Epilogue

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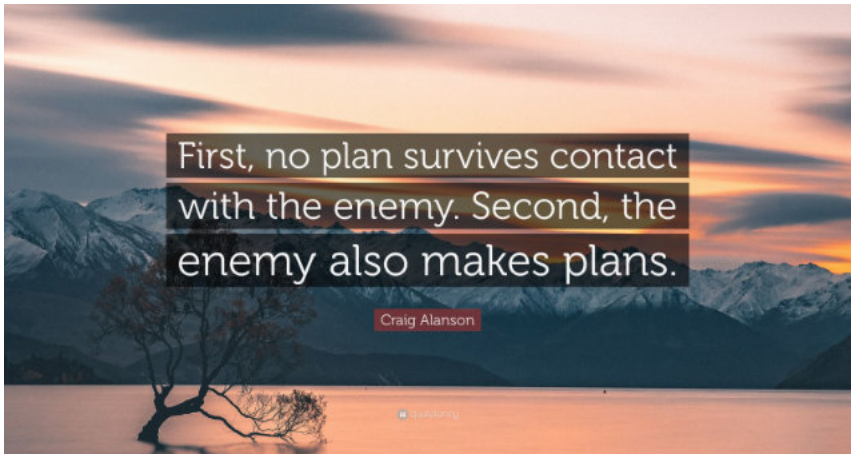


In the army they say no plan survives contact with the enemy. (Helmuth Von Moltke) So, too, with this book.

The people who built B4RN faced common foes in the form of the geography and geology of the landscapes, and the weather, to which unique answers had to be found.

Political, social and competitive challenges from both outside and inside the communities were faced, with humour and determination (and tea and cake); answers to most were found, but others are still elusive.

The experience of building B4RN, how it changed the communities, and what it meant personally, is what this book is about.

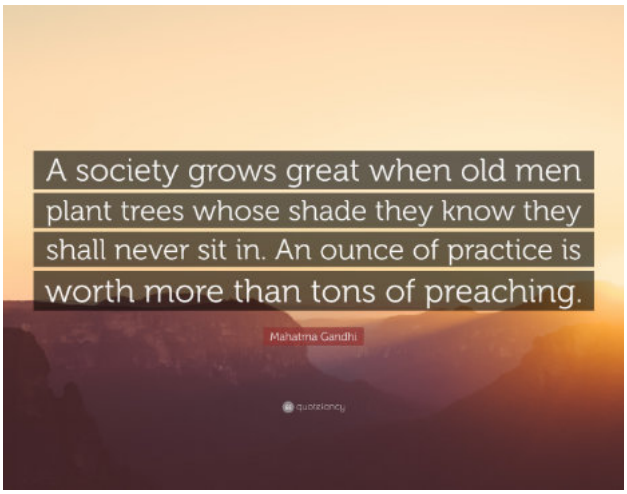
But there is more. So we asked six people who know the B4RN story from different angles to give us their perspectives. Kira offers a social view, Ian looks at the market conditions B4RN had to deal with, Peter at the technology trends that enabled B4RN, Lloyd at the contribution B4RN has made to improving access to high-speed communications in rural communities, Philip at the political angle, and Lindsey sums it all up with a unique self-portrait and thanks to the thousands of people, from many walks of life, who came together to JFDI.

The B4RN family tree

By Kira Allmann

Co-editor

This book started with the image of a tree. When you think of a mighty tree, it's easy to imagine its expansive branches, stretching outward, toward the sky. For a tree this impressive to thrive, it also needs powerful roots - roots that spread as far as its branches but are often mostly invisible, anchoring the tree underground. What is often most striking about the tree is what we can easily see and touch about it: its lush canopy, its calloused trunk, and the wildlife that make their homes in its branches, but



Mahatma Gandhi quotes a Greek proverb.

without the hidden network of roots, the tree and the ecosystem it enables would not exist.

B4RN is like this tree. The underground network of ducts and fibres that make up the B4RN network have brought new life, new people, new energy, new opportunities to some of the UK's most technologically isolated and neglected areas. As the network grew, more communities have connected, and the tree has continued to grow and branch.

It wasn't, and isn't, easy. Twenty years of struggle went into the germination and roots before the tiny shoot emerged that grew into the B4RN family tree. The seed germinated on the 15th of August, 2011, when it was registered with the Financial Conduct Authority https://mutuals.fca.org.uk/Search/Society/7915.

