

# Data centres

## Critical infrastructure for digitising Europe

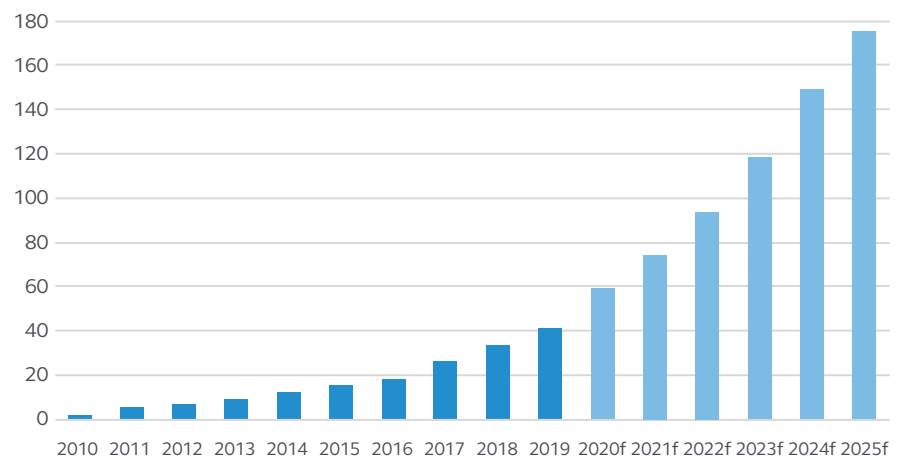
### Executive summary

- The ubiquity of information technology and the interconnectivity of the modern economy (the internet of things) has led to a surge in consumer and business data usage.
- This secular growth is creating a substantial need for data capacity on the part of enterprises, colocation providers and cloud providers.
- The COVID-19 pandemic is rapidly accelerating the need for data capacity, providing cyclical tailwinds to the structural demand surge underway.
- Europe offers a large opportunity set, particularly in the most liquid and mature markets – Frankfurt, London, Amsterdam, Paris and Dublin – that we believe will play an important part in meeting data demand.
- While investors have different investment options, we believe that a core-plus strategy that takes on letting risk has the potential to deliver attractive risk-adjusted performance.

### Introduction: Growing trends in data centres

The early days of the digital revolution are over, and the world is transitioning to a newer more powerful paradigm of digitisation. Data is being created at an explosive pace with the total number of bytes produced each day expanding exponentially. For perspective, the global volume of data is currently estimated at 50.5 zettabytes (ZB) with projections forecasting a compounded annual growth rate of 28.2 percent leading to a global data universe of 175 ZB by 2025.<sup>1</sup> For context, one zettabyte equates to streaming the entire Netflix catalogue three million times.<sup>2</sup>

Exhibit 1: Worldwide volume of data (zettabytes)



Source: IDC, 2018

In terms of daily data production, as of 2018, there were 2.5 exabytes of data created daily with estimates that by 2025, new data creation will exceed 463 exabytes each day globally.<sup>3</sup> Importantly, the backbone behind data is data centres, operating as the engines of the interconnected information economy. Today power, processing, and connectivity are paramount in the orchestration of an increasingly data-driven world. A sophisticated network of data facilities serves as the critical infrastructure enabling this modern economy, opening a growing investment space for traditional real asset investors who seek the potential for secure long-term income backed by a strong credit rating. Data centres present a unique cyclical and structural opportunity.

<sup>1</sup> International Data Corporation (IDC), 2018

<sup>2</sup> UC Berkley, <https://datascience.berkeley.edu/big-data-infographic/>, 2013

<sup>3</sup> World Economic Forum, 2020

## Who is creating data?

As unrelenting demand for data continues to climb, the trajectory is clear: more data infrastructure is needed. The industry has dramatically evolved over the past decade with intensified internet usage driven by consumers and businesses creating a large and growing volume of data to store. The range of primary users underpinning the surge in demand includes consumers, businesses, and technology.

