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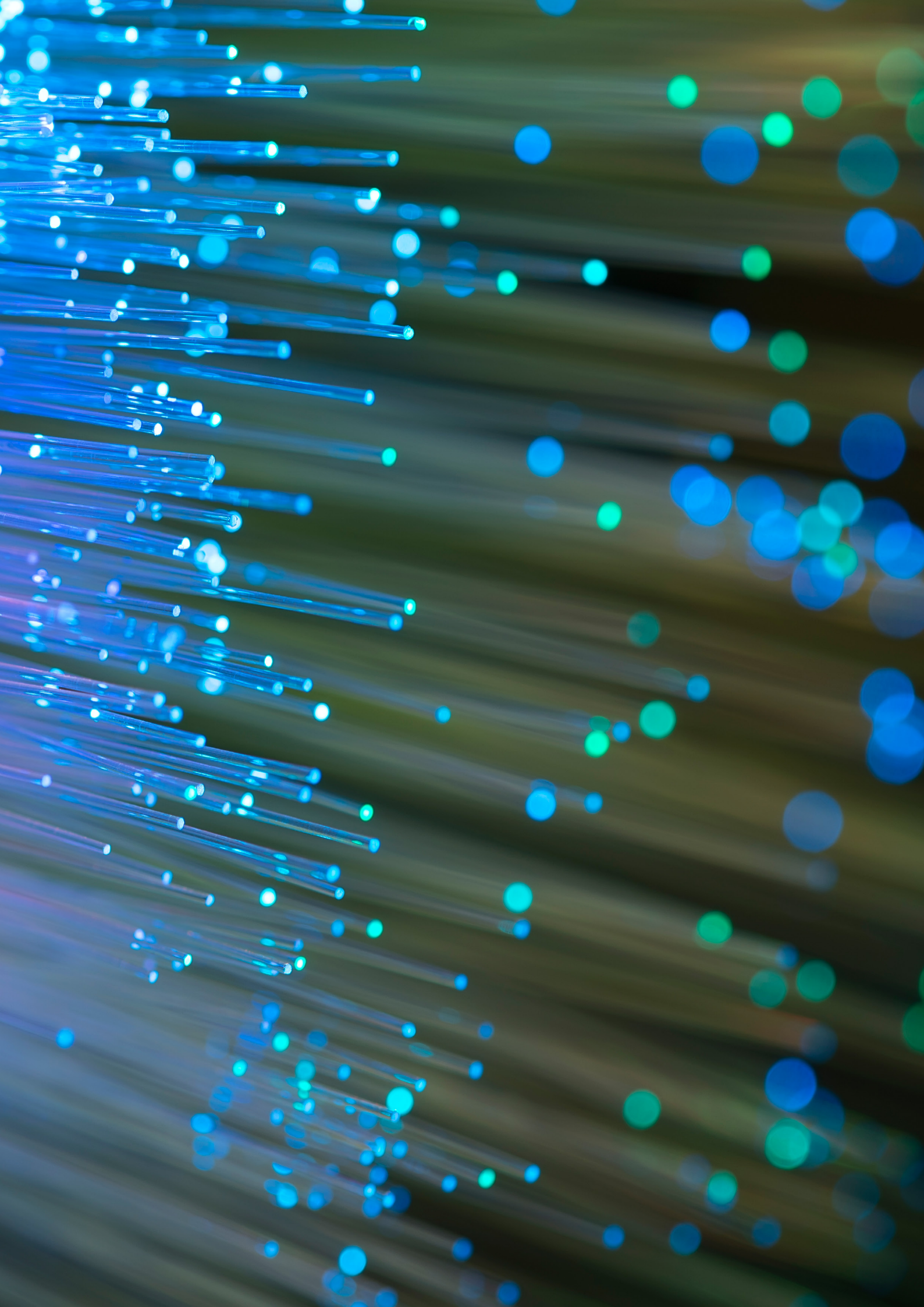
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Financing InfraTech

GBP 30bn required, but who will write the cheques?

March 2019



Introduction

In the 'Future Telecoms Infrastructure Review', published by the Department for Digital, Culture, Media & Sport in July 2018, it was estimated that around GBP 30bn of funding would be required in order to meet the government's targets for full fibre coverage by 2033, with the vast majority of that funding coming from the private sector. In a series of CMS reports looking at 'Infrastructure for our Connected Future' we noted that although the UK is making progress, with M&A activity driving changes to the industry, fibre infrastructure is still significantly lacking compared to other EU countries. So how is this infrastructure going to be delivered and who will be writing the cheques?