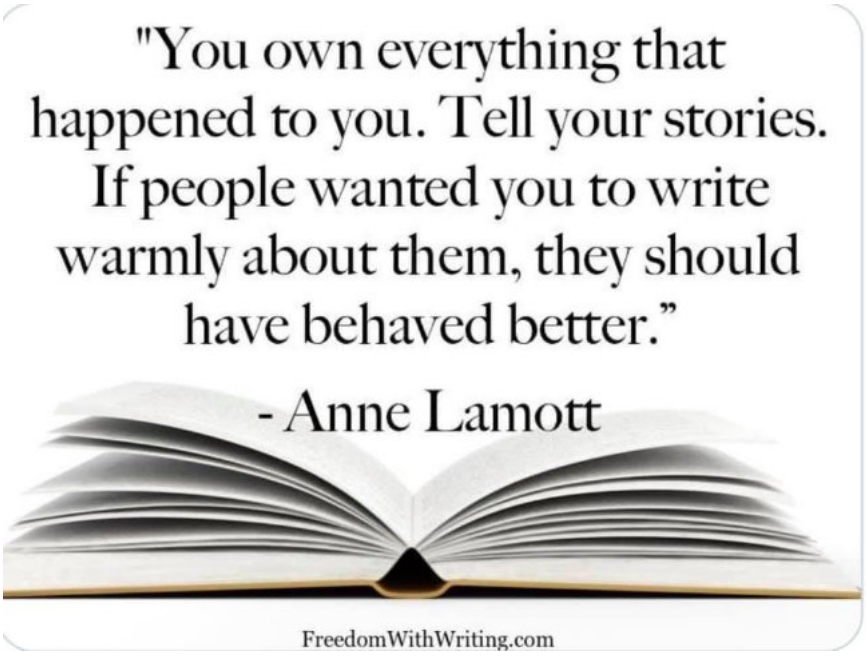
But ,like any tree that must survive in hostile environments, the roots now go deep and wide to let B4RN thrive in the face of many challenges, from weather to bureaucracy.

B4RN is the unique product of its environment. But similar environments exist everywhere. The lessons learned by B4RN provide a useful starter for others who are actively developing and adapting to their own unique circumstances.

And while the network is world-class from a technical viewpoint, its social impact has been, and remains its most important result, as the stories here clearly show.

The B4RN story is about people coming together to build something they share, not only for today's communities, but for future generations. B4RN shows that it is possible, sometimes, for those who plant also to enjoy the fruits of their labour.

Like B4RN itself, this book is a big undertaking, and like B4RN, it is made up from the many stories about and by the people who built B4RN. The community has now written the book and supplied the photos - the history, like the network, is theirs.



The B4RNraising

By Ian Grant

Co-editor

B4RN, or to give it its full name, Broadband for the Rural North, did not spring fully-formed into life in 2011. Events 30 years before ensured that the farmers and housewives of Cumbria could end their isolation from the digital world and relieve their frustration only by JFDI (Just F* * * * * * Doing It) themselves.

The 1979 Conservative government under Margaret Thatcher promised to revitalise the moribund telecommunications sector by ending British Telecommunications' monopoly, permitting alternative equipment and service suppliers, and privatising BT.

To back this policy, it commissioned Martin Beesley to provide a viable economic argument.

On 15 April 1981 industry minister Sir Keith Joseph told Parliament that Beesley had reached "radical conclusions about network services" that would "transform the United Kingdom market for telecommunications."

Beesley's main conclusions were that voice and data services were fast becoming integrated, that BT's monopoly on the use of its infrastructure and devices that could attach to the network was incompatible with the government's desire to attract more services and suppliers, and that BT had to be freed from the financial constraints of government budgets.

MPs were concerned that Beesley's plan would result in higher prices of communications services, particularly in remote rural areas. "The amount that BT can invest does not depend on what the taxpayer provides through the government," Sir Keith Joseph told MPs. "The vast bulk of investment comes from depreciation provisions and the rest from retained profits."

To control BT's pricing power the government introduced a regulator, later renamed Ofcom, and a universal service obligation, which required BT to provide a service to whoever asked for it (within reason, and 'reason' included cost of provision).

Political acceptance of most of Beesley's thinking led to the listing of 50.2% of BT shares in 1983. This gave the government a £3.961 billion windfall. Subsequent sales of government shares in 1991 and 1993 saw the government net a further £10 billion. It also gave up the 'Golden Share' that gave it control over who could own BT.

At the same time, BT scientists and engineers were developing technologies based on optical fibres rather than copper wires. In his 1979 PhD thesis, Peter Cochrane, head of BT's future networks R&D, had shown that the technical limitations posed by copper cables would fundamentally limit the coming digital revolution. This prompted BT's then-chairman, Sir George Jefferson, to issue a 'Just Do It' order, and kicked off BT's long lines (core network) digitisation programme, extending fibre down to all local switches.

In the years that followed, the transformation of BT's operations and services by digital transmission and

switching was radical, and the constraints of the copper local loop loomed large. By 1986 Cochrane showed that optical fibre was provably cheaper to install and run than copper networks under all circumstances. "The accumulation of evidence was so overwhelming that there was little discussion; and for the BT chairman and board, that future was a given," Cochrane says.

