Newsletter (7) - The Data Center Boom

(1) Introduction

In this week's edition of our newsletter, we explore the rise of data centers as an asset class within real estate and infrastructure investing. Demand for data centers has surged in recent years, driven largely by the growth of AI. We begin with an overview of this demand, followed by an analysis of the key constraints to construction, possible development strategies, and finally, a discussion on whether the sector is at risk of a price bubble.

(2) Demand-Side

The demand for data centers has surged in recent months, but its origins trace back to the 1990s with the rise of microprocessors and the internet. Since then, demand has grown exponentially.

In the early 2010s, this was largely driven by greater social media and cloud adoption. The trend accelerated during COVID, as content creation, streaming, and remote work increased digital activity. More recently, demand has skyrocketed due to AI. To illustrate, between 2010 and 2025, the total volume of data created, consumed, and stored has increased more than 100 times. Data centers provide the physical compute power needed to train, develop, and run AI models such as ChatGPT or MetaAI. This is powered by thousands of specialized Graphics Processing Units (GPUs), primarily supplied by Nvidia. As AI becomes more competitive, with existing players scaling and new entrants like Deepseek emerging, large hyperscalers are demanding more compute power to develop state-of-the-art models. Talk of an 'AI war' between China and the United States has already driven demand and is expected to push it even further. This is especially true under President Trump, who has positioned himself as pro-AI, reversed some of Biden's restrictions, and signed an executive order to accelerate American AI development. As such, Blackstone estimates that fully capturing the AI opportunity will require around $2 trillion in global digital infrastructure investment by 2030. This demand has resulted in vacancy in "Data Center Valley," in Northern Virginia, to drop below 1% in 2024. Further, in Europe the combined vacancy rates in the FLAP markets (Frankfurt, London, Amsterdam, Paris abbreviated) decreased by 200bp in 2024. Finally, price hikes of data centers in the range of 15-20% year-on-year, indicate a trend which is likely to continue as the demand accelerates further.

(3) Supply-Side

To understand the development pipeline of data centers amidst growing demand, it is important to consider the constraints to construction. These include power availability, permit uncertainty, and locational factors.

Firstly, data center development has been particularly constrained by power availability. Essentially, the need for power is derived from the idea that data center tenants are not actually renting space, but rather the guaranteed provision of electrical power. Power is essential for servers to train, compute, and generate AI outputs, requiring high-performance computing systems that operate at high speeds. With this demand for power, energy demand from data centers has trippled in the last 10 years. Additionally, servers generate immense amounts of heat during operation, necessitating large-scale cooling systems to prevent overheating, which further increases power demand. Power availability is limited, as hyperscale data centers cannot simply connect to the existing power grid due to their large energy demands. Directly tapping into the grid would significantly alter local energy prices.

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Additionally, the intermittent nature of renewable energy sources and fluctuations in grid stability create challenges for data centers, which require uninterrupted power to run effectively. Compounding these issues, the wait time to connect to the utility grid is often very long. According to the FT, current wait time can exceed 10 years in the UK, making planning and construction even more uncertain. To address power availability challenges, data center developers must be meticulous in selecting suitable locations. For example, Virginia has become a key development hub due to its abundant power supply, strong fiber-optic infrastructure, and relatively low energy prices. In Europe, data centers are primarily being developed in FLAP for similar reasons, though at a diminished magnitude. To secure access to power grids, working directly with power providers and negotiating agreements is essential to meeting the high energy demand. Additionally, large operators are considering on-site power generation, including the use of small modular reactors (SMRs) that rely on nuclear fission. While SMRs could be promising for the future of data centers, they have not yet been commercialized and are not expected to be until at least 2030.