### Consumers

First and foremost, the consumer adaption of data is unprecedented. Throughout Europe, internet accessibility has soared over the past 15 years with penetration rates above 80 percent in major economies and an EU-15\* average of 90 percent (exhibit 2). The pervasive Internet of Things (IoT) now links our phones, home appliances, and cars through new technologies that facilitate the processing and transfer of data. In the UK alone, the average number of devices connected to the internet has increased to over 10 per household.<sup>4</sup> With every click, people continue to shift to new, data-intensive forms of consumption including streaming services, ecommerce, and social media. In the wake of COVID-19, Netflix added 16 million new subscribers – double expectations – while Disney+ added over 54.4 million<sup>5</sup> in the first six months since launching.

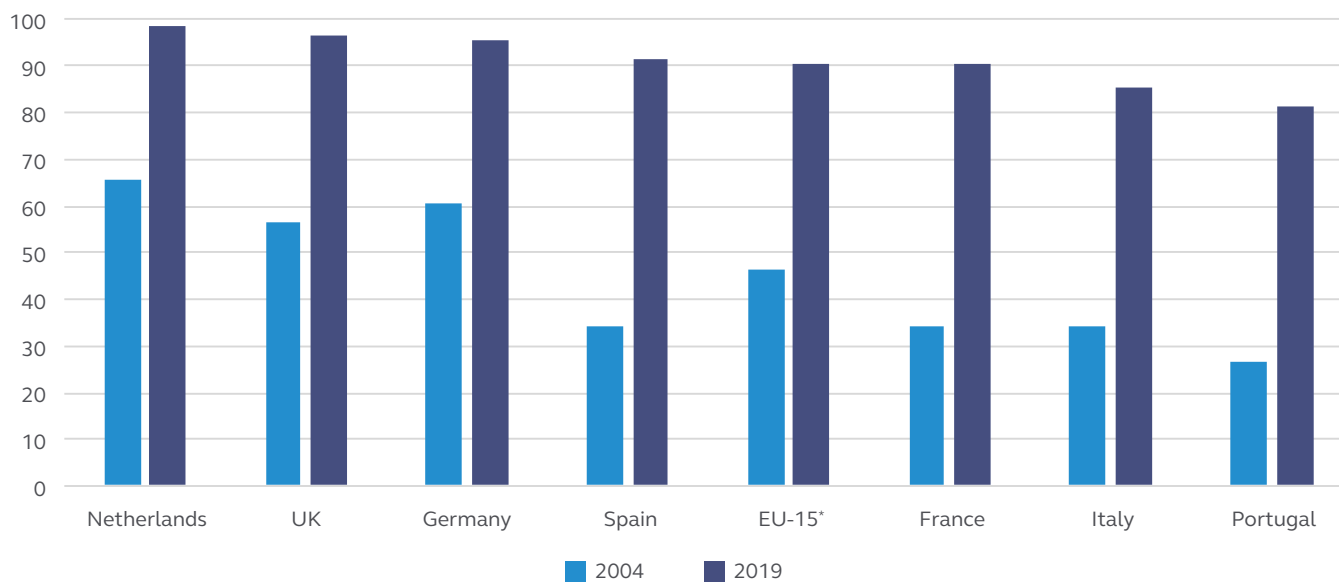
### Businesses

Corporations cannot afford to waste data resources in the digital economy. Increasingly, activities have migrated online to improve business efficiencies, while data science and predictive analytics help companies better understand and connect with customers. Businesses historically housed their own data closets and centres, but many companies, including but not limited to those across the financial services, manufacturing, retail, construction, energy and education sectors have started outsourcing their data centre needs by leasing from a colocation service provider or migrating to the cloud. Ultimately, almost all businesses will need to adapt to the digitised world, leveraging data in decision making.

### Technology

The newest and most disruptive technologies, such as artificial intelligence, virtual reality, and machine learning, all demand greater data storage and more robust processing power. Although further in the future, the introduction of 5G and its ability to foster edge computing and autonomous vehicles will require a profound amount of data storage and processing.

