MACE EUROPEAN DATA CENTRE CONSTRUCTION
MARKET VIEW | MAY 2018

OUR INCREASED DIGITISATION IS DRIVING DEMAND FOR DATA CENTRES

The market for data centre construction experienced huge growth from 2015 onwards, benefitting from major investment decisions from some of the world's most important tech companies, including Amazon Web Services, Microsoft, IBM, Facebook and Google.

Unsurprisingly demand for data has increased worldwide as our lives have become more digital, and this trend shows no sign of weakening. And with demand for data storage being driven by the exponential growth of both the number of connected devices and cloud platform enterprise demand, the market for data centre construction is anticipated to continue growing at pace.

With advanced infrastructure, high connectivity, and a large, data hungry market to feed, Europe is a highly attractive location for data centres, and we expect to see significant growth in construction, particularly of hyperscale facilities.

Supply running to keep up with demand

A record 202 MW of new supply was brought on across the 4 major FLAP markets in 2017 (Frankfurt, London, Amsterdam and Paris). This level of delivery was a whole 50% higher than the previous highest year, 2016, bringing total supply in the market to 1,160MW. Growth of 21% in 2017 was a huge jump from the already strong 13% 10-year-average growth rate.

Of the new supply brought to the market in 2017, 65% was wholesalers and 35% retailers. This relative balance towards wholesalers mirrors the trend in 2016, which was the first year in 4 where wholesalers brought on more of the annual supply than their counterparts. This high wholesaler supply was driven by large scale demand from cloud companies. However, take-up in 2017 was more balanced towards retailers, suggesting they are successfully adapting their models to win large wholesale requirements. It would be significantly harder for wholesalers to adapt to do the reverse.

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#1.
Nordics

Looking ahead - Despite being a smaller market, the Nordics are considered one of the most attractive locations for data centre construction across a range of variables, followed by the Netherlands.

As the IT giants increasingly take advantage of the Nordic cool weather (to reduce energy costs) and abundant renewable power, we can expect increasing activity in this region.

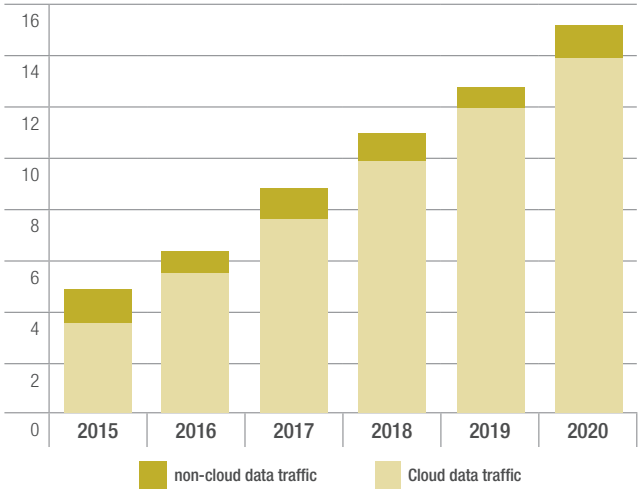
Into the future - The market for European data centre construction is anticipated to **GROW** to USD **$22.8 billion** by 2025 which is a...

CAGR of **10.3%** between 2017 - 2025

With the biggest tech companies already working to overcome the efficiency, environmental and data sovereignty concerns, the rapid growth of the sector is unlikely to be halted any time soon.

2017 saw 119 MW of take-up in the FLAP markets, the second consecutive year with more than 100 MW of take-up, and nearly 275MW of take-up in just 2 years. This is significantly more than all 4 previous years, and further adds to evidence that a new norm has developed, whereby market activity is roughly double its previous levels.

Takeover of cloud data in zettabytes - global data traffic



This take-up was dominated by cloud service providers and IT companies, responsible for around 70% of total take-up across the FLAP markets. As well as significant expansions by existing hyperscale companies, new cloud platforms were active in procuring colocation capacity in major European markets. This corresponded with a drop in the volume of MWs signed by non-cloud companies, most likely driven by enterprise companies moving to cloud services rather than direct colocation. The growth of hyperscale is forecast to continue at a similar pace, with Cisco predicting that hyperscale data centre traffic will quintuple over the next 5 years alone.

