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How to build and deliver operational excellence

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• How to get the best operational staff onboard
• Navigating the new data regulation minefield
• Practical guidance on building cyber awareness
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The explosion in data demand has been the driving force behind growth across the telecoms sector.

THE DIGITAL infrastructure landscape is being redrawn, and we are the ones doing the drawing. As smartphones become ever more central to our lives; as we connect everything from our televisions – which are increasingly becoming devices whose primary purpose is to stream video from the likes of Netflix or Amazon Prime – to our fridges into the Internet of Things; and as the next wave of technological advancement promises cloud-connected autonomous cars and more besides, it is consumer behaviour driving surging demand for digital infrastructure.

“Digital is probably the most dynamic and fast-changing infrastructure sector. The strategic players are very active at the larger end of the market,” says DIF partner Willem Jansonius. He tells us on p. 22 about the attractiveness of buying smaller projects and developing them.

The extent of digital infrastructure’s development is made clear by AMP Capital’s Matt Evans, starting on p. 12. He notes that the growth story is not over, either, with coming developments set to move the market to the next level. This ever-developing innovation continues to provide a wide range of investment opportunities.

The explosion in data demand has been the driving force behind growth across the telecoms sector. On p. 8 you can read about how telecoms has evolved from what was perceived as a risky venture capital play to a burgeoning institutional digital infrastructure asset class. Digital Bridge’s Marc Ganzi outlines where the opportunities and challenges are, and notes that there is almost $400 billion of investment lined up for the coming years to deliver 5G and new digitally encrypted networks.

Cube Infrastructure Managers’ Connecting Europe Broadband Fund sees particular pockets of opportunity in the continent’s under-served rural areas. The work to foster the emergence of alternative open-access networks is detailed on p. 26.

There were plenty of shared platforms at the Infrastructure Investor Global Summit. Digital infrastructure was a prominent topic, and even managed to muscle in on panels supposedly dedicated to topics such as energy. The highlights on p. 20 include futurist Ben Hammersley’s thoughts on how infrastructure is set to evolve.

Let’s see how that landscape gets redrawn next.

Enjoy the report,
4. Three top trends
Digital infrastructure is a relatively new sector that is developing rapidly, with investment pouring into data centres, fibre and towers.

6. A year in digital infrastructure
The top stories reported by Infrastructure Investor over the past 12 months.

8. Building value, earning trust
Digital Bridge’s Marc Ganzi discusses telecoms’ evolution from venture capital play to burgeoning institutional asset class.

10. From then to now
An overview of the milestones in the digital revolution since 1947 helps point the way to what lies ahead.

12. Investing for tomorrow’s needs, today
AMP Capital’s Matt Evans explains how investing in the systems that connect people, businesses and things can harness growth and progress.

16. How digital became integral
What is driving demand and where are the opportunities in digital infrastructure?

20. Five things we learnt in Berlin
Digital was a hot topic at this year’s Global Summit. We pick out five highlights from the biggest event in the infrastructure investment calendar.

22. A great capacity to build
DIF’s Willem Jansonius discusses starting small, building scale and enhancing value in the under-developed telecoms infrastructure sector.

24. Fast five
From what excites them to what worries them, LPs and GPs share their views on digital matters.

26. Bridging the digital divide
Henri Piganeau and Izzet Güney, of Cube Infrastructure Managers’ Connecting Europe Broadband Fund, highlight the opportunities presented by fibre-optic rollout in European rural areas.

28. Year in review
A look back at some notable quotes on the ups and downs of the digital infrastructure sector from the past 12 months.
Seeing potential | delivering value

Antin Infrastructure Partners is a leading private equity firm focused on infrastructure investments.
Three top trends

Digital infrastructure is a relatively new sector and is developing rapidly, with investment pouring into data centres, fibre and towers, writes James Linacre

1. DATA IS GETTING CENTRAL

The case for data centre investment continues to grow, both for high-reliability, high-security centres for the likes of Google and Amazon and also smaller, more local centres located closer to the communities that require them.

“The combination of these two things is shaping the market,” says Bruno Candès, partner, InfraVia Capital Partners. He notes that both large, global platforms and smaller, regional ones can be successful, depending on the needs of a given market.

The firm’s experience with NGD is illustrative. When InfraVia invested in NGD it was very much a small-cap business. Although it has now become a national heavyweight, it will not be going global by expanding overseas. Instead, separate assets in InfraVia’s portfolio will serve to provide that diversification.

2. FIBRE IS CATCHING FIRE

Europe is quite some way behind the US in fibre deployment, although this is only part of the story. A closer look reveals that parts of Europe actually have far more developed fibre than others, yet the significant sums being poured into fibre provide one of digital infrastructure’s clearest developmental avenues.

“Fibre markets offer great opportunities, although some European markets are already quite well built out,” says Willem Jansonius, partner at DIF. “The Benelux and Nordic regions, for example, are competitive and fibre penetration is high. Other countries, such as the UK, France, Germany and Italy, are still a fair way behind.”

Fibre is increasingly being seen as a necessary utility, ranking in importance alongside the likes of water and electricity. To catch up with its more developed European neighbours, £10 billion ($13 billion; €11.6 billion) is set to be invested in UK fibre in the next five years.

3. 5G IS WHERE TO BE

Billions could also be spent bringing Europe’s 5G capabilities up to scratch. Again, the continent lags behind other parts of the world.

“Operators still need to spend millions – or billions – to build networks,” says Izzet Güney, managing director, Cube IM. “And then they need to provision the networks, so people sign up. We are many years away from having a fully fledged 5G industry. Go to Asia-Pacific and it’s already up and running.”

Even 4G necessitates more towers and equipment, thus providing a basis for growth over the coming years – and this is certainly not restricted to Europe.

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LEADERS AND LAGGARDS

Percentage of fibre connections in total fixed broadband as of Q2 2018

Source: OECD Broadband Portal
INFRASTRUCTURE VALUATION
A guide to the valuation of privately held infrastructure equity and debt

THIS BOOK

• Identifies the important dimensions of a very ill-defined and little understood topic - infrastructure investment.
• Details the challenges faced by investors with regards to valuation and risk measurement and proposes a way forward.
• Demonstrates two academically validated asset-pricing models - one for debt, one for private equity - that have been developed with practical and industrial implementation in mind.
• Explains what data should be collected to be able to run these asset-pricing models.

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Two-minute round-up

The top digital infrastructure stories reported by *Infrastructure Investor* over the past 12 months

**BERENBERG TARGETS GERMAN FIBRE MARKET WITH DEBT FUND LAUNCH**

German investment bank Berenberg launched a digital infrastructure debt vehicle to capitalise on a “multibillion-euro” domestic market. Berenberg Digital Infrastructure Debt Fund I had a target size of €100 million and was set up to invest in senior and junior bonds or promissory notes issued to finance 5G masts, data centres and fibre-optic networks.

**DIGITAL COLONY BUYS FINNISH TELECOMS FIRM FROM FIRST STATE**

Digital Colony – a Colony NorthStar and Digital Bridge joint venture – completed its first deal, acquiring Finnish telecoms company Digita Oy from First State Investments. Digita is Finland’s largest independent tower network owner and has the ability to reach 100 percent of the country’s population.

