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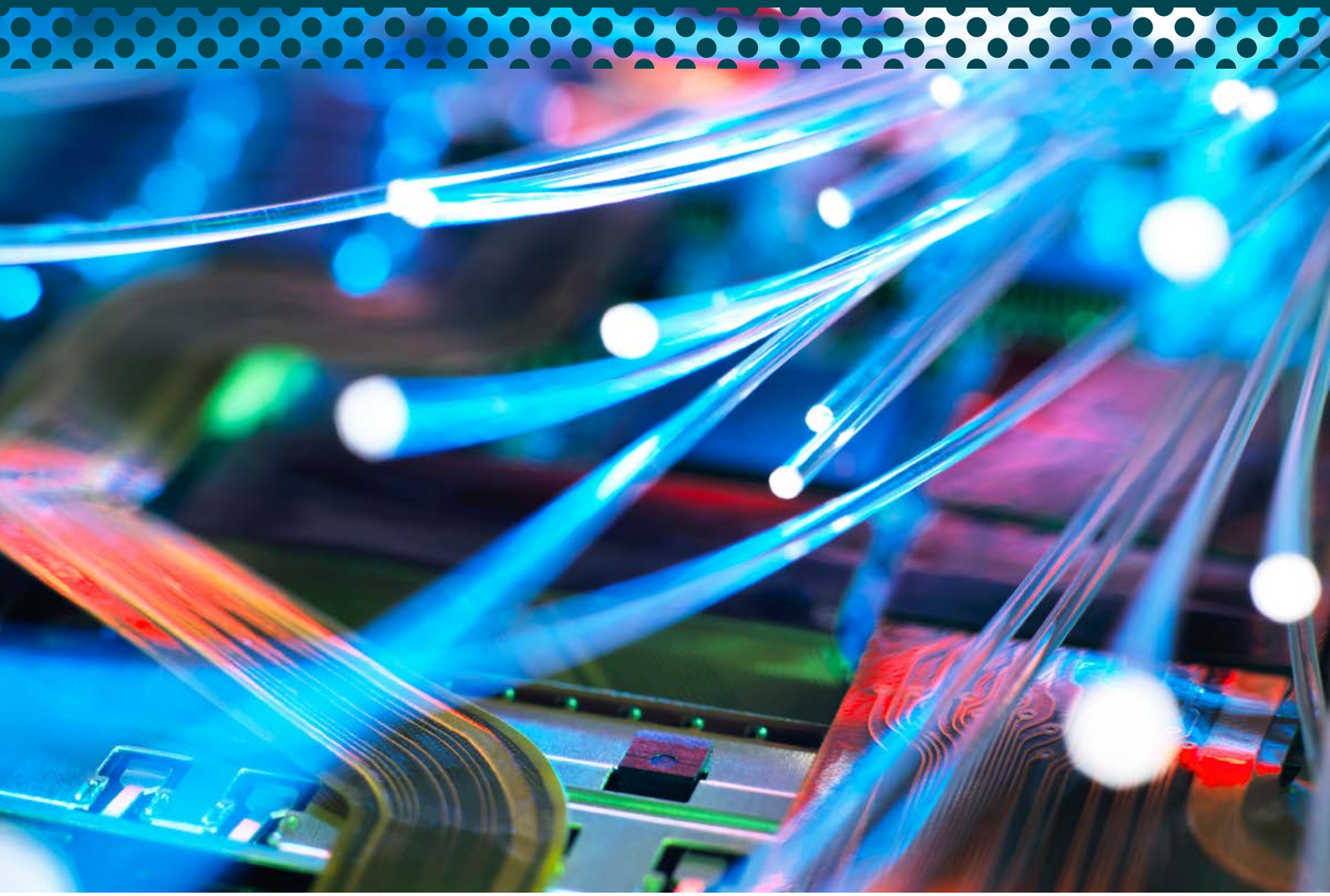

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Beyond data centres: Could fibre optic networks bridge the AI divide?

For AI to be truly revolutionary, it needs to be widely accessible, and that can't happen without high-speed connectivity

Key takeaways

1. **AI can only reach its full potential if people have fast, reliable connectivity.**
2. **Without it, communities in 'digital poverty' risk falling further behind as AI adoption accelerates.**
3. **Fibre optic broadband networks provide the high-capacity, low-latency connectivity AI depends on.**
4. **IFM Investors believe the need to extend fibre coverage to hard-to-reach communities has created a compelling opportunity for infrastructure investors.**

If you were asked to name a few standout inventions from the 19th century, you'd probably answer without much hesitation. The steam train, the light bulb, the telephone – all fundamentally changed the way people interact with one another and the world around them.

