

Britain's Broken Broadband

Why is Britain (Still) ignoring the solutions to go slow Broadband?

Executive Summary

- Two years ago, we wrote a White Paper on the state of Britain's Broadband. It is updated it here; little has changed – yet – but there is a growing shift toward removing the copper 'blockers' that prevent true Fibre to the Home
- Fibre to the Home (FTTH) broadband doesn't exist in the UK. There are the privileged and proactive few who currently enjoy the speeds that many of our worldwide counterparts are achieving but UK cable manufacturer Tratos believes solutions are being ignored.
- British business has been telling Government it can do nothing about patchy broadband - and becoming more vocal about how their companies' performance is being "severely affected".
- Industry regulator Ofcom is concerned about a mismatch between broadband speeds that small firms believed they were buying and what is actually being delivered – domestic users too.
- 'Broadbad', a report backed by 121 cross-party MPs called two years ago for BT to be forced to sell the country's leading broadband provider, Openreach (which is wholly owned by BT). Some steps were taken but little has moved on.
- In February 2018 BT promised it would accelerate the expansion of its high-speed fibre broadband network with plans to reach three million homes by the end of 2020, amid mounting pressure from regulators and politicians (there are about 25 million homes in the UK).
- Openreach said it would hire 3,000 engineers to speed up the project with a focus on providing faster internet services to 40 UK towns and cities. Birmingham, Bristol, Cardiff, Edinburgh, Leeds, Liverpool, London and Manchester will make up the first phase of the programme, dubbed Fibre First, it promised.
- Openreach's CEO said accelerated plans 'set the course' to reach ten million homes by the mid-2020s 'with the right conditions.' He went on to say that Openreach would identify the cities, towns and rural areas where the company could build a future-proofed, FTTP network that's capable of delivering gigabit speeds to all homes and businesses at an affordable cost.
- His carefully-worded pledge confirms there are plans and that they'll move quicker – 'given the right conditions' to deliver a network 'capable' of delivering high speeds. There is no tacit guarantee of any outcomes other than the hiring of additional engineers.
- Only 3 per cent of UK homes have access to an FTTH connection compared with 79 per cent in Spain.
- Ofcom forced BT to legally split Openreach into a separate business last year to stimulate greater competition, amid long-running concerns that BT was abusing its monopoly position. It is something we at Tratos campaigned hard for.
- Most other UK broadband providers, such as TalkTalk, are customers of Openreach and offer their customers internet services using its wholesale networks.
- There were fears, outlined by TalkTalk, that Openreach's plan depends on widespread take-up – forcing customers to buy the product. TalkTalk said in a Times article¹ that this would only work if Openreach reduced proposed pricing to make full fibre affordable for all.

¹ <https://www.thetimes.co.uk/article/bt-to-speed-up-expansion-of-its-openreach-fibre-broadband-network-to-3m-homes-8fkmc3vrb>

- The announcement of Openreach's plans came after the arrival of a string of other projects from rival operators to invest in UK fibre networks.
 - What is clear is that technology has moved faster than anticipated and the copper infrastructure gatekeeper was announcing plans to introduce FTTH – so long as conditions are favourable. In the meantime the UK remains reliant on its existing copper network.
 - However a report from Ofcom (published May 2018)² has all the hallmarks of a potential game-changer if what it sets out in its paper is followed through.
 - Fibre to the Cabinet (FTTC) is not Fibre to the Home (FTTH); the fibre advantage isn't making the last mile to premises – what we have been sold to date is just a dream.
 - BT owns the existing infrastructure but other options exist – Tratos for one argued from the outset that it has technically advanced fibre optic cables that can travel efficiently through other utilities' routes to homes and offices.
 - Gas, water, electricity are into-the-home routes explored and exploited in other countries and with all utilities investing now in a smart grid to monitor resources flowing into homes, fibre optic rather than copper could be adopted - and broadband can effectively piggyback. Change is coming.
 - Government has begun to open up the race for the right solution.
 - Even investment two years ago, when our original paper was published, would still see Britain left lagging by up to seven years as it struggles to catch up. How much longer must we wait?
 - This latest stance from Ofcom is welcome. It acknowledges copper as the pinch point and BT now has a duty to make its telegraph poles and underground tunnels open to rival providers, making it quicker and easier for them to build their own full-fibre networks
 - Openreach, BT's infrastructure division, will have to repair faulty infrastructure and provide a 'digital map' of its duct and poles network, so that other providers can plan where to lay fibre.
 - We'll see where it takes us, and just how fast the journey gets underway.
- Britain's broadband continues to stifle the country's economy as alternative routes to high speed connectivity and huge gains in download pace - available now - are ignored.
- Tratos Ltd, a global player in fibre optic cable, points to some of the advanced technological solutions that are smart enough to bypass current network gatekeepers – and are available to UK.com today.
- The innovation-led independent cable manufacturer presents a UK, European and global view of Britain's position in this report and calls again for urgent action to protect the country's position as a leading economic power.
- Tratos wants to be part of the UK's solution. It is one of a number of smaller, more agile and innovation-focused competitors that could be instrumental in making the change with more than 20 years' experience in the UK and Europe and has the 'smart' fibre cables that shoot down some of BT's arguments on installation expense/disruption as copper gives way to fibre.