To reflect on these questions, a number of senior figures from across the telecommunications and finance industries gathered for a round-table at the offices of CMS, to discuss the rise of digital infrastructure as an asset class and the opportunities and challenges this brings investors, manufacturers, operators and advisors in the industry.

In this report, we highlight the themes that emerged from those discussions, including how the participants feel that regulators and investors are responding to those challenges and opportunities, and their predictions for the future.

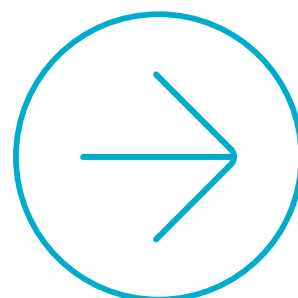


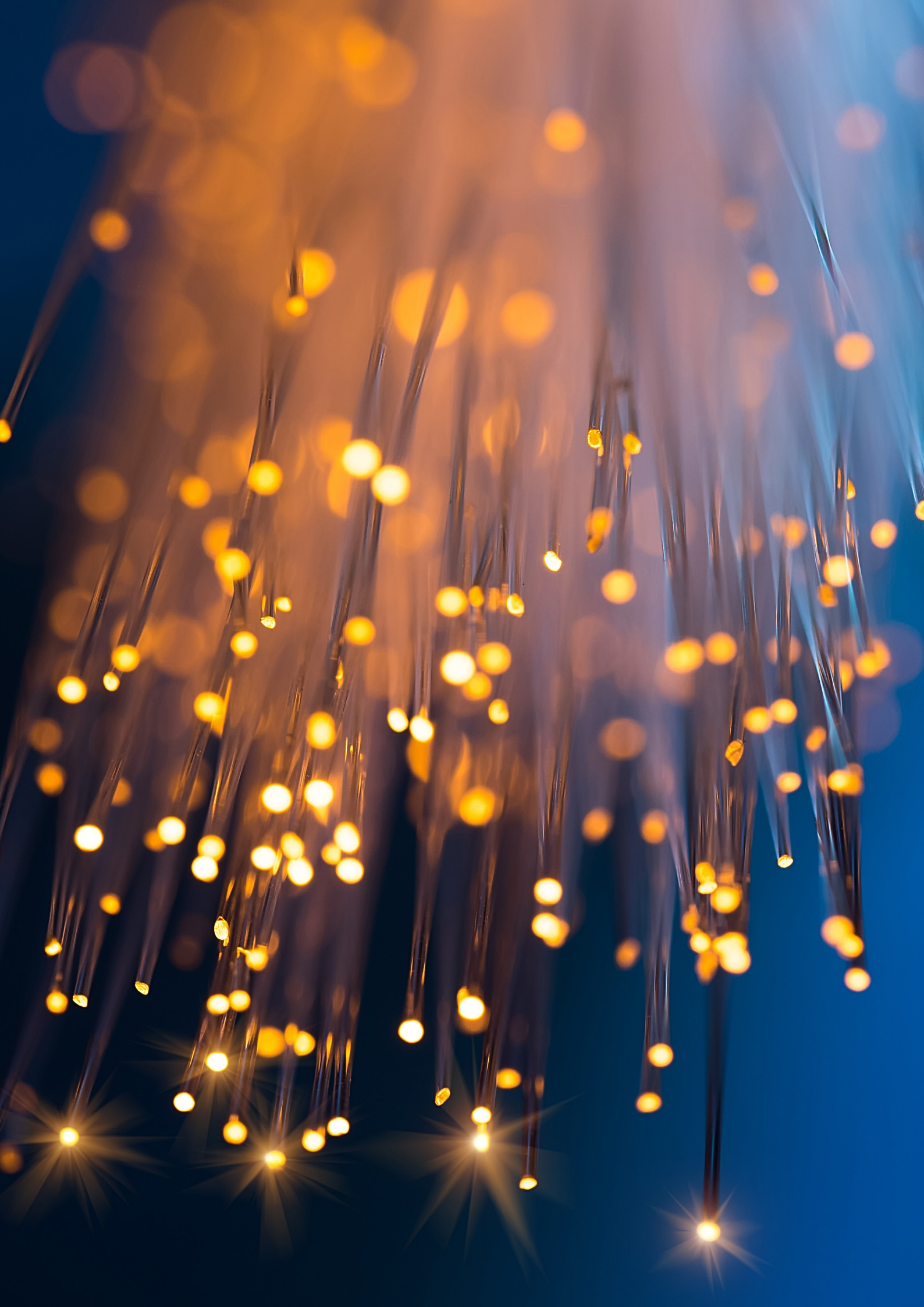
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InfraTech: a new asset class

The underlying concept of the 'altnet', the alternative network built to compete against the dominant incumbent telecoms player in a country, dates back decades to when the first wave of cable networks were built, at great cost, and regional telecoms companies and utilities took a risk setting up new fixed and mobile networks.