The demand for hyperscale will ensure that new, larger premises increasingly concentrate in peri-urban or rural areas in countries that offer the best opportunities in terms of natural environment, security, energy and connectivity. However there will always be a need for small and medium sized data centres, nationally based, to avoid any potential latency, as well as issues relating to data sovereignty. This means that countries such as the Netherlands, Germany, France and the UK will continue to see demand for local datacentres grow, even if they aren't as attractive to the hyperscale market.

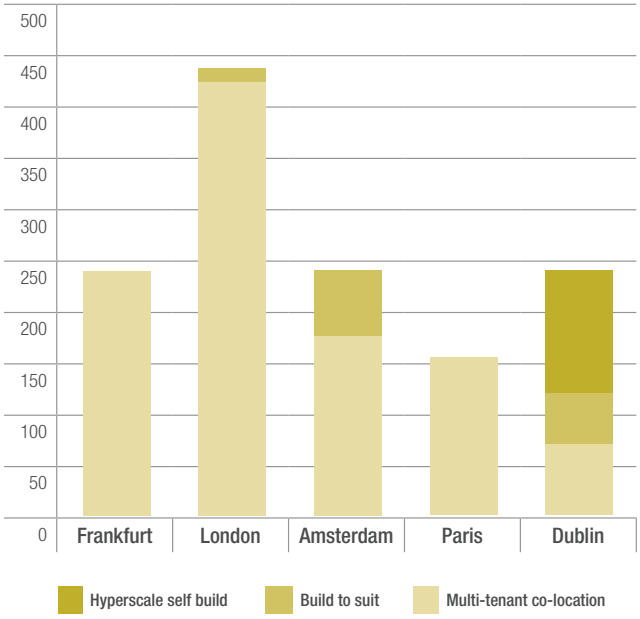
This record demand is set to continue into 2018, and will absorb the excess capacity created by 2016-2017's supply boom very quickly. Over 100 MW of take-up is expected to be seen in 2018 again, driven by hyperscale companies continuing to use colocation providers to increase their capacity in major cities. More build to suit transactions are also expected. Providers have so far been able to keep up with the rapidly growing demand for colocation capacity, and are expected to continue bringing on significant capacity, with 180MW of new supply already identified as coming online in 2018.

The FLAP – major markets and emerging strengths

Frankfurt, London, Amsterdam and Paris are the major markets in Europe for data centres, with Dublin and the Nordics increasingly important locations. The drivers behind this are unique to different locations, each having their own market characteristics:

- **Frankfurt** - data protection, financial services and an eastern gateway
- **London** - corporate HQs, European powerhouse, abundant supply
- **Amsterdam** - connectivity, speed to market
- **Paris** - domestic demand, increased outsourcing
- **Dublin** - corporate tax, US connection, strategic location
- **Nordics** - climatic advantage, renewable power availability, connectivity

Market size (MW)



Of these markets, London is the most mature, but is nonetheless anticipated to see 67% growth in capacity in the medium term. But all FLAP markets are anticipated to see significant growth: Frankfurt 60% growth, Paris 67%. Long term, Dublin is expected to see some of the strongest growth as the momentum created by the big tech giants already there, and the highly specialised workforce it has been developing, carries it onwards and upwards.

Despite being a smaller market, the Nordics are considered one of the most attractive locations for data centre construction. A recent Saville's survey found Norway to be the most attractive country across a range of variables, followed by the rest of the Nordic countries,

and the Netherlands. As the IT giants increasingly take advantage of the Nordic cool weather (to reduce energy costs) and abundant renewable power, we can expect increasing activity in this region.

Table 1 Savills data centre attractiveness benchmark top 10

Rating	Country	Grade out of 100
1.	Norway	77.98
2.	Sweden	58.90
3.	Finland	54.74
4.	Netherlands	46.19
5.	Denmark	43.59
6.	Romania	43.48
7.	Luxembourg	43.27
8.	Austria	40.89
9.	Czech Republic	40.77
10.	UK	39.70

Material and labour costs contribute to growing construction costs

At the European level materials cost inflation for construction has more than tripled compared to the 5-year average, from 0.90% annually to 3.48% in 2017. A combination of factors is responsible for this, but increased demand for materials across Europe, and across construction subsectors, is a prime driver of these growing prices. Additionally, in the case of the UK, we must also factor in currency effects, driving prices higher after a devaluation of the pound.