By 1990 BT had largely replaced all the copper in its 200,000 km long lines network, and was fast converting it to digital operation. This allowed BT to shrink its workforce from 242,000 to 135,000, without forced redundancies or strikes. Such a large transformation in so short a time was radical but well-managed, and paved the way for the extension of fibre in the local loop and customer services.

This meant that the UK was, alongside Japan and the USA, one of three world telecommunications leaders. All three had refined the vision, systems developments, and manufacturing capabilities for the impending local loop roll-out. Beesley's vision seemed within reach, and that liberalisation of the national telecommunications market had worked. Competition was the key.

Curiously, nothing happened. Network operators everywhere claimed, based on up-front costs, that the fibre loop was just too expensive.

Cochrane was more than sceptical of the claimed costs of fibre provision and its future operations. "As I started to look at the problem, I was surprised to find people accounting on a very limited basis," he says. "Not only were their base numbers dubious, the accounting models left a lot to be desired."

Cochrane's analysis went beyond the up-front cost and depreciation models in use to include a more sophisticated model of the total lifetime cost of ownership. He uncovered more than 13 elements that BT's accounting system did not embrace, and these were vital in describing accurately the true financial picture.

They included elements such as a 90 per cent reduction in network failures, improved network resilience, the recovery of copper, lead and plastic, the sale of redundant buildings estimated at 90 per cent of BT's real estate, operational automation, a vast reduction in the 'man-in-van' fleet, energy savings, staffing reductions, rental of empty duct space, dark fibre network provision, ease of upgrade, etc.

All this fell on deaf ears, despite the proof demonstrated in the now-transformed long lines network. "It was as if some form of irrational economics blindness kicked in overnight," Cochrane says. "Globally, it seemed as though a transition from science to a new belief system had occurred with 'don't confuse me with facts' as the new mantra."

Cochrane confirmed the error in BT's financial approach in 2010 when he designed the Jersey Telecom (JT) all-fibre network. The roll-out in 2012 gave Jersey residents a future-proofed network capable of gigabit per second (Gbps) transmission rates. This led to a doubling of JT′s business within five years, and has had a growing impact on the island's overall economy.

The reason for the change in financial thinking is beyond the scope of this article. But as seminal economist Adam Smith noted nearly 300 years ago, a businessman's interest "is always in some respects different from, and even opposite to, that of the public...(They) have generally an interest to deceive and even oppress the public."

Fast forward 30 years: Beesley's vision of a dynamic market in telecommunications services is still just a vision. Charismatic entrepreneur Richard Branson has assembled Virgin Media mostly from bankrupt American cable television firms that had failed in the UK.

The four mobile network operators depend largely on lines leased from BT and Virgin Media, who operate an effective duopoly in telecommunications infrastructure. The services market is moribund, as the incumbents choose to 'sweat their assets'. But people are aware of the (cheaper) communications opportunities offered by the internet, and want more.

Following the banking crisis of 2008, the Labour government is concerned that the UK is falling behind its economic and industrial competitors. It promises high-speed broadband to all, and is thinking about the neglected rural areas. Ofcom proposes a universal interface to allow local and rural network operators to access the BT infrastructure for backhaul. The idea is quickly buried.

In 2009 the government publishes the Digital Britain report, which promises universal access to 2 Mbps by 2012, and higher speeds to two-thirds of the country using fibre to the cabinet. In 2010 Ofcom pushes for 24 Mbps as the lower limit of 'superfast broadband'. With the 2010 election looming, Labour confirms the 2 Mbps for all promise; the Tories promise 100 Mbps to most, but not all.

In April 2011 the Tory/LibDem coalition government proposes to spend GBP1.4 billion (about 60% of it from European sources) to extend fibre to homes across the UK, but particularly to rural areas. It welcomes plans by Fujitsu, along with Virgin Media and Talk-Talk, to build a 1000 Mbps fibre to the home network, mostly in rural areas. It sets up a quango, Broadband Delivery UK (BDUK), under the Culture Secretary, to oversee a network suppliers' auction and to monitor subsequent delivery. It decides that county councils will work with BDUK to set budgets and to commission the actual work from the suppliers.

BT wins every BDUK contract. It subsequently spends £1.2 billion on an abortive attempt to compete with Sky in streaming live sports.

BT's effective policy is to avoid capital expenditure as far as possible while defending its monopoly where it can. Underpinned by BDUK money, it extends its fibre network to street cabinets, mostly in cities and towns where it competes with Virgin Media, and charges exorbitant prices for fibre to the home. It campaigns to promise broadband services to rural communities, to research demand, and to demoralise would-be competitors.

It becomes obvious that, in practice, rural businesses, farms and homes are largely ignored, except where local competition threatens BT.

The countryside, and indeed parts of cities, remain broadband deserts, except for the communities covered by B4RN and a few very small local network operators. By January 2021, fewer than 10% of Cumbria's 272,000 premises can get a fibre connection.