Entering 2019, the participants agreed that the altnet market looks ripe again. The demand for digital assets (fibre, towers, data centres) is growing as service-focused economies are reliant on digital networks to provide essential day-to-day services and to integrate a fully functioning Internet. A wave of new full fibre companies, backed by a variety of funding sources, have emerged to fill in the gaps where European, and specifically British, telecoms companies have sat still and squeezed their copper lines. The expected advent of 5G has also opened the eyes of new investors and how they can participate and ultimately benefit when backing the new generation of infrastructure companies looking to build the networks needed to handle an exponential rise in data volumes in the coming decades.

As investors have become more accustomed to valuing the companies developing these networks, this new generation of businesses and the assets they are building have in the space of 18 months moved from being viewed purely under the traditional banners of 'technology' and 'telecoms' to being more akin to a 'utility' or as falling under the label 'infrastructure'. To coin a phrase, the participants agreed that 'InfraTech' is a good description for this class of assets.

However, digital infrastructure as an asset class is not so well established as the core utilities of water, electricity, sewage or other more traditional forms of infrastructure; some of the participants felt that there remains a wider issue with how regulators and politicians view the sector, which can be disconnected from the experience of the operators. The aspirations of governments include rapid 5G launches and fibre builds with the expectation of ubiquitous coverage, significant economic growth and social inclusion benefits. Yet the scale of the task for operators who have to implement the basic building blocks, to actually deliver the new networks remains an immense challenge. Right now, the regulatory authorities appear to be sitting back and waiting to see what happens rather than trying to shape the landscape and clear the runway for the industry and their financial investors who are trying to figure out ways to make it work.



For everyone in the value chain, some form of cooperation is needed, with a unique selling proposition. From the outside it may seem there are misaligned interests but in reality all we want is a value chain where everyone can take a piece of the pie. At the moment we are staring into ambiguity that is preventing anyone from creating value.



Regulatory uncertainty

In the realm of digital infrastructure, there is a significant shift occurring and regulators need to understand it.

There is currently a degree of disconnect in the way regulators look at the world. They mainly view their role as regulating telecoms companies to protect consumers, and that model has served us well. Their primary target is telecoms and consumer price, ideally managed through competition, and that has not been a bad thing, but there remains a lack of insight into where the money comes from. Significant funding gaps have emerged as telecoms companies have struggled to generate growth and maintain margins.

Even if regulators have understood that recent dynamic, we are now entering a new world where we see different forms of ownership, operation and funding arising. That requires a new approach.

The long-held view is that the best form of competition is one where parallel networks compete with each other. This can lead to overbuild. It is based on a 'ladder of investment theory' that if all companies progressively increase their scale they will want to build and own an increasing range of assets to grow their networks. The 'single owner network' ownership model has perhaps been appropriate until now but the full fibre age has seen a lot of companies start to build. At the same time, it has become clear that very few countries can support four independent mobile networks, causing a headache as the need for 5G investment starts to kick in.

So far industry has done quite a brave job of filling in the gaps. They have taken a risk and crossed their fingers. But regulators are not rushing to take up a role where they facilitate this. Regulators feel deeply ambivalent about their role in this ecosystem. They need to step up and come to a clearer view whether they continue to champion a single network ownership model or they start to push a shared access model and let a thousand flowers bloom.



Right now, the regulatory authorities, by and large, are sitting back and waiting to see what happens. They have to shape the landscape.

Those in the industry believe there is no other path than to adopt some form of cooperation. From the outside it may seem there are misaligned interests due to rampant competition but in reality all companies want is a value chain where they can all survive. As it stands the companies investing are staring into ambiguity that is potentially preventing anyone from creating value.

If this is going to work then a certain amount of regulatory clarity would assist in what companies are trying to achieve, which is significant investment in new types of infrastructure and a rollout of technology in new networks.

From a regulatory perspective it would be useful to know what their holistic view is and whether they understand that by pushing outright for the best price and service for consumers on day one, that may result in a bad trade off five years down the track in terms of investment.