**Exhibit 2: Household Internet access, by country (2004-2019)**



\*Data as of 2018. EU-15 includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

Source: Eurostat, 2019

<sup>4</sup> Aviva, ONS, 2020

<sup>5</sup> <https://www.marketwatch.com/story/netflix-in-the-age-of-covid-19-streaming-pioneer-may-have-new-edge-on-competition-2020-04-07> 2

## Major sources of data centre demand

Consumers, businesses, and technology are the driving forces behind the creation and accelerated use of data. These myriad uses are hosted on a complex network of data infrastructure reliant on data service providers (typically cloud providers or colocation providers) and data centres. Investors targeting this space therefore need to understand the types of data centre tenants to assess target areas of growth. Data centre tenants map to three main groups: enterprises, colocation providers, and cloud service providers.

### Enterprises

Whilst major corporations may opt to outsource some of their data infrastructure needs, critical functionality (especially for financial institutions and other enterprises with high security requirements) or proprietary systems may necessitate keeping data needs in-house.

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### Colocation providers

Colocation providers, also known as colos, provide data centre infrastructure and managed services on a retail or wholesale level. They enable users to access high-quality data centre facilities without the large initial capital outlay. Customers may be small and medium enterprises where costs are significant, or large enterprises seeking satellite locations for redundancy, ease in outsourcing or disaster recovery purposes.

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### Cloud service providers

Cloud service providers allow customers to outsource data storage solutions through a subscription service. Instead of maintaining their own equipment, users migrate their data to the cloud with the ability to scale and pay operating expenses that more closely reflect actual utilization. The largest of the cloud service providers (the “hyperscale” tenants) generate significant economies of scale due to their large, high density facilities providing significant profits for the tenant. In Europe, the largest cloud service providers are Google, Amazon, and Microsoft. The cloud service providers are the fastest growing segment of the data centre industry and account for almost 80 percent of take-up in 2019.<sup>6</sup>

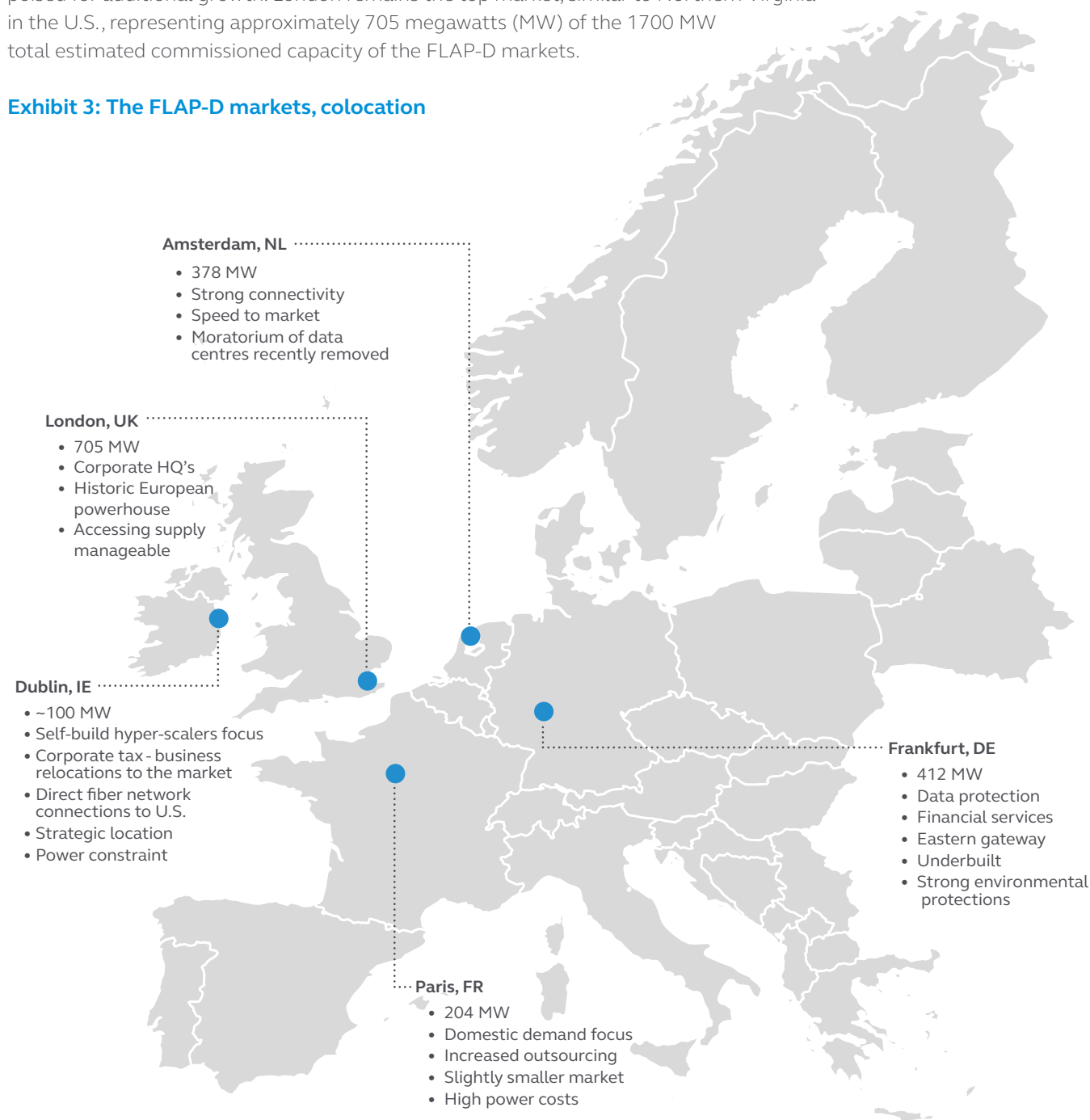
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<sup>6</sup> CBRE, 2020