On 1 April 2022 the government announces Project Gigabit, "a £5 billion programme to enable hard-to-reach communities to access gigabit-capable broadband."

In December 2022 BDUK awards a £108 million contract to a Northern Ireland network builder to connect 59,000 Cumbrian homes. The announcement carries a warning: "Please note the premises to be reached by the contract is subject to change following detailed planning by the supplier or due to technical reasons during the lifetime of the contract."

Meanwhile, B4RN customers celebrate the 10th anniversary of their 1000 Mbps service.

A valley that changed communities and lives

By Professor Peter Cochrane, OBE, DSc

Some 15 years ago farming communities across the UK were paralysed by a government decision to go digital for all documentation. Unfortunately, the farming communities were isolated with very poor, or non-existent, broadband. None of the established service providers would address this problem as they thought it was not economically viable.

So Chris, a Cumbrian farmer, and the Wennet team (who had built a wireless network) stepped forward to address the problem. With no technical expertise, industrial experience, or concept of the magnitude of what they were about to undertake, they assumed a DIY solution was possible. With advice from a very few industry experts, and especially Lindsey Annison, they fashioned an embryonic B4RN vision and started digging. They were soon joined by industry expert Barry Forde, and with his technical vision the rest is now history!

At the time, optical fibre technology was seen as esoteric, requiring high levels of training, manual dexterity and deep expertise. So farmers and their wives seemed a very unlikely workforce for a new venture. But Chris overturned these misconceptions; she defeated every practical challenge with a community team spanning teenagers to pensioners.

After the first farm was connected, the vision and span rapidly expanded to embrace whole communities. And so, one village at a time, B4RN entered the DIY broadband catalogue of successes.

In a nutshell, the culture that the B4RN team created was simply

'If you want broadband to your farm or village—start digging.'

Against all the odds, this approach became infectious, and rapidly spread from village to village. Local government, the telecoms industry, and the regulator Ofcom, were not exactly overjoyed or particularly helpful; after all B4RN was not even a limited company. So problems born of officialdom came thick and fast, but the ingenuity and drive of Chris, Lindsey, and Barry to 'Just Do It' saw road, river, and bridge crossings—among many other obstacles— overcome.

As an industry expert at the time, I was on the sidelines proffering advice and 'how to' details now and again. On a site visit I was immediately impressed by the quality of the work, the capability of the team, and the world-class broadband service they had established in their first community.

At that time, I could not have guessed how quickly B4RN would grow, and what it would become over the following years. I will never forget a whole day spent with the B4RN team, and a tour of the area. Chris's pride in the team and what they had achieved was palpable, and so was her joy. We had a coffe- and-connect session in the local tea rooms—the only one on the planet providing 1 Gbps connectivity. The coffee was good too! Chris awarded me one of the famous 'Lindsey spades' for my contributions to the project.

Peter is awarded his MBE spade.

Jane and Peter enjoying the service at Wray Tea Rooms.

Today, it would be easy to say it was an obvious opportunity and it was only a matter of getting people together, teaching them what to do, and the rest is a given. But that would be a gross understatement of the achievement. As an industry leader, I fully appreciate what it actually takes to create success against all the odds that B4RN faced. Without a galvanised and capable team, and the leadership and skills of Barry and his management team, it would never have happened.

For me, the most remarkable aspects of the B4RN creation are the early collaboration of two experts (Barry and Lindsey) and the sheer drive of a farmer (Chris) and her steely determination. Unless you've done something like this, there is no way you can fully appreciate the hard work, the hours spent, and the endless problems overcome.

During my life, I have come to respect many groups of people, but especially farmers, because they don't take, and will not be discouraged, by BS.

Today B4RN serves communities from Northumberland to Norfolk and Surrey and brings world-class broadband to thousands of customers that no other supplier considers worthwhile. Only 15 years ago the industry scoffed at the B4RN vision, and no-one foresaw the outcome. And it all started with the frustration of just one small corner of Lancashire and the people of grit.

As a friend, colleague and admirer of all that B4RN has done and achieved, I can salute you as champions of broadband, workers of miracles, and changers of lives!

What you have achieved is so impressive, and so - very well done to you all.

Waking the dragon

By Lloyd Felton, County Broadband

My own interests in trying to address what we were already recognising as 'the digital divide' started in 2003, when frustration at lack of connectivity in East Anglia led me to try and find a solution to the problem.

After playing with some early fixed wireless technology, we built some small wireless networks in two villages that we managed to link to local exchanges via simple ADSL lines.

We soon realised we were onto something, and it became obvious that delivering broadband was not something we were going to be able to continue to do as a hobby. There was a demand, and we (the collective 'we' from across the country) wanted to provide a solution.

My own answer was to form a company, County Broadband Limited, and to embark on a community engagement campaign. At the time, this was as much about educating people as to why they were going to need faster broadband in the coming years, as it was about showing them how we could deliver it today.