Regulators need to be mindful of the consequences of their rules.

The UK is in danger of a patchwork quilt effect

The regulators are aware of and considering these issues as part of ongoing regulatory review, in an attempt to adopt the right approach for the next generation of networks and services.

For instance, in the context of the overhaul and update of EU rules, resulting in the recent adoption of the new European Electronic Communications Code, the European Commission's initial proposals included plans to allow regulatory holidays for co-investments between incumbents and operators for the roll-out of new networks, a move widely welcomed by industry and investors. However, the plan was severely watered down as it passed through the EU legislative process, including by the European Parliament.

Similarly, it is often said that the focus on competition at least partly explains why, in mobile, Europe lags behind Asia and the US, particularly in terms of investment in 5G.

Regulators are trying to develop their thinking about this.



How do you get comfortable with debt style risk when historic numbers are not telling you what they used to tell you?

In the UK there is an interesting paradox. While the soul-searching continues to ensure the right framework is in place to encourage the roll-out of new networks, especially full fibre, it is difficult to imagine there is not a degree of satisfaction at Ofcom, looking at current levels of investment in the sector. Altnets are flourishing, with CityFibre, Hyperoptic, EU Networks, Community Fibre, Airband and others all successfully raising sometimes substantial amounts of money. Everyone is doing well at first glance so the regulators could be forgiven for assuming that their policies are delivering. But there are some suggestions that activity might be happening in spite of, not due to, their efforts.

Ofcom's messaging can sometimes appear confused, and officials' use of the word 'competition' is not always fully explained. Is that competition between fixed line and cable, copper and fibre or broadband and mobile? Consumers do not care who owns the electricity line running into their house and the same applies to the fibre connecting homes and businesses. They do care who is billing them however and who is on the end of the phone when they call. This is the distinction between the service and infrastructure layers of the industry.

The governments of both the UK and Ireland have created funds for fibre deployment, which has proved to be a good approach for stimulating investment. Yet governments also need to develop a structural approach to infrastructure.

There is a view that France has done a much better job in stimulating and regulating the fibre upgrade. The government has taken a sensible approach by not outlawing the overbuild of networks but clearly setting a regulatory preference against it. This means telecoms companies realise that their rivals could in theory choose to overbuild their fibre networks but that they feel comfortable that won't happen.

The UK in contrast is in danger of a patchwork effect. With only 6 per cent of homes connected to full fibre there is a land grab going on. Yet that comfort and certainty of France does not yet exist. When there is a risk of overbuild then things will slow down. Some will have faith in the industry not to overbuild each other but investors need more comfort. They want a fighting chance that the network they are paying for will pay off and won't be undercut.

