July 2018

globalfundmedia special report

www.globalfundmedia.com

European infrastructure investing 2018



The infrastructure trends shaping tomorrow's world

Shift towards distributed and scalable models

Greenfield and brownfield investment benefits



In this issue...

03 Infrastructure trends shaping tomorrow's world
By James Williams

06 The ongoing industrial transformation
Interview with Frederic Palanque & Philippe Taillardat, Conquest Asset Management

11 Greenfield and brownfield investing
Interview with Martin Lennon, Infracapital





globalfundmedia

Publisher

Managing Editor: James Williams, james.williams@globalfundmedia.com
Managing Editor (Wealth Adviser, etfexpress & AlphaQ): Beverly Chandler, beverly.chandler@globalfundmedia.com; **Online News Editor:** Mark Kitchen, mark.kitchen@globalfundmedia.com
Deputy Online News Editor: Mary Gopalan, mary.gopalan@globalfundmedia.com
Graphic Design: Siobhan Brownlow, siobhan.brownlow@globalfundmedia.com
Sales Managers: Simon Broch, simon.broch@globalfundmedia.com; Malcolm Dunn, malcolm.dunn@globalfundmedia.com;
Sales Manager, Property Funds World: Matthew White, matthew.white@globalfundmedia.com
Marketing Administrator: Marion Fullerton, marion.fullerton@globalfundmedia.com
Head of Events: Katie Gopal, katie.gopal@globalfundmedia.com
Chief Operating Officer: Oliver Bradley, oliver.bradley@globalfundmedia.com
Chairman & Publisher: Sunil Gopalan, sunil.gopalan@globalfundmedia.com
Photographs: Shutterstock
Published by: GFM Ltd, Floor One, Liberation Station, St Helier, Jersey JE2 3AS, Channel Islands
Tel: +44 (0)1534 719780 **Website:** www.globalfundmedia.com

©Copyright 2018 GFM Ltd. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher.

Investment Warning: The information provided in this publication should not form the sole basis of any investment decision. No investment decision should be made in relation to any of the information provided other than on the advice of a professional financial advisor. Past performance is no guarantee of future results. The value and income derived from investments can go down as well as up.



Infrastructure trends shaping tomorrow's world

By James Williams

European infrastructure is an exciting space today for investors. Mega trends, such as digitalisation, decarbonisation, and changing city demographics (in terms of transportation and mobility) are pushing countries to re-think their infrastructure systems and re-engineer them to cope with 21st century living.

Within the energy space alone, this means reducing reliance on coal fired power stations, decommissioning nuclear power stations, and a continued commitment to investing in renewable energy sources. According to the International Energy Agency's *World Energy Outlook 2017*, the proportion of total global electricity generated by renewables will increase from 24 per cent in 2016 to 40 per cent by 2040.

This will be vital if the developed world is able to support the expected rise in adoption of electric vehicles – those used by households as well as corporates as they overhaul their transport fleets – which will place significant demands on energy grids and require substantial increases in electricity production.

Renewable energy investing

As BlackRock highlights in its latest report, *The global energy and power transition: implications for infrastructure investors**, energy and power (including renewable power) accounted for 62 per cent of global infrastructure investment activity in 2017, equivalent to USD177 billion. Total energy investment worldwide in 2016 was more than USD1.7 trillion, or 2.2 per cent of global GDP, according to the IEA, with energy infrastructure accounting for a significant percentage.

"If you are an infrastructure investor and looking to deploy capital, then fish where the fish are," says Alan Synnott, Global Head of Research & Product Strategy for BlackRock Real Assets. "That is why you are seeing increased investor interest in global power and energy. At the same time, the sector itself is going through significant fundamental change. There is massive technological innovation taking place, which has completely changed the cost picture for renewables and for the production and distribution of natural gas.

"That is replacing incumbent energy infrastructure, which in Europe is nuclear and coal."

Over the last decade, infrastructure has emerged as one of the fastest growing allocations for institutional investors.

At the beginning of each year, BlackRock produces the BlackRock Rebalancing survey where it surveys 200 or so of its top global relationships representing over USD7 trillion in investable assets and asks what they intend to weight up and weight down across alternatives for the forthcoming 12 months. This year, 58 per cent said they planned on increasing their allocations to real assets, which includes infrastructure; a figure that was some way ahead of Private Equity (33 per cent) and Real Estate (32 per cent).

