

HarbourVest Partners

The future is digital: Opportunities in digital infrastructure

Recently, **Chase McWhorter**, Institutional Real Estate, Inc.'s managing director, *Institutional Investing in Infrastructure*, spoke with **Kevin Warn-Schindel**, managing director for HarbourVest Partners, about the growing role of digital infrastructure. Following is an excerpt of that conversation.

What has been the impact of COVID-19 on the digital infrastructure sector?

With more companies announcing that they are moving to a hybrid or remote workforce, the days of an office-bound workforce are behind us. The dramatic increase in the number of people working from home since the onset of the pandemic has re-emphasized the critical nature of connectivity and the resilience of the communications infrastructure. Operators are seeing increasing demand for bandwidth, storage and connectivity as teleworking, remote learning, online entertainment, and streaming media accelerated during the pandemic.

COVID-19 was an accelerant for many long-term secular trends, including the importance of data and the dominance of the digital economy. As individuals relocate to tier-2 and tier-3 cities and suburban locations, investment in fiber, towers and data centers will be needed to support the dispersion of work, the broader secular growth trend of increasing data demand, and the intensity of the digital economy.

What opportunities will be created off the back of COVID-19?

These trends have created massive annual capital expenditure needs of over \$500 billion globally across data infrastructure segments, including 5G, data centers and fiber. Even with significant investment from governments, private investment will be needed to fund development, creating opportunity for private infrastructure investors.

At HarbourVest, our data shows telecom and data infrastructure outperforming all other infrastructure sectors for realized deals historically. Our data indicates the sector has generated a gross 2.2x multiple on invested capital with a 20-plus percent IRR, based on our proprietary database for all realized infrastructure deals. Coupled with significant capital expenditure and secular growth trends, we are seeing an increase in investment activity in the sector. For private core-plus and value-add infrastructure funds, we estimate that telecom and data infrastructure has accounted for at least one-third of all investment activity over the past year, up from less than 5 percent in the prior five years.

The rapid proliferation of digital infrastructure has led to an immediate need for accelerated capital investment — some of which cannot be accommodated by existing investors. As the sector grows in prominence, we expect to see more opportunities in the secondary market and an increase in GP-led transactions as private equity-owned businesses lead the development of the asset class.

What does the investable universe look like for infrastructure investors?

Digital infrastructure spans the risk spectrum from core to value-add, and investors can invest globally. Generally, there are four primary subsectors: towers, data centers, fiber and 5G (small cells) network infrastructure. We are also increasingly seeing infrastructure investors target operating companies providing critical services to the sector (“infrastructure as a service”), as well as companies at the intersection of traditional infrastructure and data infrastructure (“technology-enabled infrastructure”).

Towers are a long-standing infrastructure investment area. These are typically large steel structures that hold communications equipment that provide broad network coverage for wireless carriers as well as TV and radio broadcast. Towers will benefit from the growth of 5G requirements for high-bandwidth and low-latency transition.

Data centers are specialized buildings equipped with power, cooling, security and connectivity infrastructure to host computing equipment. These are often classified as either hyperscale — servicing the likes of Amazon, Microsoft and Google — or enterprise — servicing other businesses. Growth in data centers is being driven by a dramatic increase for data storage and connectivity demands, particularly as businesses shift to outsourced cloud platforms.

Fiber-optic cables consist of bundled glass strands that transmit and convert data into optical light, and back again. Fiber provides dedicated high-bandwidth fixed-network capacity, which is unmatched by copper, cable or wireless technologies. An important area of growth is fiber to the home, allowing residential communities to benefit from the speed and capacity of fiber.

5G network infrastructure, also referred to as small cells, are fiber-fed antenna systems used for both outdoor urban deployments and indoor locations. Small cells provide network diversification for wireless carriers and cable operators, and can be present on buildings and subways. The rollout of 5G has required denser deployment of nodes, which has driven the need for small cells to complement towers.

Let's talk about 5G and the impact of 5G on digital infrastructure.