**MIRA INVESTS IN US DATA CENTRE BUSINESS ALIGNED ENERGY**


**DIGITAL COLONY HIRES EX-PSP DIRECTOR AS FUNDRAISING NEARS FINAL CLOSE**

Digital Colony hired former PSP Investments senior director Steven Sonnenstein to invest in telecommunications infrastructure opportunities. He spent six years at the Canadian pension and has more than 20 years of infrastructure experience, having become involved in telecoms at PSP, including 2017’s acquisition of Vantage Data Centers.

**TIGER INFRA SELLS FIBRE COMPANY TO STONEPEAK-BACKED EXTENET**

ExteNet Systems, a telecoms company backed by Stonepeak Infrastructure Partners and Digital Bridge Holdings, announced it would buy fibre-optic company Hudson Fiber Network.

**KKR TARGETS BOOMING FRENCH DATA MARKET WITH ALTICE DEAL**

KKR agreed to buy a 49.99 percent stake in more than 10,000 telecom towers owned and managed by French company SFR, a subsidiary of Altice, creating new company SFR TowerCo.

**CDPQ AND AMP CAPITAL BACK US TELECOMS TOWERS GROUP WITH $500M**

Canadian pension CDPQ and Australian fund manager AMP Capital bet on growing demand for mobile services by providing $500 million in financing to New York-based cellular tower and telecoms company Tillman Infrastructure. The investment was to finance the construction of around 1,500 new telecoms towers across the US.
**KKR RAISES YEAR’S LARGEST FUND WITH $7.4BN CLOSE**

KKR closed its third infrastructure fund – the largest of the year – and made a French telecoms tower business one of its very first acquisitions. KKR Global Infrastructure Investors III announced the purchase of Starlight as well as its close on $7.4 billion, which was $2.4 billion more than its original target, and 2.4 times the size of its preceding fund.

**DIGITAL COLONY EXPANDS EUROPEAN FOOTPRINT WITH UK ACQUISITION**

Digital Colony used its inaugural fund to enter the UK market with a majority stake in Stratto, a small mobile network services provider. Stratto installs and maintains small antennas and other components that allow in-building distributed network coverage.

**SDC BREEZES PAST INITIAL TARGET, CLOSING DIGITAL INFRA FUND ON $400M**

SDC Capital Partners closed its inaugural fund – SDC Digital Infrastructure Opportunity Fund I – on its $400 million hard-cap, having initially targeted $300 million. The fund’s first three investments included a 280-acre data centre in Virginia. The firm said it would focus on data centres, network/fibre and wireless infrastructure globally.

**DIGITAL COLONY BEATS FUNDRAISING TARGET**

Colony NorthStar’s Digital Colony fund, which targets telecoms infrastructure, reached $3.3 billion raised, the firm reported, including $932 million in the second quarter. The fund had been targeting $3 billion and invests in data centres and telecoms towers.

**CITIC’S XINJIN TO LAUNCH $3BN DATA CENTRE-FOCUSED FUND**

CITIC Group affiliate Xinjin Investment Holding partnered with Japanese trading house Itochu and the telecoms operator KDDI to launch a $3 billion infrastructure fund focused on the construction of new data centres in China’s largest cities. The development of 5G and IoT technologies are expected to significantly increase demand for data centres.

**AMP CAPITAL RAMPS UP TECH EXPERTISE WITH FORMER APPLE OPS DIRECTOR**

Sydney-based AMP Capital has expanded its existing team of 15 senior advisors with the appointment in Delhi of Thomas Preising, who until recently served as global business operations director at Apple. AMP Capital said it had appointed Preising as part of its efforts “to harness infotech to streamline and enhance the operations of its global infrastructure assets”. Preising was appointed to advise the fund manager on a part-time basis, reporting in to global head of asset management David Rees.

He was hired to work with asset managers on identifying specific companies and processes across AMP Capital’s existing assets that require improvement, through process innovation, new systems or new technology.
Building value, earning trust

Marc Ganzi, co-founder and CEO of Digital Bridge, on telecoms’ evolution from venture capital play to burgeoning institutional digital infrastructure asset class

Q What makes digital infrastructure an exciting investment proposition?
MG: Investors understand the proposition around infrastructure and they understand the proposition around technology, but have only recently started looking at how the two come together. The intersection between the two sectors provides a unique opportunity to generate alpha as it gives investors access to the sector without assuming outsized risk.

Q Just a couple of decades ago, telecoms was considered a risky venture capital play. How has it ended up as an infrastructure strategy?
MG: In the mid-nineties, when venture capital firms started looking at towers, microwave networks and fibre optics, those investments were considered incredibly risky. Then, as the years went by and we came through the dotcom crash and balance sheets began to normalise, we saw private equity firms start to deploy hundreds of billions of dollars into the space to create new platforms centred around data centres, towers and fibre. As the cycle matured, some of those companies migrated to the public markets. Today, there are 57 publicly listed companies that trade in that ecosystem.

As we head towards 2020, the asset class is rotating again – this time from private equity into infrastructure. As carriers’ needs have increased and as the market has become more competitive, investors are willing to pay big prices for these assets. It has become clear that one of the only ways to justify high-single-digit or low-teens returns is to turn to infrastructure capital.

Q Do different geographies also present different levels of risk?
MG: Absolutely, each of the five regions that exists today in communications infrastructure – North America, Latin America, Europe, the Middle East and Africa, and Asia – presents a very different narrative and risk profile.

North America is the most mature market given the capex cycle, consumer profile and device adaptation, and how the region thinks about machine-to-machine connections and IoT networks. Next in the evolution curve are Europe and Asia which are in roughly the same place. On the mobile side, the two regions present use cases that may be ahead of the US, but they both lag the US in fibre assets and hyper-scale computing, which is a byproduct of the fact that most of the cloud providers are US-based.

The markets within Latin America and the Middle East and Africa are all...
progressing at different speeds. As an investor, one of the trends we get excited about in these regions is landline replacement; many developed economies are replacing copper with fibre, but in these areas there are still communities that copper never even reached.

There are towns without landlines, or even electricity or running water, where people are walking around with cell phones on a 3G or 4G network. When you see that, you understand the impact wireless connectivity can have on a community. Digital infrastructure can alter the way communities interact and how they do commerce.

The social impact of connectivity is one of the beauties of this sector. As investors, we want to do what we can to ensure everyone has access to technology. It’s absolutely essential to our investment thesis.

What led you to set up Digital Colony?

MG: Digital Bridge together with Digital Colony owns nine platform investments, has over $13 billion in capital raised and is a digital infrastructure owner and operator of assets including towers, data centres, small cells and fibre.

We operate, own and manage over 342,000 sites and 39 data centres globally, with strong recurring cashflows. Our companies and footprint are located across Canada, the US, Mexico, South America and Europe. In 2018 we formed Digital Colony, a firm truly dedicated to investing in digital infrastructure with a global mandate. Digital Colony combines the sector knowledge of Digital Bridge and the investment expertise of Colony Capital, a leading real estate investment management firm.

What are the biggest competitive challenges you face investing in this sector?