But a single invention cannot spark a revolution by itself. Great Britain only realised the steam train's potential by building railways to connect people and communities in new ways. Likewise, Edison's lightbulb was not as transformative as the electricity grid subsequently built to power it. Ultimately, seismic societal change relies on the democratisation of technology.

To this end, the rise of AI – and the attention it has garnered – should give us pause. Its many advocates point to the rate at which models are advancing, and the extent to which machine learning is becoming part of our everyday lives. Headlines focus on data centre capacity as a key constraint – without a substantial increase in power, the AI revolution must stall.

While this is a valid concern, for AI to be truly revolutionary it needs to be widely accessible. And this cannot happen without high-speed connectivity, which is currently far from universal, even in the developed world. For all of AI's potential, its ultimate success may depend on the growth of the humble fibre optic network.

Why is digital inclusion important?

In 2009, the World Bank suggested that:

Increasing broadband penetration by 10% could result in...

...GDP growth of

1.21 percentage points in high-income economies and

1.38 percentage points in low-income economies[1]

While a lot has changed in the 17 years since, this idea – that in both advanced and developing economies, digital inclusion and economic productivity are linked – remains current. Communities living in 'digital poverty'[2] often face other socioeconomic challenges, and their exclusion from the digital economy makes these challenges harder to overcome. They are caught in an 'inequality loop'.[3]

The rise of AI risks exacerbating this, as certain people, organisations and countries are in a better position to reap the benefits of AI than others, creating an 'AI divide' that is in part driven by infrastructure.[4] In a report published in December 2025, the UN warned that 'infrastructure readiness is the prerequisite for inclusive AI'. Put simply, countries that lack basic digital infrastructure – 'reliable internet, electricity (and) computing capacity' – cannot realise AI's potential without significant investment.[5]

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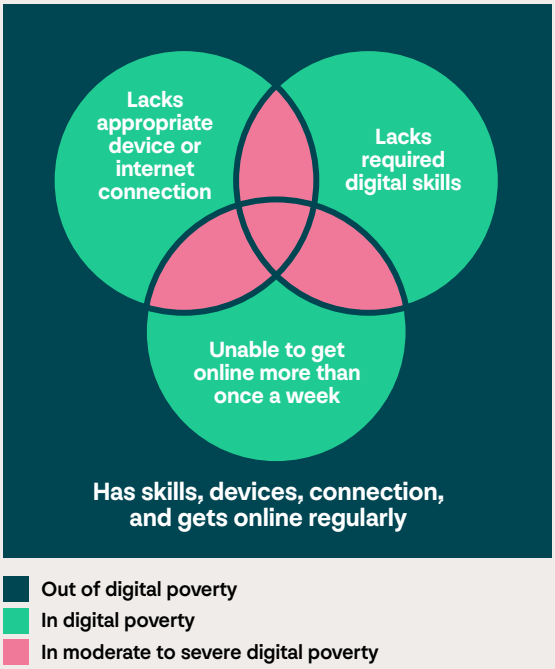

Source: Digital Poverty Alliance, 2023

While the AI divide is of global concern, it doesn't solely refer to the unequal relationship between low- and high-income countries. Within high-income countries, some groups have access to the infrastructure and skills necessary to participate, while others do not. Again, the risk is that AI exclusion reinforces social exclusion and vice versa, leaving some mired in a worsening 'inequality loop'.

1 Minges, M. (2016), 'Exploring the relationship between broadband and economic growth', World Development Report, pp.3-4.

2 While there is no universal definition of 'digital poverty', the term is defined by the Digital Poverty Alliance (DPA) as 'the inability to interact with the online world fully, when, where, and how an individual needs'. See DPA and Deloitte (2023), 'Digital poverty in the UK: A socio-economic assessment of the implications of digital poverty in the UK', September, p.4.

3 Ragnedda, M., Ruiu, M. L. , & Addeo, F. (2022) 'The self-reinforcing effect of digital and social exclusion', Telematics and informatics, 70.

4 The AI divide is a very new term, for which there is no formal definition. Increased use of the term is noted by some scholars – see Vicente, M. R., Álvarez-Rodríguez, C., & Suárez-Álvarez, A. (2025) 'An old familiar song? Assessing the artificial intelligence divide among the regions of the European Union and its connections with digital divides', Telecommunications Policy, 49(8).