## The European investment universe for data centres

Europe is a major global hub of business and consumer demand driven by high income levels, growing adoption of technology, and a strong base of intellectual capital driving innovation.<sup>7</sup> In assessing investment opportunities, greater liquidity is provided by Europe's established, core markets—Frankfurt, London, Amsterdam, Paris and Dublin, collectively referred to as the FLAP-D. As major gateway cities for commerce and enterprise, each hosts a critical network of centres poised for additional growth. London remains the top market, similar to Northern Virginia in the U.S., representing approximately 705 megawatts (MW) of the 1700 MW total estimated commissioned capacity of the FLAP-D markets.

### Exhibit 3: The FLAP-D markets, colocation



Source: CBRE, Principal Real Estate, July 2020

<sup>7</sup> See information about Principal Real Estate's DIGITAL strategy within [Decisive Eye, June 2018 issue](#) - DIGITAL refers to key long-term growth drivers centered around demographics, innovation, globalization, infrastructure, and technology that Principal has identified as metrics of long-term market outperformance.

Data centre markets tend to be self-reinforcing. Substantial infrastructure support in the existing top tier markets will lead to more core demand in those areas. However, regulatory requirements, power accessibility and low latency networks have also driven data centre demand beyond the traditional markets to a few prominent secondary markets with large population centres, access to affordable power and abundant fibre connectivity. In addition to the FLAP-D markets, cities such as Madrid, and Zurich, are especially attractive investment targets. These markets are quickly maturing and comprise a growing number of end users themselves. A common theme to the FLAP-D markets along with Madrid and Zurich is a supply/demand mismatch in favour of data tenants.