What I didn't know in those very early years, was that there was a handful of people around the country who were all committed to the same ideal. Some, like me, were doing community projects, built on a commercial model and personal equity investment, while others, such as B4RN, were championing an entirely community-centric proposition.

For a long time, we carried on independently, oblivious to one another. But slowly we learned of different projects in different parts of the country, and of an organisation that had formed called the Community Broadband Network (CBN) which began to put on events where we could meet like-minded people with shared ambitions.

Lindsey Annison arranged many of these events and we all inspired each other. This group later became INCA (Independent Networks Cooperative) and put on their own events.

As the movement for faster broadband grew over the next few years, we, the 'alternative network' pioneers, were trying to raise community support for our own rural projects, funded either with our own funds, as in my case in the early years—or with the funds of whole communities, as in the case of B4RN.

In response, BT began to build 'island projects' right in the middle of where altnets were building. Meanwhile, at the same time, BT was telling the government it could not afford to build in areas of far greater populations and density than was the case with the altnets, and required subsidies.

It soon became clear to many of us that we had 'woken the dragon', and BT was beginning to mobilise a tactical response unit to stop us, the altnets, from gaining a foothold.

So it was, we were to become brothers (and sisters) in arms, bonded by a belief in what we were doing, and in the mistrust many of us felt for BT. As the incumbent provider, BT had scores of lawyers and lobbyists who were well-skilled in dealing with a government that was naïve to the technology and ignorant as to the demand about to sweep the county. BT's seductive pitch was that the only safe decision was to give all the

Lindsey Annison and Lloyd Felton, chatting with David Isenbergh, an American broadband campaigner, and a pigeon.

government's subsidy money to it, a former government-owned company that still operated under the name of British Telecommunications.

However, it was only on 17th September 2010 that I really got to spend some time with B4RN. This was a day before a major conference in Rheged, Penrith, in the middle of Cumbria, on rural broadband that had been organised by Rory Stewart, the MP for Cumbria at that time. Present were myself, Chris from B4RN, Lindsey Annison, who was equally fanatical about broadband, and David S. Isenberg, a community and net neutral advocate from Michigan, USA.

This is also the first time I got to meet Ed Vaizey MP, minister for broadband, and Bill Murphy, managing director, Next Generation Access, BT Group. Most of us in the altnet sector would agree, it was Bill who was responsible for driving BT's strategy. He did a good job.

On the whole, the government bought BT's story, and when it launched its first 'Superfast Broadband' nationwide subsidy programme, it was BT that got nearly every taxpayer penny that went into it. Somehow, BT persuaded UK government that the altnets were not credible suppliers, and that creating competition in the sector was not in the best interests of the public.

Some 13 years later, that same altnet sector has attracted more than £20 billion pounds worth of investment to meet demand. This is more than the combined value of all the money invested by BT from subsidies and retained profits.

B4RN was the first altnet to rely purely on its own resources to build fibre networks. Indeed, it had no choice. But its genius was to build the network of the people, by the people, for the people.

As such, it played a crucial part in the birth of the altnet sector, and the sizeable investment in the UK it would later bring.

The hostile environment

By Philip Virgo

Author of Cashing in on the Chips (1979) and campaigner on digital and communications policy ever since.

"It's just a wide area network in a hostile environment. And the most hostile part of the environment is the politics."

I have never forgotten Barry Forde's pithy summary of why every vested interest in the communications world wanted B4RN to go away or fail.

By showing that community volunteers could be trained within days to work to international standards, using equipment and materials loaned by suppliers (thus threatening technical and professional skills hierarchies), through bypassing the lucrative wayleave industry and the even more lucrative central government planning and procurement industry to deliver robust, reliable, unsubidised, quality of service at a fraction of the cost of anyone else, B4RN was an embarrassment to the Establishment. It had to be made to go away.

I was a pupil of Michael Beesley at London Business School in the 1970s and was the Conservative advisor on IT and telecoms policy for the 1983 general election.

At the time my brother, Neil Virgo, was a countryside officer in Cumbria, and we talked of using telecoms to bring jobs to the countryside without spoiling the landscape. He was out camping the night the Chernobyl fallout came down and–long story short–is buried in Lazenby churchyard looking towards the fells.

But I was still campaigning for radical change in how communications networks are built when Cumbria's then-MP Rory Stewart brought communications minister Ed Vaizey and the Obama advisors to the Rheged Conference in September, 2010, to explain on how to bring broadband to remote areas. All those fertile words fell on stony ground, and the conference has been airbrushed out of history.

The Westminster civil servants persuaded the minister that local government could not be trusted to deliver consistent quality of service and value for money. They then proceeded to waste years and billions of pounds to prove only that central government can be trusted to waste years and billions of pounds before delivering anything at all.

