: FLAP market supply additions Q1 2021

MARKET	NEW SUPPLY
Frankfurt	13 MW
London	66 MW
Amsterdam	20 MW
Paris	37 MW

Source: CBRE Research, Q1 2021

Figure 2: FLAP market full-year supply and forecast supply as of Q1, 2021



Source: CBRE Research, Q1 2021

TAKE-UP & PRE-LETS

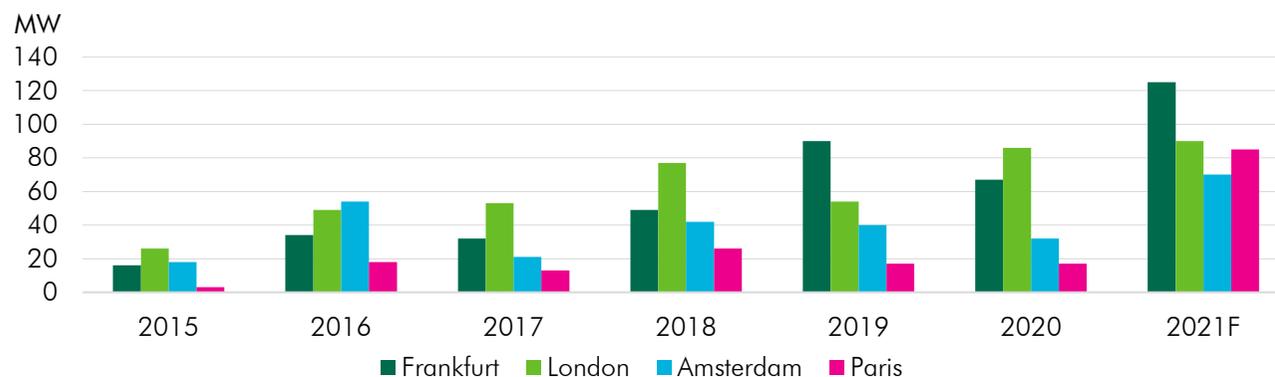
There was a record quarterly take-up of 92MW in the FLAP markets in Q1.

Cloud continues to make up the majority of the market's demand. This quarter it accounted for 85MW (92% of total take-up). London and Paris saw the highest rates of take-up driven by a handful of large pre-lets that came to market.

While hyperscalers still account for most deals above 10MW, we are seeing an increasing amount of 1.5-4MW deals for smaller cloud platform providers. Like hyperscalers, these cloud providers are seeing growing enterprise demand and are increasing the size of their availability zones. They are also seeking more pre-lets in markets where we see supply constraints.

In all markets, there has also been an increase in supply requirements from hosting, managed service and Internet service providers. Many operators saw a requirement from existing customers in these subsectors to expand their footprint to meet increasing enterprise demand resulting from the COVID-19 pandemic.

Figure 4: FLAP market take-up



Source: CBRE Research, Q1 2021

Q1 activity

London

Deals ranging from 1kW to multiples of 10MW covering hyperscale, edge, telco, technology, cloud, media and film.

Frankfurt

Deals from 40kW to 12MW covering hyperscale, SaaS, technology and enterprise.

Paris

Saw its highest take-up in a quarter, with a single deal of 27MW realised, a 10MW deal and two other large deals ranging from 1MW to 4MW. Most deals in this market were for hyperscale supply.

Amsterdam

Deals ranged from 600kW to 6MW covering hyperscale, cloud and media.

Pre-lets

We have identified 219MW of take-up in 2021 across the FLAP markets that will be a result of pre-let activity from previous years. We currently know of 42MW of pre-lets signed for 2022.

Figure 5: 2021 Year-to-date take-up, pre-lets and new deals forecasted for the FLAP markets



Source: CBRE Research, Q1 2021

Pre-lets are take-up that have been signed for future quarters, or years. CBRE only attributes take-up once a facility comes online. Pre-lets are attributed to data centres or halls that are yet to be constructed.