MG: The biggest competitive pressure we face is less about other investors who may be vying for similar assets and more about how can we perform for our customers. That is where this type of infrastructure is a bit different to your average bridge, highway, toll or airport. Given the technological aspect involved, we have to be precise in how we perform: making sure that the air handlers work in a data centre, that the fibre does not get cut in a small cell network, that a tower operates in sub-zero temperatures.

Our DNA is made up of 25 years of operating and building digital infrastructure businesses. Our sole mission has only ever been to build networks and deliver performance. To us, you’re only as good as the last tower you’ve built, the last connection you’ve provided or the last lease that you’ve signed. It is really about waking up every day and paying attention to your customer. We are entrusted with their network and that level of trust is something you have to earn.

How important are good relationships with governments and state bodies, as well as your customers?

MG: Good relationships with public bodies are critical at every level whether with regulators in countries deploying 5G spectrum, governments passing anti-competition legislation to ensure markets are efficient, or local municipalities looking to reap the public benefits of connectivity while maintaining the fabric of their local community.

We spend a lot of time working with local municipalities, townships and villages to ensure they will be proud to say that our infrastructure exists in their community, that it is safe and that it contributes to the public good.

What does the future hold for digital infrastructure and your role as investors?

MG: According to industry experts, there is over $388 billion of investment that is going to happen in this sector over the next eight years in terms of delivering 5G and new digitally encrypted networks. We have the responsibility, and privilege, to invest new capital and to continue to grow the existing businesses we have.

The future is going to require partnerships, though. It is going to require carriers to work together, investors to work with carriers, and carriers and investors to work with governments, in order to create a shared infrastructure model.

What we have learned in the first four generations of mobile networks is that they are really expensive to build and maintain. As investors, we have to think carefully about how we can help our customers, and partner to build networks in a way that delivers public benefit but also allows them to make a profit. This sector is no good if you have a bunch of customers who cannot pay their infrastructure bills. The future must be grounded in collaboration.
From then to now

An overview of the milestones in the digital revolution, from 1947 to today, helps point the way to what’s next, writes James Linacre.

The digital revolution has picked up pace, with more— and new—digital infrastructure required to keep up. From the invention of the transistor to the first mobile phones, from broadband to Bitcoin, the digital world has taken great strides over the past few decades.

As the world prepares for greater adoption of 5G and continued integration of devices into the ever-growing Internet of Things, digital infrastructure is required to develop in order to support it all.

Source: Science & Technology Facilities Council

We’re all living in the information age. From healthcare to education, technology has transformed our lives, and the digital revolution shows no sign of slowing down.
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Thinking ahead of the market has always been an important part of what we do. We have more than 70 years of experience managing investments, being one of the first investors in infrastructure in the 1980s.

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A digital transformation has revolutionised how the world communicates and how information is accessed, processed and stored. From interfaces that allow companies to operate seamlessly around the world to connecting friends and family, technological advances have made instant interactions and content access reliably routine.

Creating, storing and accessing reports, media content and other data can be done with a click and sent worldwide in seconds. But this is revolution, not evolution. Underpinning the trillions of daily communications and masses of newly created data is a vast network of infrastructure that needs constant innovation and development.

EXPANSION AND SCOPE OF THE DIGITAL NETWORK
From the first electronically delivered message to the prototype portable telephone, the development of the communications sector has exploded over the past 50 years. There are now trillions of messages sent every day using billions of laptops and smartphones that are more powerful than NASA’s computers that put a man on the moon.

Through these new communication methods travel quantities of data that were unimaginable just a few decades ago. Instead of recounting a story or episode using a single, vocal medium, pictures, music and videos are regularly used to communicate with friends, colleagues and the wider world. This all adds up to an ever-expanding data mountain, which is sent through a mixture of mobile and fibre networks to be hosted in the rapidly expanding cloud, powered by servers that are integral to corporate and international security.

But the growth story is not over: the advent of the Internet of Things will connect autonomous cars; people will demand more content such as 4K Netflix; and businesses will process and store more data – indeed the race to control data, often dubbed ‘the new oil’ is a key value driver for FAANGs (Facebook, Amazon, Apple, Netflix and Google) the market capitalisation of which is greater than the UK economy.

While back in the first stages of development, consumers were happy to wait for existing, analogue systems to respond, they have become less patient. Messages must now be delivered immediately, and data uploaded or accessed accurately and without delay – and, most importantly, the whole process must be secure.

The technology that supports this innovation is developing all the time and provides a wide range of investment opportunities. Fibre optic cables are replacing copper lines and new data centres are coming online to support the weight of the expanding cloud services being launched around the world. As mobile telecommunications grow alongside fixed-line networks, there is a continuing push to maximise spectrum efficiency whilst building and repurposing masts and towers to transmit increasing volumes of radio waves.

The race to control data, often dubbed ‘the new oil’ is a key value driver for FAANGs”

Matt Evans
‘The four Vs of big data’

An explosion in data demand is the fundamental driving force behind growth across the telecommunications sector - this phenomenon is summarised by the ‘four Vs of big data’.

**Volume:** The ability to process and store the huge amounts of data that are being created at a previously unseen speed. The 24 exabytes – or 24 quintillion bytes – of monthly data traffic around the world in 2019 is set to more than double by 2021.

**Variety:** Some 90 percent of data is unstructured, which means it is made up of personal photos, audio and video clips that cannot be filed and archived in a methodical fashion like a database. Despite this, users demand the ability to access the files they want quickly, putting pressure on the effectiveness and efficiency of those hosting it.

**Velocity:** Latest estimates show more than 70 hours of video is uploaded to YouTube each and every minute. With users refusing to wait for attention, acceptance of buffering and dropping connections is a thing of the past. Users expect networks to be instantaneous and reliable.

**Veracity:** The most important thing for users is that they trust the data they are accessing. One in three business leaders in the US do not do so, and more than $3.1 trillion is lost in the country each year to decisions made on poor data. Not only does data have to be available, accessible and quick, it must be accurate too.

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**THE BASIS FOR DEVELOPMENT IN A BURGEONING SECTOR**

In addition to rapidly growing demands on digital networks, emerging themes are creating sectoral shifts.

For instance, analogue radio transmission revolutionised communications over the last century, but the spectrum over which radio is transmitted is finite. Trying to match ever-growing mobile data demand with available spectrum has resulted in record prices paid across Europe by operators. We are seeing governments repurposing spectrum to maximise capacity, whilst supporting the growth of fixed-line networks (fibre is essentially unlimited) which increasingly connect homes, businesses and towers.

We are seeing enterprises the world over increasingly outsourcing their IT infrastructure, with rapidly increasing demand for co-location data centres and fully integrated cloud services including Infrastructure as a Service (IaaS). Outsourcing can be cheaper, more scalable and push highly critical work to independent expert providers. But this revolution again needs network investment to build and connect the data centres that power our businesses and deliver the media content we demand.