² https://www.ofcom.org.uk/_data/assets/pdf_file/0017/113543/Connected-Nations-update-Spring-2018.pdf

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The Key to Faster Broadband Now from Tratos Ltd

International cable manufacturer Tratos warns the UK will pay the ultimate price for not investing in FTTH in 2016.

Now in 2018 the cracks are already evident as DIY Britain embarks on 'build your own' broadband.

Whatever Britain is being told – and sold – about fibre to the home broadband, it's not the whole truth. Fibre to the home doesn't exist in the UK – for all but a privileged few, and those who have taken matters into their own hands.

There are solutions at hand, but, says cable manufacturer Tratos, they're still being ignored.

Fibre to the Cabinet (FTTC) is not Fibre to the Home (FTTH). Fibre advantages are lost as connections from fibre-fed cabinets to homes still rely on low-technology copper.

Debate continues to rage at fever-pitch two years on from the publishing of this lobbying White Paper – and an early trend for frustrated DIY FTTH-ers is gaining ground.

Whatever the rhetoric; Britain's broadband is not keeping up. Years on, and with very little changed, the fibre/copper debate is now a full-scale battle. Technology has moved faster than anticipated and the country remains reliant on an old and creaking copper network – whatever Openreach's promises.

But some things have changed.

Ofcom's report published in early May 2018 acknowledged that many consumers continue to receive a poor fixed broadband user experience, due to the technological limitations of the copper networks used to provide most fixed broadband services.

As we know, this arrangement is the communications equivalent of running a sprint in high tech running shoes and then switching to a pair of killer heels and towing a double decker bus for the last hundred yards. Copper has always been the stopper – it doesn't need another report to remind us. We know the problem and the fixes are there.

Research carried out for Ofcom asserts that around two in five UK broadband connections are delivered using ADSL (copper telephone wire between the telephone exchange and the end-user).

The paper goes on to report that actual download speeds are typically lower than those advertised and that's not acceptable. The race baton has now been handed from Government to Ofcom and with it comes some new minimum service speed requirements and a 'get out of contract' amnesty for customers whose service doesn't live up to the marketing hype. Good news – although there will still be a considerable time lag to contend with as British broadband seeks to reshape itself.

Ofcom's report finds that although consumers can receive better performance by switching to a different technology or upgrading to a service with a higher advertised speed, it is unlikely that they will experience a significant improvement by switching from one ADSL or FTTC package to another at the same advertised speed (as services run through the same copper line).

Ofcom says it is committed to improving the availability and quality of fixed broadband services, going so far as to publish a package of measures to further increase investment in full-fibre Broadband.

That could see up to six million premises covered by full-fibre by 2020.

BT – keeper of the copper – now has a duty to make its telegraph poles and underground tunnels open to rival providers, making it quicker and easier for them to build their own full-fibre networks. That is a real breakthrough, so long as it's followed through in a timely fashion.

Openreach, BT's infrastructure division, will have to repair faulty infrastructure and provide a 'digital map' of its duct and poles network, so that other providers can plan where to lay fibre.

Anglo-Italian cable technology company Tratos Ltd says a solution is now within the UK's grasp, but it's a solution still tied to the pace of a business that is invested in its own copper networks.

Tratos CEO, Maurizio Bragagni said: "BT may own the existing, out-dated infrastructure, but it's not the only route to a solution, or into people's homes. We have technically advanced fibre optic cables that can travel just as efficiently thru other utilities' routes to the home – gas, water, electricity.

"All of the utilities are investing in a smart grid to control and monitor resources flowing into homes. There is no reason they can't use fibre rather than copper to achieve supply controls now – and introduce fibre to the home which broadband can effectively piggyback, circumnavigating existing copper. All we need is the Government to open up the race for the right solution – and that's happened now to some extent. Clever technology companies have been poised to respond and start the process immediately."