5G is the fifth-generation technology standard for broadband cellular networks, which has meaningfully faster speeds compared to many wired broadband services today. 5G will help accelerate the world to a hyper-connected society and will require more investment in towers, small cells, data centers and fiber than any other technology. The technology tends to be denser and does not transmit as well through buildings, requiring many small-cell nodes to complement towers. The need to build out small cells, along with a dense fiber network, to backhaul all the data is driving new infrastructure spending.

According to the Fiber Broadband Association, an estimated 1.4 million miles of fiber, worth \$130 billion to \$150 billion of capital expenditures, are needed to support 5G growth in the United States.

Speaking of fiber, what has been the impact from COVID-19 on fiber?

Fiber is the critical infrastructure enabling today's communications for carriers, data centers, households and businesses of all verticals and sizes. With fiber, like other digital infrastructure assets, superior networks are increasingly winning over legacy technology due to the rapidly rising demand for bandwidth. The COVID-19 pandemic and the resulting increase in demand for technologies that enable remote work, online education and social activity have highlighted the importance of high-quality fiber infrastructure.

What are you excited about in the data center space?

Businesses are shifting to outsourced infrastructure for both retail and cloud platforms, which is driving long-term data center growth. Hyperscale data centers, which provide power and storage to large corporations, have grown rapidly. The hyperscale trend is being driven by large technology companies, like Microsoft and Amazon Web Services, with much of that capacity ultimately servicing smaller enterprises. According to Synergy Research, hyperscale data center spend in 2019 was \$120 billion, up over 50 percent since 2017. New hyperscale facilities continue to open rapidly, with more than 170 identified in various stages of development. Hyperscale facilities typically have long-term contracts with creditworthy counterparties, which is in line with the characteristics we look for with traditional investments.

Edge data centers are another interesting area of investment. There is a greater need for more agile, dispersed data

center deployments, which are closer to the populations they serve. By processing data and services as close to the end user as possible, edge data centers reduce latency and improve the customer experience.

Does HarbourVest take technology risk when investing in digital infrastructure?

We seek to invest in long-lived assets involving proven commercial technologies. We also look at assets with the operational flexibility to adapt their business models and avoid technological obsolescence.

The sector has become extremely competitive, and valuations have risen since the start of the pandemic as the critical nature and resilience of the assets have been demonstrated. We have seen private infrastructure investors move into segments involving more operational complexity and potential technology risks to avoid the most expensive assets and achieve target returns. Rather than avoid assets with operating complexities, we seek to partner with experienced GPs and management teams with demonstrated operational expertise to manage potential technology or execution risks.

What opportunity does HarbourVest see in digital infrastructure?

We are excited about the opportunity here. Although digital infrastructure is an established asset class, in many ways it is still in its infancy, with advanced technologies enabling continued growth. The vast opportunities to continue building our global digital infrastructure over the next two decades means there's a lot of runway left in the sector. Our approach to this opportunity is focused on partnering with best-in-class managers to invest alongside them or facilitate liquidity solutions in digital infrastructure.

CONTRIBUTOR



Kevin Warn-Schindel
Managing Director

Kevin Warn-Schindel joined HarbourVest in 2015 and leads the Real Assets investment program. He is also the chair of the firm's Real Assets Investment Committee. Kevin joined Harbourvest after 10 years as the group head and managing director of the OPTrust

Private Markets Group, an investment unit of OPTrust, a Toronto-based defined benefit pension plan. At OPTrust, he led the creation of the global investment management platform, with offices in Toronto, London, and Sydney, and developed and executed a global portfolio of investment strategies. Prior to OPTrust, he was an executive at Macquarie Bank and an investment banker at RBC Capital Markets. Kevin is formerly the chair of the Board of Export Development Canada, the Canadian federal government trade finance agency and is currently a Director of the Economic Investment Trust Ltd., a TSX listed closed-end investment fund.

CORPORATE OVERVIEW



HarbourVest is an independent, global private markets investment specialist with over 35 years of experience and more than \$76 billion in assets under management, as of March 31, 2021. The Firm's powerful global platform offers clients investment opportunities through primary fund investments, secondary investments, and direct co-investments in commingled funds or separately managed accounts. HarbourVest has more than 700 employees, including more than 150 investment professionals across Asia, Europe, and the Americas.

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