"Within the infrastructure space there are lots of positives; it is a transparent asset class, it has lower correlation to traditional markets (equities and fixed income). The negatives, however, are access to deal flow and compressed returns. Against that backdrop we explain to investors about what is happening in four key sectors of infrastructure – power, energy, transport and social," explains Synnott, one of the co-authors of the global energy and power transition report, along with Jim Barry, Global Head of BlackRock Real Assets and Mark Florian, Global Head of BlackRock's Energy & Power Infrastructure team.

In the European market, he says there has been a growth of buy and hold strategies for operating renewable power projects, while some investors preferring a higher return for more risk are looking at greenfield opportunities, such as offshore projects (i.e. wind farms).

"The investment structures used in Europe



"If you are an infrastructure investor and looking to deploy capital, then fish where the fish are."

Alan Synnott, BlackRock Real Assets

are changing and many European investors are looking not just at European investments, but global investments. The scale of projects in Europe can be smaller than they are globally, which is why using capital on an unlevered basis can be more efficient for institutional investors; it means they can deploy more capital in a single diligence exercise, to a single investment vehicle.

"As a result, we have innovated and introduced 20-year funds that use unlevered equity. These funds do not rely on any project finance. We invest on an all-cash basis in European renewable power projects. The investment goal for investors in these funds is to accept a more moderate return but to buy and hold assets on a long-term basis for income generation," explains Synnott, confirming that BlackRock currently manages approximately USD5 billion in equity assets within renewable energy.

Martin Lennon is co-founder of Infracapital, one of the UK's leading infrastructure investment managers. He says the IEA's 2040 forecast figure for renewable energy growth is well understood in the marketplace. But he notes that the increase of intermittent power generation capacity has consequences on the broader market as we shift more towards renewables.

"What is the back-up solution when the wind isn't blowing or the sun isn't shining?" asks Lennon. "We are still just at the early stages of energy storage using batteries. It's an industry we think will go from strength to strength although we've not invested in the storage space yet as we've yet to see a business model that works for us; but that will no doubt change as it is an important aspect of the shift towards renewable energy.

"One also needs to think about the wider implications of what renewable energy is replacing. In certain parts of the European landscape there is still a very

▸ 8

CONQUEST

Trusted Investor in Infrastructure

ASTUTE | DISCIPLINED | ADDING-VALUE

- **Sustainable Energy and Utilities**
- **Transportation and Mobility**
- **Digital Infrastructure**



CONQUEST is an alternative asset manager, focused on investing in long-term, high-quality real assets across the Infrastructure & Industrial market spectrum. Boasting significant operational expertise held within the global team, CONQUEST strives to deliver superior returns while preserving capital and emphasizing downside protection.

conquest.group

The ongoing industrial transformation

Interview with Frederic Palanque & Philippe Taillardat

Traditional European infrastructure is going through a period of transition. Digital communication technology and a push towards sustainable energy production is leading to a move away from a centralised, regulated and vertical model to more of a distributed, connected model that scales laterally.

This is giving rise to a slew of new investment opportunities in key areas such as transport and e-mobility, sustainable energy and digital communication as EU countries seek out ways to upgrade ageing infrastructure to respond to 21st century living.

One of the key components to making this happen is having the right investment partners to bridge the gap between corporates requiring fresh injections of private capital and institutional investors, keen to invest in long-term, yielding real assets.

Conquest Asset Management is one such partner. It was established in 2010 to offer strategic and financial advisory services to corporates. Then, in 2016 it added an asset management arm, independent from the advisory business line, to benefit from the on-going industrial transformation driven by corporates by establishing a dedicated investment fund vehicle; in so doing, introducing investors to some of the most innovative investment opportunities currently emerging.

Today Conquest is pursuing a strategy which echoes some of today's economic mega trends to create a more sustainable infrastructure market. Key sectors targeted by Conquest include Energy & Utilities, Renewables, Transport & Mobility and Digital Infrastructure and Data Management.

"We are the new smart kid on the block as asset managers but not in terms of the team's experience, which cumulates decades of members having worked together and even more regarding the team's global infrastructure exposure," explains Frederic Palanque, Director at Conquest.



Frederic Palanque, Director at Conquest



Philippe Taillardat, Director at Conquest

"We bring a strong, in-depth industrial view to an infrastructure sector that is going through transformation. Our team started in 2010 working as financial advisors to the infrastructure sector. Some of our clients are tier one institutional investors including pension funds who started asking us not only to advise but to manage on their behalf, investments in sustainable real assets.

"This crystallised in 2016 with the formation of Conquest Asset Management."