Two years ago tens of thousands of businesses, employing 4.5m people, told the Government they could 'no longer remain silent' about patchy broadband and how their companies' performance are being "severely affected". Business owners warned of slow Broadband's negative impact in a letter to John Whittingdale, the Culture, Media and Sport secretary, signed by 52 Chambers of Commerce, representing 75,000 companies.

Industry regulator Ofcom, said it was concerned about a mismatch between broadband speeds that small firms believed they were buying and the service delivered. A new Ofcom voluntary code was promised to commit broadband suppliers like BT, TalkTalk and Virgin to allow business customers to exit the contract if speeds fall below a minimum guarantee level. Tratos' view was – it wasn't enough. The talking had to stop and work that should have been undertaken a decade ago, begun. But the talking is making progress.

Slow and Steady progress isn't going to cut it – and there are some fast-track solutions out there.

It's disadvantageous for Britain that developing world communities have faster connectivity while UK.com remains heavily handicapped and unequal in the fight to remain one of the dominant commercial powers. Again – two years on – we're making the same case.

"We warned back then that even investment then was likely to see Britain left lagging by up to seven years as it struggled to catch up", said Tratos' Maurizio Bragagni. Two years down the line not much ground has been gained in terms of physical changes to upgrade the service. It's taken this long to get to a place where the elephant in the room has been finally acknowledged.

Countries like Italy don't have fast speeds across the nation right now, but they are better placed to achieve them quickly, especially in the cities. Once Italy takes up a true fibre solution at a reasonable cost, thanks to an early acceptance of the future shape of commerce and action to facilitate change, it will also outstrip the UK. Arguments (at the time) that true fibre to the premises is not affordable – ever – for the UK (from Gavin Patterson of BT) were ridiculous, says Dr Bragagni. Whilst speeds obtained currently are, in many instances acceptable, if not competitive now, this will not be the case in the near future. Inevitably, copper will

become redundant and fibre will have to be installed.

A seminal report 'Broad**bad**'³ backed by 121 cross-party MPs called for BT to be forced to sell the country's leading broadband provider Openreach because of poor performance. The report suggested BT's Openreach has only partially extended superfast broadband despite £1.7bn of government money and its sale would open up the race for speed to competition. The MPs' cross-party British Infrastructure Group (BIG) claimed 400,000 small and medium-sized companies still did not have access to superfast broadband and more than five million people had unacceptable download speeds.

The Broad**bad** report said there would be little change until BT and Openreach were formally separated and added that Openreach "makes vast profits and finds little reason to invest in the network, install new lines or even fix faults in a properly timely manner". The BIG group, led by Grant Shapps, pointed to underinvestment stemming from the "natural monopoly" of BT and Openreach as the primary factor holding the UK back and costing the economy £11bn a year. Speaking to the BBC he accused BT of being "a monopoly company clinging to outdated copper technology with no proper long-term plan for the future." Dr Bragagni was whole-hearted in his support of the report and, indeed, Ofcom moved to split the two.

³<http://www.shapps.com/wp-content/uploads/2016/01/Broadbad-FINAL.pdf>

He said at the time: "We are in an interesting position. We can see the challenges from within the UK, and we look at the UK's commercial viability from a global perspective. As a company that has committed investment here what we take away from a critical view is that what we have today is unsustainable. And there is no practical reason for us not to be among the top ten for broadband speed."

Two years ago broadband speed in the UK barely made it into the world's top 20 countries for connectivity. Now it's at 31. The prophesy is disturbingly accurate.

Then the UK was trailing Japan, South Korea, Switzerland, Netherlands, Canada, Sweden, Latvia, Ireland, Czech Republic and more. Only 38% of UK internet users had access to high-speed 10 Mbps broadband. In Saudi Arabia the figure was 84%.

Now we lag behind most of Europe. **Cable**⁴ ranked the UK's average broadband speed at 16.51Mbps (megabits per second), which means a Lord of the Rings length movie would take one hour and two minutes to download.

A total of 19 European countries, 17 of which are in the EU, have better speeds than the UK. Singapore tops the table with an average speed of 55.13Mbps. It would take just over 18 minutes to download the same HD movie in Singapore.

The better technology is 'full fibre', which Sweden and Spain have more of; hence they beat the UK on the international rankings.

The internet is a bigger part of the British economy than education, healthcare or construction. "Britain is being frozen out of the next industrial revolution," Peter Cochrane, a former BT chief technology officer, warned six years ago. "In terms of broadband, the UK is at the back of the pack. We're beaten by almost every other European country and Asia leaves us for dust."