The amount of data we send, compute and store is rising exponentially – whether it be streaming 4K Netflix at home, autonomous cars and other IoT devices communicating or searching email archives on Office365 at work. To maximise network efficiency, much more infrastructure needs to be deployed at the edge of the network – right where we

“The world is between a third and half of the way through its conversion to a digital network”
Case study: Turning dark into light
A new joint venture between an AMP Capital portfolio company and Spain’s national gas network is set to deliver additional fibre connectivity to the Spanish market

In 2016, AMP Capital acquired Spanish telcoms infrastructure business Axión with a plan to grow and evolve its business. At the time of the acquisition, Axión’s primary focus was media broadcasting, but managers envisaged how it could be developed to have a broader emphasis on telecommunications, keeping pace with society’s growing demand for data connectivity.

Through a partnership with Spain’s gas network owner and operator Enagás, Axión, led by AMP Capital, created Axent - a new fibre business.

By bringing the capabilities and assets of these two companies together, Axent can utilise 4,600km of optical fibre owned by Enagás and more than 300 radio links operated by Axión.

Axent holds around 5 percent of the dark fibre currently available in Spain.

The integration of fibre and radio technologies is an advantage for customers, including mobile operators, content and so-called Over-The-Top service providers, who are increasingly demanding efficiency, greater capacity, flexibility and durability. Infrastructure providers are expected to offer robust and competitively priced solutions, which Axent’s scale and diversified networks can supply.

Communications infrastructure businesses need to keep moving to keep up with demand, both for increased capacity and speed, and quality of service.

As the joint venture primarily makes use of existing fibre networks that were originally laid by Enagás for its own needs, something many utilities companies have done historically, Axent expects to be more efficient and cost-effective than if it were to put in place new fibre and related infrastructure as it expands with further connections. It plans to roll out a further 1,000km of fibre to broaden its network reach, enhance connectivity and develop redundancy (back-up). Eventually, Axent hopes to connect 25 Spanish cities using both fibre and radio networks.

By marrying the two companies’ experience – Axión as an operator of wireless telecommunications infrastructures and Enagás’s technical knowledge related to fibre deployment and maintenance – the joint venture has been able to innovate and capitalise on where the technological revolution is heading next.
use it. This means greater fibre deployment (FTTx) and more small-scale ‘edge’ datacentres.

Small cell networks and the advent of 5G will have a significant part to play in delivering this too. But this will take time due to the cost mobile operators face in rolling out new equipment (and the fibre that connects it) against a backdrop of stagnating revenues and no clear path to increase them sustainably with a 5G offering.

These themes are the corners of a framework that are essential when considering where the sector is set to expand next. While a company or venture does not have to provide solutions to all these themes to be considered for investment, it must at least acknowledge their direction of travel as the sector gains momentum.

We are not yet at the end point of the transition out of our analogue history. We believe the world is between a third and half of the way through its conversion to a digital network. As even more of the processes that affect our daily lives begin to move online, the need for data centres, fibre connections and reliable connectivity will only increase.

Not only corporations of all sizes, but government and regulators are increasingly dependent on digital outreach to stay up-to-date with the public they serve.

**TURNING TODAY’S TECH INTO GROWTH**

Regeneration of old technology is a key theme in communications and data infrastructure. The mantra of ‘reuse and recycle’ is applicable to the apparatus these sectors rely on to function, and it enables the owners of these assets to tap into future growth.

By establishing where and how the communications and data sector is set to move next, we can look at existing infrastructure and work out how it can be used in the future, while keeping it operational today. While there has been a sensational lunge towards new technology in the previous couple of decades, it has not yet taken over completely. Traditional forms of communication still have a part to play and, at least for the time being, the world does not rely entirely on the cloud for storage.

For example, some international governments still rely on an analogue broadcasting system through which they can communicate with the public in the case of an emergency. While there is little development needed to maintain that service, by taking control of the assets that provide it and updating them, an investor can be ready for when the next step in the journey is taken.

Data centres, too, rather than continuing to grow in number, will need to start boosting their capacity to process and store information more quickly and securely. Upgrading assets while maintaining current service is a key aspect of infrastructure investing.

Opportunities to update and innovate lie everywhere, and while there is no lack of capital to fund and facilitate transformations of existing assets, it is the expertise of investors and managers to develop and shape the future that is key – and increasingly scarce.

Innovation and expert knowledge of the sector is crucial to coming up with new, practical ideas that can transform an existing structure into something fit for the digital age. Adapting something to a new environment unleashes its potential, while enabling it to continue to carry out its original function.

In looking at infrastructure assets this way, it is clear they do not have to behave like bonds or other fixed-income instruments. The returns on fixed-income securities rely on something that has already been created and pay out regardless of any improvement to the underlying company – this is not the aim of transforming existing infrastructure assets.

In classing infrastructure as a bond-like asset, an investor risks being unable to create upside to a project but is susceptible to any downside slip that is out of their hands. Disruption, as we have seen, can come when a sector least expects it, leaving assets that have no ability for flex and change becoming rapidly outdated.

When this happens, any perceived predictable and dependable income stream could dry up and the asset rapidly fall in value.

Instead, infrastructure investments can be managed like growth assets to be improved and reconfigured towards changes and advancements in society.

The mammoth investment in communications infrastructure to meet the needs of tomorrow will also depend on new and emerging business models. For example, mobile operators may not be best placed for the huge capital investment required for 5G (and whatever succeeds it in the future) – especially as they consider record levels of leverage.

We expect to see new business models and partnerships to invest in the likes of spectrum, communications equipment and infrastructure – with expert investors offering deep sector knowledge and strong relationships best placed to benefit from these shifts.
How digital became integral

Digital infrastructure is already mainstream and keeps growing in importance, finds Daniel Kemp

The rise of digital technology has impacted all of our lives in a vast number of ways, from the Netflix streams we watch at home to the emails we answer on our smartphones, and everything else in between.

According to Hootsuite and We Are Social’s Digital 2019 report, published earlier this year, 57 percent of the world’s population is now online, with the average internet user spending more than 6.5 hours online every day – and these numbers are increasing.

In North America and northern Europe, internet penetration has now reached as much as 95 percent, according to the report.

We have come to rely on these data networks to facilitate our daily lives, both business and personal. They even underpin things as seemingly mundane as train and bus departure boards.

All of this means that digital infrastructure provides an essential service to keep our economy up and running.

With infrastructure capital pouring into these assets, what are the challenges and risks associated with managing them? And how will that management have to change over time as more and more people get connected to the internet?

DRIVING DEMAND
The fundamentals underpinning digital infrastructure investments are clear: continuing strong growth in data usage among people of all ages and in all regions, which requires infrastructure to underpin its reliability and performance.

“It’s really all about the theme of data growth,” explains Matt Evans, partner, global origination at AMP Capital.

These can be summed up as the four Vs: velocity, or how fast you can download; volume, or how much you are storing and processing; variety, because as increasing amounts and different types of data are being stored and searched, greater processing power is required; and veracity, or reliability of network performance.

“All of those features together, particularly in a world where services are just an overwhelming demand factor for data, mean that...
existing networks, or certainly networks as they were 10 years ago, are not fit for purpose,” says Evans.

“That means the existing hybrid fibre copper networks will be entirely replaced by hybrid fibre wireless networks, with more and more fibre going into it.”

There are nuances to this, with wireless technology likely to play a significant role in less dense environments where fibre is uneconomic, but the overall trend will fit into this pattern.