5 'Infrastructure readiness is the prerequisite for inclusive AI. Digital connectivity is now as essential to development as roads and electricity. Soon this will also be true of AI access'. See UNDP (2025) 'The next great divergence: Why AI may widen inequality between countries', p.93.

In 2025, digital exclusion was estimated to affect up to **19 million people** in the UK.[6]

A 2023 study by the UK's Digital Poverty Alliance (DPA) found that:

Of households considered socioeconomically disadvantaged,
~1 in 2
faced digital poverty[7]

The unemployed were
~2-3
times more likely to be in digital poverty than the employed

An estimated
1 in 5
children were impacted by digital poverty[8]

The evolution of the UK's fibre optic broadband networks

The story so far

As an infrastructure asset manager, we believe fibre optic broadband networks play a foundational role in bridging the AI divide. Cloud-based AI tools rely on the high-capacity, low-latency connectivity offered by fibre cables, meaning widespread fibre access is needed to minimise the risk of an emerging AI divide. That said, further investment is needed to build out these networks.

The UK is one example of a country looking to achieve high-speed connectivity at the national level. As it stands, the UK's residential broadband ecosystem is essentially comprised of two layers:

Infrastructure **Network owners and operators**	Build and maintain physical networks (fibre, etc.)
Customer facing internet connection **Internet service providers (ISPs)**	Sell broadband services using that infrastructure

Before the 2010s, the UK's core cable and backhaul network used fibre optic cabling, but 'last mile' connectivity still relied heavily on copper cabling. BT Group (through Openreach) and Virgin Media O2 (Virgin) were the dominant players, each owning network infrastructure and operating as ISPs. Openreach managed BT's access network, while Virgin operated its own cable network.

Core network

Connects major cities, data centres and international gateways

Fibre-optic cables replaced copper and microwave links in the 1990s

Backhaul network

Connects town-level exchanges to regional and national hubs

Fibre became common in the late 1990s–2000s

Access network (the 'last mile')

Connects homes, offices, etc.

Fibre-to-the-premise (FTTP) not available until the 2010s

As fibre-to-the-premises (FTTP) arrangements became commercially viable in the 2010s, this all changed. Openreach and Virgin were relatively slow to implement the widespread roll out of FTTP services, creating greenfield space for full-fibre challengers (or 'altnets') to emerge.

[6] Digital Poverty Alliance, 'National delivery and advocacy plan 2025'.
[7] The UK's Office of National Statistics (ONS) classifies households by socioeconomic standing. Of the six possible classifications, D and E are the lowest. See DPA and Deloitte (2023), 'Digital poverty in the UK: A socio-economic assessment of the implications of digital poverty in the UK', September, p.4.
[8] DPA and Deloitte (2023), 'Digital poverty in the UK: A socio-economic assessment of the implications of digital poverty in the UK', September, p.4.

> **Bank liquidity is not as accessible as it once was, inviting institutional investors to move in and bridge the funding gap**

Ofcom, which regulates the UK's communications industries, then announced a number of initiatives in 2019 to further stimulate competition. One example was the Physical Infrastructure Access (PIA) framework, which made it possible for altnets to use existing telecoms infrastructure – mainly ducts and poles owned by Openreach – to deploy their own fibre networks. This change helped altnets establish a service that could meaningfully challenge the UK's incumbent providers.

And from here, the number of UK altnets exploded.[9] As the COVID-19 pandemic pushed everyday life online, it was not uncommon to see two or three providers digging up the same street. While it is hard to directly attribute the altnet boom with alleviating digital poverty, the UK's Office for National Statistics (ONS) has published data that seems to support this. Between 2019 and 2020, the percentage of adults who had never used the internet before fell by 1.2 percentage points, from 7.5% to 6.3% – a relative decrease of over 15%, suggesting greater participation in the digital economy.[10]

The opportunity today

While the UK fibre optic market remains competitive, it's easier to determine the key players today than it was in 2020.[11] We appear to be entering a period of shake-out, as certain businesses look to consolidate or restructure existing heavy debt burdens, while others seek innovative ways to refinance existing debt facilities. In many cases, bank liquidity is not as accessible as it once was, inviting institutional investors to move in and bridge the funding gap. These investors can potentially benefit from improved transaction profiles, with greater creditor protections or improved trade economics (for example, margins of 4-5.5% above base rates).[12]

We believe the other opportunity for infrastructure investors relates to digital inclusion. Despite Ofcom's best efforts to generate competition and hasten fibre rollout, some rural areas still lack high-speed connectivity. The UK government launched *Project Gigabit* in 2021, with a view to providing gigabit-capable broadband to at least 85% of the country's premises by 2025, and 99% by 2030.[13,14] To achieve these targets, the government has committed to subsidise network build in rural areas.