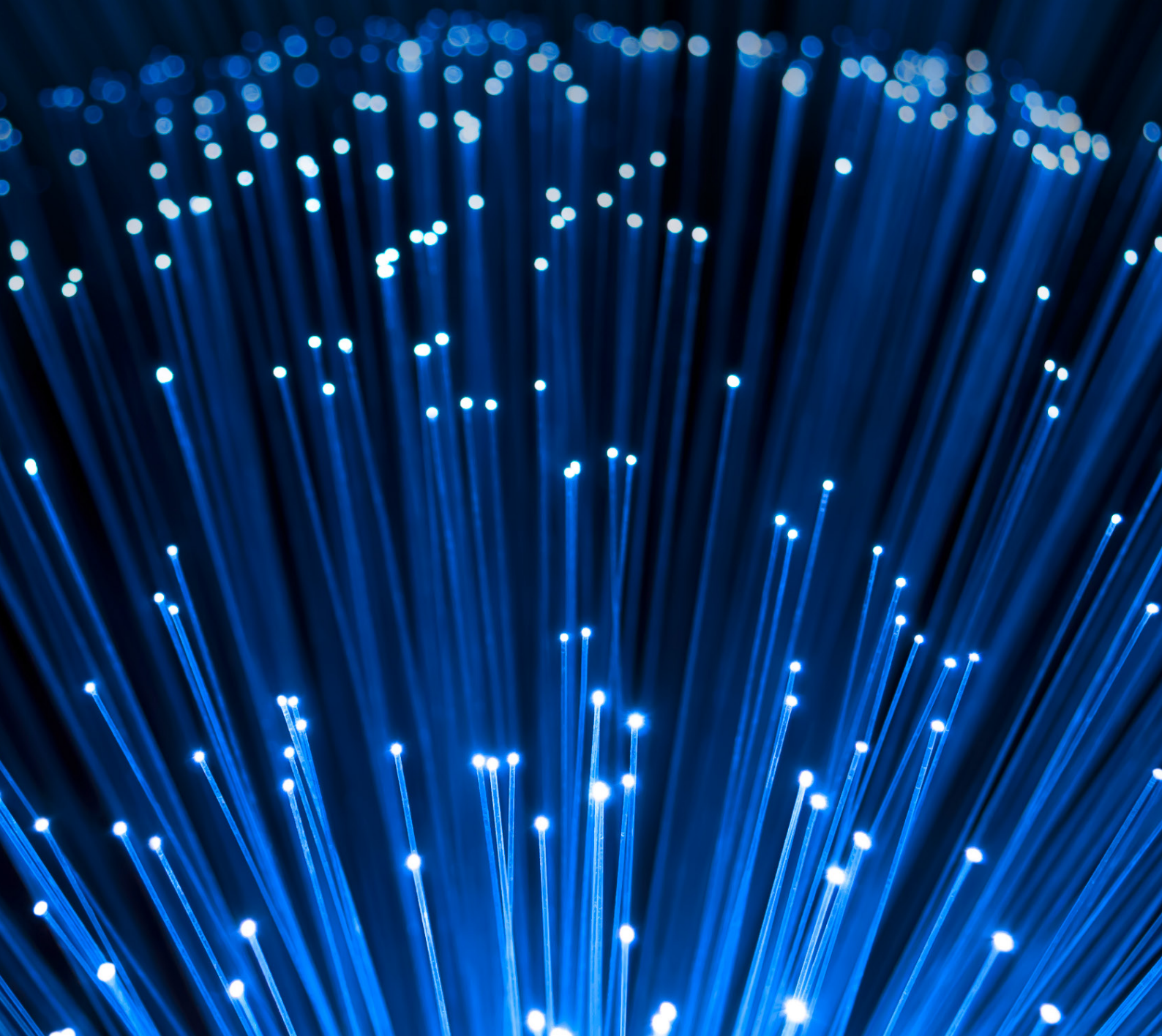
The danger is that one operator picks off all the sweet spots and creates a new digital divide between fibre haves and have-nots.

Meanwhile the digital divide between urban and rural areas remains. How does Ofcom ensure that full fibre does get to deepest darkest Devon? It needs to view fibre as it does water. The government would not accept that homes in rural areas would not be able to get running water so how does the regulator adopt a similar approach?

That is why Ofcom needs to provide more guidance. CMS research shows that there is a direct and strong correlation between regulatory clarity, even in a soft form, and successful deals across the eurozone.



People will use statistics for their own purpose. Calculations are done on the business model and where it ends up. But there is not one business model - fibre to the home, to the kerb. It is difficult to find one model beyond credibility of management team and project.



Full fibre and 5G are changing the game

In the UK, investors have become comfortable with the 'fair bet' approach. That is the regulatory agreement that telecoms companies should be allowed to earn a decent return on their investment before regulatory pressure kicks in.

However the installation of fibre potentially changes that equation. Full fibre is very expensive to put in but does not cost a lot of money to run and maintain. The concern is that in five to ten years' time, when there is fibre everywhere, the regulator could change tack. This is what may have occurred in Spain. Will that initial pain of investment be forgotten?

In the water sector, the regulator needs to encourage continued investment over a long timeframe. That is less clear with fibre where the cost is heavily front-end loaded. That is a concern for long-term investors.

In the context of trying to promote investment in fibre networks, one of the measures Ofcom is proposing is to increase its regulatory timeframes for market reviews from three years to five years in a bid to increase certainty. However, compared to other infrastructure forms this period represents a blink of the eye. For instance, in the context of the Heathrow expansion, the regulator is having to consider timescales of 15 years, and the Thames Tideway Scheme a decade. The life of a glass fibre is now well beyond 30 years.



The thing that makes me nervous is that fibre costs a lot of money to build but not a lot of money to run. The concern is in five to ten years time when there is fibre everywhere what will the regulator seek to do then?