This broadband blind spot is a critical factor influencing the health of the UK's economy. Other countries facing challenges on a similar scale began their investment trail significantly sooner than the UK, which, arguably has yet to start, and, even though their broadband speed may lag behind now, they are expected to leap-frog to a significant lead as infrastructure projects reach completion.

Even where there are significant challenges that match/or are bigger than the UK's - architectural and heritage sites to work around for example - others have found ways around the problem.

Tratos wants to be part of the UK's solution, and, it believes, it is one of a number of smaller, more agile and innovation-focused competitors that could be instrumental in making the change.

⁴ <https://www.cable.co.uk/media-centre/release/New-Worldwide-Broadband-Speed-League-Unveiled-UK-Ranks-31>



Tratos has been a supplier of fibre to the National Motorway Communication Systems (Highways Agency) for more than 20 years. Its products are some of the most flexible for construction projects, with combined power and fibre optic needs. It has the 'smart' fibre cables that shoot down some of BT's arguments on installation expense/disruption as copper gives way to fibre.

In Europe it has supplied fibre directly to apartment blocks using central distribution layout systems within the buildings, and a range of flexible cables that can be installed in almost any kind of duct.

Its solutions include microcables and microtubes, breakout cables, floating cable, cable (floating and sinking types) that can be pulled through sewers, dielectric self-supporting cables and multi-usage cables employing techniques that see new cable installed at the same time as its copper forerunners are stripped out.

We need to regain a place at the forefront of the race to reconnect the UK with the world's leading business economies.

Tratos CEO Dr Maurizio Bragagni joined a House of Commons think tank debating session hosted by Gavin Robinson MP, an event created with the aim of examining how Britain might best play 'catch up' with its lagging fibre optic connectivity and recover from its slide into fibre network straggler.

He once again outlined ready solutions to get Britain back on track for success – if there was sufficient will to take the right steps. He called for immediate action to stop the backslide and ramp-up the UK's efforts to re-energise its competitiveness.

The debating reception 'Can the UK catch up with the global full fibre connectivity race?' saw a keynote address from Lord Jonathan Mendelsohn and a panel chaired by Askar Sheibani, CEO Comtek Group and chair of UKFCF - UK Fibre Connectivity Forum. Ian Lucas MP (Digital, Culture, Media & Sport) also made an address and the floor was thrown open to questions.

According to Dr Bragagni the biggest question must be - 'why are we still waiting?'

"Yes we have some agreements, some duties imposed in terms of allowing access to BT's network – but time is ticking and we need to be working on this now. The UK's slippage will get to a stage where it is no longer recoverable. In racing terms we're the rank outsider carrying the highest weight handicap – and – we're five furlongs behind the starting gates when the flag drops. The tragedy is - it doesn't have to be this way.

"Yes, investment is needed – but we have to clear that barrier. Not spending the money now – and I was saying this two years ago – will cost us dear. Now we're years further down the line and no further forward. Ofcom suggests its plans will take another two years.

"There is also a good deal we can do by applying some intelligent thinking; piggybacking existing network trunking and introducing advanced technologies. We don't have to 'throw the baby out with the bathwater' – but we do have to think differently and act decisively. More-of-the-same isn't the way to move us up the rankings. It hasn't served us well so far, has it?"

"More-of-the-same will see us increasingly lose touch with world economy leaders – and that is just not acceptable for a pivotal nation like the UK and even more so as we loosen some of the ties with Europe," he said.

A digital industrial strategy is key, not only to the country's growth, but to its survival as a player with a place at the world-governance table, he added.

"We need to open the gateways to fibre-fast communication.

"So, the first thing we need is the commitment to a strong vision. We need commitment from Government to a vision that will take the UK forward for the next 30/50 years – so, strong and long-term vision. And of course, that means money. But it must be remembered that the spend required will pay for itself with interest as economic gains rack up and the economy moves forward. The result? Well, the seed-corn investment, sizeable though it is, will seem as nothing by comparison with the economic gains.

"In domestic terms it's the same as being worried about the size of a mortgage when buying a first home – and most people who make that biggest ever personal investment spend a lot of time worrying. Yet 15 years down the line, the talk is about their 'small' mortgage and, sometimes, how they wish they'd been a bit braver. Hindsight is a wonderful thing – but it is already all around us. Look at any developing country's broadband speeds. The countries that aren't burdened by an old and creaking infrastructure are simply installing fibre – and are instantly up to speed. Our dusty laurels as a relevant economic force need dusting off or ditching altogether in favour of a lighter touch and loftier ambition.