The second major constraint for data center development is the difficulty of obtaining building permits. Local municipalities are often hesitant to approve data center projects due to their impact on the utility grid. Additionally, conflicts over infrastructure and property rights can lead to stricter approval processes, as seen in the case of the Blackstone-backed QTS data center in Fayetteville, Georgia. However, in recent years, this reluctance to grant permits has begun to shift, particularly as investors collaborate more closely with governments to secure legislative support for data center developments. For example, the UK Labour government's pro-growth agenda has led to a partnership with Blackstone, the world's largest data center developer, to approve a £10 billion, 750 MW (Mega-Watt) data center project near Newcastle. For governments, such developments align with both political and economic objectives. First, they create jobs, with Blackstone reportedly creating more than 4,000 jobs for the Newcastle project alone. Second, governments are increasingly recognizing the strategic importance of AI, not only for economic growth but also for national security through data sovereignty. As a result, the UK government is now planning "AI Growth Zones," which will offer enhanced access to electricity and streamlined planning approvals. The first of these zones is set to be established in Culham, near Oxford.

The final constraint for data center development is location. Beyond the challenges of power availability and building permits, facilities are increasingly being developed closer to metropolitan centers to reduce latency, which is the time it takes for data to travel from point A to point B. For this reason, Tritax Big Box REIT recently acquired a 74-hectare plot near Heathrow to develop a hyperscale data center just outside London. At the same time, given the immense capital required for construction, developers must carefully select sites in low-risk areas, avoiding locations near railways or in flood zones. Natural disasters are also increasingly becoming a factor, considering frequency increases due to climate change. Recent destruction on both coasts of the US illustrates this. The extensive requirements for suitable data center locations further restrict the available supply, limiting new market developments.

(4) Opportunities for Investors

With these constraints in mind, real estate investors have two main approaches to data center development.

The first option is to construct a powered shell, which is essentially a logistics asset with secured power access but without internal fit-out. With such a development, the tenant is

responsible for installing the cooling systems and the necessary computing infrastructure, such as GPUs, to operate the data center. As a result, pricing for powered shell assets is comparable to prime industrial properties, typically carrying a 20 to 50 percent premium.
The second option is to develop a turnkey hyperscale build-to-suit, which involves constructing the same shell as a powered shell but also includes installing cooling systems and other essential infrastructure, excluding GPUs. This approach comes with significantly higher risk, as cooling and internal fit-out costs can range from more than double to as much as ten times the initial land acquisition cost. For example, while the land purchase and phased construction payments for Blackstone's data center near Newcastle cost £110 million, the fit-out of the 750 MW facility is expected to reach up to £10 billion. Despite these high costs, hyperscale demand for such facilities is strong enough to offset them. Due to the capital-intensive nature of turnkey colocation data centers, securing construction loans requires signing a pre-lease agreement with a high-creditworthy tenant. To mitigate development risk, build-to-suit data centers typically have lease terms ranging from 10 to 20 years, ensuring long-term stability for investors. As a result, yields on turnkey properties are much higher than those for powered shells. Coupled with lower cap rates, this drives up valuations. Additionally, since the initial fit-out costs for hyperscalers are so high, rental expenses become relatively insignificant compared to their overall investment. This dynamic explains why rents, and hence valuations for data centers are much higher than those in other asset classes.

(5) Bubble Risk

With demand at record highs and supply beginning to increase in Europe and the US, investors are increasingly debating whether the data center sector is following patterns seen in past asset price bubbles. In recent days, Donald Trump, along with Sam Altman, Masayoshi Son, and Larry Ellison, announced up to $500 billion in committed capital for the new Stargate AI data center development project. Less than a month ago, UAE developer Damac pledged $20 billion toward US data center development.
With such an immense influx of capital into the sector, concerns about a potential AI-driven data center bubble have become more frequent among institutional investors. However, Blackstone's Jon Gray has argued that data centers will not experience a bubble in the short term for two reasons. First, the constraints discussed above make development inherently difficult, limiting the risk of oversupply. Second, due to the immense capital required to build a data center, speculative development is economically impossible, preventing the kind of expansion that typically leads to asset bubbles.

(6) Conclusion

In conclusion, data center investors believe they are facing a once-in-a-lifetime opportunity to meet surging demand. However, development remains constrained, and the massive capital commitments to the asset class are raising questions about the risk of a bubble. We look forward to exploring these trends further in future newsletters!