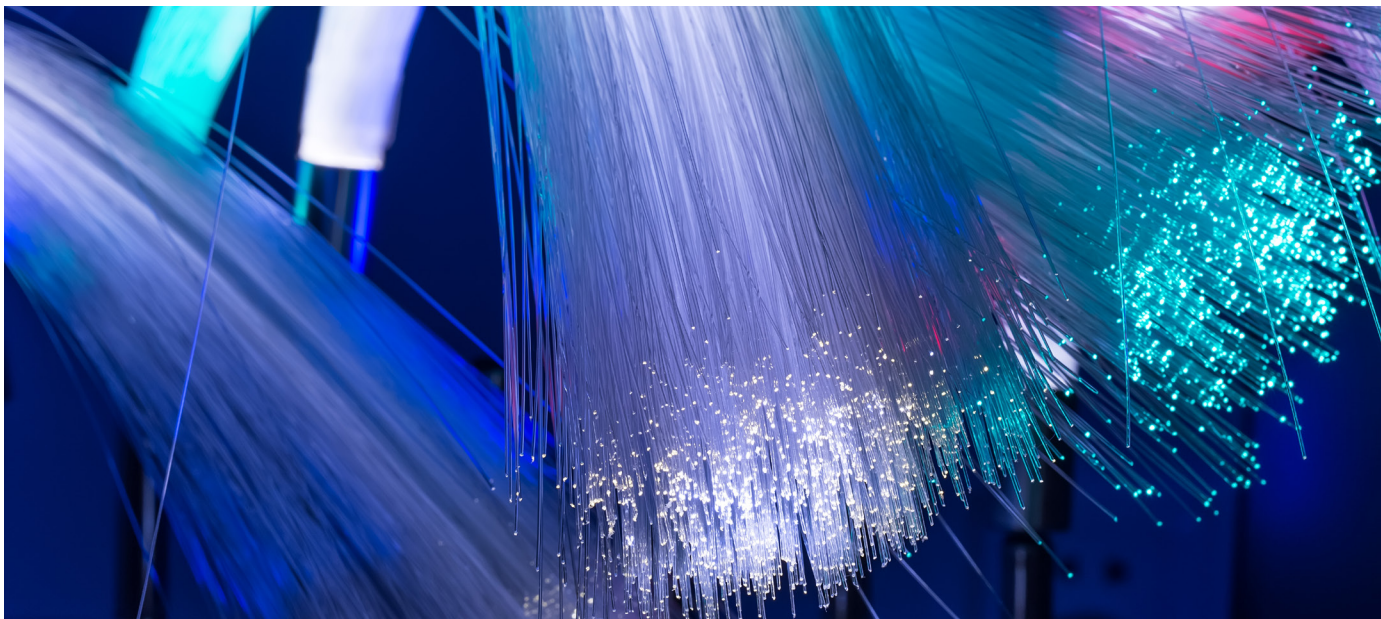
This is complicated further by the potential advances of fibre once it is installed. Airports and water pipes are based on business models that do not radically change. Fibre is incredibly versatile, which is a key attraction to investors. They are moving on from the traditional ways of assessing infrastructure, by expanding their capacity to analyse the evolution of fibre transmission and compression technologies. Imagine being able to increase the water running through a pipe a million-fold. But multiplexing technology, which massively speeds up fibre speeds, radically alters its business model.

Yet that creates a different economic equation as the fixed cost has to be spread over a different service base and time scale from a financing perspective. That is a pretty tall order for regulators to factor in.

The upgrade to 5G networks also has implications for regulators and how they view the market. It is not clear yet what the 5G model will be. Will it be 'wi-max on steroids' or a new mobile paradigm where you cross out the 4 and write a 5? Or perhaps it will just be a fill-in for 4G. The potential outcomes are extremely broad.

Everyone is talking about 5G, but what is the perception of the next wave of financing? It is a very different animal with an even more tenuous business case. 5G is arguably cloud-based software. How does that change the approach to revenue recognition within the industry?

The challenge for network operators is essentially how they can build a new network with very low cost of capital and make it work with a fixed cost base while simultaneously fighting the fires of filling in coverage. Then there is the very specific problem of having to build and pay for a new network upfront.



Some regulators are also asking operators to build something that will ultimately benefit third parties; whether it is providing open access to their rivals in rural areas or to over-the-top players that use the network to generate much bigger profit than the telecoms industry can manage.

Ultimately this could trigger a more rapid break-up of the industry as the customer-facing operations of telecoms companies are divorced from their networks. Some mobile phone companies have already sold off their masts and some have gone so far as to sell (or consider selling) their fibre networks to financial investors.



There is a lag in Europe compared to Asia and the US in terms of investment in 5G.

The problem for those that want to go beyond passive infrastructure sharing, where masts are pooled, is mainly the share price. The dividend flow is what maintains the share price and moving further down the divorce route transforms their business model and cash flow. Without a network does a mobile company merely become a 'super virtual operator' or a licence-based virtual operator specialising in customer service-oriented software systems like billing?