Philippe Taillardat is Director at Conquest and brings 25 years' experience to the table, his most recent position being Co-Head of Infrastructure Investments Europe at First State Investments. He explains that with its close links to the industrial sector, Conquest is uniquely positioned to advise institutional investors on new investment opportunities.

"We harvest the unique relationship we have with industrial players to source proprietary deals. Instead of looking at just plain vanilla infrastructure e.g. roads, ports, highways, we go deeper into sub-sectors. This is because our team is able to sit with corporates to help them restructure their balance sheet and they trust us because we've done this with them for years.

"We ring fence the right investment opportunity, which mirrors our investment strategy and bring it to our institutional clients," explains Taillardat.

Conquest's experience allows it to develop insights and views on next generation developments within different sub-sectors which could become interesting investment sectors. Palanque was formerly the group head of M&A at Schneider Electric, managing all its investments in sustainable energy and overseeing the

transformation of the medium voltage grid across the globe.

"On a day-to-day basis we speak with global CEOs of infrastructure groups to see how we can help to finance and support the transition of the infrastructure sector. We see a significant shift towards more digital, more connected infrastructure; in the energy space, in transportation (electric cars and smart mobility), and certainly within digital infrastructure. In one of my earlier roles at Areva T&D, we invested in energy transition from the formal energy grid to the digital grid we are witnessing today," says Palanque.

Conquest views the political decision by Europe to change its power generation mix by increasing the proportion of renewables as one of the triggers for the digital transformation. However, it is incumbent upon the corporates to play their role. Naturally, local regulators and governments need to be on board but as Taillardat stresses, "the corporates are key to making this transformation happen". "Initially it was a political decision and what people didn't anticipate was the consequences this would have on Europe's electricity markets and the need to change a vertically organised network into a more lateral distributed network," says Taillardat.

Take electric cars as an example. This requires charging points in the cities. The issue today, however, is countries lack the right distribution electrical network to support these charging points.

"It's a good decision to move to renewables and electric cars but to get there you need to make a lot of changes to the existing medium voltage networks, which requires a lot of capital," says Palanque.

"The starting point was changing the generation mix. Before you used to have a limited and centralised generation plants to produce electricity. Now you've got disperse and multiple small generation plants, in particular for renewables. But there are reliability issues – when there's no sun or wind you've got no electricity and you find yourself missing X per cent capacity. This intermittency issue requires new solutions, such as battery storage, and increased load management."

How to use digital to make energy markets more efficient is also becoming an



important trend that Conquest are playing close attention to.

Palanque explains that in addition to the digital transformation, the underlying enabling infrastructure needs to be upgraded as well. It needs, he says, to be "upscaled and upgraded" to cope with the digital revolution unfolding.

"It will require a number of solutions, which, when combined will provide the necessary agility.

"First you have the electrical network. To make it cleaner, people have heavily invested in renewables. But the more you invest into it, the more you disrupt the network. In addition to this investment, you need to start working with the networks to invest elsewhere to maintain stability. This includes areas such as storage but it could also include upscaling grid substations.

"In parallel, electrical cars are going to become more broadly used, which will require a more decentralised energy network and this again, will require additional investment. Powering electric cars was not a consideration in medium voltage networks in cities. They were built to allow you to put the lights on at home and switch on your TV.

"Charging electric cars will require using a primary network, which is more of an industrial scale network. This intermediary network will need to be the one available in the cities and suburbs to enable people to charge and operate their electric cars," outlines Palanque.

Palanque's argument is that on the one hand, switching to cleaner energy supplies will admittedly lead to increased investment in renewables but that's only half the story. On the other hand, if European governments want cleaner cities and transport, it will have a huge impact on the existing electrical network; one that will require huge investment that the state alone cannot cope with. It will need private capital working with industrial capital.

"This is the proposition we bring to investors: spotting investment opportunities for our standalone vehicle and co-investment vehicle, depending on the project and the country, ahead of other asset managers. We want to make sure the projects we select are in the best interests of our investors," concludes Taillardat. ■

high dependency on hydrocarbon fuel sources. There will be some real challenges in terms of shifting from those to more environmentally friendly fuel sources but I do think it represents a large, long-term macro trend for European energy infrastructure."

Governments, regulators, corporate stakeholders are all driving the trend towards cleaner, sustainable energy. Infracapital is well aware of this trend. One of its investments, for example, is Eteck, which uses deep wells and various carbon friendly solutions to provide sustainable central heating and cooling systems to residential and commercial customers.

"Not only is Eteck responding to government incentives, it is also creating a valuable long term investment which has the potential to significantly reduce the carbon footprint of the Netherlands. It is a good example of a whole new industry that has come about as a result of the significant trend towards increased reliance on renewable energy," says Lennon.