## Why now? The opportunity set for data centre investors

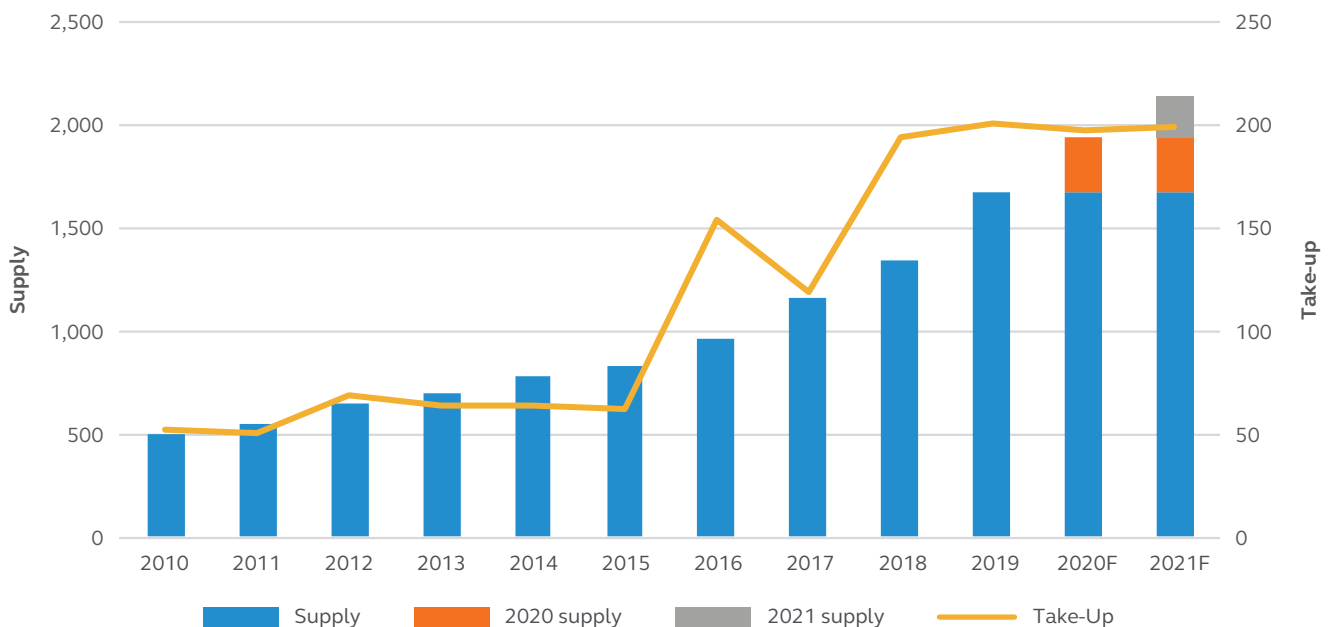
Clearly, the surge in data and the expectations of an exponential increase in the future indicate the structural investment opportunity set. The COVID-19 pandemic has also enabled conditions that we believe make a strong investment thesis over the coming months. Whereas most traditional property sectors face challenges over the short-term from potential declines in rent growth and values as the economic impact of the pandemic begins to take a toll on occupiers, data centres have benefitted from the social distancing mitigating measures that have impacted other property types. Data requirements from consumer and businesses have increased dramatically.

### Supply/demand imbalance favours landlords

To meet the ramp up in data requirements, significant additional capacity must come online in the coming quarters to meet consumers, businesses, and technology demand. Take-up levels have accelerated sharply in the past three years and in 2019, occupancy surged in the FLAP-Ds, outpacing previous levels to an annual high of 200 MW, not including 66 MW of pre-lets on planned future developments. An additional 50 MW was under

offer as of Q4 2019, with a total of 116 MW slotted for take-up going into 2020. Combining these fundamentals with potential demand created in the wake of COVID-19 bodes well for 2020 and beyond. There is clearly strong underlying demand for data which needs to be met and the shortage of supply indicates that investors have the opportunity to fill that gap.

Exhibit 4: Supply and take-up (MW)



Source: CBRE, 2020

## Stable tenants help secure long income streams

Data centre tenants tend to be sticky. Once established in a facility, operators are highly unlikely to change location given the expense required. Tenants are tethered to custom-fit infrastructure housed in the data centres where the cost of relocations can be up to 40 times annual rent in worst case scenarios.<sup>8</sup> The initial set-up costs, the

cost to migrate and the risk of prolonged downtime all factor into relocation decisions. Tenants will scrutinize the marginal benefits of transitioning before incurring substantial costs and have historically renewed leases.