We need to determine what 5G is. It is the most talked about topic in TMT but no one knows what it is. The jury is still out. Is it the next generation of mobile? If that is the case it won't be as dramatic as 3G to 4G when it went all IP. But if it is fixed wireless access applications or distributed computing, then it is game changing.

Perhaps the example of Japanese telecoms company NTT, which is investing in cyber security and data centres, or France's Orange, which has targeted financial services, are examples of where the telecoms industry could be headed. They are focusing on what the customer needs and not what the network needs. That is a real shift in culture.

Financing InfraTech

– who pays and how?

2018 saw some significant equity investments in the altnets and a growth in liquidity in the debt markets in the InfraTech sector. Notwithstanding this, the participants felt that all the moving jigsaw pieces surrounding the telecoms market are clearly having an effect on how these assets are funded. Although the construction of fibre networks is now treated as an infrastructure project by some investors, it is clearly not the equivalent of building a new sewer under the regulatory asset base model. So how do we finance these assets given this complex picture?

Debt raised for the construction of fibre assets continues to be on a short-term basis, albeit on terms akin to project finance in many ways. The recent wave of financings in this sector show that the average loan life is currently around seven years compared to the 15-30 year terms associated with more traditional infrastructure projects. This reflects the lack of visibility of revenue generation, cash flow and the uncertainty around technology risk and regulatory support.

One participant said that longer-term investors, including pension funds, are starting to express interest in digital infrastructure as an attractive asset class, but they recognise that there is an education process that needs to happen internally before they are comfortable to lend. In the meantime, banks are still providing much of the financing but hybrid debt financing structures are starting to emerge combining some of the characteristics of leveraged debt facilities with project finance principles.

This has evolved dramatically in a very short space of time. Funds raised only three years ago were set at very onerous terms with interest rates of 10 per cent in some cases. There was a perception that this could be another altnet fad and investment should be treated as a high-risk technology bet, but investors have started to accept that the fibre will be in the ground in for at least 30 years and should or could be valued accordingly. It has thus attained a chameleon-like status as an asset.

The obvious comparison, ironically, would be copper networks, which have stayed in the ground for more than 100 years.

Traditional private equity has started to shy away from altnets but hedge funds and senior debt lenders have started to pick up on the model. One participant used the comparison to data centres, a well understood asset class for such lenders, which has started to become more prevalent as the equity story has evolved and fibre is seen as an underpinning technology rather than an end in itself. Another participant said that risk committees within banks have become far more sophisticated as a result and that the growth in liquidity has turned the heads of those companies looking to raise capital and benefit from that growth in demand but who see that long-term infrastructure capital could be much cheaper. Those companies are now in a position where they have to seduce both traditional lenders and infrastructure lenders. They can now look at both sides and weigh the limitations of both types of finance.



You've got to seduce both traditional lenders and the infrastructure lenders.

Long term future for finance

There are still hurdles for InfraTech to overcome before it becomes a safe and solid asset class. One participant highlighted that many debt investors work out risk and returns on the basis of historic information, but in an innovation economy that information does not exist. How can funders get comfortable with debt-style risk when historic numbers are not telling them what they are used to being able to hear?

The solution may be apparent when more companies demonstrate that they can roll out their networks and prove the model works. There have been concerns about higher-than-forecast contractor costs on some fibre projects but they have still proved to be viable projects. That has built perception and more interest over time. The fact that hybrid financing is being considered for InfraTech shows that the asset is much more bankable than other opportunities in the innovation economy.