This has major implications for the physical infrastructure itself. Evans says that an “enormous amount of money” is required to put that fibre into the ground, just as a starting point.

Bruno Candès, partner at Paris-headquartered fund manager InfraVia Capital Partners, echoes this view. “These are massive investments, so infrastructure capital is well-equipped to fund them,” he says, arguing that the long-term outlook of infrastructure investment is well-suited to this space.

**DATA DRIVE**

Digital infrastructure is generally split into three broad categories: telecoms towers, fibre, and data centres. All three come with distinct challenges, opportunities and risks.

InfraVia holds investments in all three types of assets, including B2B fibre provider Celeste, Irish telecoms tower business Cignal, and data centre businesses Green Data Centres, Etix Everywhere and NGD.

On the latter, Candès says there are two “fundamental tectonic shifts” that are underpinning the rationale for data centre investment.

“One is the move from local storage of data to co-location types of data centres – and even that is becoming outdated now with most of our data stored in the cloud,” he says. “The data centre industry is moving towards a high-reliability, high-security industry [which] provides capacity to the big global players, like Google, Amazon, Microsoft and so on.”

Candès adds: “On the other hand, you still have smaller data centres that are much more driven by latency and providing reliable computing power, where you need to move data closer to the streets. The combination of these two things is shaping the market, and that’s what we like.”

Evans agrees that this dynamic has fuelled growth in the data centre sector, but says: “Increasingly there is a concern about what’s going to happen as we move into more cloud services – if you don’t have the customers like Amazon or Microsoft, are you going to survive as a data centre player? That’s something a lot of people are talking about in the industry.”

Candès says there is no definite best structure for data centre investments. Large global platforms can work, but taking a more regional-focused approach can also be the appropriate move depending on the needs of a given market.

“We invested in NGD, for example, while it was very much a small-cap business. And since then we’ve corporatised the business, which means we invested a lot in processes, people and connectivity to accommodate demand.”

It would now be “too expensive”, he says, to look to expand that platform overseas. The focus has therefore been to turn NGD into a “national champion”, with separate assets in InfraVia’s portfolio providing the global diversification it was looking for.

**FIBRE FOCUS**

Fibre investments require different skills to manage and are starting to be viewed as utility services.

“We increasingly see fibre infrastructure as a new utility, akin to the traditional electricity or water networks, without which consumers cannot fully participate in society,” says Martin Lennon, co-founder and head of Infracapital. The company manages a £200 million ($262 million; €233 million) mandate from the UK government to invest in high-speed broadband infrastructure, known as Digital Infrastructure Investment Partners.

“There’s also an enormous investment need driven by the demand for improved
connectivity, particularly in the rural market,” says Lennon. “There are estimates of £33 billion to be invested in fibre infrastructure in the next 30 years, and £10 billion in the next five in the UK, so there is a real opportunity for capital deployment.”

But, like any investment, digital infrastructure does come with challenges and risks.

In the fibre space, Lennon says there are three main risks to consider. “First, the ability of a company to deliver the rollout. How long will it take and how much will it cost? Second, take-up – how many consumers will sign up for the service? And finally, how much can you charge for the services, and will this be on a wholesale or retail basis?”

Evans argues that take-up risk is the main factor to consider, particularly in the fibre-to-the-home space. In enterprise and government situations, fibre is “quite explicitly” the correct solution, he says.

But at home, where bandwidth need is measured by the number of television and gaming streams a household typically uses, some existing copper connections might be enough to manage the load.

“There is no killer app for fibre-to-the-home today,” he says. “In some markets where the copper product is poor, there’s absolutely a case for fibre, particularly where it’s relatively cheap to build. Spain has been a good example of that.

“It’s not clear to me why, in other markets where it’s either expensive to build or the copper product is quite capable of delivering 50-100MB [connections], the home consumer needs a fibre product.”

The need may come in time, if technologies like 8K television develop. But there is risk for investors if those technologies take longer than expected to arrive and take-up rates are lower than they have factored in.

“It’ll come, but as always with investment, it’s a question of when,” says Evans. “If it’s 2025, people who are sinking a lot of money into fibre-to-the-home now could really struggle if they only hit 30 percent take-up rates until then.”

Lennon says that Infracapital examines the level of infrastructure competition in target build areas when assessing potential customer take-up. He emphasises the value of having a hands-on management team to help with implementation.

DIFFERING NEEDS

He also points out that the need differs from country to country. Particularly in Europe, where the large incumbents with legacy copper assets have invested to such an extent that most homes have fibre connections. In the UK and Germany, though, fewer than 5 percent of households have fibre, which presents an opportunity as “fibre is the key ingredient that enables all the changes in the telecoms sector to happen”.

Telecoms towers are better understood, with infrastructure investors having bought those assets for many decades now. However, the advent of 5G technology poses intriguing risks.

“Frankly, the implication of 5G for towers is a question mark for us,” Candès says. “But until then, the level of sophistication we need for 4G will still need more towers and equipment, so that is good growth for the next four to five years.”

Evans has a similar outlook when it comes to technology risk, and when it comes to considering towers and wireless technology in particular: “As long as your business case works so you get a decent return over a five- to seven-year period, it’s probably OK. If you’re looking at whether you need something to go for 10 to 12 years, there’s a bit more risk in those models.”

However you assess the risks of the different types of digital infrastructure, one thing is clear: these assets are now commonplace in infrastructure portfolios and will continue to be an important part of the mix as the market matures further.

“This is mainstream infra right now,” Candès says. “No-one is questioning it. The question now is where the right opportunities are, not whether this is infrastructure.”

Increasing competition

As more managers see the benefits of investing in digital infrastructure, competition for assets has increased.

AMP Capital purchased Everstream in March 2018, a fibre provider with networks across the midwestern US.

“We chased Everstream very hard because at the point we bought it, relative value looked significantly better in the US than in Europe, as we’d seen some very high multiples paid in the latter,” Evans says. “About six months after we bought Everstream, the same multiples came to the US market.”

Competition is now strong for these assets, Evans says. He argues that it is now more economical to build platforms up rather than buying them in an auction-type process.

“I characterised it in Europe as a bit of a gold rush,” he says. “A lot of people recognised that these assets are probably more essential than transport, frankly.”

“If data goes down for 24 hours it causes chaos, because everything’s so interconnected. The sector will become like a utility, and so it will, over time, represent quite low rates of return.

“But we’re not there yet, so there’s a lot of people investing in the sector who don’t have the background and expertise you need to [manage] the risks in the sector.”
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Five things we learnt in Berlin

Digital infrastructure was a hot topic at this year’s Global Summit. James Linacre picks out the highlights from the biggest event in the infrastructure investment calendar.

1. **THE EM MINDSET MATTERS**
   Infrastructure investors need to make better use of the de-risking tools at their disposal in order to navigate the risks that come with investing in emerging markets infrastructure. Jim Yong Kim, former president of the World Bank and current vice chairman of Global Infrastructure Partners, who spoke at the opening of the summit, cautioned that investors need to stop thinking about emerging markets as a “single risk pool”.

   If investors do not follow this advice, they could end up missing out on a promising growth story. Future development in emerging markets is expected to be driven by increasing automation rather than by industrialisation.