LNG import facilities

One important infrastructure opportunity that will likely emerge in Europe over the coming years, in response to a burgeoning natural gas market in the United States – thanks to the fracking of US shale reserves – is the development of liquefied natural gas import facilities.

BlackRock's report shows that world liquefied natural gas (LNG) imports are projected by IHS Markit to more than double by 2040, with Asia showing the biggest growth. Some USD80 billion of investment in East Asia will be needed by 2030 to keep pace with the expected level of demand for LNG imports.

There is only one LNG export facility in the US, currently, although five more are being built and are expected to become operational by 2019.

Within a European context, like Asia, as it transitions away from coal and nuclear towards natural gas, it will need to build import infrastructure just as the US is now starting to build its export infrastructure.

"We just financed a power generation facility called the Lackawanna Energy Centre in Pennsylvania, which sits on some of the cheapest natural gas in the US," says Synnott. "We are also seeing an evolution in natural gas pipelines across the US – where once they took gas and imported into the country and distributed it, you now have pipelines being built in the opposite direction from the shale reserves to the export facilities.



"I often hear about solar projects being constructed on a zero subsidy basis because the cost of solar panel production has gone through the floor as technology has improved."

Matt Evans, AMP Capital

"There is a new technology called 'liquefaction' which allows you to super cool the gas and transport it by ship, which is also an investment opportunity (as each liquefaction facility costs up to USD2 billion). From a European perspective, the import facility, the re-gassification facility, the pipelines and the distribution systems are all future energy infrastructure investment opportunities."

In natural gas and renewables, therefore, one can point to technology-driven positive fundamentals, a supportive policy environment and a significant pipeline of investable opportunities in midstream and downstream markets. With asset owners increasingly looking for capital partners and some looking to recycle assets, it is opening up the door for European infrastructure investors.

Not everyone, however, necessarily sees investment opportunities in all areas of renewable energy because they do not offer the right return profile.

"I often hear about solar projects being constructed on a zero subsidy basis because the cost of solar panel production has gone through the floor as technology has improved," comments Matt Evans, Partner, Global Origination (Infrastructure Equity) at AMP Capital. "You therefore have to be quite careful about how governments might evolve their views on technology over the next decade and what that could mean for future asset prices.

"More broadly, there has been an explosion in renewable energy in Europe in the last 15 years with numerous businesses supporting industrial infrastructure in terms of grid reliability. We have a business in Finland called Adven, for example, which provides off-grid industrial energy solutions to medium and large businesses. To overcome grid reliability issues, Adven might install a co-generation plant, for example, to provide energy, cooling and heating needs or large scale ground source heat pumps (geothermal pumps), which are a sustainable energy technology."

Infracapital has also invested in Adven and is a form of platform investment, where new acquisitions are bolted on the primary business to bolster the size of its operations. "Platform investments for us means growing the asset organically, or inorganically, and creating greater efficiencies. It is a powerful source of investment opportunity," says Lennon.

He refers to another platform company, held in the Infracapital Greenfield Partners Fund, called Bioenergy Infrastructure Group ('BIG'), a UK biomass and Energy from Waste ('EfW') aggregation platform. "We are growing and diversifying the business by bolting on new business streams and projects to the holding company structure," adds Lennon.

Transportation & mobility

Tomorrow's world is going to look unrecognisable, with respect to the way our cities function and how we move. Smart cities, where every device and object will be connected to the Internet of Things, will see us living in buildings that are operated with the highest of green energy credentials, electric vehicles will run on electrified roads, and what we regard as commonplace features of today's cities, such as car parks, will likely not exist in a generation or two's time.

This is having real implications as to how infrastructure investors think about the future, and how they can ensure that the assets they invest in today will still be relevant in 20 or 30 years' time.

Transport and mobility, as a trend, offers up potentially huge opportunities as society re-imagines what it means to get from A to B, without polluting the air we breath.



"Corporates understand the need to reduce their carbon footprint and to change the way they've been operating for the last 20 or 30 years," comments Philippe Taillardat, Director at Conquest, a European infrastructure asset management business. "If corporates switch to thinking about how to deliver the same services, but in a way that reduces their carbon footprint, then managers who invest with these companies are going to appeal to end investors.

"One good example is the Allianz Group, which announced recently that it had stopped doing business altogether with any companies involved with coal-based energy production. No insurance services offered to these companies, no nothing. That's a major statement. It underscores the growing level of global awareness for sustainable investing."