Q1 2021

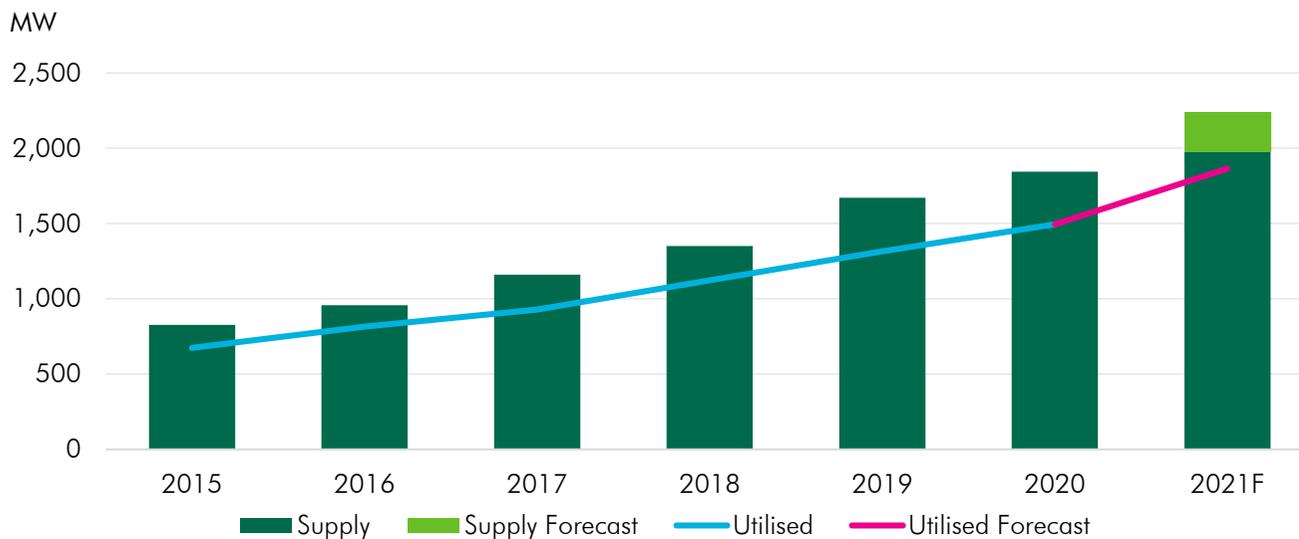
Q1 take-up includes 77MW of supply signed in previous years and 15MW of new deals signed and recorded this quarter. 41MW of new deals were signed in Q, 15MW for Q1, 20MW for future 2021 quarters and 6MW for 2022.

VACANCY

Data centre vacancy rose slightly from 19% to 20% across FLAP. Amsterdam saw vacancy rise to 27%, Frankfurt decreased to 11% and Paris fell to 10%. London rose from 21% to 24%.

Wholesale and retail providers operate in two very different markets in terms of vacancy. Wholesale colocation providers across FLAP operate with a 24% vacancy rate, with Amsterdam's wholesale market having a 43% vacancy rate. (Frankfurt and Paris have wholesale vacancies below 9% and London has a wholesale vacancy of 28%). Retail colocation providers have a much lower vacancy in FLAP of 14%. This is largely due to the more speculative approach to building wholesale data centres to capture a hyperscale market. In Amsterdam, the focus around supply constrained Schiphol-Rijk adds another layer of challenges for the market. High demand is seen in Schiphol while excess capacity is seen in other parts of the Amsterdam market.

Figure 7: FLAP market supply and utilisation



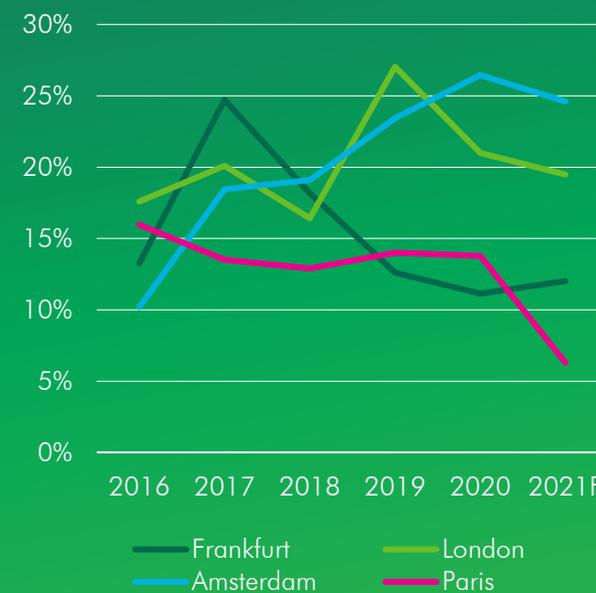
Source: CBRE Research, Q1 2021

Figure 6: FLAP market vacancy rates Q1 2021

MARKET	Q1 VACANCY	CHANGE ON Q4
 Frankfurt	11%	▼
 London	24%	▲
 Amsterdam	27%	▲
 Paris	10%	▼