   Kim said at the summit that “it is not going to be about cheap labour anymore”. Instead, access to capital and to human expertise will be the key factors, be it for transport, energy or broadband. This provides private investors with a very attractive opportunity – if they can navigate those emerging markets infrastructure risks.

2. **MORE DATA ARE NEEDED**
   Wired editor-at-large Ben Hammersley told attendees just how essential data centres have become. Whereas a road can be closed without too much disruption, that is not so true with data centres, he noted.

   However, data centre opportunities differ by geography. Verena Kempe, co-head of private equity at FERI Trust, made the point that the European opportunity “is very limited at the moment”, in contrast to the far more developed market in North America. Morgan McCormick, a managing director in pension fund manager OPTrust’s private markets group, pointed to the issue around shorter-term contracts and how they affect these assets’ underlying risk profiles.

   Or, as BlackRock Real Assets vice-president Pauline Roteta aptly summarised it: “Not all data centres are created equal.”
The legitimacy of data centres as infrastructure assets has been questioned, but they continue to grow in importance.

3 ENERGY IS GOING DIGITAL

Digital infrastructure discussions were not confined to the Digital Infrastructure Forum, with one panel making it clear during the Energy Transition Forum that the lines between energy transition and digital infrastructure are becoming blurred. Power markets are becoming increasingly complex as grids are digitised and more renewables are incorporated.

Renewables investors were vocal about the subsector’s dramatic transformation. It is moving from a market where utilities are the main offtaker to one where anybody can be an offtaker, and where feed-in tariff regimes and long-term contracts in OECD markets are fading away as digitisation of the grid kicks in. It is a more fragmented market.

“We see a lot of new features coming into the investment thesis,” said Frédéric Palanque, managing director at Conquest Asset Management. The extent of digital infrastructure’s crossover will be a key feature of this.

“We do not invest in technology, we invest in solutions,” said Marco Van Daele, chief investment officer at SUSI Partners. “Solutions that can be monetised through long-term contracts.”

4 WE ARE GOING HIGHER

Digital infrastructure can continue to benefit as capital keeps getting allocated to infrastructure, notwithstanding headlines about record amounts of capital having been raised. One panel discussion saw 66 percent of the audience reject the notion that we have hit peak infrastructure and Tom Masthay, director of real assets at the Texas Municipal Retirement System, said it was a “foregone conclusion more capital is going to get allocated into infrastructure”.

Greater involvement in the asset class from US pensions could certainly play a role in pushing those record levels ever higher.

The effect on valuations will also bear watching. Robert Hardy, managing director at JP Morgan Asset Management, noted a sustained number of increasing transaction values across Europe, Australia and other markets: “There is a lot of money chasing very few assets.”

5 THE FUTURE IS FOGGY

Futurist Hammersley told the gathered investors that predictions beyond the next five years – if they are not related to climate change – are not worth the paper they are written on.

With that said, the rate of change has accelerated exponentially, and the driver of that change has been – and will continue to be – technology.

Investors will therefore have to become much better at identifying the early signs of what will develop into transformative changes, both in digital infrastructure and the wider market. Failure to do so could see those investors waking up to find their long-term investments becoming dangerously stuck in the past.

“Not all data centres are created equal”
Pauline Roteta
**A great capacity to build**

DIF partner **Willem Jansonius** discusses starting small, building scale and enhancing value in the global under-developed telecoms infrastructure sector

What is driving demand for digital infrastructure?

**WJ:** The key driver behind escalating demand for digital infrastructure – be that fibre, towers or data centres – is changing consumer behaviour.

We are all doing much more on our smartphones and data volumes are exploding – growth rates average typically 60 percent per annum – which is driving the growth of storage in data centres. Traditional copper networks are struggling to keep up and will require replacement. The rollout of 5G will only intensify those trends.

What areas of the market are most attractive?

**WJ:** The digital space is one of the most active and interesting parts of the infrastructure landscape. At DIF, we focus on the smaller and mid-cap end of the market and are investing through our DIF Core Infrastructure Fund. We are not looking at very large or trophy assets.

We target regional data centres and fibre networks where we can buy up smaller projects, build them out via expansions and build a large-scale portfolio through add-on acquisitions. The digital infrastructure market offers great contracted infrastructure projects that offer stable cashflows but also significant upside potential.

Does the investment proposition differ from region to region?

**WJ:** It is very much a local market. A fibre network in Germany will be completely different to a fibre network in France, the UK or US. You really need to look at local circumstances, local demographics, local levels of business activity and local levels of infrastructure – if there is any. Our broad network of local teams is a major differentiator in this approach.

Which regions offer the best opportunities?

**WJ:** Fibre markets offer great opportunities, although some European markets are already quite well built out. The Benelux and Nordic regions, for example, are competitive and fibre penetration is high. Other countries, such as the UK, France, Germany and Italy, are still a fair way behind. Parts of southern and eastern Europe also offer attractive investment opportunities, as does the US.

Europe is behind the US when it comes to data centres. There is still a lot of capacity to be built, both in the hyper-scale segment and the more regional segment.

How are competitive dynamics and are they changing?

**WJ:** Digital is probably the most dynamic and fast-changing infrastructure sector. The strategic players are very active at the larger end of the market. We see a lot of the big American data centre players being very active, as well as the big tower companies in both Europe and the US.

An increasing number of infrastructure funds are also looking at this sector but, particularly in the greenfield segment, there are still many interesting projects to be done. Valuations on the greenfield side are pretty healthy, while at the plain vanilla brownfield end of the spectrum pricing is getting rich.

At DIF we always look at opportunities in terms of what we can do with an investment, once we have done a deal. Get that strategy...
right and the returns can be very attractive, while downside cases are protected through contractual structures.

**Q** Do you primarily back greenfield opportunities?
**WJ:** We invest both in greenfield and brownfield. Especially in fibre we look at many pure greenfield opportunities. In other areas we will look to find a good nucleus and then build those out. Across all sectors, our strategy is to start small and build scale through acquisitions and greenfield rollout. That way, once we bring a portfolio or company to a certain size, we can sell it to larger investors at attractive valuations and realise a premium for creating an enhanced portfolio. In this way, with limited risk we can deliver value-add returns.

**Q** What is that exit environment like right now?
**WJ:** If platform companies are well built out, refinanced and de-risked from a contractual perspective, there is a high degree of appetite, especially from the large global investors. The market is very active and good quality investments are in high demand.

**Q** How do deal structures differ in the digital space to other areas of infrastructure?
**WJ:** Digital infrastructure tends to have far less project finance than other areas such as PPPs or renewables, with the possible exception of French telecoms.

With the smaller scale investments in data centres and fibre that we look at, you see more acquisition finance or real estate-style financing structures, particularly in early-stage projects. You want that flexible financing at that point in a company’s development.

When the portfolios have been built out you can refinance with a more traditional structure to obtain more attractive financing terms and increase the returns.

**Q** How much of a challenge is technology risk? How do you mitigate it?
**WJ:** In digital infrastructure, it can be complicated to differentiate the services and technology component from the pure infrastructure component of a deal. A lot of other funds are moving increasingly into telco services and, in our view, that means taking on more technology risk and more business risk.