As part of its global investment strategy, AMP Capital looks at how globalisation and urbanisation are impacting areas of infrastructure such as transport assets. Airports are one piece of infrastructure where AMP Capital has made a number of investments, in part to respond to changes in mobility and improved living standards.

"That applies to our UK airport investments. Inevitably, over time we believe you will see increased demand from the Indian traveller, the Chinese traveller, coming to visit the UK and that will give an opportunity for regional airports. We've looked in a number of European markets, and today we've made three investments

▸ 13

Infracapital

Award Winning European Infrastructure Investor

Infracapital invests in, builds and manages a diverse range of essential infrastructure to meet the changing needs of society and support long-term economic growth

For more information visit

infracapital.co.uk



Infracapital is a business name of the European infrastructure division of M&G Investment Management Limited and M&G Alternatives Investments Management Limited. M&G Investment Management Limited and M&G Alternatives Investments Management Limited are registered in England and Wales under number 936683 and 2059989. The registered office is at Laurence Pountney Hill, London, EC4R 0HH, and both firms are regulated by the Financial Conduct Authority in the UK. JUN 2018 / IM1927

Greenfield and brownfield investing

Interview with Martin Lennon

These are propitious times for European infrastructure managers. The European Commission has estimated that around EUR200 billion is needed to upgrade Europe's infrastructure during the current decade for transmission grids and gas pipelines.

"Clearly the opportunity set in infrastructure is vast and continuing," comments Martin Lennon, Co Founder and Head of Infracapital, one of Europe's leading infrastructure investors. Part of M&G Prudential, Lennon co-founded Infracapital with Ed Clarke in 2001, since when it has subsequently raised and managed more than GBP5 billion across five funds.

"Existing infrastructure in Europe needs to be kept relevant in today's world. There are some significant trends such as increased urbanisation, climate change and the shift to green energy and electric transportation, etc, which are putting stresses on existing infrastructure. But it is also creating significant opportunities for new infrastructure projects. We think the private sector has an important role to play."

Infracapital is one of few infrastructure managers who has dedicated funds providing solutions for greenfield investment needs, alongside its established brownfield / operating infrastructure investment strategy.

Infracapital Greenfield Partners I LP was established in 2017 with GBP1.25 billion to invest in the later stage development, construction and expansion of projects and companies across a variety of sectors in Europe. Although greenfield projects involve investing earlier in the lifecycle of an asset, Infracapital does not set out to be an early stage developer. Rather, it partners with developers to help them take greenfield projects through construction.

"In the brownfield space, we like it when we see existing operational infrastructure assets that we can deploy further capital to and help grow. The sector knowledge that we have, both in executing transactions and managing assets, is important, in both sourcing such opportunities and supporting their growth. Greenfield projects are pre-operational but the construction phase represents a relatively short period in the overall life of a greenfield fund. Nevertheless, it requires a specialist set of skills to manage greenfield projects through to operation, at which point we run the businesses like our other brownfield assets.



Martin Lennon, Co Founder and Head of Infracapital

"From a network relationship point of view, there is a complementary element to greenfield and brownfield investing and enhances what we do. We have broad relationships across financiers, asset owners, entrepreneurs; partners of all types," explains Lennon.

As for brownfield investing, Infracapital's latest investment vehicle, Infracapital Partners III, recently closed with GBP1.85 billion, exceeding its target of GBP1.5 billion. The Fund will invest in and actively manage assets across Europe, predominantly in the transport, utilities, renewable energy and communications sectors.

"There are important differences in the investment policies between the two and while we do have a material overlap of investors who are interested in both strategies, we also have an important group of investors who prefer one to the other," says Lennon.

"One of the characteristics of a greenfield fund compared to a brownfield fund is we would be looking for the latter to deliver real yield almost immediately, from the point of ownership of a new asset. In a greenfield fund, there is likely to be a slower commencement of yield throughout the fund lifecycle. Some investors prefer this as once a greenfield portfolio becomes operational it should produce a higher yield than a brownfield fund. This is because

you're coming in at cost as opposed to a secondary market price."

With more direct investor capital coming in to the 'real assets' space, competition is heating up, with more money chasing fewer deals and pushing prices up as a result.

Lennon points out that Infracapital avoids being in auction processes "where you run the risk that your principal tool for success is paying the highest price".

"That's not always the best way to generate value for clients. The mid-market is interesting for us, across both strategies, because it offers the opportunity to actually source and originate investments that are, perhaps, more limited in terms of competition; and which sometimes have no competition at all. We therefore focus on finding genuine, off-market bilateral conversations and converting them into deals. It is a fundamental part of how we create value," explains Lennon.