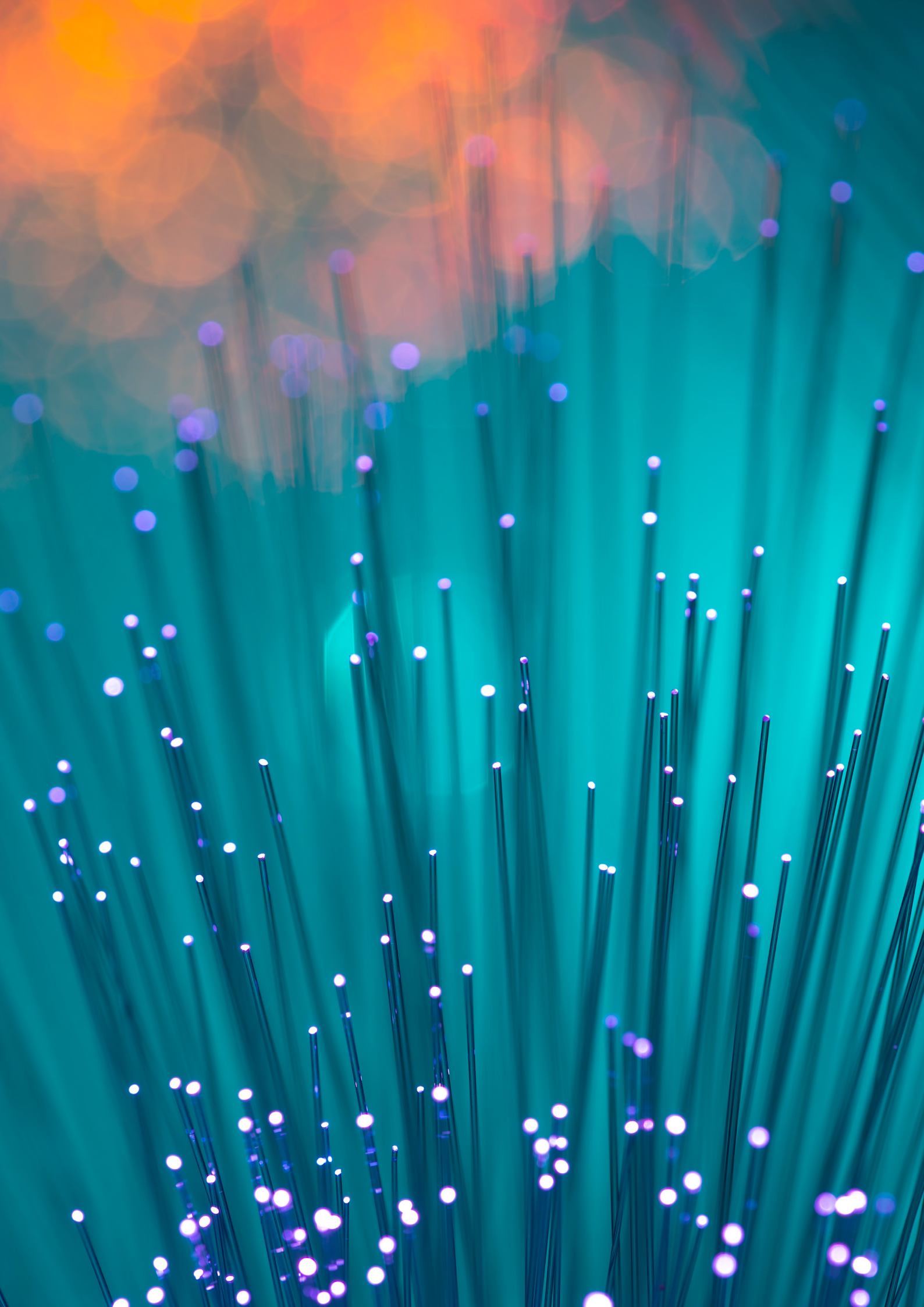
As long as you believe people will consume more data then they are going to need fibre. It's not based on historical evidence but on empirical engineering fact.

A participant said that another issue for some investors is that they feel they are trying to predict the future. Whilst the first-mover advantage is attractive, no one wants to find that they have invested in a science-fiction concept like flying skateboards. They used the example of the 1980s where many investors backed Betamax, the alternative video technology, as it was technically a much stronger product than its rival VHS but the market decided otherwise. Another participant acknowledged that a similar problem has arisen for banks in the fintech space where it is difficult to envisage what will emerge as the core technology of the future.

There is little doubt that data consumption is only going one way but timing is a critical point. Many may wonder whether we need 1Gbps networks when we don't yet have the applications to use that type of capacity. One participant said that government departments often talk of the speed at which a consumer could download multiple series of Game of Thrones to highlight the benefits of fibre, which may not be a convincing metric for consumers.

Another participant said that the industry has also done itself a disservice by focusing on speeds rather than the other benefits, such as lower latency. In this way, it has inherited something of the 'HS2 Problem' similar to the high-speed railway that will shave 10 minutes off a trip between London and Birmingham. Consumers have questioned the cost and point of the project on that metric whereas it should have been couched as network replacement that upgrades the entire service.

Full fibre should be viewed as replacing an antiquated copper network that was designed to carry voice not data. The network will be faster but it will also be more resilient, cheaper to run and better able to cope with future demands. As long as you believe people will continue to consume more data, then they are going to need fibre. That is the underpinning fact that needs to be factored into financing models.



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