Meanwhile B4RN went ahead.

It demonstrated what can be done for a fraction of the money that HM Government eventually spent to bribe BT to do what it had postponed after being nearly bankrupted by local loop unbundling.

The other achievement of B4RN, possibly its most politically relevant, is to demonstrate that community self-help can deliver more appropriate solutions more reliably and consistently than central government, of whatever hue.

And then you win

By Lindsey Annison, third co-founder of B4RN

The story of B4RN isn't simply about the many people who have joined our ranks over the years—from our first shareholder, Walter Willcox, onwards. It isn't about geography, geology, rural and remote—all of which our incredible team has overcome. It isn't about technology—fibre optics are well-understood and proven. It includes politics. And some phenomenal connections amongst people world-wide trying to achieve one thing—connectivity and ubiquitous comms.

When I first sought a broadband connection (around 1995, as a single mum recently returned to the UK with 2 small kids), I had no idea how entrenched in political matters I would end up. So much so that not only did I end up a regular in St Stephens Tavern opposite the Palace of Westminster, in Russell Square with the Broadband Stakeholder Group, speaking at events, visiting Number 10, Houses of Parliament, Portcullis House etc, and more, but I also became a parish councillor, simply to state the case for rural broadband on my own doorstep.

I also organised the first ever broadband conferences in Great Britain (Barry Forde was my first ever keynote speaker), and the conferences continue today under INCA, which basically took over my Digital Dales events company.

The story of B4RN is not, and should not, be my story. However, in telling what I have done, perhaps many of the folk I have had the privilege to meet over the years, many of whom have contributed to B4RN, directly or indirectly, can also be heard.

Recently, I was told that all my political activism was a waste of my life. More than 20 years of it. I beg to differ. Without approaching those in those hallowed halls in London, we would still be stuck in the late 1990s, technologically speaking. Pressure from us yogurt knitters out in t'sticks let us be heard above the lobbyists from the telcos—in particular, the incumbent.

The Campaign for Unmetered Telecoms (CUT), which most people online today have not a clue about, was absolutely integral in paving the way for projects such as Digital Dales, ABC, B4RN and many more.

For me, personally, CUT ended the horror of having a £1600 phone bill for a quarter, all calls to the same number—Dial Pipex. That number gave me access, through a 9.6k US Robotics modem, to 't'interweb'. Its audible handshake routine still makes me break into a cold sweat, as do many others who lived through dial-up debt.

FRIACO (Flat Rate Internet Access Call Origination) changed the lives of the early adopters of the internet for the good. Erol Ziya, John Wilson, Charlie Sands, and all the others should have received medals for their work,

What did FRIACO mean for us early adopters? Instead of paying per call, at xp per minute, we paid a flat rate each month. Suddenly, it wasn't just the geeks and those with research budgets in academia who could get online. Everybody could.

I was there, clutching my 72-page phone bills in the bank manager's office in the Yorkshire Dales, scared rigid, when FRIACO came into being. Not just in Britain, but across Europe. Game changer.

Then, one time in London, I was lucky enough to meet a few of those behind CUT and Consume, several of whom joined forces with me to fight the next battle—ubiquitous, affordable, broadband access for all. We called it the Access to Broadband Campaign (ABC), and Digital Dales, based in Wensleydale, was the event arm of that campaign.

The CUT folk remain, for me and others who were dependent on the Net in the mid 90s, and for all of you now who cannot imagine life without access to the internet—some of the greatest unsung heroes of the last 40+ years. Most people who use the internet now will not have heard of CUT or FRIACO or Erol or ABC etc. You should thank them anyway.

Without FRIACO, the vast majority of you could not afford to be online today. These folk were on BBC News regularly, fighting for unlimited access, before most of the world had even heard the sound of a modem trying to dial in: then they went back to mopping floors in cafes in Shepherd's Bush, or to Arwain in Wales, and their day jobs.

The other winning part of the formula was when 2.4Ghz was made licence-free. This made wifi available to all (all of the community and mesh broadband networks, for starters) trying to build with affordable kit, such as re-purposed old computers running LocustWorld etc. software, probably written by a kid in a bedroom, whom you have also probably never heard about, especially when you call fibre optic broadband wi-fi!

Accessible, affordable and ubiquitous. That was the slogan for the Access to Broadband Campaign, which came after CUT, and as I was fighting for rural broadband. Joining forces with a group that already had several hardcore political wins under its belt made it all somewhat easier. There is some comfort in numbers, but not much when you are up against shiny-shoed lobbyists in suits that cost more than you earn in a year. And civil servants and MPs who can only read an email once their secretary has printed it out. Often, it is deeply frustrating. Sigh.

Anyway, some of the tactics we used to undermine these overpaid, morally-destitute and predatory lobbyists shall stay private; I think we will need them again for current and future issues, even 25 years later.