Originating and developing a pipeline of deals is fundamental to any infrastructure investor, even more so when seeking out greenfield projects; Infracapital's team has transacted on seven greenfield deals, to date.

One such example is a joint venture with Amerenco Solar, creating a platform (Infram Energy), to invest in greenfield renewable energy assets across France, Ireland and other European markets.

The solar projects, some of which already fully operational, are backed by a 20-year Feed In Tariff. The company has continued developing and acquiring greenfield projects in France and has a strong pipeline for renewable energy projects across Europe. It expects to invest in approximately 100MW of projects per annum over the coming years.

As for brownfield assets, Infracapital has just acquired a majority stake in CCNST, a leading provider of broadband services in Germany, becoming the first portfolio company of Infracapital Partners III.

"We are still finding an array of investment opportunities across key sectors," says Lennon. "One space which we are pretty active in is fibre optics. The old copper wires that were the mainstay of telecommunications and broadband networks are no longer fit for purpose in light of increasing demand that businesses and consumers want today. Fibre optic



solutions are emerging and delivering faster, more predictable connectivity. This is fast becoming the new essential communication utility now and for the next generation."

While there are opportunities to be a first mover investor in European greenfield projects, equally there are a good number of attractive, established businesses (like CCNST) that need injections of private capital to fully maximise their potential.

"From a brownfield viewpoint, we see opportunities to support established businesses which have significant future potential to achieve their aims; these are investments that benefit society as a whole, not just our investors.

"In respect to renewables, we've been very successful in district heating but while we continue to see opportunities, the value does vary considerably from country to country. It's important to choose one's markets carefully. We see a lot more energy-related opportunities either coming from corporate separations or sales, or resulting from the new and changing demands of an increasingly decentralised market with a focus on smaller scale renewable energy generation" says Lennon.

An example is the Dutch utility company Eteck Energie Bedrijven BV ("Eteck"), for which Infracapital acquired a 60 per cent equity stake last July. Eteck is the country's market leader in sustainable collective heating systems, which provide smaller scale heating co-located with the buildings it services.

Lennon explains that within the renewables space, it is becoming relatively harder to make the numbers work for operational solar and wind assets in most of the mainstream jurisdictions (e.g. UK): "However, we do see the opportunity to make attractive returns on the greenfield side of that equation; building new solar and wind farms is a more attractive proposition in many established European markets than brownfield assets. The Amarenco joint venture is a good example of this.

"As the industry evolves, we hope to be able to make a positive impact and deliver significant investment to help build for the future, providing first class infrastructure that meets the changing needs of society and supports long-term economic growth across Europe." ■

in UK airports – Newcastle, Leeds Bradford and Luton. We've spent a lot of time looking at other European opportunities in particular, and we continue to look at airport opportunities globally," explains Evans.

He also refers to centralisation of working patterns and the way people commute as another trend.

"The ongoing demand for more trains was a big part of the investment decision in increasing the stake we manage in Angel Trains from 25 per cent to 65 per cent," adds Evans.

Ian Harding is a Co-Managing Partner at London-based Arcus Infrastructure Partners, which focuses on energy, transport and telecoms in the European mid-market. "The three things we see impacting European infrastructure are what we call the 'Three Ds': decarbonisation, demographic change and data explosion," says Harding. As infrastructure changes and moves towards a decentralised model, it naturally means there is a greater requirement for localised infrastructure.

With decarbonisation, this is being achieved by moving towards renewable energy. However, there is a lot more intermittency created on the grid and that requires localised solutions; this could be battery storage or demand management systems to ensure the grid is properly balanced during periods of no wind or no sun.

Electric trains – a live wire investment

"In transport, there is a huge desire to take carbon-emitting vehicles off the road. This will lead to more rail or intermodal transport systems and will require fresh investment.

"With respect to data explosion, people are demanding faster Internet connections to stream live TV on their mobile devices. Investment will be needed in wifi communication towers, telecoms infrastructure, data centres, fibre-to-the-home and so on.

"These general trends are like a wave impacting the infrastructure market and from our perspective we want to ride that wave, rather than swim against it," says Harding.

Like AMP Capital, Arcus invested in Angel Trains, one of the UK's largest rolling stock leasing companies. Arcus realised



"The three things we see impacting European infrastructure are what we call the 'Three Ds': decarbonisation, demographic change and data explosion."