## High barrier to entry

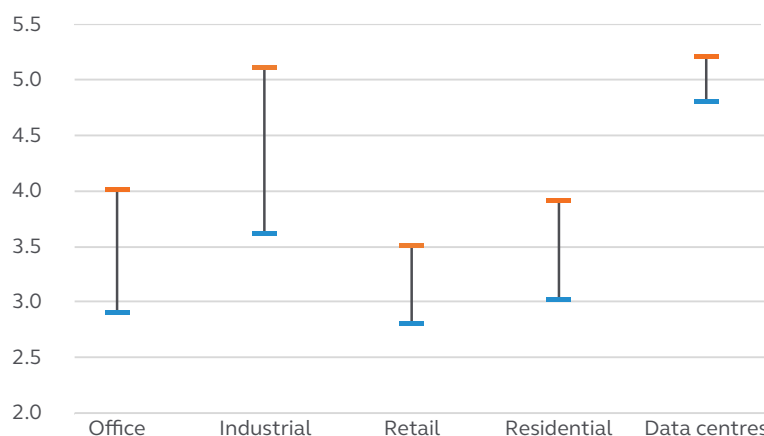
New entrants face challenges accessing the data centre market due to the capital requirement, scarcity of industry data, and the professional knowledge required. These high-costs and long project lead times render supply inelastic in the short-term, producing volatility during periods of disconnect between supply and demand forces.

However, the occurrence is more pronounced in this sector where a lack of asset-specific expertise hinders supply. Further, ideal locations rely on the confluence of infrastructure with proximity to population centres making site selection a challenge.

## Income premium on strong covenants

Stable tenants and high barriers to entry can provide the potential for stable income streams which remain a significant part of real estate investment strategies, particularly for institutional investors looking for continuous, stable income to fund their obligations through matching income and liabilities. Data centres provide this income at a premium to other property types and traditional fixed income products. With typical lease lengths in excess of 10 years, data centres offer investors exposure to cash flows from high-quality credit tenants at higher yields (see exhibit 5). These features are increasingly sought-after in a slow growth, low interest rate environment. Further, sourcing opportunities in growth sectors during uncertain economic times is difficult. Data centres remain one of the few areas where the structural growth story remains intact.

**Exhibit 5: Prime yields across property types, FLAP-D markets**



Source: CBRE, Savills, Stratus, Principal Real Estate, July 2020

Moreover, data centres also offer a degree of inflation protection at a time when there is great uncertainty around the impact of loose monetary policy on broader pricing in the future. Most data centre leases are structured with indexation linked to inflation and historically contain generous cap and collar terms. For long-term investors, the protection of cash flows is paramount to maintain liability matching for institutional investors.

Fully repairing and insuring leases are the industry standard. Under this standard, the tenant must restore the asset and any associated equipment to original conditions at lease termination. Additionally, in the case of fully-fit leases, the tenant must maintain the equipment to precise specifications stipulated in the lease agreement. Severe penalties apply for violations to the service agreement between the tenant and their end-user, which the landlord checks through building sensors and monitors.

<sup>8</sup> Source: Principal Real Estate

## Favourable debt options

In our view, the growing availability of debt allows investors to improve total and leveraged cash returns. Debt providers are increasingly active and since most data centre projects are refinanced after a few years, the depth of the debt market is expected to grow. Increasing dynamism means more sophistication in underwriting debt and greater comfort for lenders willing to recognize the different traits of data centres. Since data centres tend

to be highly specialized, debt lenders with recognition of this sector can materially improve returns. There is increasing evidence of debt lenders entering this market with loan term structures of 5-7 years with current all-in pricing between 1.00%-1.25% to 2.00%-2.25% in Continental Europe and Great Britain. With greater availability, the low cost of capital in Europe makes debt accretive and helpful in enhancing returns.