Source: CBRE Research, Q1 2021

Figure 8: FLAP market vacancy rates Q1 2021



Source: CBRE Research, Q1 2021



FRANKFURT

Frankfurt continues to see high demand from hyperscalers and second-tier cloud providers. Despite this, data centre operators have struggled to bring new supply online. So far only a fraction of the 147MW scheduled to come online this year has come to market. High demand means Frankfurt operates with a decreasing vacancy rate.

Market opportunities

Through Q1 we have seen increasing interest from cloud platform providers, gaming companies and Chinese hyperscale providers.

Market challenges

Scarcity of supply remains Frankfurt's largest challenge. This led to rising prices in Q1. We expect high demand and build activity could lead to more scrutiny from governments keen to manage the data centre market's power use and growth.

Total supply
471MW

Absorption
0.9 years

Vacancy
50MW



LONDON

London has seen healthy demand from hyperscalers and second-tier cloud providers building out availability zones, most around the western corridor. Hyperscalers continue to show self-build interest. Like Frankfurt, the market is starting to show some concerns around the availability of power in its busiest hub. This is leading to increasing competition for land and power.

Market opportunities

London is beginning to see an increase in enterprise interest after Brexit and COVID-19. Hyperscalers still drive the majority of demand with large-scale deals.

Market challenges

Hyperscale self builds, build-to-suit activity, as well as challenges around access to land and power are impacting the second largest market in the world.

Total supply
795MW

Absorption
3.0 years

Vacancy
195MW



AMSTERDAM

Amsterdam continued to see retail deals enter the market during Q1. Despite this, the market has a historically high vacancy rate of 27%. Amsterdam has not seen the same hyperscale deals as its FLAP peers and this has been reflected in a limited amount of wholesale deals. Data centre providers have been acquiring land on the outskirts of the city. Despite the market's challenges, we expect Amsterdam will see a record amount of new supply come online this year.

Market opportunities

Increasing interest from cloud platform providers building out availability zones, AI, IoT, media and hosting companies and media firms.

Market challenges

The market is overcoming challenges around power, planning and has limited hyperscale demand.

Total supply
442MW

Absorption
3.2 years

Vacancy
121MW



PARIS

Paris's record take-up in Q1 (an annual and quarterly record) can be attributed to pent-up demand with providers struggling to bring supply online. Providers have found challenges accessing suitable sites and power for new builds. Hyperscale and smaller cloud providers and enterprises are very active in this market. A record 72MW is expected to come online in 2021 pushing the market above 300MW of supply.

Market opportunities

French companies are moving to the cloud, driving colocation adoption by hyperscale cloud providers. There has also been increasing interest from government and enterprise customers.

Market challenges

Identification of new sites and access to power, as well as lengthy planning processes.

Total supply
269MW

Absorption
1.4 years

Vacancy
26MW

DUBLIN GETS READY FOR GROWTH

Many leased data centre operators across Europe are carefully watching developments in the Irish data centre sector, which is navigating important challenges around hyperscale self-build activity and power use. The market is at an important cross roads. The Irish government and energy companies are currently consulting with the data centre industry on the future of power infrastructure investments. The outcome of these discussions could have wide-reaching ramifications for the Irish data centre market, which for the large part is focussed around Dublin (there is only one non-enterprise data centre built outside of Dublin today).

The Dublin market is considered as a 'gateway' market. A place where subsea connectivity landing points attract data for processing and transfer that is then destined for other international locations. All major hyperscalers have a large presence here. This makes it different from all other major European markets. Dublin's hyperscale self-build campus market surpasses the amount of supply offered by leased data centre operators. There is currently 139MW of leased supply and 17 data centres in the Dublin market (only 3MW outside of Dublin) and 476MW of hyperscale supply. Combined, Dublin is the second largest data centre market in Europe. Separated, the leased data centre market is comparable to a second-tier market.