Ian Harding, Arcus Infrastructure Partners

this investment in 2015, having held it since 2008. During its period of ownership, Arcus helped Angel Trains achieve 12 per cent EBITDA growth.

"That was a stunning exit for us," comments Harding. "We exited the UK Rosco space at the right moment as since then there has been an increased level of competition. People like Rock Rail have come in and bid down the returns you can achieve from new build passenger fleets.

"We have a current investment in Alpha Trains. The fourth railway package in Europe is creating an increased amount of liberalisation, so incumbents like the SNCF in France will face increased competition from the private sector. Alpha Trains is an independent private sector owner of rolling stock and gaining market share. This is allowing us to grow in continental European markets, which we feel provide better opportunities than the UK."

Investing in electric trains such as Alpha Trains, fits well with the long-term sustainability trend that European governments are promoting. Since Arcus invested, Alpha Trains has more than tripled the size of its fleet and EBITDA, helping take passengers off the roads and reduce city congestion.

"The quality of transport infrastructure is improving and this is encouraging people to use the rail network rather than the road network. Alpha Trains has won a number of awards for its sustainability initiatives. With more people moving into urban areas there is a need for better passenger services. The provision of high quality rolling stock is helping with the urban needs faced by our cities as the demographics change," opines Harding.

Electric cars still in first gear

As we become increasingly reliant on renewable energy, local grids will steadily modernise into smart grids, or microgrids, using data analytics to accurately gauge consumer demand and provide the necessary energy. In some respects, technology will play a vital role in linking transport and energy infrastructure; e.g. meeting energy demand at electric car charging points across the city.

This sounds obvious enough. But our cities and grids were not designed to accommodate electric vehicles. As such, it will require new infrastructure. Charging points is a demand story but there is also a supply story that could emerge, whereby the roads themselves become electrified. Cars will simply self-charge, and potentially provide excess battery storage to the local grid during periods of peak demand; think of Scalextric that proved popular with kids in the 1980s. If that were to happen, electric vehicles could eventually be used for grid balancing.

"Electric highways could be part of the infrastructure transformation story," states Frederic Palanque, Director at Conquest. "A number of players who are looking at this are those in the train industry because the concept will be similar to train lines, where the roads have electrified strips. We are working with, and advising corporates to identify opportunities and to try to see if this could become a live solution; if it does, we will be positioned to provide private capital.

"Within the cities and the suburbs, however, it will require a lot more charging points. The current electrical network cannot sustain multiple charging vehicles, which means that the existing electrical network will require significant investment to upgrade medium voltage substations."

The electric vehicle revolution is years, if not decades ahead, so there is plenty of time to get the infrastructure in place. There are 31 million cars in the UK out of 38 million registered vehicles. The number of cars sold per annum is currently c.2.5 million "so you're looking at an overall fleet replacement timeline, on average, of 12 years or more and that assumes that every car being sold is electric (versus around 5 per cent today). This is a trend that may still be 20 years away from being realised," says Evans.



European governments are committed to removing diesel cars from the roads and supportive of bringing on stream more electric vehicles.

Harding points out that Scandinavia now has some roads which have charging infrastructure built in.

"It is possible that certain stretches of roads in Europe will use this charging infrastructure. It comes down to cost benefit analysis and whether a particular country can incorporate it within the road infrastructure, but it may well happen in certain places," he says.

Digital infrastructure & data management opportunities

Digital infrastructure will be a vital cog in the European infrastructure wheel over the coming years as businesses and consumers alike step up their demands for ever-faster Internet connectivity.

Conquest's Palanque says that digital infrastructure has various meanings. Firstly, it relates to the additional flow of data that will be needed to manage and upgrade existing infrastructure.

"Instead of having a constant flow of energy down the grid, the only way to use distributed power generation is to know who wants what, and when, and what price they are willing to pay.

"Now that the data is here, we are finally in a position to provide local generation to match local demand. People call it 'smart grid' or 'microgrid'; regardless, it means having more regional power generation and regional consumption," says Palanque.

Italy is already doing net metering ('Scambio Sul Posto') where regional plant operators pay the energy supplier for the electricity consumed and receive compensation for any excess electricity they export to the grid from renewable sources as PV installations.

"This is going to happen across other parts of Europe, perhaps using a combination of wind and solar, where digitalisation of infrastructure will connect users and producers at the right time, at the right cost. Before you had one price, one cost, and nobody knew who was consuming what.