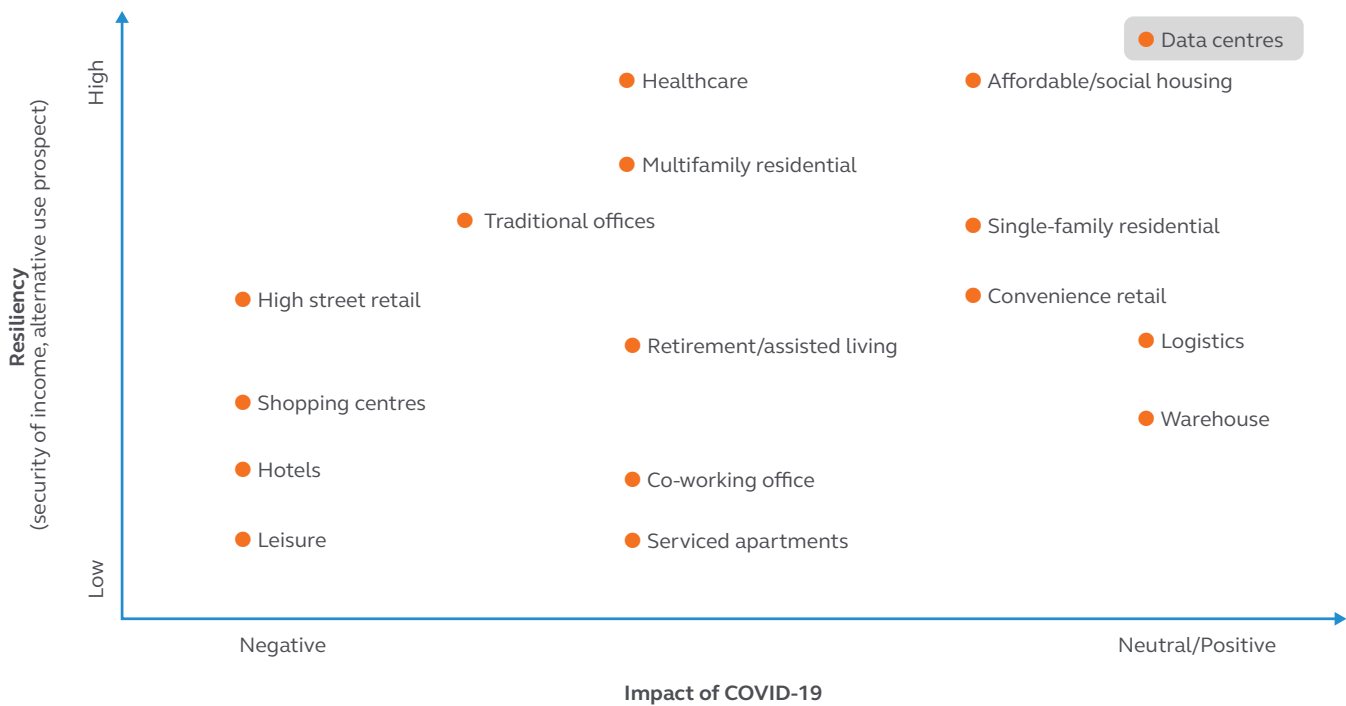
## Portfolio diversification

In a period where monetary policy has elevated asset correlations, investors increasingly value assets that can help improve portfolio diversification outcomes. With similarities to both infrastructure and industrial performance, alternative classes like data centres offer a different investment profile to traditional real estate.

Further, demand for data centres is being fuelled by a structural transformation of the world economy which makes this property types less vulnerable to the variations in short-term economic cycles. In our view, data centres are one of the more resilient property types (Exhibit 6).

### Exhibit 6: Property type resiliency and COVID-19 impact

- Impacts will vary depending on property type and exposure to reduced demand and social distancing



Source: Principal Real Estate, July 2020

## How to invest

There are many ways to approach data centre investment depending on risk tolerance, operational capacity, lease structure, and target investment size. Investment approaches range from opportunistic (development) to core/core-plus (lease-to-core). In our view, an investment strategy centred around development or build-to-core has the potential to deliver higher returns, but investors will face challenges from stringent zoning requirements, as well as constraints surrounding available power in the more established FLAP-D markets, which make sourcing more difficult.