Hyperscale customers use both their own data centre campuses and leased supply to serve European cloud regions for customers that do not require an in-country presence due to data regulatory requirements or latency. Hyperscalers also use the market for services not linked to availability zones.

The leased data centre market – led by wholesale developments targeting hyperscale customers – could grow by almost 600MW by 2023 if all projects announced in the market go ahead. Not all of these projects have planning or power in place, however.

Counting only those that do, we believe 517MW could come online. A number of large-scale projects have been announced since we reported that 232MW would come online by 2023 in Q3 2020.

MARKET SUPPLY & GROWTH

Dublin's electricity grid was not built to cater for such high demand from data centre providers. The country has also committed to being 70% renewable by 2030 and is undertaking a complete grid upgrade to achieve this target. The market will rely heavily on offshore and onshore wind for future power needs. At present, restrictions on power for new builds means most data centres come online using an alternative source of power such as gas generation.

Grid operator Eirgrid is consulting with industry to determine if it will make a €2bn investment in subsea power lines around the Irish coast; or consolidate its investment into infrastructure along the east coast driving more development around the greater Dublin region; or it is considering encouraging large consumers of energy to focus new developments outside of the Dublin market where demand for energy is already high. The outcome of these discussions could have wide ramifications for the industry. Providers in Dublin that have already invested in gas generation and other alternative energy sources are expecting these plants will eventually be used to back up Ireland's renewable energy grid.

Ireland's challenges today are likely to be mimicked in other markets in future and will act as a clear example of what can and can't be done to foster data centre market growth. These challenges are also likely to influence future data centre design and build decisions across Europe.

For more information on CBRE's detailed report on Dublin, or other market reports available, contact Penny.Madsen-Jones@cbre.com.

Figure 9: Ireland leased data centre supply forecast split by projects with planning and power and those without (speculative).



Source: CBRE Research, Q1 2021



CBRE'S PREMIER COLOCATION REPORT

CBRE has created the sector's Premier Colocation Report to provide the industry with the most in-depth market analysis in Europe. The report provides access to the key metrics specific to each FLAP market on a quarterly basis.

This data includes: take-up, supply, availability, absorption (all of which are forecasted) as well as market maps, new schemes in the supply pipeline, colocation pricing analysis and occupier and investment commentary.



For more details or
to register for a demo
of the report click here



Click here to download
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Colocation Report

CONTENTS		MARKET VIEW	PREMIER SUBSCRIPTION
Supply	Aggregated, annual and YTD – chart	✓	✓
Let and available capacity	Aggregated, annual and YTD – chart	✓	✓
Take-up	Aggregated, annual and YTD – chart	✓	✓
High-level market commentary and quarterly highlights		✓	✓
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Key metrics	by market, current quarter – table		✓
Supply	by market, annual and YTD – chart		✓
Let and available capacity	by market, annual and YTD – chart		✓
Take-up	by market, annual and YTD – chart		✓
Net absorption	by market, annual and YTD – chart		✓
Supply projection, 2 years	by market, annual – chart		✓
Vacancy projection, 2 years	by market, annual – chart		✓
Take-up projection, 2 years	by market, annual – chart		✓
Market balance analysis	by market, annual and YTD – chart		✓
Supply pipeline, 2 years	by market – table		✓
Market map: key colocation hot spots in the market	by market – map		✓
Colocation pricing	by market, annual and YTD – table		✓
Detailed market commentary and quarterly highlights			✓
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Occupier focus			
Occupier take-up review and trends			✓
Colocation pricing analysis			✓
Leading market focus			✓
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Investment focus			
Corporate M&A tracker			✓
M&A market commentary			✓
Investment market commentary			✓
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+ All charts and data available by individual market			✓
+ Data table with time series available for all charts			✓
+ Wholesaler and retailer split where appropriate			✓
+ Data tables available in Excel for in-house design and analysis			✓

DEFINITIONS



SUPPLY

Retailer colocation supply comprises fitted data centre space only – unbuilt shell phases of the data centre are excluded.