Increased risk should result in an increased return, but we come across transactions where we struggle to understand how other parties are separating the services from the infrastructure and how they are valuing those components.

Beauty is in the eye of the beholder, but at DIF we are pretty conservative. We like to focus on the asset-heavy, lower tech risk deals, and on pure infrastructure with good contracts and decent counterparties. With the deals we have done, the technology risk is with the contracted counterparty and not with the project.

**Q** What about policy risk? Isn’t digital infrastructure highly reliant on governments and regulators?
**WJ:** Regulators have always played an important role in digital infrastructure. The way the French regulators have created the rural broadband concessions and tendered those out has led to a massive round of investment in French rural broadband that is unlikely to have happened without regulatory involvement.

France, once lagging in respect of fibre penetration, will be one of the leading fibre countries in the world in five years. Regulatory intervention, particularly in rural areas, is critical and France has set up a very healthy model which some other countries could do well to follow.

We also see in other countries commercial developments happening without any government support, but it always requires efficient permitting procedures in order to make it all happen. This is, happily, largely clear on most local governments’ agendas.

**Q** How would you describe underlying LP appetite for this sector?
**WJ:** LPs generally like digital infrastructure. The returns are usually good and there are positive benefits for society in terms of keeping up economic growth, job creation, and also energy efficiency gains, which are all viewed very positively. At the same time LPs are also cautious, while it is a new sector that not everybody fully understands yet, and every infrastructure fund has its own approach.

Where we approach the sector more through contracted projects, others may take more development and technology risk. In order to further mitigate market risks we mix digital infrastructure in a broader fund strategy that also targets the energy and transportation sectors. I think investors appreciate this diversification.

**Q** What does the future hold for digital infrastructure and the role of infrastructure funds?
**WJ:** Digital infrastructure will continue to be a very high growth area in Europe and North America. There is still a lot of catching up investment to be done compared with, for example, Japan or South Korea. But it is important to remember that the pace of change in the telecoms industry is far higher than in other infrastructure segments. It is vital to have specialist knowledge inside the deal teams and to be working with the right operators.

You need to understand these assets well or deals could go wrong. Through its network of local offices and specialist knowledge, DIF is well placed to source the right opportunities in underserved telecom infrastructure markets and enhance these during its ownership. ■
Fast five

From what excites them to what worries them, LPs and GPs share their views on the digital sector

**Has digital gone mainstream?**

Ganzi: I believe it has. Every infrastructure GP now claims to have an allocation and strategy for digital infrastructure.

Candès: Yes, in particular for fibre and towers. Data centres are playing catch-up.

Maher: Yes. Increased data and data processing requirements driven by widespread adoption of new technologies are driving the need for investment in digital infrastructure. This trend is going to continue.

Maddalena: Data volumes will certainly rise steadily over time, so digital infrastructure is indispensable for progress in core areas of digital transformation, such as the Internet of Everything, industry 4.0, networked mobility or cloud services.

Güney: Yes and no. Digital – ergo putting online services today residing on paper, analogue or other formats – is going mainstream and being adopted at incredible growth rates. Yet unless one is within a highly dense city centre that is fully fibred or within a condensed cellular coverage, such services cannot be deployed or utilised.

**What are the most promising regions and strategies?**

TM: We see Europe and the US as two of the most promising markets. The average broadband speed in Europe is significantly slower than in other OECD regions – the EU has an average speed of 13Mbps, well below Japan with 18Mbps. The most promising strategies include smart cities and fibre.

IG: Opportunities abound across multiple regions in Europe and there is no ‘promised land’ per se. The winning strategy is anchored on the paradigm shift that telco’s infrastructure in an open-access manner is the way of the future.

MG: The best regions are the countries and communities that are underserved: Africa, Asia and South America. The strategies that provide promise are the ones that connect these communities. This really starts with fibre-to-the-premises and mobile connections, which implies towers.

CM: While the US digital ecosystems are leaders in many digital markets, Europe is clearly lagging behind its US competitors in this race. The most promising infrastructure investment strategies include fibre, smart cities and TowerCos.

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**OUR PANEL**

Bruno Candès, partner, InfraVia Capital Partners

Marc Ganzi, CEO, Digital Bridge

Izzet Güney, managing director, Cube IM

Carlo Maddalena, senior portfolio manager, APG Asset Management

Tom Maher, head of business development, Whitehelm Capital
**BC:** The main challenge for towers and fibre is building inflation-linked revenues. Ramp-up speed is also a challenge for fibre. For data centres, the challenge is technology.

**TM:** The heterogeneous nature of the market is a key challenge. This drives opportunity, but it also means there are a lot of opportunities that do not meet our definition of true infrastructure.

**IG:** The incumbents are mostly still wedded to their legacy copper networks and refuse to walk away. Some regulators send mixed signals when they allow operators to use the word ‘fibre’ in their ads when deployments are still using XDSL technology.

**CM:** One of the many challenges in unlocking the development of digital infrastructure in Europe is compounded by the fact that such investment has multiple constraints. These include the ability of telecoms operators to monetise mobile data use and generate sufficient returns.

**MG:** I am not sure we can change the current market, but there is an extreme disconnect between private market multiples and public trading comp levels that have reached historic highs. This perhaps suggests there is too much capital chasing too few ideas in digital infrastructure.

**TM:** The market will continue to evolve as it matures and investor understanding and appetite continue to grow.

**BC:** My one change would be putting inflation back in European towers.

**IG:** Institute full copper switch-off at a predetermined date.

**CM:** Cutting red tape to accelerate the broadband deployment.

**MG:** Digital infrastructure has a much higher degree of operational complexity than traditional core assets. As such, it requires a unique set of engineering and operational skills that are new to this base of GPs. They need to ensure they can operate the assets and deliver the operational excellence and performance that global carriers demand.

**CM:** It is key for GPs to avoid strategy drift, and only invest in proven technologies that meet the risk-return profile that their LPs have signed up to. As such, the structuring of these new investment cases requires an extensive study.

**IG:** GPs currently in the infrastructure space tend to be mostly in the brownfield end of the spectrum. This means towers or currently cashflow-generating assets, hence mature fibre networks.

**CM:** One of the many challenges in unlocking the development of digital infrastructure in Europe is compounded by the fact that such investment has multiple constraints. These include the ability of telecoms operators to monetise mobile data use and generate sufficient returns.
**Bridging the digital divide**

Henri Piganeau and Izzet Güney, of Cube Infrastructure Managers’ Connecting Europe Broadband Fund, highlight the opportunity presented by fibre-optic rollout in European rural areas.

**Q** What are the origins of the Connecting Europe Broadband Fund?

**IG:** The genesis of the Connecting Europe Broadband Fund (CEBF) was the European Commission’s vision of eradicating the digital divide that affects rural and semi-densely populated areas throughout the European Union. This is not the first time that the Commission, along with some of the other public institutions that are part of our investor base, has attempted to tackle this problem. But, this time, it has taken a different approach. The governance of CEBF is akin to any private equity vehicle and we are bringing private investors on board as LPs.

**HP:** CEBF has been created to foster the emergence of alternative open-access networks sponsored by local entrepreneurs. Traditional telcos have their role to play in deploying fibre networks, but they are usually reluctant to open their networks to competitors.