Labour costs are seeing similar, if not as dramatic, shifts in growth. At the EU level, construction labour cost growth is above the 5 year average, at 2.14% compared to 1.52%. Areas which have seen significant increases in activity, such as France and Germany, are experiencing a tighter labour market, driving this growth in costs across the market with big jumps in labour cost inflation.

Table 1: Eurostat Construction cost inflation data

Country	Construction cost inflation		Materials inflation		Labour cost inflation	
	Year to date	5-year annual average	Year to date	5-year annual average	Year to date	5-year annual average
European Union	2.65%	1.26%	3.48%	0.90%	2.14%	1.52%
Germany	3.33%	1.69%	3.19%	1.14%	3.72%	2.72%
France	2.57%	0.41%	3.26%	-0.63%	2.90%	1.34%
Netherlands	2.33%	1.53%	2.62%	1.35%	2.04%	1.71%
UK	n/a	n/a	5.32%	2.18%		
Nordics average	2.06%	1.84%	2.05%	1.77%	2.54%	2.28%

These factors in 2017 drove significant growth in construction costs across European markets, growing to 2.65%, more than double the 5-year annual average. This effect was particularly strong in Germany, reaching 3.33% construction cost inflation in this market, and France has seen strong growth from a weak 5 year average of 0.4% to 2.57% construction cost growth in 2017. However, the Nordics can be considered the exception, having not seen the jump in construction cost inflation of the rest of Europe. With higher existing 5-year annual inflation, it must be noted that the Nordics, and to some extent the Netherlands, were already experiencing hotter markets, and as such have not seen the same adjustment the rest of Europe has as its construction sector heated up after the slumber of the post-recession period.

Looking forward, there is plenty of evidence the strength of the construction market is unlikely to recede for several years, so we can expect similar pressures on construction costs to continue, driven by demand for resources in the market. Additionally a couple of key materials, such as steel, timber and aluminium, risk getting caught up in trade disputes, and the uncertainty underlying this is likely to continue to add to material prices over the course of 2018.

Fiercely growing demand will push resources, driving up prices

The sheer size of data demand growth is currently the major driver of the market as discussed, however there are many opportunities on the horizon for the data centre market. These include the expansion of US tech companies into Europe, large Chinese tech companies procuring significant capacity in the region and the impetus to data centre demand which will be driven by Automation, 5G networks, AI and Internet of Things advancement.

However, the industry is also facing some challenges, including most importantly site availability and power security. Site availability is likely to become an increasing difficulty, especially if a trend towards Edge computing, and hence more localised data centres, continues, requiring peri-urban sites to be found. Additionally there is the challenge of the significant strain on power networks that data centres pose. Whilst many colocation and hyperscale providers are taking this into consideration and investing in renewable power resources alongside data centres to counter this strain, it will continue to be a challenge, pushing data centres to become more energy efficient. One way increased efficiency in terms of water and energy usage is being achieved is through efficiencies of scale.

Large data centres are more energy efficient than individual servers and by pooling server needs of many customers a lot of energy can be saved. Innovation is another focus, looking for ways to reduce cooling costs or serve more customers with the same power requirements.

Another challenge for the industry will be competition, which is set to drive up prices in the market. A wide range of investors, including private equity, infrastructure funds, and sovereign wealth funds as well as institutional investors and existing operators are all looking for opportunities to invest in this market. This is keeping demand high, and pricing has been going up as a result. Similarly, the record levels of data sector construction are putting pressure on labour availability, pushing wages up, particularly for skills facing a shortage.

Brexit will present both a challenge and opportunity to the sector: new data sovereignty laws will require careful consideration of where assets are located. However, this could result in many enterprises being forced to consider a dual location strategy, which would be a boon to the data centre construction industry, if not to the enterprises themselves. It could also shift the dynamics of build to suit vs colocation, pushing companies to collocate in several areas rather than building one hyperscale facility in their biggest market.

Looking ahead

Rising digitisation in the business world, as well as demand for highly resilient data management services will result in growing demand for data centres. Added to this will be the rampant growth of digitisation in consumer services and products, and additional strain on data supply from increasing adoption of new technologies. All of this points to strong growth for the years ahead, with the market for European data centre construction anticipated to grow to USD 22.8bn by 2025, a CAGR of 10.3% between 2017 and 2025.

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