"We cannot tolerate BT's previously held vision – a comfortable and pedestrian world where a 30-MB download speed is fine and there is a one-year plan.

"Comfortable for BT undeniably, because BT doesn't have to do very much, but there is little comfort for the rest of us.

"The UK may be a nation of shopkeepers (that used to be the 'collective' for entrepreneurs) but it has always been a nation of warriors too. Now it needs to lead the emerging revolution, the Fourth Revolution, and its Government needs to be brave and take a lead."



He went on to say that the Government had pledged money for a range of initiatives, including 5G and full fibre broadband but as yet there had been little sign of a pedal-to-the-metal to take broadband from hard shoulder to fast lane. Copper, he said, is heavy and slow, fibre is light and fleet of foot. Fibre is our gateway to Gigabit speeds – we should be swarming toward that gateway, he said.

The country needs to open up to competition and welcome it. If everyone is trying, then everyone will benefit from the best solution. The impetus of commercial imperative will be the driver of advanced broadband speed, and cable is what will feed it. No cable - no fibre optic cable - no invitation to the digital revolution.

Dr Bragagni continued; “The cloud is great, but it has weaknesses - it can be hacked. Properly curated digital (optical fibre) offers security and stability. So, we need to quicken the pace, bid copper farewell and then move to improve and maintain next-generation infrastructure.

“We need to get organised. One central hand on the reins to co-ordinate and fulfil a plan to make real FTTH happen. I also have an idea that some may dismiss as radical, but I beg your patience. I propose we impose a structure of taxing ducting.

“Utilities need to be penalised – in this case charged - for not putting fibre into their ducts.

“If they don't use the time spent digging up roads and replacing gas/electricity/ telecom/water pipes etc wisely (so that those ducts could also include fibre optic cable) then they should be taxed.”

Dr Bragagni asserted that this was not just smart thinking and smart spending/use of resources – it was a smart incentive – and, he said, it is where Philip Hammond needs to come in. The country already has ducts running into its workplaces and homes. Once fibre gets to the home connectivity can be wireless – and fast.

“The Government's own smart meter campaign is just begging to be pressed into service, he added.

“Money is already being spent to get these energy meters into homes - so why not use this opportunity to install fibre into every home too?

“A tax on failure to innovate is also a tax on failure to control costs and a positive step to encourage growth. Ignoring the opportunity to advance is, in effect, a contributor towards stopping the country growing,” he said.

“What yesterday seemed like tomorrow's 'weird science' is the technology we take for granted today. From driverless cars to iPhones, the decline of media and the rise of social media, ecommerce – things that change laws and challenge social conventions as well as change the way we live our lives,” he said.

"There's a reason the word viral has been applied to so much of the spread of today's technology. It's fast and unstoppable."

He went on: "So why does it seem a step too far to levy tax if utilities don't allow fibre optic cable to be installed in their ducts?"

"There needs to be a cultural change, co-operation and partner working. No one will lose out, everyone will gain – from end users to those supplying the routes and the vehicles for connectivity.

"This is how civilised, co-operative and clever stakeholders future-proof a shared economy."

The real reason behind Britain's slow Broadband is copper. Those behind the copper network have been blocking progress for everyone else, and now they have to move they're moving slowly and without commitment. Tratos believes it and others like it could be part of the bigger solution with those old gatekeepers – if they open up to collaborative working.

The world of work has already changed. There are more sole traders working from home or small silo offices. There are also people working at home for larger companies, or working flexibly between the office and a home base. Speed is no longer simply an office environment issue.

Tratos is focused on talking about how fibre could be delivered directly to the premises now. The company has the technology available, today.

Italy trails the UK presently but as it has been investing in a fibre infrastructure. It has had the technology – and the desire to use it – since 2008. So, Italy was already ahead of the UK in investing in the technology that will see it with the capability to overtake in the short to medium term.

In effect, although much of the UK enjoys faster connectivity than Italy now – Britain is already lagging years behind the starting line on delivering next generation speeds. This is the technology that could take the UK into the top ten countries for broadband speed if BT was to invest and see the BT/Openreach divorce as a positive step.

Some may see investment in a fibre network as a risk (cost). The cost if we don't is significantly greater. The cold truth is that – whatever consumers believe – fibre to the home simply doesn't exist in the UK – and our advance toward it is proceeding at a snail's pace.

Further information about Tratos is available at www.tratosgroup.com

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