[9] To quote the FT, the sector 'boomed' post-pandemic, 'when dozens of companies were set up to challenge the traditional operators'. See Al-Khalaf, L., Smith, K., & Arnold M., 'Natwest and Lloyds scale back new lending to broadband challengers', 22 October 2025.

[10] ONS, 'Internet users, UK: 2020'

[11] According to the FT in June 2025, the UK still has 'hundreds of alt nets', which according to the Independent Networks Cooperative Association 'collectively serve 16.4mn homes'. See Smith, K., & Pikard, J., 'UK government 'anxious' altnets could collapse, Liberty Global boss says', 13 June 2025.

[12] The FT recently reported that UK banks NatWest and Lloyds have scaled back new lending to altnets. See Al-Khalaf, L., Smith, K., & Arnold M., 'Natwest and Lloyds scale back new lending to broadband challengers', 22 October 2025.

[13] Gigabit capable means an internet connection that can deliver speeds of at least 1 gigabit per second for downloads.

[14] The latter has since been revised to 2032. See GOV.UK, 'Project Gigabit'.

CASE STUDY

UK rural fibre provider: An infrastructure debt case study[15]

In 2025, funds managed and advised by IFM Investors invested in a UK broadband provider specialising in rural fibre rollout.

Why did we invest?

Track record extending fibre rollout to rural areas, in line with *Project Gigabit*
The operator had expanded high-speed connectivity to underserved UK regions, helping to improve digital inclusion. By early 2025, the provider was halfway to securing its 'premises passed' target, with much of the remaining rollout benefiting from subsidies secured under *Project Gigabit*'s 'Build Digital UK' (BDUK).[16]

Competitive advantage relative to national incumbents
The *Project Gigabit* subsidies received by the operator have reduced its cost per premises passed, creating a high barrier to entry for potential competitors. We felt the provider's strategic focus on underserved regions – as well as the quality of its technology, service and pricing – could potentially be harder for national incumbents to match.

A highly supportive and committed sponsor
We noted the operator's highly supportive equity sponsor, with significant capital already invested and further funding committed in the event of material debt underperformance. The sponsor's commitment to the business reinforced our confidence as a prospective lender.

What was the outcome?

Project Gigabit has created a significant funding requirement: investment is needed to support UK operators rolling out fibre to rural areas. For us, this represented an opportunity, particularly now that bank liquidity has softened. Our timely entry to the market has meant we've been able to select from a wide number of transactions, ultimately participating in one that offered compelling terms and the potential to deliver risk-adjusted returns. We've also gained exposure to infrastructure assets that may transition from sub-investment-grade to investment-grade over the coming years, as the underlying businesses mature into operational networks and the market becomes less volatile.

[15] Case studies are provided for illustrative purposes only and should not be relied on to make an investment decision. This case study was chosen because it demonstrates IFM's active approach to infrastructure investing.

[16] Building Digital UK (BDUK) is the UK government body responsible for expanding gigabit broadband and mobile connectivity (4G) to hard-to-reach areas across the country. It aims to ensure that homes and businesses benefit from fast, reliable digital infrastructure – especially those that commercial telecom operators don't economically reach.

CONCLUSION

In a 2021 lecture, British computer scientist Professor Stuart Russell said: 'Success (in AI) would be the biggest event in human history... and perhaps the last'.[17]

Russell's warning speaks to the power of AI and its potential to reshape society, for better or worse. Revolutionary technologies can improve the lives of millions – but only if they are developed responsibly, with the networks and infrastructure in place to grant widespread access.

Today, we believe high-speed connectivity is as essential to economic participation as transport, power and utilities.[18] Continued investment will be a prerequisite for governments seeking to enhance productivity, resilience and inclusion in the age of AI. This offers infrastructure investors a compelling opportunity to finance the next technological chapter.

AI has the potential to benefit society – but only if everyone can access it.

[17] BBC Sounds, 'Stuart Russell - Living With Artificial Intelligence', 01 December 2021.
[18] This is one reason digital infrastructure is increasingly regarded as a core – rather than core plus – infrastructure strategy.