As a consequence, we usually see overbuild in dense areas and no network in rural areas. A shared network is the answer. Such an initiative can become an attractive platform for investors to finance the deployment of new fibre networks to provide third-party access services to all interested telcos.

**Q** What makes fibre rollout such an exciting investment proposition for these private investors?

**HP:** We are trying to promote the concept of an independent open-access network. That means the operators, our portfolio companies, will own the network, but their subscribers won’t be the end users. Those will be the telecoms operators such as Deutsche Telekom, Vodafone and Orange. These telcos will buy access from our network and then sell it to their retail customers.

**IG:** That is exciting because this is very much an untapped market. In many European countries, there is still a huge amount of progress required in fibre rollout, in general. On top of that, we are not looking at downtown Paris, for example; we are looking at rural and semi-dense areas. The first players who come to market with a fibre network in these regions will be creating a virtual monopoly. No-one is going to waste money building a redundant second network.

The financial model is very simple: telcos that want access can either lease our space or build their own network. Leasing is always going to be cheaper. This is why European fibre rollout is an exciting proposition for investors.

**Q** Are other infrastructure funds or independent network operators looking to access this opportunity as well?

**IG:** Rolling out broadband networks in rural areas requires a detailed understanding of technological advancement and is not cheap. The J-curve can be very steep. No traditional infrastructure fund is going to be interested in getting involved right at the start as early-stage permitting requires the support of local public authorities.

Usually, a traditional infra fund cannot wait that long for a network to start throwing off cash. Independent network operators such as Gigaclear or Deutsche Glasfaser are going to concentrate on the more densely populated areas, where it is less expensive to deploy a network.

With so much still to do, particularly in a country like Germany, for them that is always going to make sense.

**Q** How does CEBF fit with the existing Cube strategy, which also encompasses telecoms?

**HP:** Cube Infrastructure Fund II, our brownfield infrastructure fund, invests in
brownfield transport, energy and telecoms, while CEBF is investing in early-stage greenfield broadband projects.

CEBF gets involved at the beginning and aims to bring a project to the point where a brownfield fund can come in to grow it to the next stage. CEBF’s investments are managed by an investment team led by Izzet which is 100 percent dedicated to CEBF. As a result, CEBF and Cube II are able to address all parts of the European telecom fibre market.

Q: What are the biggest challenges you face in this market?
HP: The biggest challenge is identifying teams which have the necessary experience. We are really looking for teams that have already managed to raise early-stage capital in order to create a proof of concept.

We frequently get requests from what I euphemistically call “two persons and a book”.

The concept might look great but if no technology has been put in the ground, it becomes almost a pre-seed venture capital play. That is far too risky and not what we are looking for.

If you look at our recent investment in Croatia, the team already had a proof of concept. They had done it before. While it is an early-stage investment, that made us a lot more comfortable.

Q: You have had private investors come on board alongside your public cornerstones. How would you describe LP appetite for this sector?
IG: The level of appetite has pleasantly surprised us, given that this is all so new. For most investors in infrastructure, telecoms is all about one thing – towers. Over the past 10 or 15 years, the incumbents that owned those towers have realised that it is more cost-effective for someone else to take ownership and lease that space.

What we do is explain to investors that that same paradigm shift is now taking place with the open-access fibre networks we are putting together.

We can point to the success stories of Gigaclear and CityFibre, for example, which are not only accessing private equity, but also the debt markets, as banks get increasingly familiar.

This sector is still in its infancy but by making that comparison with towers, more and more investors are able to get comfortable with the concept.

Q: What does the future hold for this part of the digital infrastructure landscape?
IG: When it comes to telecoms, I always believe you need to look to Asia-Pacific for what comes next. Take 5G in Europe. Operators still need to spend millions – or billions – to build networks. And then they need to provision the networks, so people sign up.

We are many years away from having a fully fledged 5G industry. Go to Asia-Pacific and it’s already up and running. A country like Singapore provides us with a model of how open-access networks can work. We believe those networks are the future and that is why, with CEBF, we are trying to get there – as soon as possible.
**Year in review**

A look back at some notable quotes on the ups and downs of digital infrastructure from the past 12 months

“In fixed-line infrastructure, there are very limited opportunities to buy larger portfolios of ‘passive infrastructure assets’; the only way to build up a portfolio is a buy-and-build strategy, with individual projects working together with different partners”

Bas van Dongen, partner at Primevest

“Over the past 15 years we’ve been investing, there’s been a significant upgrade in telecoms infrastructure. We’ve gone from relatively basic low-bandwidth fixed networks and much more sparsely populated 2G mobile networks to ever more densified fixed and mobile networks that are a lot more reliable, and consistently deliver improved performance”

Christopher Ehrke, partner at Arcus Infrastructure Partners

“[Europe is] many years away from having a fully-fledged 5G industry. Go to Asia-Pacific and it’s already up and running. A country like Singapore provides us with a model of how open-access networks can work”

Izzet Gûney, managing director at Cube Infrastructure Managers

“Thanks to the development of the 5G and IoT technologies, we expect the demand for data centres to grow really quickly, especially in China’s top-tier cities. We are already seeing an important pipeline of deals”

Jiang Xuetao, director and managing partner at Xinjin Investment

“Data centres are a slightly hard asset class to get right. They’re quite specialised, surprisingly, when you think that they’re pretty much all big boxes with lots of racks of equipment, generators, cooling equipment and so forth. But as investments, some have gone very well and some very badly, very often driven by being subtly wrong technically, or not well located in ways that may have not been immediately obvious when someone pushed the ‘go button’ on the investment”

Jack Colbourne, partner at Arcus Infrastructure Partners

“France, once lagging in respect of fibre penetration, will be one of the leading fibre countries in the world in five years. Regulatory intervention, particularly in rural areas, is critical and France has set up a very healthy model”

Willem Jansonius, partner at DIF

“You are seeing some of those big generalist funds do data and IT infrastructure, but we think it’s an area that’s ripe for more specialised managers. A lot of investors are seeing this is a big part of our economy and they don’t have exposure to it”

Jeff Eaton, Eaton Partners

“Companies like Netflix are getting really smart about the demand for data and when they roll out a popular new show they know that on a Friday night people in Asia are going to start downloading first and then demand for the show will literally roll west across the globe. They forecast demand and use data centres in the appropriate locations”

Will Marder, head of project finance at Wilmington Trust
THE OPERATING PARTNER IN PRIVATE EQUITY
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CONTENT HIGHLIGHTS:

• Dan Colbert discusses how The Riverside Company built and refined its operating approach with key lessons for achieving success.

• Scott Glickman, Dan Soroka and Sara Boyd of Graham Partners outline a programme for proactively identifying and reducing business model risks.

• Mark Gillett of Silver Lake Partners and David Moss, an independent adviser, provide a framework for assessing and implementing transformational versus incremental change.

• Sandy Ogg of The Blackstone Group, proposes three action points for ensuring the portfolio company CEO search and selection process is successful.

• Matt Sondag of West Monroe Partners provides useful tips for how to select and optimise the emerging role of the IT operating partner…plus much more

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