We believe a more viable approach at present is to focus on an income-oriented, core-plus strategy to data centres focusing on European FLAP-D markets. With the exponential surge in data leading to a growing demand for data centre storage and processing sites, the requirement for operators (tenants) to expand their footprints in these markets is increasing. Due to the limitations on development opportunities, coupled with the quick timelines demanded by operators to move in and become operational on site, investors should focus on sites already built. These existing sites have been proven and have the capacity to expand their size and scale to adapt to growing demand. Given the lack of vacancy across the FLAP-D markets, there is the opportunity to re-lease/increase capacity. This means, when a site becomes available there are several operators who would look to occupy, lowering potential void periods and squeezing rents and tenant incentives.

This strong occupier demand for existing assets translates into a stable income return that sits at the centre of our lease-to-core strategy. The security of income is being further enhanced by the maturing nature of the data centre operator market led by a growing pool of credit worthy tenants. Additionally, typical lease structures are triple net with the operator taking on all responsibility for the repairs and maintenance of any plant and machinery that the landlord may own. This is key for the operator business model since it is essential to maintain the upkeep of equipment due to large fines imposed by their underlying client base if any of these systems stop performing at optimum capacity leading to even short-term downtime issues. The net lease structure further de-risks the investment from the landlords' perspective strengthening the security of income. This income return has the potential to be further enhanced through a number of value creation activities for investors.

Core-plus also encompasses strategies which increase power density and/or expand the physical building where the plot is under-utilised, and additional power is available. One or both strategies can generate additional upside especially in the context of an established and experienced landlord that could alleviate the additional capital expenditure via cost sharing mechanism with the operator, or in the form of tenant incentives, thereby reducing the level of speculative risk.

Another strategy to enhance value would be to renegotiate and restructure leases aiming to sell plant and machinery to the tenant and move from PPS+ and fully-fit lease structure to PPS lease structures. This reduces current income on a short-term basis but releases capital to either be deployed into new assets or to be spent on capital expenditure on other sites. Since the plant and machinery can typically be sold at depreciated cost, and yields for PPS leased assets are tighter than for PPS+ and fully-fit leased assets, value is created through acquiring the assets at a higher yield, recycling some of the capital used for other ventures, and then realising lower yields as the lease structures change to reflect the smaller investment in the plant and machinery.

The ability to implement such additional core-plus strategies is particularly effective in a fragmented market such as Europe, where imperfect information on letting and tenants can provide an experienced landlord with substantial advantages. The lack of strong and consolidated letting intermediaries has led to a surplus of capital chasing longer let data centre assets compared to short let assets. As a result, landlords are usually able to capture strong re-leasing rental spreads and help drive potential yield compression when assets become available.

The ability to enhance value and implement a core-plus strategy in a judicious manner makes an allocation to data centres in FLAP-D markets an attractive opportunity set. In our view, a core-plus European data centre strategy not only provides investors with diversification into an alternative property type but an attractive, strong and growing distribution yield alongside the potential to add value through asset management initiatives on a non-speculative basis.



## Conclusion

The explosion in information technology and the growing interconnectivity of the modern economy (the Internet of Things) has led to a surge in consumer and business data usage. This surge has accelerated during the COVID-19 pandemic as safety and security of health are balanced with a rapid increase in data usage as life and work adapts to the “new normal”. Simply put, data is even more of an essential part of the fabric of work and life in Europe, with its deep and developed pools of human capital and consumers.

For investors looking for additional layers of diversification and income return, we believe some compelling core-plus opportunities to deploy capital lie ahead. The ability to implement core-plus strategies is particularly effective in a fragmented market such as Europe allowing experienced landlords opportunities to capture strong re-leasing rental spreads and help drive potential yield compression when assets become available.

## Risk Warnings

Investing involves risk, including possible loss of principal. Potential investors should be aware of the risks inherent to owning and investing in real estate, including: value fluctuations, capital market pricing volatility, liquidity risks, leverage, credit risk, occupancy risk and legal risk. All these risks can lead to a decline in the value of the real estate, a decline in the income produced by the real estate and declines in the value or total loss in value of securities derived from investments in real estate. Data Centre investing does contain some risks not common to commercial real estate as a whole, like technology and obsolescence risks.

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