Wholesaler colocation supply includes both fitted and shell data centre space. Typically wholesale operators sell shell space which is built out to suit customers.



AVAILABILITY

Retailer availability of space is based on fully fitted space, vacant and available to sell.

Wholesaler availability is based on all vacant space.



VACANCY RATE

The vacancy rate is a product of availability/total supply.



COLOCATION TAKE-UP

This comprises data centre space sold at retailer and wholesaler colocation facilities in the relevant quarter.



FLAP (MARKETS)

The four largest colocation markets in Europe. FLAP is an acronym of Frankfurt, London, Amsterdam and Paris.



EUROPEAN DATA CENTRES

We use the four largest markets in Europe: Frankfurt, London, Amsterdam and Paris (FLAP Markets) to represent the European colocation market.



MARKET ABSORPTION

Market Absorption is the number of years it would take current vacant supply to be fully let based on the fixed average take-up of the previous five years (i.e. not including take-up in the current year).



SPACE TYPE

Shell: shell & core space is the base real estate of a data centre, a wind and watertight structure with exposed floor and ceiling slabs and exposed finishes to the walls. The landlord obtains permissions for data centre use and makes provisions for tenants to install their own chillers and

back-up power generating equipment, or the landlord would provide these on a build-to-suit basis.

In addition, an incoming diverse raw HV (high voltage) power supply would usually be provided.

Fitted: fully fitted space is ready for tenant IT equipment to be installed almost immediately or subject only to minor works being carried out to account for bespoke equipment and layouts.

VALUATION & ADVISORY SERVICES – DATA CENTRES

UNLOCKING EXCEPTIONAL VALUE THROUGH EXPERT ADVICE

LOAN SECURITY VALUATIONS

FINANCING VALUATIONS FOR:

- Acquisitions
- Re-finance
- Development
- Fit-outs

DEVELOPMENTS

DEVELOPMENT LAND VALUATIONS:

- Land acquisitions
- Data centre development modelling
- Benchmarking market metrics
- Scenario modelling

CORPORATE STRATEGY

VALUATION ADVICE FOR:

- Financial reporting
- Mergers & acquisitions
- Stock exchange listings
- Sale & leasebacks

HYPERSCALE

SPECIALIST HYPERSCALE VALUATIONS:

- 850 MW of hyperscale valued in 2020
- Hyperscale site suitability
- Bespoke reporting format
- Expansive in-house data sets

850 MW+

Hyperscale capacity valued

140 ACRES

of development land valued

£23.4 bln

DC's valued last year



We're EMEA's largest dedicated data centre valuation team. Last year we valued assets worth over **£23.4 billion** across a full spectrum of data centre asset types.



KRIS ENGLE

HEAD OF DATA CENTRE VALUATION & ADVISORY

Contact us today to see how we can help with your data centre valuation requirements

KRIS ENGLE

Director | Valuation & Advisory - Data Centres
M: +44 (0) 7500 578502
E: kris.engley@cbre.com

CONTACTS

ANDREW JAY

Head of Data Centre Solutions,
Advisory & Transaction Services, EMEA

M: +44 (0)7802 361 351

E: andrew.jay@cbre.com

PENNY MADSEN-JONES

Head of Data Centre Research,
Advisory & Transaction Services, EMEA

M: +44 (0)7748 769593

E: penny.madsen-jones@cbre.com

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CBRE formed a Data Centre team in 1994 to address the specialised technical real estate needs of high-tech firms such as telecommunications companies, data centre operators and corporates.

Core technical real estate services provided by the CBRE Data Centre Solutions team include:

- Acquisition – one-off assignments, worldwide network rollouts
- Disposal – one-off assignments, multi-site marketing campaigns
- Investment – due diligence and transactional services
- Consultancy – consolidation strategies, mergers & acquisitions
- Asset Valuation – bank, corporate
- Project management, development monitoring, due diligence, building and M&E surveys
- Research – market statistics, forecasting
- IT Consultancy

CBRE has monitored worldwide colocation supply statistics since 1999. This bulletin relates only to the four largest European Colocation markets. Additional market statistics are available on request.

To learn more about CBRE Data Centre Solutions group, please visit:

www.cbre.co.uk/services/industries-and-specialties/data-centre-solutions

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