ABC built upon the work I had started with Digital Dales, trying to educate people about broadband and the internet in rural areas.

I was very lucky to be given a loan by a canny bank manager in the Yorkshire Dales, who had never heard of the internet and couldn't get his head round why I only ever phoned one number. He asked me to explain the whole online thing to him, prior to giving me a loan, and absolutely nailed how I could pay him and his bank back when I explained how difficult it was to find anything online.

At that time, domain names were very new. Barely anybody had one and they were ridiculously expensive. To find information back then, you had to know the IP address of the website that held it. For instance, one of the BBC.co.uk addresses was 151.101.192.81. Without those numbers, you could not access the BBC online information.

The door to my office, which doubled as a noticeboard, held row after row of IP addresses. These are all numbers and quite hard for most people to memorise. The World Wide Web launched only in 1993, and Google did not exist until 1998. However, my door made a really good search engine in the 90s.

We all lived on Internet Relay Chat (IRC), and bulletin boards, all accessed through IP addresses. Everything was text-based because there was no bandwidth to share more than ASCII art and emoticons. But people around the world were desperate for something better—a chance to talk, share video, innovate, to try more. We could see the future, but it seemed unreachable to many of us.

In USA, you didn't have £1600 phone bills. Local calls were free. You could ring a local number from your modem. Internet Service Providers were based locally and calls were free, not a paid national call rate per second or minute as, in most of Europe. No 72- page phone bills to your ISP in the USA!

The UK was falling behind, rapidly, in a key growth sector, and the difference between USA and Europe etc was beginning to look stark. Europe adopted CUT's proposal for FRIACO under much duress. But, it was brilliantly proposed and proved a no-brainer for adoption—the telcos caved. Europe began to adopt t'interweb. (BT alone threw over £30 million in one campaign to teach Brits the word 'broadband'.)

I salute everybody involved in CUT to this day. You should, too. It changed the entire face of the internet, globally. And led to projects such as B4RN, which simply would not have been possible without FRIACO. It was, and shall always be, the 20th/21st century equivalent of the Penny Post, which allowed everybody and anybody, however poor, wherever they lived, to send a letter for 1d...a penny.

B4RN is doing the network equivalent by giving everybody a gigabit symmetrical (upload and download) internet connection for £30 a month.

Once FRIACO was implemented, the reduction in the number of pages in my phone bill brought me money and time to pursue a T1 line, which theoretically gave me 1.5 Mbps. In Europe, this doesn't exist, and in UK, it is more commonly known as a leased line. I rang BT for a quote. £27,000. A year.

I was trying to set up an internet marketing business to pay back my lovely bank manager for bailing me out of those quarterly four figure BT bills. Nobody should have had to pay so much to access the internet. Ever. That had to come to an end.

Many of us upped our activism once BT showed its hand on that lunacy by conceding on FRIACO.

After the first City of London event, the Community Broadband Network, funded mainly by communications minister Stephen Timms and the Department of Trade & Industry, came into being. I was the CEO (Community Engagement Officer) for CBN, and ran the forums, designed the website, organised events, and brought together over 50 community broadband projects across the UK and beyond.

We built community networks in our own villages; see Wennet, Edenfaster, 10 and you are there, Pateley Bridge, South Witham and many, many more. BT tried to stop us, often in ways that defended its monopoly rather than showing a desire to service its customers.

When sailing one time, I was introduced to this idea: when you have one person trying to JFDI, you have a power of 1. Two people, a power of 2^ (squared) so a power of 4. Three people is 3^ = a power of 9.

This is the network effect first popularised by Ethernet inventor Bob Metcalfe, and which has driven the growth of the internet. Bob said the value of the network is proportional to the square of its members, while the cost is the direct cost of building it. I believe over 2000 people have now been involved in B4RN. That means 2000^. That means, B4RN has a power of 4 million now. Unbelievable and amazing! Also not to be trifled with, one feels.

With that in mind, we adopted four letters: JFDI. And so we did!

For over two decades, I fought for the very people who have become involved in B4RN over this last decade or more. This includes suppliers who have benefited from B4RN's growth eg Emtelle. The strategy was to meet up, share ideas, gather forces against the 'baddies', lobby those in London who seemed utterly clueless about the demand (and the internet!), and bring together the stakeholders in corporate, community and politics to talk and solve problems.

I organised conferences despite nobody else seeing how very important the internet would be. I set up all-hands colloquia when folk in Whitehall and Westminster could not grasp that attendance could NOT be inclusive if the cost of a one-day event was more than a monthly wage for many. I organised events from Heathrow Hilton (thank you, Cisco, childhood friend!) to Aviemore (thank you, Struan Ski School!) to Ropemakers Walk in the City of London (thank you, Simmons and Simmons) to Dumfries and Galloway, to Lincolnshire, Harrogate, Catterick, Derbyshire, Wray, Oxon and more.