"This same digitisation trend applies to



transport. When using a charger for your electric car, you need to know whether the capacity of the charger is appropriate for your car, you need to be able to book it so you're not waiting. To do this, the energy network needs to be aware that someone is going to be using it – multiply that by hundreds, or thousands of people, all charging their cars in future years, and you see why digitisation of the power grid will be necessary," adds Palanque.

The second meaning of digital infrastructure applies to data; the infrastructure needed to handle the flow of data referred to above.

There is a huge need to deploy fibre optic cable in Europe and develop local networks that are linked to cities and regions.

"The need for corporates to be involved and lead this transformation will bring the industrial and technical expertise needed to make this happen," states Taillardat.

At AMP Capital, Evans remarks that Europe is still in the early stages of a 20- or 30-year cycle in respect to fibre being ubiquitous for our homes and businesses.

"There is no doubt you will need fibre-to-the-cabinet but whether fibre-to-the-home is achieved in most markets remains unclear," says Evans.

The cabinet is the local junction box at the end of a residential street. Fibre goes to the cabinet and then DSL, which is a copper wire technology, delivers, theoretically, up to 70MB connection to the Internet. DSL degrades over distance, however. Copper lines weren't laid with the expectations there would be high speed Internet.

"The question is, when does DSL get replaced and what does it get replaced with? Will it be a fibre-to-the-home product or will it be a fixed wireless product using 5G? The latter is a technology path that isn't fully explored yet and could compete with fibre-to-the-home, particularly in suburban and more rural environments," adds Evans.

Data and digital infrastructure also encompasses communication towers and data centres, which are needed to store and manage the vast volumes of data flowing across our cities.

"We currently have three fibre optic platform investments in Ireland, the US and Spain," confirms Evans. "With respect to data centres, we spend a lot of time looking at potential investments. We also look at ancillary wireless; all of the new parts of wireless networks emerging as a result of 5G – they won't replace towers but there will be much more complex wireless networks."

Firms like Infracapital have invested in fibre infrastructure businesses, the most recent example being a majority acquisition in CCNST, a leading provider of broadband

services in Germany. Germany is currently one of Europe's most underserved fibre markets, with Fibre to the Building penetration of just 7 per cent. Likewise, AMP Capital has invested in E-Fiber, a growing fibreoptic network platform providing 68,000 fibre-to-the-home across parts of the Netherlands.



Sourcing and executing deals

No matter what the investment opportunities might be that lie ahead, sourcing and originating the most compelling is a key skill of any infrastructure manager. At Infracapital, its transaction team go out into the field across Europe where they meet different asset owners, accountants, lawyers, advisers. This is to make sure Infracapital knows what's out there and "they know who we are, what we do, and what we can bring to the table", says Lennon.

"That's really the genesis of deals in both our brownfield and greenfield strategies and how we feed the pipeline. It takes a lot of time and effort. On top of that, you need to have significant credibility in certain situations because on occasion we are finding companies that have done well but are at a point where they have the opportunity to take the business to the next level. They want a trusted partner to come in and help make that happen."

Calvin Capital, a UK owner and supplier of gas and electricity meters to electricity utilities across England, is a good example of a successful investment where Infracapital helped it to achieve 17 per cent EBITDA growth over the period of ownership.

"We acquired 50 per cent of the Calvin Capital business alongside United Utilities and it had a small management team in place. We were then able a couple of years later to acquire the remaining 50 per cent from United Utilities, which enabled us to take full control of the business. We supplemented the management team with a new CEO, and strengthened the management team on top of an already experienced and respected workforce.

"What we find works well for us is that, at the point when we wish to sell any asset we want to have a really high quality management team that will speak well about the business and be able to easily transition with the new owners. That means whoever is buying it will have the confidence to let the management team continue to run the business. At the point of sale, we don't want any business to still be overly reliant on us as an owner.

"That's why having our own in-house asset management team is really important. Whatever the circumstance, we take comfort from the fact that we can work with a solid, continuous management team or if needs be we can go in and make necessary changes with the confidence we have the proven ability to do so," outlines Lennon.

In his view, the ability to source interesting opportunities in limited or non-competing situations, with an active asset management overlay, should lead to interesting returns.

Right now, there is a revolution taking place equivalent to the Industrial Revolution, as infrastructure evolves to support a digital age.

"These are investments for the benefit of society and for future generations. It is necessary for institutional investors to support this effort. However, it requires significant industrial insight. That means partnering with dedicated asset managers who have the experience and who can help bring an alignment of interests between themselves and corporates," concludes Palanque. ■

**https://www.blackrock.com/institutions/en-gb/insights/investment-actions/2018-global-real-assets-outlook*