We often had a pub lunch paid for by sponsors, but I often paid for train tickets and accommodation for attendees, just so that we had all stakeholders present, however skint. My accountant was pulling his hair out—"What are you doing?" he shouted at me regularly.

I doorstepped many politicians and civil servants in Portcullis House and in Whitehall, even though I lived in Cumbria. And I printed (or rather, ironed on in those weird trouser presses in hotel rooms!) t-shirts with slogans such as "Rural broadband may contain nuts and fibre" and wore them shamelessly/proudly at national events.

The CEOs of the likes of Telewest, VM, Hughes, Geo, Vtesse, even BT, made time to see and speak to me. On one notable occasion, a fibre network operator persuaded me into a sewer below the London Olympics.

Did I waste my time? I don't believe so. I think all of the above factors helped to change how many people saw the internet and broadband, and especially B4RN. I believe many either did not like change, or were afraid of it, or could not believe that information technology and the internet were going to revolutionise and disrupt society in the new millennium.

I am also the first to question, looking at the dross being pumped out today in pursuit of a completely surveilled population, whether we did a good thing. Looking at you, Tiktok.

Why did I JFDI? I thought it was better to get people together and communicating because the alternative was

unacceptable. At the time, the UK infrastructure for comms was so dire and so incestuous/controlled by a single entity, that barely anybody could communicate at all. Mobile coverage was pretty poor, and data rates, well...

The movement grew. Why? Because we were speaking the truth. Picking the low-hanging fruit of the urban connections was not going to improve the overall economy; rural areas needed decent broadband even more than urban areas because of the distances involved and the low density of essential services.

We roped in people like Tref at Timico to race a pigeon with a USB data stick strapped to its leg to prove that a pigeon was faster than the clunky BT core network. https://www.ispreview.co.uk/story/2010/09/16/uk-business-isp-timico-challenges-pigeon-to-beat-rural-broadband.html

Chris even showed up at Rheged for a big event about rural broadband and collared communications minister Ed Vaizey as he was having a smoke, to point out that her plastic pigeon had travelled far faster up the M6 from Lancashire to Cumbria than data could at the time. Link to Rheged conference with Lindsey speaking 2010 here

We did what we could to encourage, cajole, educate and beg those in the ivory towers to hear us. When they didn't, we set to. It started with three of us but rapidly grew into what one could call a land army. Armed with tea and cake, and mole ploughs, and gifted miles of fibre, and energy, together we built it.

All those many, many efforts—often seemingly trivial– led to B4RN. I have spoken around the world about it at events, as have many others, and I am unbelievably thankful for the many opportunities to do so, and to see similar projects springing up from all the hard work so many, many people put in.

B4RN is a brilliant example of how efficient, effective and mind-blowing it is to harness those in a community for a common cause. Not just a single community, such as a village, but the wider community, those who share a common need or goal. I mean a community where people have family ties, historic ties, job ties, a feeling of belonging that they cannot even explain, and to honour that by contributing their skills, time and energy to support and build something bigger than themselves, for the general good. 'Community' is such a powerful term, when you consider it.

Our broadband community reaches around the globe. At one event, we were lucky enough to meet the sherpas who built, with the help of Dave Hughes and others, the first wireless mesh network to help those trying to climb Everest. B4RN now has access to people with technical expertise and thoughts of how to overcome difficulties, on pretty much every single aspect of network building, be it economic, technical, political, legal, etc. It is a foolish politician who cannot appreciate the untapped power and passion of those who care about where and how they live!

Then, of course, there have been the moments of bonkers genius like the pigeon, and Twicket (https://en.wikipedia.org/wiki/Twicket), and John Popham's (RIP, dear friend) extraordinary coverage of, passion and imagination for all such things. He is just one of the army who made B4RN (and all the other B4.....s) possible.

Making money isn't the be all and end all. Yes, it helps. However, non-profits don't and never should operate at a loss. B4RN operates as a CBS (CommunityBenefit Society) and all of our profits are ploughed back into

the community we serve, not leached out to distant shareholders, as with most other network operators.

I am so very, very proud of B4RN and the part I played in it. Do I see ways that it could be improved? Of course. But I am no longer really a part of it.

I wish the company all the very best for the future, and I do so hope that others will read this book and understand just what a phenomenon B4RN is, the history of how it came to be, and the potential for similar projects, not just in broadband, but across all aspects of community infrastructure.

People Power is the most extraordinary thing to behold and B4RN shows just how amazing that force can be.

Whatever your community needs, I hope that this book will show that it is truly possible. Tea and #cake helps, but also a rugged determination... and ask for forgiveness later when some stupid bureaucracy "forbids" you for doing the commonsensical and logical thing so...

J.F.D.I.

Thank you

Many thanks to all the contributors to this book. Your communities will go down in history and your efforts will never be forgotten.

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Chris, collector of stories.